

# New Sigma 5 Shifter Install

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These instructions might seem lengthy but they are thorough and most people appreciate that. This install should take about an hour to perform. Also, these instructions ONLY apply to the dieselgeek.com Sigma Shifter that **went on sale on September 1st, 2009**. These instructions will not work on any other shifter in existence and are COPYRIGHTED material and pictures! Check out our brand new YouTube Install Guide Video: [www.youtube.com/watch?v=wZFx5RjnHSQ&feature=plcp](http://www.youtube.com/watch?v=wZFx5RjnHSQ&feature=plcp)

## Tools Needed

- 3/8 drive ratchet
- 10mm and 13mm socket in 3/8 drive size (1/2 inch will usually work)
- Long extension (12 inch to 18 inch is best) in 3/8 drive size
- Channel lock pliers or special hose clamp pliers for MAF clamp (TDI, VR6, 2.0)
- Regular screwdriver for 1.8T MAF clamp
- 3/8 box end wrench (10mm will usually work)
- All-purpose lubricant such as WD-40 or equivalent

## Removal of Stock Shift Mechanism

1. Always work on a cool car. These engines get hot! You will burn yourself otherwise.
2. Park car on level ground, set hand brake. Daylight really works best for seeing what you are doing. Pull hood latch and open hood.
3. You need to **remove the air box** to do this install. The air box is held in by two 6mm bolts (with 10mm heads), one behind the battery box and the other behind the air box. Unplug the mass airflow sensor electrical plug (there is a catch in the middle that must be pressed to release the plug) and loosen and remove the hose clamp for the mass airflow sensor (MAF) with a regular screwdriver (1.8T) or a pair of channel lock pliers or specialized hose clamp pliers (all other engines). Remove the passenger side vacuum hose (TDI) or air injection hose (1.8T, VR6, 2.0) from the air box by gently but firmly squeezing where the serrations are on the outer ring (Figure 1, Figure 2). It is sort of thin and brittle so do not get ham fisted with it or it might break. Tuck it in front of the battery box to make room for doing the install (Figure 3).



Figure 1 - Air Injection Hose



Figure 2 - Squeeze the Serrations On the Outer Ring



Figure 3 - Tuck It in Front of the Battery Box to Make Room

4. Looking down to the left hand corner of the battery at the bottom you will see the stock shift linkage with two shift cables running back towards the center of the car (Figure 4). You can look at the new [dieselgeek.com](http://dieselgeek.com) short shift parts and visualize how the new parts go in place.

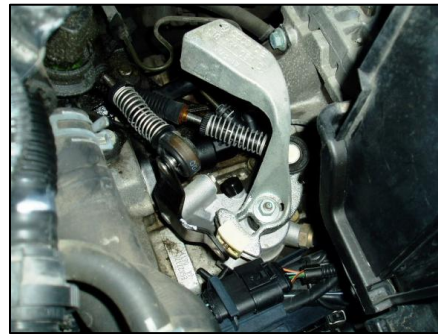


Figure 4 - Stock Shift Linkage

5. Detach both of the shift cable ends from the shift cables by pulling their knurled plastic rings toward you and against the coil spring and turning it clockwise (or counter-clockwise depending how you look at it) against its stop to unlock the cable ends (Figure 5, Figure 6). This will allow you to slide the cable ends off of the threaded cables.



Figure 5 - Pulling the Knurled Plastic Rings



Figure 6 - Unlock the Cable Ends

6. On the left-most shift bracket, (the one painted black) undo the shiny metal clip with your fingernail that secures its pivoting shaft to the transmission housing (Figure 7, Figure 8). Be

especially careful not to lose this clip as it secures the side to side shift bracket to the transmission (Figure 9). The VW/Audi part number for the shiny clip is N 908 159 03 in case you do lose it and you do not have spare clips holding on your old OE cable ends.



