SHIFTWORKS®

"Classic Appearance **meets** *Modern Performance"*

Thank you for your purchase!

With any questions regarding your purchase, products, or installation do not hesitate to reach out to us:

Phone: (585) 924-2700

Email: Support@shiftworks.com

T- Handle Shifters

- 1964, 1965 Chevelle
- 1964, 1965 El Camino
- 1964, 1965 Malibu

- 1966, 1967 Chevelle
- 1966, 1967 El Camino
- 1966, 1967 Malibu

This set of instructions will cover Shifter Packages & Conversion Kits.

* Always verify you have purchased the correct kit for your application BEFORE beginning your installation!!!

Conversion Kits

	1964-65 Chevelle ***1964-65 El Camino*** ***1964-65 Malibu***	***1966-67 Chevelle*** ***1966-67 El Camino*** ***1966-67 Malibu***
TH350 ***TH400***	SC2031-C SC2031-CS	SC2032-C SC2032-CS
TH200-4R ***700-R4*** ***4L60E*** ***4L70E***	SC2041-C SC2041-CS	SC2042-C SC2042-CS
4L80E	SC2041-05C SC2041-05CS	SC2042-05C SC2042-05CS
6L80E, ***6L90E,*** ***8L90E***	SC2041-06C SC2041-06CS	SC2042-06C SC2042-06CS

Shifter Packages		
	1964-65 Chevelle ***1964-65 El Camino*** ***1964-65 Malibu***	***1966-67 Chevelle*** ***1966-67 El Camino*** ***1966-67 Malibu***
TH350 ***TH400***	SW6403	SW6603
TH200-4R ***700-R4*** ***4L60E*** ***4L70E***	SW6404	SW6604
4L80E	SW6405	SW6605
6L80E ***6L90E*** ***8L90E***	SW6406	SW6606
Powerglide	SW6402	SW6602

Parts Overview

Shift Control Levers:

602F

602L

602A

602E

Transmission Cable Bracket:

3 & 4 Speed Automatic Pan Brackets

603.4

603.5

6 and 8 Speed Automatic Case Bracket

650-110

Cable Mount Bracket:

SW002

Detents

SW001

SW004-001

SW001-006

Hardware Overview:

This is an overview of the hardware items you can expect to find in your Shiftworks shifter conversion kit.

Cable Clip

Cable Adjuster Pin

M10 x 1.5 Hex Nut

10-24 x 9/16 Machine Screw

Small Washer

Sheet Metal Screw

Cotter Pin

M8 x 1.25 Hex Bolt

Large Washer

Shifter Cable Pin

Nylon Lock Nut

Required Tools for Installation

This is a list of typical tools required to complete this job. Additional tools may be required depending on your application.

- Metric socket set
- SAE socket set
- Standard wrench set
- Pliers
- Drill
- Drill Bit Set
- Phillips & Flat-head screwdrivers

Preliminary steps

Before installing and adjusting your shifter assembly, follow these steps to ensure you have the best adjustment for your shifter and installation process.

1.) Chock wheels and disconnect the vehicles battery

Safety is always the most important step. When installing this kit, it is important to properly chock wheels to ensure the vehicle will not roll or move while clicking through the transmission gears. Additionally, disconnect the vehicles battery before continuing.

Figure 1

2.) Adjust both bulkheads on the shifter cable to be in the center of their threads.

Setting your Shiftworks cable bulkhead to the center of their threads will help later with your cable adjustment.

Figure 2

Simply turn the bulkheads until they are in the middle of the threads. These bulkheads are used for fine adjustments.

3.) Remove the center console to gain access to your shifter assembly.

Remove the center console and surrounding trim to gain access to your shifter assembly. Refer to the factory service manual for details on how to properly remove the console.

**** If you are installing a Shiftworks complete Shifter Package and NOT converting your factory shifter, skip to <u>step 6.</u>***

4.) Disassemble the shifter

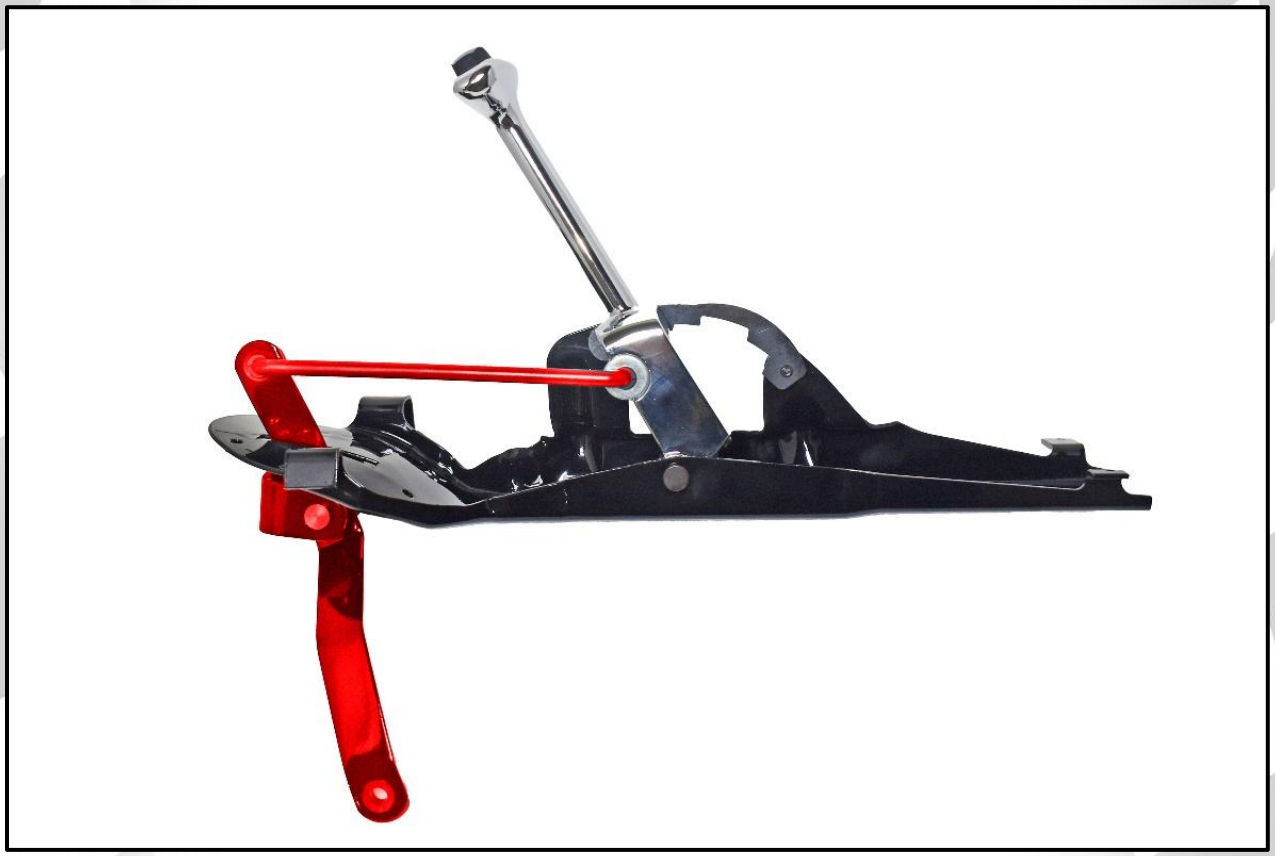


Figure 3

First remove the dust cover If there is one on your shifter. Then remove the rod actuation assembly from the shifter assembly. This is held together with a series of pins and retainers. The parts highlighted in red above will need to be removed.

