



XT500 Electronic Ignition Conversion Guide

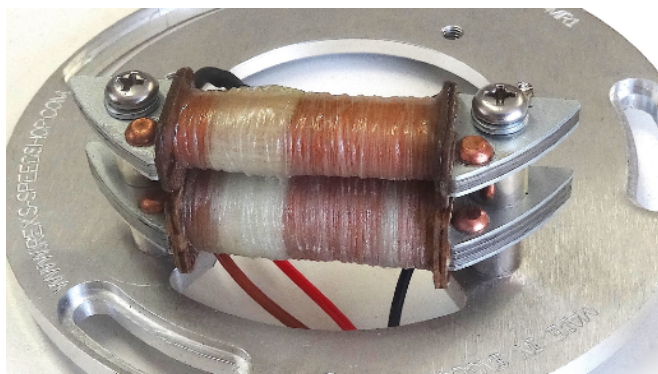
RMK2-12V 'Roadster'
RMK4 Competition

Thank you for purchasing our world renowned XT500 electronic ignition upgrade. The 12 volt 'Roadster' (RMK2-12V) is a solid performer that gives many benefits such as good starting and excellent performance. The 'Competition' (RMK-4) version with it's unique dual ignition windings out performs all other self generating ignitions on the market in terms of spark power. This is intended as a performance up-grade for gruelling competition use where it has proven to give outstanding results in tuned engines. Both systems have a trim adjuster on the CDi so fine timing adjustments are made without removing the flywheel.

Both systems do away with the points and mechanical advance unit replacing them with electronic timing. They are self generating hence they do not need power from the charging system or a battery. Fitting is very similar for all systems, if you are using an 'ignition only' kit ignore the 12 volt conversion section, follow the fitting guide for the stator, CDi unit and HT coil then go to the ignition timing adjustment section.



RMK2 single ignition source coil



RMK4 'Competition' ignition - the most power self generating ignition on the market.

The RMK2 is available in 12 volt Roadster which is plug and play with a standard or Kedo wiring loom. This ensures there is very little wiring making our kit very simple to fit. Other versions available include '12V LED' for using LED headlamps, 'Direct AC' for basic lighting on competition machines such as the TT. Finally an 'ignition only' version which comes with no charging coils or associated wiring. Other versions have their own wiring guides. RMK4 kits are only available as 'ignition only' for off-road use.

12 volt kit contains:

12 volt electronic ignition stator plate
Regulator rectifier & adaptor loom
CDi ignition unit
HT coil & NGK HT cap
Timing adjustment tool

Ignition only kit contains:

Ignition only stator plate
CDi ignition unit
HT coil & NGK HT cap
Timing adjustment tool

Tools not included but required: Flywheel puller (FWP-1), an air or electric powered impact gun (buzz gun), strobe light with inductive clamp.

Warnings & Cautions:

Only qualified and experienced mechanics should work on motor vehicles. Working on motor vehicles requires specialist tools, knowledge and training. Serious injuries or accidents may result if parts are not correctly fitted or adjusted.

Your warranty is invalidated where parts supplied have been modified or incorrectly fitted or adjusted, where the fitting guide or shop manual were not followed or industry standard procedures or conventions are not followed or ignored. This guide does not over-ride any safety warnings or torque settings given in the bike's shop manual.

Only use strobe lamps with an inductive clamp that fits around the HT lead.

People with heart conditions or those fitted with a pacemaker must not work on or adjust ignition systems.

This guide is intended to be used in conjunction with the Yamaha shop manual for your bike. You must refer to the latest revision of Yamaha manual for torque figures, assembly procedures and safety precautions.

