

Pingel® Electric Speed Shifter Kit – 1994-2006 H-D FLH with Barnett Scorpion Cover Designed for Street & Drag Strip Use #77902 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. When tightening the dual button handlebar control, be certain to tuck the wires neatly into the grooved channel of the bracket so they are not pinched or damaged. Covering this area with tape to hold the wires in helps insure they don't get pinched, just make sure the tape isn't in an area visible after installation. Be certain that the grip is secure after cutting, if not, remove it and re-grip per manufacturers specifications.



Figure #1

Route the wires from the dual button handlebar control bracket neatly along handlebar into the speedometer/tachometer area or inside the handlebar into the speedometer/tachometer area. Follow the existing wire loom under the fuel tank to underneath the seat. This is the approximate location that the control module will be mounted. See figure #2. Make sure to secure the wires along their routing with wire ties provided. Excess wire can be coiled and hidden under the seat.

INSTALLATION OF CONTROL MODULE AND WIRE HARNESS:

The mounting location of the control module will differ depending on the model year due to modifications by Harley-Davidson. You may have a large opening directly under the seat or a smaller opening towards the front underneath the seat, or an area behind one of the side covers. All locations would be sufficient for mounting. See figure #2 for an example of a mounting location. **Note:** The control module is supplied with Velcro to use on the bottom of the box to secure it. The small 4-wire assembly previously run from the handlebar control should now be connected to 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 under the seat. The small round 3-pin connector on the fused 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. The small red lead can be connected to a lead on the motorcycle that is 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. 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, then solder on the ring terminals supplied. Attach the positive soldered ring terminal to the positive battery post. Do not connect the black wire at this time.



Figure #2

The electronic engine kill module may also be mounted under the seat, or you may find a more suitable location. See instruction sheet included for electronic engine kill module wiring directions.

INSTALLATION OF ELECTRIC SHIFT CYLINDER:

Remove the adjustable intermediate shift rod from the transmission lever arm, then from the stock shift arm lever. Remove the stock ball joint from the end that originally connected it to the stock shift arm lever and replace it with the supplied 5/16" rod end and jam nut. Reinstall the intermediate shift rod back onto the transmission lever arm. Attach the Pingel shift arm lever onto the shift arm by putting the 5/16-24 x 1 1/2" socket head cap screw through the middle hole of the Pingel shift arm lever, through the 5/16" rod end that was just put onto the intermediate shift rod and through the stock shift arm lever, turning the 5/16" thin jam nut onto the back of the threads of the 5/16-24 x 1 1/2" socket head cap screw just tightening this nut enough to hold it in place as removal will be necessary later. Use 1/4" drill bit to spot drill a point onto the stock shift arm lever using the bottom hole of the Pingel shift arm lever as a guide (masking tape applied to the shift arm prior to marking can make the marks more visible and protect the shift arm from scratches). See figure #5. Remove the 5/16" thin jam nut and the 5/16-24 x 1 1/2" socket head cap screw and remove the Pingel shift arm lever. You should now be able to see the point where you spot drilled the stock shift arm lever. Take the 1/4" drill bit and drill a hole all the way through the stock shift arm lever, making sure you keep the drilled hole straight and square. See figure #6. Reassemble the 5/16-24 x 1 1/2" socket head cap screw through the middle hole of the Pingel shift arm lever, through the 5/16" rod end and through the stock shift arm lever. Apply thread locker to the end threads and fasten the 5/16" thin jam nut loosely. Put the 1/4-28 x 1" socket head cap screw through the bottom hole of the Pingel shift arm lever and through the stock shift arm lever and fasten the 1/4-28 lock nut and tighten both bolts and nuts.



Figure #3

Install the electric shift cylinder onto the shift cylinder support bracket using the Pingel clamp and (2) 1/4-20 x 3/4" socket head cap screws. Center the cylinder in the clamp as shown in figure #3. Just snug the bolts for now, as adjustment will be needed later.

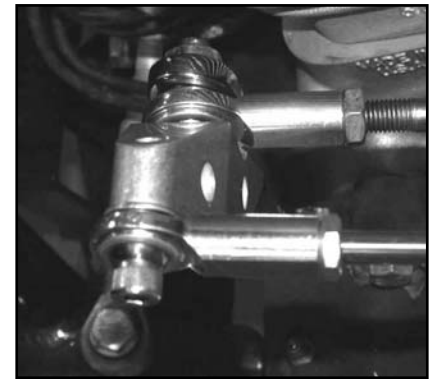


Figure #4

Remove the two top bolts on the primary cover, see figure #3. While making sure the rod end on the shift cylinder is pointing forward, install the electric shift cylinder support bracket to the primary cover by apply thread locker to and inserting the 1/4-20 x 1 1/2" stainless socket head cap screw through the stainless washer, the front hole of the bracket and into the primary cover. Apply thread locker to the 1/4-20 x 2 3/4" stainless socket head cap screw and insert it through the rear hole of the bracket and into the primary cover. Tighten both screws securely. See figure #3.



