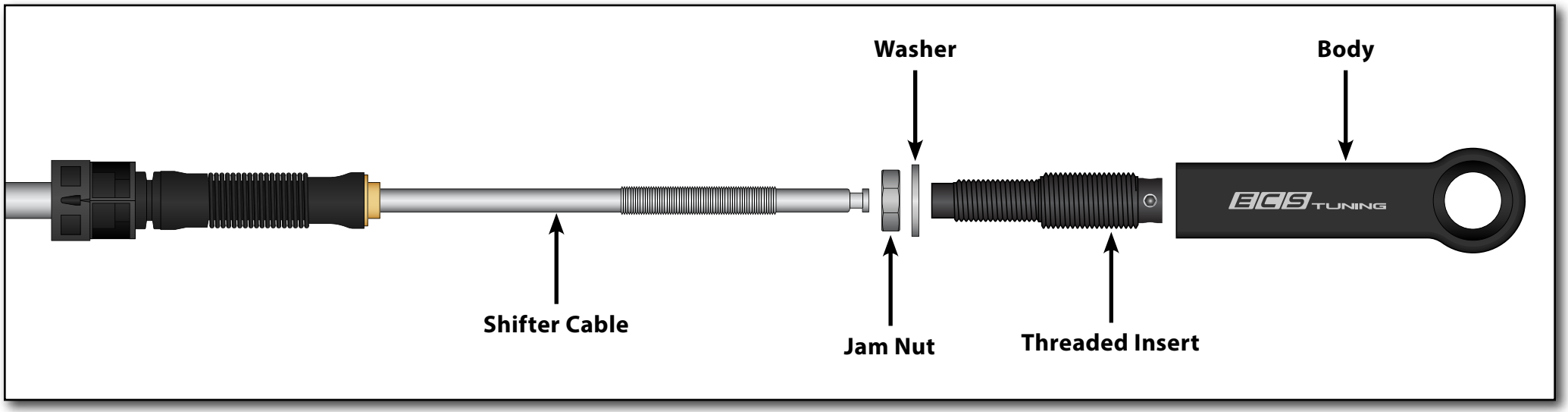
# Volkswagen Billet Adjustable Shifter Cable End Link Kit
# Installation Instructions - Click HERE to shop

**Skill Level**
**1 - Easy**
**Basic Skills Recommended**



# INTRODUCTION

## The Project:

Looking to get rid of the rubbery feeling from your shifter? Installing one of our Billet Adjustable Shifter Cable End Link kits is the answer. By eliminating shifter bushing deflection, you can now take control of your shifts. If you're still left looking for more then be sure and check out Page 3 for all of the different shifter upgrades we have to offer.

No more than a short afternoon project, you can install this kit a couple of hours or less. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools on hand. Thank you for looking to ECS Tuning for all of your repair and performance needs, we appreciate your business!

**CAUTION:** These end links may not fit if you have an aftermarket metal shift cable bracket. Some aftermarket metal brackets don't match the geometry of the original plastic bracket (this includes the Integrated Engineering bracket when installed on MK7s). It is possible that the changed geometry can cause the end link to make contact with the counter weight on the front-to-back shift lever.

# TABLE OF CONTENTS

# AVAILABLE SHIFTER UPGRADES

## Build-Your-Own 6-Speed Manual Transmission Upgrade Kit: ES#3420447

ECS Front-to-Back Shift Lever

ECS Side-to-Side Shift Lever

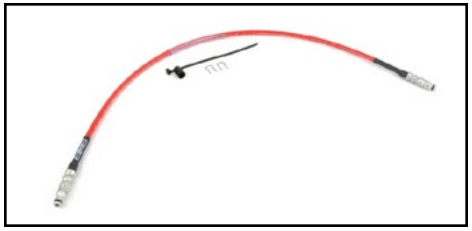
ECS Solid Shifter Cable Bracket Bushing Kit

ECS Solid Shifter Cable End Link Bushings

- OR -

ECS Billet Shifter Cable End Links

ECS 6-Speed Clutch Bleeder Block



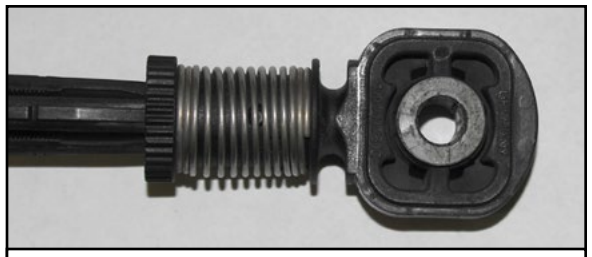
ECS Exact-Fit Clutch Line

Transmission Service Kit w/ Magnetic Drain & Fill Plugs

"Rectangle" Cable End

**Determine the Front-to-Back cable end style**

Rectangle ☐ Square ☐



"Square" Cable End

Metal Relay Lever

**Determine the Side-to-Side cable lever material**

Metal ☐ Plastic ☐

**Determine the Side-to-Side cable lever material**

Metal ☐ Plastic ☐

Plastic Relay Lever

| **Required Kit:** ES#3170890 Page 5 |
|---|
| Front-to-Back: 8.5mm |
| Side-to-Side: 8mm |

| **Required Kit:** ES#3170891 Page 6 |
|---|
| Front-to-Back: 8.5mm |
| Side-to-Side: 10mm |

| **Required Kit:** ES#3200744 Page 7 |
|---|
| Front-to-Back: 10mm |
| Side-to-Side: 8mm |

| **Required Kit:** ES#3200745 Page 8 |
|---|
| Front-to-Back: 10mm |
| Side-to-Side: 10mm |

# KIT CONTENTS - ES#3170890

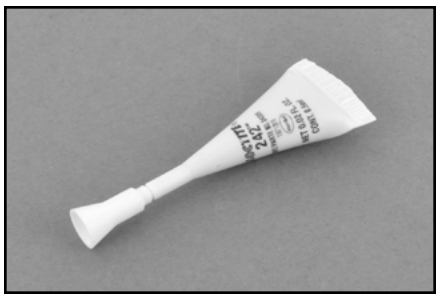

Billet Adjustable Shifter Cable End Link Assembly
**(QTY 2)**

**Front-to-Back Bushing Insert**
8.5mm **(QTY 1)**

**Side-to-Side Bushing Insert**
8mm **(QTY 1)**

M14 Washer
**(QTY 2)**

Flat Point Set Screw (4mm length)
**(QTY 8)**



Thread Locking Compound
**(QTY 1)**

# KIT CONTENTS - ES#3170891

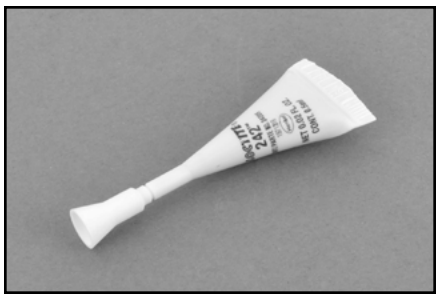

Billet Adjustable Shifter Cable End Link Assembly
**(QTY 2)**

**Front-to-Back Bushing Insert**
8.5mm **(QTY 1)**

**Side-to-Side Bushing Insert**
10mm **(QTY 1)**

M14 Washer
**(QTY 2)**

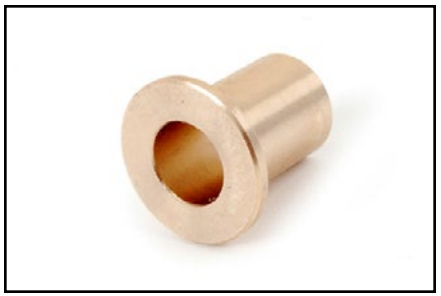
Flat Point Set Screw (4mm length)
**(QTY 8)**



Thread Locking Compound
**(QTY 1)**

# KIT CONTENTS - ES#3200744


Billet Adjustable Shifter Cable End Link Assembly
**(QTY 2)**

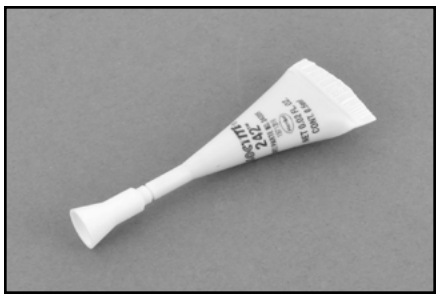


**Front-to-Back Bushing Insert**
10mm **(QTY 1)**

**Side-to-Side Bushing Insert**
8mm **(QTY 1)**

M14 Washer
**(QTY 2)**

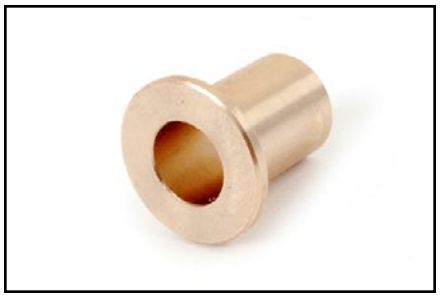
Flat Point Set Screw (4mm length)
**(QTY 8)**



Thread Locking Compound
**(QTY 1)**

# KIT CONTENTS - ES#3200745


Billet Adjustable Shifter Cable End Link Assembly
**(QTY 2)**

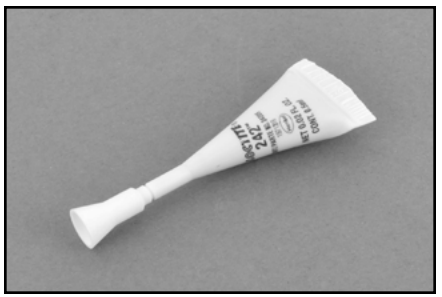


**Front-to-Back Bushing Insert**
10mm **(QTY 1)**

**Side-to-Side Bushing Insert**
10mm **(QTY 1)**

M14 Washer
**(QTY 2)**

Flat Point Set Screw (4mm length)
**(QTY 8)**



Thread Locking Compound
**(QTY 1)**

# 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
- **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
- **Trim/Moulding Tools** ..... ES#517779
- Crows Foot Wrenches
- **Hook and Pick Tool Set** ..... ES#2778980

## Required For This Install

- **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

## Available On Our Website

## Specialty Tools

- **Schwaben Shifter Alignment Pin** ..... ES#3570695
- **Schwaben Trim Removal Tool Set** ..... ES#517779