Figure 7 - Left-Most Shift Bracket



Figure 8 - Undo the Shiny Metal Clip

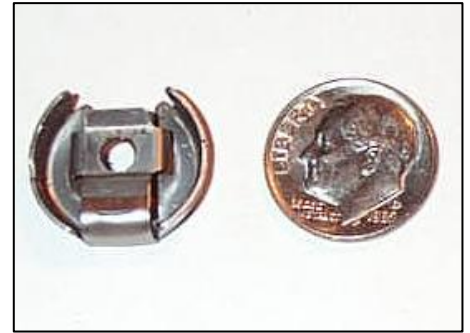


Figure 9 - Clip

- Slide the black sheet metal bracket towards the passenger side of the car (Left hand drive) (Figure 10). There are two round white plastic pivot bushings on this bracket (Figure 11). Make sure that both of the round white plastic bushings stay **in the aluminum tube** that is attached to the transmission. Remove the round white plastic bushing from the stock black shift bracket and replace it in the aluminum tube if it happens to come out with the stock black shift bracket. The shifter will not work properly without both of these bushings being in place! The factory part number for these bushings is 1J0 711 067L if you lose or damage one (Figure 12).



Figure 10 - Towards the Passenger Side of the Car



Figure 11 - Two Round White Plastic Pivot Bushings

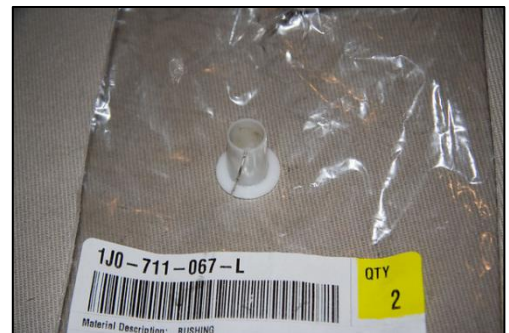


Figure 12 - Factory Replacement Bushing

- Using a 13mm socket and ratchet (plus 12-18 inches worth of extension bars if you have them), remove the 13mm nut holding the golf club-shaped chrome shift bracket to the transmission (Figure 13). The shift mechanism will rotate counter-clockwise into gear as you loosen this nut. This is not a problem. After you remove it, discard the 13mm nut as it is not reused.





Figure 13 - Golf Club-Shaped Shaped Chrome Shift Bracket

9. Use leather gloves for this step! After the 13mm nut has been removed, you will need to put the selector shaft in the middle position (neutral) and pull up to remove the chrome shift bracket from the splined selector shaft of the transmission (Figure 14). Use some control since you might hurt yourself when the bracket does finally come free of its shaft. Sometimes it helps to get both hands on this bracket so you can pull up evenly (and repeatedly, if necessary). Also, while grabbing the chrome bracket, you can wiggle it side to side while pulling up on it to free it from the splined shaft. For really new cars, some people have used a battery terminal puller (or a generic two jaw puller) to remove the chrome bracket from the selector shaft (Figure 15). This can be sourced from most auto parts stores for around \$4.00. If the splines are new and tight and it will take a few minutes to get the bracket off.



