Volkswagen Solid Shifter Cable End Link Bushing 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 our solid shifter cable bushing upgrade kit will get you headed in the right direction. Our bushings are CNC machined from 6061-T6 aluminum and then black anodized for long lasting protection. Installation can be done without any permanent modifications to your vehicle, and will completely change your shifting experience! 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 4 for all of the different shifter upgrades we have to offer.

Installation is fairly easy, you won't even need to lift the wheels off of the ground. Before you begin, read and familiarize yourself with these instructions and make sure you have all the required tools on hand. Be sure to read through these instructions completely before you begin. This install can be done in an hour or two, but you should plan out your time according to your own experience and comfort level. Thank you for looking to ECS Tuning for all of your repair and performance needs, we appreciate your business!

TABLE OF CONTENTS

HOW TO USE THIS GUIDE

Step 1:

Reference the photos on Page 8 & Page 9 to identify the shifter cables on your transmission. Familiarize yourself with shifter cable location and component identification.

Step 2:

Follow the “Shifter Bushing Application Flowchart” on Page 10 to identify the bushings required for your vehicle.

Step 3:

Study the “Assembly Charts” for your application starting on Page 11.

Step 4:

Follow the step by step installation instructions using the assembly charts for your application.

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

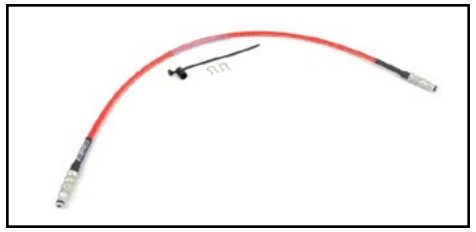
ECS Solid Shifter Cable Bracket Bushing Kit

- OR -

ECS Solid Shifter Cable End Link Bushings

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

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
- Bench Mounted Vise
- 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

SHOP SUPPLIES AND MATERIALS

Standard Shop Supply Recommendations: We recommend that you have a standard inventory of automotive shop supplies before beginning this or any automotive repair procedure. The following list outlines the basic shop supplies that we like to keep on hand. Shop supplies with a hyperlink are available on our website.

- Hand Cleaner/Degreaser - Click Here
- Pig Mats - for protecting your garage floor and work area from spills and stains - Click Here
- Spray detailer - for rapid cleaning of anything that comes into contact with your paint such as brake fluid - Click Here
- Micro Fiber Towels - for cleaning the paint on your car - Click Here
- Latex Gloves - for the extra oily and dirty jobs - Click Here
- Medium and High Strength Loctite Thread lock compound - to prevent bolts from backing out - Click Here
- Anti-Seize Compound - to prevent seizing, galling, and corrosion of fasteners - Click Here
- Aerosol Brake/Parts Cleaner - for cleaning and degreasing parts
- Shop Rags - used for wiping hands, tools, and parts
- Penetrating oil - for helping to free rusted or stuck bolts and nuts
- Mechanics wire - for securing components out of the way
- Silicone spray lube - for rubber components such as exhaust hangers
- Paint Marker - for marking installation positions or bolts during a torquing sequence
- Plastic Wire Ties/Zip Ties - for routing and securing wiring harnesses or vacuum hoses
- Electrical tape - for wrapping wiring harnesses or temporary securing of small components

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

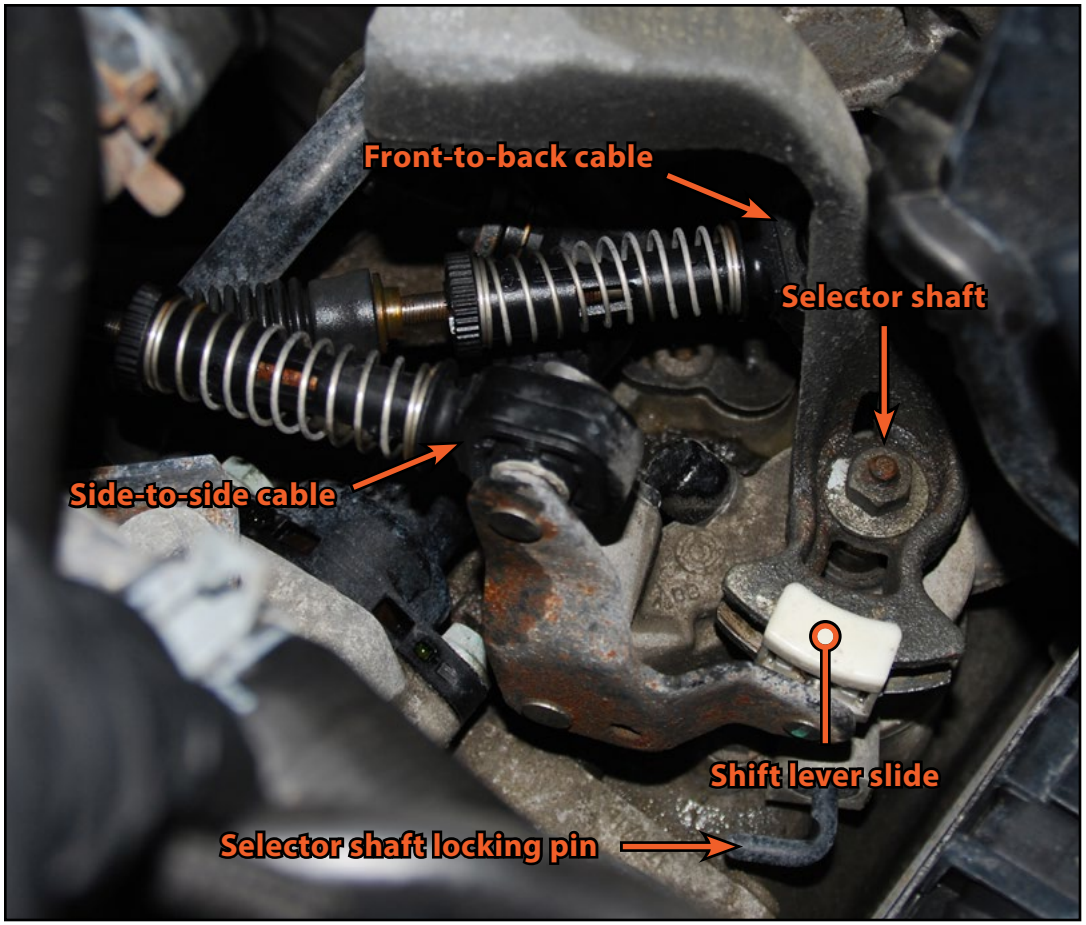
ECS Tuning cares about your health and safety, please read the following safety information. This information pertains to automotive service in general, and while it may not pertain to every job you do, please remember and share these important safety tips.

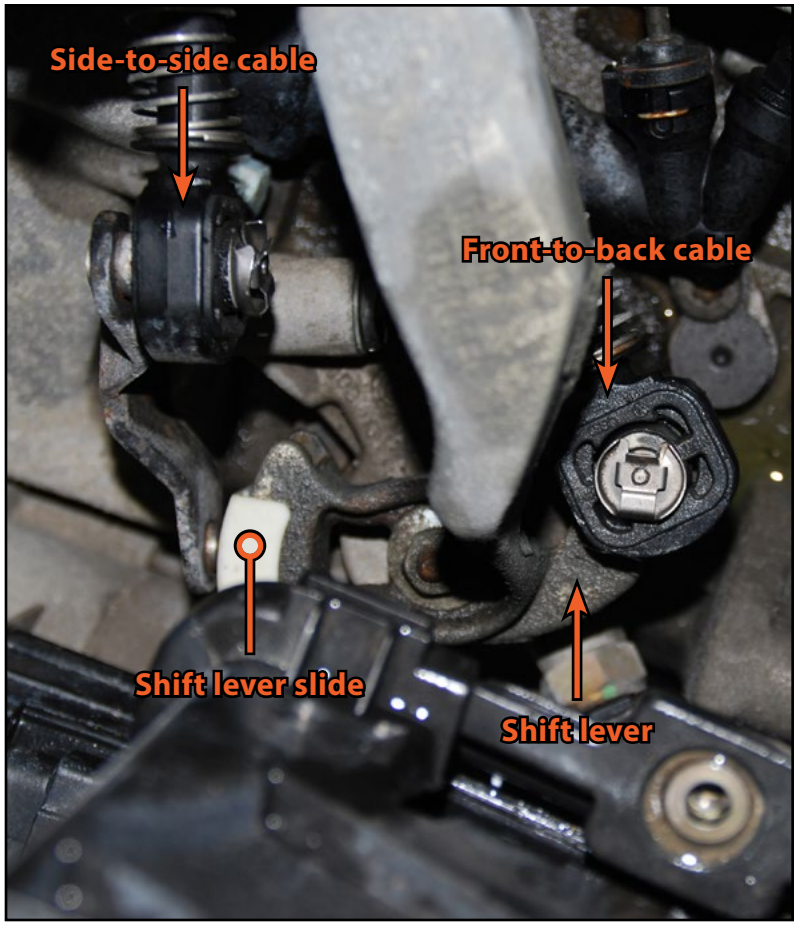
- Park your car in a safe, well lit, level area.
- Shut the engine off and remove the key from the ignition switch.
- Make sure any remote start devices are properly disabled.
- **ALWAYS** wear safety glasses.
- Make sure the parking brake is applied until the vehicle is safely lifted and supported.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



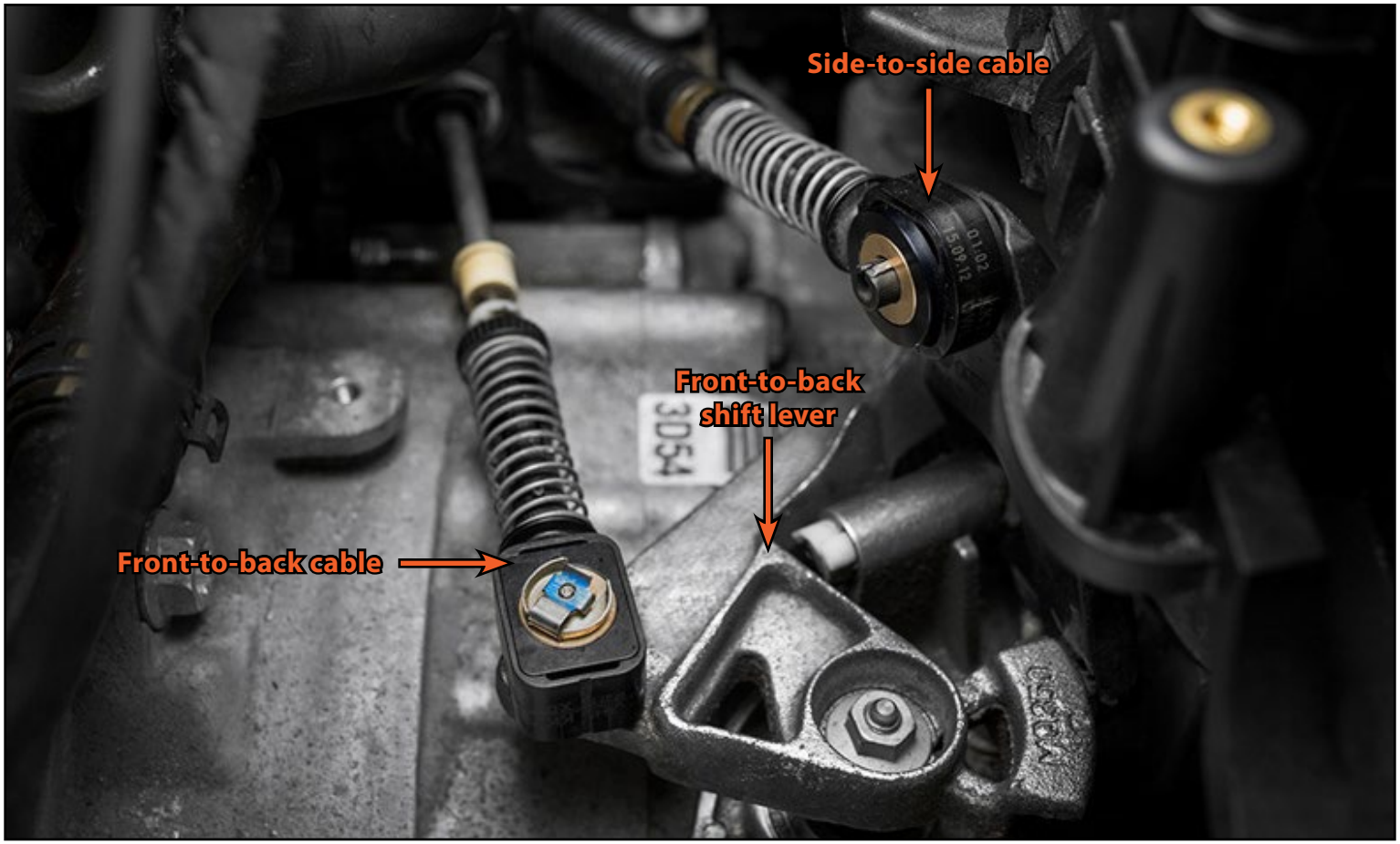


NOTE

You won't need to remove the shift cable end links for this install.
The photos above are only for reference/identification purposes.