# 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

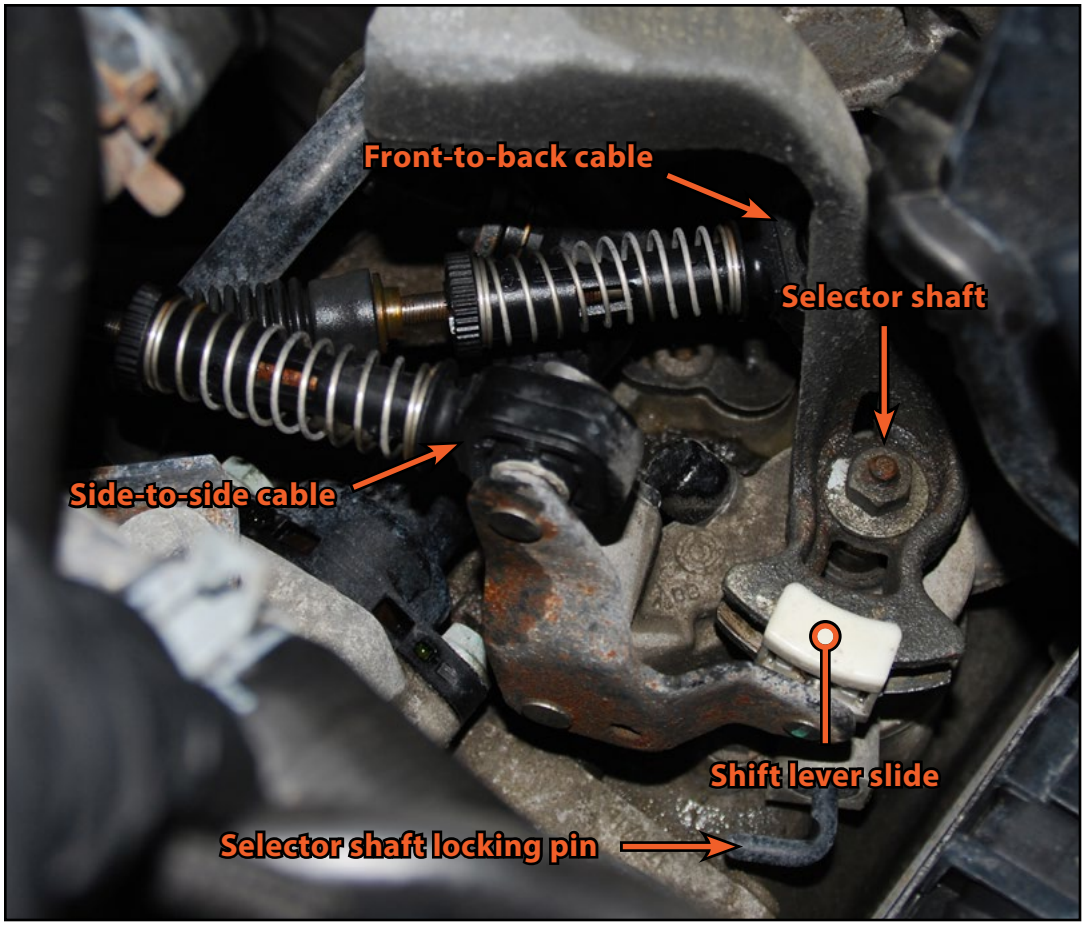
ECS Tuning cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

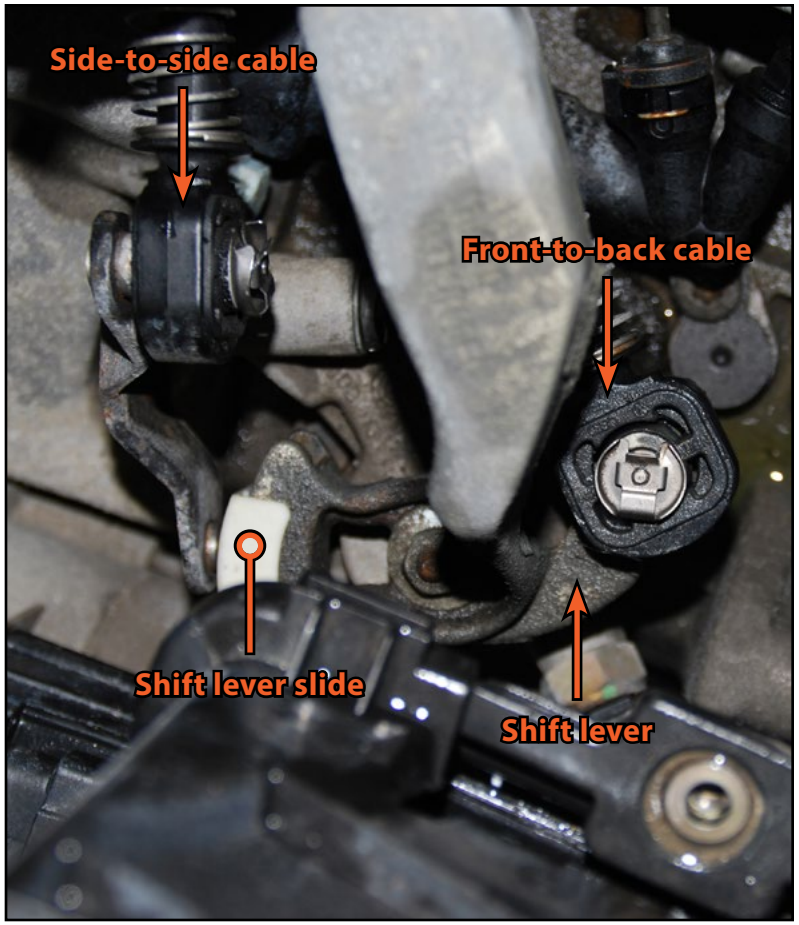
- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.
- 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.**

# 5-SPEED SHIFTER CABLE IDENTIFICATION

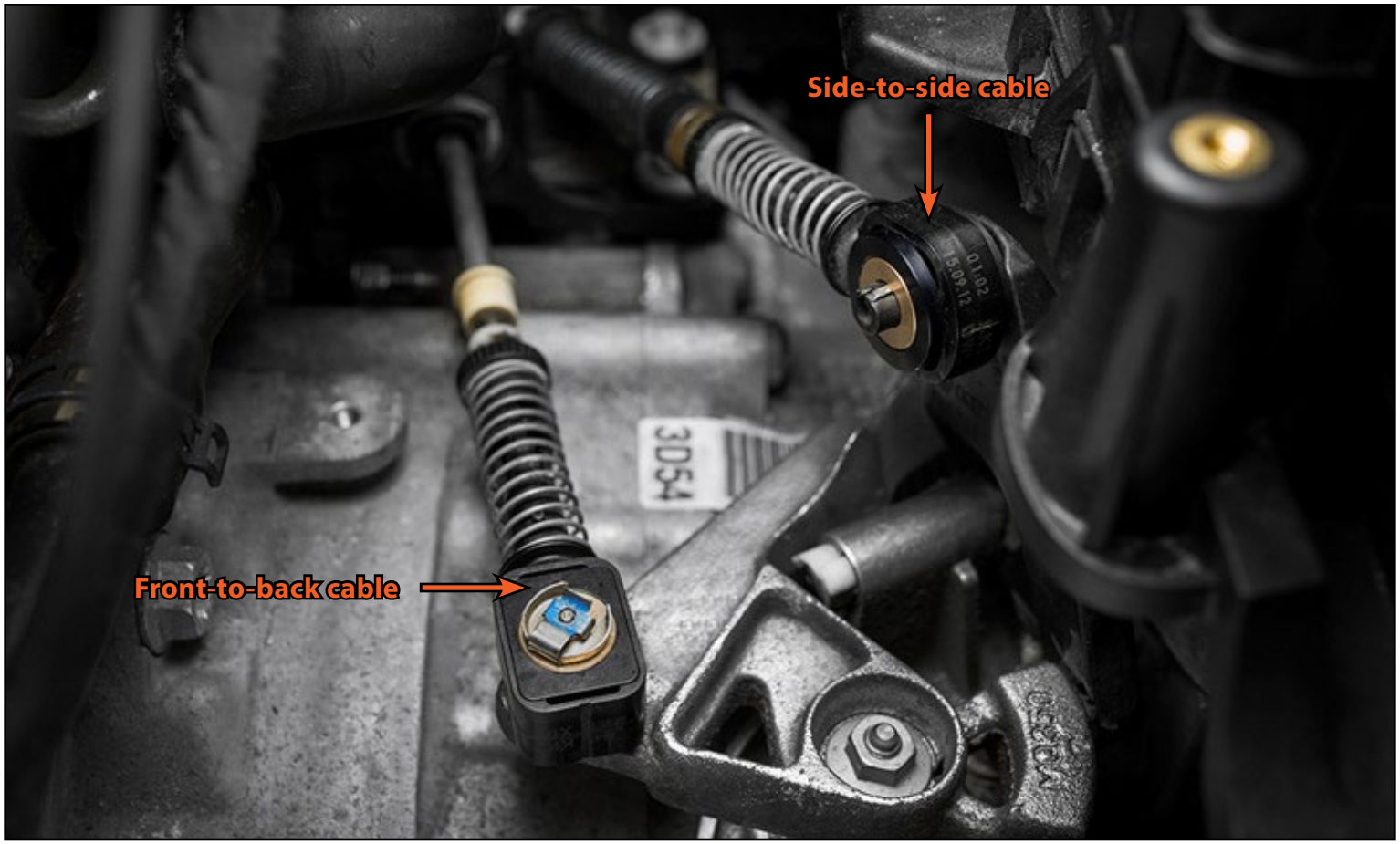
All Volkswagen 5-speed transmission shifter cables will have this orientation, regardless of the end style of the shifter cable. The front-to-back cable is the lower of the two cables, mounted onto the vertical pin of the shift lever. The side-to-side cable is the higher of the two cables, mounted onto the horizontal pin of the relay lever.



# 6-SPEED SHIFTER CABLE IDENTIFICATION

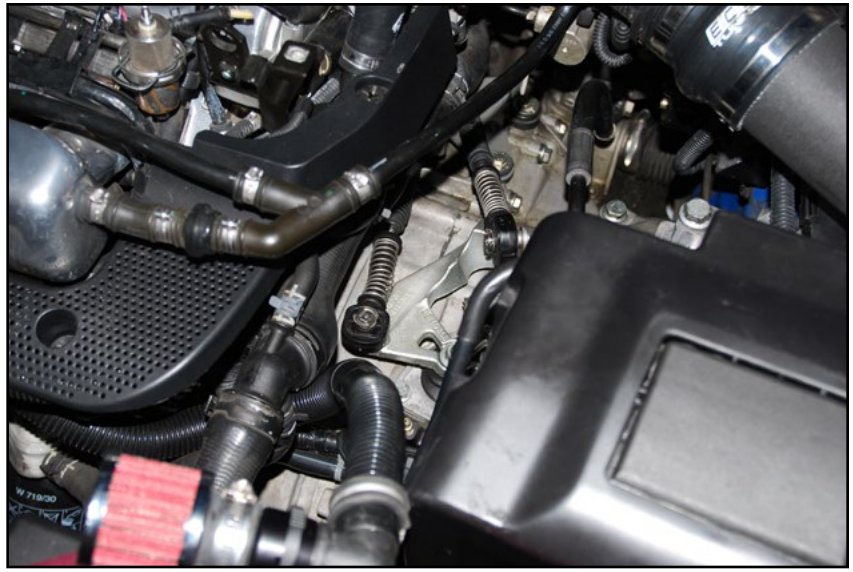
All Volkswagen 6-speed transmission shifter cables will have this orientation, regardless of the end style of the shifter cable. The front-to-back cable is the lower of the two cables, mounted onto the vertical pin of the shift lever. The side-to-side cable is the higher of the two cables, mounted onto the horizontal pin of the relay lever.