Remove the neutral safety switch and detent. The neutral safety switch is held in with two nuts. Remove those, then unbolt the detent and remove.

Figure 4

After disassembly, your shifter should look like the shifter above. [Fig. 4.]

Figure 5

Now you will need to remove the rod actuator pivot mounting bracket on the bottom of the shifter. This is spot welded on. You will need to drill out the spot welds using a 3/8 drill bit. Drill slowly and carefully to prevent drilling all the way through the shifter body.

5.) Reassemble the shifter

Attach the cable bracket to the shifter body. This is done by drilling holes at the front of the shifter body and bolting on the bracket. The following diagram shows the positioning for where to drill your holes. Use a 13/64 drill bit to drill your first hole. Then loosely bolt on the cable bracket and use a center punch to mark the remaining holes and then drill. Mount the bracket using the supplied hardware with the nuts on the top side of the shifter.

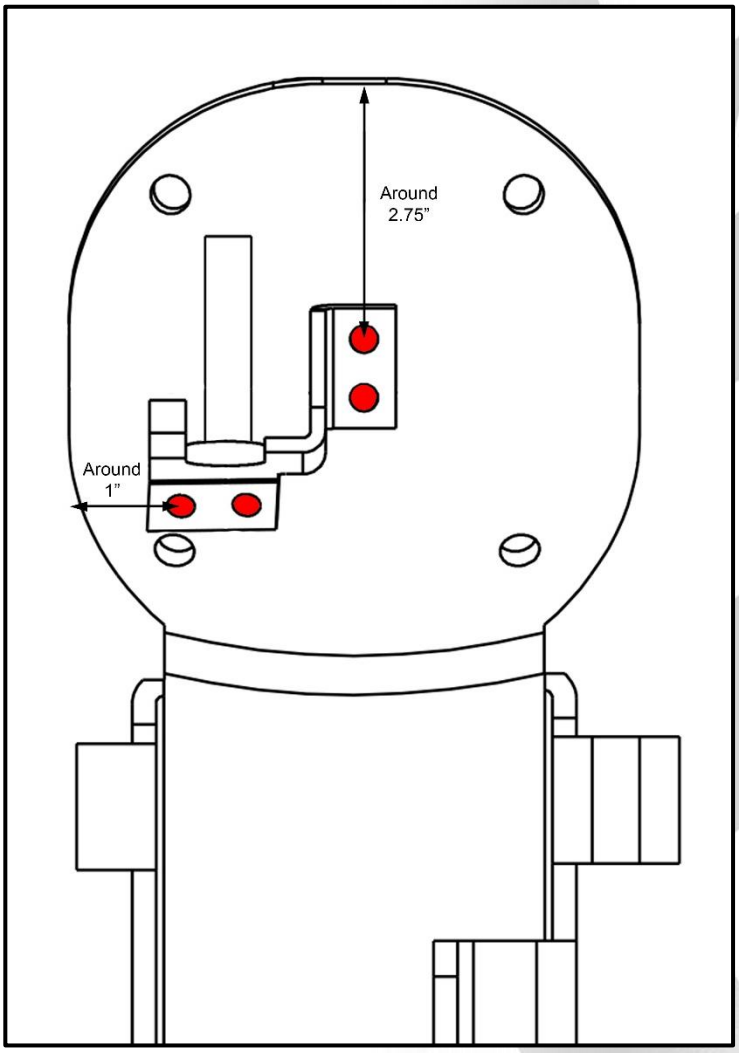


Figure 6

Figure 7

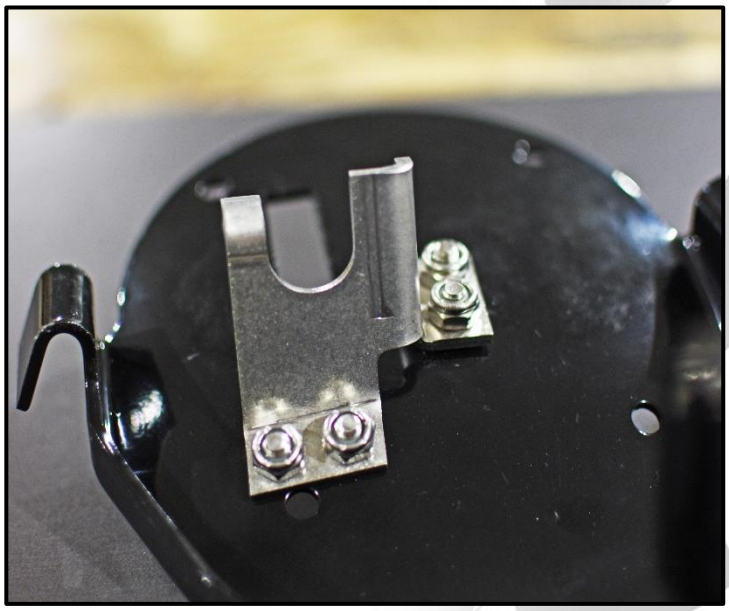


Figure 8

Add the shifter cable pin to the shifter. Position the hole in the pin so you can easily put a cotter pin through. Follow the diagram to see the correct order of application.

