CorkSport Performance

CX30-3-287 Lowering Springs

Installation Instructions for the CorkSport Performance Lowering Springs for the 2020+ Mazda CX-30.

Written By: Cody Dunton

INTRODUCTION

In this installation guide we have provided step by step instructions to remove the OEM front and rear springs and install the CorkSport Performance Lowering Springs.

Advisory:

- Working under the vehicle requires a safe and sturdy location for the vehicle to sit on jackstands.
- Spring compressors can be dangerous. Follow the manufacturer's instructions and safety precautions to prevent injury.

TOOLS:

- Hydraulic Jack (1)
- Jack Stand (2)
- Spring Compressors (2)
- 3⁄8" Drive Ratchet (1)
- 1⁄2" Drive Breaker Bar (1)
- 1⁄2" Torque Wrench (1)
- 1⁄2" Impact Gun (if available) (1)
- 3/8" Drive Electric Impact Gun (1)
- 10mm Socket - Deep (1)
- 12mm Socket - Deep (1)
- 14mm Socket - Deep (1)
- 17mm Socket - Deep (1)
- 21mm Socket - Deep (1)
- 32mm Socket (1)
- 5mm Allen Key Socket (1)
- 6mm Allen Key Socket (1)
- Wrench, 14mm (1)
- Small Needle Nose Pliers (1)
- Flathead Screwdriver (1)
- Razor Knife (1)
- WD-40 Lubricant Spray (1)
- Shop Towels/Rags (1)
- Pry Bar (1)
- Small Sledge Hammer (1)
- Safety Glasses (1)
- Gloves (1)
- Wire Cutters (1)
- Blue Threadlocker (1)

PARTS:

- AXO-3-287 Front Spring (2)
- CX30-3-287 Rear Spring (2)

Step 1 — Getting Started

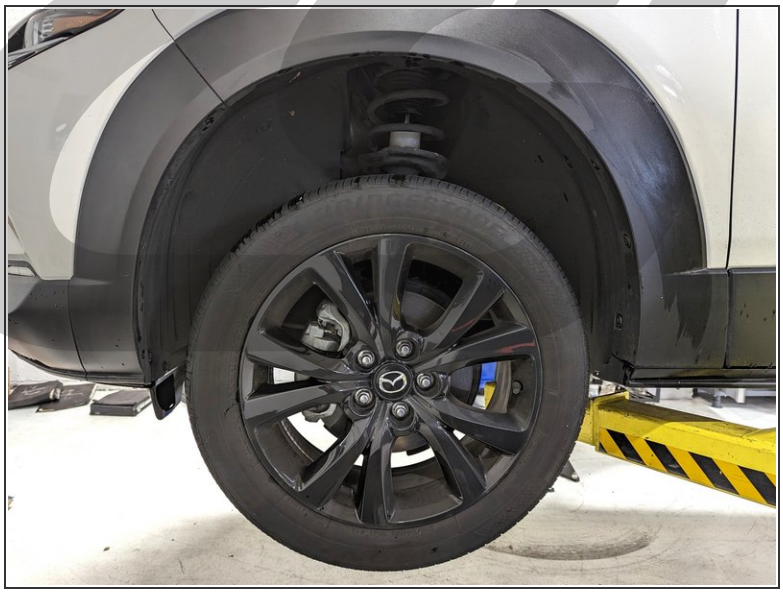
- First and foremost; **THANK YOU** for becoming a part of the CorkSport Family. We hope to bring you the highest level of Parts, Customer Service, & Support

ⓘ How To Use These Instructions

- The instruction format will relate colored marking in the image to the color dot in the text to the right of the image

ⓘ The vehicle used in these instructions was a 2021 Mazda CX-30 AWD Turbo. Other model years will be similar.

Step 2 — Lifting the Car & Removing the Front Wheel

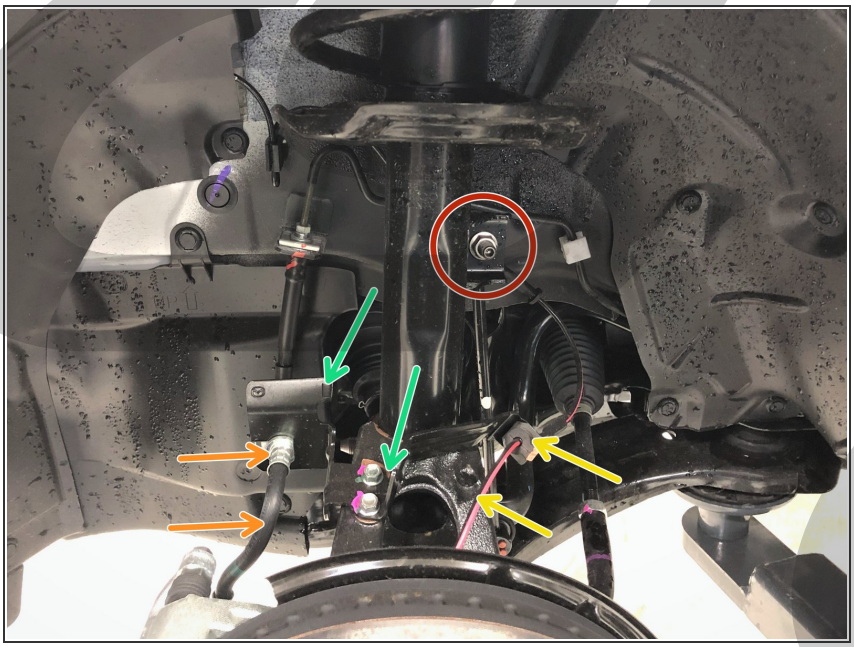


⚠ Ensure the vehicle is parked on a level surface before proceeding.

- Start by lifting up the front of the car using the hydraulic jack and jack stands.
  ⚠ Be sure to reference your owners manual for jack points and the jack manufacturer's instructions for proper practices.
- Remove the left side front wheel from the vehicle using the 1/2" drive breaker bar or impact gun and 17mm or 21mm socket.
  ⓘ 17mm or 21mm lug nuts present depending on year and trim level.

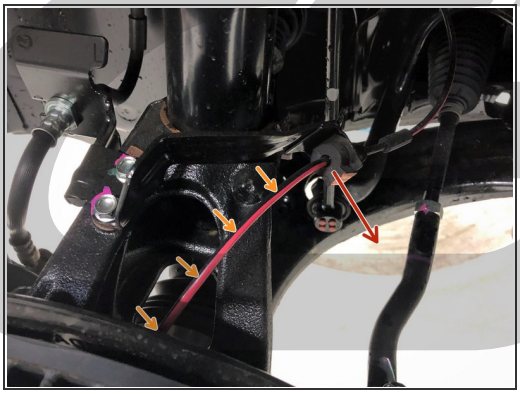
ⓘ A different socket may be required if you have aftermarket or locking lug nuts.

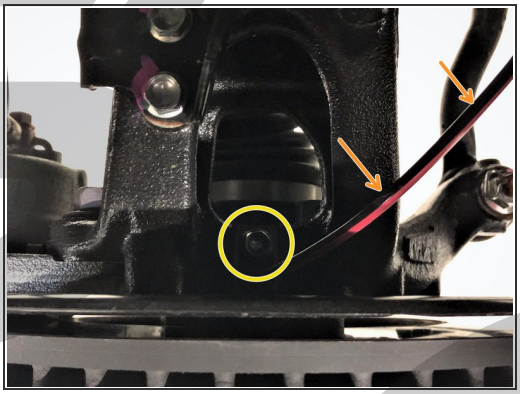
Step 3 — Front Suspension Component Identification

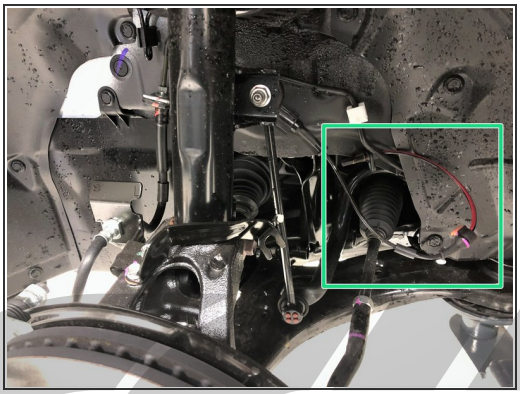


- This image serves as a location reference for components referenced in the following steps.
- Front swaybar endlink.
- Front brake line.
- ABS wiring.
- Front brake line and ABS wiring bracket.

Step 4 — Front Suspension Disassembly Part 1

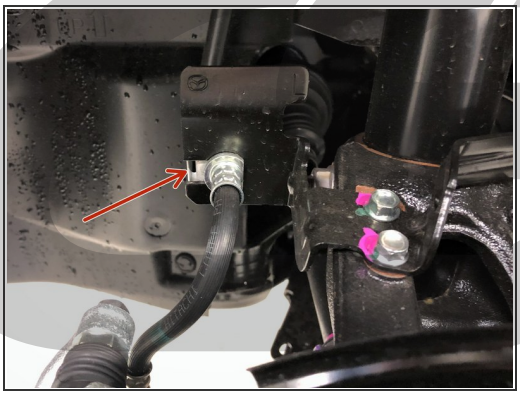
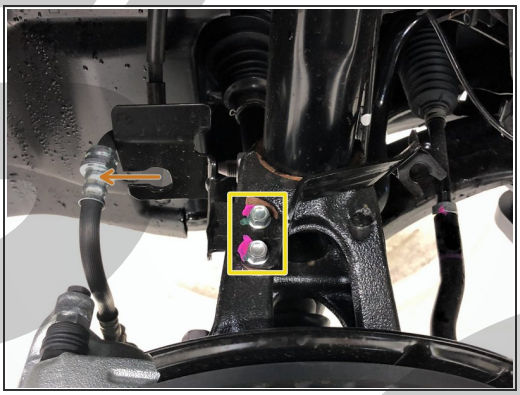
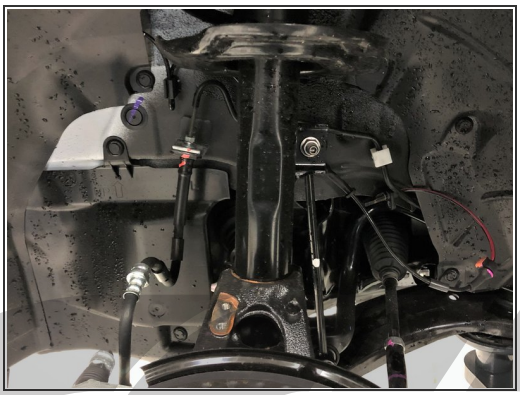






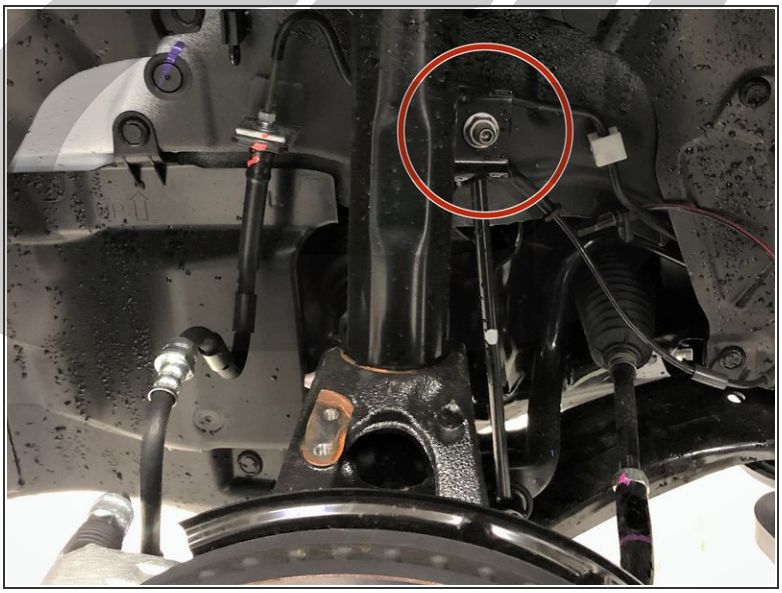
- Locate the ABS wiring.
- Pull the ABS wiring free from the mounting bracket by pulling the rubber grommet in the direction shown.
- Trace the ABS wiring to where the sensor is attached to the knuckle near the back of the brake rotor.
- Using a 10mm socket and ratchet, remove the ABS sensor. Pull it free from the knuckle.
- Move the ABS wiring out of the way as shown.

