

Pingel[®] Electric Speed Shifter Kit for H-D Softail 1990–1999 Models with floorboards Designed for Street Use **#77700 Installation Instructions**

***Read all instructions thoroughly, look at photos and all components before attempting installation.
This product is not designed or intended to be used as an assistive device for any particular disability.***

All the components of this Electric Speed Shifter Kit have been assembled and tested as a unit before leaving our factory and have been found to be in working order at the time of shipping. Installation of this kit requires detailed knowledge of the motorcycle model, its electronics and mechanics. It is assumed that the installer has access to the proper tools and a working knowledge of them, test equipment (such as a voltmeter), and factory service manuals. The following instructions must be read in their entirety and any questions should be answered prior to attempting installation. Incorrect installation will result in damage to Electric Speed Shifter components. If after reading the instructions you do not feel comfortable installing the kit, please find a qualified technician to do the installation. Installation time is 2-3 hours.

Disconnect negative battery cable before attempting any work on motorcycle.

INSTALLATION OF DUAL BUTTON HANDLEBAR CONTROL BRACKET:

Remove the left side handlebar switch housing. Loosen the clutch perch and slide it toward the fork 7/16". Retighten the clutch perch.

Notice that the grip has a raised portion on the end that originally fit under the handlebar switch housing; this needs to be trimmed back to between the grip and the flange area before installing the switch housing. See Figure #1. Note: Use a razor knife to cut the grip while it is still mounted on the handlebar. Reinstall the handlebar switch housing as close to the clutch perch as possible. Be certain that the grip is secure after cutting, if not, remove and re-glue per manufacturers specifications.



Figure #1

Install the dual button handlebar control bracket onto the handlebar between the switch housing and previously cut grip. Note: If the handlebar control bracket fits too tightly, more material can be cut from the grip. This handlebar control bracket is set up to route the wires externally, but may also have its wires routed internally through the handlebars. This is accomplished by feeding the black cable up through the hole on the center of the bracket and then through a hole in the handlebars.

Route the wires from the dual button handlebar control bracket neatly along handlebar into the top fork tree area or inside the handlebar into the top fork tree area. From there run the wire assembly under the frame towards the battery. Alongside the battery is the approximate location that the control module will be mounted. Make sure to secure the wires along their routing with wire ties provided. Excess wire can be coiled and hidden in the battery area.

INSTALLATION OF CONTROL MODULE AND WIRE HARNESS:

Mounting location of the control module is alongside the battery. Note: the control module is supplied with Velcro for the bottom of the module to secure it. The wire assembly previously run from the handlebar control should now be connected to the control module. Note that there is a large 4-pin connector, a large 3-pin connector and a small 4-pin connector. The handlebar connector has the small round 4 pins and should be connected to the appropriate male receptacle on the control module. The large round 4-pin connector coming from the control module should be connected to the large round 4-pin connector from the fused wire harness. This harness is placed in the battery compartment. The small round 3-pin connector on the wiring harness is used for the electronic engine kill module. There are 3 loose wires coming from the fused wire harness. The black (negative) and large red (positive) go directly to the battery, the small red is for switched 12v positive power. We have found that on all of our H-D motorcycles, the orange wire with the white stripe is a switched 12v power source, but you will need to consult the service manual for your motorcycle model to be certain you are connecting to the proper wire. The small red lead can be connected to a lead on the motorcycle that is switched 12v positive power. Cut the small red wire to proper length and use the blue quick tab connector supplied to make this connection. The large red and black battery wires can also be cut to proper length, and then solder on the ring terminals supplied. Now attach the soldered on ring terminals to the battery posts, black to negative and large red to positive.

The electronic engine kill module may also be mounted alongside the battery. Note that the Softail is a very compact motorcycle, not leaving space for many additions. See instruction sheet included for electronic engine kill module wiring directions.

INSTALLATION OF ELECTRIC SHIFT CYLINDER:

Install the electric shift cylinder onto the shift cylinder to engine support bracket using the Pingel clamp and (2) ¼-20 x ¾" socket head cap screws, adjusting the cylinder so the clamp is approximately midpoint front to back. Just snug these bolts for now, as adjustment will be needed.

