# BMW E36, E46 M3, E39 540i & M5, E34 540i, E90 330i
# Adjustable Short Shift Kit Installation Instructions


## These installation instructions have been broken up into several sections:




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.

# Section 1: Introduction

**Product Details:**

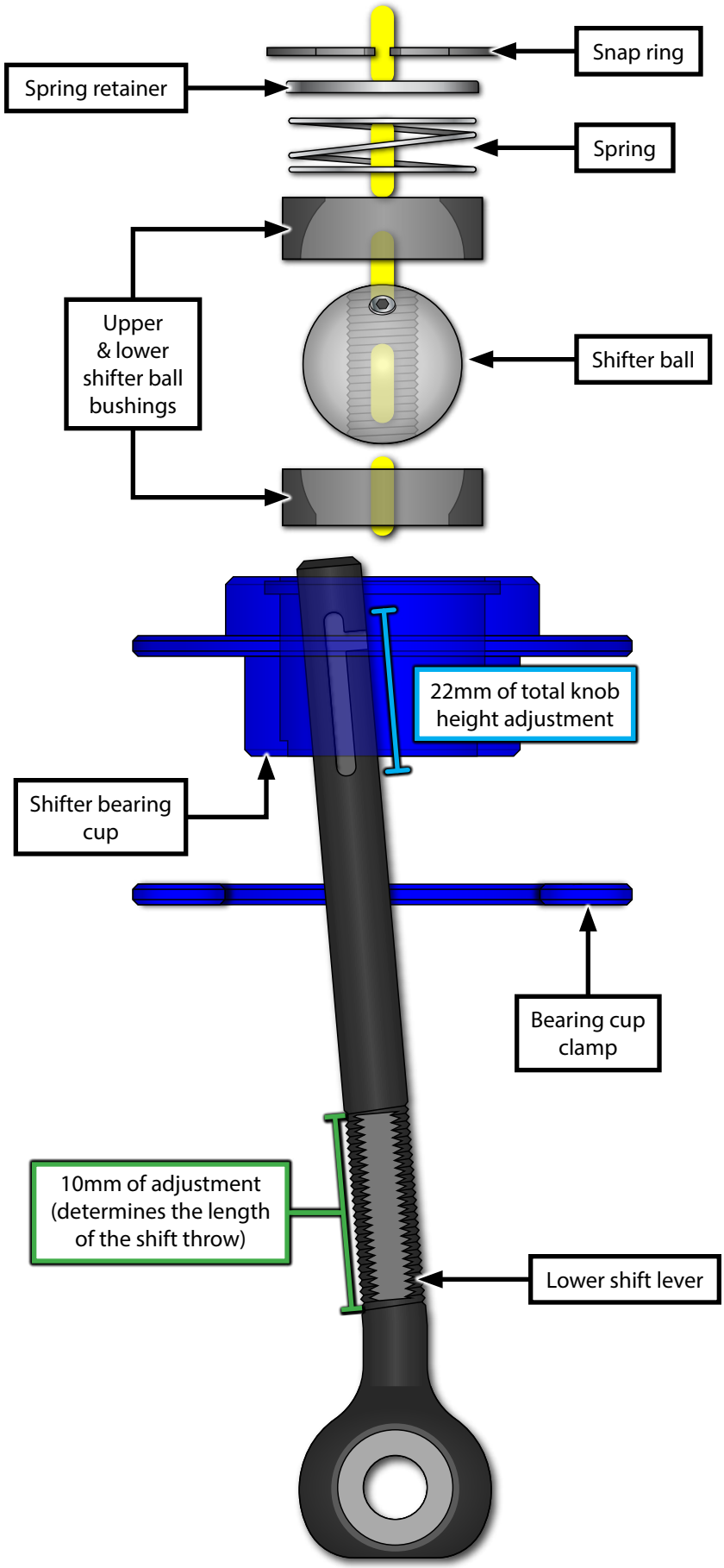
- Our new short shifter kits are the culmination of years of research and development.
  - We went back to the drawing board several times throughout the design process, in efforts to release a product that really stood out from the rest of the short shifters on the BMW market.
- We set out to design the perfect shift kit for your BMW. Now we realize perfect is a subjective term, so we gave our short shifter a wide range of height and throw adjustability.
- This wide range of adjustability allows you to easily make adjustments from the cabin of your BMW by just removing your shifter boot and using small hex head keys.

**Product Features:**

- Lower shift lever is CNC machined from 4140 chromoly steel and melonite coated for superior strength and exceptional durability and corrosion resistance.
- Shifter ball CNC machined from 304 stainless steel, finely polished for smooth operation and bushing wear resistance.
- Ball socket shifter bushings are precision machined from self-lubricating Nylatron® NSM.
- Shifter bearing cup CNC machined from billet 6061-T6 aluminum and type II blue anodized for exceptional durability and corrosion resistance

**Product Benefits:**

- Easy installation
- Crisp, precise shifter feel.
- 24-64% reduction in shifter throw length (depending on your application).
- 22mm shift knob height adjustment range.