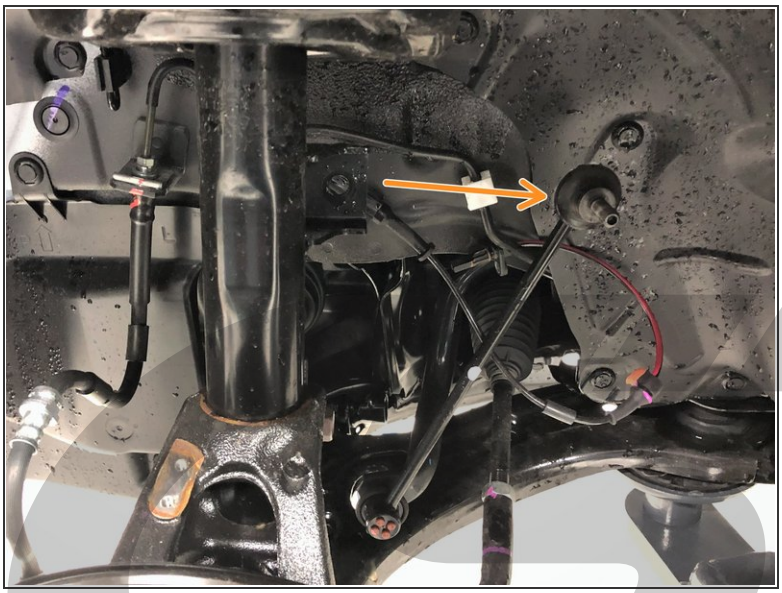
Step 5 — Front Suspension Disassembly Part 2

- Locate the front brake line.
- Using needle nose pliers or flathead screwdriver, remove the silver brake line retainer clip.
- Then free the front brake line from the mounting bracket.
- Locate the front brake line and ABS wiring bracket.
- Remove the front brake line & ABS wiring bracket by removing the two 10mm bolts.

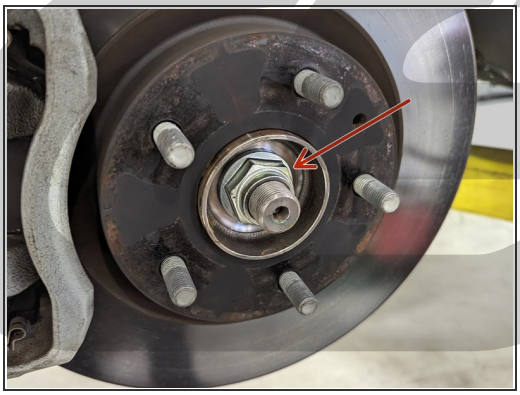
Step 6 — Front Suspension Disassembly Part 3

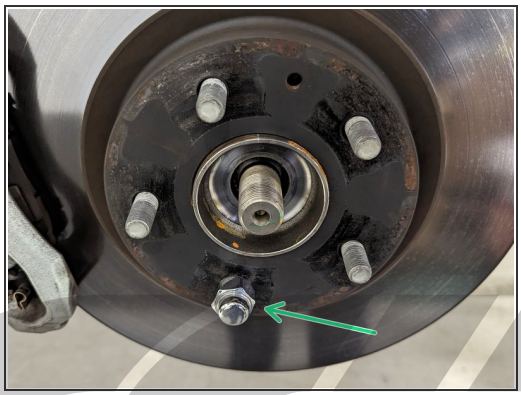




- Locate the front sway bar end link.
- Using a 14mm socket and ratchet, remove the front swaybar end link nut
- ⓘ If the nut is spinning without loosening, use a 5mm Allen key in the center to keep it secure and a 14mm wrench to loosen.
- Push the front swaybar endlink out of the mounting point on the strut and out of the way.

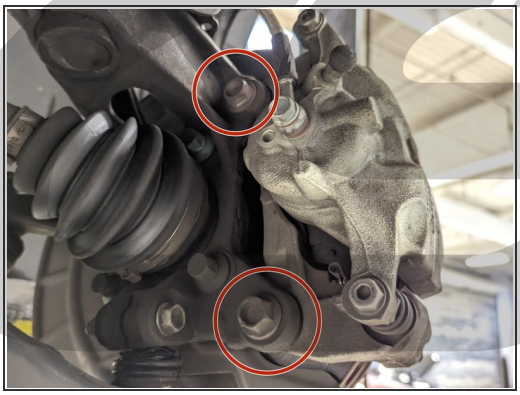
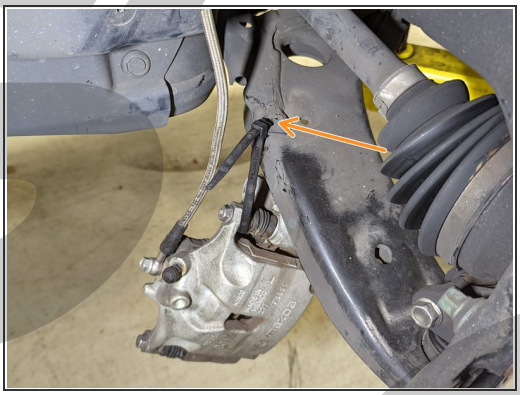
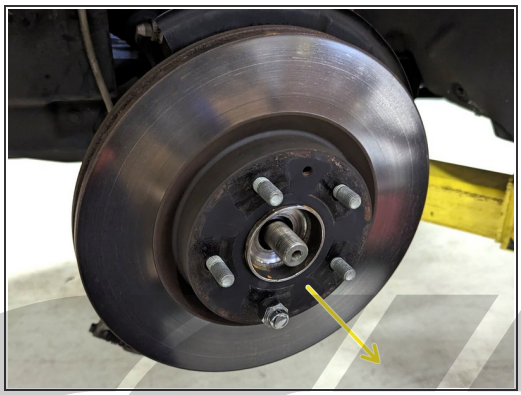
Step 7 — Front Suspension Disassembly Part 4





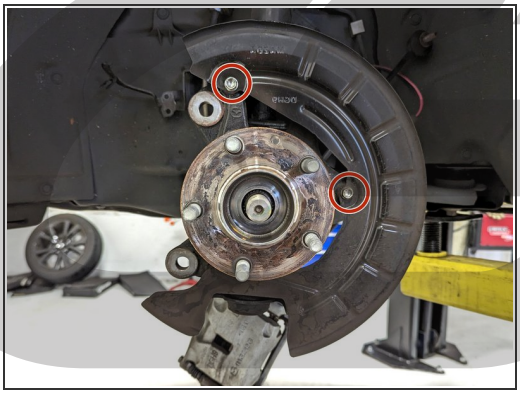
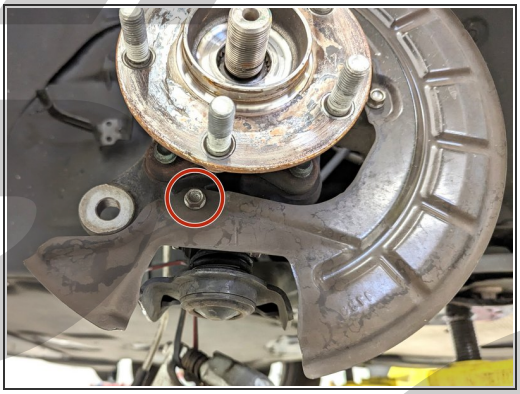
- Have a friend depress the brake pedal and at the same time remove the axle nut using a 32mm or 1-1/4in socket and a breaker bar
- Once the nut is loosened, unthread it until it is just past the end of the threads on the axle and tap the nut with a hammer until you see the axle move independently from the hub
- Now fully remove the axle nut
- Place a lug nut on a stud to hold the rotor in place while removing the caliper in the following steps.

Step 8 — Front Suspension Disassembly Part 5

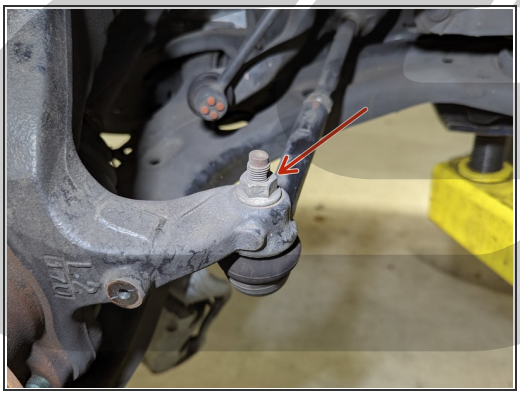
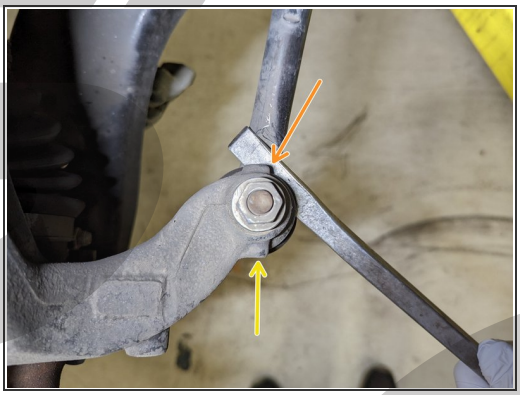
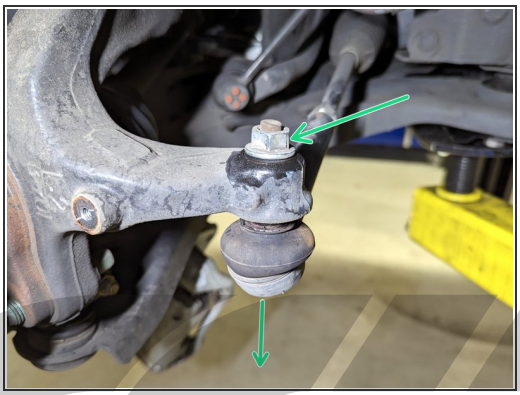
- Remove the two bolts holding the caliper to the hub using a 17mm socket and a breaker bar
  - ⓘ Support the caliper when removing the last bolt
- Secure the caliper to the lower control arm with a zip tie making sure that the brake line is not stretched
- Remove the lug nut and brake rotor from the hub

Step 9 — Front Suspension Disassembly Part 6

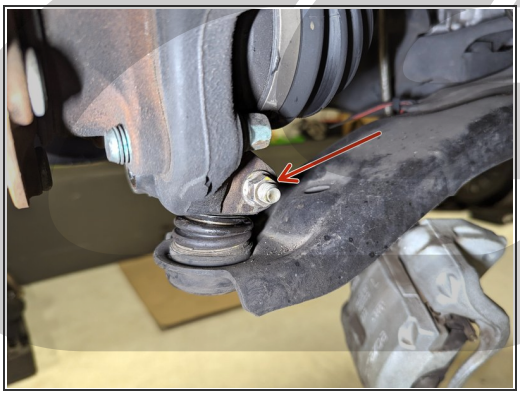
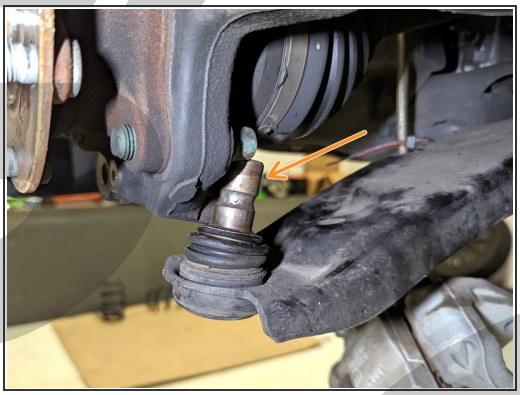
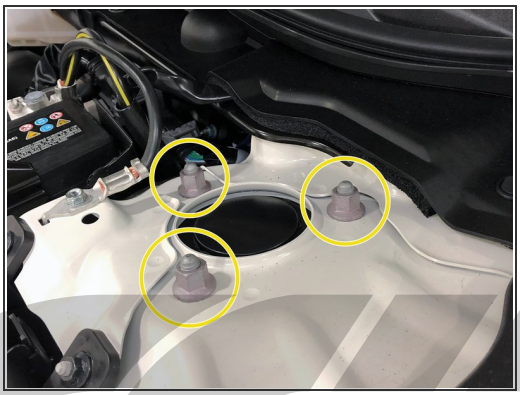