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 on the front-to-back shift lever. The side-to-side cable is the higher of the two cables, mounted onto the horizontal pin of the relay lever.



NOTE

You won't need to remove the shift cable end links for this install. The photos above are only for reference/identification purposes.

Select the shifter cable you'd like to replace the bushings in:
(Reference Page 8 & Page 9 for shifter cable identification)

Front-to-Back ☐ | Side-to-Side ☐

Rectangle Bushing

Determine the cable end bushing style:

Rectangle ☐ | Round ☐

Round Bushing

Metal Relay Lever

Determine the relay lever material:

Metal ☐ | Plastic ☐

Plastic Relay Lever

Required Kit:
8.5mm Rectangle

Assembly Chart "A"
Page 11

Required Kit:
10mm Round

Assembly Chart "B"
Page 12

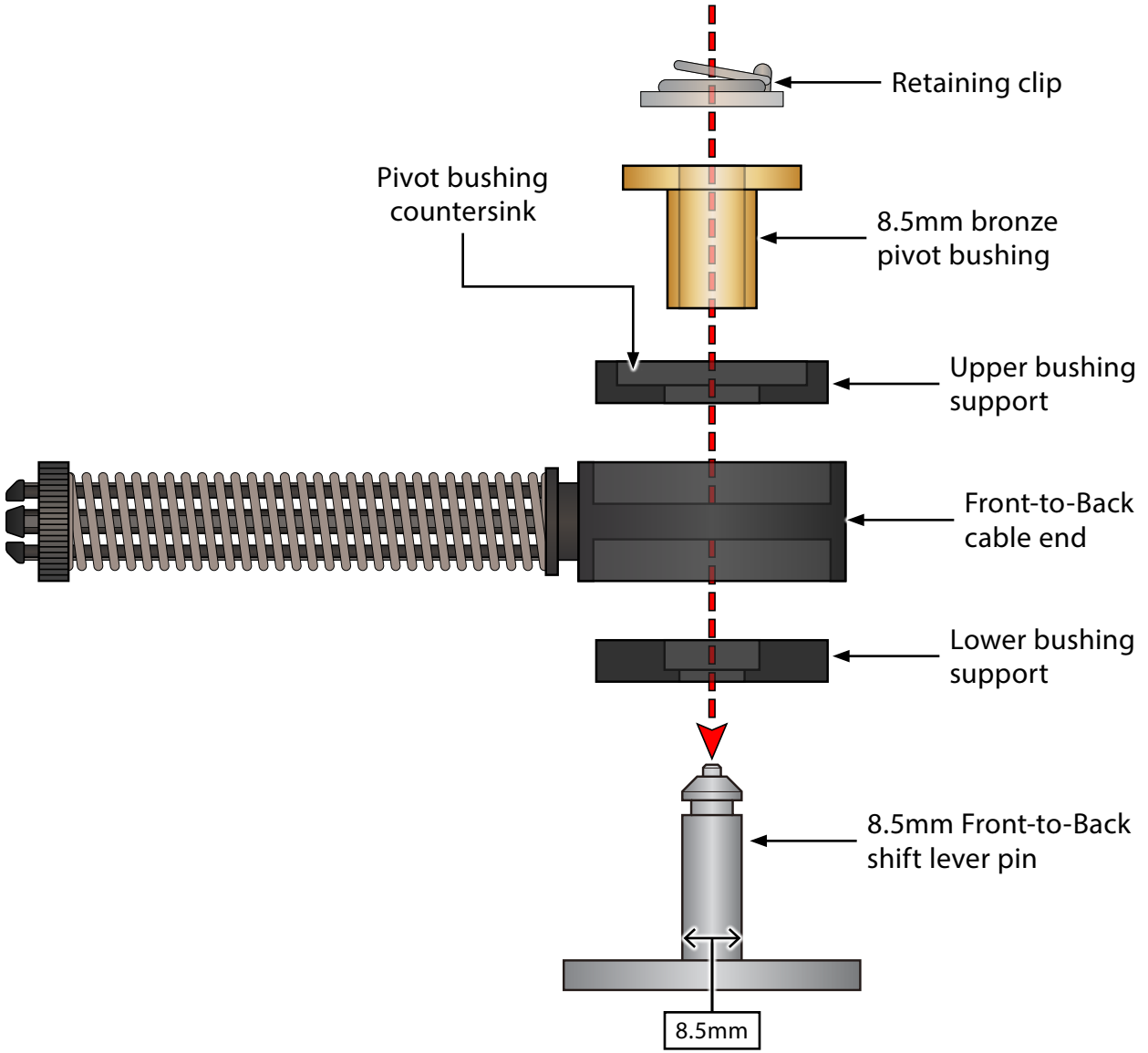
Required Kit:
10mm Round

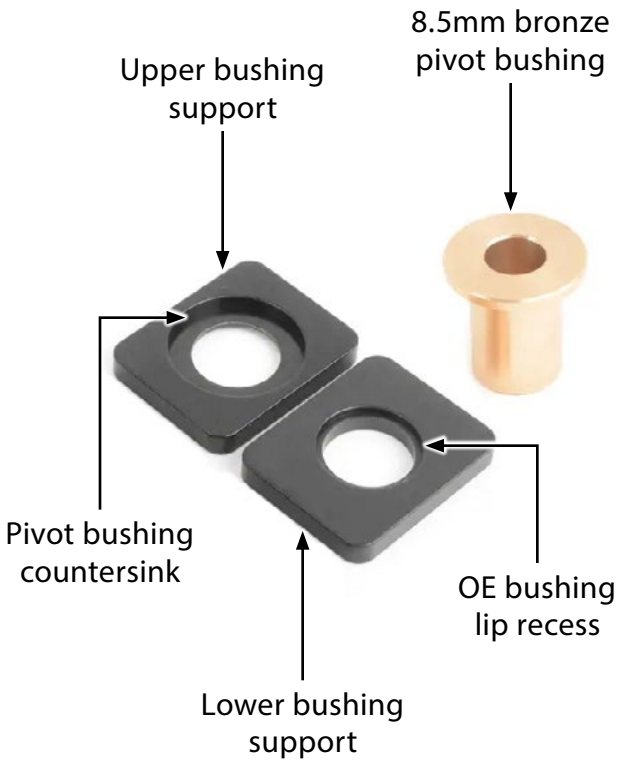
Assembly Chart "C"
Page 13

Required Kit:
8.0mm Round

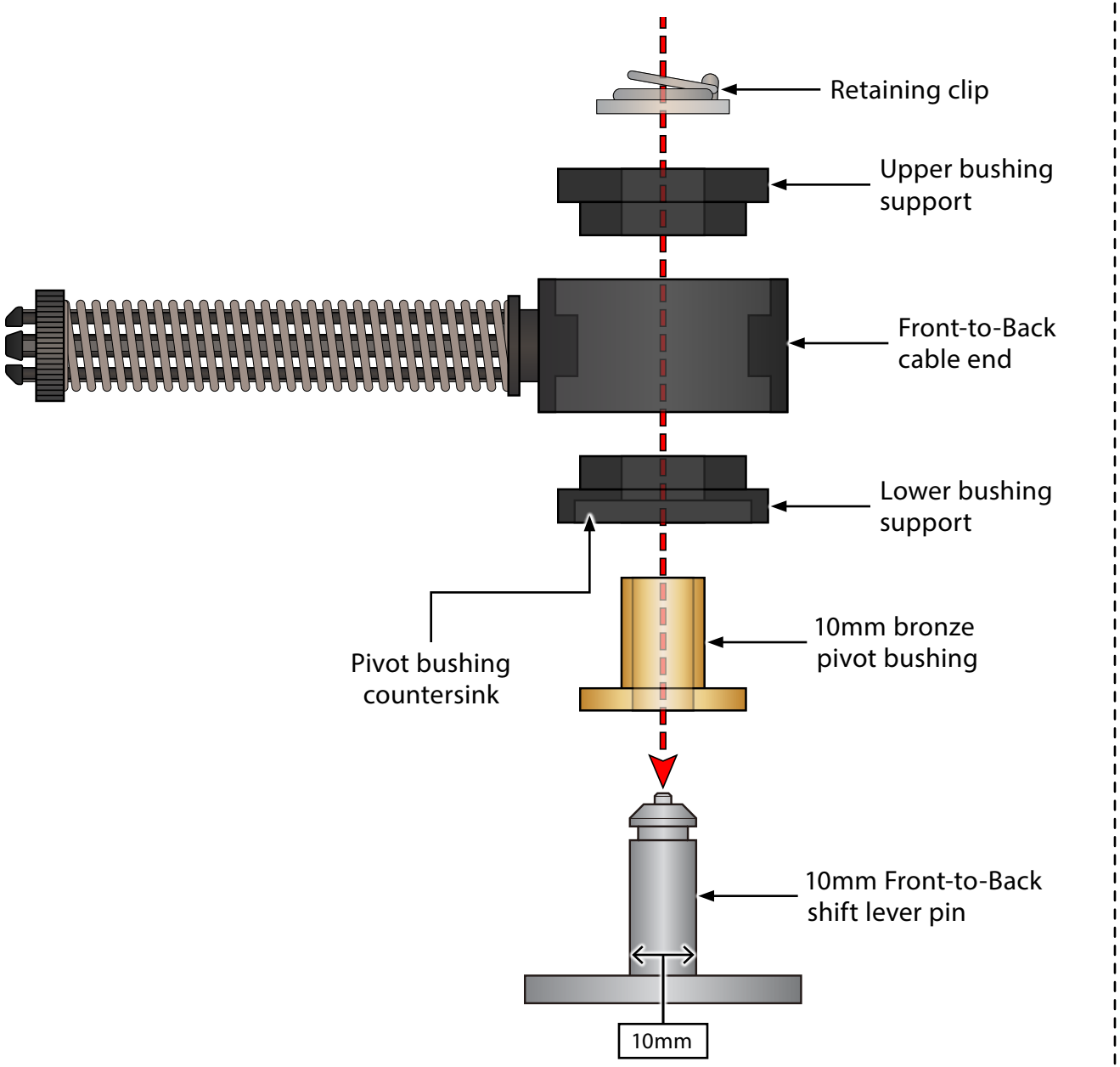
Assembly Chart "D"
Page 14

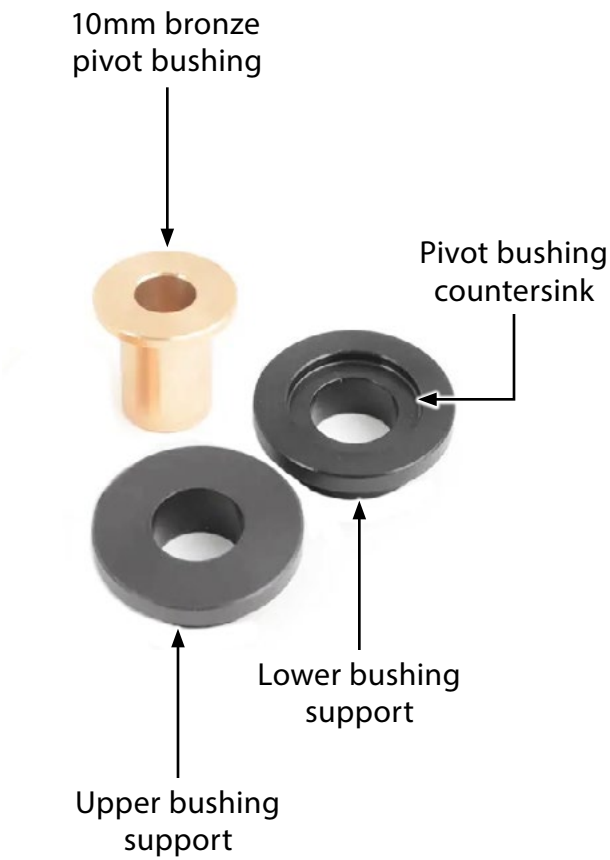
ASSEMBLY CHART "A": FRONT-TO-BACK (8.5MM RECTANGLE)