Figure #5

To adjust the shift cylinder shaft and rod end for no side bind you must retract the rod end and shaft all the way into the shift cylinder and hold in place. Now move the shift peg so the Pingel shift lever bracket rod end hole lines up with the hole in the rod end. Making sure the flat of the rod end is parallel with the flat on the Pingel shift lever bracket, without putting left or right pressure (as viewed from above) on the rod end gauge the gap between the two to determine the correct amount of washer(s) and/or spacer provided. Once this is established apply thread locker to the 1/4-20 x 1 bhscs and install it through the rod end of the shift cylinder, the 1/4" washer(s) and/or spacer and into the Pingel shift lever bracket on the shift lever, see figure #3. This step is important because if there is any bind in the linkage system the shifter will not work correctly.

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 #7, arrow A. Now with the shift cylinder in the correct position, tighten the two bolts of the Pingel clamp. Route the electric cable from the electric shift cylinder back to the control module, attaching it to the appropriate connector. Secure all wires away from heat and moving parts using the wire ties supplied.

Your Electric Speed Shifter Kit installation should now be complete. The negative battery cable and the black wire that the ring terminal was soldered to earlier can now be reconnected to the negative battery post.

In the interest of safety this is the recommended starting procedure: To arm the electric shifter, make sure the motorcycle is in neutral and pull in the clutch lever, then start the engine. With the clutch lever pulled in push either button on the handlebar control and hold it for five seconds; now release the clutch lever slowly (in case the motorcycle is accidentally in gear). The system is now turned on and will shift when either button is pressed. When the key is turned off, the power to the control module is disengaged so this procedure must be performed every time the motorcycle is turned back on. Pull in clutch and check shifter movement by pushing either button on the handlebar control.

It will only be necessary to use the clutch when starting, stopping and finding neutral. Upshifting and downshifting will not require the use of the clutch. The operator can use the clutch manually without harm to any components, especially during downshifting to avoid "chirping" the rear tire.

Test ride motorcycle. If shifting up or down is not achieved, you can loosen the Pingel clamp on the shift cylinder and adjust it front or back 1/16" to 1/8" at one time. Retighten the Pingel clamp and test ride motorcycle. This adjustment is fastidious and patience is required. When you get final adjustment made, remove each clamp bolt and apply thread locker to the end threads, but remove only one clamp bolt at a time so as not to lose your 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, while giving the bracket some support with your hand from behind and putting a rag in between the hammer and chrome piece to avoid scratching.

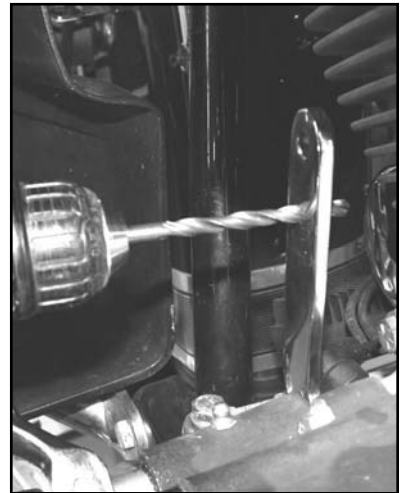


Figure #6



Figure #7

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.

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.

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

Installation of 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.

Items included: 1994-2006 H-D FLH with Barnett Scorpion Cover

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| 1 - Electric shift cylinder support bracket with cylinder clamp (threaded) | 4 - ¼" washers |
| 1 - Cylinder clamp (thru-holes) | 1 - Electric shift cylinder |
| 1 - Fused wiring harness | 2 - Ring terminals |
| 1 - 1" handlebar dual button control assembly | 3 - Blue quick tab connector |
| 1 - Control module | 10- 5½" wire ties |
| 1 - ¼-20 x 1½" stainless socket head cap screw | 1 - Torque-thread locker |
| 1 - Stainless washer | 1 - Extra 40-amp fuse |
| 1 - Chrome plastic ¾" shallow hex nut cover | 1 - Electronic engine kill module |
| 1 - ¼-20 x 2¾" stainless socket head cap screw | 1 - Electronic engine kill module wire leads |
| | 1 - Pingel shift arm bracket assembly |

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!

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Dispute Resolution: All disputes, claims or controversies of any kind that may arise between you and Pingel Enterprise, Inc. shall be brought in the state court located in Adams County, Wisconsin. You agree that the sole venue and jurisdiction for such disputes shall be the above named court and hereby submit to the jurisdiction of that court.

THANK YOU for purchasing a PINGEL ENTERPRISE, INC., product. View our entire product line at www.pingelonline.com