- Remove the backing plate by loosening the three 10mm bolts with a socket and ratchet
- Remove the locking pin that is above the nut on the tie rod end

Step 10 — Front Suspension Disassembly Part 7

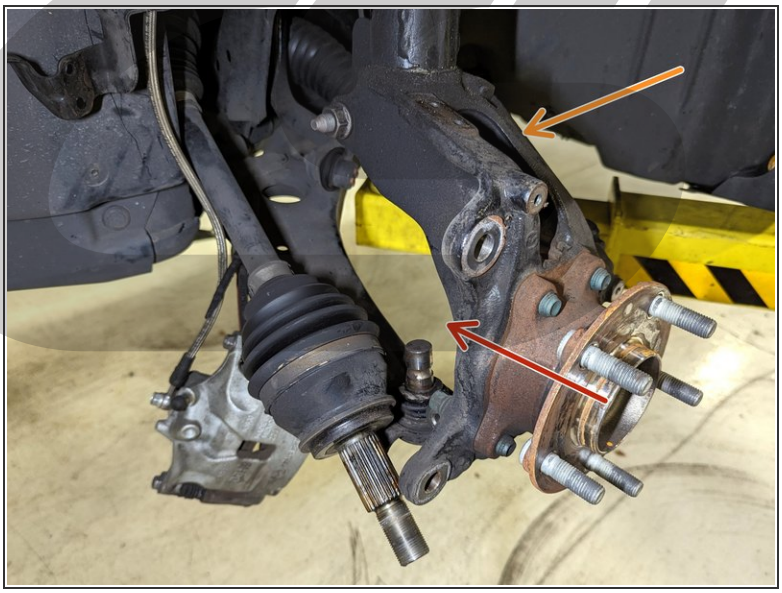
- Loosen the nut on the tie rod using a 17mm socket and ratchet leaving the nut on a few threads
  - ⓘ After the nut is loosened use WD-40 or a penetrating fluid to lubricate where the tie rod end goes into the knuckle, just below the nut
- Using a pry bar, pry down on the tie rod as shown
- Use a hammer and hit the side of the knuckle where the tie rod end is located while keeping pressure on the pry bar to free the tie rod end
- Once the tie rod end pops loose remove the nut and tie rod end from the knuckle

Step 11 — Front Suspension Disassembly Part 8

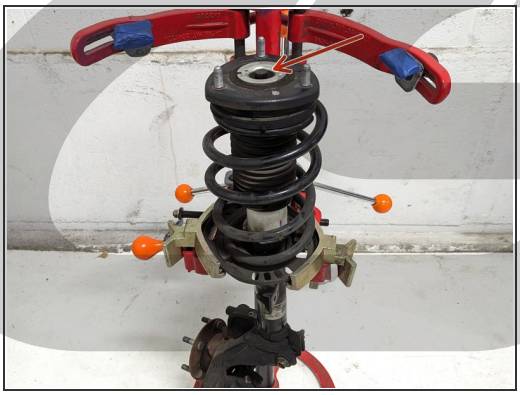
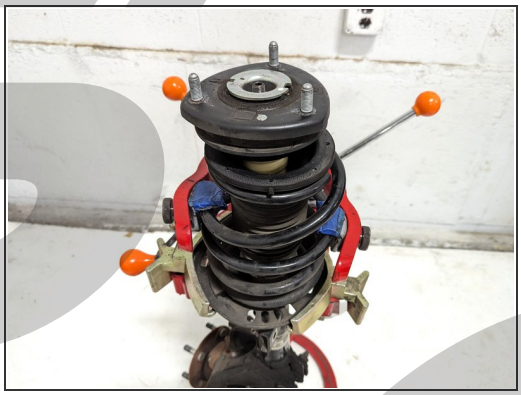
- Remove the bolt and nut holding the lower ball joint to the knuckle using a 14mm socket and ratchet and a 14mm wrench
- Pry down on the lower control arm to remove the ball joint from the knuckle and move the knuckle towards the front of the vehicle as shown
- Open the hood and loosen but do not fully remove the three 14mm nuts holding the front strut to the vehicle

Step 12 — Front Suspension Disassembly Part 9



- While pulling the knuckle outward, push the axle out of the back of the hub and set it to the side of the knuckle as shown.
- Hold the knuckle and strut with one hand so it does not fall during the next step.
  - ⓘ It is recommended to have a friend help with this step
- Completely remove the nuts with the other hand and remove the assembly from the vehicle

Step 13 — Front Strut Disassembly Part 1

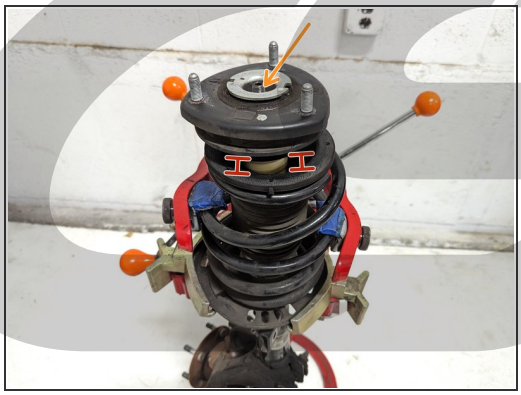



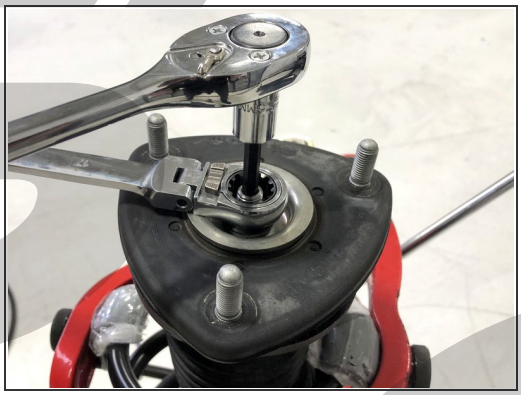

- Remove the black plastic cap from the top of the strut.
- Ready your spring compressors. The second image shows a standalone unit that makes compressing springs easier if done frequently.
- The third image shows more traditional spring compressors.

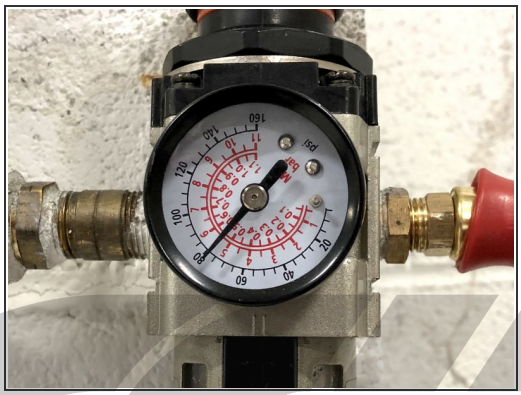
⚠ Spring compressors can be very dangerous if used improperly. Ensure you understand how to use them and are following the manufacturer's recommended practices.

⚠ Use personal safety equipment when using a spring compressor - safety glasses & gloves for example

Step 14 — Front Strut Disassembly Part 2





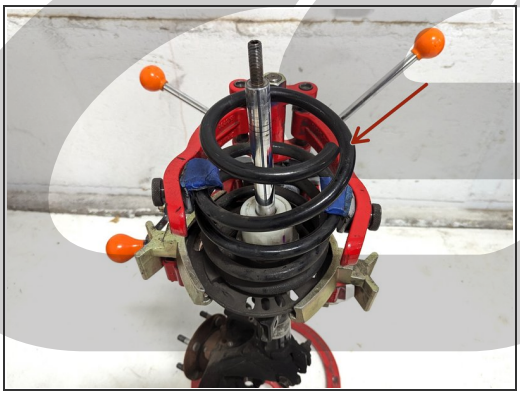


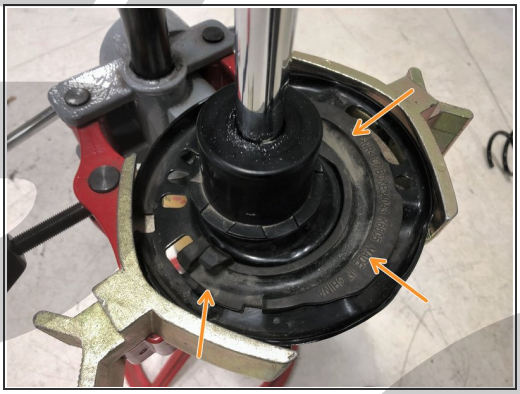
- Compress the spring until the top spring coil is no longer touching the spring top hat.
- Remove the 17mm nut on top of the strut using a 17mm wrench and a 6mm Allen key or socket.

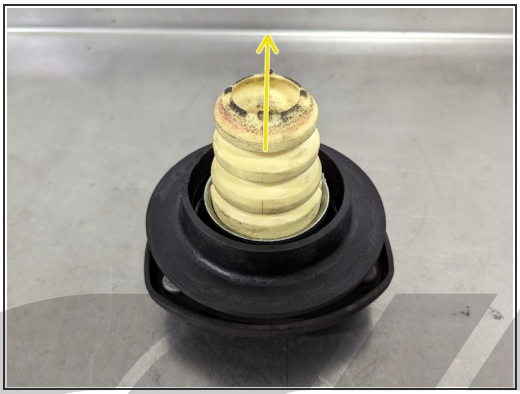
ⓘ If you have an impact gun, you can also use it to remove the strut top nut. Be sure to turn your air pressure down to 60-80psi to prevent damage to the strut.

ⓘ You may need a pass-through socket to remove the nut depending on the tools you have available.

Step 15 — Front Strut Disassembly Part 3

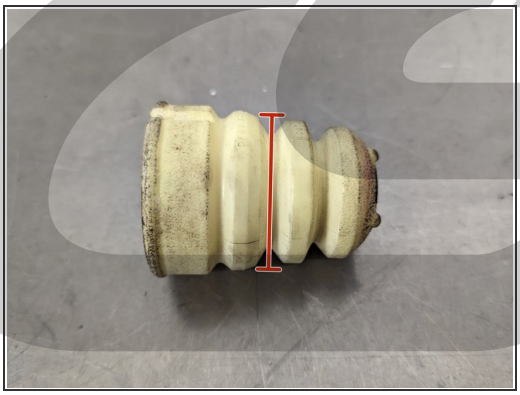
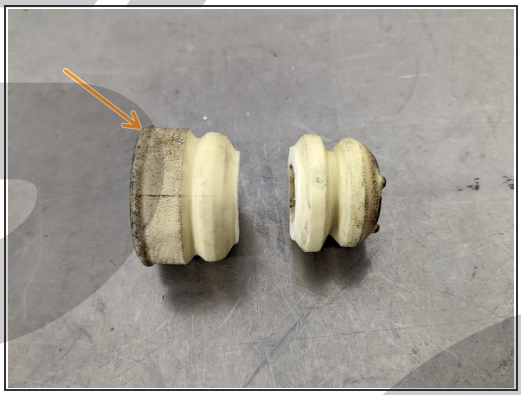
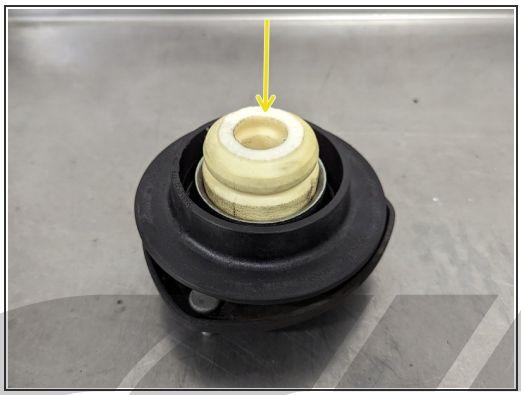






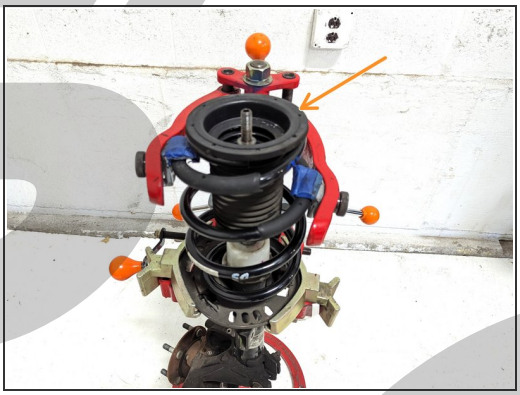
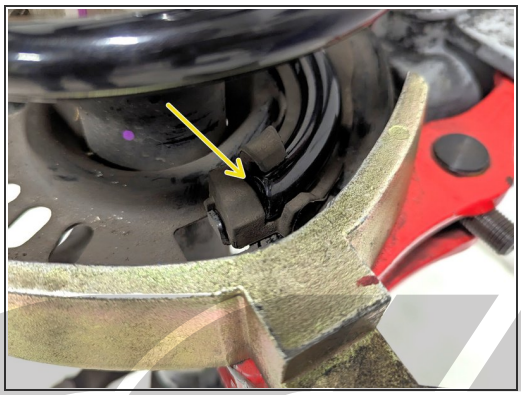
- Remove the spring top hat and dust boot from the front strut.
- Slowly decompress the OEM front spring, then remove the OEM spring from the strut.
- Ensure the OEM lower spring seat remains seated on the strut as shown.
- Separate the dust boot from the spring top hat.
- Pull the bump stop free from the top hat.