Figure 14 - Splined Selector Shaft of the Transmission

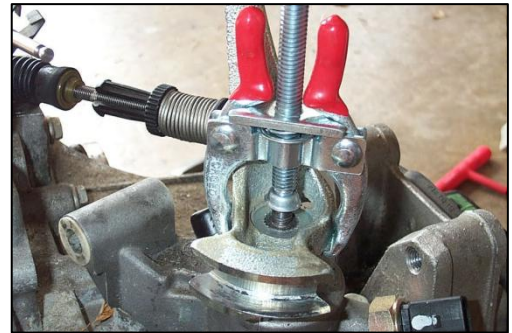


Figure 15 - Battery Terminal Puller

10. Put both brackets in a box and store them in a safe place in case you ever need to reinstall them.

## Install Sigma Shifter

1. The very first thing you must do to ensure a trouble free install and adjustment of the Sigma shifter is to slide each of the aluminum cable ends onto the appropriate shift cables to ensure that they slide easily on the cables. The adjustment procedure requires that the cables not hang up on the Sigma cable ends. The front to back bracket has a splined hole in it (Figure 16). This bracket's cable end should be slid onto the cable farthest from the engine. In the rare case that the cable end does not slide back and forth freely on the threaded part of the shift cable you must open up the gap in the aluminum cable end by removing the first Allen screw from the cable end. Next, thread in a 6mm screw and then slip in a thin washer into the gap for the 6mm screw to push against to open up the gap like this (Figure 17). You should only tighten the 6mm screw enough for the cable to slide easily inside the cable end and no further. With the gap opened up you will be able to slide the cable end freely onto the shift cable until the threads disappear (Figure 18). Leave the washer and 6mm screw in place until you get to the adjustment procedure. **Do not proceed** with the install if you cannot get the shift cables to slide freely inside the cable ends. Please call us at 210 852 4819 if you get hung up at this step. Please leave voice mail if we are out of the office. We will get back to you. Please note that shifters sold before August, 16th 2010 will not have the 6mm threaded holes in the cable ends but you can spread the gap open like this with stubby flat head screwdriver pressed into the slit (Figure 19).



Figure 16 - Front to Back Bracket



Figure 17 - Open Up the Gap Like this



Figure 18 - Slide the Cable End Freely Onto the Shift Cable Until the Threads Disappear



Figure 19 - Spread The Gap Open Like This

2. If both cable ends slide smoothly onto the shift cables you can then use the supplied 4mm Allen wrench and your 3/8 box end wrench (a 10mm will usually work), to tighten the Allen screws of

the two aluminum cable ends until they are almost snug (very slightly loose). This will make the install easier. Be careful though, if you tighten the Allen screws too much the shift cables will not move freely in and out of the cable ends. Having the cables move freely prior to adjustment is crucial to the proper adjustment of the shifter!

3. Back in the engine bay; pull back the front to back cable rubber boot and plastic ring to expose all threads of this cable (Figure 20). (This is the cable on the right, or driver side (Left Hand Drive cars) that was attached to the chrome shift weight.) These rings can be very tight and some people have had success with pulling the plastic ring toward the front of the car to break them loose (Figure 21). After it has been broken loose, slide it toward the rear of the car to expose all of the threads and smooth cable (Figure 22, Figure 23).



Figure 20 - Expose All Threads of this Cable



Figure 21 - Pull the Plastic Ring Toward the Front of the Car

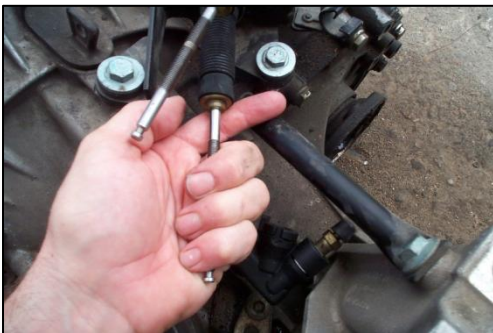


Figure 22 - Slide It Toward The Rear of the car



Figure 23 - Expose All of the Threads and Smooth Cable

4. Start with the front to back bracket first (Figure 24). Before you try to put the shift bracket back onto the splined transmission selector shaft, spray the front to back shift cable with WD-40 or equivalent light weight lubricant (Figure 25). Then slide the aluminum cable end onto the lubricated and partially threaded shift cable (Figure 26). Make sure the cable can be inserted into the cable end until the threads disappear inside the cable end (Figure 27).





Figure 24 - Front to Back Bracket

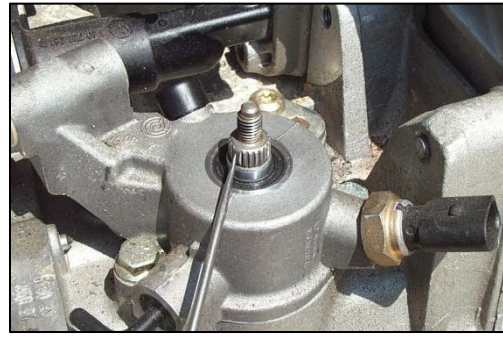


Figure 25 - Splined Transmission Selector Shaft



Figure 26 – Slide the Aluminum Cable End Onto the Lubricated and Partially Threaded Shift Cable



Figure 27 - Make Sure the Cable Can Be Inserted into the Cable End Until the Threads Disappear

