

Starter Kick Back

Premature Ignition Firing

Either you have the ignition timing too far advanced or a common problem causing this is the supply to the ignition system. This can be caused by a weak battery or poor supply lines (wiring) to the ignition. The power for the ignition system is supplied by the battery and the wiring goes as follows: Battery > Starter + > Circuit Breaker > Ignition Switch > Kill Switch > Ignition Coil > Ignition Module. How many connections are there, and when was the last time you checked them. What happens is at some point along the supply line to the ignition there is a high resistance connection causing a voltage drop.

If you have a drop of 3 volts to the ignition and the starter pulls the battery voltage down to 10 volts at start up the ignition sees 7 volts. If the ignition has a dropout voltage of 8 volts (Spyke Ignitions have a dropout of less than 5 volts) or the point it will no longer operate it turns off. The key is how do you fire a coil to generate a spark to the spark plug? Turn the charged coil off collapsing the magnetic field around the secondary of the coil. Peak load on the battery occurs as it approaches the first compression cycle and is near TDC. If the voltage falls below the dropout voltage of the ignition at that point the ignition turns off in turn shutting the coil off and a spark is generated. If the time the spark is generated happens to be 45° BTDC the fuel in the cylinder is ignited. Since the engine has minimal RPM's the combustion of the fuel wants to drive the engine in the opposite direction the starter is turning it and the engine wins. The ignition may only be off for a millisecond, but that's all that is required to fire a coil. If this occurs, clean all connections to the ignition circuit and check the voltage to the ignition while the circuit is loaded.

Test procedure: With ignition off and the **bike out of gear**, get a jumper wire with alligator clips and jumper the trigger side of the coil to ground (**do not jumper the + side of the coil, the side feed from the kill or ignition switch as this would be a direct short to the battery and you will have smoke**). Turn the ignition on and with a volt meter on DC volts, measure the voltage at the battery, Negative (black) lead of meter on the battery negative and the Positive (Red) lead of the meter on the positive of the battery. Note the voltage i.e. 12.5 volts. Then move the Positive (Red) lead of the meter to the positive (+) side of the coil, the post feed by the kill switch. Note the voltage reading of the meter. If the difference between the battery voltage and the voltage at the coil is more than 1.5 Volts you should clean and check all connections between the battery and the ignition coil. The dropout voltage of the Spyke Super Comp Ignition 5.0 volts or less and is very low in comparison to many ignitions on the market.

Important Note: Do not leave the jumper wire from the battery to the coil in place more than 4 minutes if using a 3 Ohm coil. This jumper wire turns the coil on to load the circuit for the test. The coil will get hot and damage the ignition and/or the coil if left on.

Starter Clicks, but doesn't Start

When starting your bike, if you just get a "click" when you hit the starter button don't let your first act be removing the starter and boxing it up. When you get it back you'll probably have the same problem!

The first thing you want to do is ISOLATE a possible power feed problem. It might just be a weak battery, relay or handle bar switch giving you the trouble. To check this make yourself a jumper wire directly from the battery (+) to the SMALL terminal on the starter where the relay hooks up. Make sure the bike is in neutral, you probably going to hear your bike turn over! So now what? Start back tracking and look for resistance in the circuit. The culprit is usually a worn Bosch relay, but that's OK they're cheap and easy to replace. Sometimes it's just a loose connector or corroded battery cables (Pos. or Neg. either end) Again, it's not enough to have 12 VDC at the starter you need at least, 10vdc/@ 35 amp loaded!

Another good rule is to check your battery's voltage while the bike is sitting still, it should read about 12.5 volts. While holding the starter button down if battery voltage falls below 5.6 volts, your battery probably has a bad cell, and by the way jumping the battery with another one will be useless as the shorted cell will NOT let the new extra amperage pass through it. If you feel the need to try another battery, disconnect the old one first.

