Pingel Enterprise, Inc
2072 11th Ave Adams, Wisconsin 53910
Since 1967
www.pingelonline.com
Phone (608) 339-7999 Fax (608) 339-9164

Pingel® Electric Speed Shifter Kit for 2008-2013 Hayabusa

Designed for Street Use

#77207 Installation Instructions

Read <u>all</u> 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 Speed 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:
Loosen the clutch master cylinder perch and slide it toward the forks 7/16". Retighten the clutch master cylinder perch. Take a measurement from the newly positioned clutch master cylinder perch to the turn signal switch housing. Record this dimension. Disassemble the turn signal switch housing. Looking at the inside of the turn signal housing you will notice a raised tab in the housing that fits into a hole in the handlebar. Using the dimension recorded earlier, you will now redrill the hole closer to the fork on the handlebar making it the same diameter as the original hole.

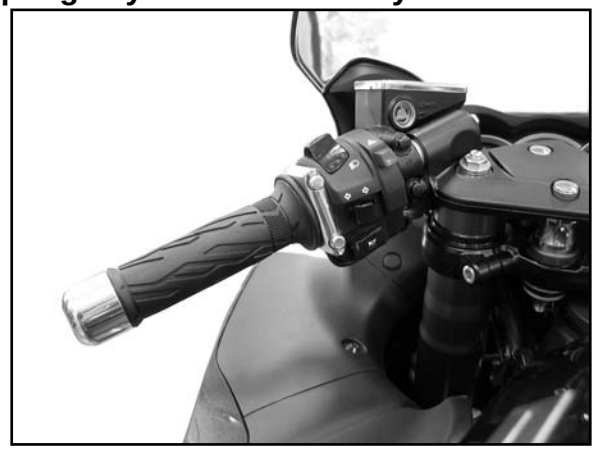
Figure 1

Reassemble the turn signal switch housing at the newly drilled location. Install the dual button handlebar control onto the handlebar as shown in photo and tighten the screws located on the backside of the control assembly.

Route the wires from the dual button control neatly along the handlebar and down under the fuel tank following the clutch hydraulic line. Wait to secure the wire along its route as another cable will be run in the same area later in the instructions. Loosening and lifting the fuel tank will aid in wire routing. The final location of this wire assembly will be under the front seat.

INSTALLATION OF CONTROL MODULE AND WIRE HARNESS:
The mounting location of the control module is under the front seat. There is an electrical box here with a rubber band strap over it. Place the control module on top of the electrical box with the round connectors facing forward. Note: the control module is supplied with Velcro to install on the bottom of the box to secure it, See photo at right. The wire assembly previously run from the handlebar control will now be connected to the control module. The handlebar connector has 4 pins and should be connected to the appropriate receptacle on the control module. The large 4-pin connector coming from the control module should be connected to the large 4-pin connector from the fused wire harness. The small 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) lead and large red (positive) lead go directly to the battery; the small red lead is

Figure 2

for switched 12v power. The small red lead can be connected to the stock orange with white striped wire exiting the stock ignition module (the box that is mounted under the control module). Cut the small red lead to proper length and use the blue quick tab connector provided to make this connection (soldering is preferred). The large red and black battery leads should be cut to the shortest length needed to reach the battery posts which will give maximum power for the Easy Shift kit. Solder the ring terminals provided onto the cut ends of the large red and black wires then attach the large red to the positive battery post, the black will be attached to the negative battery post at the end of the installation.

INSTALLATION OF ELECTRONIC ENGINE KILL MODULE:

The electronic engine kill module is mounted under the front seat next to the control module. (Note: the electronic engine kill module is also supplied with Velcro to install on the bottom of the box to secure it.) Insert the small male plug of the electronic engine kill module into the small female plug located on the fused wiring harness. Plug in the cable (included loose in kit) which has a four pin male rubber plug on one end and is blank on the other end into the small female plug of the electronic engine kill module. Route the loose end of the cable to the signal wires of the ignition coils. Secure a brown wire from the Pingel cable to each of the coil signal wires. We have found that on our Hayabusa motorcycle the white/blue stripe, black, yellow and green wires are the signal wires, but consult the service manual for your motorcycle model to be certain you are connecting to the correct wires. You can use the blue quick tab connectors provided to make these connections but soldering them is preferred. Secure this cable and the cable run from the handlebar switch with the wire ties provided.

