

Pingel® Electric Speed Shifter Kit for 2012 H-D V-ROD NIGHTROD SPECIAL VRSC DX Designed for Street Use #77806 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. **We strongly recommend that you bench test this unit following the directions included on the separate page.** 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 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. Install the dual button handlebar control between the hand grip and switch housing. Be certain that the grip is secure after cutting, if not, remove it and re-glove per manufacturers specifications.



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. 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:

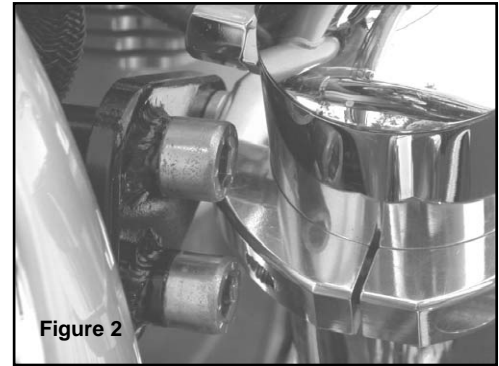
Mounting location of the control module is alongside the battery. Note: the control module is supplied with Velcro for the bottom of the box to secure it.

The wire assembly previously run from the handlebar control will now be connected to the control module. Note that there is a large round 4-pin connector, a small round 4-pin connector and a large round 3-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 4-pin connector on the fused wire harness. 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. The small red lead can be connected to any 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 a blue quick tab connector supplied to make this connection (soldering is preferred). 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 large red wire to the positive battery post, the black wire will connect to the negative battery post when installation is complete. The electronic engine kill module is also mounted alongside the battery. See the instruction sheet that is included with the electronic engine kill module.

INSTALLATION OF ELECTRIC SHIFT CYLINDER:

A steel shift cylinder support bracket with half of the Pingel® shift cylinder clamp is mounted to the frame. Remove the clamp from this assembly so the steel support bracket can be painted; note the order of assembly and do not lose any parts, especially the thin shim(s). Use a pencil to trace an outline of the large washer on each side of the bracket. Mask this area before painting. Failure to mask this area may result in improper shifter operation. Do not remove any of the grease from the bushings, it is required for smooth operation. After painting, reinstall the clamp half using the supplied thread locker (make certain it is installed exactly as it was prior to removal). The support bracket mounts where the left side lower and upper frames connect. Remove the stock bolts and install the steel shift cylinder support bracket using the two 10mm x 75mm shcs supplied, as shown in figure 2 & 5.



INSTALLATION OF SHIFT ARM BRACKET:

Temporarily install the electric shift cylinder onto the shift cylinder support bracket at the approximate position shown in figure 5 using the Pingel® clamp and (2) 1/4-20 x 3/4" shcs as shown. Just snug these bolts for now, as adjustment will be needed later.



Temporarily install the 1/4-28 x 1-1/2" bhscs through the Pingel® shift arm lever, the aluminum spacer, (2) of the 1/4" flat washers, the rod end of the electric shift cylinder and tightening on the 1/4-28 lock nut. Hold the Pingel® shift lever bracket on the stock shift lever. Make sure to push the bracket all the way down towards the pivot hole of the shift lever, holding it into place with your fingers. Mark the stock shift arm with a piece of tape on each side of the Pingel® shift arm bracket as shown in figure 3. Remove the 1/4-28 x 1-1/2" bhscs, spacer, washers, locknut and Pingel® shift arm bracket. Remove the stock shift lever from the motorcycle. Place the Pingel® shift lever bracket into place on the stock shift lever aligning it with the tape put on previously. Make sure to push the bracket all the way down towards the mounting hole of the shift lever. Insert a 9/64" drill bit through the top hole of the Pingel® shift lever bracket and turn it with your fingers to make an indentation on the stock shift lever. Center punch the top mark and drill through the stock shift lever squarely using a 3/16" drill bit. Remove the tape and attach the Pingel® shift lever bracket to the stock shift lever using one of the two 10-24 x 1" bhscs with locknut. Drill through the bottom hole of the Pingel® shift lever bracket and stock shift lever squarely using a 3/16" drill bit then insert the second 10-24 x 1" bhscs with locknut and tighten. Reinstall the shift lever with the Pingel® bracket attached onto the motorcycle. When completed the assembly should look as shown in figure 4.



The rod end on the shift cylinder should be able to go past the point of mounting in each direction sideways. The point of mounting is that flat surface upon which the rod end bolts to the shift lever bracket allowing for the spacer and thin flat 1/4" washer(s) if needed (four are supplied, use as many as required to achieve proper alignment). 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 lever bracket when 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 washers to move the rod end away from the shift lever bracket, or remove one or more of the thin flat 1/4" washers to move the rod end closer to the shift lever bracket. Install the 1/4-28 x 1-1/2" bhscs through the Pingel® shift lever bracket, the aluminum spacer, the 1/4" washer(s) and through the rod end of the electric shift cylinder, install the locknut on the backside and tighten, see figure 6.



Before adjusting the shift cylinder up and down 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 mark in the center of the cylinder shaft. Adjust the cylinder housing up or down so the mark in the shaft is exactly at the plastic bushing, located on the bottom of the cylinder housing,



as shown in figure 7. With the shift cylinder in the correct position, tighten the two bolts on the Pingel® clamp.

Route electric cable from electric shift cylinder 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 the negative battery cable(s). 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.

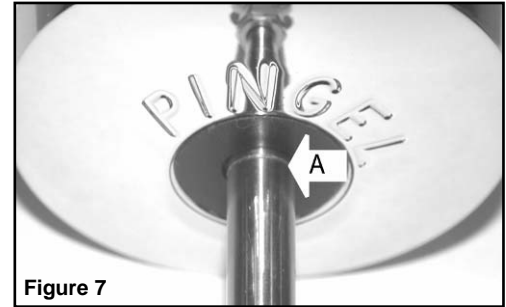


Figure 7

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 up or down 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 adjustment.

Note: If the motorcycle misses shifts or goes into a false neutral, the cause may not be the Electric Shift kit. This condition may be caused by an internal problem in the transmission that requires the replacement of the actuator and drum kit (H-D part# 35017-01K) and the shift forks. This problem was discovered on our 2003 V-Rod, replacing these components has resolved the problem.

Be certain that all of the round connectors are properly coupled and tight. If the motorcycle is not shifting or the kill module is not working, check that these plugs are properly seated and that the internal connector pins are making good contact with their sockets (i.e. no pins are bent).

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 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: H-D V-ROD

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| 1 - Electronic engine kill module | 1 - Electric shift cylinder |
| 1 - Electric shift cylinder support bracket with cylinder clamp (threaded) | 2 - Ring terminals |
| 1 - Cylinder clamp (thru-holes) | 3 - Blue quick tab connectors |
| 2 - 10mm x 1.50mm x 75mm SHCS | 10 - Wire ties |
| 1 - Fused wiring harness | 1 - Tube thread locker |
| 1 - 1" handlebar two piece dual button control assembly | 1 - 40-amp fuse |
| 1 - Control module | 1 - Electronic engine kill module |
| 1 - ¼"-28 x 1-1/2" BHSCS | 1 - Electronic engine kill module wire leads to coil |
| 4 - ¼" washer | 1 - Pingel shift arm lever |
| 1 - ¼"-28 half-width locknut | 2 - 10-24 x 1" BHSCS |
| | 2 - 10-24 locknuts |
| | 1 - 3/4" O.D. x 3/8" Thick aluminum spacer |

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.

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. For a free copy of our product catalog, please call (608) 339-7999 or view our entire product line at www.pingelonline.com