5. At this point it is extremely important to note that there is a keyway or joined spline on the selector shaft on the transmission (Figure 28). The correct corresponding keyway to use on the front to back shift lever is a keyway marked with a permanent magic marker mark denoting its position (Figure 29). You cannot easily push the shift bracket onto the transmission selector shaft without these two elements lining up. It is very important that you do not install the front to back bracket in the wrong position. Once lined up, however, the shift bracket will push pretty easily onto the selector shaft (Figure 30). Another easy check is that once the shifter is fully assembled, the white plastic slider of the side to side bracket will be in the middle of the front to back bracket while in neutral (Figure 31). The white plastic slider is also engraved with "5-SPD TOP DG0041" on the top side.



Figure 28 - Keyway or Joined Spline On the Selector Shaft On the Transmission



Figure 29 - Keyway Marked with a Permanent Magic Marker Mark Denoting Its Position



Figure 30 - The Shift Bracket Will Push Onto the Selector Shaft

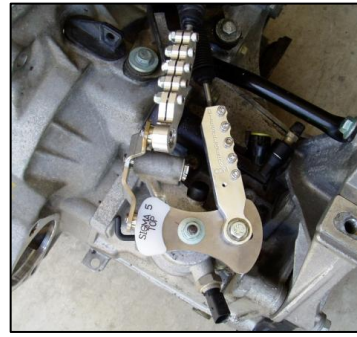


Figure 31 - White Plastic Slider of the Side to Side Bracket Will Be in the Middle

6. Next, thread the supplied new black or green 13mm lock nut by hand onto the shaft and then tighten it with your ratchet but do not go crazy with it (The Bentley service manual says tighten to 18 foot pounds but this accuracy is hard to achieve since the extensions alter the torque wrench reading) (Figure 32) . **Do not reuse** the old locknut that you removed from the stock shifter. While you are tightening the new locknut, the selector shaft will rotate clockwise before the nut gets tight (Figure 33). After the nut has been tightened, rotate the shift bracket counter-clockwise to the neutral position. In the neutral position the front to back shift bracket can be vertically moved up and down. Slide the shift cable into the aluminum cable end until the end of the threads of the shift cable are roughly even with the opening of the aluminum cable end (Figure 34).



Figure 32 - New Black Or Green 13mm Lock Nut  
VW Part Number: N 909 083 01

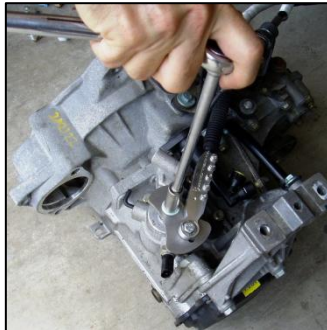


Figure 33 – Tightening the new locknut



Figure 34 - The End of the Threads of the Shift Cable Are Roughly Even with the Opening of the Aluminum Cable End

7. Next, make sure that both of the round white plastic bushings are in the aluminum pivot hole in the transmission (Figure 35). One bushing should be on either side of the pivot hole and the factory part number for these bushings is 1J0 711 067L if you have lost one (Figure 36, Figure 37). The shifter will not work correctly unless both of them are in place. Next, spray the remaining shift cable with WD-40 or similar lubricant. Then take the remaining silver side to side shift bracket and engage the lubricated shift cable with the aluminum cable end (Figure 38). Again, make sure that the shift cable slides freely in and out of the aluminum cable end by cycling it several times in and out of the aluminum cable end (This will remove any burrs if present inside the aluminum cable end.) This free movement is crucial to the proper adjustment of the shifter as described below.