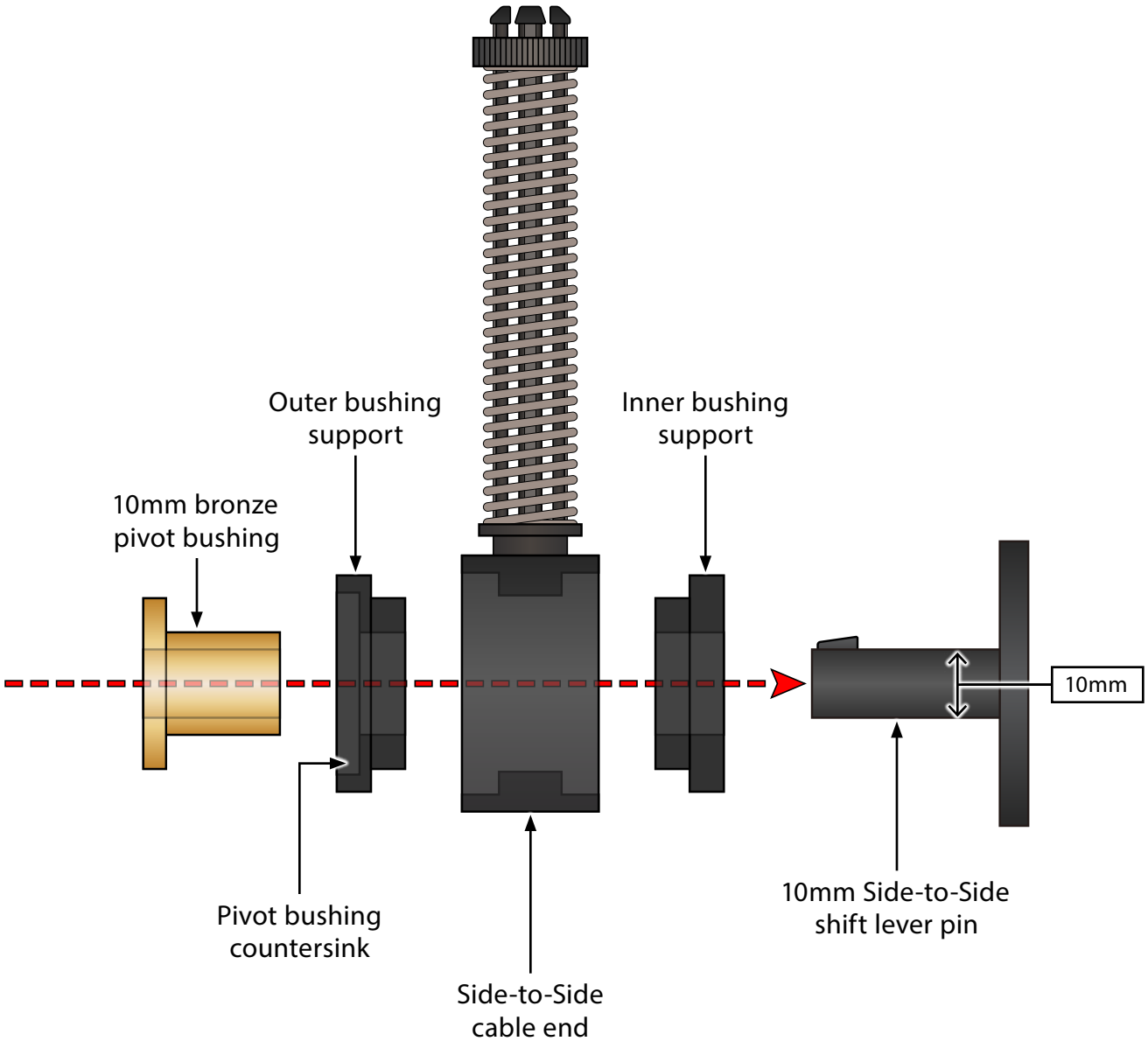


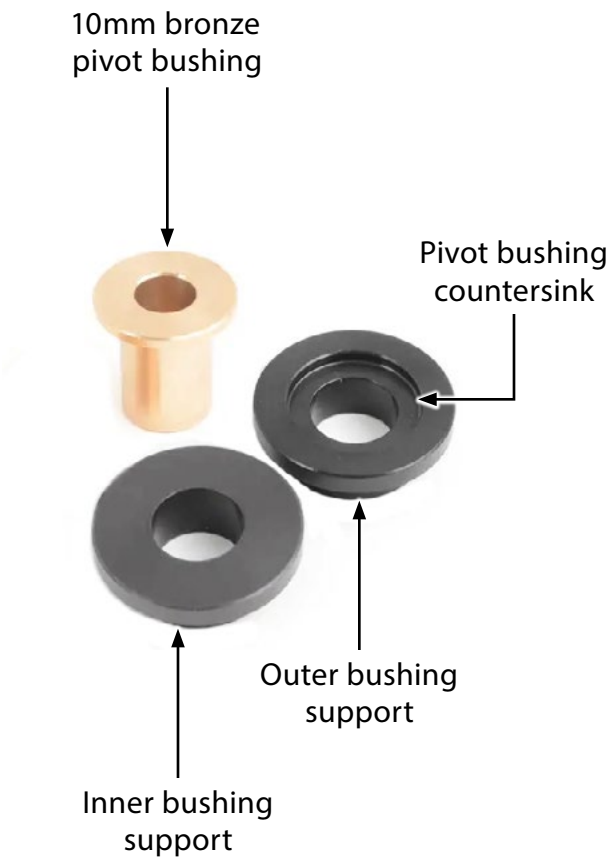
ASSEMBLY CHART "B": FRONT-TO-BACK (10MM ROUND)



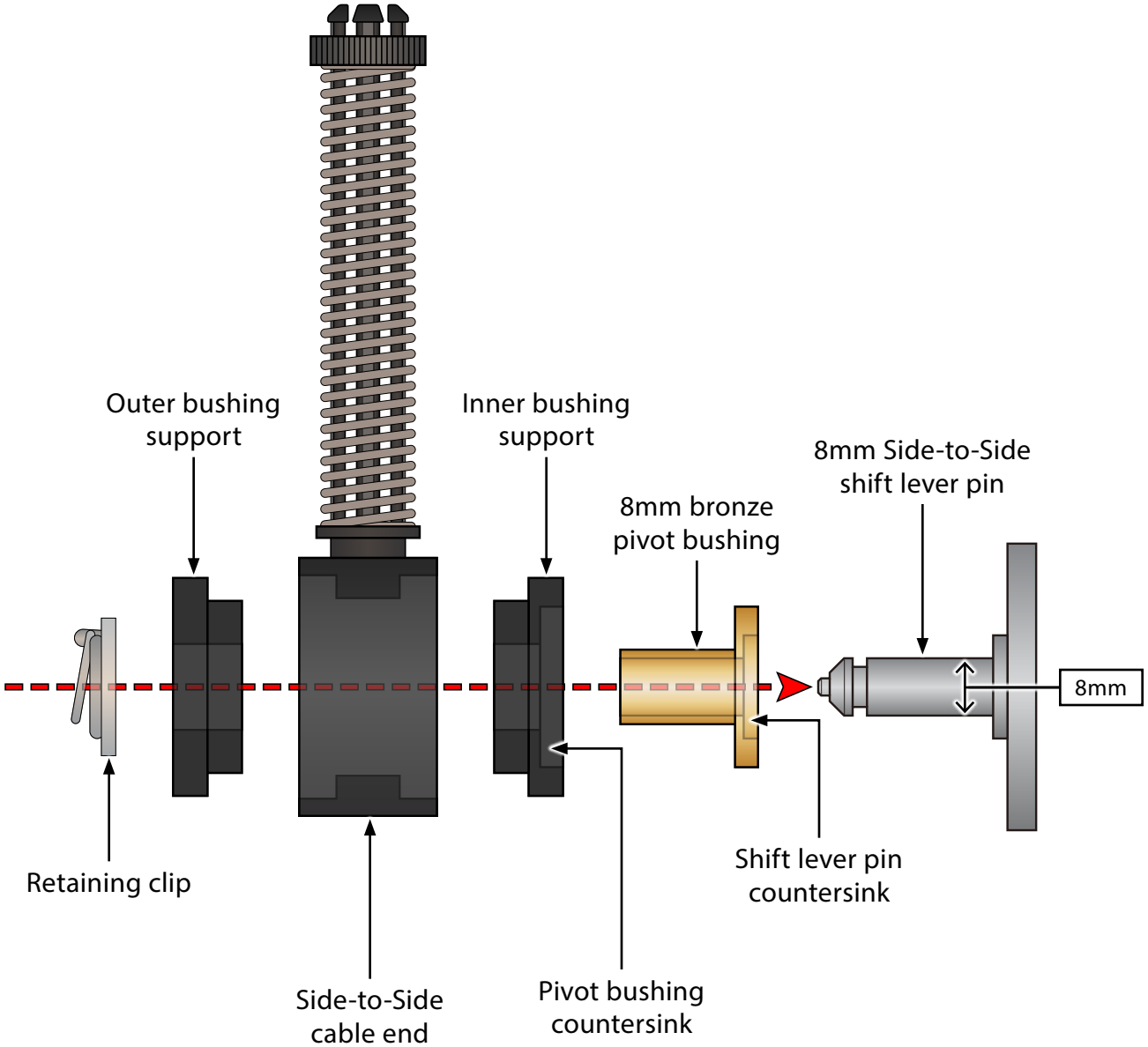


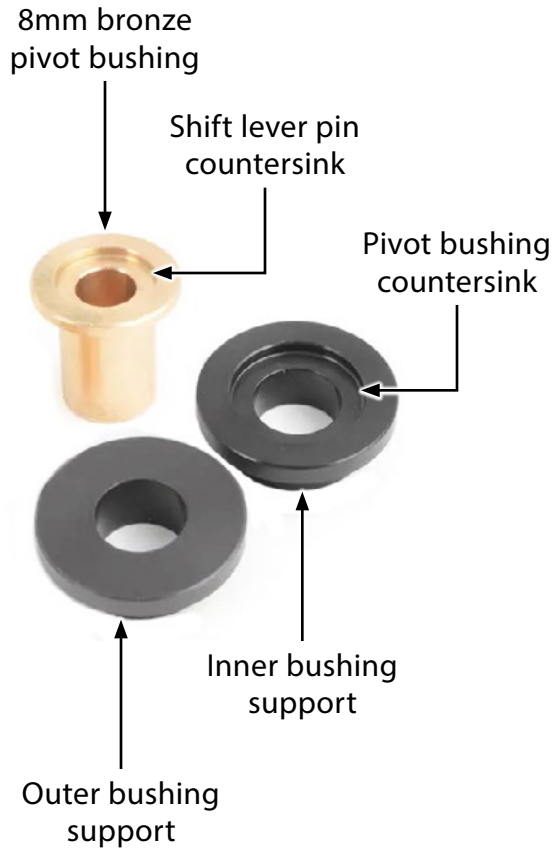
ASSEMBLY CHART "C": SIDE-TO-SIDE PLASTIC PIN (10MM ROUND)