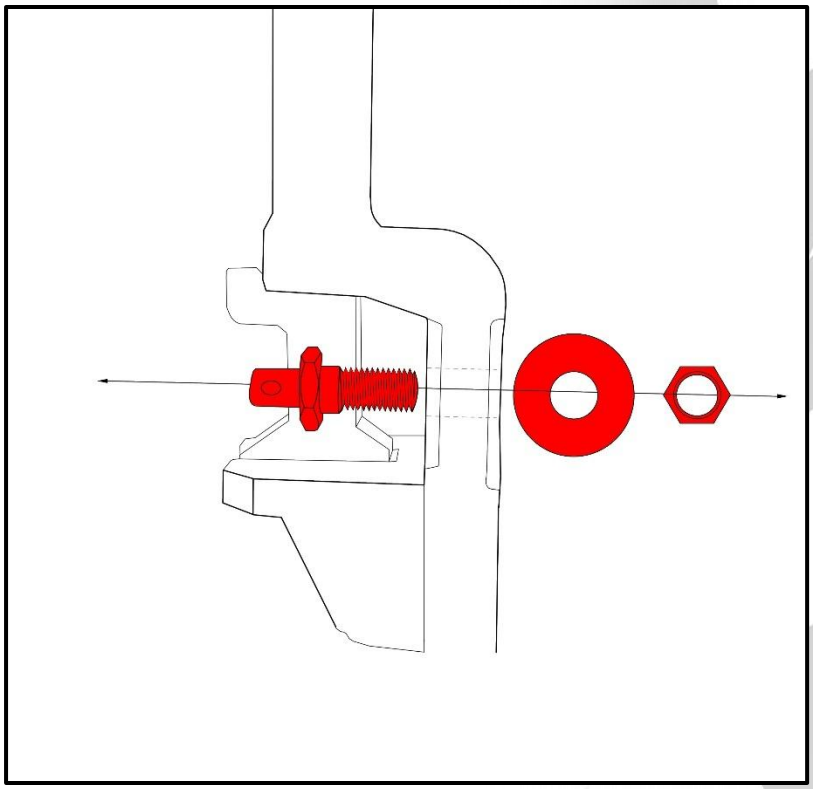


Figure 9

The shifter cable pin is highlighted in red on the image to the right. It should look like this installed. Installing the pin backwards could result in cable binding and shifting issues.

Figure 10

Figure 11

Make sure that your shift handle has this tab on the bottom and that it is straight. This is what moves your neutral safety switch. If it is bent it could cause the switch to not actuate properly relative to its position.

Bolt on the detent and neutral safety switch using the original hardware. First attach the detent, then attach the switch, ensuring the tab aligns with the switch slider.

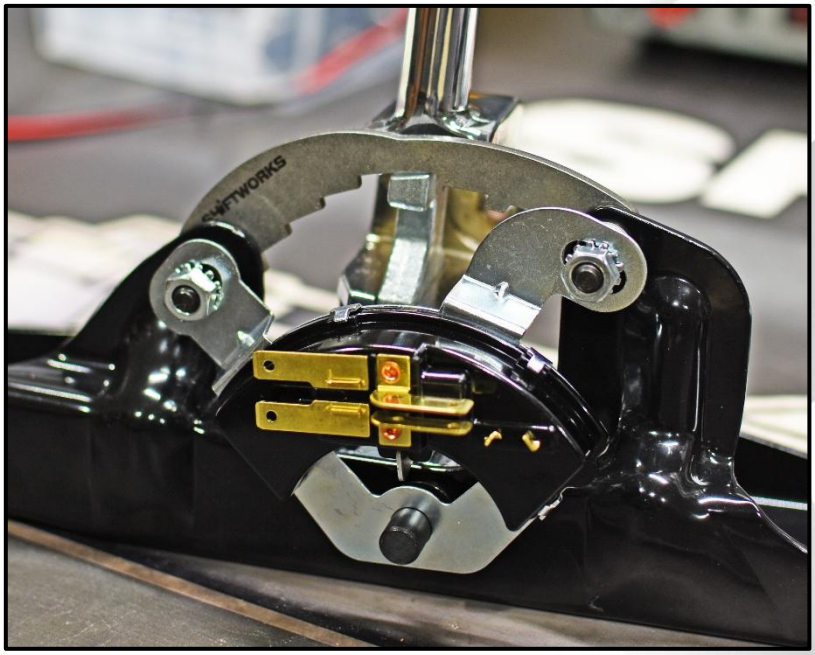


Figure 12

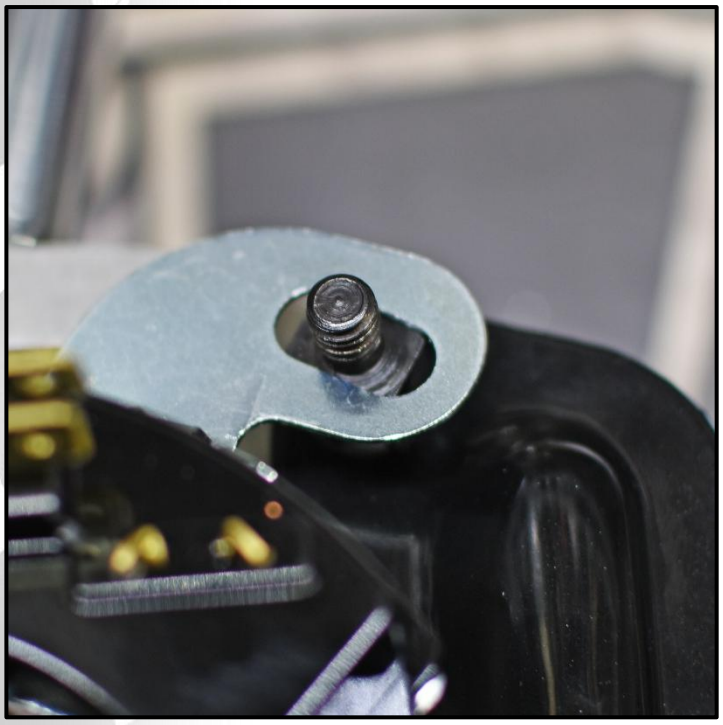


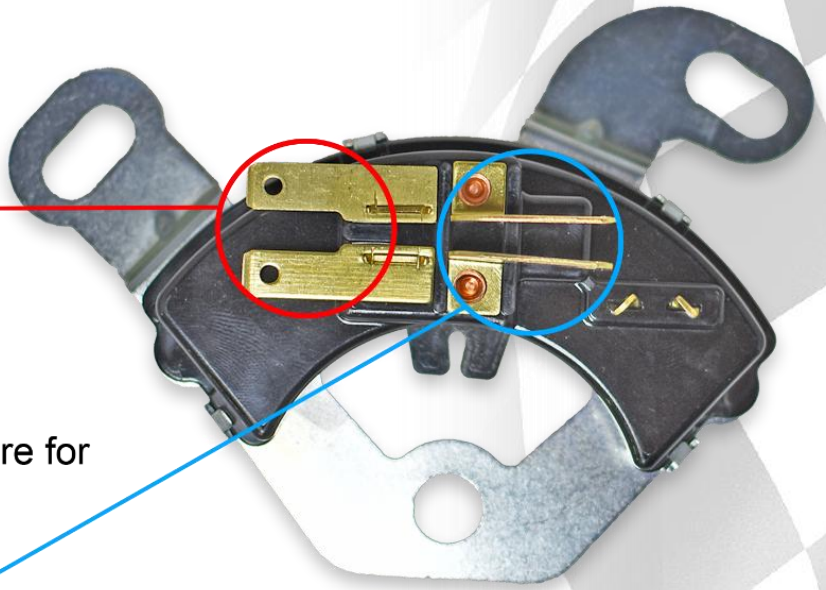
Figure 13

The switch is slotted for adjustment purposes. It can be moved to find the best adjustment for each application.

S500 / S500A

WIRING INSTRUCTIONS

These terminals are for the ignition/ neutral safety wires.