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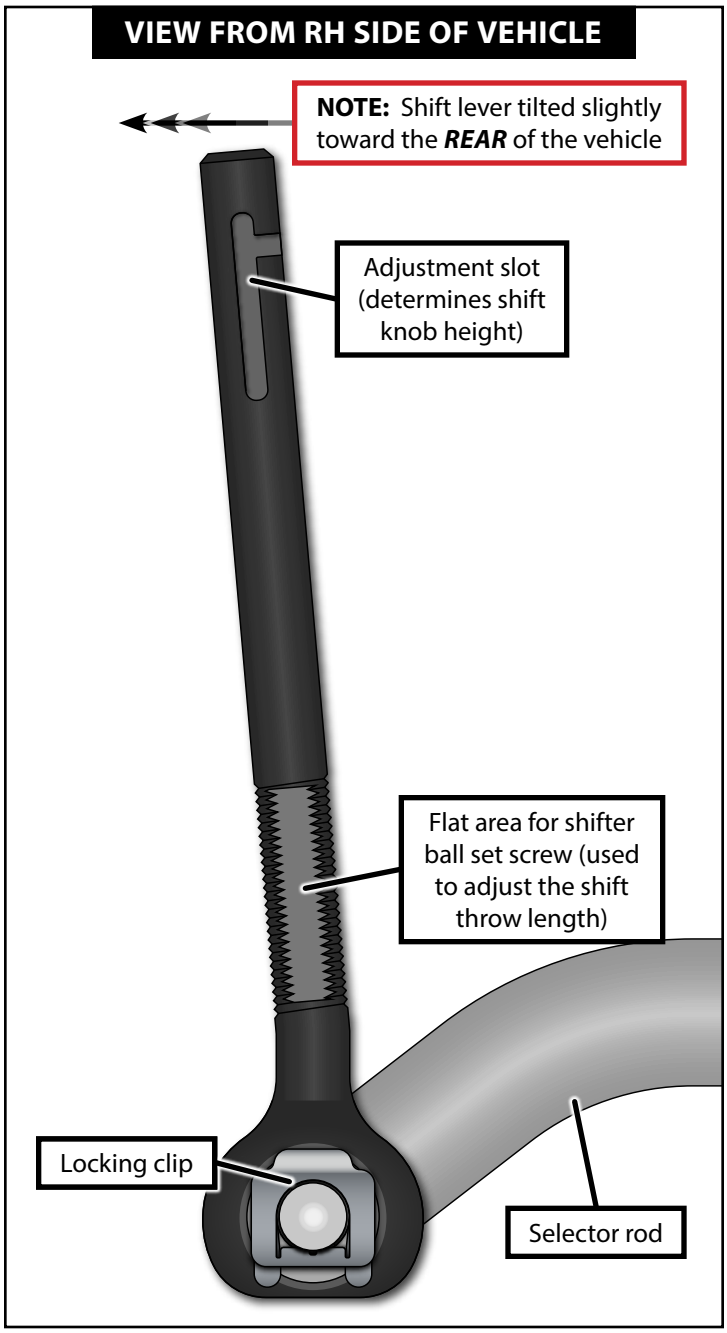
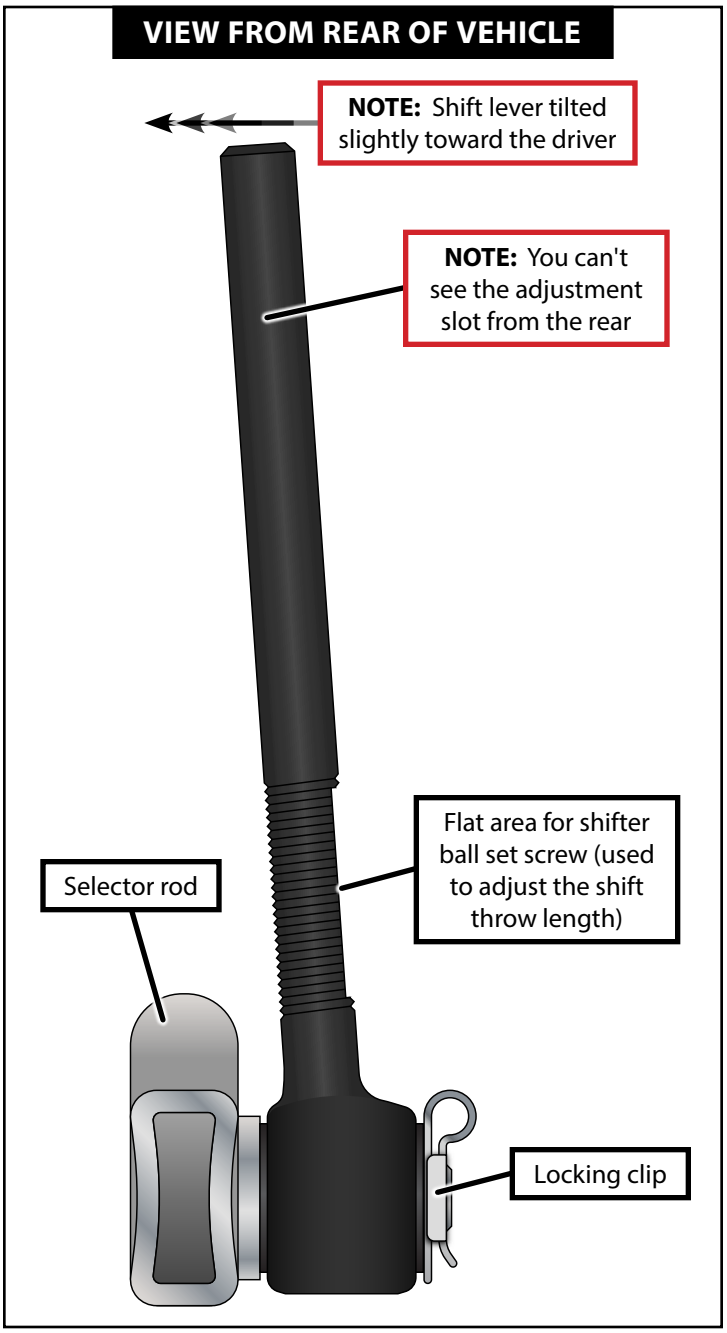
# Section 1: Introduction

- Let's take a moment to look at the design of the lower shift lever.
- This lever needs to be installed properly for the best results.
- The illustrations below show the lower shift lever as viewed from the RH side and from the rear.
- Use these illustrations, as well as the notes and text throughout, to ensure that the lever is properly installed into the vehicle.

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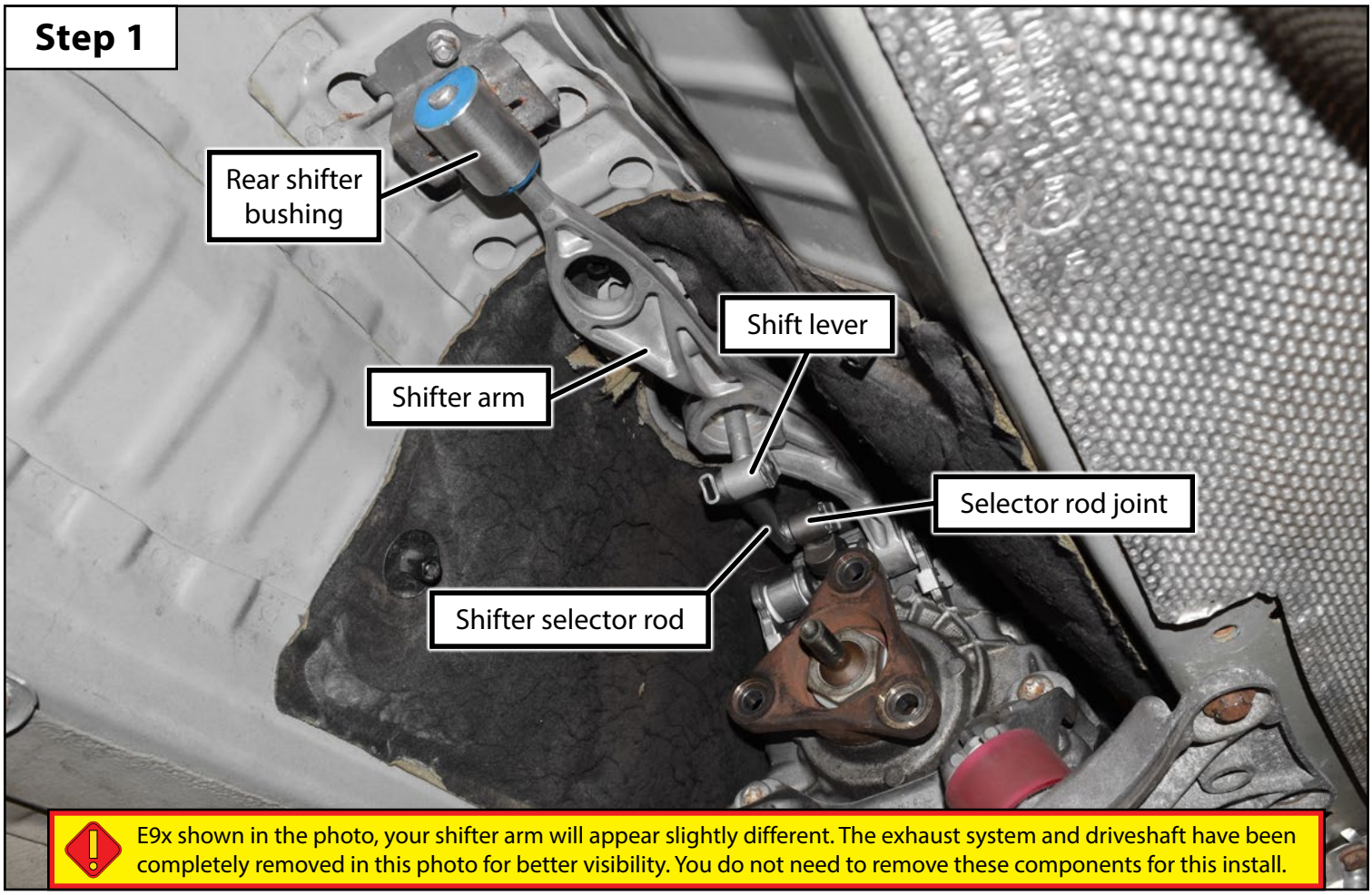
# Section 2: Removing the Original Shifter

**Step 1**

We need to gain access to the shifter arm, shift lever, and the shifter selector rod. Reference the photo above for the locations of these components (note that the exhaust and driveshaft have been completely removed for visibility, you don't need to do this yourself). To gain access to the shifter components you will need to perform the following steps:

- Safely lift and support the vehicle.
- Remove all applicable underbelly panels.
- Remove the X-brace which connects the chassis to the rear subframe.
- Release the exhaust system from all of the hangers and lower the rear of the system downward enough to access and remove the front-most heat shield.
  - You ***can*** remove the entire exhaust system if so desired, but you should be able to work around it as long as it is lowered down and out of the way.
- You should now be able to see the shifter arm and linkage.