# REMOVING THE ORIGINAL SHIFTER CABLE ENDS

## Step 1:

You must first remove the original air box or intake system in order to gain access to the shifter cables. With some aftermarket intake systems, such as the one shown here in this photo, you may already have enough access to perform the installation. You can remove the battery and the battery box to open up some extra space to work, but this is completely optional.



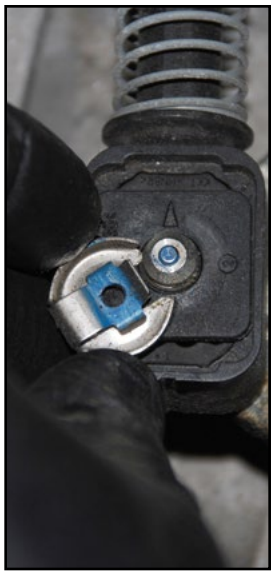
## Step 2:

Place the transmission in neutral.

# REMOVING THE ORIGINAL SHIFTER CABLE ENDS

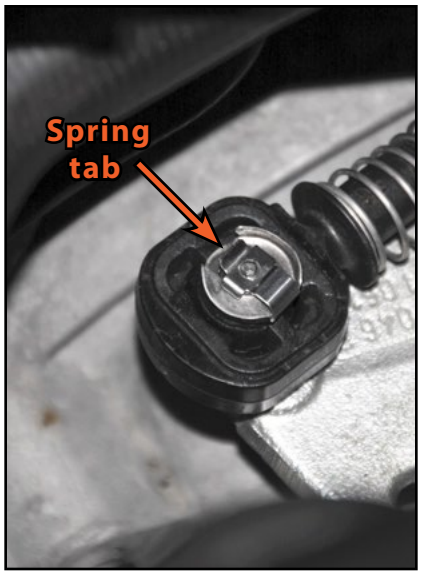
Step 3:

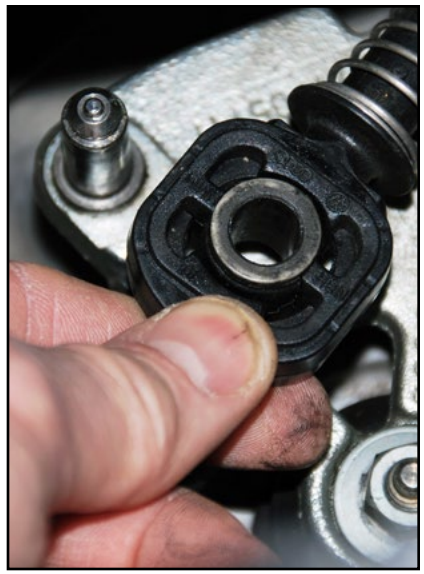
Remove the front-to-back shifter cable end from the shift lever.

**Rectangle Cable End:**

- First remove the retaining clip by pulling up lightly on the spring tab and sliding the clip off of the shift lever pin, then lift off the cable end.



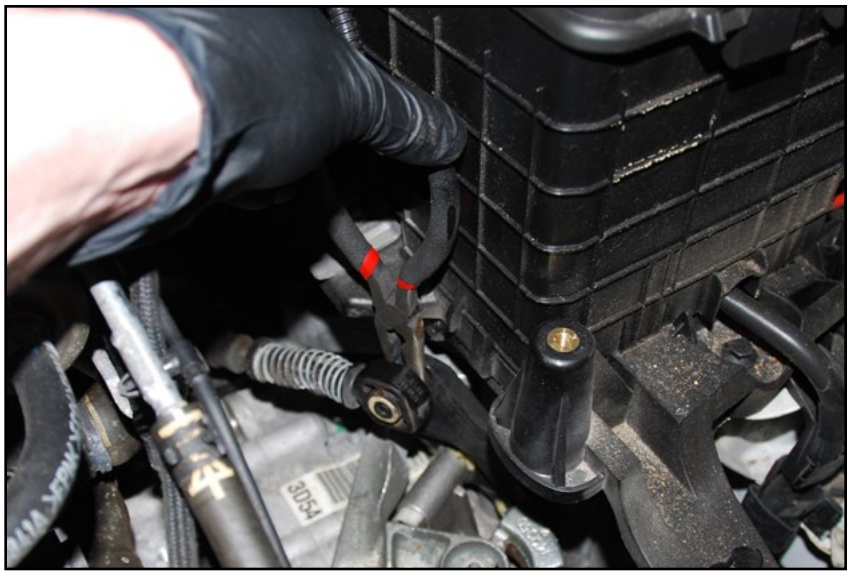
**Square Cable End:**

- First remove the retaining clip by pulling up lightly on the spring tab and sliding the clip off of the shift lever pin, then lift off the cable end.

# REMOVING THE ORIGINAL SHIFTER CABLE ENDS

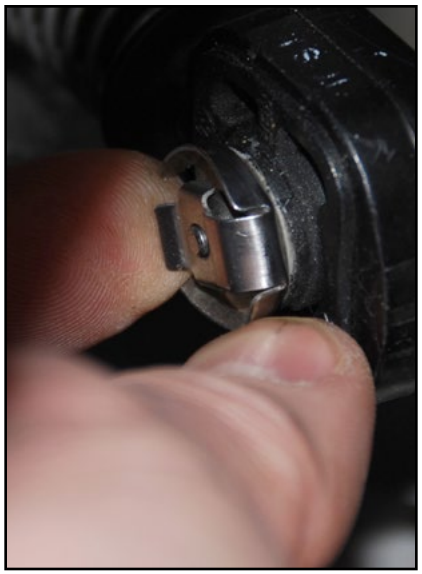
**Step 4:** Needle Nose Pliers

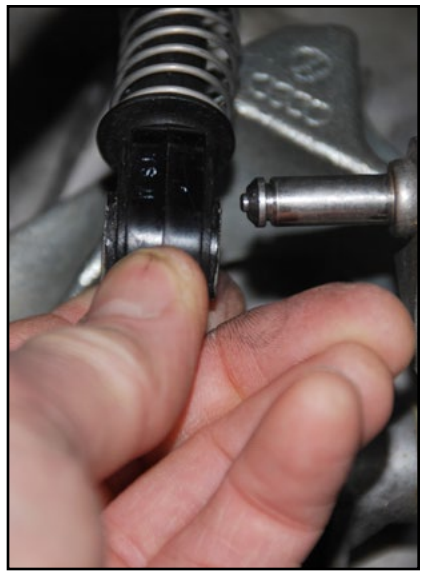
Remove the side-to-side cable end from the relay lever.



**Plastic Pin:**

- This cable end is retained by a small plastic nub on the end of the shift lever pin. You may be able to pull this cable end off by hand, however if it is too tight, insert a small pair of needle nose pliers between the cable end and shifter linkage and gently pry it off.





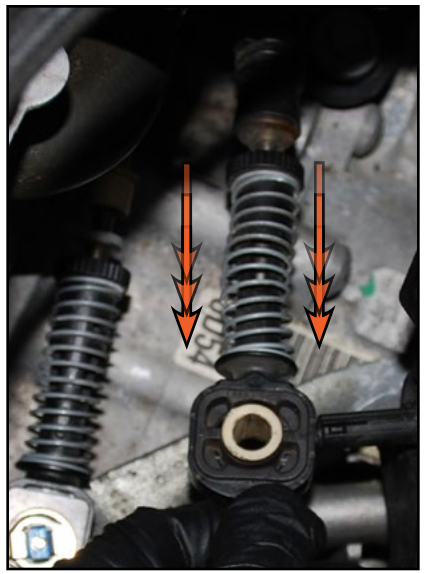
**Metal Pin:**

- First remove the retaining clip by pulling up lightly on the spring tab and sliding the clip off of the relay lever pin, then slide off the cable end.

# REMOVING THE ORIGINAL SHIFTER CABLE ENDS

## Step 5:

Unlock both shifter cable ends. The procedure is the same for both, regardless of end style: Grasp the knurled round end of the cable lock mechanism and pull it forward until the spring is completely compressed. Then simply turn it about ⅛ of a turn to the left and it will lock in place. It is properly locked when you release your grip and the spring remains compressed.



## Step 6:

With both end locks released, pull both cable ends off of the shifter cables.

# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

## Overview:

Before getting started, familiarize yourself with the exploded view of the end links (on the right) and also the installation order of components (below).

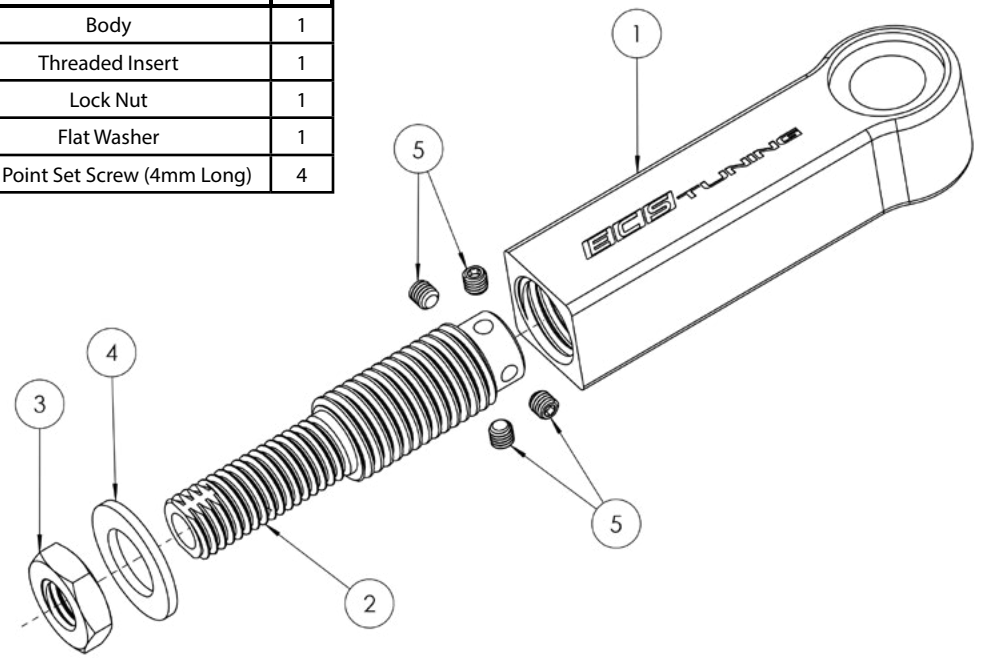
NOTE

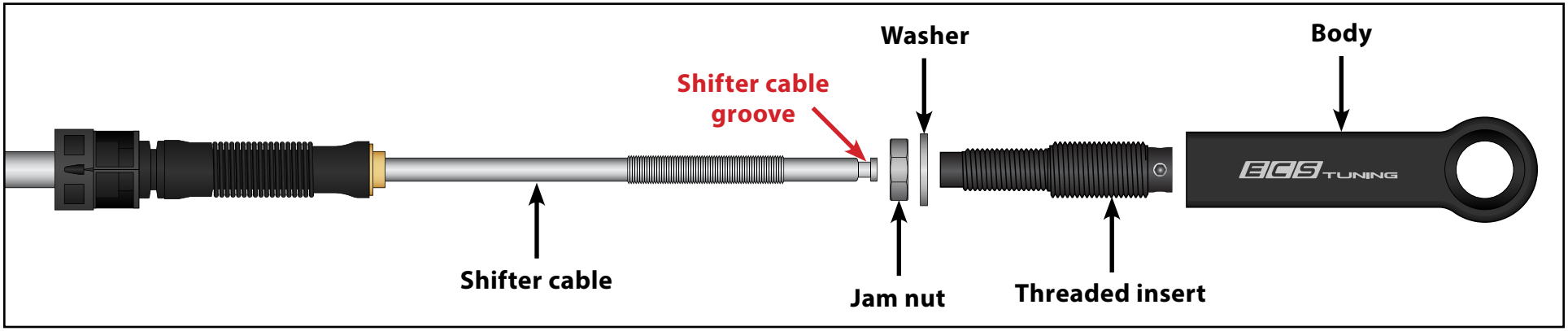
The set screws (#5 in the illustration on the right) are packaged separately, we will be installing these screws in a later step.