Step 16 — Cutting the Front Bump Stop

- In order to deliver the best ride quality, the bump stop must be trimmed. This ensures the same amount of travel before the bump stop is hit at the lower ride height.
- Cut the bump stop in between the second and third bulge as shown.
- Keep the upper half with the two larger bulges, the lower half can be discarded.
- Reinstall the bump stop into the top hat

Step 17 — Front Strut Reassembly Part 1

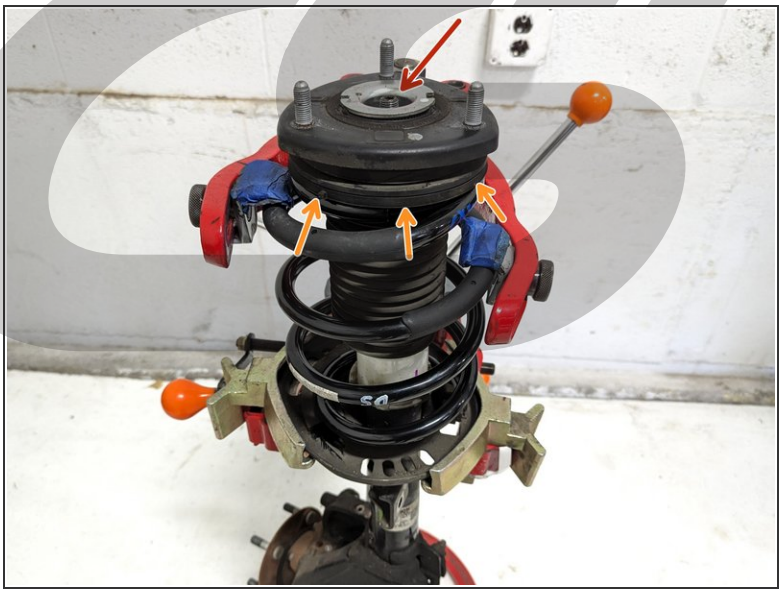




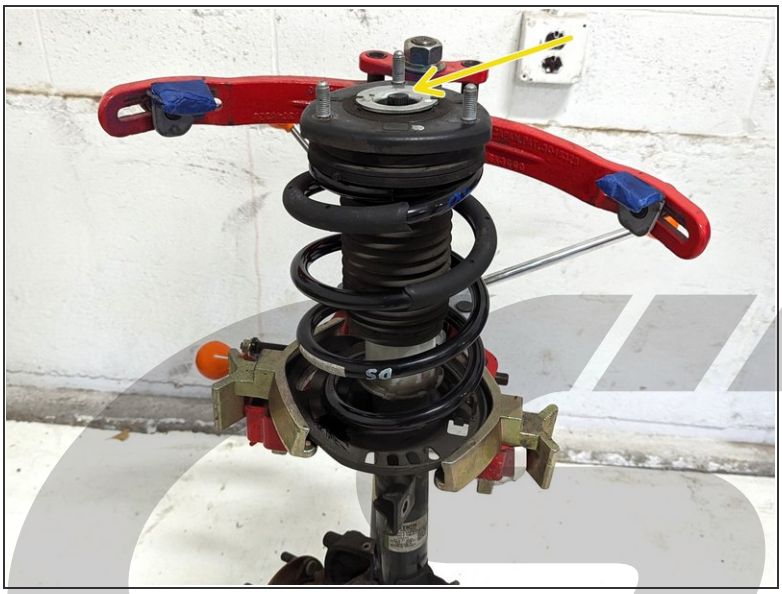
- Locate the bottom of the CS lowering spring as shown.
  - The bottom is the smaller diameter end that is not flat.

  ⚠ There is a sticker labeling the spring for use at CS. These stickers are sometimes placed upside-down. Do not use this sticker to orient the spring.

  ⓘ If desired, the stickers can be removed with the help of some brake parts cleaner or acetone.
- Install the CS front lowering spring onto the OEM front strut along with the spring cushion with dust boot
- Ensure the bottom of the CS lowering spring is fully seated on the OEM lower spring seat as shown in the third image.

Step 18 — Front Strut Reassembly Part 2

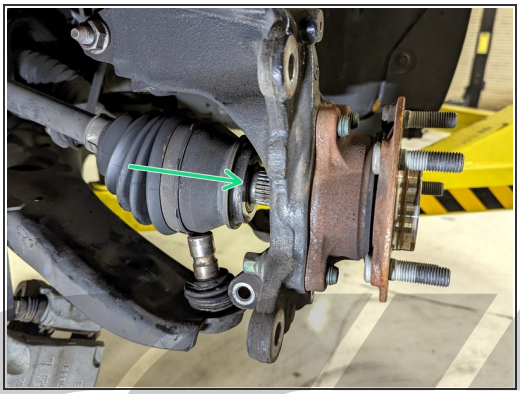




- ⓘ You do not need to use spring compressors with the CorkSport lowering spring.
- Install the spring top hat and hand thread the 17mm nut. Tighten to **52-55ft-lbs.** using the method shown previously
- ⓘ If tightening with an impact gun, ensure the pressure is turned down to about 60-80psi to prevent damage to the strut.
- Check that the top coil of the spring is centered on the top hat and touching all around.
- Reinstall the black plastic cap onto the top of the strut

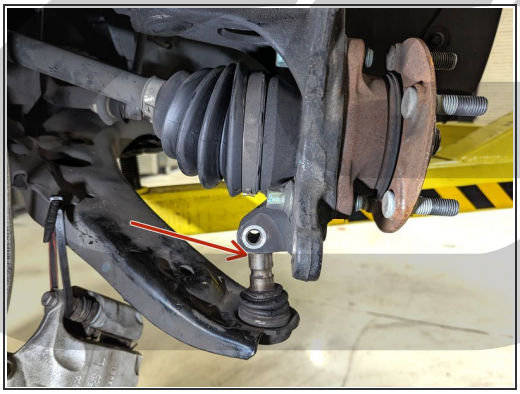
Step 19 — Front Suspension Reassembly Part 1

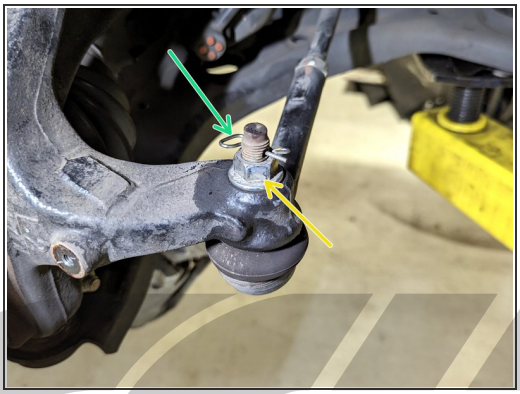




- Lift the assembled strut back into place.
- Look in the fender to align the three top strut mounting studs to the three holes in the shock tower.
- Hold the bottom of the strut with one hand.
- Lightly push the strut through the three holes in the strut tower.
- Use the other hand to loosely tighten the three 14mm nuts
- Slide the axle back into the hub

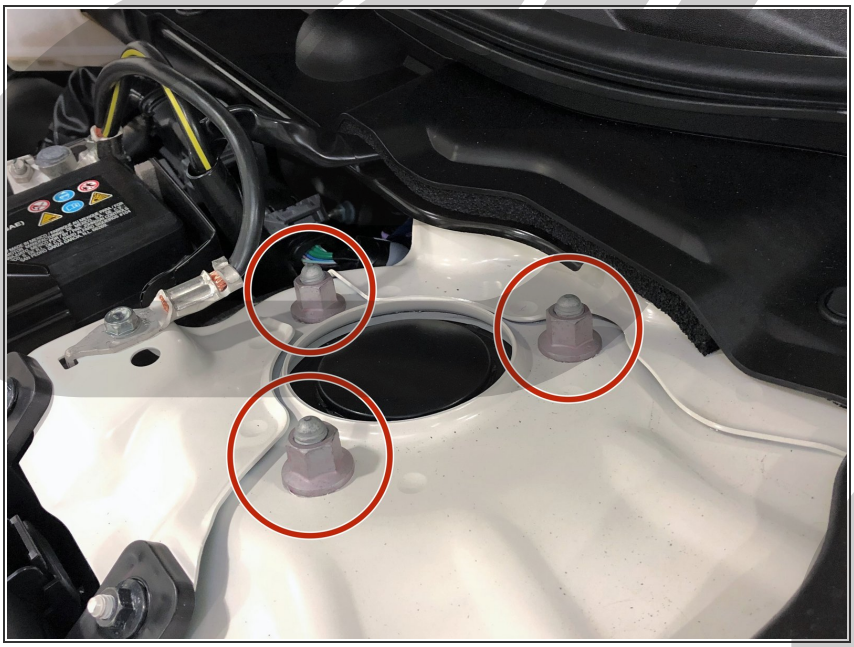
Step 20 — Front Suspension Reassembly Part 2





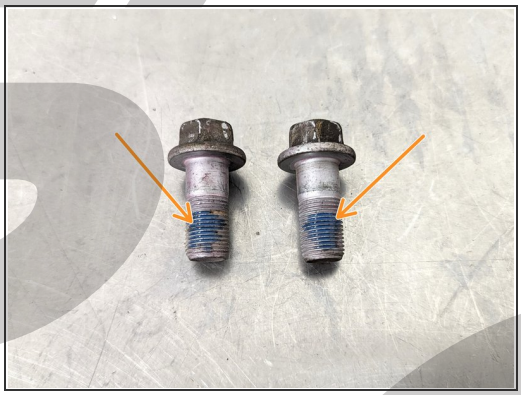
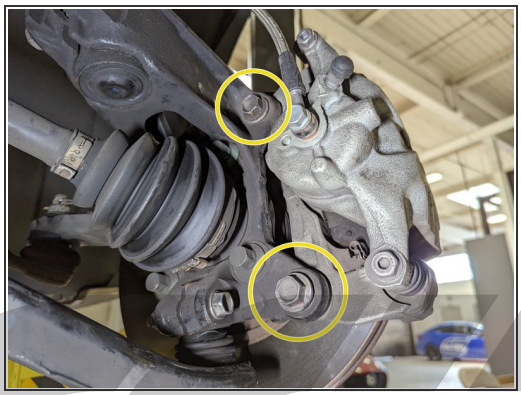
- Pry down on the lower control arm and place the lower ball joint back into the knuckle
- Reinstall the 14mm bolt and nut and torque to **27-31 ft-lbs**
- Reinstall the end of the tie rod into the knuckle and torque the nut to **35-43 ft-lbs**
- Place the locking clip back in the stud

Step 21 — Front Suspension Reassembly Part 3



- Tighten the three upper strut nuts to **37-43 ft-lbs** using a 14mm socket.