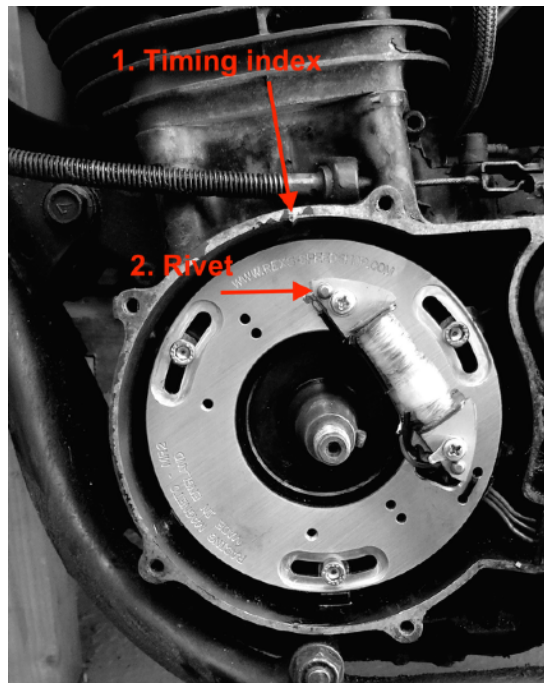
Fitting guide

1. Remove the points and mechanical advance unit, these are no longer used. The wire from the points can be removed or left in place if you want the bike to appear standard. If left it must be insulated from the electrical system.

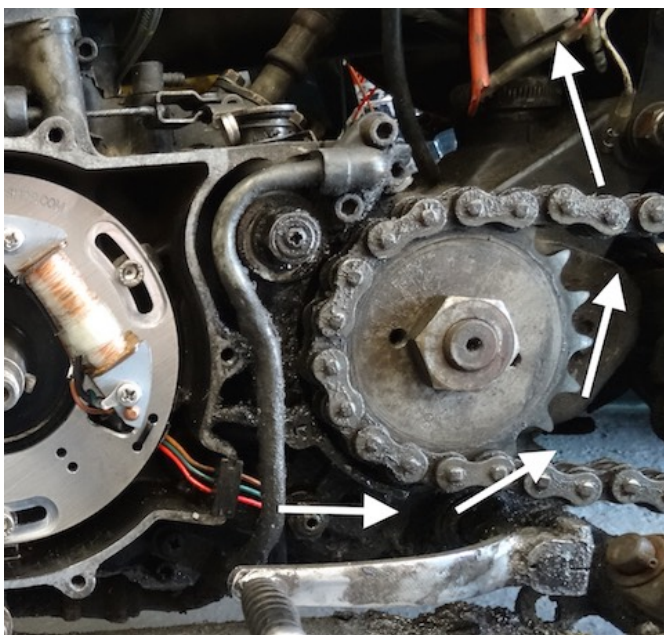


2. Remove the flywheel & stator from the bike. Replace the stator with the new one from the kit. Mount the stator with the CDI source coil with the upper rivet in line with the timing index:

REMOVE ANY PROTECTIVE PACKING COVERING THE WINDINGS

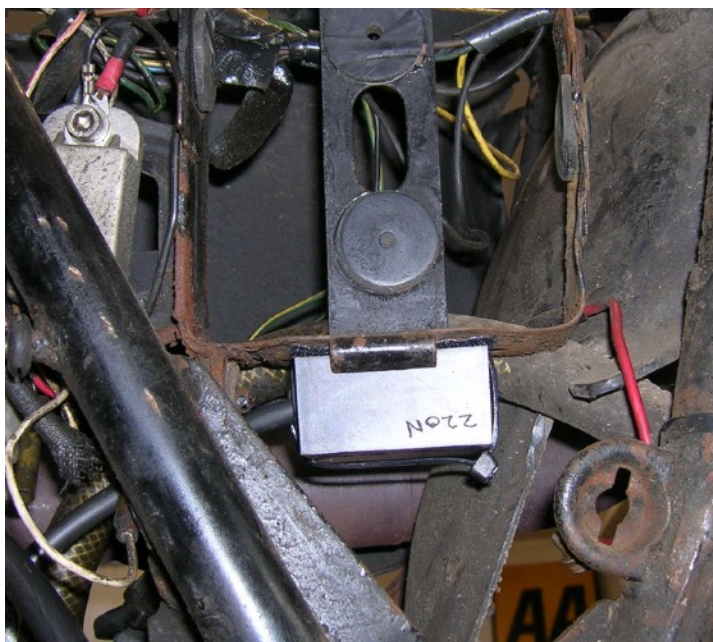


3. Ensure that the wires are not pinched between the backplate and engine, route the loom as per the original and secure it away from the drive chain. Tighten the stator plate and refit the flywheel to the torque values as per the shop manual. Ensure no part of the stator touches the flywheel.



4. The CDI ignition unit can be secured under to the battery carrier using the cable tie supplied. However leave the unit loose so you can access the timing adjustment.

Connect to the matching plug on the generator wiring.