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# Section 2: Removing the Original Shifter

**Step 2**

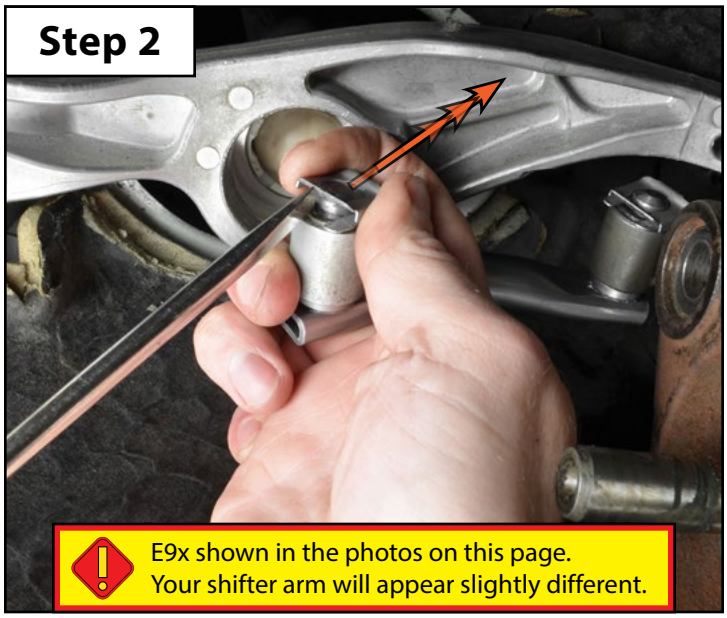
- Use a small flat blade screwdriver or a curved hose pick to remove the rear locking clip from the selector rod.

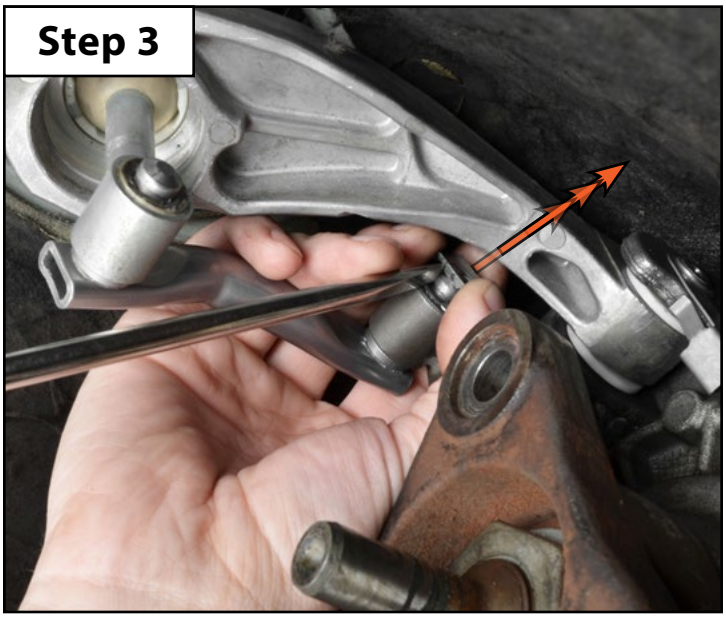
**Step 3**

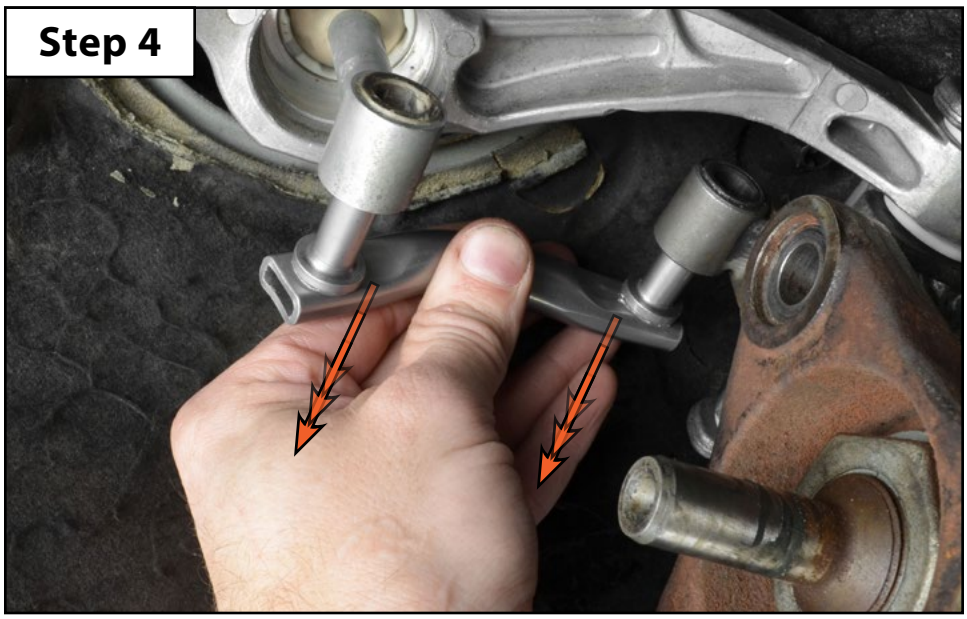
- Use a small flat blade screwdriver or a curved hose pick to remove the front locking clip from the selector rod.

**Step 4**

- Slide the selector rod out of the shift lever and selector rod joint.
  - **NOTE:** You may need to wiggle the selector rod a bit as you do this, it's a tight fit inside the shift lever bushing.

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# Section 2: Removing the Original Shifter

**Step 5**

- Lift up on the leather shift boot to release it from the center console.
  - If your vehicle is equipped with an illuminated shift knob, now is the time to disconnect the electrical harness (inset photo).

**Step 6**

- Pull up hard on the shift knob to release it from the shift lever.
- Remove the shift knob and the leather shift knob from the vehicle.
- Remove the foam insert from around the shift lever (not shown).

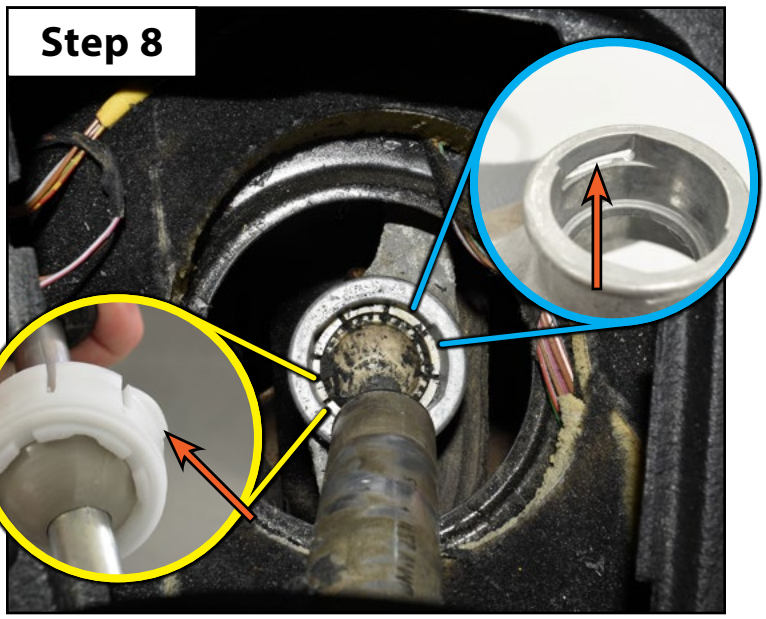
**Step 7**

- Lift upward on the rubber shifter boot as shown below.
  - This should only be done by hand, using a pick or screwdriver will very likely tear this boot apart.