These terminals are for the reverse lights.

This switch is a simple circuit interrupt. There is no specific in or out for each pair of terminals. The terminals are normal male spade/blade terminals, any female spade terminal connector will work and is recommended.

S500 / S500A

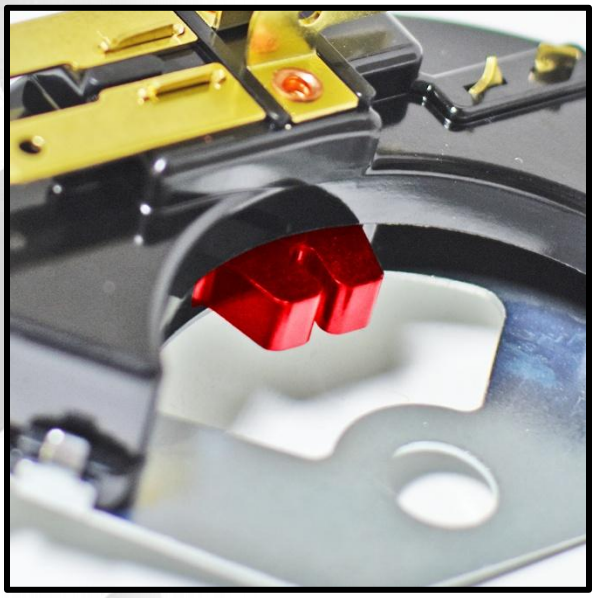


Figure 14

Ensure that the tab on the shifter is positioned in the slot on the switch tab. This is what actuates the switch. If it is not positioned correctly the shifter the switch will not actuate.

The switch's mounting tabs are slotted to allow for adjustment. Adjusting your switch is important to allow for the car to be started in park and neutral and for the reverse lights to come on when the car is in reverse. When buying one of our shifter packages, our switches are already adjusted on the shifters.

Figure 15

Before proceeding further, check that the shifter will still move though it is entire range of motion and properly engages with all gear positions and stops.

6.) Reinstall The Shifter

Install your shifter and shifter cable into the car. Be sure to route the shifter cable from inside the car through the hole in the chassis with label end first. Once the cable is fastened in place with the rubber side of the 3-hole grommet facing down, install the shifter, securing it with the four factory mounting bolts. We will adjust the cable later. To view adjustment instructions, visit page 21.

Please note:

While attaching the shifter cable to the cable eyelet, there is a supplied cotter pin and a washer. It is important for these to be installed in the correct order. Please follow the diagram [Fig. 16] on the right.

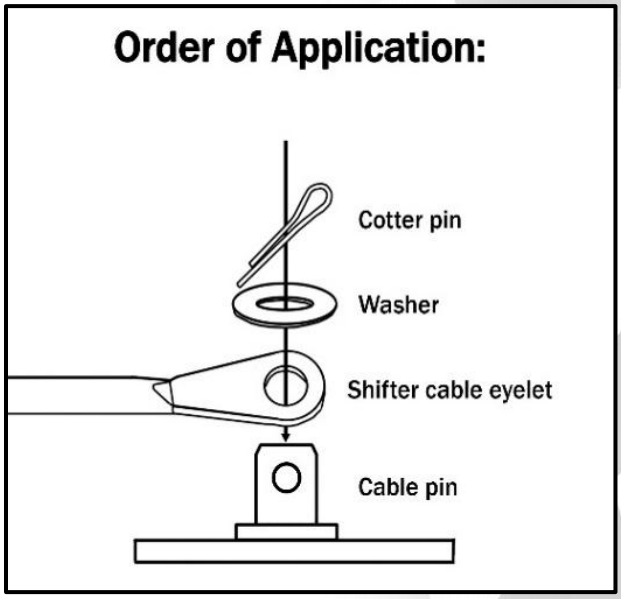


Figure 16

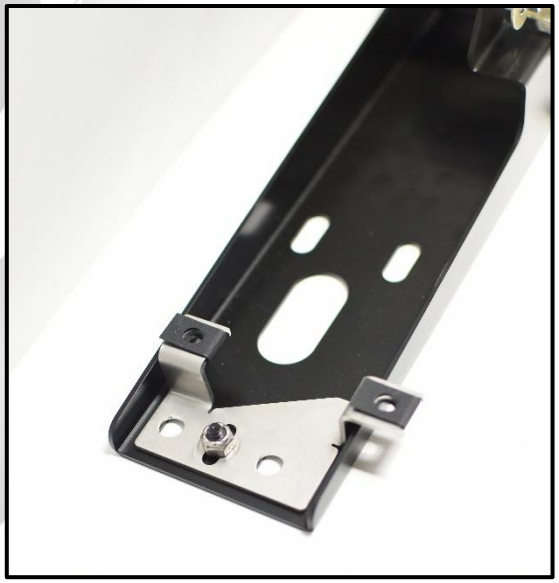


Figure 17

When using the new style Shiftworks shifter, you have some adjustability with the bolt on tabs on the shifter body. These are intended to allow for fine tuning on fitment inside the car. [Fig. 17]

Cable Hole Location:

When adding the hole in the floor for the cable. We recommend a **1 ½”** diameter hole that is around a **¼”** away from the top of the shifter when bolted into the car. Please refer to [Fig. 18] on the right or on our website for more information.

