Pingel Enterprise, Inc
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Phone (608) 339-7999 Fax (608) 339-9164

Since 1967

Pingel® Electric Speed Shifter Kit for 1999-2007 Suzuki Hayabusa

Designed for Street Use

#77200 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. 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.

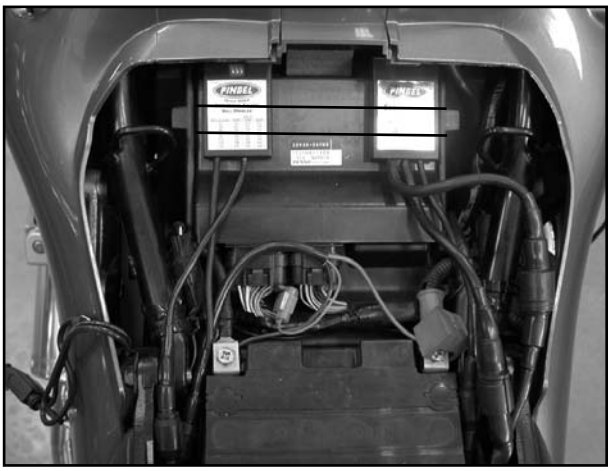
Disconnect negative battery cable before attempting any work on motorcycle.

INSTALLATION OF DUAL BUTTON HANDLEBAR CONTROL:
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 portion 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. Drill the new hole the same diameter as the original hole.

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.

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 control neatly along the handlebar and down under the fuel tank following the clutch hydraulic line. Be certain that the wires are secured along the route with the provided wire ties. Loosening and lifting the fuel tank will aid in wire routing. The final location of this wire assembly will be under the front seat.



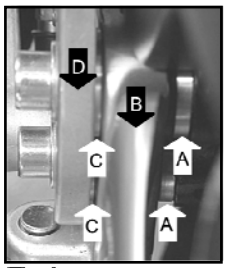
INSTALLATION OF CONTROL MODULE AND WIRE HARNESS:
The mounting location of the control module is under the front seat. There is an electrical box here with a rubber strap over it. Disconnect this rubber strap and place the control module on top of it with the round connectors facing forward. (Note: the control module is supplied with Velcro to install on the bottom of the box to secure it.) Reinstall the rubber strap over both the control module and the original box to secure them in place. 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 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). See photo at right. 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 can also be cut to proper length, then solder on the ring terminals provided. Attach the soldered-on ring terminals to the battery posts, black to the negative pole and large red to the positive pole.

The electronic engine kill module is also mounted under the front seat. See the instruction sheet included with the electronic engine kill module.

INSTALLATION OF ELECTRIC SHIFT CYLINDER:

Remove the 3 bolts that hold on the left foot peg bracket. Swing the foot peg bracket towards the outside of the motorcycle. Install three thick aluminum washers between the frame and foot peg bracket, as shown in Figure 1. Install the shift cylinder support bracket with two thin washers between the foot peg bracket and the shift cylinder support bracket, as shown in Figure 1. Be sure to keep the factory rubber washers in place on the stock foot peg bracket.

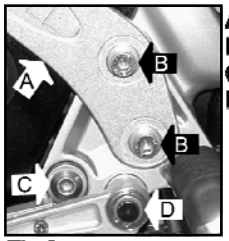


A: Thick aluminum washer
B: Stock foot peg bracket
C: Thin aluminum washer
D: Shift cylinder support bracket

Fig.1

Insert the two supplied 8mm x 50mm low head socket head cap screws and washers into the two bolt holes that hold the shift cylinder support bracket, (B) in Figure 2. Insert one supplied 8mm x 35mm low head socket head cap screw with the stock washer into location (C), as shown in Figure 2.

Note: Some year models may require the use of a 3rd thin aluminum washer on the 8mm x 35mm socket head cap screw in place of the stock washer. If your Hayabusa has the washer built onto the stock 8mm bolts removed from the foot peg (2004 & up), you will need to use the thin aluminum washer supplied. If your Hayabusa came with a washer separate from the bolt, (1999-2003), use the stock washer instead of the thin flat aluminum washer supplied.



A: Shift cylinder support bracket
B: 8mm X 50mm SHCS
C: 8mm X 35mm SHCS
D: Shift lever snap ring

Fig.2

Remove the snap ring that holds the shift lever on, (D) in Figure 2. 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 3. 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 3.

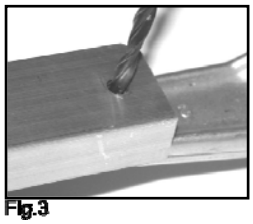


Fig.3

Using the top back of a vise, an anvil or other stable surface, center punch the two small points marked on the backside of the stock shift lever, as shown in Figure 4. Use a 3/16" drill bit and drill the 2 points that were center punched.

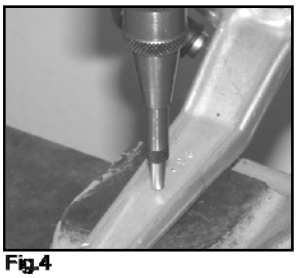


Fig.4

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Using the thread locker compound supplied, bolt the Pingel shift lever bracket onto the stock shift lever using 10-24 x ½" button head socket cap screws in locations (A) & (B) shown in Figure 5. 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.