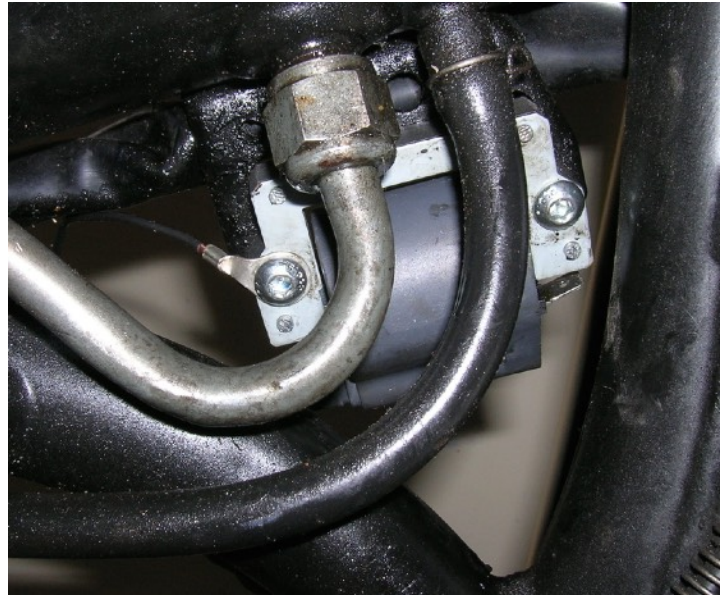


5. Route the long wire from the CDi forward to the HT coil. Secure it using the wiring loom clips, that hold the standard wiring loom.

If these have been removed (eg competition bikes), refit them or secure the CDi wiring away from engine and exhaust.



6. Fit the new HT coil. Put the black wire with ring terminal under one of the mounting screws. Connect the orange (hot) wire to the spade connector on the HT coil.



7. Bikes with standard wiring looms; connect the black/white wire from the CDi to the double connector on the black/white wire from the bike's wiring loom.

On ignition only systems; we assume no wiring on the bike other than our ignition. Fit the kill switch at a convenient position on the handle bars and connect the wire coming from it to the black/white from the CDi box.

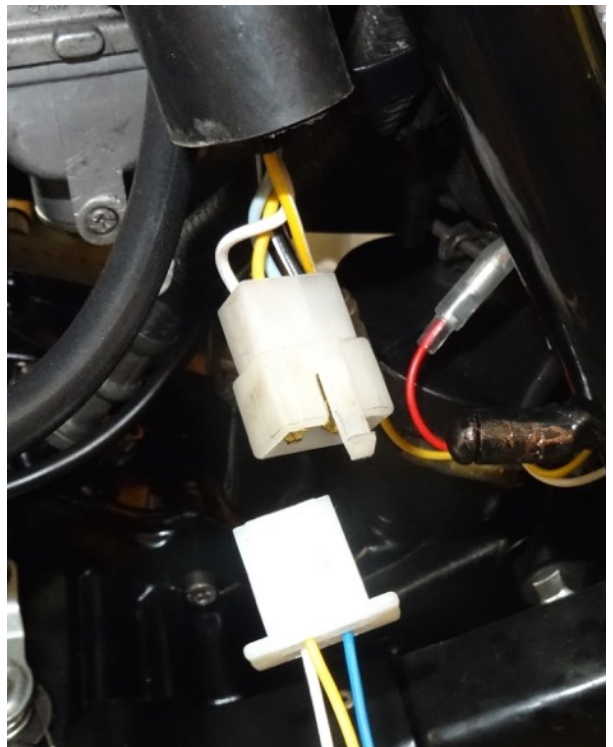
Fitting an 'Ignition only kit'? Now go to 'setting the timing' ➤



Note; also shows orange wire connection to HT coil.