ASSEMBLY CHART "D": SIDE-TO-SIDE METAL PIN (8MM ROUND)

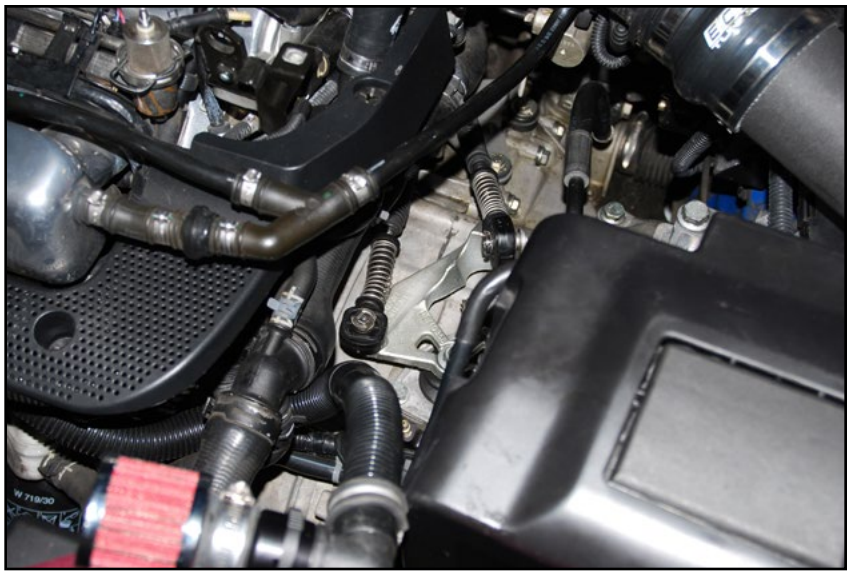




REMOVING THE ORIGINAL SHIFTER CABLE ENDS

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.



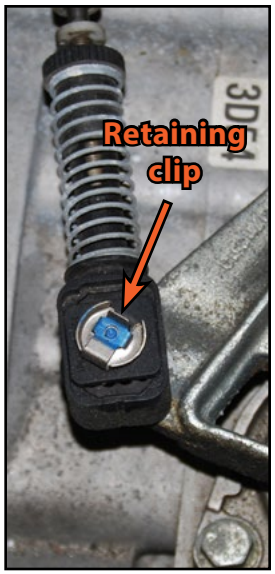
Step 2:

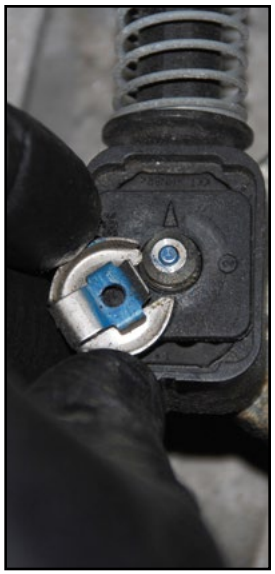
Place the transmission in neutral.

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.

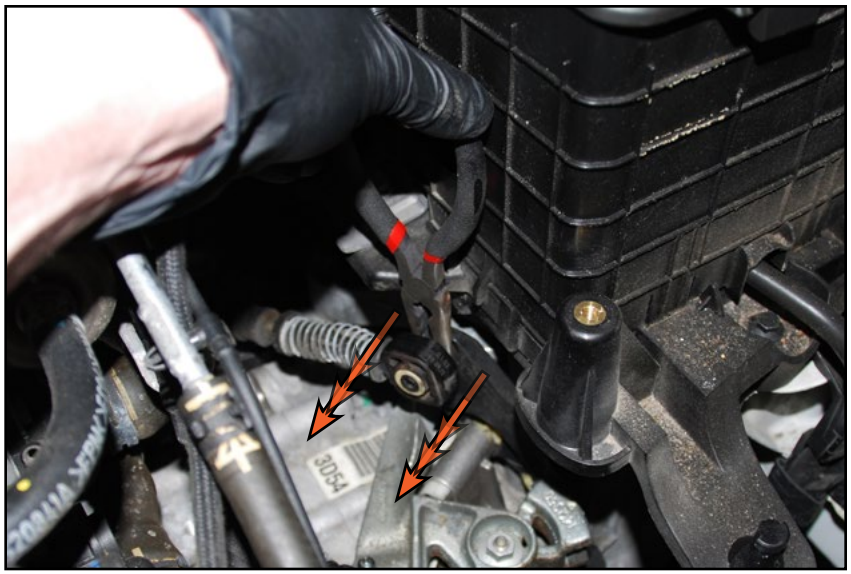
Round Cable End:

- 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

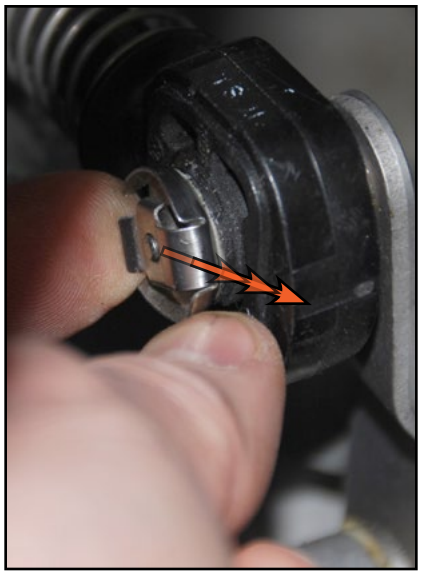
Step 4: Needle Nose Pliers

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.



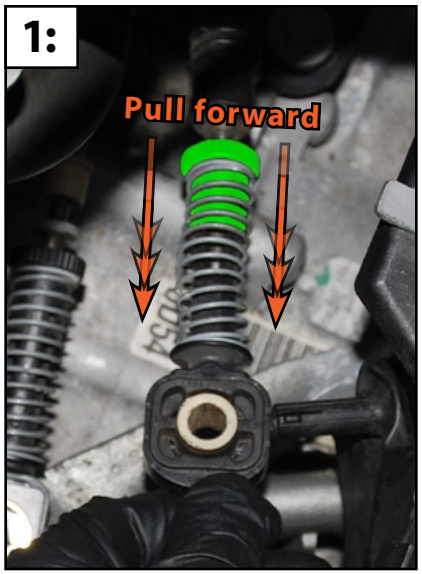
Metal Pin:

- 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

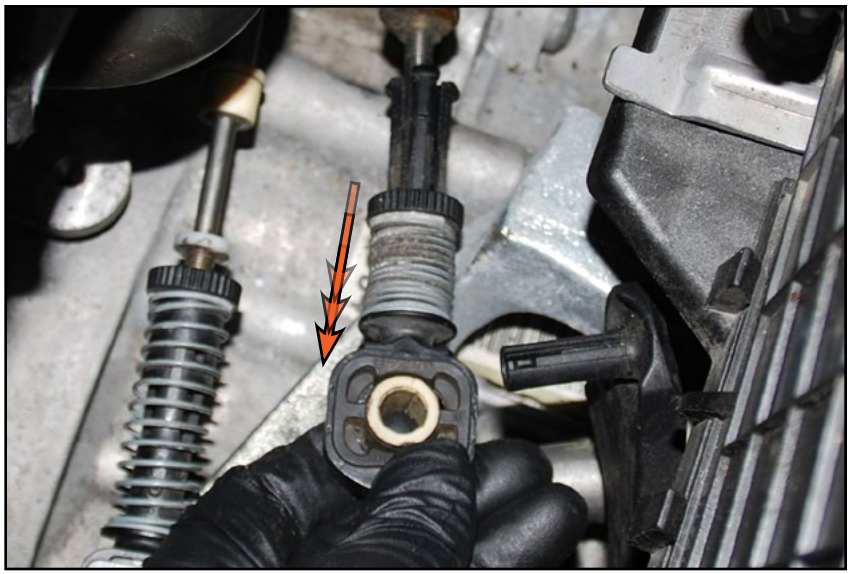
Step 5:

Release ***both*** shifter cable ends by pulling the lock sleeve (highlighted in **GREEN** in photo #1) in ***each*** cable end forward until the spring is completely compressed. Then simply turn the lock sleeve to the left about ⅛ turn until it locks in place (photo #2). It is properly locked when you release your grip and the spring remains compressed - you may have to try it a few times to get it to hold. You'll notice that the cable end will slide back and forth easily on the cable, and can even be removed when it is released.



Step 6:

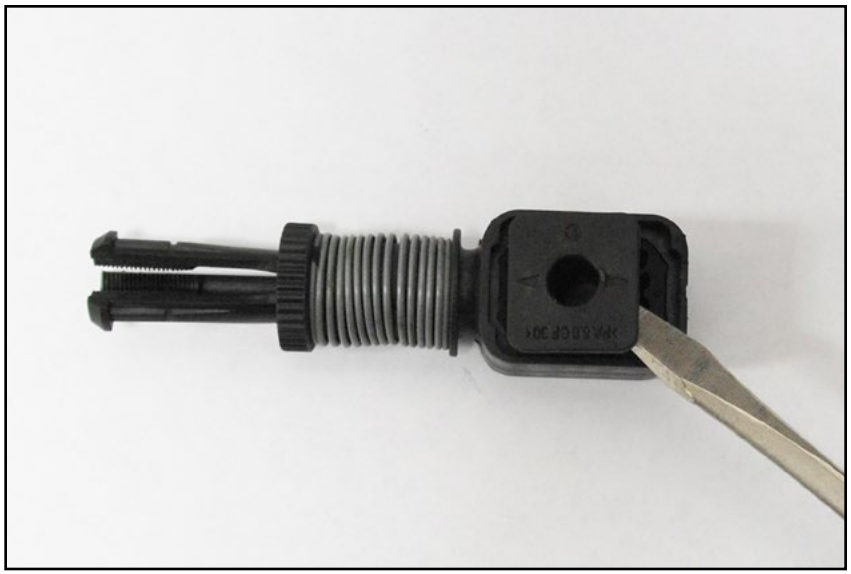
With both end locks released, pull both cable ends off of the shifter cables.



INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (RECTANGLE)

Step 1: Flat Blade Screwdriver

First, we are going to install the new bushing supports in the rectangle cable end. Pry the original plastic bushing out of each side of the cable end.



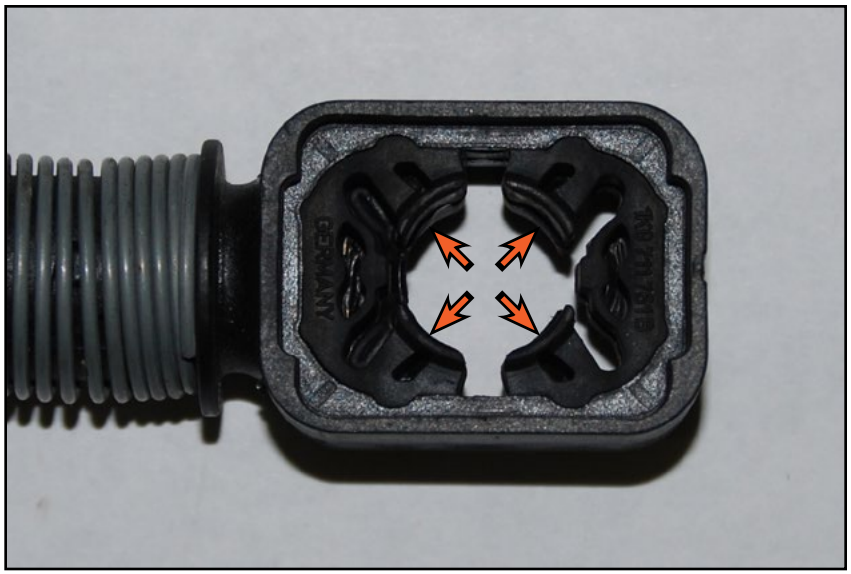
If you have two “round” cable ends on your vehicle, skip to Page 23.

NOTE

The original cable end has no actual “top” or “bottom”, both sides are the same and It will not matter if the cable end gets flipped over during disassembly. However, once our new solid shifter bushings are installed there will be a definite “top” and “bottom” to the cable end.