Remove the two top center bolts on the primary cover. While making sure the rod end on the shift cylinder is pointing forward, install the electric shift cylinder to engine support bracket to the primary cover, using (2) ¼-20 x 2½" socket head cap screws with thread locker on each before tightening. See Figure #2.

Remove the retaining bolt(s) and chrome shift arm lever(s). The OEM plastic spacer on the shifter shaft between the shift arm lever and the bushing will not be used for the electric shifter kit. Save this item for returning back to stock form. Remove the chrome acorn nut from the inside stock shift arm lever. Save this nut with the plastic spacer saved earlier as it will not be used on the electric shifter kit. Remove the adjustable intermediate shift rod from the stock shift arm lever. Slide the shifter shaft towards the engine until it clears the bushing and remove. Note: Be careful not to lose the two o-rings, as they are needed for reassembly. Clean the shifter shaft and o-rings, and then slide the Pingel shift arm lever onto the shifter shaft making sure the countersunk side faces out and install the first o-ring onto the shifter shaft.

Re-oil the shifter shaft and put the shaft back through the bushing. Put the threads of the studded ball joint which is attached to the adjustable intermediate shift rod bolt through the stock shift arm and through the ¼" washer. Apply thread locker onto the end threads and thread it into the 1-3/16" long hex spacer nut and tighten, making sure the hex part of the spacer nut is out.

Apply thread locker to the 5/16-18 x ½" flat head socket head cap screw and put it through the Pingel shift arm lever and into the hex spacer nut and tighten. Install the second o-ring onto the shifter shaft, the white plastic washer onto the shifter shaft and install the stock chrome shift arm(s) back onto the shifter shaft. Reinstall the stock shift arm retaining bolt(s) applying thread locker to the end threads and tighten.

The rod end on the shift cylinder should be able to go past the point of mounting in each direction sidewise. The point of mounting is that flat surface upon which the rod end bolts to the Pingel shift arm lever allowing for the two thin flat ¼" washers also. It is imperative that there is no side pressure or tension on the electric shift cylinder shaft when it meets its flat surface upon the Pingel shift arm lever washer where it is bolted as this would take away valuable power from the electric shift cylinder resulting in binding and missed shifts. If the rod end does not line up correctly, you can either add another thin ¼" flat washer to the existing washers to move the rod end away from the shift arm lever, or remove one of the thin flat ¼" washers to move the rod end closer to the shift arm lever. Install the ¼-28 X 1¼" button head socket cap screw through the rod end of the electric shift cylinder and through the two ¼" flat washers and through the Pingel shift arm lever. Now put the ¼-28 locknut on the backside and tighten, as shown in Figure #3.

Before adjusting the shift cylinder front to back make sure the motorcycle transmission is in neutral. While holding onto the electric shift cylinder housing, loosen the two screws on the clamp. Now find the groove in the center of the length of the travel of the cylinder shaft. Adjust the cylinder housing front or back so the groove in the shaft is right at the plastic bushing located on the end of the cylinder housing, as shown in Figure #4, arrow A. Now with the shift cylinder in the correct position, tighten the two bolts of the Pingel clamp. Route the electric cable from electric shift cylinder behind engine and up to the control module, attaching it to the appropriate connector. Secure all wires away from heat and moving parts with wire ties supplied.

Your Electric Speed Shifter Kit installation should now be complete. Reconnect negative battery cable. Turn ignition key on, push either button on the handlebar control and hold it for five seconds; this turns the control module on and must be done every time the key is turned off. Pull in clutch and check shifter movement by pushing either button on the handlebar control.

Test ride motorcycle. If shifting up or down is not achieved, you can loosen the Pingel clamp on the shift cylinder and adjust front or back 1/16" to 1/8" at one time. Retighten Pingel clamp and retest ride motorcycle. When you get final adjustment made, remove and apply thread locker to the end threads of each clamp bolt, but remove only one clamp bolt at a time so as not to lose your