NOTE

Previous versions of this product incorporated a second row of set screws located in the threaded insert. If your shifter cable end link comes equipped with this second row of set screws, simply install them in the same manner as the set screws shown in these instructions.

| Item # | Description | QTY |
|---|---|---|
| 1 | Body | 1 |
| 2 | Threaded Insert | 1 |
| 3 | Lock Nut | 1 |
| 4 | Flat Washer | 1 |
| 5 | Flat Point Set Screw (4mm Long) | 4 |



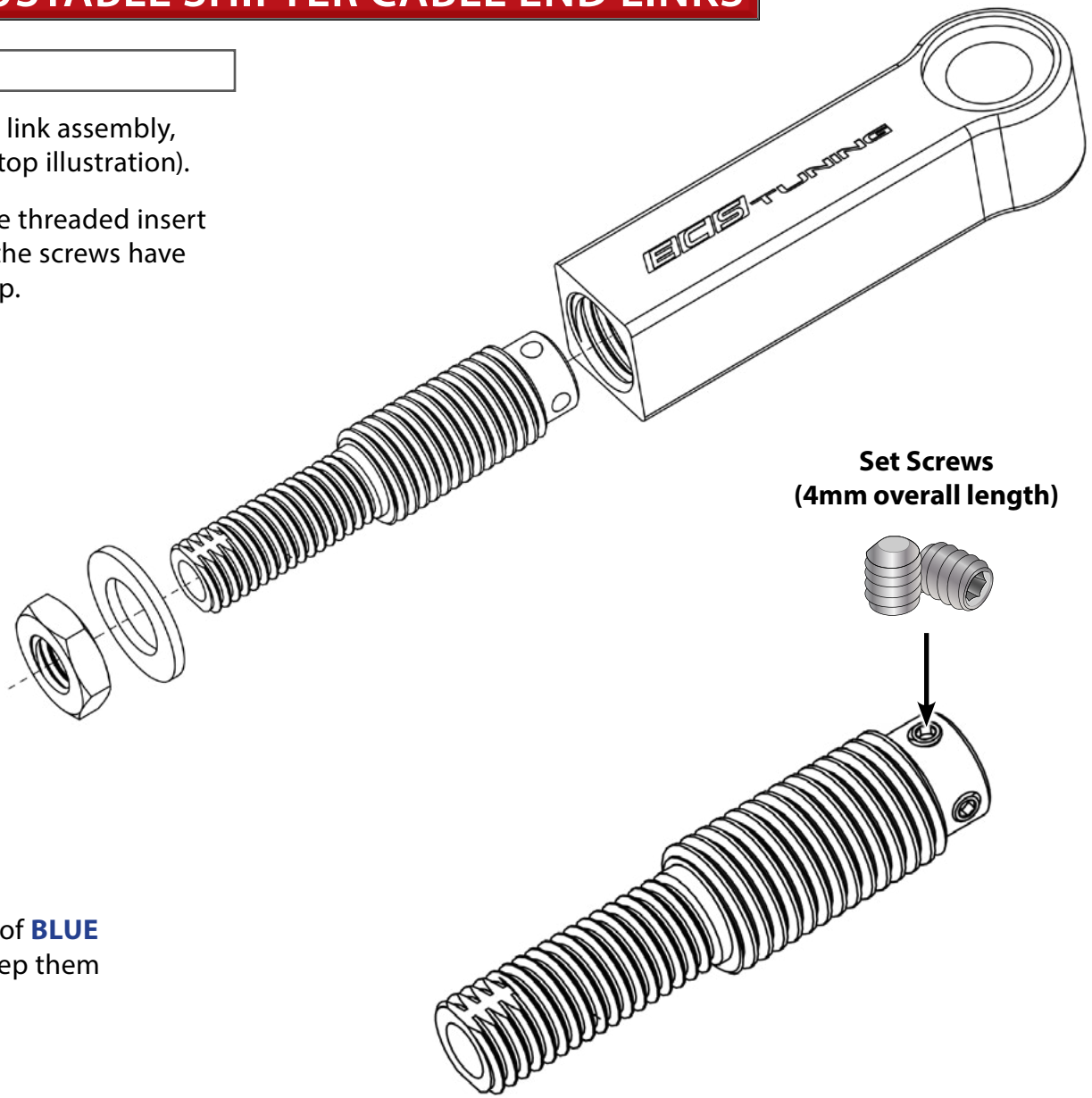



# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

## Step 1:

Remove the jam nut and the washer from the end link assembly, then unscrew the threaded insert from the body (top illustration).

Thread the included set screws a few turns into the threaded insert by hand (shown in the bottom illustration). Once the screws have been threaded into place, proceed to the next step.



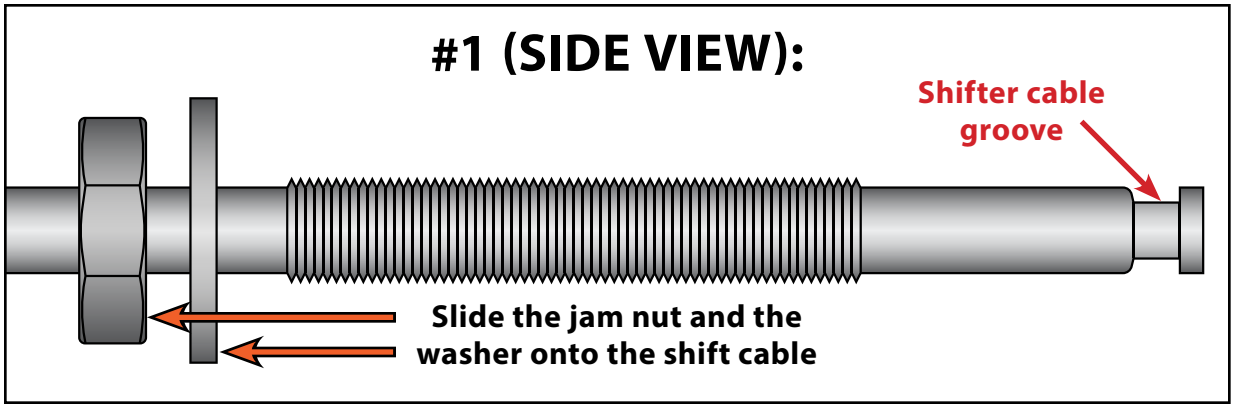

NOTE

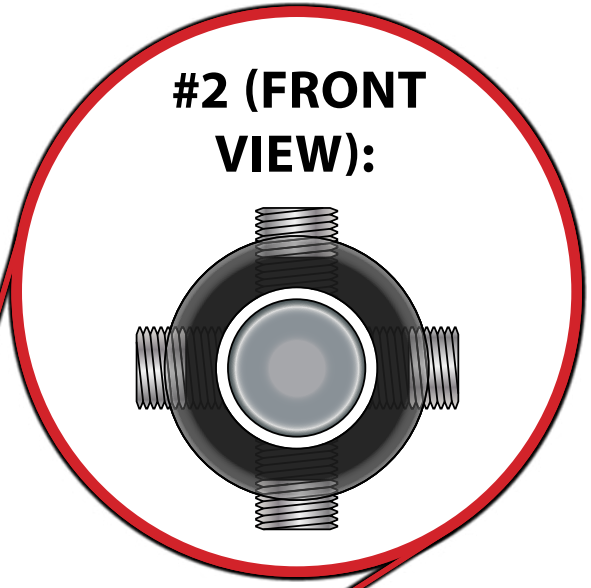
We recommend applying a single drop of **BLUE** loctite to each of these set screws to keep them from backing out once installed.

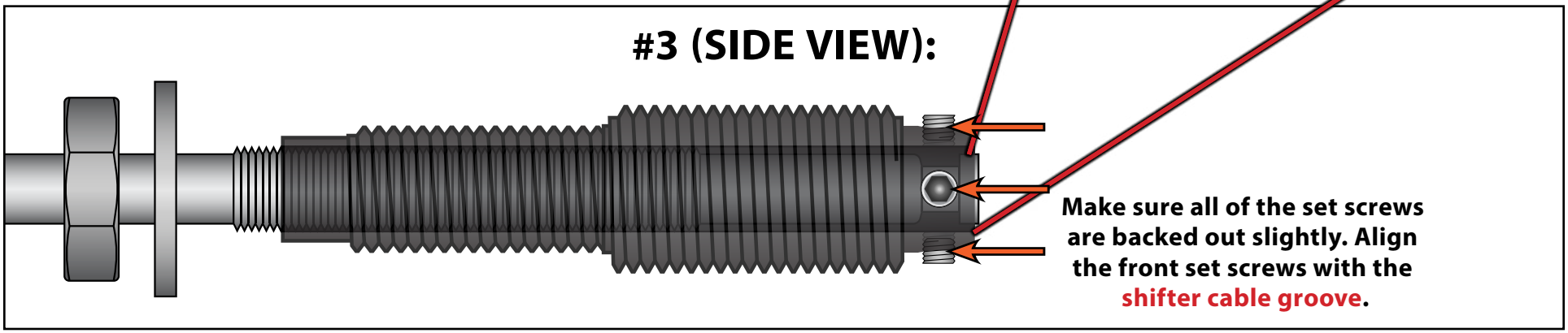
# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

**Step 2:** 2mm Allen

Begin by sliding the jam nut and the washer over the shifter cable (**illustration #1**), then make sure that all of the set screws are backed out enough to slide the shifter cable through (**illustration #2**). Finally, slide the threaded insert onto the cable as shown (**illustration #3**), making sure that the front row of set screws are aligned with the shifter cable groove.



# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

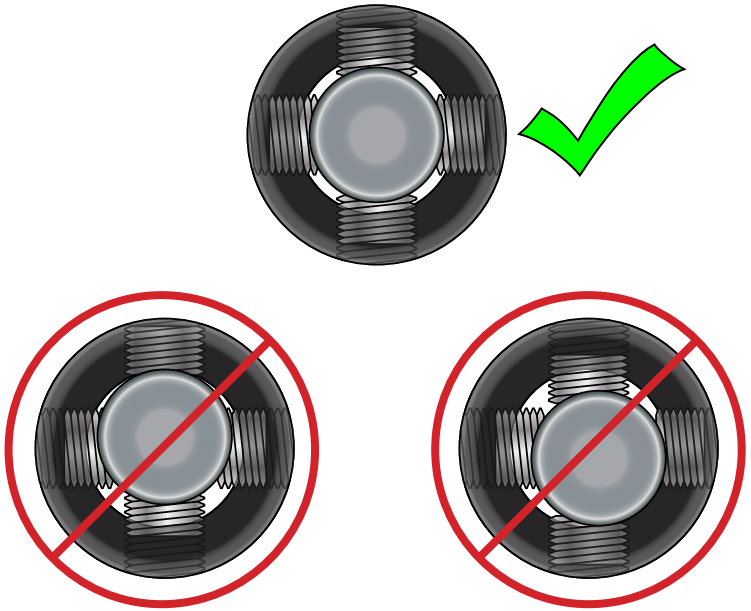
**Step 3:** 2mm Allen

Align the threaded insert so that the set screws along the front edge will thread into the cable groove, then tighten all of the set screws, paying close attention to the following guidelines:

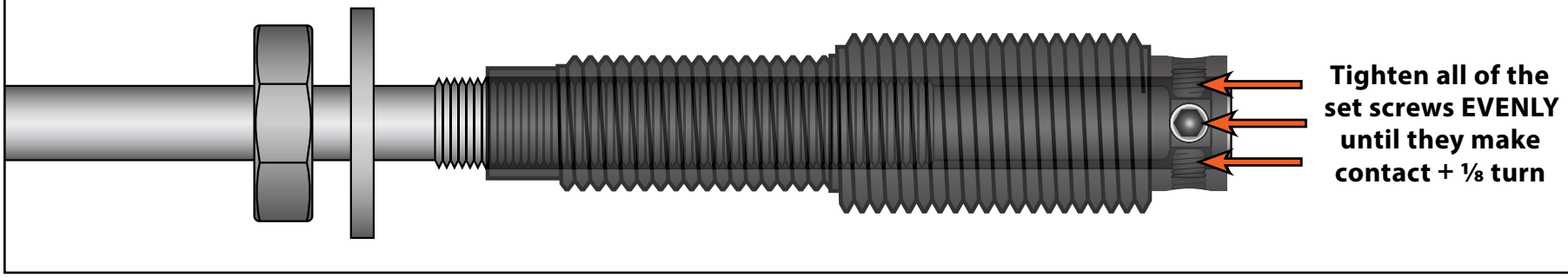
- The longer set screws need to engage inside the groove on the end of the shifter cable.
- All of the set screws **MUST** be threaded in evenly to ensure proper clamping on the shifter cable, this is shown in the illustration on the right.

Once the set screws have all been evenly threaded in until they make contact, tighten each of them an additional ⅛ turn.

## FRONT VIEW:



## SIDE VIEW:

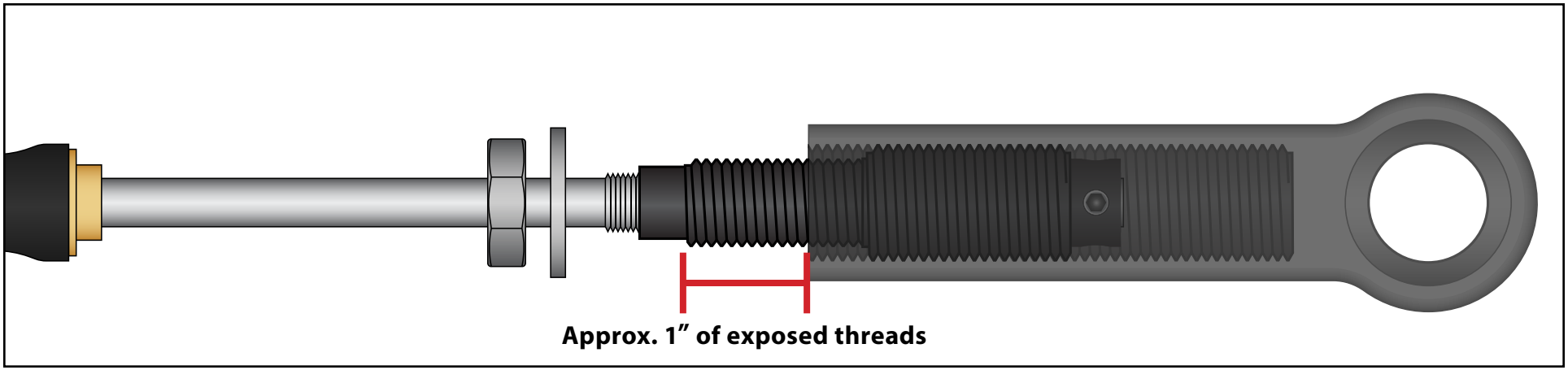


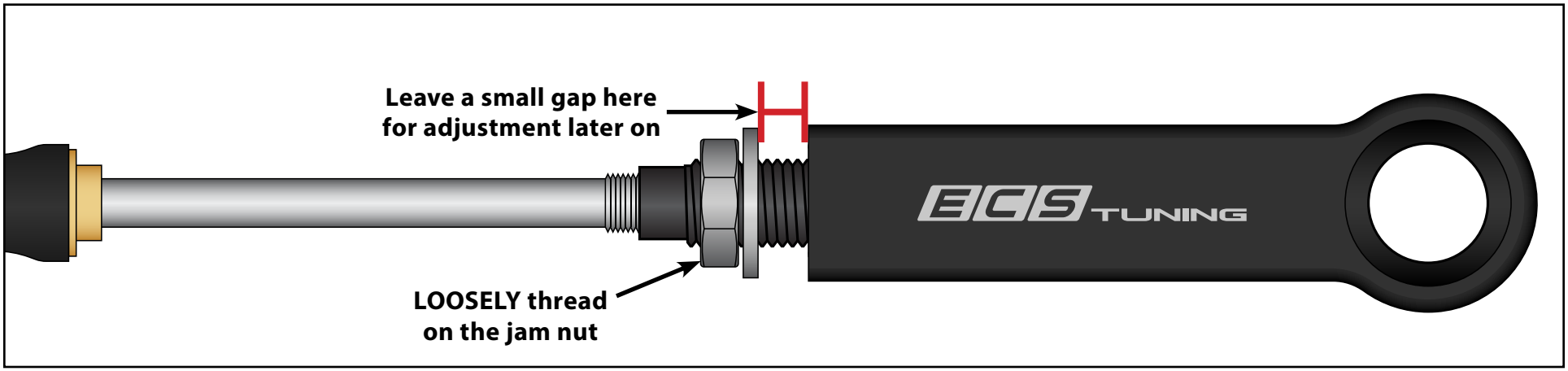
# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

## Step 4:

Loosely spin the body onto the threaded insert (shown in the upper illustration), then thread the jam nut onto the insert by hand (shown in the lower illustration), leaving a small gap as shown to allow for end link adjustment.

Repeat steps 1-4 to install the other shifter cable end link.



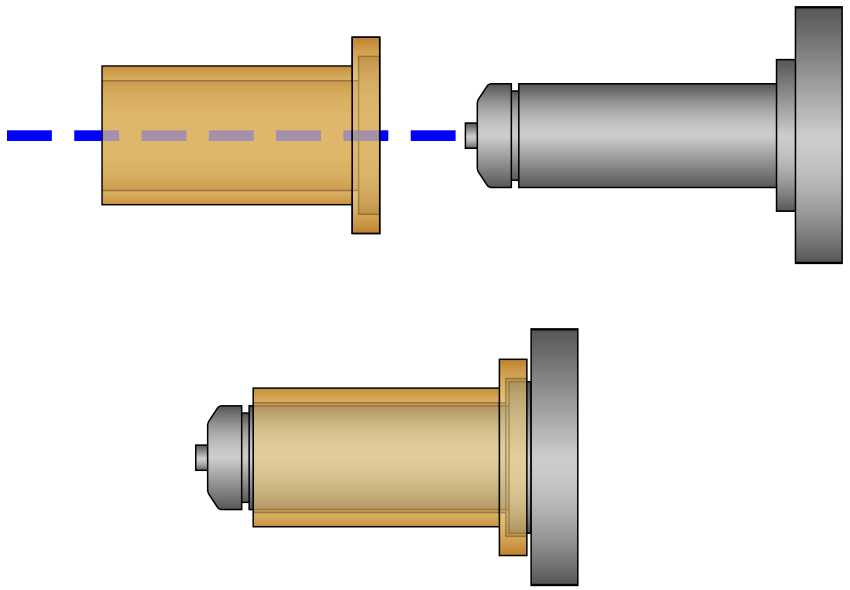
# INSTALLING THE BILLET ADJUSTABLE SHIFTER CABLE END LINKS

## Step 5:

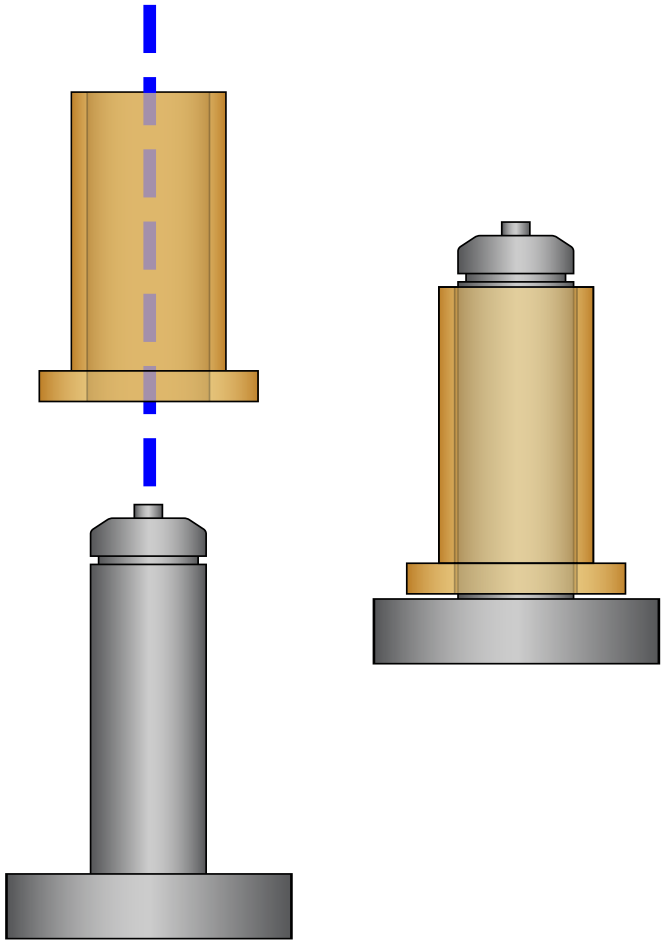
Install the supplied bushing inserts onto the pins which are located on the front-to-back and the side-to-side levers. Be sure to install the bushing inserts onto the pins with the "flange-side first" as shown in the illustrations on this page, regardless of the bushing diameter or lever material*.

*If you have a plastic side-to-side lever the bushing will be installed in the opposite direction, but we'll cover that ***after*** the cable adjustment procedure.

