

## Pingel® Electric Speed Shifter Kit 1994 to 2003 H-D Sportster Designed for Street Use #77500 Installation Instructions

**Read all instructions thoroughly, look at photos and all components before attempting installation.**

All the components of this Electric Speed Shifter Shift 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 Shift 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-grip per manufacturers specifications.



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 or behind the left side cover 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 possible behind the left side cover or 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. 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, 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 behind the left side cover or alongside the battery. Note that the Sportster 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:**

Remove the furthest forward bolt from the primary case and the next bolt clockwise from that bolt and install the electric shift cylinder to engine support bracket using a 1/4-20 x 2 3/4" socket head cap screw and 1/4 x .500 o.d. flat washer for the forward bolt and a 1/4-20 x 2 1/4" socket head cap screw and 1/4 x .500 o.d. flat washer for the next clockwise bolt, using thread locker on each cap screw before tightening. See Figure #2. Remove the retaining bolt and chrome shift arm lever. The OEM rubber spacer on the shifter shaft between the stock chrome shift lever arm and the case will not be used for the electric shifter kit. Save this item for returning the motorcycle back to stock form. Slide the Pingel aluminum shift arm lever (shown in figure #6) onto the shift shaft and reinstall the stock chrome shift arm lever making sure the Pingel shift arm lever is pointing upwards and Pingel lettering is facing out. Install shift arm lever retaining bracket onto Pingel shift arm lever using three 10-24 x 1/2" button head cap screws with a small amount of thread locker on the end threads and tighten all three bolts, then loosen each bolt 1/8 turn. Apply thread locker on either the 5/16-18 x 1 1/2" socket head cap screw or the 1/4-20 x 1 1/2" socket head cap screw (depending on which size you have stock, match that bolt size) and thread it through the shift arm lever retaining bracket and into the stock chrome shift arm lever using the same size bolts and bushing or bushings as the stock bolt size you had originally and then tighten. Note: Later models and accessory purchased forward control kits use the 5/16" bolt. See figure #3 for bushing arrangement. Now tightening the three 10-24 x 1/2" button head cap screws that were left 1/8 turn loose. This procedure works for both mid-shift and forward control motorcycles.

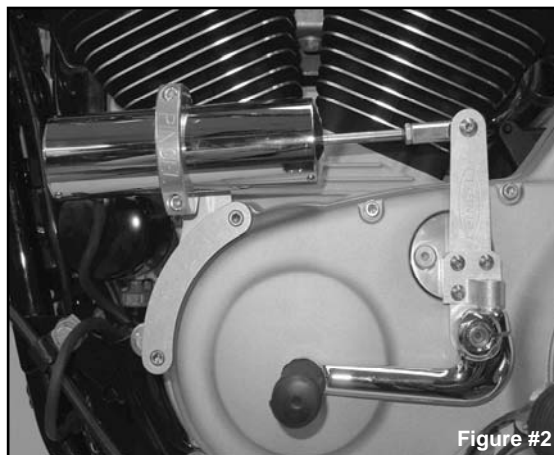


Figure #2

Install electric shift cylinder onto shift cylinder to engine support bracket using Pingel shift cylinder clamp and two 1/4-20 x 3/4" socket head cap screws as shown in figure #2. Just snug these bolts for now, as adjustment will be needed. 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 thin flat 1/4" washer also. See figure #3. 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 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 1/4" flat washer to the existing washer to move the rod end away from the shift arm lever, or remove the thin flat 1/4" washer to move the rod end closer to the shift arm lever. Install the 1/4-28 x 1" button head socket cap screw through the Pingel shift arm lever, through the 1/4" flat washer and through the rod end of the electric shift cylinder then put the locknut on the backside and tighten, as shown in figure #4.



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 Pingel shift cylinder 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 #5, arrow A. With the shift cylinder in the correct position, tighten the two bolts of the Pingel clamp. Route electric cable from electric shift cylinder and attach it to the control module putting excess cable into a coil using wire ties and put it between the control module and engine. Secure all wires away from heat and moving parts with wire ties supplied.

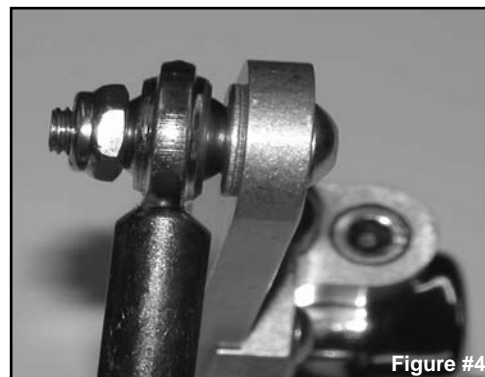


Figure #4

Your Electric Speed Shift Kit installation should now be complete. Reconnect negative battery cable. 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 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 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.