Figure #2



Figure #3

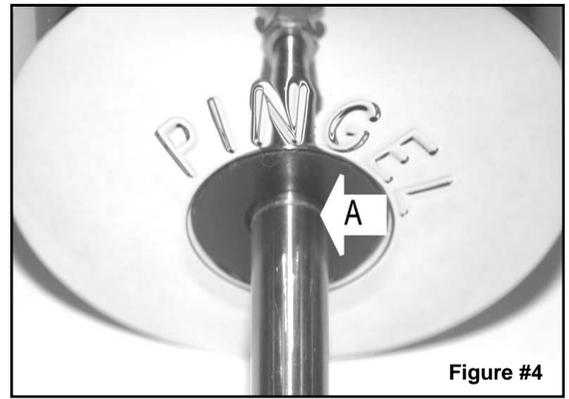


Figure #4



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adjustment. Install the chrome cap over the 3/4" hex nut that is exposed on the shift cylinder to engine support bracket by holding it squarely on nut and tapping it with a soft hammer, putting a rag in between the hammer and chrome piece to avoid scratching.

Note: in the wire harness we have installed one 40-amp fuse for constant power. A spare 40-amp fuse is also supplied.

Prolonged repeated operation of the shifter (actuating the shifter repeatedly in rapid succession beyond normal use) can discharge the motorcycle battery and damage the shift cylinder and/or the control module. The normal battery takes 30-60 minutes to recharge after starting the motorcycle so use the shifter sparingly in this time.

Helpful Operating Tips:

Here is an example of what we found works for us: when upshifting at whatever your shift point RPM is (2000 – 6500) do not drop the RPM to make a shift happen, this will not help. RPM must be kept up to make a shift happen. When traveling at lower speeds, twist the throttle on slightly when hitting the shift button, to make a smoother shift. When downshifting, if you keep the rpm's between 1400-2000 you may be able to downshift without wicking the throttle, just a push of the button. If not, a slight crack of the throttle helps to smoothly go into lower gears. Our testing team has found that downshifting works best when shifting just under the following mph: 4th gear at 40mph, 3rd gear at 30mph, 2nd gear at 20mph and 1st gear at 10mph. Street riding may require the electronic kill module to be set to a longer kill time.

Note: Downshifting on a corner while leaning the bike may cause loss of control.

This unit is not waterproof. Do not subject it to pressure washing or extreme moisture.

Installation of the Electric Speed Shifter Kit still maintains OEM Shifting.

If you have any questions please call 608-339-7999

Thank you for purchasing a Pingel Enterprise, Inc. product.

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Items included: H-D Softail 1990-1999 floorboard models

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| 1 - Electric shift cylinder support bracket with cylinder clamp (threaded) | 2 - Ring terminals |
| 1 - Cylinder clamp (through-holes) | 3 - Blue quick tab connector |
| 2 - ¼-20 x 2½" socket head cap screws | 10 - 5½" wire ties |
| 1 - Fused wiring harness | 1 - Thread locker |
| 1 - 1" handlebar 2 piece dual button control assembly | 1 - Extra 40-amp fuse |
| 1 - Control module | 1 - Pingel shift arm lever |
| 1 - ¼-28 x 1¼" button head | 1 - 1-3/16" long hex spacer nut |
| 4 - ¼" washer (includes 2 extra for possible adjustment) | 1 - Chrome ¾" hex nut cover |
| 1 - ¼-28 half-width locknut | 1 - White plastic washer |
| 1 - Electric shift cylinder | 2 - Hook & loop Velcro piece |
| 1 - 5/16-18 x ½" flat head socket head cap screw | 1 - Electronic engine kill module |
| | 1 - Electronic engine kill module coil leads |

Bolt style abbreviations:

BHSCS = Button head socket cap screw
 FSHCS = Flat head socket head cap screw
 HHCS = Hex head cap screw
 LSHS = Low head socket head screw
 SHCS = Socket head cap screw

Dear Valued Customer,

Pingel Enterprise, Inc. would like to take this opportunity to thank you for purchasing one of our Electric Speed Shifter Kits.

We would also like to know what you think of the product and how your installation went. Your assistance can help us overcome any technical issues that other installers may experience. You can reach us toll free at 1-888-474-6435 or email us at info@pingelonline.com.

We are also requesting photos of your installation. Your photos may be selected for publication in the Pingel catalog or at www.pingelonline.com. Photos may be submitted by emailing them to info@pingelonline.com. When submitting a photo, please include the motorcycle model and year.

Thank you again for your purchase!