### Side-to-Side Cable Bushing Inserts:



### Front-to-Back Cable Bushing Inserts:

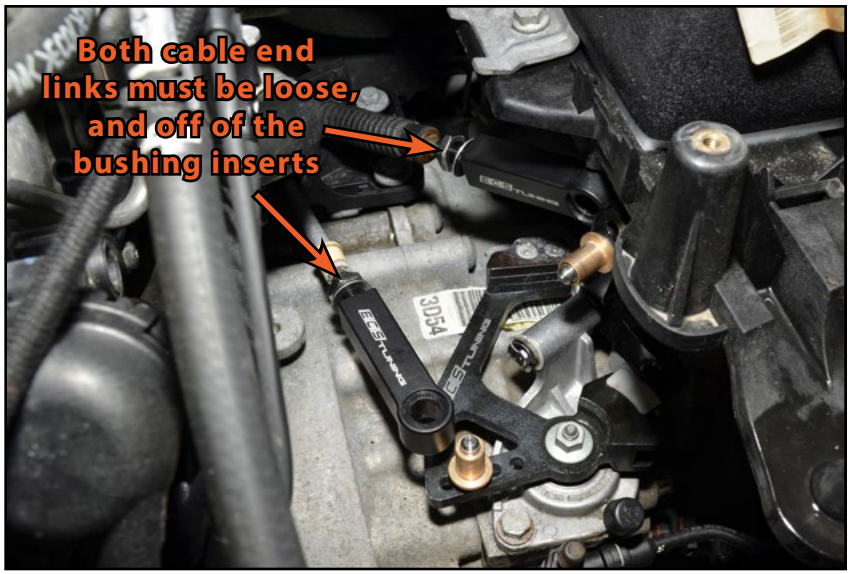


***With the shifter cable end links and bushing inserts in place, it's time to adjust the shifter cables!***

# SHIFTER CABLE ADJUSTMENT

**Step 1:** 19mm Wrench

Before we begin, ensure that the jam nuts on both cable end links are loose. If not, back them off a few turns.

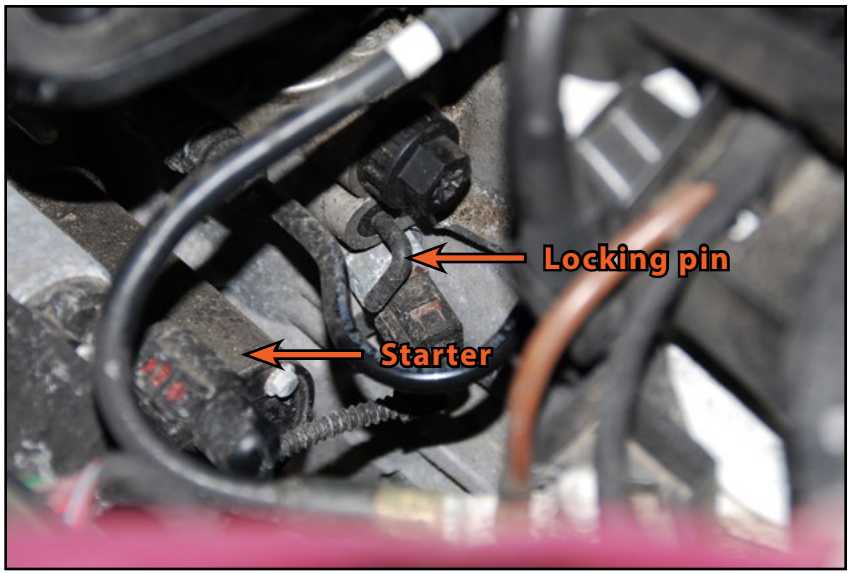



NOTE

We are performing this adjustment on a MK6 6-speed transmission. Different model years and 5-speed transmissions will appear different but the procedure is the same. Refer to Page 11 for information on the 5-speed transmission shifter.

**Step 2:**

Locate the selector shaft locking pin in the transmission housing. It is located on the LH (Driver's) side, just behind the starter.



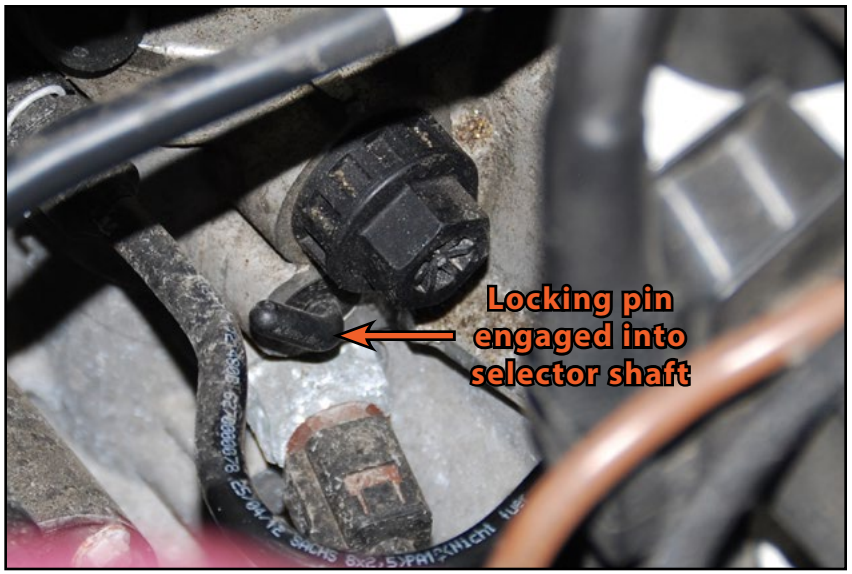

NOTE

Reference the instructions on Page 11 for the 5-Speed transmission locking pin location.

# SHIFTER CABLE ADJUSTMENT

## Step 3:

The transmission should be in neutral and you should be able to move the selector shaft up and down with ease. Push down on the selector shaft until it is approximately in the middle of its travel. Push in on the locking pin and gently move the selector shaft up and down until the pin engages the alignment hole in the selector shaft and pushes into the transmission. Turn the locking pin upward slightly and release the pressure on the selector shaft. When properly engaged, the pin will stay in place and you will not be able to move the selector shaft.




## Step 4: Trim Removal Tool

Working inside the car, gently pry up the shifter boot, then lift it over the shift knob. Lift up the insulator underneath the shift boot.

# SHIFTER CABLE ADJUSTMENT

## Step 5:

Looking along the bottom of the shift rod you will see the two holes where a tool will be inserted to lock the shifter into place (arrows). Any round tool such as a drill bit or punch can be used, but the fit must be very snug or the shifter adjustment will not be successful.

## Step 6: Schwaben Shifter Alignment Pin

Insert the Schwaben alignment pin or a similar tool through the alignment hole in the shifter stick and into the alignment hole in the base of the shifter.

You may notice that the shift lever will move around a bit even with the locking pin installed. While this is a normal condition, it does make the adjustment procedure a little more difficult. **You want to make absolutely sure that the shifter is centered in its locked position.**

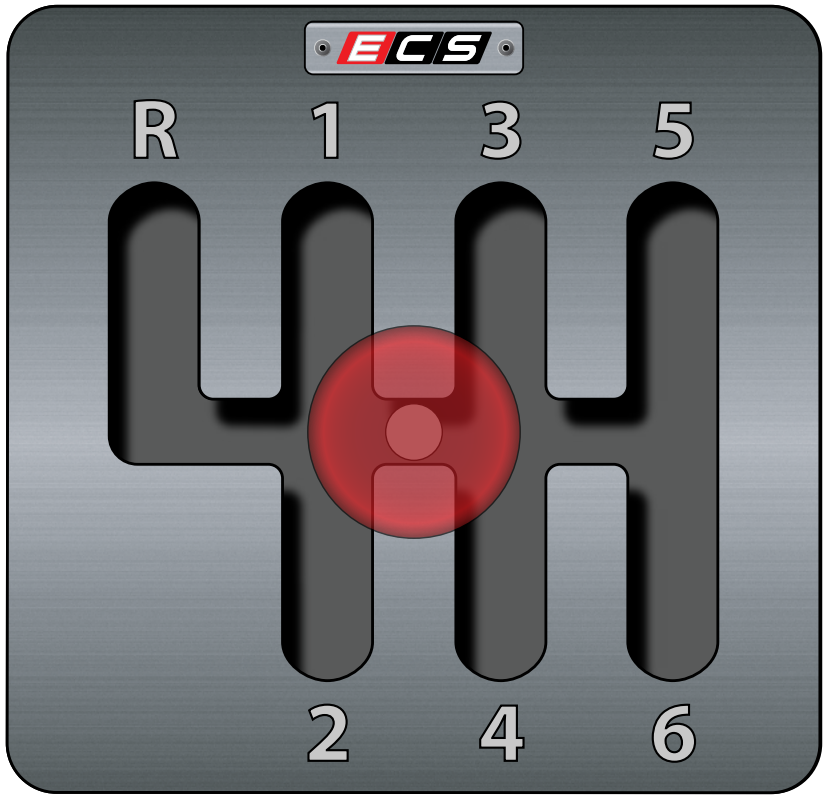

From this point on it is very important that the shift lever inside the vehicle is not disturbed. This also means that you need to avoid tugging on the shift cables when working under the hood.

# SHIFTER CABLE ADJUSTMENT

Let's take a moment and talk about exactly what's happening when you lock the shift cables into place. When the shift cables are locked into "home" position, the shifter will rest halfway between the 1-2 and 3-4 gates. This means that the shifter handle inside the vehicle is in the position depicted in the RH illustration below, and the shift tower on top of the transmission is also in the same position. Now that we know this, we can proceed with the adjustment.

**WITHOUT Cables Locked in "Home" Position**


**WITH Cables Locked in "Home" Position**




NOTE

The illustrations above show a 6-speed pattern, but they apply to 5-speed vehicles since reverse is the same position on both transmissions.

# SHIFTER CABLE ADJUSTMENT

## Step 7:

Now that both the shifter and the selector shaft have been locked into place, we need to lengthen or shorten the length of the new shifter cable end links until they can be installed into place. This is done by simply rotating the body clockwise to shorten it, or counter-clockwise to lengthen it.


## Step 8:

When you think you have the end link set to the correct length, try to push it down onto the bushing insert as shown on the right. This may take a little bit of manipulation in order to get the end link to slide down the bushing, we found it easiest to slightly lift the cable side of the end link while trying to push the body into place.

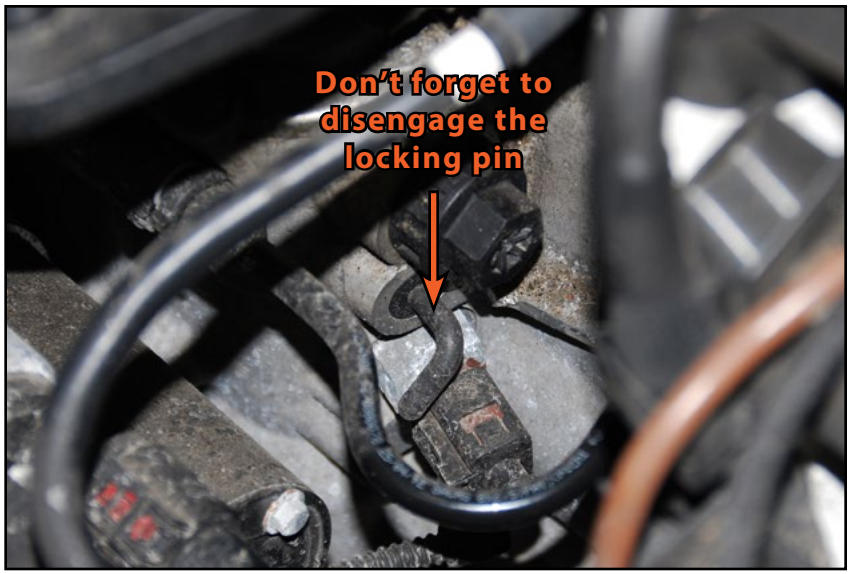

NOTE

We recommend attempting this on the front-to-back shifter cable first, but you will need to repeat this procedure on the side-to-side shifter cable ***BEFORE*** moving on.