**Step 8**

- Now it's time to release the plastic collar which secures the shift lever to the shifter arm.
- Note the locations of the release tabs as shown in the Step 8 photos below, then proceed to Step 9.

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# Section 2: Removing the Original Shifter

There are two different methods which can be used to release the shift lever from the shifter arm. **Step 9a** shows how to do this from above, without needing to remove the shifter arm from the vehicle. If that procedure doesn't work for you, **Step 9b** is a good alternative method, but it does require unbolting the shifter arm.

**Step 9a**

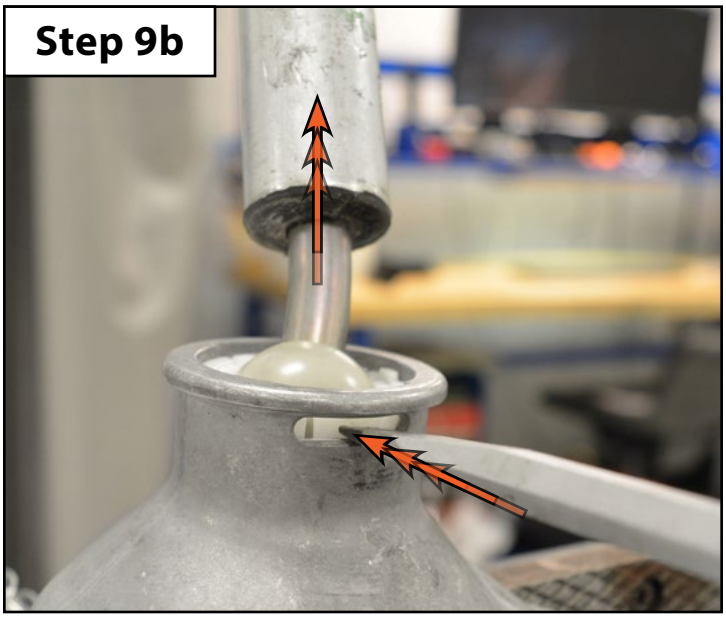
- Use a pair of flat blade screwdrivers to turn the plastic collar approximately 90°.
- The goal here is to get the locking clips to rotate past the open slots in the shifter arm, this will ensure that the clips are fully released.

**Step 9b**

- If you have trouble getting the plastic collar to rotate you can unbolt the shifter arm from the chassis and the transmission case, then rotate it so the slots are visible from inside the vehicle.
- You can then use a large flat blade screwdriver to apply pressure inward on the clips and release them.

**Step 10**

- Pull the shift lever out of the shifter arm.
  - The lever can still be difficult to remove, be careful here not to pull so hard that you slam into the headliner!



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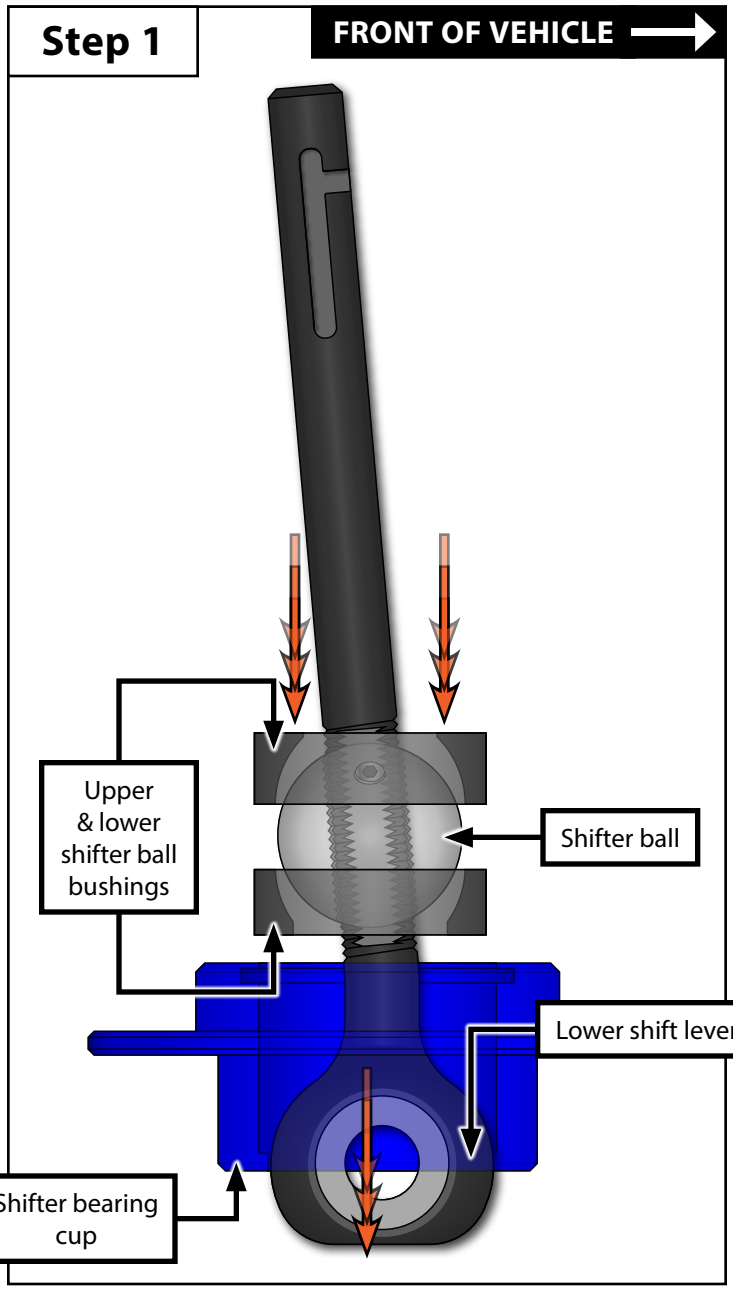
# Section 3: Installing the New Short Shift Kit