INSTALLATION OF ELECTRIC SHIFT CYLINDER SUPPORT BRACKET:

Remove the 3 bolts that hold on the left foot peg bracket. Insert the supplied 8mm x 35mm shcs through the thin large diameter aluminum washer, the foot peg bracket (location C, Figure 4), a thick aluminum spacer and into the frame. Insert a supplied 8mm x 50mm shcs through an 8mm washer, the top bolt hole in the shift cylinder support bracket, a thick aluminum spacer, the top hole in the stock foot peg mounting bracket (being certain to retain the rubber bushing), another thick aluminum spacer and into the frame. Repeat procedure for the bottom hole.

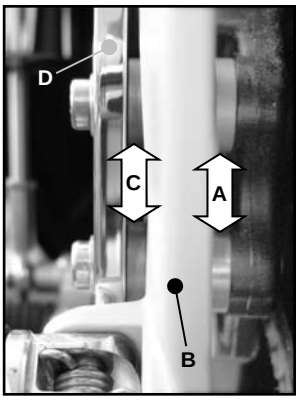

Figure 3
A – Thick aluminum washer
B – Stock foot peg bracket
C – Thick aluminum washer
D – Shift cylinder support bracket

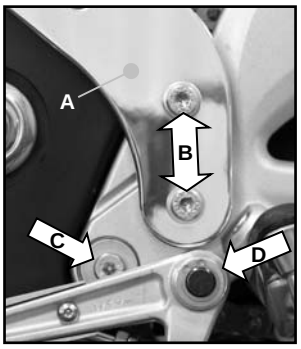

Figure 4
A – Shift cylinder support bracket
B – 8mm x 50mm SHCS
C – 8mm x 35mm SHCS with thin washer
D – Shift lever snap ring

INSTALLATION OF SHIFT ARM BRACKET:

Remove the snap ring which holds the shift lever on, (D) in Figure 4. Remove the shift lever from the bracket and loosen the jam nut on the shift linkage rod. Unscrew the shift lever from the shift linkage rod.

Place the Pingel shift lever bracket over the backside of the stock shift lever, as shown in Figure 5. Use a #25 drill (9/64", if #25 is not available) to make 2 small point marks on the back of the stock shift lever by twisting the drill bit with your fingers, as shown in Figure 5.

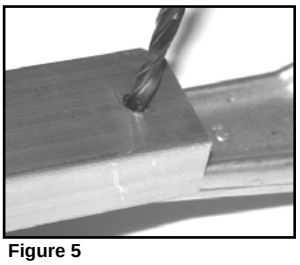

Figure 5

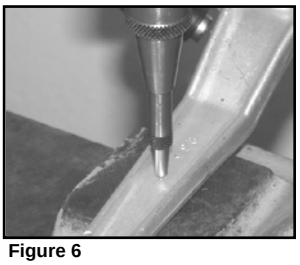

Figure 6

Using the top back of a vise, anvil or other stable surface, center punch the two small points marked on the backside of the stock shift lever, as shown in figure 6. Use a 3/16" drill bit and drill the two points that were center punched.

Using the thread locker supplied, bolt the Pingel shift lever bracket onto the stock shift lever using the 10-24 x ½" bhscs in locations (A) & (B) shown in Figure 7. Reattach the shift linkage rod to the shift lever, slide the shift lever onto the foot peg bracket and reapply the snap ring (D). Tighten the jam nut to factory specifications.

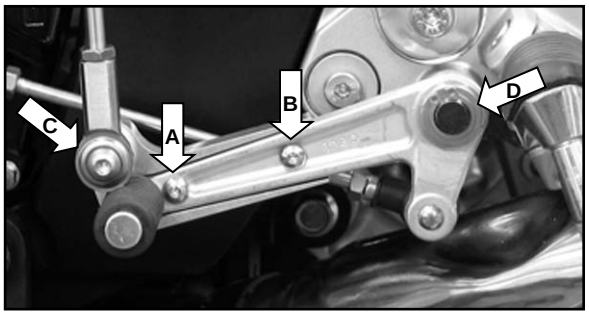

Figure 7

INSTALLATION OF ELECTRIC SHIFT CYLINDER AND UP/DOWN ADJUSTMENT:

Install the shift cylinder onto the shift cylinder support bracket using the Pingel clamp and (2) ¼-20 x ¾" shcs, (A) in figure 8. Just snug these bolts for now, as adjustment will be needed next. Note: The next procedure may require two people. Pull and hold the shift lever to the full up shift position and while holding the rod end in its most inward position move the shift cylinder in the clamp until the hole in the rod end aligns with the hole in the shift arm bracket, then tighten the two bolts of the Pingel clamp. Note: You may need to roll the motorcycle back and forth to be certain that it is fully in gear.

