

MPS Sport Bike Auto Shift Installation Instructions

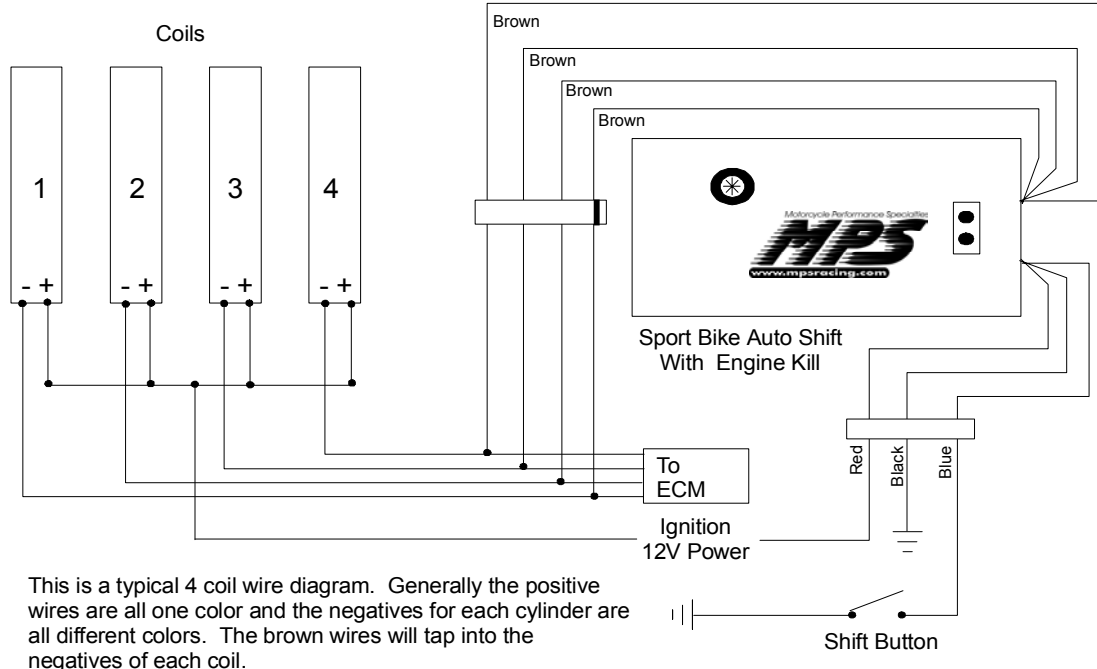


The first thing to do is remove the seat, fuel tank, and possibly the front fairing if equipped. You will need plenty of room to work.

Electrical Connections – You will need to locate and test a few things on your bike before you start wiring. A good ground, an ignition switched 12 volt power source, the horns, and the ignition coils. We have plug n play style harnesses available for some bikes. Check the web site for specific models.

Control Box Wiring

Coils –Most four cylinder motorcycles use either a individual firing system or a waste spark system. Waste spark is by far the most common. All four cylinder bikes with only two coils use a waste spark system. Most late model four cylinder sport bikes use waste spark systems even though they have four individual coils. Bikes with a waste spark systems will need the 360 calibrated unit. The 360 calibrated Sport Bike Autoshifts are identified by the 360 engraved into the box below the wire lead exit. The P/N for these boxes has the 360 as a suffix. (P/N 1-0299-360) Some of the newest fuel injected bikes (Hayabusa, GSXR1000, ZX12) that have cam sync sensors are individual firing. These bikes will require 720 calibration and will have no outside identifiers and the P/N 1-0299.

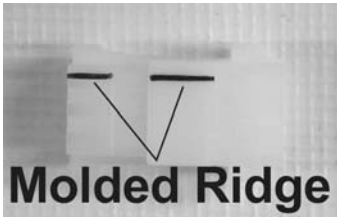


This is a typical 4 coil wire diagram. Generally the positive wires are all one color and the negatives for each cylinder are all different colors. The brown wires will tap into the negatives of each coil.

The Sport Bike Auto Shift has four brown wire leads that are connected to the negative of each individual coil on a four coil system. **You will notice that the connector for the four brown wires has a molded in ridge that marks the brown wire that is used as the rpm sensor. This must be connected to the number one cylinder coil negative wire.** The

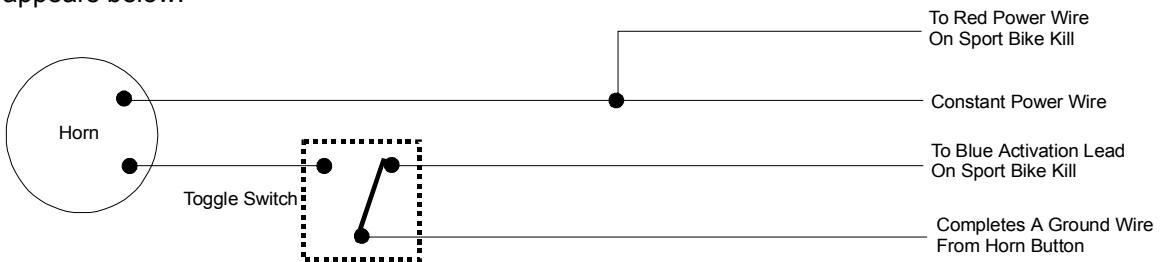
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remaining brown wires don't matter which coil they are connected to. On a two coil system you will use only two brown wires. **The connector for the four brown wires has a molded in ridge that marks the brown wire that is used as the rpm sensor. This must be connected to the number one and four cylinder coil negative wire.** Any of the three remaining brown wires can be used for number two and three cylinder coil. Cap off the unused brown wire ends so they don't short. Some two coil systems may not have enough kill time. If you experience a