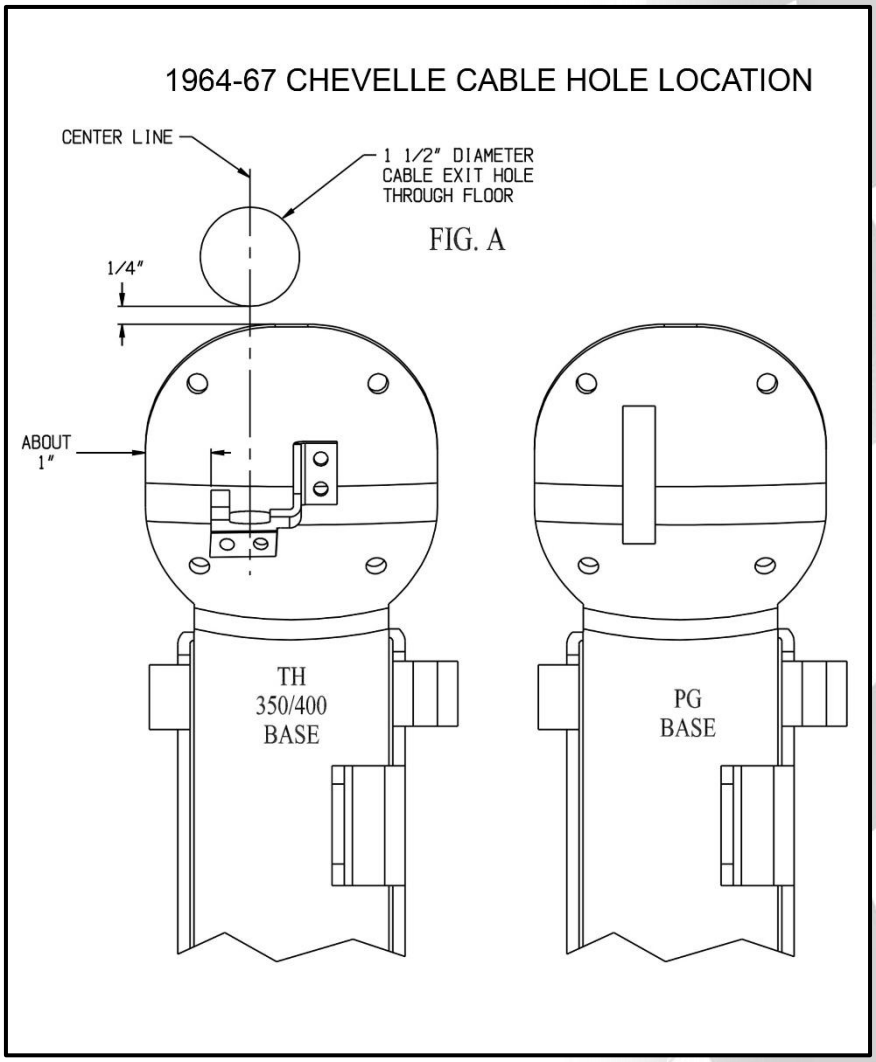
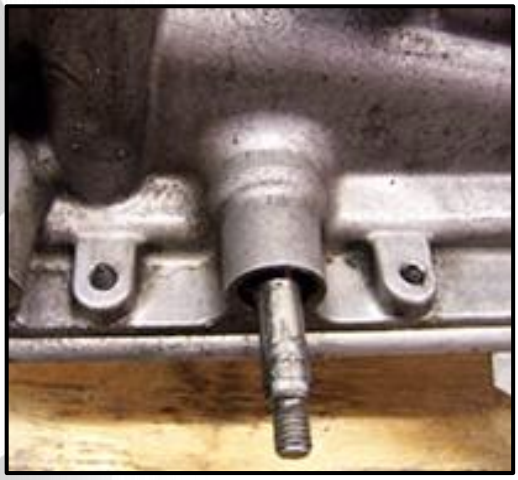


Figure 18

7.) Install Shift Control Lever

In your Shiftworks conversion kit, you will receive a new shift control lever that attaches to the transmission's range select shaft. The range select shaft length will either be what we call a short-shaft or a long-shaft depending on the transmission. Typically, the TH350, TH400, 200-4R, and 700R4 use a “short” range select shaft. The 4LE series transmissions can vary between a “short” or “long” range select shaft, while 6-speed and 8-speed transmissions almost always utilize a “short” range select shaft.



Long Range Select Shaft

Figure 19

Short Range Select Shaft

Figure 20

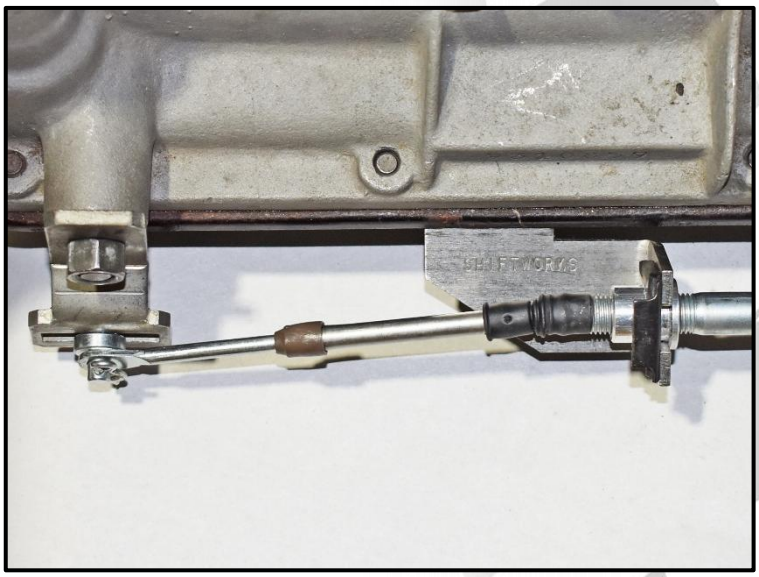
To remedy this, some of our kits come with an additional shift control lever. Shift control levers are always installed with the “Shiftworks” logo facing outwards away from the transmission. Install your Shiftworks shift control lever by matching the cutouts on the shaft to the opening on lever. Then install and tighten the M10 x 1.5 nut.

Figure 21

Correct Applications

Correct – Long Shaft

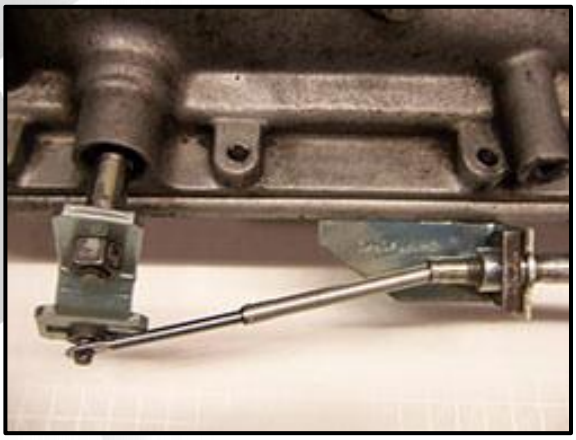
Figure 22



Correct – Short Shaft

Incorrect Applications

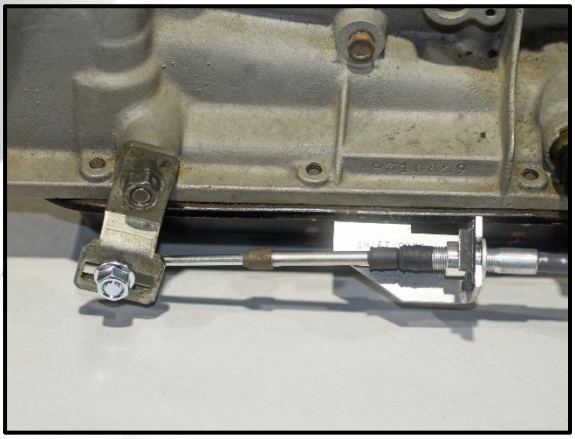
Making sure you install the range select shaft and the shift cable correctly is important to the functionality of your shift linkage as well as the longevity of the components. Be sure to install correctly and please contact Shiftworks customer service at (585) 924-2700 or email support@shiftworks.com with any questions.



Incorrect

Figure 23

This is the incorrect lever for the long range select shaft. As you can see by the steep angle in the cable. This can cause resistance and binding in the shifter linkage.



Incorrect

Figure 24

This is incorrect because the cable adjuster pin is backwards on the shift control lever. This will typically damage the cable eyelet when attempting to force into park.