Step 22 — Front Suspension Reassembly Part 4

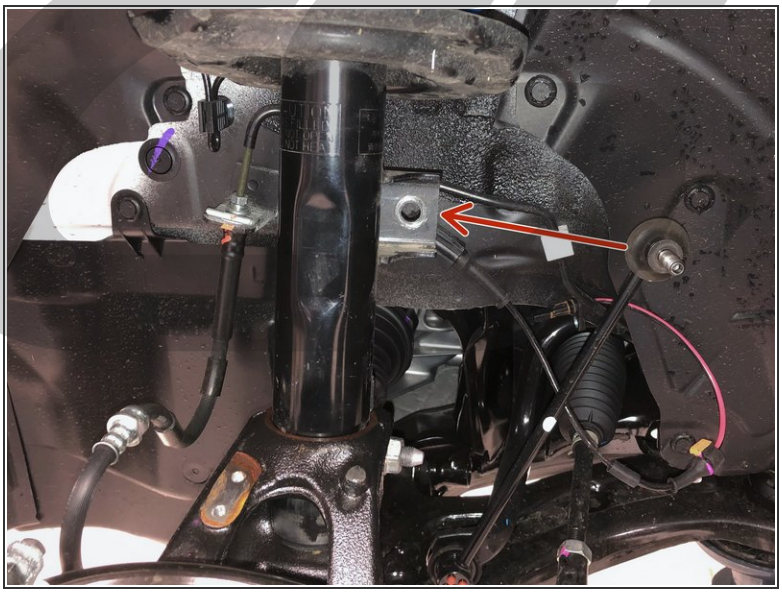




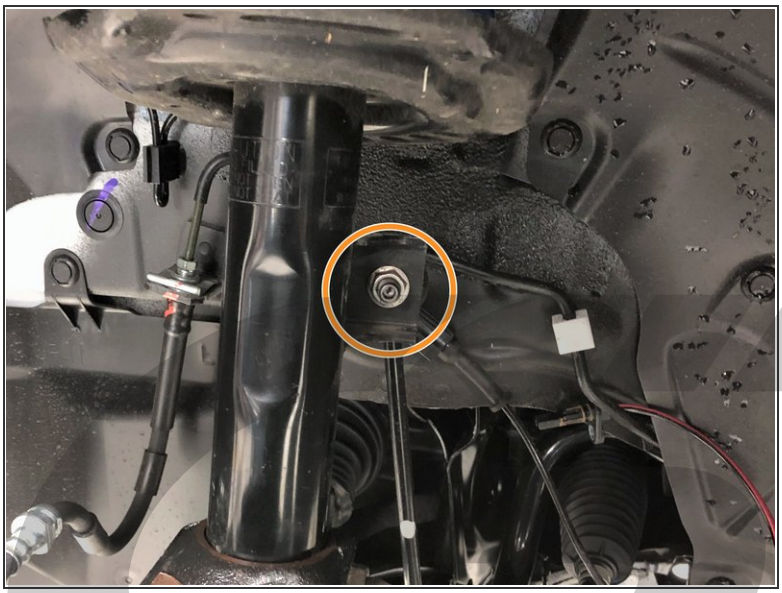
- Place the brake rotor back onto the hub and thread on a lug nut to hold it
- Apply blue threadlocker to the two 17mm caliper bolts
- Detach the caliper from the zip tie and place it back over the rotor. Install the 17mm bolts and torque them to **88-95 ft-lbs**
- Remove the lug nut holding the rotor

Step 23 — Front Suspension Reassembly Part 5

- Place the nut back onto the axle and torque the nut in the following order while a friend is applying pressure to the brake pedal:
  - Torque to **74-110 ft-lbs**
  - Loosen **180 degrees**
  - Torque to **175-202 ft-lbs**

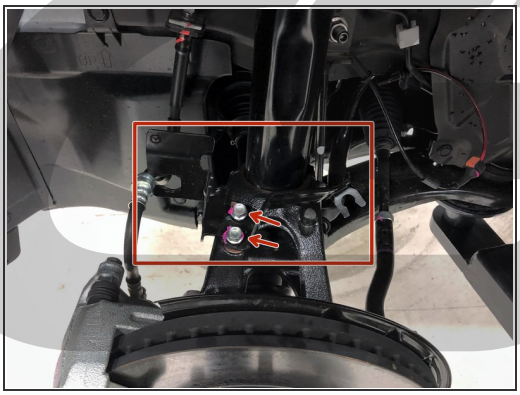
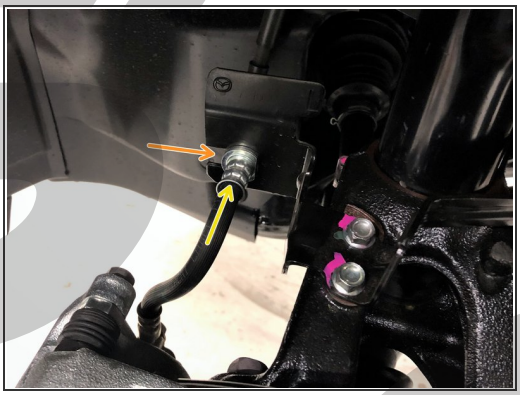
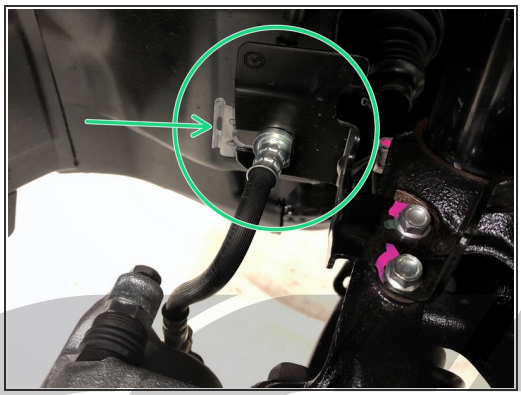
Step 24 — Front Suspension Reassembly Part 6





- Install the front sway bar end link through the mounting bracket on the strut.
- Secure the front sway bar end link by installing the nut removed in Step 6 and tightening to **34-40 ft-lbs** with a 14mm socket and ratchet.
  - ⓘ If the nut is spinning without tightening, use a 5mm Allen key in the center to keep it secure and a 14mm wrench to tighten.

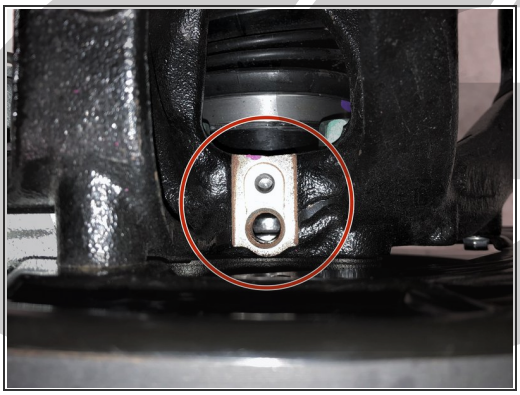
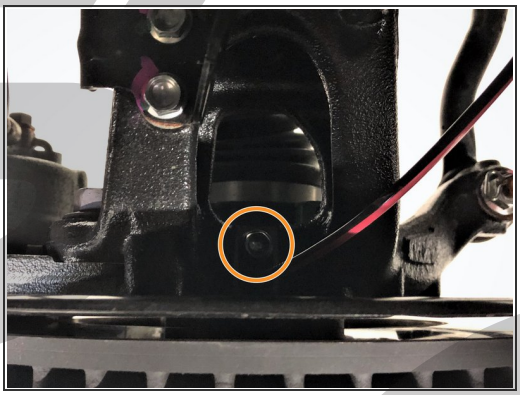
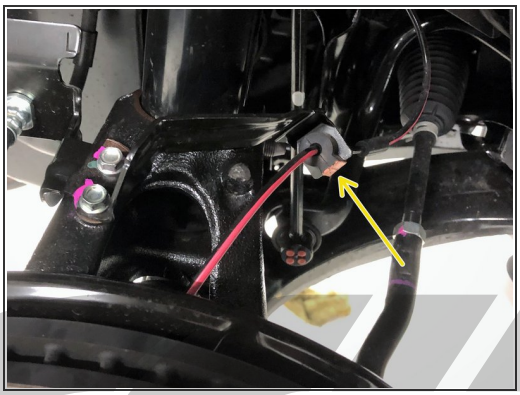
Step 25 — Front Suspension Reassembly Part 7

- Install the brake line and ABS wiring mounting bracket onto the knuckle. Tighten the two 10mm bolts until snug using a 10mm socket and ratchet.
- Insert the brake line into the mounting bracket you removed it from earlier.
- Push forward on the line slightly to ensure it is fully seated, then secure the brake line with the retaining clip.
- Ensure the retaining clip is in the orientation shown.

ⓘ You may need to tap the retainer clip gently with a hammer in order to get it fully installed.

Step 26 — Front Suspension Reassembly Part 8

- Reinstall the ABS sensor into the knuckle near the brake rotor. Press it down gently to ensure it is fully seated.
- Secure the ABS sensor with the 10mm bolt removed earlier. Tighten until snug with a 10mm socket and ratchet.
- Secure the ABS wiring in the mounting bracket. Push the rubber portion of the wiring onto the bracket until the wiring is snug.

Step 27 — Front Suspension Wrap Up

- Repeat steps 2-26 for the right side of the vehicle.
- Reinstall both front wheels. Using a 17mm or 21mm socket on each of the 5 lug nuts.
- Lower the front of the car down off the jack stands.
- Torque the lug nuts in a star pattern to **80-90ft-lbs.**

Step 28 — Lifting the Car & Removing the Rear Wheel

- Lift up the rear of the car using a hydraulic jack and jack stands.

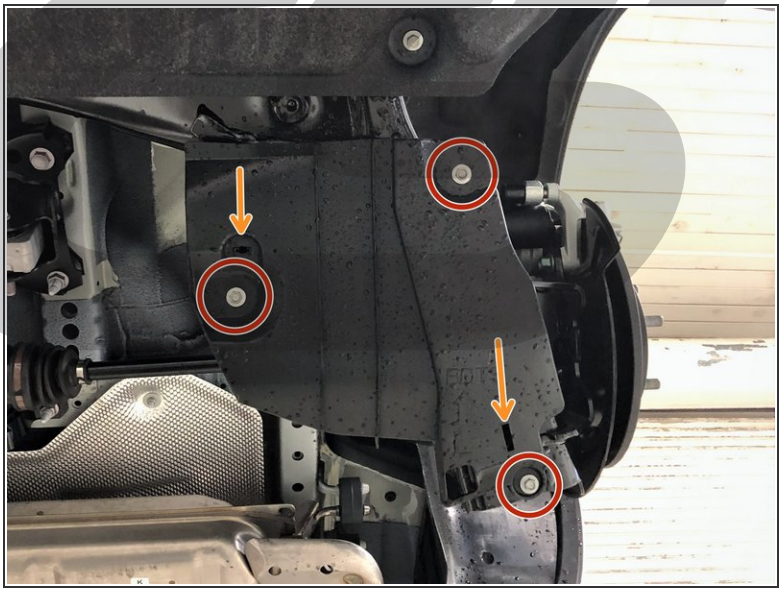
⚠ Be sure to reference your owners manual for jack points and the jack manufacturer's instructions for proper practices.

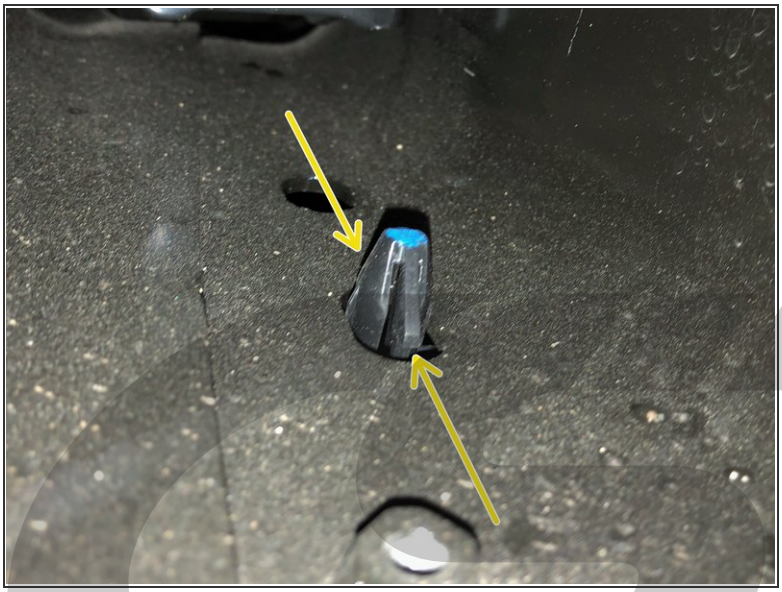
- Remove the rear wheels from the vehicle using the 1/2" drive breaker bar or impact gun and 17mm or 21mm socket.