Figure 35 - Round White Plastic Bushings

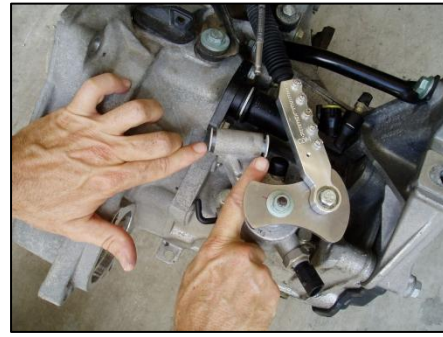


Figure 36 - One Bushing Should Be On Either Side

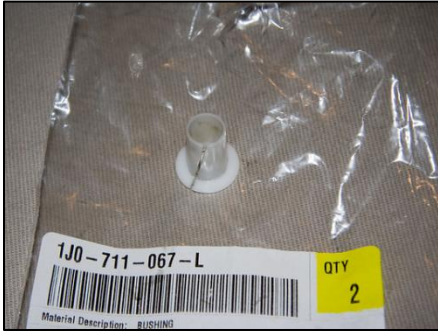


Figure 37 - Bushing 1J0-711-067-L



Figure 38 - Take the Remaining Silver Side to Side Shift Bracket and Engage the Lubricated Shift Cable with the Aluminum Cable End

8. Position the side to side bracket cable end back just far enough to expose all of the shift cable threads (Figure 39). Next, slide the side to side shift lever longer pivot shaft through the hole on the transmission meant for it from the engine side. As you are slowly pushing the silver bracket to the right, push its aluminum cable end slowly onto the threaded section of the cable. This is little bit of a ballet act and under no circumstance should you force anything. You just feed the bracket toward the right and rotate it backwards onto the cable at the same time slowly and carefully. As you are sliding the silver brackets pin through the hole, engage the slot of the white plastic slider with the front to back bracket (Figure 40). Another check is that once the shifter is fully assembled, the white plastic slider of the side to side bracket will be in the middle of the front to back bracket while in neutral (Figure 41). The white plastic slider is also engraved with "5-SPD TOP DG0041" on the top side. This engraved side must face up.



Figure 39 - Position The Side To Side Bracket Cable End Back Just Far Enough To Expose All Of The Shift Cable Threads

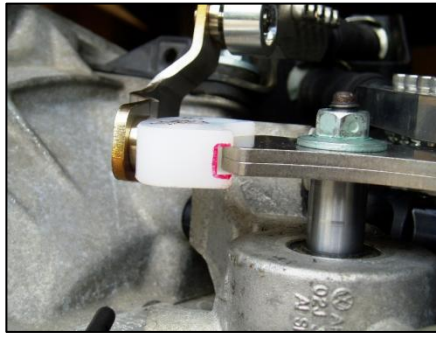


Figure 40 - Engage the Slot of the White Plastic Slider

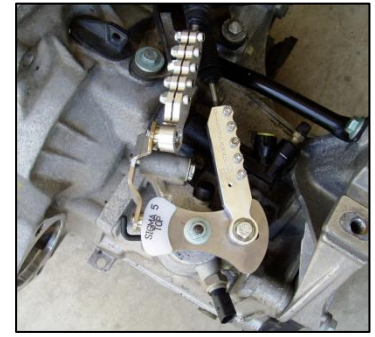


Figure 41 - The White Plastic Slider of the Side to Side Bracket Will Be in the Middle

9. After the silver side to side bracket is fully engaged into the pivot hole, replace the small shiny metal clip on the silver bracket pivot shaft (Figure 42). The VW/Audi part number for the shiny clip is N 908 159 03 in case you lose it and you do not have spare clips holding on your old OE cable ends.

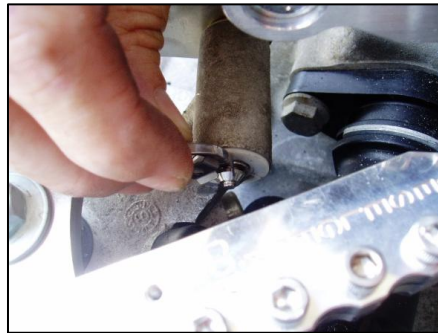


Figure 42 - Small Shiny Metal Clip

## **Adjustment**

**This is the most important part. This procedure must be followed exactly! Please call (210) 852-4819 if you have problems here. If we do not answer, please leave voice mail with a phone number! Make note that all shifters will feel better when given a week or so to break in as there are sliding surfaces that will be polished with several day's worth of driving. The adjustment procedure is pretty straightforward so problems should be few, if any. PLEASE do not seek adjustment advice from anyone other than JIM ROYSTON which includes posting anything to any online forums! Please consult me first. That said, of course when you reduce the available leverage by installing ANY short shift kit there will be a degree of higher effort and this will be perceived as notchiness by some. Just give it a few days to a week for the sliding parts to break in before you call us.**