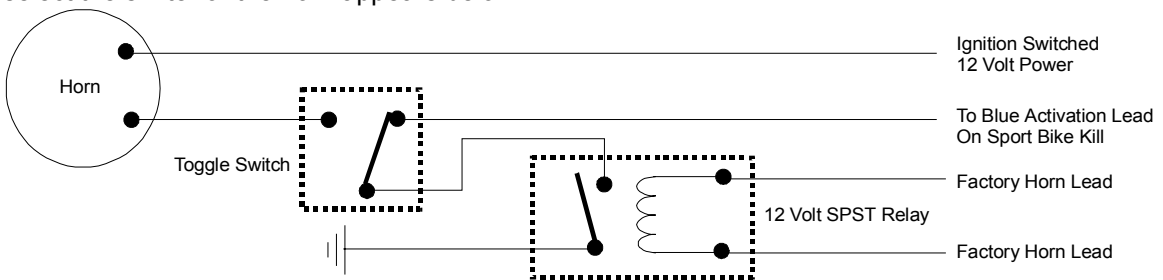


kill time that is too short you can ground the remaining two brown wires. This will increase the kill time. You can either solder the brown wires to the coil leads (recommended) or use the provided scotchlok splices. The Sport Bike Auto Shift will not work properly on race bikes with Dyna Pro 4000 Ignitions and MSD Ignitions. These applications need to use the P/N 1-0238 Auto Shift With Kill.

Horn Test - Unplug both your horn leads from the horn(s). Turn the key on. Using a test light, check each horn wire for power. If one of the wires has continuous power the horn button circuit completes a ground circuit to operate. This is the typical Kawasaki and Suzuki horn system. A wiring diagram showing how to wire a switch to select the shifter or the horn appears below.



If no wires have continuous power, check them each with the horn button depressed. One of the two should have power with the horn button depressed. This system completes a power circuit to operate. This is the typical Honda and Yamaha horn system. This system requires a SPST relay to be added to the system. A wiring diagram showing how to wire a switch to select the shifter or the horn appears below.



If you would like to skip all the horn/relay stuff we have a nice kit to eliminate all the work of wiring the relays. It works with either system and is a snap to wire. (P/N 1-0317 Air Shifter To Horn Control Harness)

Power, Ground, and Activation Lead – The red wire is connected to a ignition switched 12 volt power source. Do not attach direct to battery! The black wire is connected to a good ground. Preferably, the battery negative post. The blue wire is the activation lead. When a ground is applied to this wire the unit kills the motor for the specified time period. The horn wiring diagrams will show you how to wire it.

Electric Air Valve – The Electric Air Valve has two wires. These wires are interchangeable. One needs an ignition switched 12 volt power source. The other needs a ground signal when the shift button is depressed. The easiest way to do this is to locate the red and blue wires in the Sport Bike Engine Kill wire harness. Splice one Electric Air Valve wire into the red wire and splice the other Electric Air Valve wire into the blue. Once again soldering is the preferred method but you can use schotchlok splices.

Kill Time Adjustment



Setting Kill Time – Kill time is the amount of time the engine stays dead between gears during a shift. Generally the shorter the kill time the quicker the shift. The proper kill time will vary from bike to bike. Its generally better to start with to much kill time and work your way quicker. We generally start at around 75 ms. of kill time. The Kill Time is adjusted via a small potentiometer accessed through the grommet on the front of the unit. Using a small screwdriver Carefully turn the pot clockwise to the end of

its travel. This is 100 ms of kill time. Now, carefully turn the pot screw counterclockwise to the end of its travel. This is 50 ms of kill time. Halfway in between is 75 ms. The pot only goes from 7 o'clock to 5 o'clock so don't force it, they break easily!

Setting Shift Point – The shift point is set using standard MSD RPM Modules or "Chips". The chips simply push into the RPM Chip Port on the Sport Bike Auto Shift. These are not included, but can be purchased from MPS. They are sold 5 to a package in full 1000 RPM ranges. For example a 10,000 series would include: 10,000, 10,200, 10,400, 10,600, and 10,800 chips.

Testing The System – With no air in the system start the bike. Bring the rpm up to around 3000 rpm and push the shift button. You should hear a slight hesitation in the engine each time you depress the shift button. If you don't hear a hesitation and the horn sounds the arm switch is in the horn position. If you just hear no hesitation the brown wires are probably not hooked up correctly. Once you establish that you have a engine kill when pushing the shift button remove the clevis pin from the shift cylinder and extend the shaft to the end of its travel. Air up the shifter to 120 psi. We also have onboard compressor kits available to conveniently fill the air tank on the fly or high pressure CO2 systems that can shift hundreds of times without refilling. With the engine off and the key on push the shift button. The shift cylinder shaft should snap into position. With these preliminary tests done you can put the bike back together and go for a ride! Shift it at lower rpms first to make sure it is in fact operating properly. Once you have it operating correctly with the button you can try an auto shifted run. The Sport Bike Auto Shift is always armed. To disarm the auto shift portion remove the rpm chip. The button can be used at any time to short shift the bike, but the horn/shifter arm switch must be in the shifter position for the horn button to work. If you have any more questions we have a Frequently Asked Questions page at our web site as well as the telephone tech support. Thank you for your purchase of this MPS product. All products sold by MPS are for use at closed course competition events and not for use on public streets or highways.