ⓘ A different socket may be required if you have aftermarket or locking lug nuts.

ⓘ **Both sides of the rear suspension are worked on simultaneously unless noted.**

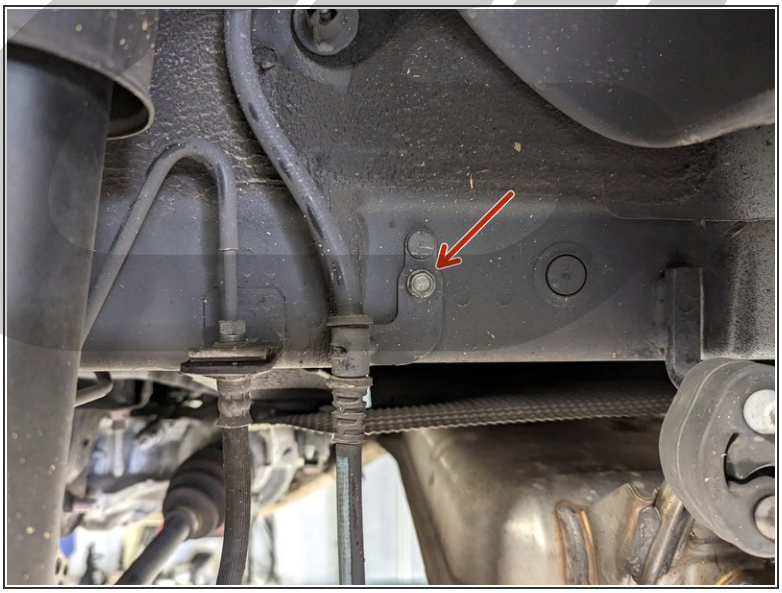
Step 29 — Rear Suspension Disassembly Part 1

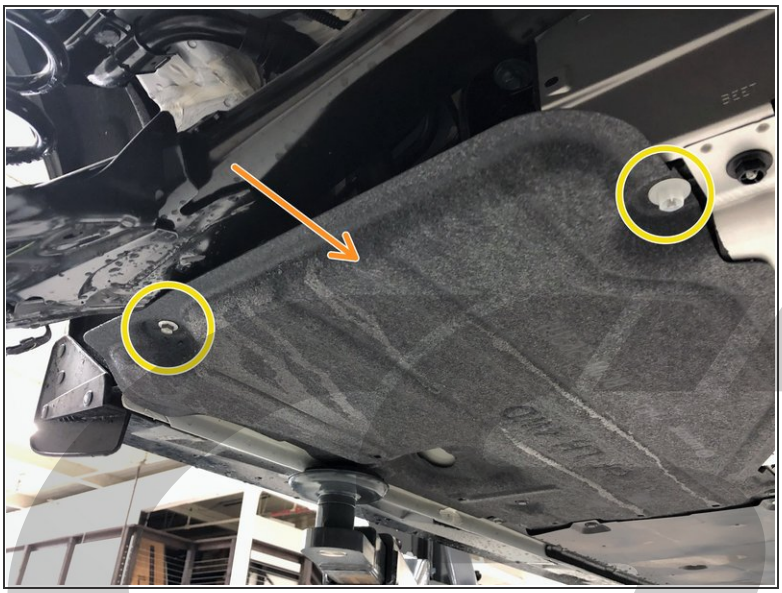




- Locate the plastic covers on the bottom of the torsion beam.
- Using a 10mm socket and ratchet, remove three 10mm bolts from the left and right side plastic covers. (Left side cover shown)
- There are two tabs for each plastic cover that must be released before the plastic covers can be removed. Their locations are shown with the orange arrows in the first image.
- Push in the sides of the tabs as shown to release the tabs.
- Once the tabs are released, remove the plastic torsion beam covers from the vehicle.

Step 30 — Rear Suspension Disassembly Part 2

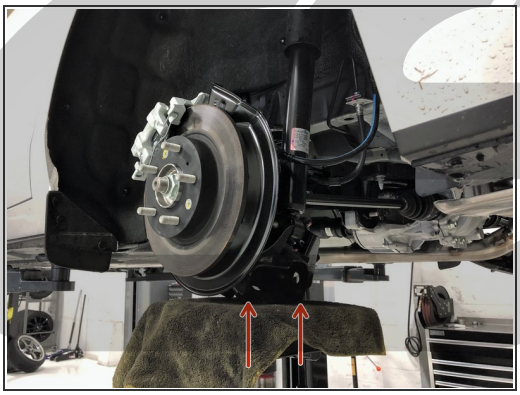
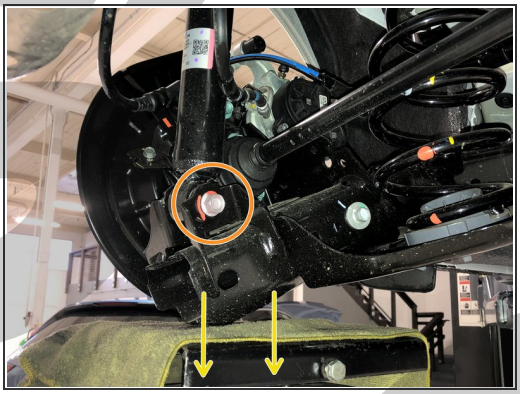




- Inside the wheel well, locate the parking brake wiring. It is just to the rear of the shock.
- Remove the 10mm bolt that secures the emergency brake wiring to the chassis using a 10mm socket and ratchet.
- Repeat this step for the opposite side of the vehicle.
- Locate the under body shielding in front of the torsion beam.
- Remove one 10mm bolt and one plastic nut from each side of the under body shielding.

ⓘ Removing these two fasteners will allow the under body shield to bend slightly to allow for easier rear spring removal.

Step 31 — Rear Suspension Disassembly Part 3


- Place the hydraulic jack directly below the driver's side end of the torsion beam and apply a small amount of upward pressure.

  ⚠ Ensure your jack is secure and is not contacting the brake rotor or other brake components.

- Using a 17mm socket and ratchet, remove the lower shock mounting bolt.
- Carefully lower the hydraulic jack.
- Once completed, the suspension will look like the third image.
- **Repeat the red, orange, and yellow steps for the passenger side of the vehicle.**

Step 32 — Rear Suspension Disassembly Part 4

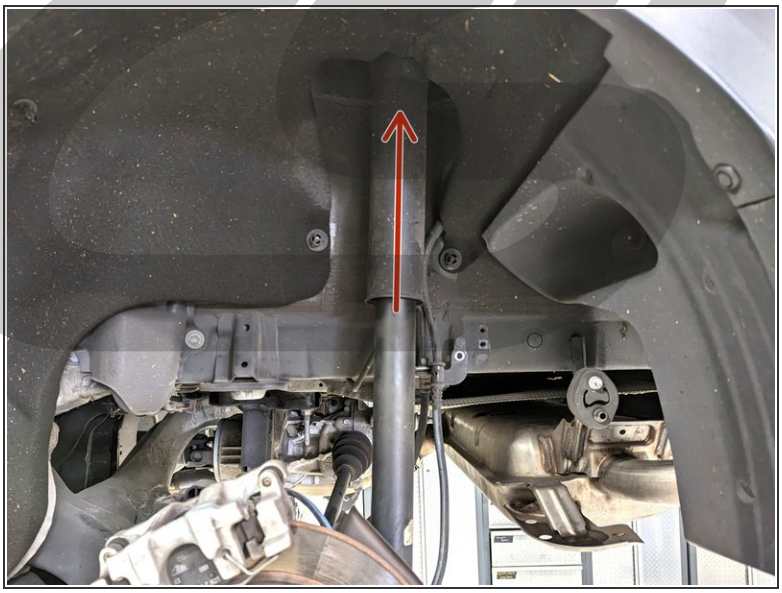


- Pull downward on the left side of the torsion beam.
- Pull the spring downward and toward the center of the vehicle to remove it.

ⓘ It will take some force to remove the spring as you must compress it slightly to free the rubber top from the chassis.

- **Repeat the red and orange steps for the other side of the vehicle.**

Step 33 — Rear Suspension Disassembly Part 5

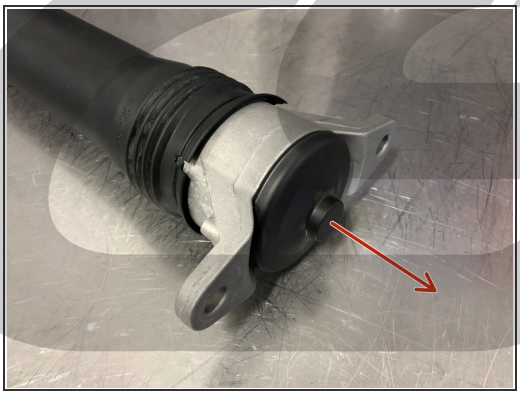
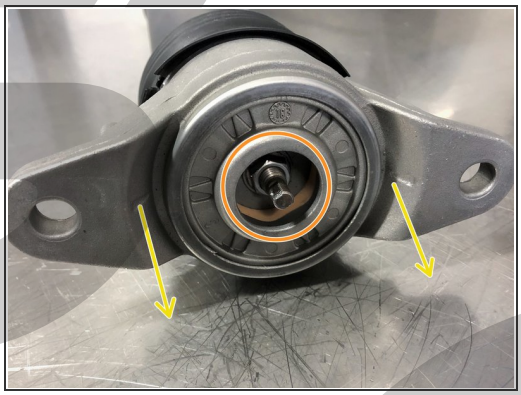
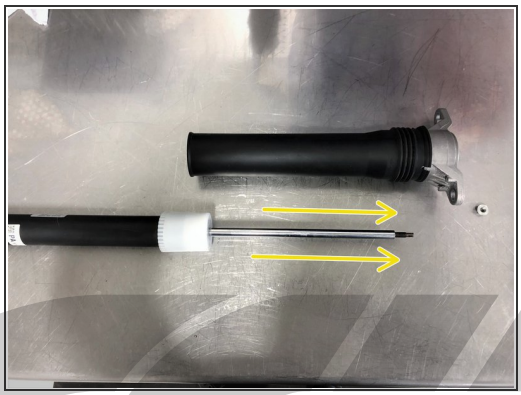


- Starting on the rear left side, trace the shock upwards to locate the upper shock mount.

⚠ Hold the shock while removing the hardware in the following step

- Remove the two upper shock mounting nuts using a 14mm socket and ratchet.
- Remove the shock from the vehicle

Step 34 — Trimming the Rear Bump Stops Part 1

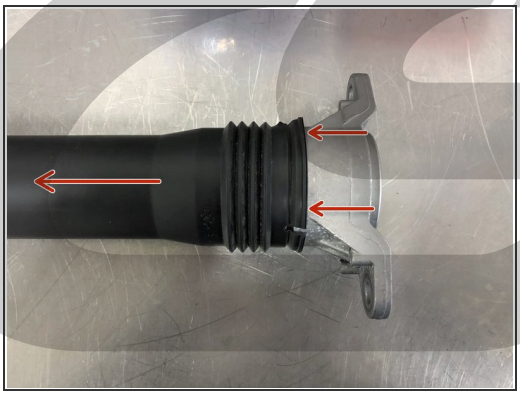
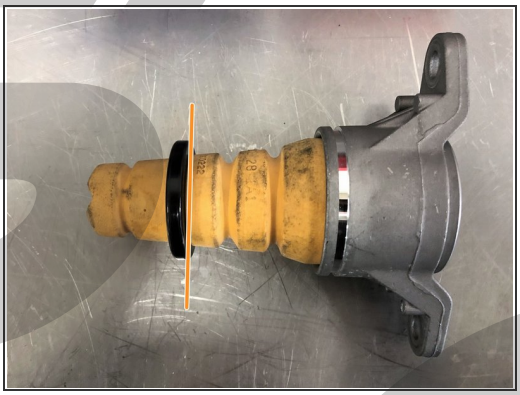
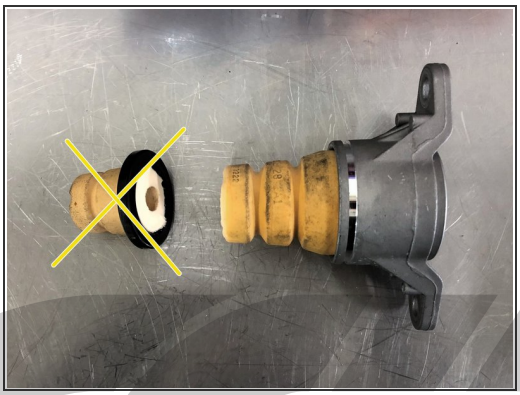




ⓘ In order to deliver the best ride quality, the bump stop must be trimmed. This ensures the same amount of travel before the bump stop is hit at the lower ride height.