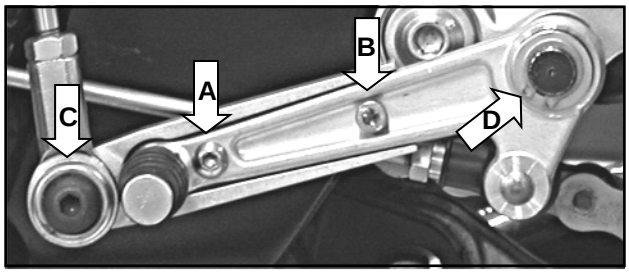

Fig.5

Install the shift cylinder onto the shift cylinder support bracket using the Pingel clamp and (2) ¼-20 x ¾" socket head cap screws, (A) in figure 6. Just snug these bolts for now, as adjustment will be needed later. 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 shift lever bracket. Apply thread locker to a ¼-20 x 1" button head socket cap screw and install it through the rod end of the shift cylinder into the Pingel shift lever bracket on the shift lever, as shown in (C) Figures 5 & 6.

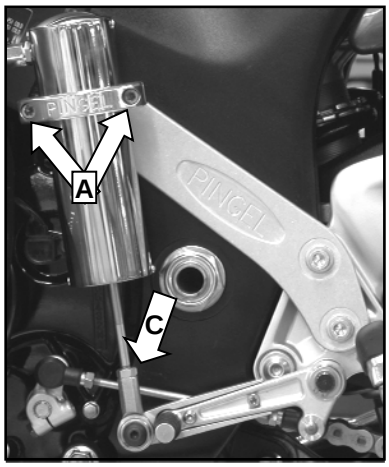

Fig.6

Before adjusting the shift cylinder up or down make certain the motorcycle transmission is in neutral. While holding the shift cylinder housing, loosen the two screws on the clamp, (A) Figure 6. Find the groove in the center of the cylinder shaft. Adjust the cylinder housing up or down so the center groove in the shaft is even with the plastic bushing, located on the bottom of the cylinder housing, (A) shown in Figure 7. With the shift cylinder in the correct position, tighten the two bolts of the Pingel clamp, (A) Figure 6.

Route the electric cable from the shift cylinder to the control module located under the front seat. Start by running under and on the backside of the frame, and then run under the tank on the left side following the frame. Run up the left side of the battery, as shown in Figure 8. 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.

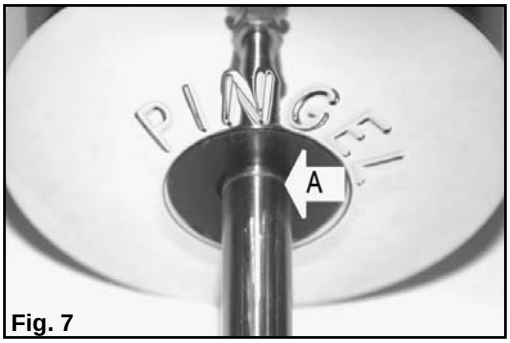

Fig. 7

A: Center groove on cylinder shaft located at bottom of cylinder housing.

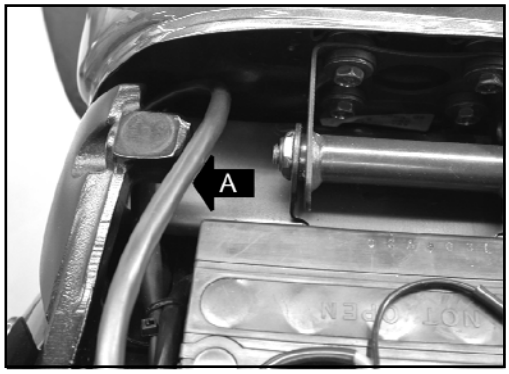

Fig. 8

A: Cable assembly coming from backside of frame, under the tank, along leftside of frame.

Your Electric Speed Shifter Kit installation is now 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 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 the clutch lever 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 the motorcycle. If shifting up or down is not achieved, loosen the Pingel clamp on the shift cylinder and adjust it up or down 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 the final adjustment is 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 the adjustment.

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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, a slight crack of the throttle helps to smoothly go into lower gears, also if there is no load on transmission a simple push of the button should be sufficient. 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 unless you use the clutch.

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: Hayabusa

- 3 - 0.941 o.d. x .312 i.d. x .210 thick aluminum spacer
- 1 - Shifter lever bracket
- 3 - 0.941 o.d. x .312 i.d. x .065 thick aluminum spacer
- 1 - Shift cylinder support bracket with cylinder clamp (threaded)
- 1 - Cylinder clamp (through-holes)
- 2 - 8mm x 1.25mm x 50mm low head socket head cap screw
- 1 - Fused wiring harness
- 2 - 8mm washers
- 1 - 7/8" handlebar dual button control assembly
- 1 - 8mm x 1.25mm x 35mm low head socket head cap screw
- 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.

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.

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