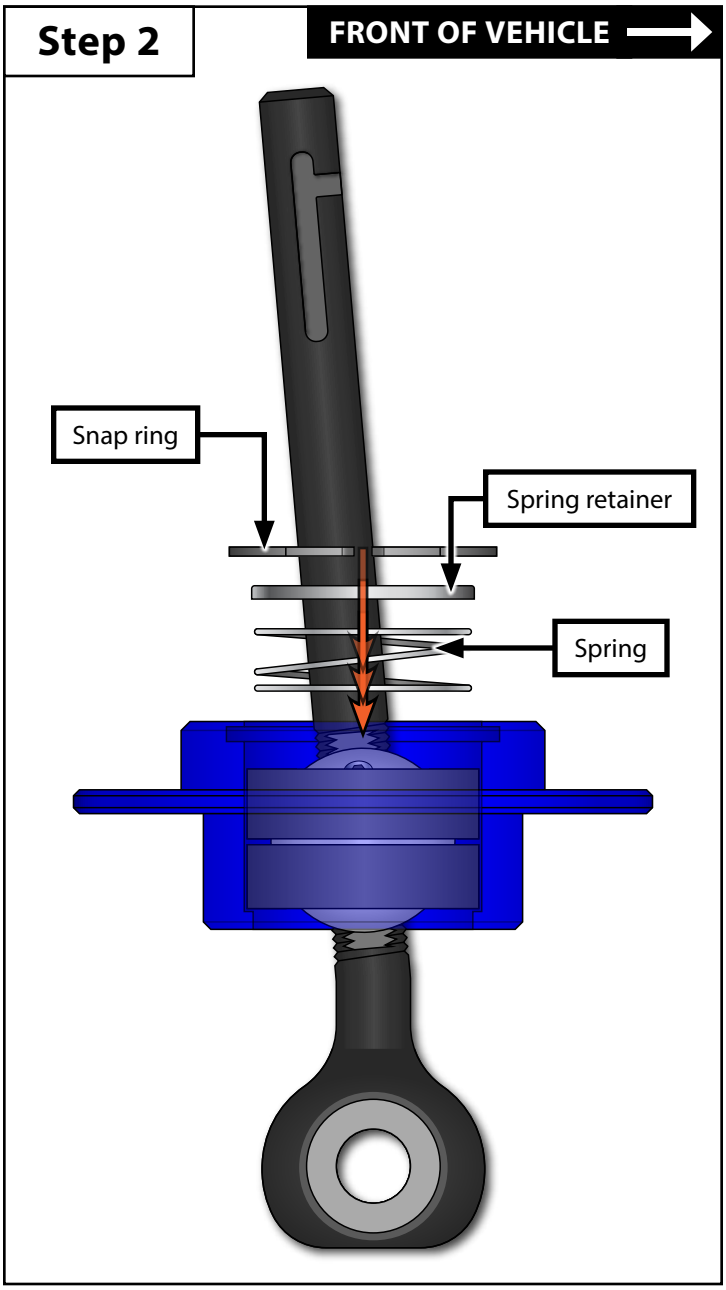
**Step 1**

- Install the lower shift lever into the shifter bearing cup.
  - The shifter ball the lower bushing should come pre-installed on the new lower shift lever.
- Ensure that the bushing is being inserted straight into the bearing cup.
  - **NOTE:** The lower bushing is intentionally a tight fit to eliminate any unwanted slop in the linkage, this means that it may require a small amount of force to press in to the housing.

**Step 2**

- Install the spring, spring retainer, and snap ring into the shifter bearing cup.
  - Use snap ring pliers to install the snap ring into the groove inside the shifter bearing cup.
  - Ensure that the snap ring is fully seated into the groove before releasing the pliers.

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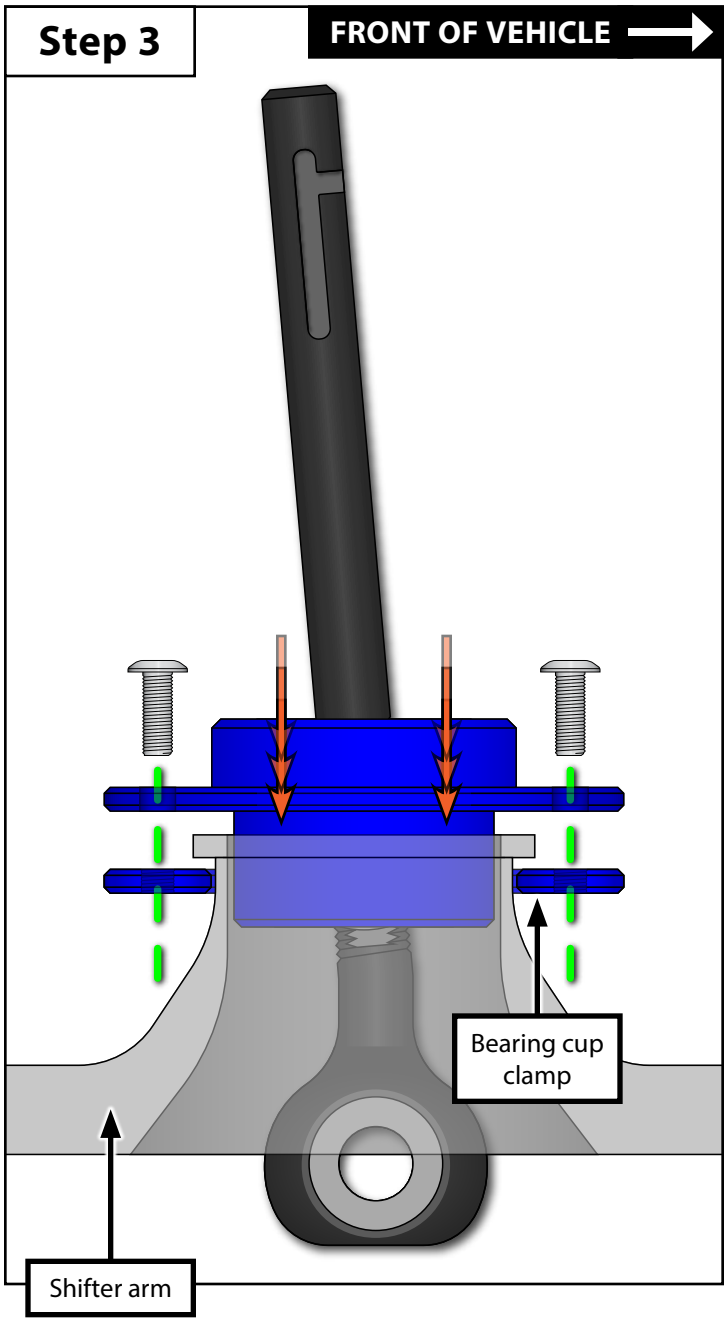
# Section 3: Installing the New Short Shift Kit

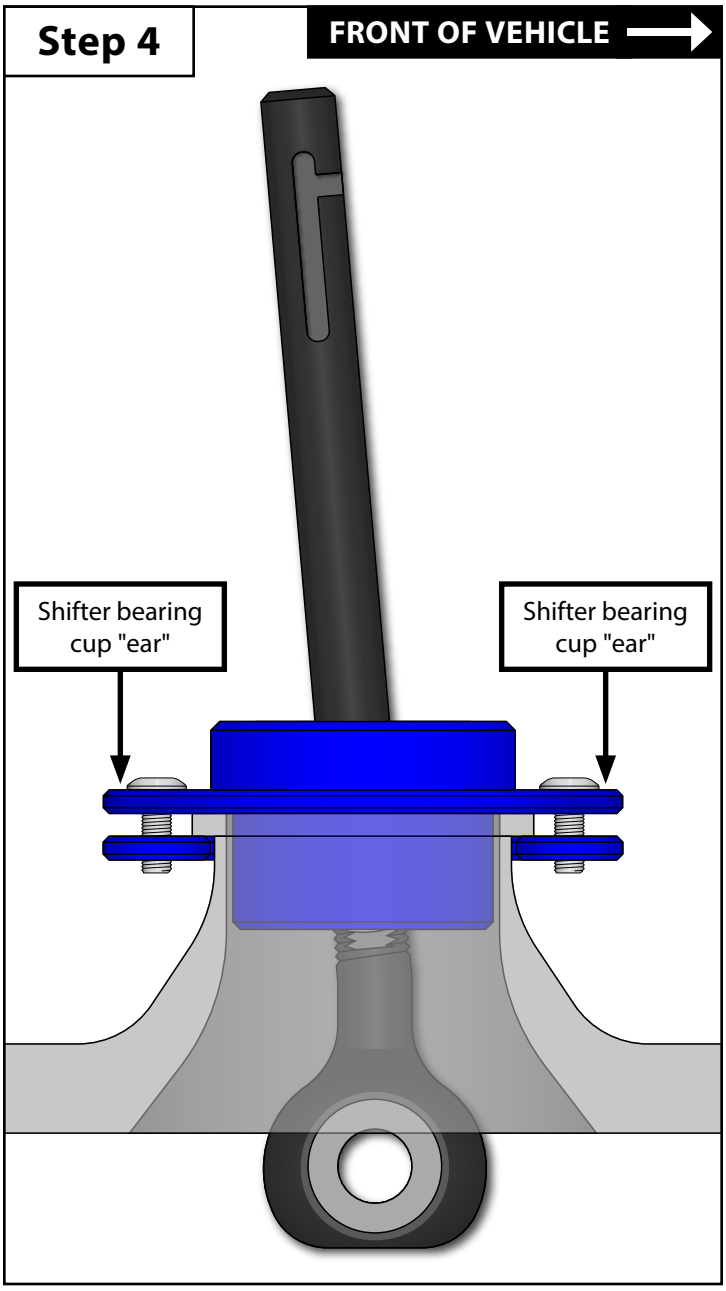
**Step 3**

- Slide the new short shifter assembly into the shifter arm.
- Slide the bearing cup clamp underneath the lip on the shifter arm, thread in the two 3mm Hex (Allen) screws by hand