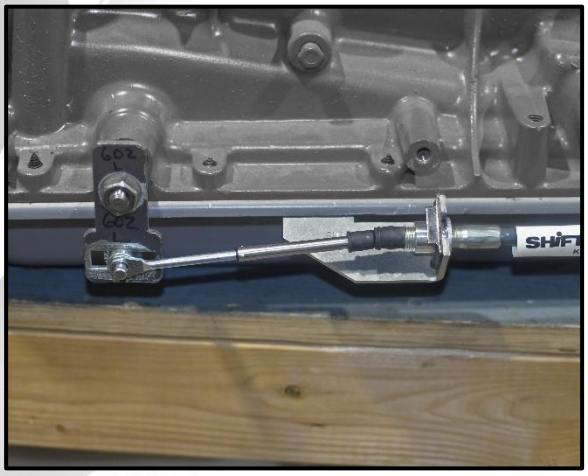


Figure 25

Incorrect

This is incorrect because the cable adjuster pin is backwards on the shift control lever and can lead to the cable binding when shifting out of park.

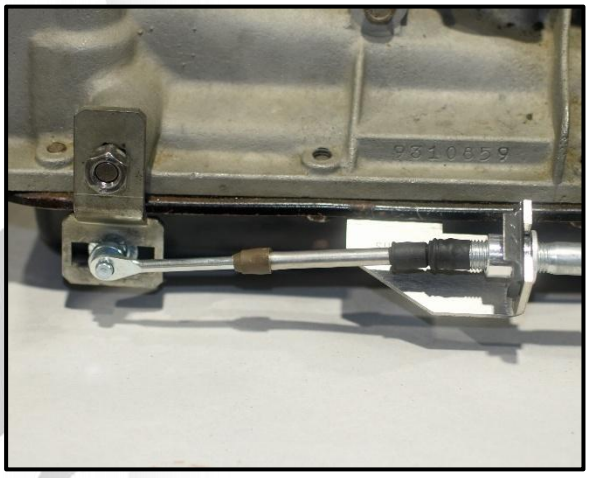


Figure 26

Incorrect

This is incorrect due to the shift control lever being installed backwards. On all shift control levers the “Shiftworks” logo will be facing out.

8.) Install Transmission Cable Bracket

3 and 4 speed application

Remove the two transmission pan bolts and loosely install the Shiftworks transmission pan bracket. Please note the adjustment holes on the transmission pan bracket. The bracket features multiple adjustment holes to accommodate different transmission applications. We have created diagrams for which holes we recommend using which are ideal for specific applications. Please refer to those below to see what is recommended for your application.