INSTALLATION OF ELECTRIC SHIFT CYLINDER FOR NO SHAFT BIND:
The rod end on the shift cylinder must be located in the middle of its side play left to right. 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. Apply thread locker to the ¼-20 x 1 bhscs and install it through the rod end of the shift cylinder, the ¼" washer(s) and into the Pingel shift lever bracket on the shift lever, as shown in (C) Figures 7 & 8. This step is important because if there is any bind in the linkage system the shifter will not work correctly.

Figure 8

ROUTING SHIFT CYLINDER CABLE:
Route the electric cable from the shift cylinder to the control module located under the front seat. Start by running between the frame and the fuel tank, and then run under the tank on the left side following the frame to the area under the front seat. Attach the cable by pushing the connector into the receptacle on the control module. Secure all wires away from heat and moving parts with the supplied wire ties.

COMPLETING INSTALLATION:
Your Electric Speed Shifter Kit installation should now be complete. Reconnect the negative battery cable and the shifter negative 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 the clutch lever pulled in, push either button on the handlebar control and **hold it for five seconds**; 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 may use the clutch and foot shifter manually without harm to any components.

TESTING ENGINE KILL MODULE:
Unplug the electric shift cylinder from the control module. Take note of the positions of the dipswitches on the electronic engine kill module. Position all three of the dipswitches to the off position. Pull in the clutch lever (hold it in until the end of the test), start the motorcycle and put it into neutral. Arm the system by holding one of the buttons for five seconds as explained in the previous instructions. Rev the engine to approximately 1500-2000 rpm and hold it there, push either button and listen for the engine to miss as one of the buttons is pushed. If the miss is not present, your kill is not correctly installed. Recheck your connections, making certain all wires are properly connected per the wiring instructions. Reconnect the shift cylinder to the control module after verifying the kill module is working properly. Return the dipswitches on the kill module to the position noted before the test was started.

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). Also, check that one of the pins has not moved off to the side of their respective sockets when pushing the plug together.

ADJUSTING KILL TIME AND ADJUSTING CYLINDER:
The factory preset kill time may not be correct for every application. Kill adjustment is set by moving the dipswitches on the electronic engine kill module to the desired time on the chart.

If a more aggressive shift is desired, you can go shorter one setting at a time until the shift is missed, then back to the last setting that allowed the motorcycle to shift. If you desire a more low performance, smoother shift or if the motorcycle goes into a false neutral or stays in the same gear, you can adjust the kill time by going longer one setting at a time until the desired shift is achieved.

The preset kill time should be acceptable for most street riding conditions.

For performance riding or racing it may require a shorter kill time setting then the preset time.

If shifting up or down is not achieved, you may need to adjust the up/down positioning of the cylinder and/or readjust the cylinder for no bind as explained earlier in the instructions.

After fine adjustment has been 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 of the shift cylinder location.

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. **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 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.

Items Included: Hayabusa

- 5 - 0.941 o.d. x .312 i.d. x .210 thick aluminum spacer
- 1 - Shift lever bracket
- 1 - 0.941 o.d. x .312 i.d. x .065 thick aluminum spacer
- 1 - Shift cylinder support bracket w/cylinder clamp (threaded)
- 1 - Cylinder clamp (through-holes)
- 2 - 8mm x 1.25mm x 50mm short head SCS
- 1 - Fused wiring harness
- 2 - 8mm washers
- 1 - 7/8" handlebar dual button control assembly
- 1 - 8mm x 1.25mm x 35mm short head SCS
- 4 - ¼" washers
- 1 - Control module
- 1 - Shift cylinder
- 2 - Ring terminals
- 5 - Blue quick tab connector
- 10 - Wire ties
- 1 - Tube torque-thread locker
- 1 - 40-amp fuse
- 1 - Electronic engine kill module
- 1 - Electronic engine kill module wire leads

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!

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

Made In U.S.A.

Part Number INS-77207
Rev 06102014