**Step 4**

- Ensure that the "ears" on the shifter bearing cup are oriented fore and aft, this is the only way to fit the rubber boot over them later on.
- Tighten the two 3mm Hex (Allen) screws until they make contact + ⅛ turn.

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# Section 3: Installing the New Short Shift Kit

**Step 5**

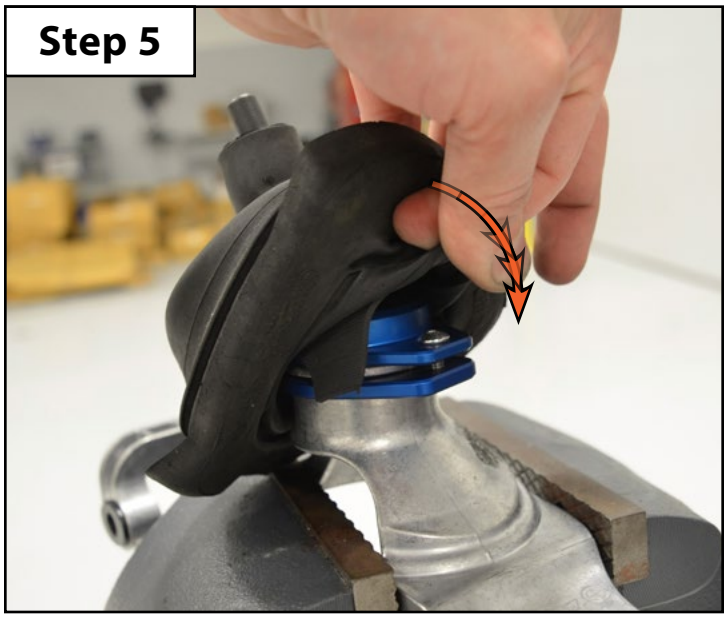
- Now it's time to install the rubber shifter boot back into place.
- You'll need to "hook" the front edge of the boot onto the front "ear" on the shifter bearing cup, then pull the boot back over top of the rear "ear" on the shifter bearing cup.
  - The Step 5 photo below was taken with the shifter arm out of the vehicle for better visibility. This step is to be performed with everything installed in the vehicle.

**Step 6**

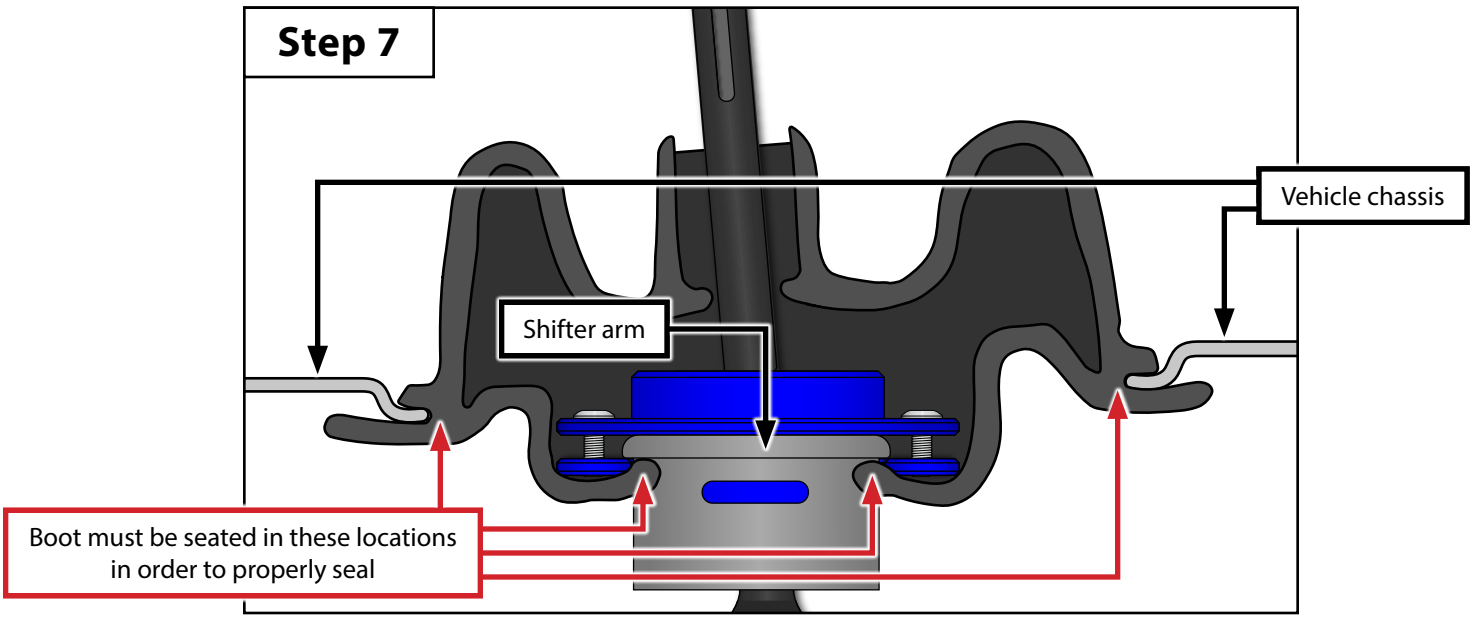
- Push the rubber shifter boot down into the chassis and seat it into place on all sides.
- There is an arrow on the rubber shifter boot which needs to point toward the front of the vehicle (not shown).
  - Space is rather tight between the shifter arm and the chassis, if you are really having a tough time getting the boot to seat into place you can try removing the two 10mm nuts from the rear shifter bushing and swinging the arm downward slightly to free up some room to work.

**Step 7**

- Reference the cross-section illustration below to see how the rubber shifter boot needs to be seated into place for a proper seal.





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# Section 4: Adjusting the New Short Shift Kit

**Step 1**

- The only way for us to get photos of the adjustment procedure was to cut the rubber shifter boot, you may find that you can perform this procedure without cutting the boot.
  - The rubber shifter boot will still provide a proper seal as long as it is fully seated as outlined on Page 17.