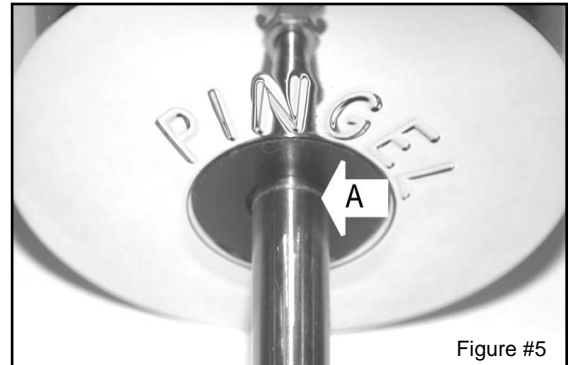


Figure #5

Test ride motorcycle. If shifting up or down is not achieved, you can loosen the Pingel clamp on the shift cylinder and adjust up or down 1/16" to 1/8" at one time. Retighten Pingel clamp and retest 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.

**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: 4<sup>th</sup> gear at 40mph, 3<sup>rd</sup> gear at 30mph, 2<sup>nd</sup> gear at 20mph and 1<sup>st</sup> gear at 10mph. Street riding may require the electronic kill module to be set to a longer kill time.



Figure #6

**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 Shift 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: H-D SPORTSTER 1994 - 2003

- |  |  |
|--|--|
| 1 - Electric shift cylinder support bracket with cylinder clamp (threaded) | 1 - ¼-20 x 1½" socket head cap screw                                     |
| 1 - Cylinder clamp (thru-holes)  | 1 - 5/16-18 x 1½" socket head cap screw                                  |
| 1 - ¼-20 x 2¼" socket head cap screw                                       | 2 - Ring terminals   |
| 1 - ¼-20 x 2¾" socket head cap screw                                       | 3 - Quick tab connector  |
| 2 - ¼" x .500 O.D. flat washer   | 10 - 5½" wire ties   |
| 1 - Fused wiring harness   | 1 - Tube torque-thread locker  |
| 1 - 1" handlebar dual button control assembly                              | 1 - Extra 40-amp fuse  |
| 1 - Control module   | 1 - Pingel aluminum shift arm lever                                      |
| 1 - ¼-28 x 1" button head  | 1 - Shift arm lever retaining bracket with bushings for ¼" & 5/16" bolts |
| 1 - ¼" washer  | 1 - Electronic engine kill module  |
| 1 - ¼-28 half-width locknut  | 1 - Electronic engine kill module wire leads                             |
| 1 - Electric shift cylinder  |  |

**Dear Valued Customer,**

**Pingel Enterprise, Inc. would like to take this opportunity to thank you for purchasing one of our Electric Speed 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](mailto: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](http://www.pingelonline.com). Photos may be submitted by emailing them to [info@pingelonline.com](mailto:info@pingelonline.com). When submitting a photo, please include the motorcycle model and year.**

**Thank you again for your purchase!**

### LIMITED WARRANTIES/LIABILITIES

Pingel Enterprise, Inc. assumes no responsibility or liability for damage or injury of any kind arising out of the use or misuse of any products. Pingel Enterprise, Inc.'s sole responsibilities with respect to products sold are to provide the following limited warranty:

Pingel Products: Pingel Enterprise, Inc. warrants to the original purchaser that the product shall be free from defects in parts and workmanship under normal use for 30 days from date of purchase. Pingel Enterprise, Inc.'s obligation under this warranty is limited to the repair or replacement of any part found to be defective when returned postpaid to the factory. The product must be returned with evidence of date and place of purchase, and detailed description of the problem. The warranty will not apply if the product has been installed incorrectly, repaired, or damaged by modification, misuse, negligence or accident. The repair or replacement of such part, as needed, is your sole and exclusive remedy. No refunds will be given. Pingel Enterprise, Inc. makes no other warranty, expressed or implied with respect to its products and specifically disclaims any implied warranties of merchantability or fitness of any product for a particular purpose and except as herewith stated assumes no liability with respect to the product.

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](http://www.pingelonline.com)