⚠ The next step can be very difficult without an electric impact gun. You can trim the bump stop with the shock assembled but you risk damaging the shock and causing premature failure. Skip to Step 36 if you do not have access to an impact gun.

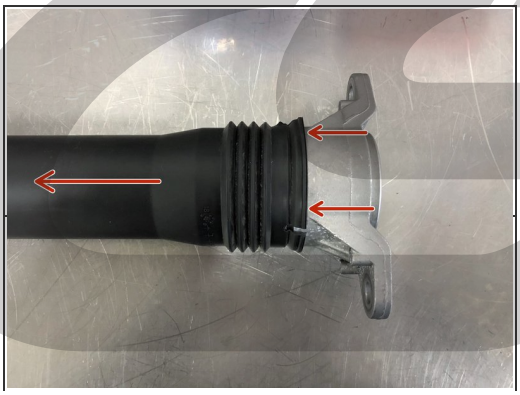
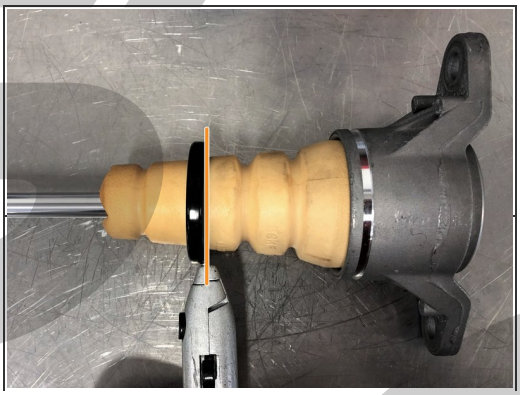
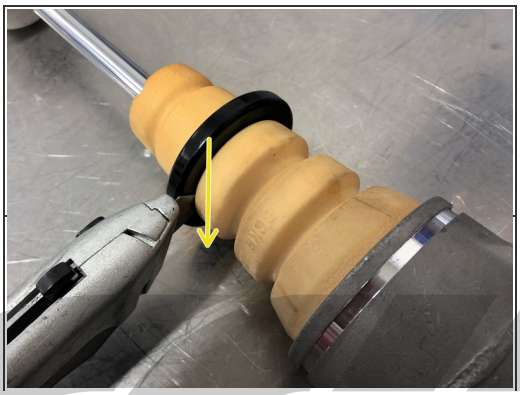
- Pull off the plastic cover from the top of the shock.
- Using an electric impact gun and a 12mm socket, remove the shock top hat nut.
- Remove the shock top hat from the shock by pulling it off the end of the shock shaft. The plastic dust cover will be removed with the top hat as shown.

Step 35 — Trimming the Rear Bump Stops Part 2

- Using a flathead screwdriver, gently pry around the top edge of the plastic dust cover. Pull downward while doing so and separate the dust cover from the shock top hat.
- You will be left with the bump stop attached to the shock top hat as shown.
- Cut the bump stop using a razor knife just above the black plastic ring (bottom of the third "bulge").
- Separate the two sections of the bump stop. The lower section may be discarded.

Step 36 — Trimming the Rear Bump Stop with Shock Assembled Part 1

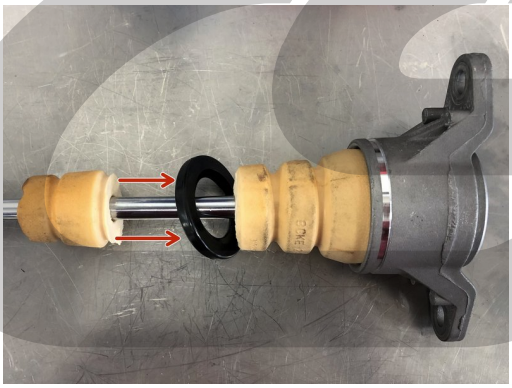
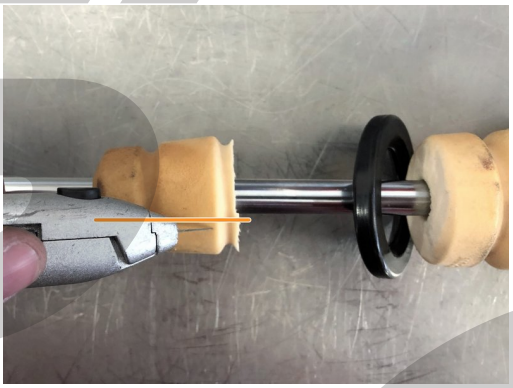
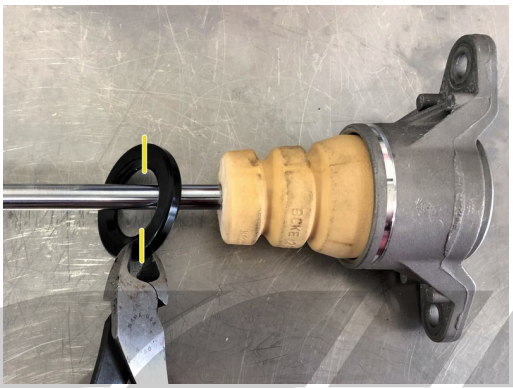
ⓘ Skip to Step 38 if you disassembled your shock.

⚠ Trimming the rear bump stop with the shock assembled can damage the shock if you are not careful. Use extreme care to not touch the shock shaft with your razor knife.

- Using a flathead screwdriver, gently pry around the top edge of the plastic dust cover. Pull downward while doing so and separate the dust cover from the shock top hat.
- Cut the bump stop using a razor knife just above the black plastic ring (bottom of the third "bulge"). **Ensure your knife does not touch the shock shaft.**
- Cutting downward, away from the shock shaft as shown can get you most of the way through the bump stop with minimal risk.

ⓘ Take your time, it will take multiple passes with the razor knife to get through the bump stop.

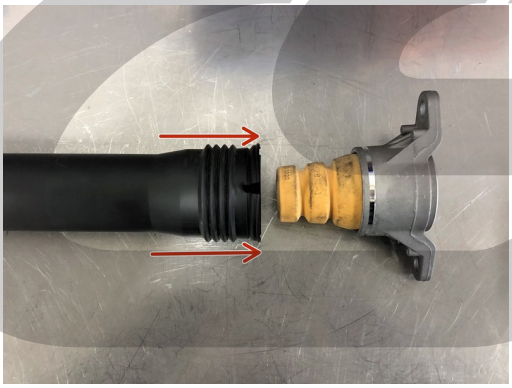
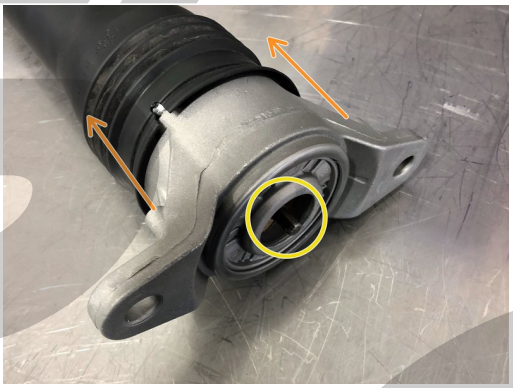
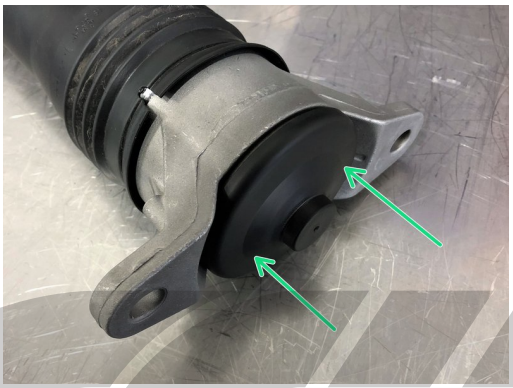
Step 37 — Trimming the Rear Bump Stop with Shock Assembled Part 2

- Slide the black plastic ring off the lower portion of the bump stop as shown.
- Cut vertically down the bump stop. **Ensure your knife does not touch the shock shaft.**
  - ⓘ Cutting off to the side of the shock shaft as shown minimizes risk to damage the shock shaft.
- Once through, the lower portion of the bump stop can be removed from the shock shaft.
- Using large wire cutters or bolt cutters, cut the black plastic ring. Then remove it from the strut. **Ensure your cutters do not touch the shock shaft.**
  - ⓘ You will likely need to cut the plastic ring in two places to remove it.
- Reinstall the plastic dust boot

ⓘ Skip to step 39 if you cut your bump stop with the shock assembled.

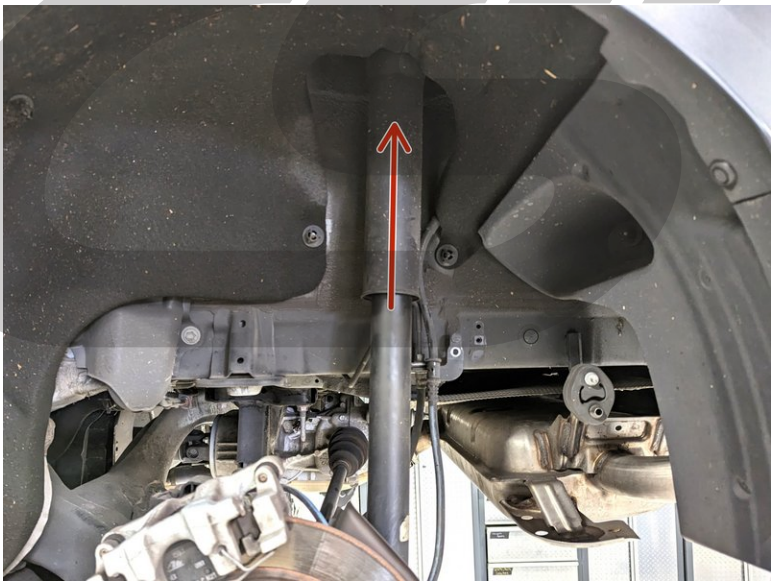
Step 38 — Rear Shock Reassembly

- Reinstall the dust boot onto the shock top hat. Push it on until it fits snugly in the groove on the top hat.
- Slide the dust boot/top hat assembly back onto the shock.
- Tighten the strut top nut using your electric impact gun and a 12mm socket. You only need **10-12ft-lbs**, do not over-tighten.

  ⚠ If using a 1/2" drive electric impact gun or air impact, do not over tighten as you can break the shock shaft.
- Reinstall the shock top hat plastic cover by pushing it on until it clicks into place.