Step 2:

Once you have removed both original plastic bushings, the rectangle cable end will look like this. Note the small lips on each side formed into the original rubber dampening insert. Our bushing supports are designed to fit around these lips.

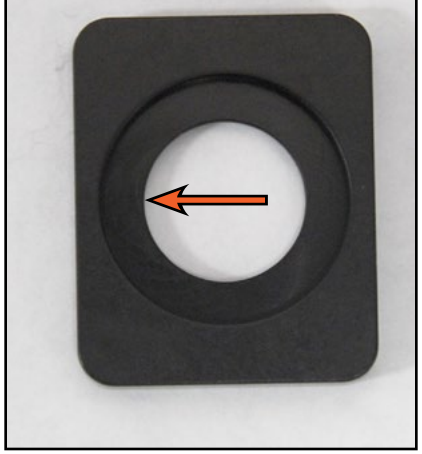


INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (RECTANGLE)

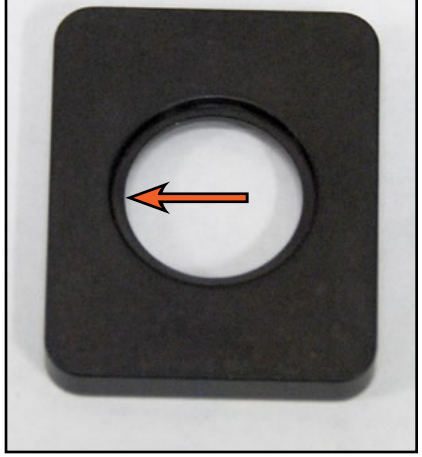
Step 3:

Inspect and identify the bushing supports for the rectangle cable end. They are named in reference to their installation positions. The upper bushing support has a large countersink on one side for the bronze pivot bushing and a small recess on the other side to fit around the rubber insert lips as described in step 2.

Upper Bushing Support Countersink



Upper Bushing Support Lip Recess

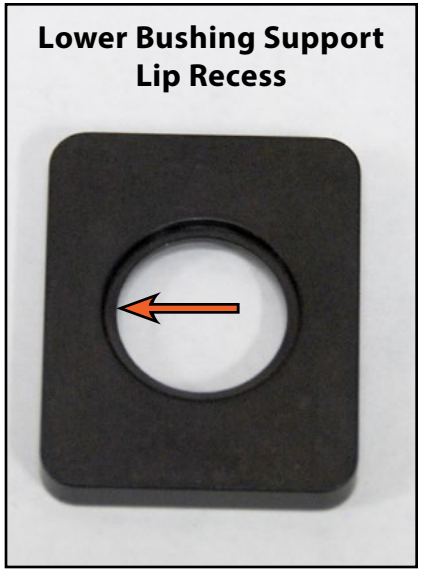


Step 4:

The lower bushing support is flat on one side and has a small recess on the other side for the rubber insert lips described in step 2.

Lower Bushing Support Flat Side

Lower Bushing Support Lip Recess



INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (RECTANGLE)

Step 5:

Now that you have identified the new bushing supports, install them into the end of the rectangle cable. Start with either one and place the edge of it into the cable end as shown.

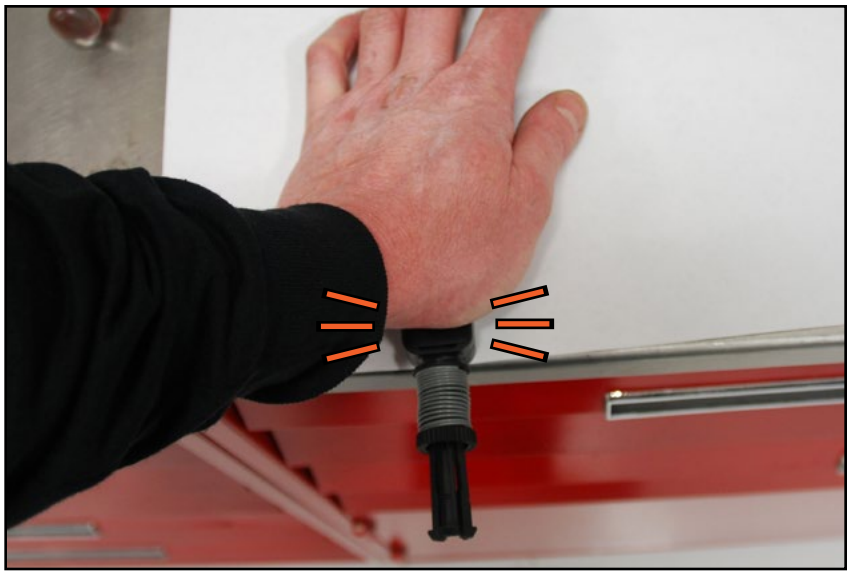
CAUTION: Make sure the lip recess is facing inward.

NOTE

You may also reference Assembly Chart "A" on Page 11.

Step 6:

Place the cable end on the edge of a workbench with the bushing support that you are installing facing up and push down on it with the palm of your hand. This will require moderate pressure and you will both feel and hear it snap into place. Install both bushing supports using this method, making sure the lip recess faces in on each side and the pivot bushing countersink and flat side both face out.



INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (RECTANGLE)

Step 7:

The assembled top side of the rectangle cable end should look like this with the pivot bushing countersink facing up.

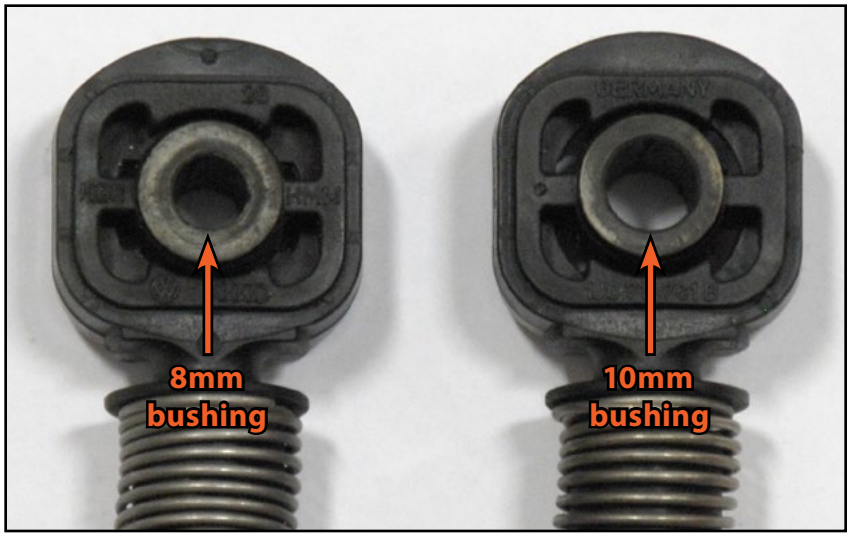
Step 8:

The assembled bottom side of the rectangle cable end should look like this with the flat side facing down.

INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (ROUND)

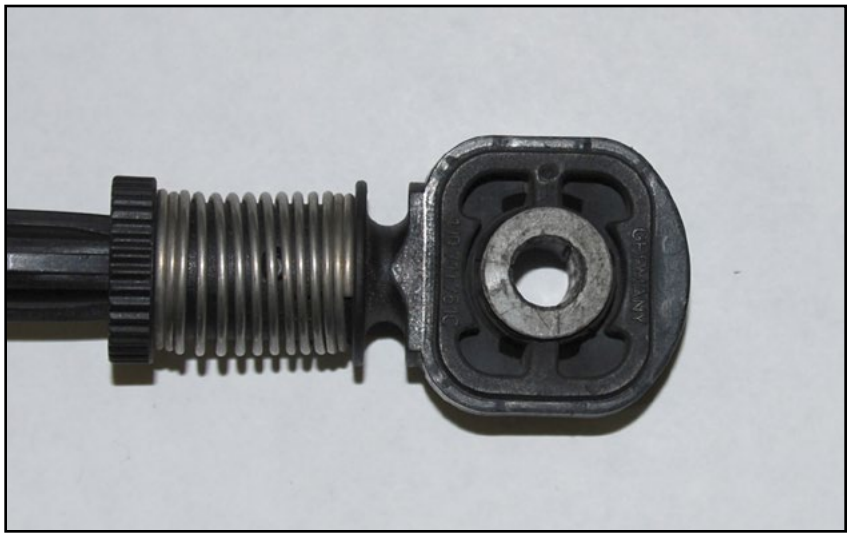
Step 1:

Now we are going to install the bushing supports in the “round” cable end. The “round” cable ends come in two different sizes, however the procedure for installing the bushing supports is the same.



Step 2:

To begin with, the cable end will look like this.



INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (ROUND)

Step 3: Flat Blade Screwdriver

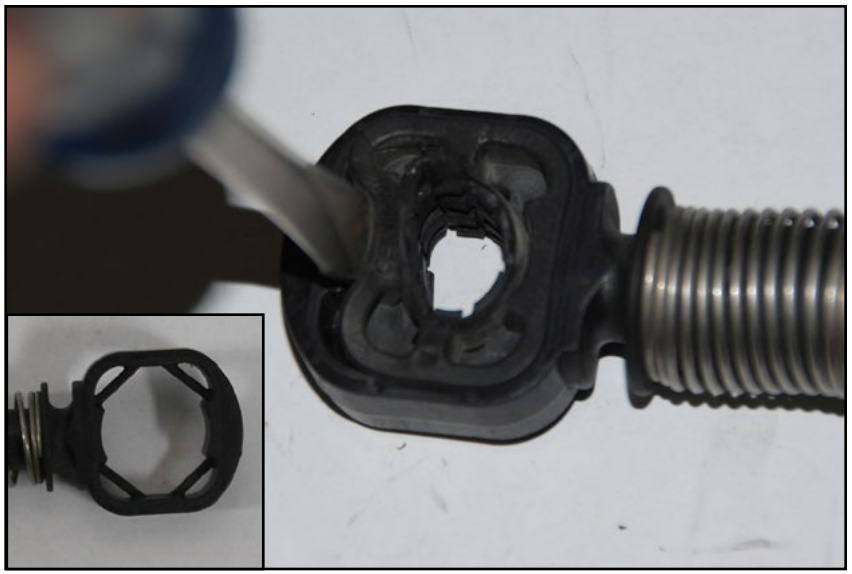
Pry the original plastic pivot bushing out of the center of the rubber dampening insert.

NOTE

The original cable end has no actual “top” or “bottom”, both sides are the same and It will not matter if the cable end gets flipped over during disassembly. However, once our new solid shifter bushings are installed there will be a definite “top” and “bottom” to the cable end.

Step 4: Flat Blade Screwdriver

Pry the original dampening insert out of the round cable end. The original insert is molded around the four small corner braces of the cable end and you will have to tear the rubber at the corners to remove it, but you will not find it difficult. The inset picture shows the cable end with the insert removed so you can see the location of the corner braces.



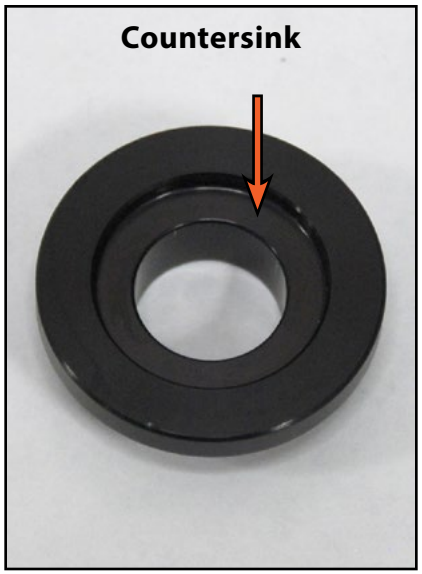
INSTALLING THE SOLID SHIFTER CABLE BUSHINGS (ROUND)

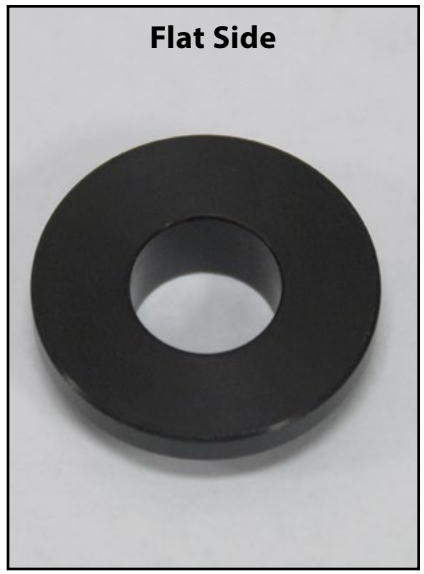
Step 5:

Reference the following assembly charts to identify the bushing support positions for the round cable end:

- Assembly Chart “B” on Page 12
- Assembly Chart “C” on Page 13
- Assembly Chart “D” on Page 14

Each pair is exactly the same, but their installation positions are different depending on your application. Each pair will have one with a flat side and one with a countersunk side. The stepped sides on each support are the same and fit into the original cable end.