Transmission Cable Bracket Diagrams

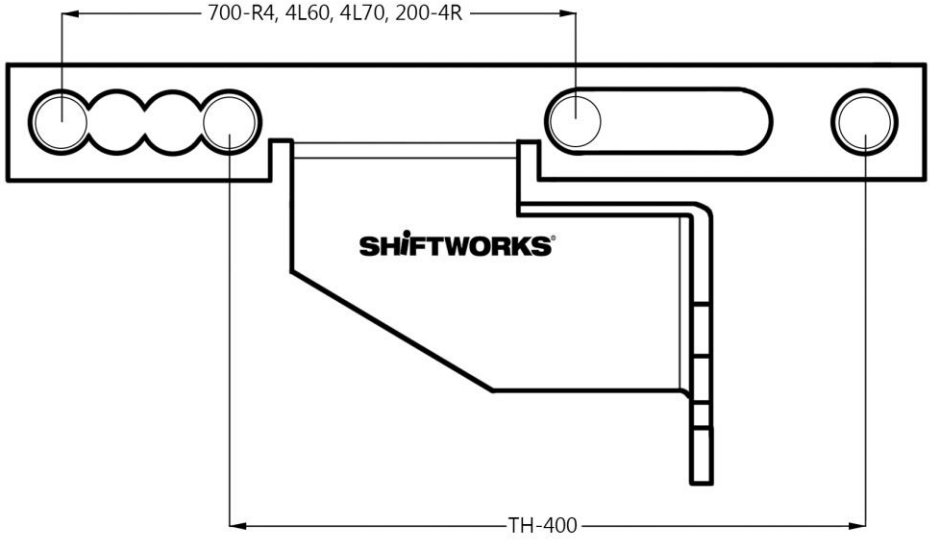


Figure 27

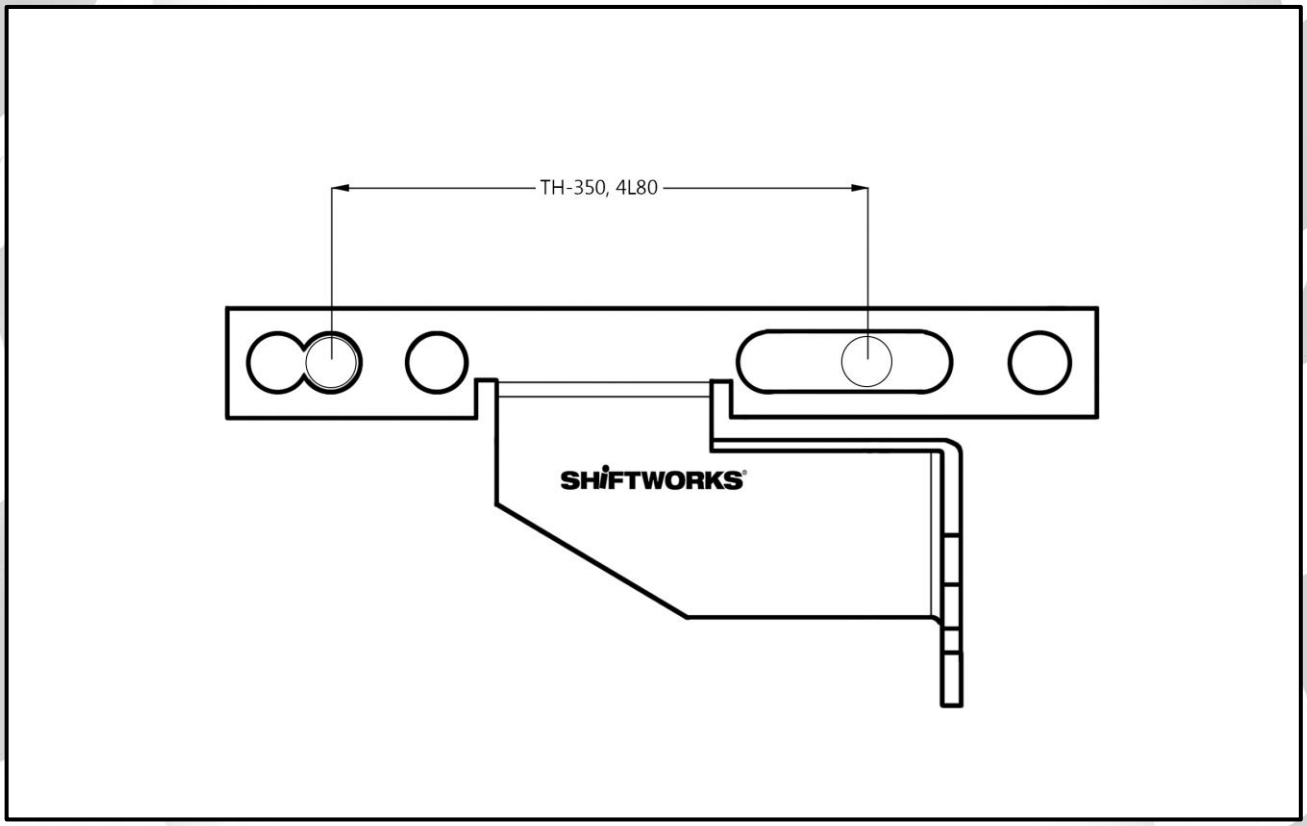


Figure 28

Tighten transmission pan bolts with bracket installed. **Make sure not to overtighten**. The transmission case is aluminum and will strip easily.

6 and 8 speed application

Install the transmission case bracket as shown in the illustration. Use the provided M8 x 1.25 hardware to fasten the case bracket.

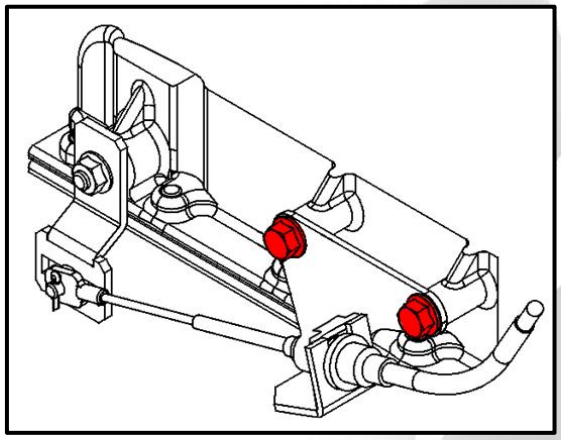


Figure 29

Linkage adjustment:

1.) Set a baseline

Ensure that the shifter cable bulkheads are centered on the threads at both ends and that the pin on the shift control lever is centered.

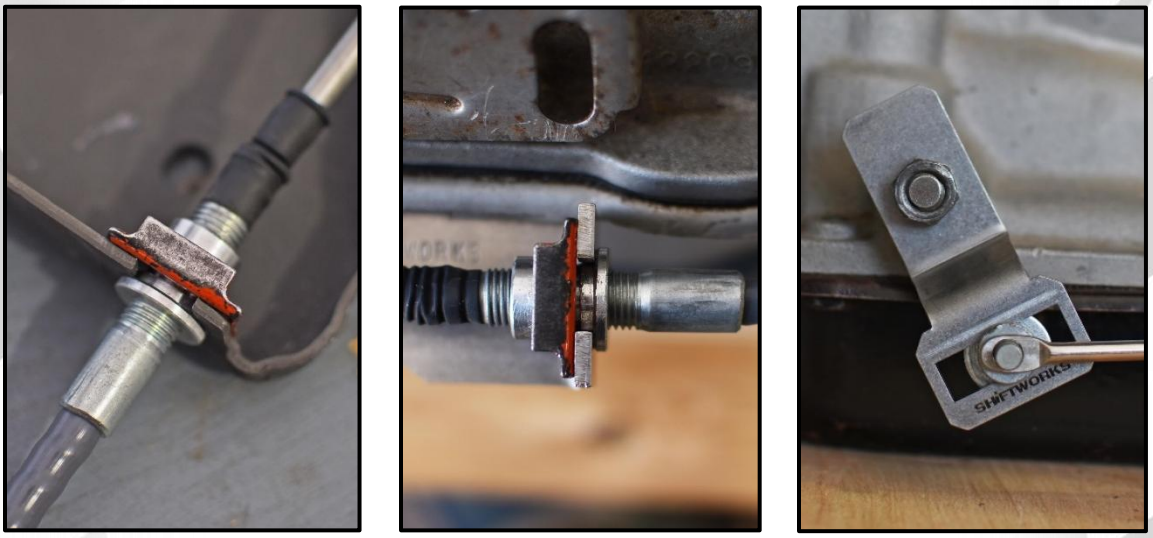


Figure 30

Baseline adjustments

2.) Adjust cable with BOTH the shifter and transmission in neutral

With your transmission in park, (All the way forward towards the front of the car) move the shift control lever down 2 clicks to the neutral position [See Fig 31]. Then place your shifter in the neutral position as well [See Fig 32].

Figure 31

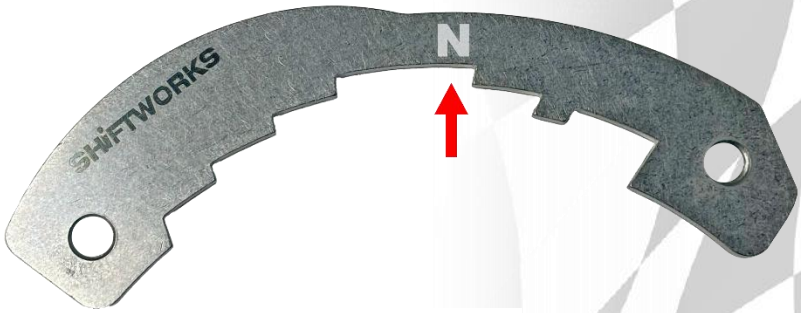


Figure 32

Install your cable into the car and connect linkage to the shifter first, then look at the cable at the transmission side. The cable is adjusted by moving the pin on the shift control lever and the adjustment slots on the transmission pan bracket. Fine adjustment can be made with the bulkheads on the cables.

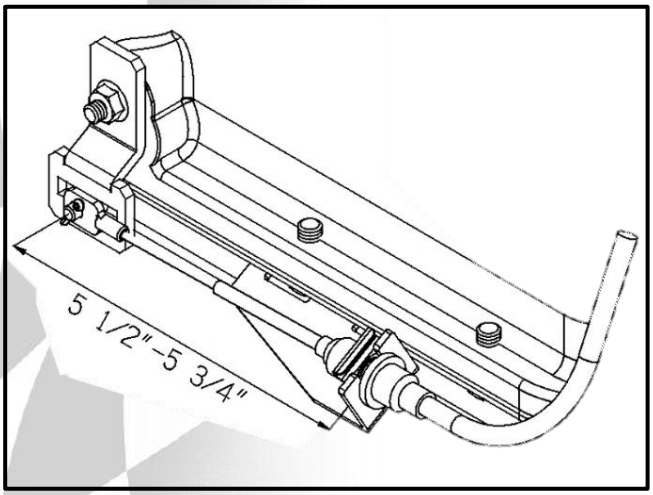


Figure 33

The cable eyelet and pin should be around 5 ½" to 5 ¾" to where the cable meets the transmission bracket. This measurement is taken in the neutral position. This measurement is a suggestion and could vary depending on your application.