Step 39 — Rear Shock Installation

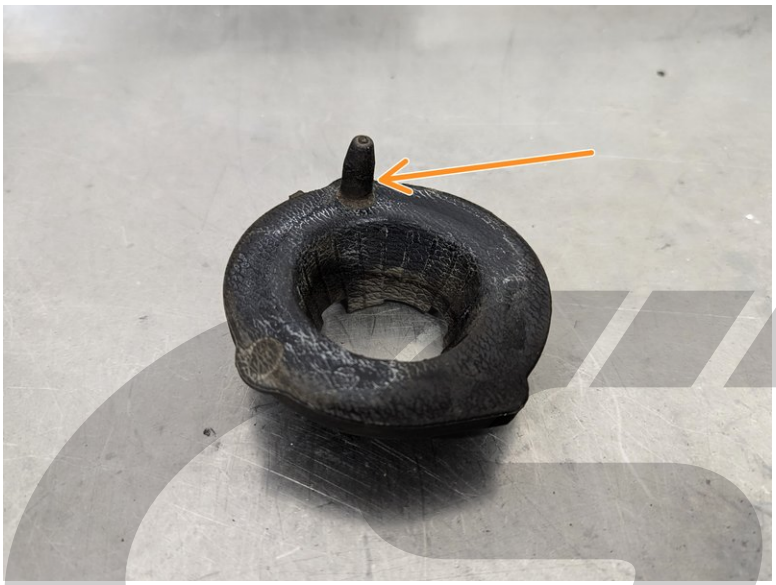


- Insert the rear shock back into position on the rear left side and align the top hat holes with the studs on the chassis.
- Secure the shock with the two 14mm nuts removed earlier. Tighten to **26-30ft-lbs** using a 14mm socket and ratchet.

Step 40 — Bump Stop Modification Right Side

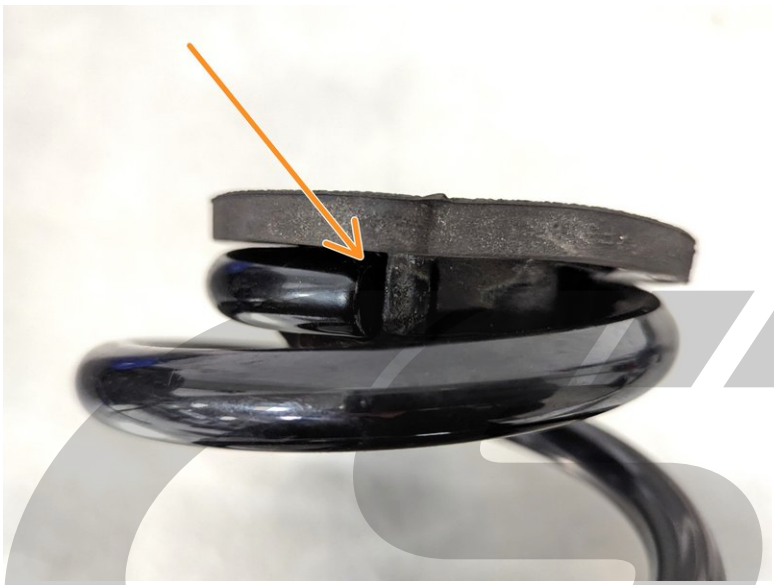
- **Repeat steps 33-39 on the rear right side of the vehicle.**

Step 41 — Rear Suspension Reassembly Part 1



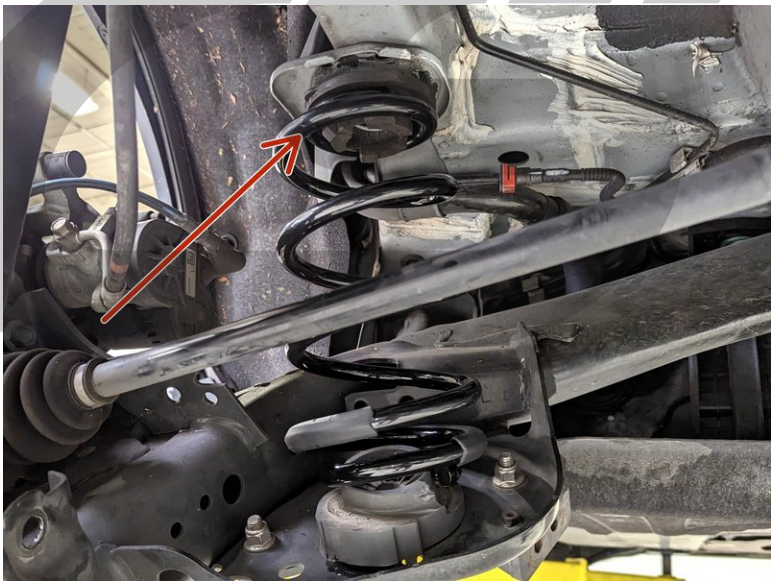
- Remove the rubber upper spring perches from the OEM springs. Rotate the perch counter-clockwise to remove from each spring.
- Using a razor knife, remove the rubber protrusion from the spring perch so that the surface is flat

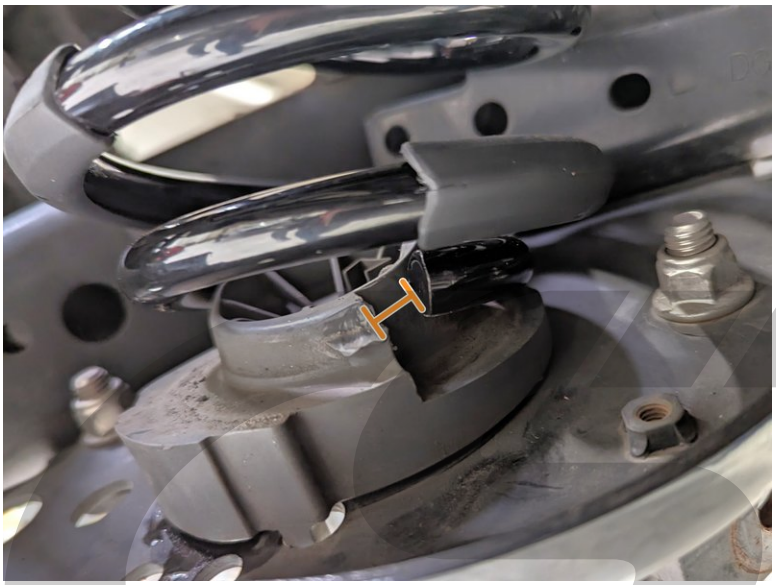
Step 42 — Rear Suspension Reassembly Part 2



- Install the upper spring perches onto the top of the CorkSport rear lowering springs. Rotate the perch clockwise until the stop to install.
  - ⓘ The top of the CS lowering spring is opposite of the side with the noise isolator as shown.
  - ⚠ There is a sticker labeling the spring for use at CS. These stickers are sometimes placed upside-down. Do not use this sticker to orient the spring.
  - ⓘ If desired, the stickers can be removed with the help of some brake parts cleaner or acetone.
- The perch should be as shown when perch installed on a CS spring.

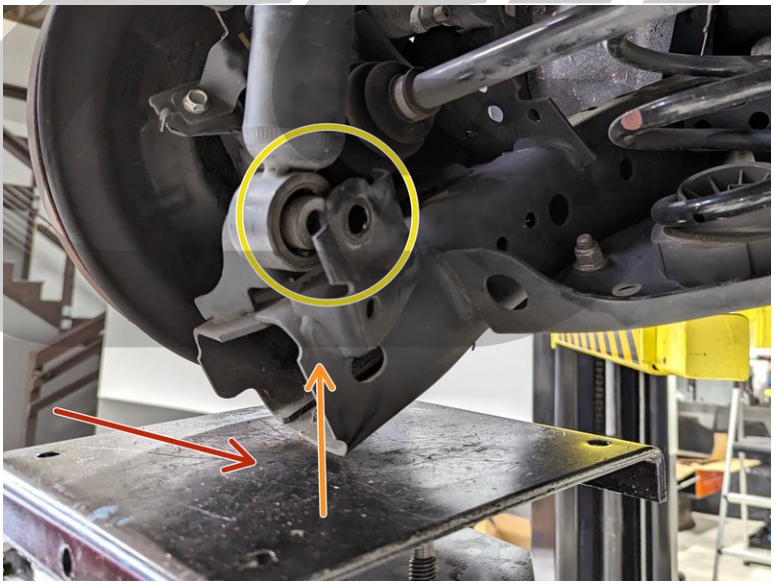
Step 43 — Rear Suspension Reassembly Part 3

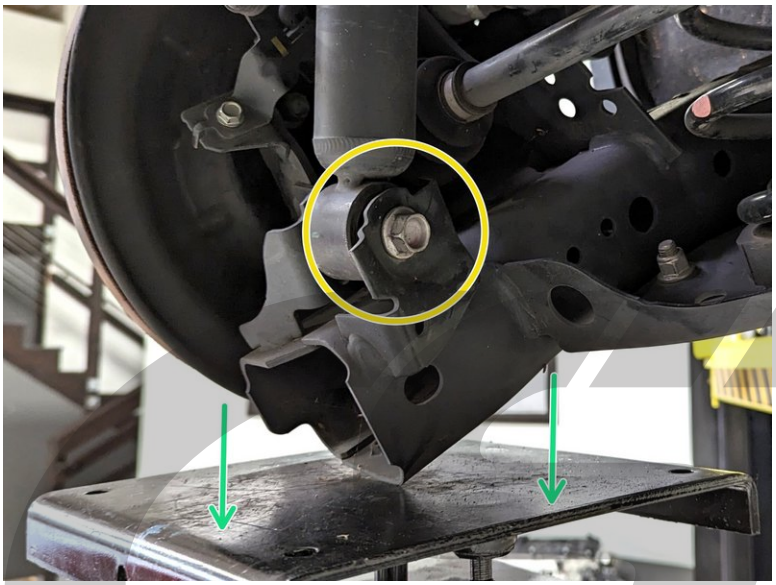




- Insert the CorkSport Lowering Spring onto the torsion beam making sure that the top spring perch is centered in the spring
- Rotate the spring until there is ~1/2" gap between the end of the spring and the stop of the lower spring perch as shown.
- Repeat these steps on the other side of the vehicle.

Step 44 — Rear Suspension Reassembly Part 4

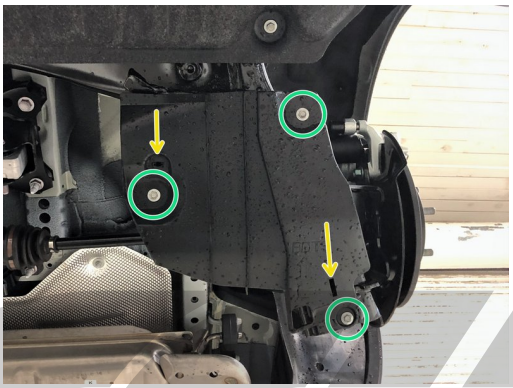




- Place the hydraulic jack underneath the end of the torsion beam.
- Raise the hydraulic jack until the hole in the torsion beam lines up with the lower shock mounting hole.
- ⓘ As you raise the jack, ensure the upper spring stays positioned correctly on the spring seats.
- Install the lower shock mounting bolt removed earlier. Tighten to **46-55 ft-lbs** using a 17mm socket and ratchet.
- Once tight, lower the hydraulic jack.
- Repeat these steps for the other side of the vehicle.

Step 45 — Rear Suspension Reassembly Part 5





- Reposition underbody shielding that was loosened earlier.
- Reinstall the one 10mm bolt and one plastic nut removed from each side of the under body shielding. Tighten 10mm bolts until snug, tighten plastic nut hand tight.
- Reposition the emergency brake wiring into the alignment hole on the frame.
- Secure the emergency brake wiring using the 10mm bolt removed earlier. Tighten until snug.
- Repeat for the other side emergency brake wiring.
- Reinstall the plastic torsion beam covers. They snap into position with the two push clips.
- Secure the plastic torsion beam covers with the three 10mm bolts removed from each side. Tighten all 10mm bolts until snug.

Step 46 — Rear Suspension Wrap Up

- Reinstall both rear wheels. Using a 17mm or 21mm socket on each of the 5 lug nuts.
- Lower the rear of the car down off the jack stands.
- Torque the lug nuts in a star pattern to **80-90ft-lbs.**

Step 47 — Installation Complete

- This completes your installation of the CorkSport Performance Lowering Springs!
  - ⓘ Listen for any strange noises upon first drive. If any are present, inspect the suspension.
- Contact us with any questions or concerns at sales@corksport.com or (360) 260-2675.
- Please leave a review here: https://corksport.com
- Share your experience using #CorkSport on Instagram, Facebook, and Twitter.