TECH TIP

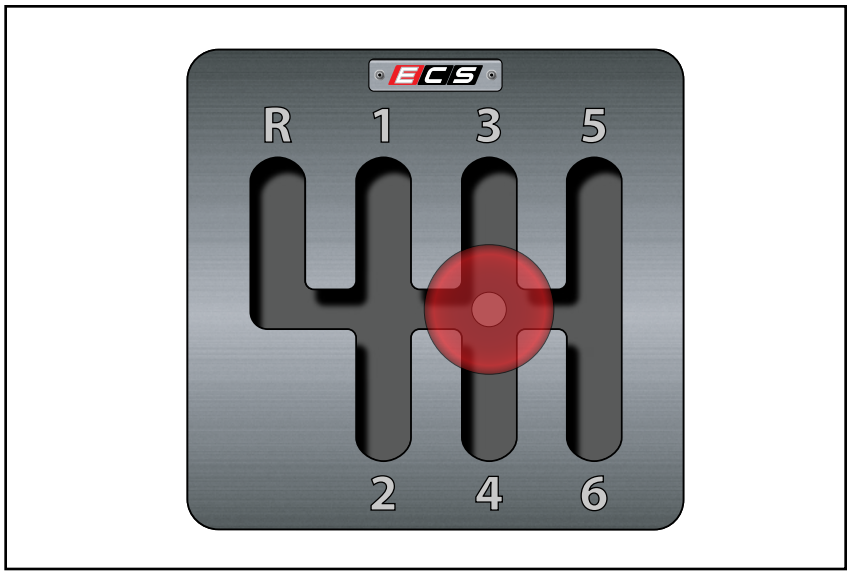
It is a good idea to periodically check the locking pin and make sure that it hasn't backed out of the selector shaft while you are adjusting the end link length.

- [ ] Disengage the locking pin from the selector shaft.
- [ ] Pull the alignment pin out of the shifter.




STOP

***Before*** you reassemble the vehicle, proceed to the next page for detailed instructions on checking the shifter operation and feel.



# SHIFTER CABLE ADJUSTMENT

## Step 11:

The illustration below shows what you should feel through the shifter when the cables have been properly adjusted. You want to confirm that you can reach every gear, and the shift gates should all feel like they are approximately the same width.

If you've performed the shift cable adjustment but are having trouble getting a satisfactory result:

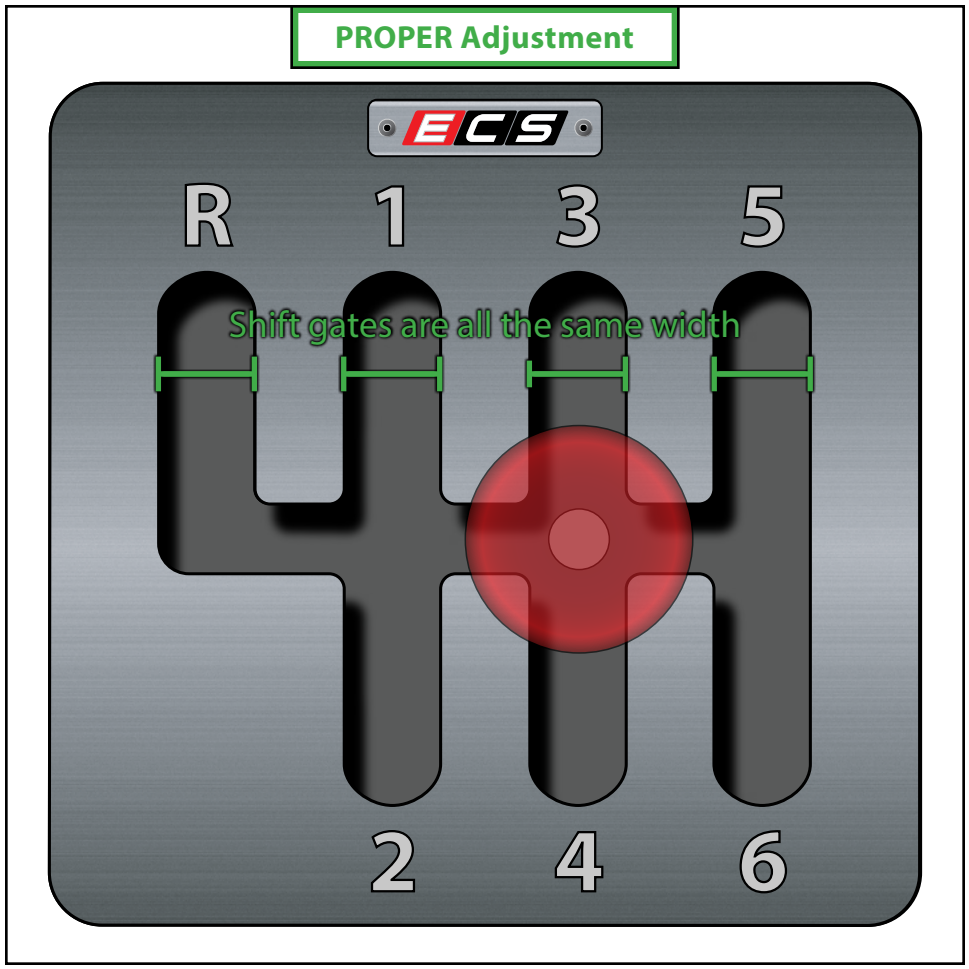
- Follow steps 12-15 to "fine tune" the cables.

If you are happy with the shifter feel and can reach all of the gears:

- Skip ahead to Page 32 for final reassembly.

NOTE

The shifter and selector shaft should ***NOT*** be locked into place during the next two steps.



# SHIFTER CABLE ADJUSTMENT: FINE TUNING THE SIDE-TO-SIDE CABLE

## Step 12:

Rotate the side-to-side cable end link clockwise to ***SHORTEN*** the cable. This will "push" the shift knob toward the left side.

We strongly recommend only rotating the end link ½ turn at a time, remember we're trying to ***fine tune*** the adjustment.

TECH TIP

Fine tuning the side-to-side cable can be a crucial step. This adjustment will determine whether or not reverse, 5th, & 6th gear can be easily reached.

## Step 13:

Rotate the side-to-side cable end link counter-clockwise to ***LENGTHEN*** the cable. This will "push" the shift knob toward the right side.

We strongly recommend only rotating the end link ½ turn at a time, remember we're trying to ***fine tune*** the adjustment.

Mis-adjustment of this cable can make 1-2 and 5-6 very difficult to locate.

# SHIFTER CABLE ADJUSTMENT: FINE TUNING THE FRONT-TO-BACK CABLE

## Step 14:

Rotate the front-to-back cable end link clockwise to ***SHORTEN*** the cable. This will "push" the shift knob rearward.

We strongly recommend only rotating the end link ½ turn at a time, remember we're trying to ***fine tune*** the adjustment.

TECH TIP

Fine tuning the front-to-back cable is not as crucial as the side-to-side cable, but still important. This adjustment will determine where the shift knob rests in neutral.

## Step 15:

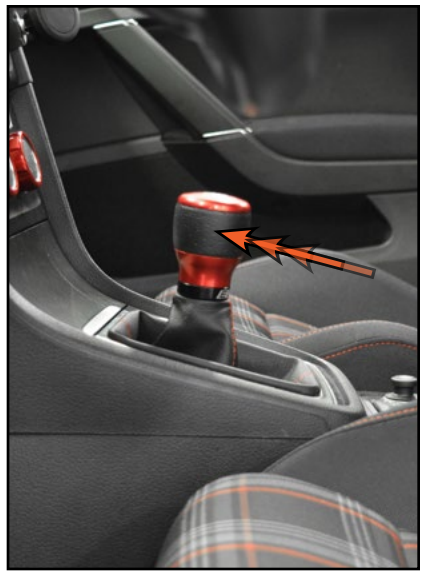
Rotate the front-to-back cable end link counter-clockwise to ***LENGTHEN*** the cable. This will "push" the shift knob forward.

We strongly recommend only rotating the end link ½ turn at a time, remember we're trying to ***fine tune*** the adjustment.

Mis-adjustment of this cable can make it very difficult to shift into reverse.

Once you are happy with the shifter feel and can reach all of the gears:

- Skip ahead to Page 32 for final reassembly.



# SHIFTER CABLE ADJUSTMENT: FINAL REASSEMBLY

## Step 16:

Once the shifter cable end link length has been set, slide the front-to-back end link onto the shifter, place the supplied washer inside the recess on top of the end link body (LH photo). Secure the end link into place with the original clip (RH photo).



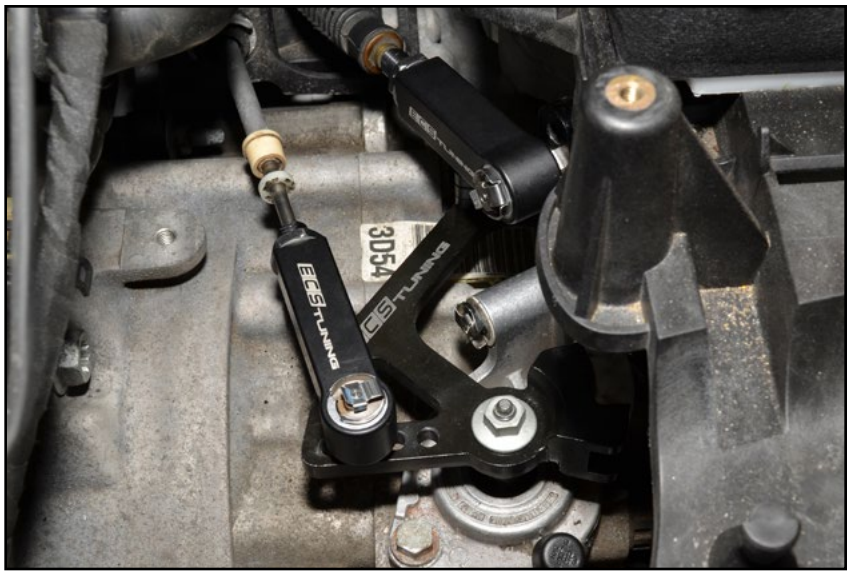
## Step 17: 19mm Wrench

If your vehicle is equipped with a **PLASTIC** side-to-side shift lever:

- Tighten the jam nut on each of the end links until snug, then continue to Page 33.

If your vehicle is equipped with a **METAL** side-to-side shift lever:

- Install the side-to-side shifter cable end link, place the supplied washer inside the recess, tighten the jam nuts until snug, then skip to Page 34.



