The Boyer Electronic Ignition
Installation & Troubleshooting Tips

Whatley's First Law: Your first day with a Boyer is the first day you start cleaning up your harness, battery connections and charging system, or the last day you ride.

The Boyer electronic ignition is by far the biggest improvement you can make to your British motorcycle. Not only will it save you many hours of maintenance on your points and auto-advance unit (AAU), but your bike will idle smoother and generally run much better. However, there are some areas of your motorcycle maintenance that the Boyer will demand that you keep a close eye on. Hopefully this article will help you bypass the most common pitfalls.

Installation

Full enjoyment of the Boyer is increased by proper installation. Be sure and follow all the recommendations listed on your Boyer installation sheet. The following additional tips will help you insure your new unit is installed properly and remains trouble-free.

1) The magnetic unit that replaces the AAU is held in place by the "Allen" screw that comes with the Boyer. Due to the low torque (6 ft-lbs), these screws often loosen during service if a common split-ring lock washer is not installed with the bolt.

2) The need for perfect crimping technique cannot be over stated when installing the various crimps that come with your Boyer. It's not that the crimps are poor quality. They're very good in fact. It's the poor quality of the crimp tool and technique most owners use to install them that's at issue! To insure the best electrical connection, first solder the stripped wire end and then add the crimp. During the crimping operation, squeeze the tool very tightly for at least 5 seconds. Finally, check your work by tugging smartly on the installed crimp.

3) This last part is ***especially*** important on the 4 crimps installed on the "points" lead. With the Lucas points system this wire contained 12V, with the Boyer it will be carrying a very weak 3-5V signal. So if your home computer wouldn't work with the quality of your crimping, then it's unlikely that your Boyer will either.

4) Even though the Boyer instructions play this point down, it is almost required that the owner install dual 6V coils when they install the Boyer. The reason for this is that with a Boyer the coils are connected in series. This doubles the resistance on the Boyer's output circuit, which halves the energy available to fire the coils. You'll simply get much better cranking and better high RPM performance with two 6V coils (or one dual-output 12V coil).

5) Finally, to insure an uninterrupted 12V power source it's important that the Boyer box be properly grounded. A ground connection to the rusty or painted steel frame that might work good with points, simply will not function with a Boyer. The Boyer's RED wire must be connected to all the following:

- The positive (+) side of the ignition coil pair
- A RED wire from the main electrical harness. If not available then a special wire must be run back to the rectifier's positive (+) connection or mounting post.
- Additionally, if your bike does not already have a ground wire connected to the cylinder head, this wire must be added. This is especially true if your frame has been "powder coated".

6) It is especially important that any additional grounding wiring use tin plated soldered-on terminals and be of the highest possible quality, complete with 1 inch of heat shrink tubing over the solder joint to prevent undue wire flexure at the solder joint.

Timing

1) The timing settings found on the instruction sheet are the bare minimum required in order to crank the bike. Before riding the bike, the ignition timing must be finalized using a strobe light. If your motorcycle was made before strobe indicators were installed, then extra work must be done to add these marks or a temporary degree wheel.

2) When strobe timing the Boyer-equipped motorcycle special care must be taken, especially if you're used to timing the stock system. With the Lucas points system, full advance was reached somewhere around 2500 RPM, but Boyer recommends revving their system all the way to 5000 RPM to insure that full advance was obtained.

Frequent Problems

Whereas the typical "points and coil" system can operate quite nicely with a dying battery supplying 7 or 8 volts, the Boyer demands a full 12V. This means your battery, charging system and all connections must be kept in tip-top condition.

1) The first thing you'll want to do is make sure your battery is healthy. With your engine turned OFF, leave your headlamp ON for 2 minutes. With the headlamp still ON, place a voltmeter across the battery terminals. It should read something like 12.3V. If it reads below 12.0V, then you need a new battery. Period.

2) Even if your battery tests "good", that does not mean that the Boyer is getting all that voltage. Your motorcycle might have a worn ignition switch, frayed wiring, bad kill button or poor system grounding keeping the Boyer from receiving the full system

voltage. Be sure to unplug the Boyer box and take an Ohm-meter reading between the rectifier center wire (usually BRN/BLU) and the wire going to the Boyer WHT. Also take a measurement between your rectifier ground and the wire going to the Boyer RED. Both readings should show zero resistance.

3) When the battery cannot hold a charge or cannot get the proper charge from the alternator, then the Boyer fails to receive the proper voltage. When this happens the engine will "blubber" like the choke has been turned ON or the fuel has suddenly gone bad. Often the bike will stumble enough to quit all together. But then it may mysteriously crank and run great minutes later! To diagnose this malady when it happens, simply turn OFF the headlamp while the engine is still running. The headlamp, being the biggest user of electrical energy, will relinquish enough voltage that the Boyer will once again have 12V and the engine will instantly start to run better again.

Obviously, since the whole bike runs off the power supplied by the alternator (and not the battery as many people assume), the charging circuit and all associated wiring also need to be in great shape too. Because of that, it is highly recommended that the charging circuit be fully tested at the time the Boyer is installed.

This is by no means a full list of issues and owners are reminded to keep and review all the paperwork that came with their Boyer.

Hope this helps!

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