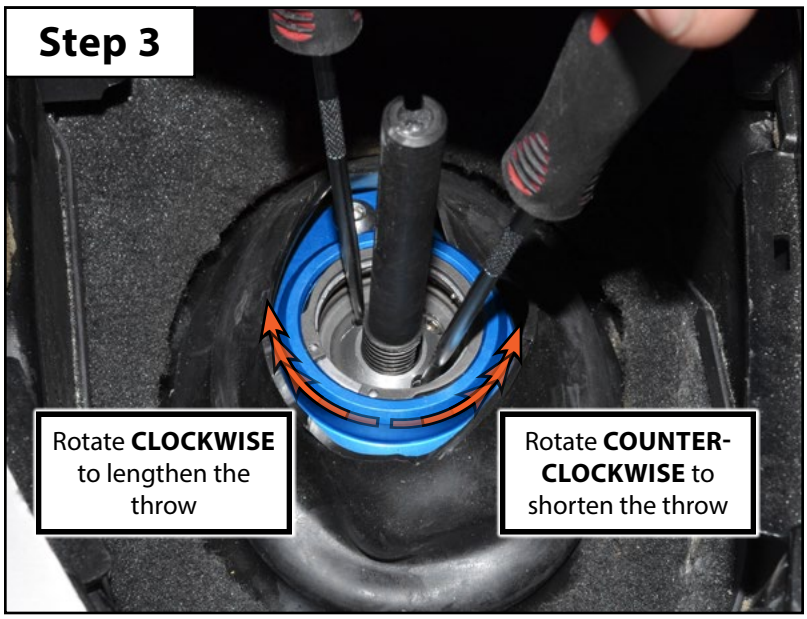
**Step 2**

- Shift the transmission into Reverse in order to access the set screw inside the shifter ball.
- Loosen the 2.5mm Hex (Allen) set screw until it just slightly protrudes out of the threads.

**Step 3**

- Shift into Neutral, then place two small picks (or screwdrivers) into the adjustment holes inside the ball.
- Rotate the ball 180° at a time (clockwise to lengthen the throw, counter-clockwise to shorten the throw).
  - You may need to shift the transmission in and out of gear as you rotate the ball to keep the set screw from contacting the upper bushing as it rotates.
- Shift into Reverse and tighten the set screw until it makes contact + ⅛ turn.
  - The set screw **MUST** be tightened up against the flat area of threads on the shift lever.
  - You can apply blue threadlocker to the set screw to prevent it from loosening over time if so desired.



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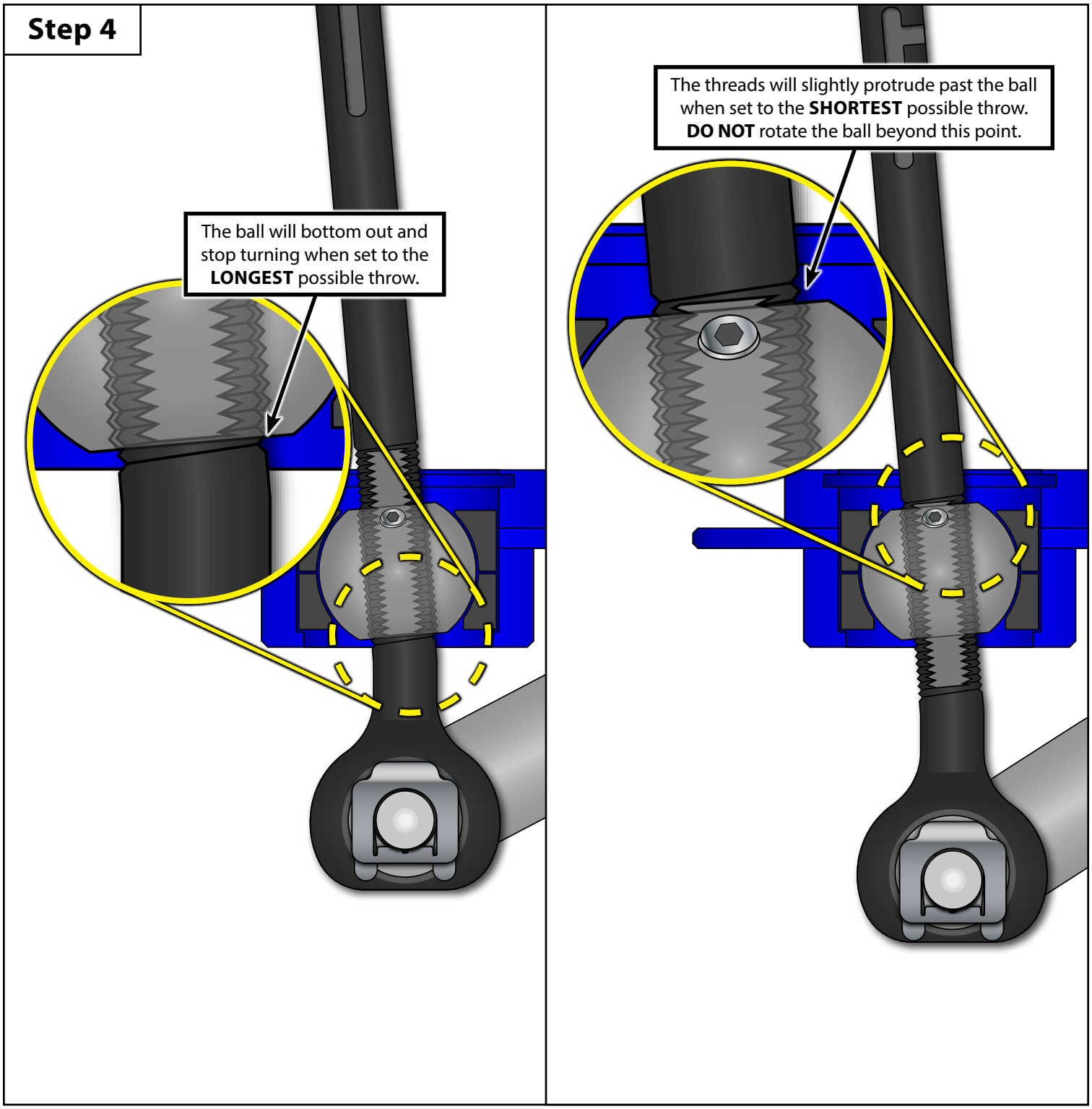
# Section 4: Adjusting the New Short Shift Kit

**Step 4**

- Remember that we have 10mm of adjustment on the ball, this is what changes the shift throw length.
- When the ball is rotated clockwise (making the throw length **LONGER**) it will bottom out on the lower shift lever threads and stop turning. This will tell you that you have reached the end of the adjustment range.
- When the ball is rotated counter-clockwise (making the throw length **SHORTER**) it **WON'T** bottom out on anything.
  - Pay special attention to this, if you turn the ball up past the flat area on the shift lever threads then you won't be able to lock the ball down into place with the set screw.