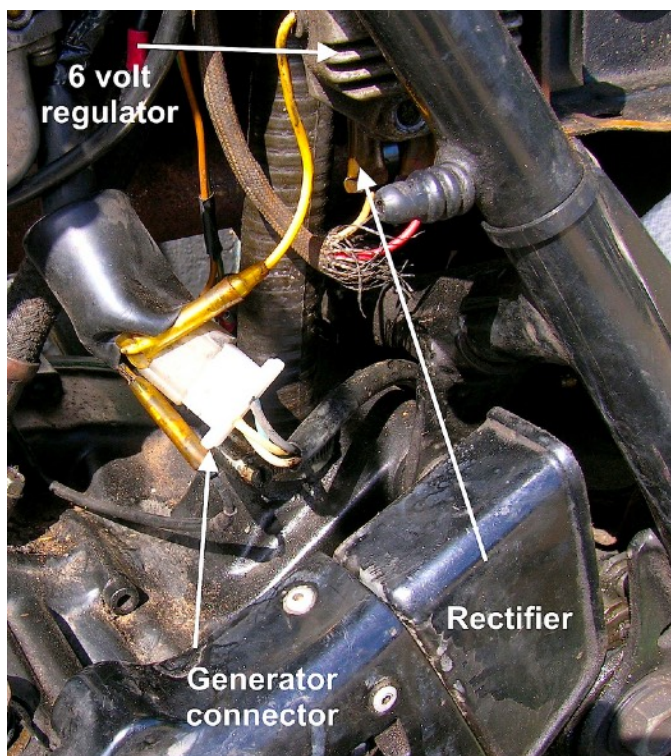
8. **12 volt 'Roadster' kits only:** On 12 volt systems plug in the larger white block connector to the bikes wiring loom.

The new connector has only 3 wires - this is intentional and not a missing wire



9. Next identify the old 6 volt rectifier and regulator. Remove these from the bike

The 6 volt regulator has a single yellow, the rectifier has a white and a red wire.



10. Fit the new 12 volt regulator as shown to the regulator mounting point placing the black wire with the ring terminal under the bolt. The wiring loom earth should be here as well. Connect the yellow to the old regulator wire. The new red and white wires connect to the rectifier wires



11. Remove the 6 volt battery, horn, indicator relay and bulbs. Refer the bike's manual if you need information on how to do this. Replace with 12 volt versions. Ensure the 6 volt parts have all been replaced before starting the engine.

Warning:

Do not use a 6 volt battery on a charging system that has been converted to 12 volts.

Supplying 12 volts to a 6 volt battery is dangerous and may result in damage to the bike, fire or serious injury. Acid may spill from the battery or it may burst if the wrong voltage is applied to it.

In Europe batteries must not be placed in household waste and will need to be disposed of in accordance with local legislation. Seek advice from your local authority.

Testing 12 volt charging

Do the ignition set up before checking the charging. Once the ignition timing has been set, start the engine and using a professional quality multimeter check the system at the battery (or at the battery eliminator connections) that is producing 13.8-14.9 volts DC @ 2,500 RPM. The battery must be fully charged and a lead/acid or AGM type.

There is a help guide entitled "12 volt conversion help sheet DT & XT" available under "12 volt conversions" on the technical help page of our website.

Caution:

Before the machine is ridden the ignition timing must be set and the 'ignition off' or engine 'kill' function must be tested for correct operation. Both the ignition switch and kill switch (if fitted) should turn the engine off.