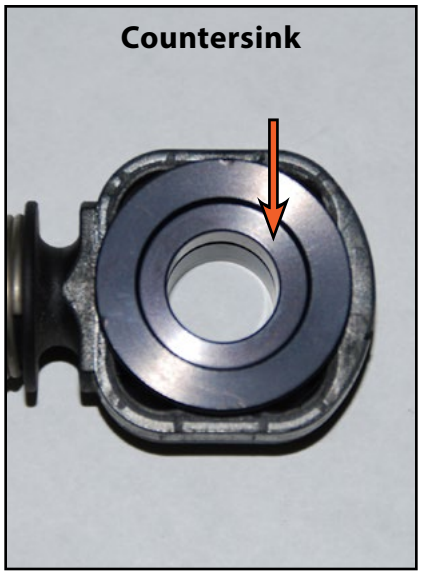


Step 6:

Push the bushing supports into the round cable end. They will push in very easily. The assembled cable end should look like the pictures on the right.

NOTE

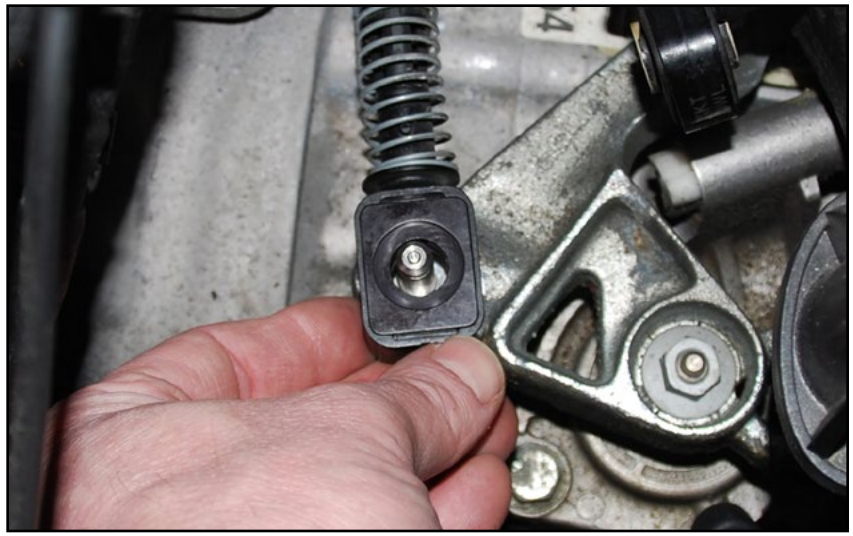
You may actually remove these bushing supports then reinstall them as you install the cable end back onto the vehicle. Steps 5 and 6 here were primarily to familiarize you with how they fit into the cable end.



SOLID BUSHING INSTALLATION: FRONT-TO-BACK (8.5MM RECTANGLE)

Step 1:

First we will install the rectangle cable end. Slide the cable end over the front-to-back shifter cable then position it on top of the shift lever pin as shown in the picture. Make sure the top and bottom bushing supports are located in their correct positions. Do not release the cable lock at this time.



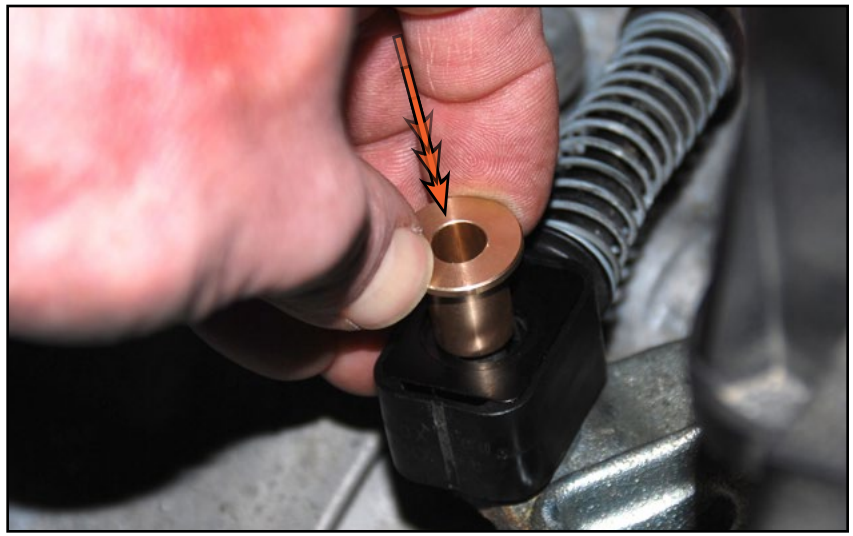
NOTE

You may also reference Assembly Chart "A" on Page 9.

If you have two round cable ends on your vehicle, skip to the correct round installation procedure for your vehicle, beginning on Page 28.

Step 2:

Align the 8.5mm bronze pivot bushing on top of the shift lever pin for the Front-to-Back cable.



NOTE

No lubrication is needed for this bushing.

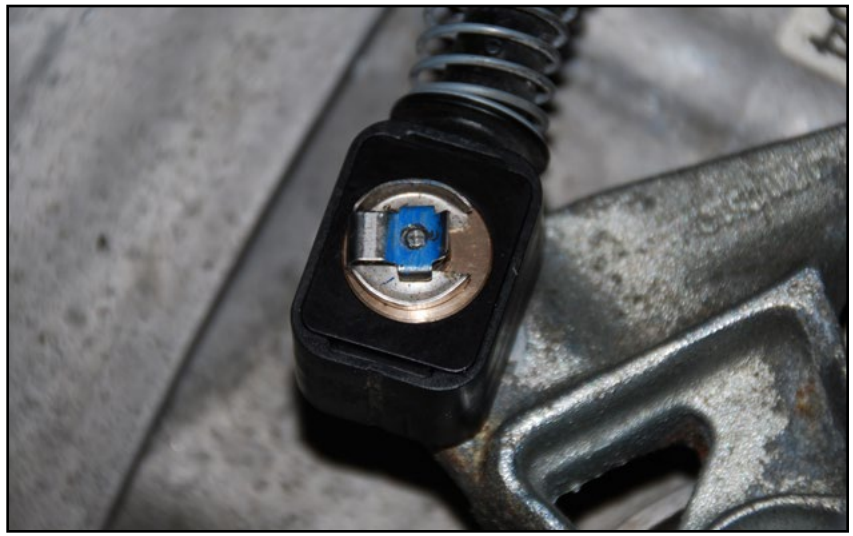
SOLID BUSHING INSTALLATION: FRONT-TO-BACK (8.5MM RECTANGLE)

Step 3:

Push the pivot bushing through the support bushings and onto the shift lever pin until it is fully seated.

Step 4:

Install the retaining clip.



NOTE

Leave the cable lock engaged and the spring compressed at this point. It will need to remain compressed for shifter adjustment.

SOLID BUSHING INSTALLATION: FRONT-TO-BACK (10MM ROUND)

Step 1:

Refer to the Assembly Chart "B" on Page 12 for the correct assembly of the round cable end on this application.

Place the 10mm bronze pivot bushing onto the shift lever pin for the Front-to-Back shifter cable.

NOTE

No lubrication is needed for this bushing.

Step 2:

Place the lower bushing support onto the bronze pivot bushing. Make sure the side with the countersink is facing down.

SOLID BUSHING INSTALLATION: FRONT-TO-BACK (10MM ROUND)

Step 3:

Slide the cable end over the Front-to-Back cable, then position it onto the shift lever and bushing support as shown in the picture.

Step 4:

Install the upper bushing support into place on the Front-to-Back shifter cable end and install the retaining clip.

NOTE

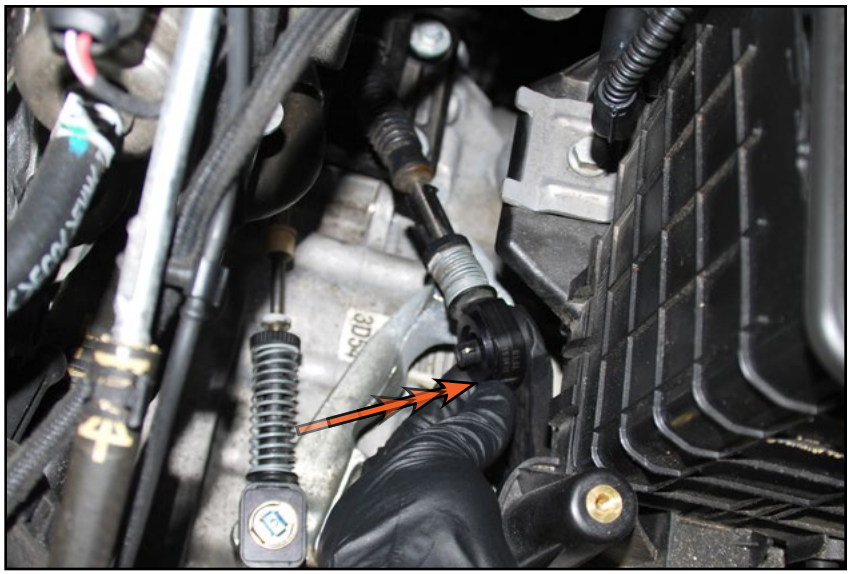
Leave the cable lock engaged and the spring compressed at this point. It will need to remain compressed for shifter adjustment.

SOLID BUSHING INSTALLATION: SIDE-TO-SIDE (10MM ROUND, PLASTIC PIN)

Step 1:

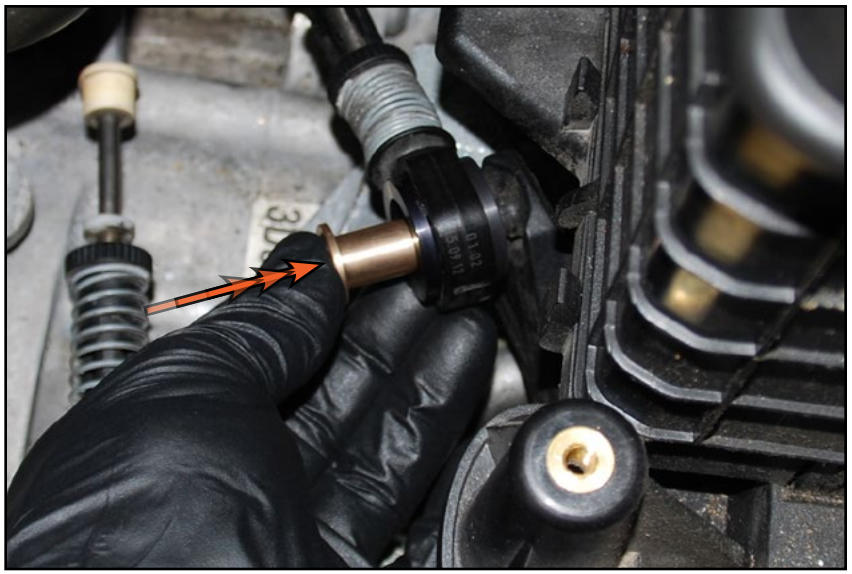
Refer to the Assembly Chart “C” on Page 13 for the correct assembly of the round cable end on this application.