For TH400 Application:

Use the single non-slotted hole at the end of the transmission cable bracket [See Fig 34].

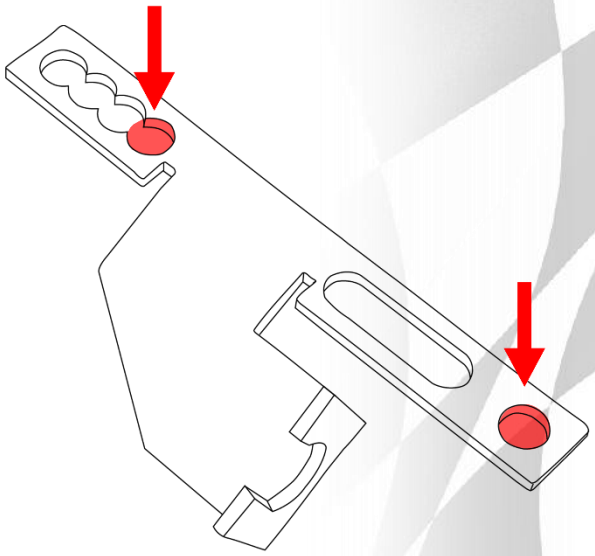


Figure 34

For 6-8 speed Application:

Attach the transmission cable bracket to the case as shown in the illustration to the right [Fig 35]. The suggested distance from the pin to the face of the case bracket should be around 5 ½” – 5 ¾”. This measurement can vary on different applications and is just a base measurement to aim for.

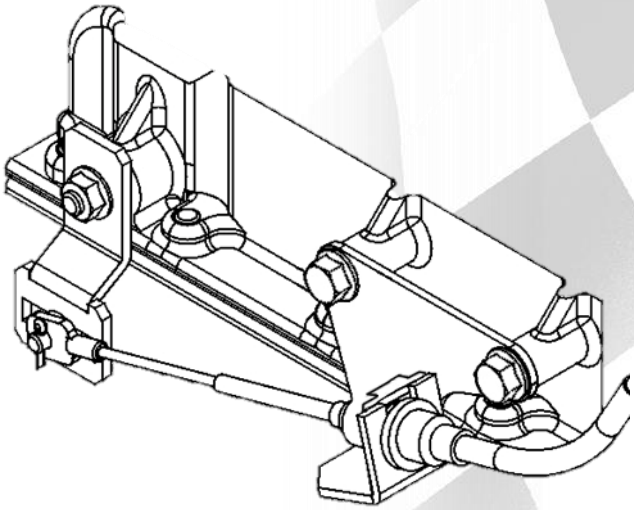


Figure 35

Cable Clip Installation:

One of the most common mistakes made installing a new cable is how the cable clips are installed. Installing these clips backwards can cause a loose fit and potential for the clip to come out. Be sure to install the clips the correct way as shown in the photos below [Fig 36].

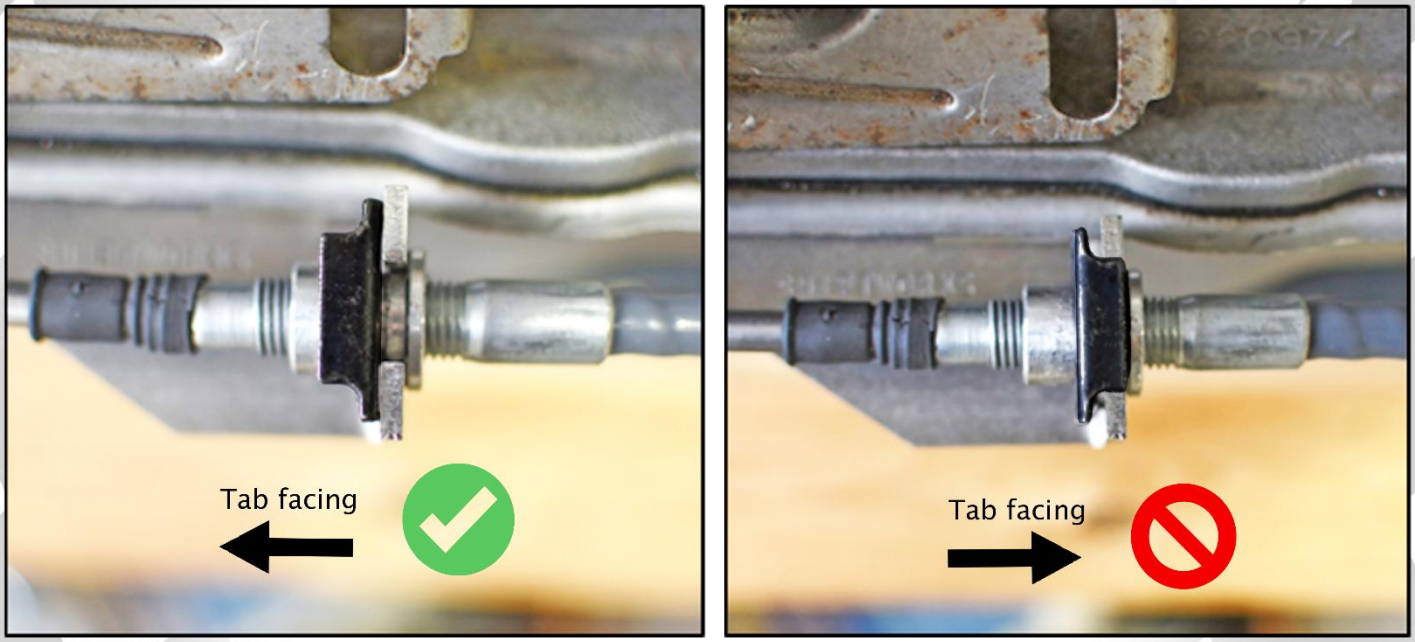


Figure 36

Correct Incorrect

Large adjustments should be made first with the cable pin on the shift control lever. Then adjust the bulkheads on the cables for fine adjustments. With both the transmission and shifter in neutral, adjust the shift cable so the cable eyelet can freely be removed from the pin on the shift control lever in any gear. There should be no resistance when taking the cable off the pin. By doing this procedure you are ensuring your transmission is fully in gear.

Ensure your transmission cable bracket is positioned properly, and make sure the shifter cable bracket on the side of the shifter is tight and positioned in the center of its slot.

Use Shiftworks cable **#K100 Series** or **#K102 Series**. No other cables are recommended. If you are having difficulty setting up your shift linkage or have any other questions regarding products, please reach out to us. We are here to help.

Phone: **585-924-2700**
Email: **support@shiftworks.com**

Social media:

Instagram: **@shiftworksshifters**
Facebook: **Shiftworks, inc.**

Thank you for choosing Shiftworks!

www.shiftworks.com