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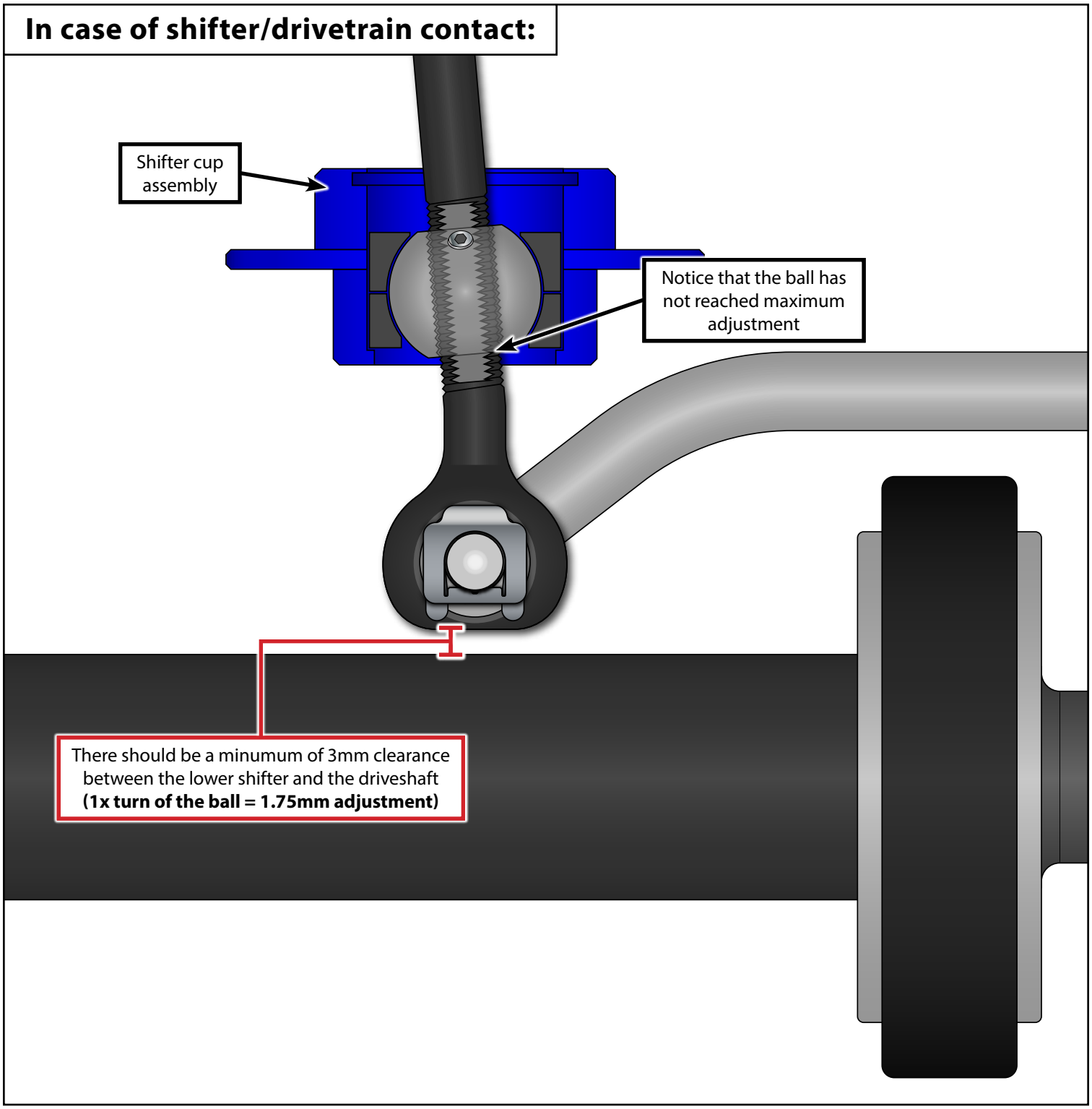
# Section 4: Adjusting the New Short Shift Kit

**If your shifter does not make contact with drivetrain you can skip this page.**

On some applications, the full range of throw adjustment may not be possible due to tight clearance with the driveshaft or guibo. The bottom of the shift lever may contact one of these drivetrain components when adjusted to the shortest throw settings. If this happens you will need to adjust the shifter upward (rotate the ball CW) 1-2 turns to retain adequate clearance. We recommend at least 3mm of clearance to allow for drivetrain movement.

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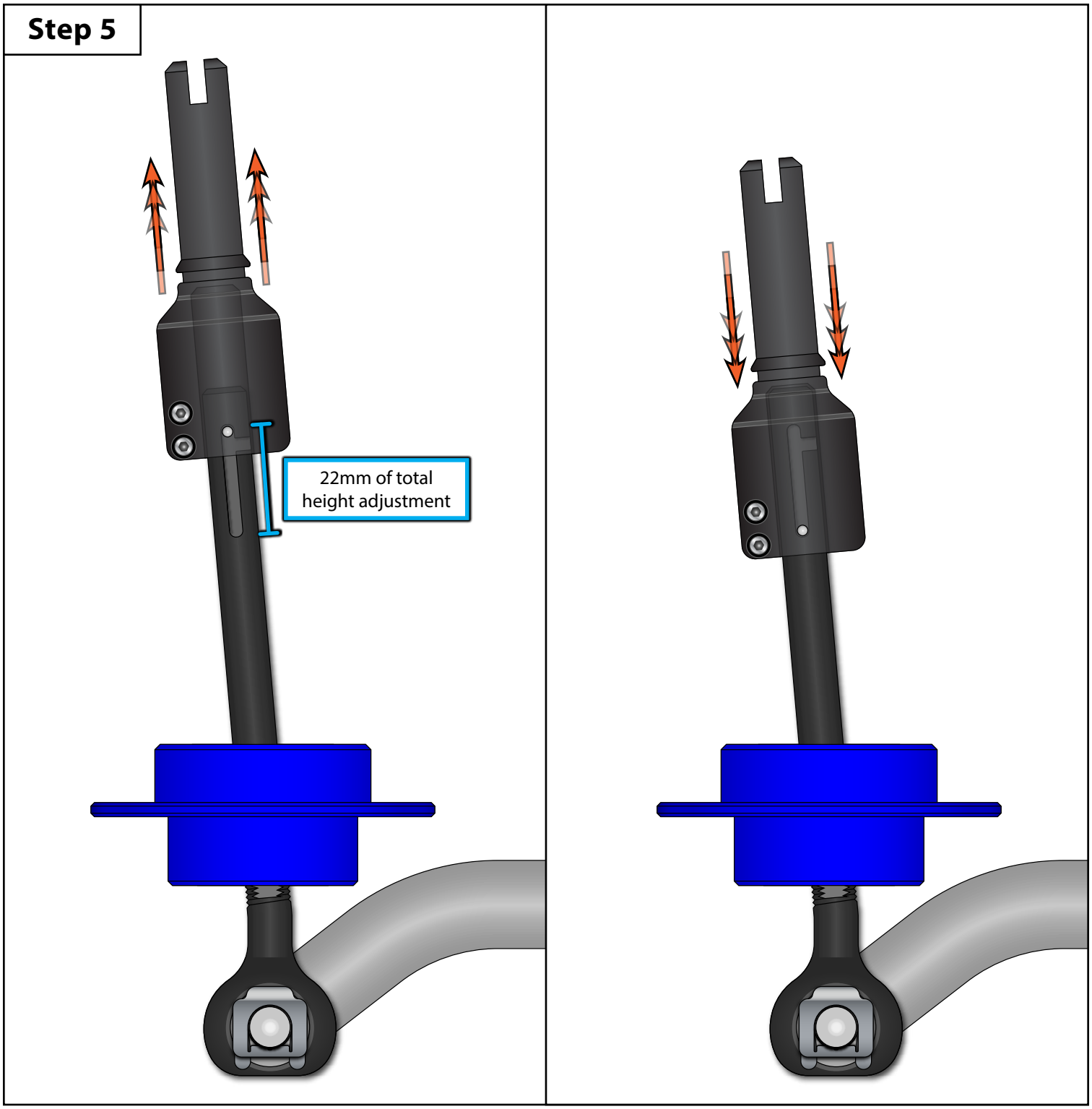
# Section 4: Adjusting the New Short Shift Kit

**Step 5**

- Slide the upper shift lever into place, but don't tighten the screws just yet.
- You can adjust the height of your shift knob by sliding the upper shift lever up or down as shown in the illustrations below.
  - This will affect the amount of leverage you have over the shifter much more than it will affect the length of shift throws.
- Once you have found your desired setting you can proceed to Page 15 for final assembly.

**Step 5**

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# Section 5: Final Installation Steps

**Step 1**

- Tighten the 2.5mm Hex (Allen) screws on the upper shift lever until the shift lever is held snugly in place.
  - Try tightening each screw ⅛ turn at a time to "walk" them both in evenly, this will reduce the risk of stripping or breaking one of the screws.

**Step 2**

- Reinstall the foam insert around the shifter.

**Step 3**

- Reinstall the leather shift boot.

**Step 4**

- Reinstall the shift knob.
  - Reconnect the wiring harness for the illuminated shift knob (if equipped).




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