Take a look at our [simple YouTube video](#) that shows how a stock shifter is adjusted. The adjustment for the Sigma 5 shifter is the same with the exception that you will clamp the

**shift cables with aluminum cable ends rather than the plastic stock cable ends. The overall concept is the same.**

1. **Lock the transmission into its "home" position.** Right now, your black L-shaped locking lever is in the rest position and should point to the left, just like in the picture (Figure 43). In the engine bay, make sure that the *transmission* is in **neutral** (in neutral the front to back shift bracket is free to move vertically up and down). With your right thumb, push down on the front to back lever approximately 1/3 of an inch and then with your forefinger turn the small black L-shaped locking lever on the transmissions shift tower clockwise while pushing it in. When you get the selector lever at the correct height the black locking lever will push inward and end up pointing straight up when the shift mechanism is successfully placed in the locked or home position (Figure 44). **You will also not be able to move the front to back lever up and down if the transmission is locked into the home position.**



Figure 43 - Locking Lever



Figure 44 - Straight Up

2. Expose the shift linkage inside the car. On Golf and Jetta, while working inside of the car, pull the elastic band at the rear of the shift boot toward the rear of the car and lift up the rear of the shift boot (Figure 45). Do not to remove the shift boot completely as it requires you to remove and reinstall the plastic rectangular shift boot retaining ring if you do. On New Beetle, grab the rectangular ring at the base perimeter of the shift boot and pull it upward. It will unsnap from the center console. Then lift the rubber sound deadening boot from the shifter aperture. On the Audi TT, remove the eight Torx screws in the aluminum ring surrounding the shift boot. Lift up the shift boot but do not remove it.



Figure 45 - Pull the Elastic Band

3. **Lock the mechanism inside the car into its home position.** Next, insert the new precision 5mm pin tool we supplied with the kit into the hole at the lower left of the shift lever and push it through and into the corresponding hole in the shifter base until it bottoms out (Figure 46, Figure



47). This will give the appearance that the shifter is in **second gear** which is **exactly correct**. Also, the shift lever inside the car WILL NOT MOVE if you have successfully put the 5mm pin down through both holes. If you do not have the 5mm pin tool we provide with our kits, you can make your own tool from a 5mm drill bit or 4 inch long, uncoated 20d Bright Common nail with a 5 mm or .195 of an inch shank diameter and a 30 degree bend 2.5 inches from the tip of the nail to clear the shift knob.



Figure 46 - 5Mm Pin Tool



Figure 47 - Hole at the Lower Left of the Shift Lever

4. Once you have locked the transmission into its home position (Step 1) and also installed the 5mm pin tool through **both** holes inside the car (Step 3), you are ready to tighten **just one** Allen screw that clamps each of the aluminum cable ends to the shift cables. This **IS** the adjustment for the short shift kit! **Where** you clamp the cables has everything to do with the proper adjustment of the shifter. If you did not follow all of the preceding steps exactly then do not tighten any Allen screws until you do. If you are confident that you followed all of the steps before this one then you can finish the adjustment. Before you tighten any Allen screws first rotate the side to side bracket's cable end to make it perpendicular to the side to side bracket so that its top slot faces straight up. If you used a 6mm screw or stubby screwdriver to open the gap in either or both cable ends you should remove them now and replace the Allen screws and nylock nuts if applicable. Then, tighten only the 2nd Allen screw on both of the cable ends with the supplied 4mm Allen wrench and a box end 10mm or 3/8 wrench to hold the lock nut. You will finish tightening the other three Allen screws only after you test the adjustment in Steps 7 and 8.
5. **Unlock the transmission from its home position.** While pushing down slightly on the front to back bracket, pull the transmissions L-shaped locking pin to the left and rotate it counter-clockwise until it comes back out to its **rest position** stop. It will move toward the right side (engine side) of the car by approximately 1/2 inch. (You are not removing the pin completely.) It is very important that you pull this pin back to the normal rest position since your shifter will not work with the pin in the transmission home position (Figure 48)! Furthermore, *you will permanently damage the pin if you forcefully try to shift the mechanism with the pin pushed in! Please do not forget to release the pin after adjustment. The shift mechanism will still function perfectly if you damage the plastic pin.* The part number for the locking pin is 02J 301 358C and is available at your dealer for about \$5.00. It is a pain to install, however.