Slide the cable end back onto the Side-to-Side cable, then position it over the relay lever pin, making sure the support bushings are positioned as indicated on Assembly Chart “C”.



Step 2:

Push the new 10mm bronze pivot bushing over the relay lever pin and through the new support bushings.



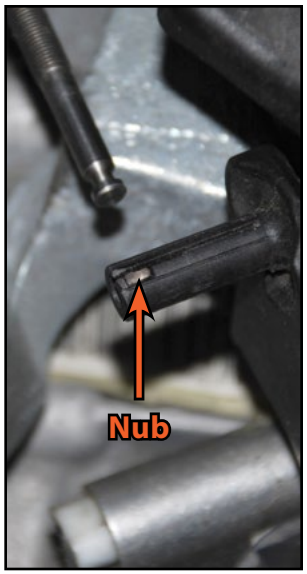
NOTE

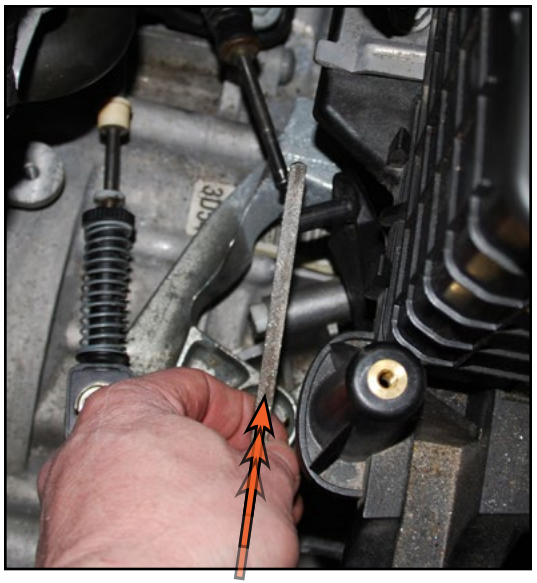
It will require moderate pressure to push the bushing over the pin, however you should not have any trouble doing it by hand. If it seems to require excessive force and you cannot get the bushing on, proceed to step 3 for an installation tip. No lubrication is needed for this bushing.

SOLID BUSHING INSTALLATION: SIDE-TO-SIDE (10MM ROUND, PLASTIC PIN)

Step 3: Small File or Sandpaper

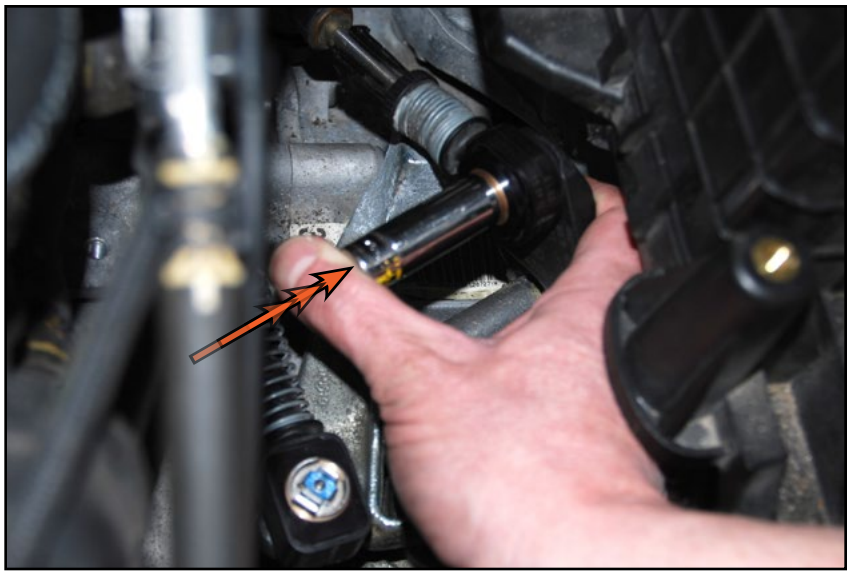
The new bronze bushings are a very precise fit to the relay lever pin. On some vehicles, we have found it difficult to push the bushing over the nub on the end of the pin. If this is the case with your installation, simply take a small file and lightly file the nub - only a very small amount - and you will find that you will then be able to install the bushing. You only need to remove a few thousandths of material (the thickness of a sheet of paper) in order to make this work.





Step 4:

In order to get the bushing fully seated, you may need to place a socket over the end of the bushing then grip the back of the relay lever and squeeze the two together.



NOTE

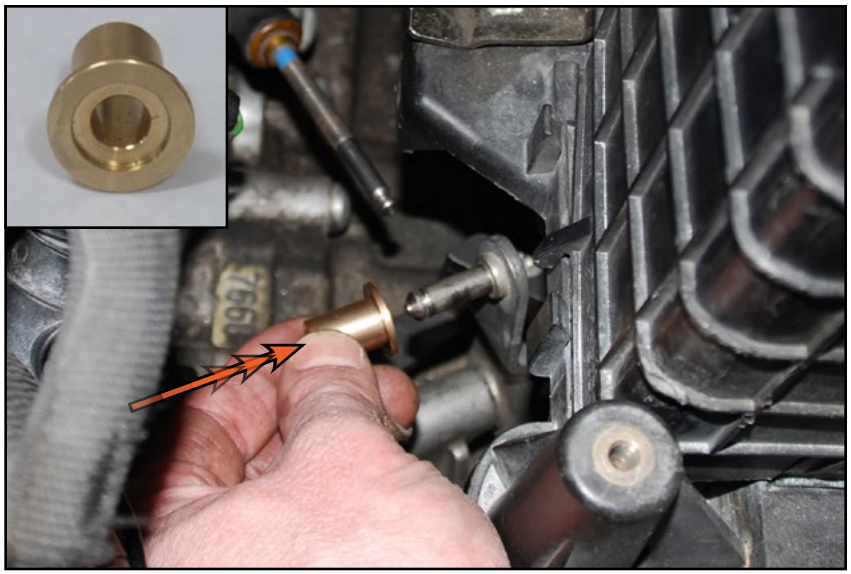
Leave the cable lock engaged and the spring compressed at this point. It will need to remain compressed for shifter adjustment.

SOLID BUSHING INSTALLATION: SIDE-TO-SIDE (8MM ROUND, METAL PIN)

Step 1:

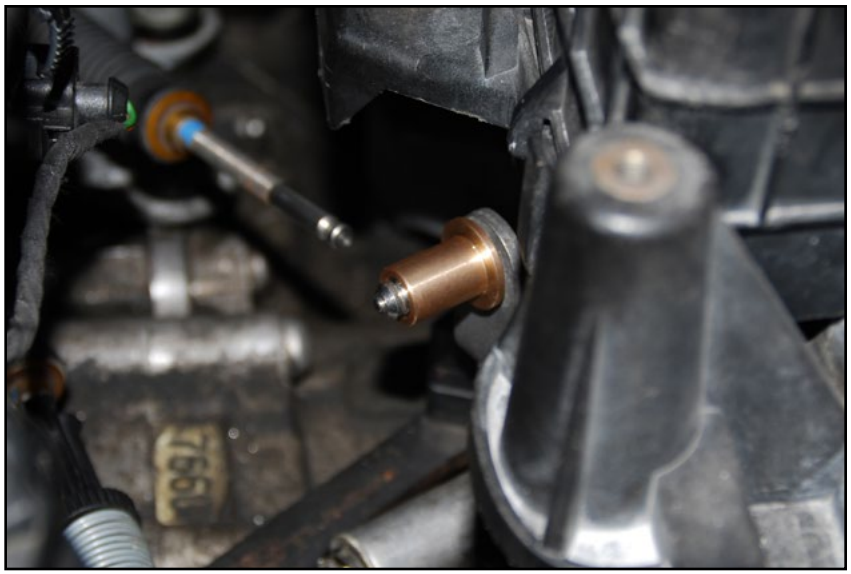
Refer to the Assembly Chart "D" on Page 14 for the correct assembly of the round cable end on this application.

Slide the 8.0 mm bronze pivot bushing onto the relay lever pin. Note that the end of this bushing has a countersink for the inner shoulder of the lever pin (inset photo).



Step 2:

The bronze pivot bushing should be fully seated onto the relay lever as shown.



NOTE

No lubrication is needed for this bushing.

SOLID BUSHING INSTALLATION: SIDE-TO-SIDE (8MM ROUND, METAL PIN)

Step 3:

Slide the cable end back onto the Side-to-Side cable, then onto the shift lever pin and bronze bushing, making sure the inner and outer bushing supports are properly positioned. Do not release the cable lock at this time.

Step 4:

Reinstall the retaining clip on the relay lever pin.

NOTE

Leave the cable end lock engaged and the spring compressed at this point. It will need to remain compressed for shifter adjustment.

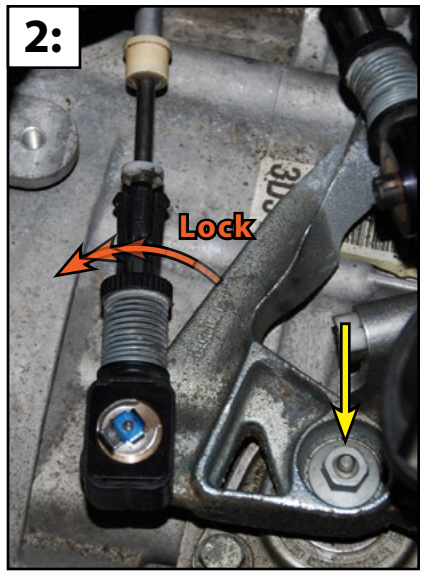
SHIFTER CABLE ADJUSTMENT

Step 1:

Make sure the transmission is in neutral.

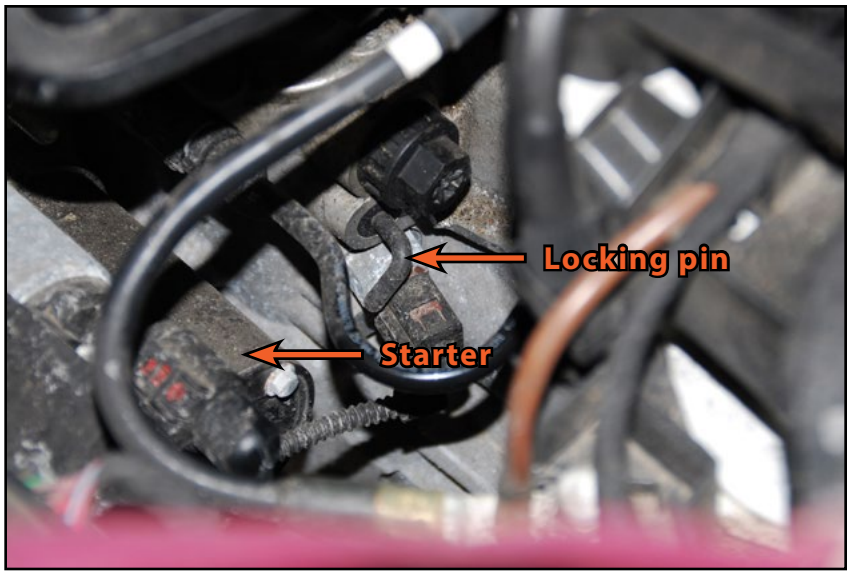
Release ***both*** shifter cable ends by pulling the lock sleeve (highlighted in **GREEN** in photo #1) in ***each*** cable end forward until the spring is completely compressed. Then simply turn the lock sleeve to the left about ⅛ turn until it locks in place (photo #2). It is properly locked when you release your grip and the spring remains compressed - you may have to try it a few times to get it to hold. (You'll notice that the cable end will slide back and forth easily on the cable, and can even be removed when it is released).

Also note the top of the selector shaft where it enters the transmission (**YELLOW** arrow). This is relevant in step 3 on the next page.



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.