# PLASTIC SIDE-TO-SIDE CABLE LEVER SUPPLEMENT

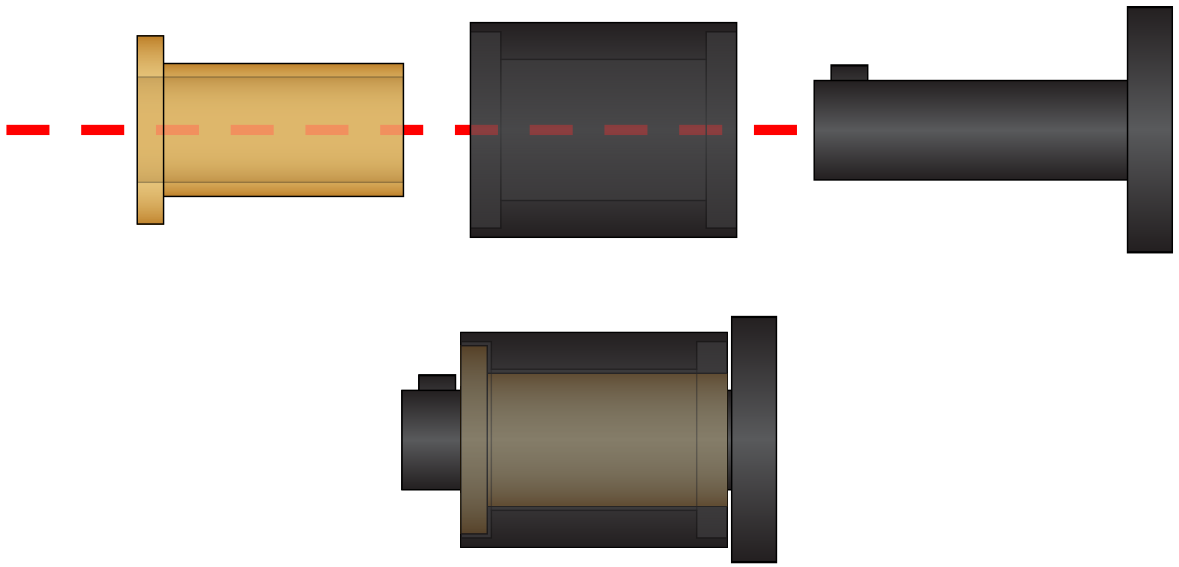
**This supplement is only applicable to vehicles which are equipped with a plastic side-to-side lever.**
**If you have a metal side-to-side shift lever, skip to Page 34.**

Once you have completed the shifter cable adjustment, pull the side-to-side shifter cable end link off of the lever one final time, remove the bushing insert and place it into the cable end link in the opposite direction as shown in the illustration and photo below, then reinstall the cable end link and bushing onto the shift lever. The flanged end of the bushing insert **MUST** be installed as shown so that it is able to lock the entire assembly into place. Tighten the jam nut down until snug, then proceed to the next page.

NOTE

Vehicles which are equipped with plastic side-to-side shift levers **DO NOT** use the M14 washer which is included with all adjustable shifter cable end links. This washer can simply be discarded.

## Side-to-Side Cable Bushing Insert (PLASTIC LEVER ONLY):



# SHIFTER CABLE ADJUSTMENT: FINAL REASSEMBLY

## Step 18:

Reinstall the shifter insulator and the shift boot, then check your shifter operation one last time to confirm that all gears can be selected. Reinstall the original air box or intake system, and any other components which were removed in order to access the shift cables.


***Your Billet Adjustable Shifter Cable End Link Kit installation is complete!***

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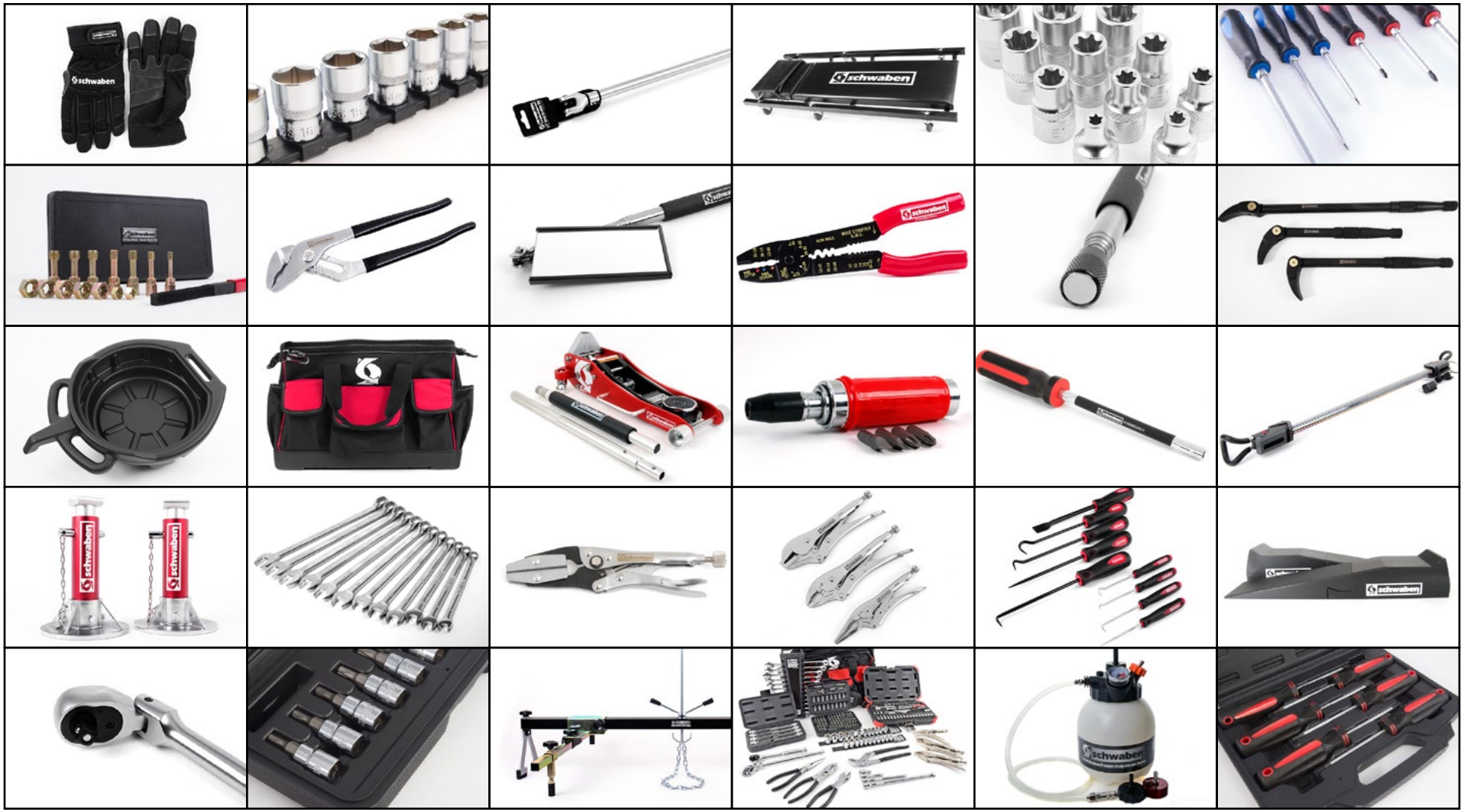
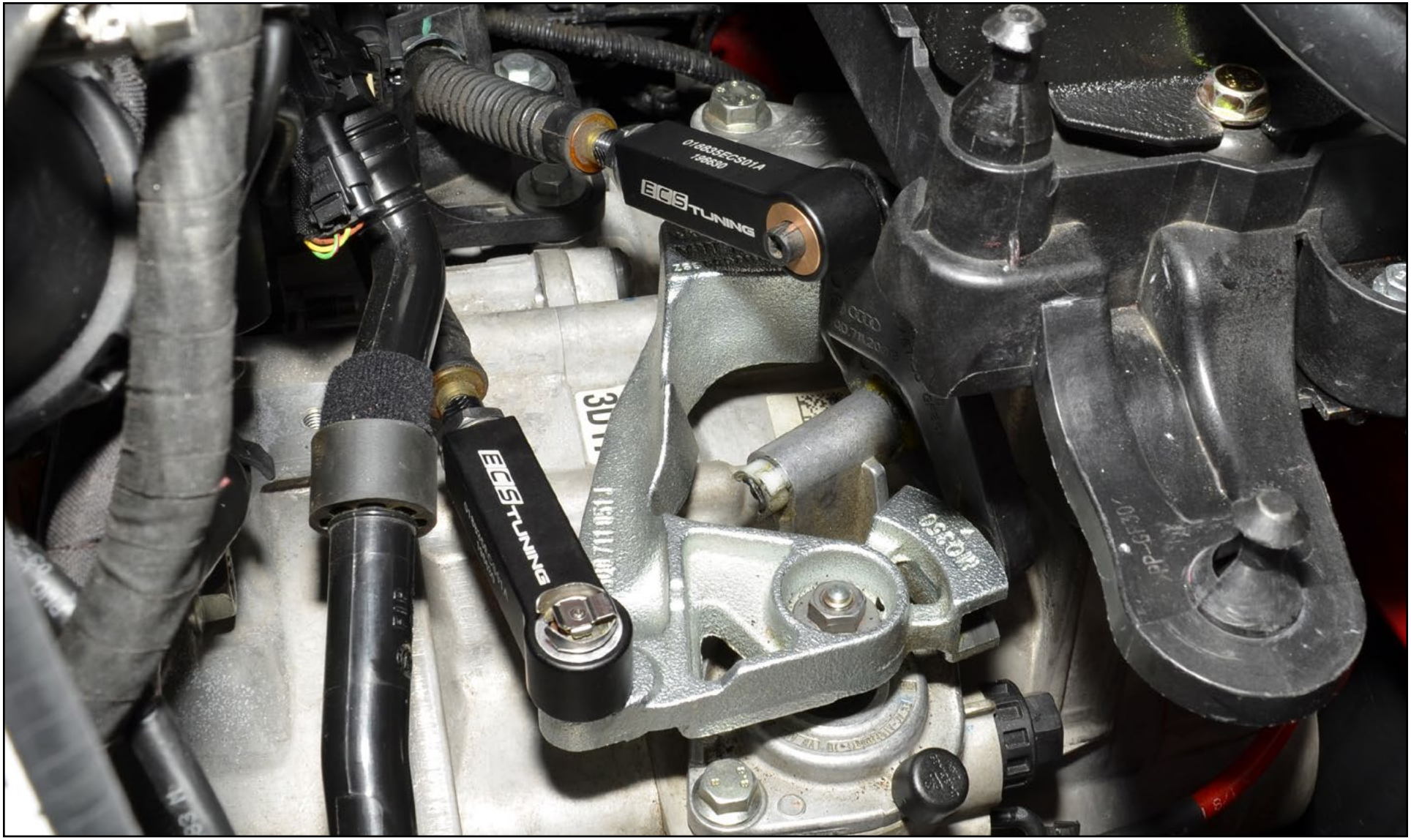


# Your Billet Adjustable Shifter Cable End Link Kit installation is complete!

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