Figure 48 - Rest Position

6. **Unlock the mechanism inside the car from its home position.** Go back inside the car and remove completely the 5mm pin tool from the shifter mechanism. Save the adjustment pin with your stock shifter parts.
7. Check the shifter action by **gently** cycling through the gears (remember, you only have tightened one of the four Allen screws clamping each cable). Make sure that first and second gear engage smoothly without too much effort. Also, make sure that reverse gear is easy to engage. If first and second gear are not where they are supposed to be, loosen the two Allen screws and do the adjustment procedure over again starting at step #1 in this adjustment section. (Make note that the shifter will always work its best with the engine running and the clutch pushed in.)
8. If all gears are easy to engage, tighten the remaining Allen screws. As a general guide, tighten the Allen screws until the slit in the side of the aluminum cable ends will just allow either a credit card or two playing cards to fit in the gap (Figure 49). (If you happen to break an Allen screw, a replacement screw is a 10-32 socket head machine screw that is 3/4 inch long and is available in most hardware stores.) Once all of the eight Allen screws are tight, the shifter has been properly installed and adjusted. It should never need to be readjusted unless it was done incorrectly.



Figure 49 - Two Playing Cards Will Fit in the Gap

9. Reinstall the shift boot onto the shift boot frame ring inside the car. The New Beetle shift boot just pushes straight down into the aperture. On the Audi TT, reinstall the shift boot onto the shift boot frame ring inside the car. Reorient the folds in the shift boot and align the shift boot with the locating lug in the boot and center console. Replace the 8 Torx screws for the outer aluminum trim ring.
10. Reinstall the air box. Reattach the flexible duct to the mass airflow sensor with the screw clamp (1.8T) or spring-type hose clamp (all other engines). Plug the electrical connector for the mass

airflow sensor back in until it clicks. Reattach the engine side vacuum line for the air box (TDI) or reinstall the flexible air injection feed hose for all other engines. A positive air hose connection often results in one little click.

11. Start the engine and go for a ride. You are finished with the install.

12. Enjoy and tell your friends about how much you love your New Dieselgeek Sigma 5 Short Shifter!

Note: While we do not recommend using a B&M shifter in conjunction with our Sigma Shifter, if you are attempting this install the Sigma Shifter on a car that has a B&M short shift kit installed then none of the instructions above apply. Your adjustment procedure is trial and error since the B&M shift lever does not have the factory alignment holes to set the shifter in its home position. To give you an approximate adjustment measurement, there should be .472" or 12mm worth of threads showing on the silver brackets shift cable when the shift cable boot is pulled back to expose smooth cable. (This applies to the procedure below as well.) The front/back cable end will have 0-2 threads showing.

**If you cannot get 1<sup>st</sup> or 2<sup>nd</sup> gear or Reverse:**

**Please loosen the four Allen screws for the side to side bracket cable end and repeat the adjustment procedure. You simply missed something during the procedure.**

**If you ever need to remove a cable end from a cable and it does not want to move:**

When removing a cable end from the shift cable you must open up the gap in the aluminum cable end by loosening all four Allen screws and fully removing the first screw from the end and threading in a 6mm screw and then slip in a thin washer into the gap for the 6mm screw to push against to open up the gap like this (Figure 50). With the gap opened up you should be able to slide the cable end freely off of the shift cable. If the cable end still does not want to slide off you can clamp a Vice-Grip next to a fully loosened cable end and pry it off with a flat blade screwdriver (Figure 51).



Figure 50 - Open Up The Gap Like This



Figure 51 - Vice-Grip

OR Check out this video: [http://www.youtube.com/watch?v=G\\_Dh7LQ\\_J7U&feature=plcp](http://www.youtube.com/watch?v=G_Dh7LQ_J7U&feature=plcp)

**- End of Instructions -**