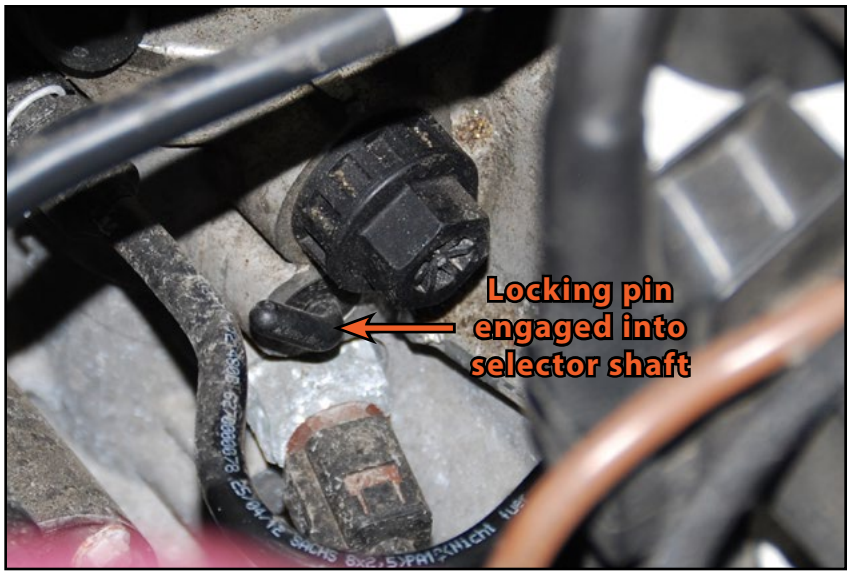
NOTE

The locking pin may appear different for different years, but it is located in the same position.

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.

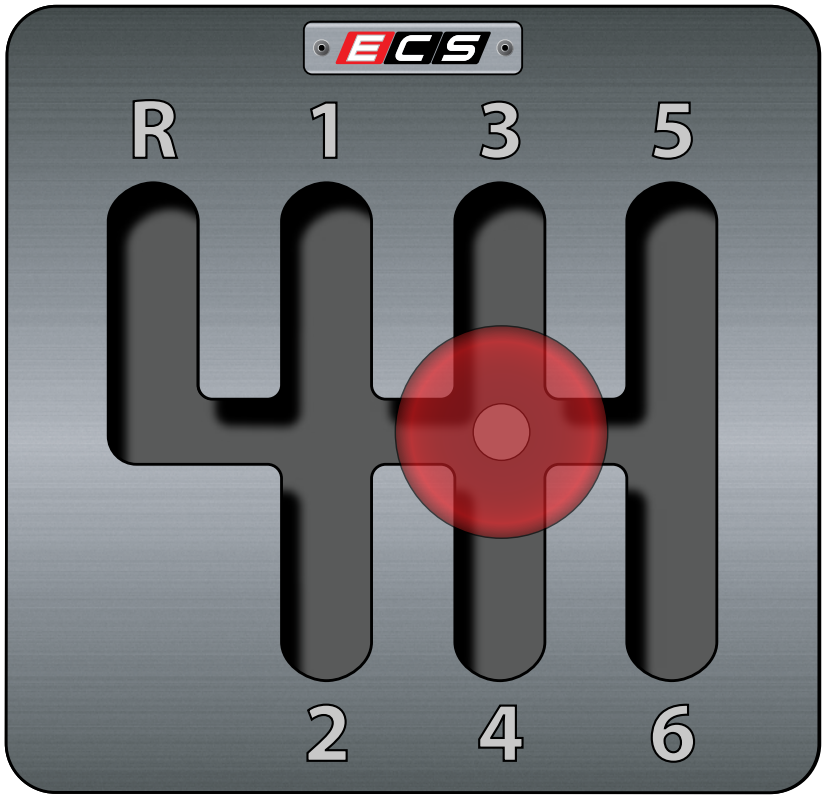
You may notice that the shift lever will move around a bit even with the locking pin installed. While this is a normal condition, it does make the adjustment procedure a little more difficult. **You want to make absolutely sure that the shifter is centered in its locked position.**

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.

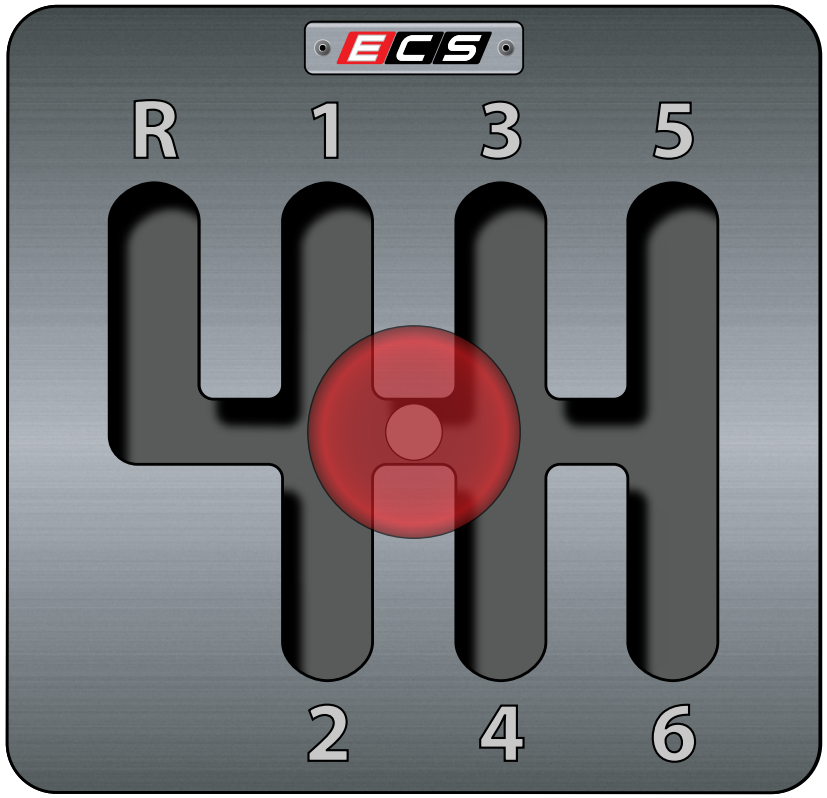
SHIFTER CABLE ADJUSTMENT

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



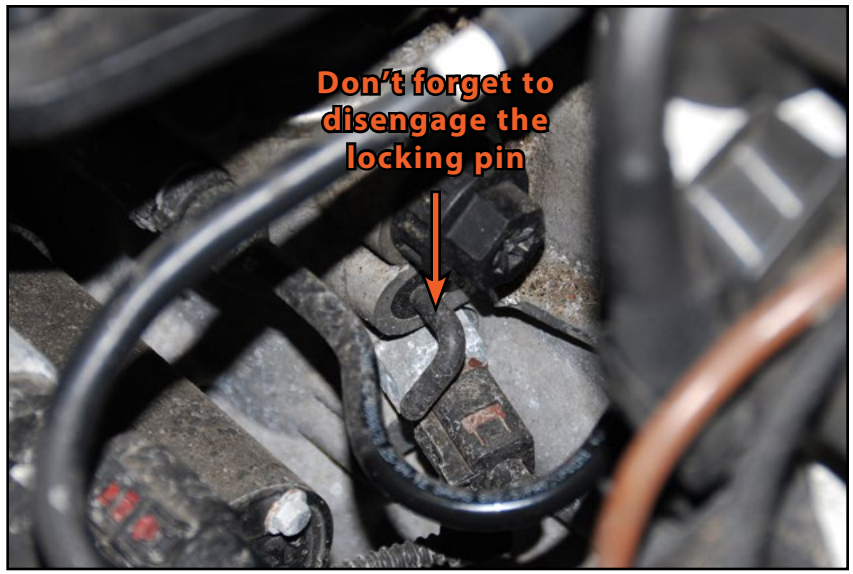
WITH Cables Locked in "Home" Position



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.

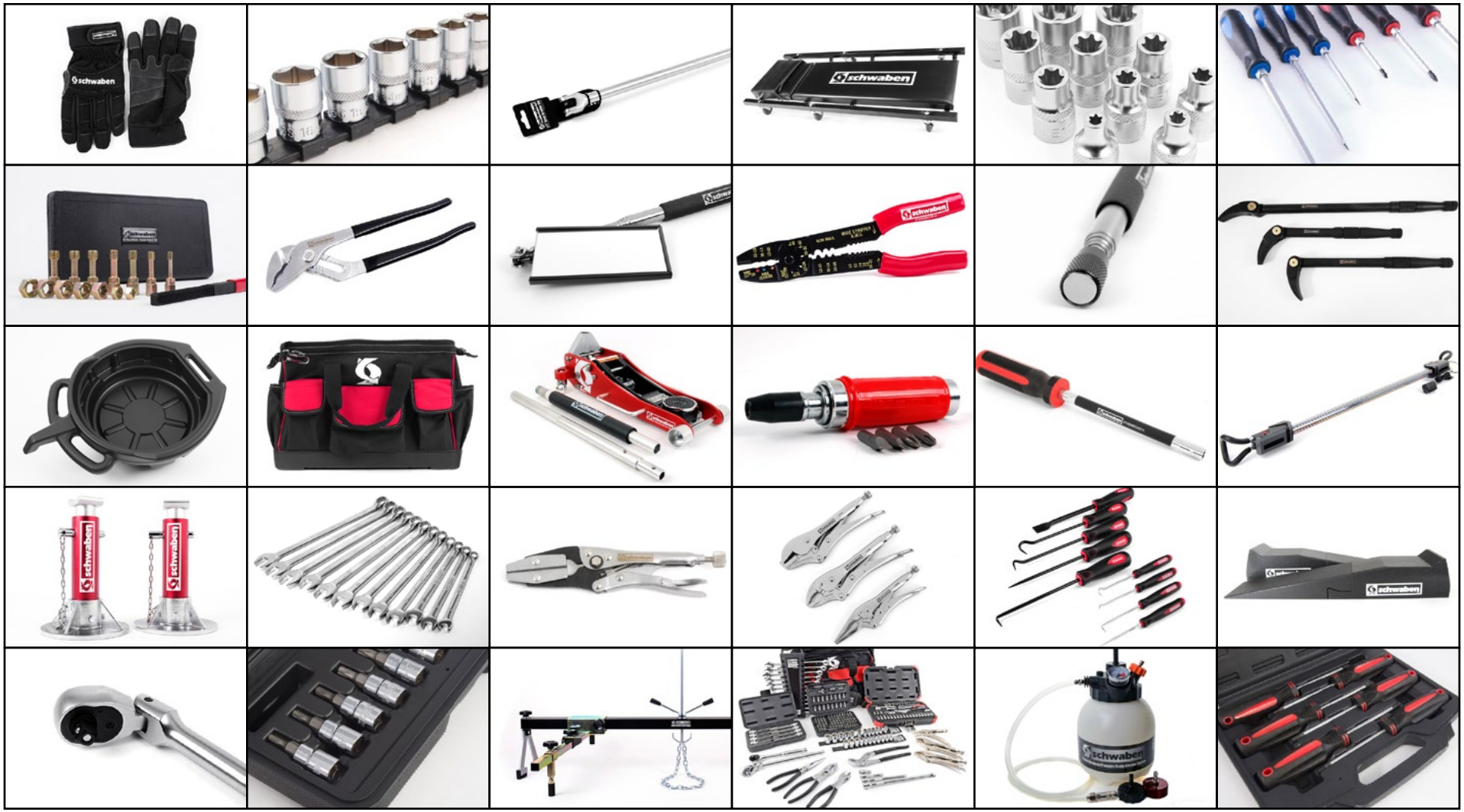
Back under the hood, engage both cable ends by turning the lock sleeves until they release and the springs expand.



- [ ] Disengage the locking pin from the selector shaft.
- [ ] Pull the alignment pin out of the shifter.
- [ ] Reinstall the shifter insulator and boot.
- [ ] Reinstall the air box/intake system.

Your installation is complete!

At ECS Tuning, we carry a line of high quality Schwaben Tools and Equipment to help you build your ultimate tool collection. Never before has affordability and quality been so closely related. Our entire Schwaben line is subjected to strict in house testing for strength and durability. See what we have to offer and equip your garage without breaking the bank.



Your Solid Shifter Cable End Link Bushing Kit installation is complete!

These instructions are provided as a courtesy by ECS Tuning

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