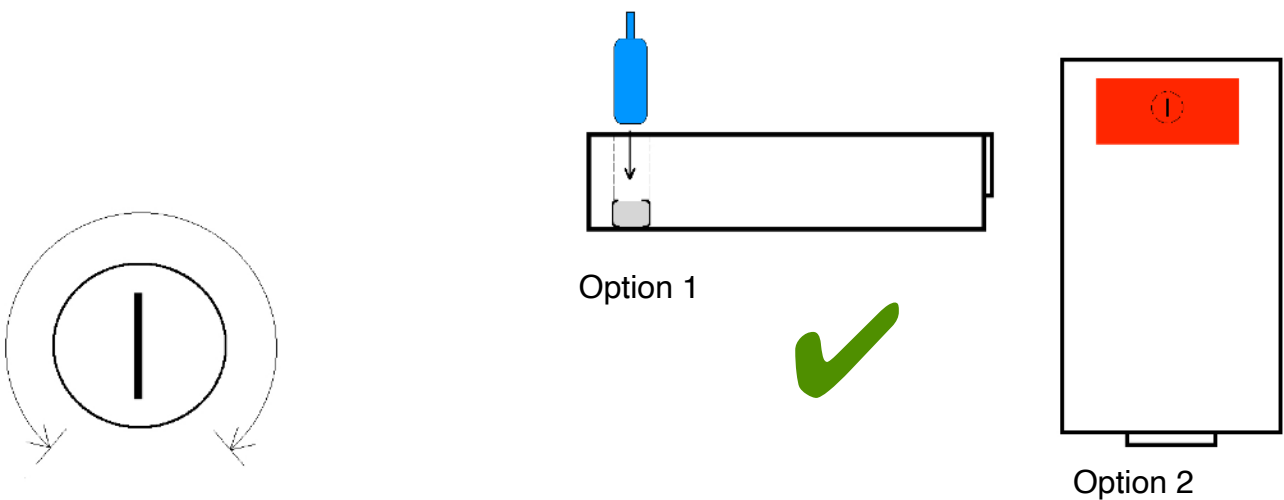
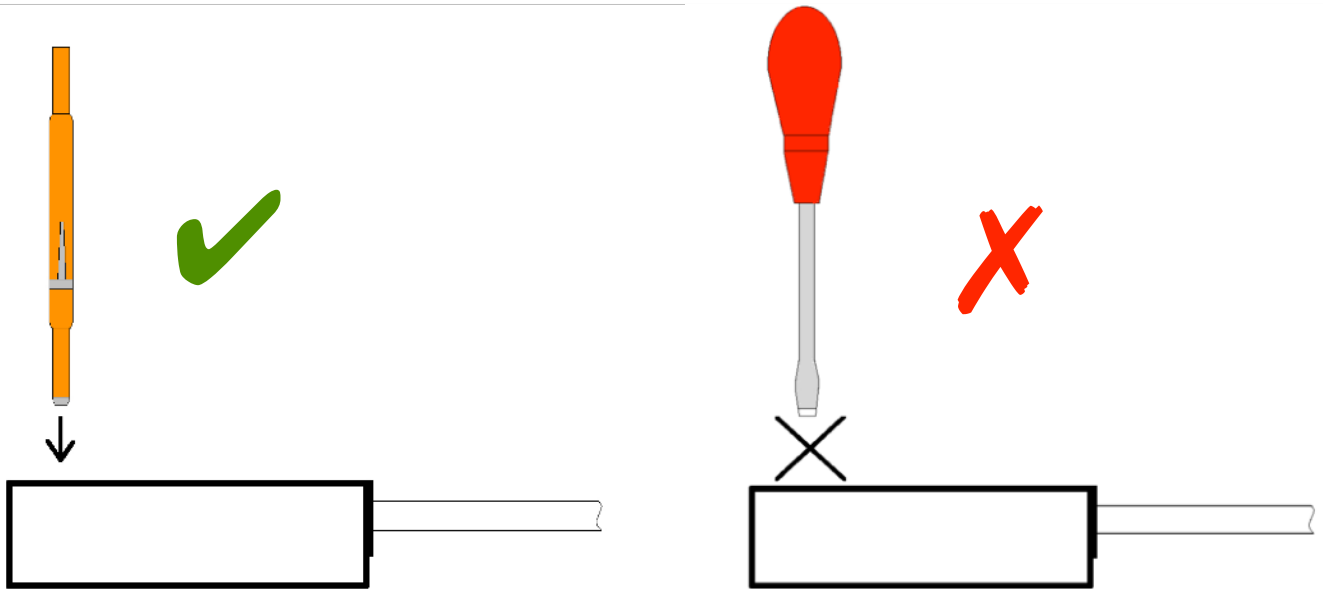
➤ Setting the ignition timing - Use of the CDi adjuster

Caution:

The CDi timing adjuster is a precision electronic component which must be handled carefully to avoid damaging it:

1. Only use the adjuster tool in the kit to alter the timing control on the CDi. Replacement tool p/n AJT-1
2. A use only a light 'finger and thumb' pressure when making adjustments.
3. The adjuster moves only 3/4 of a turn, do not apply force when it stops.
4. Do not push down hard on the adjuster.
5. Replace the sealing bung after adjustments are made to prevent water/oil/mud ingress.
6. Never direct water from a hose pipe or jet wash at the CDi during cleaning.
7. Never apply adhesives to the adjuster, you will permanently damage it if you do.

CDi units returned with adjusters that have been forced, adjusted with tools other than the supplied tool or show signs of mud, oil or water ingress or those that have been abused will not be replaced under warranty.



Adjuster rotates 3/4 of a turn only.

First turn it fully one way, then the other to feel where the end stops are - then set it to the mid point before timing the engine.

Protect CDi unit from mud and water ingress. Refit the sealing bung after adjusting (option 1). Never spray the CDi with water when cleaning the bike.

Tip! If the sealing bung is lost, obtain a new one (p/n G-11), use electrical insulation tape over the adjuster opening (option 2) as a temporary measure.

Setting the ignition timing

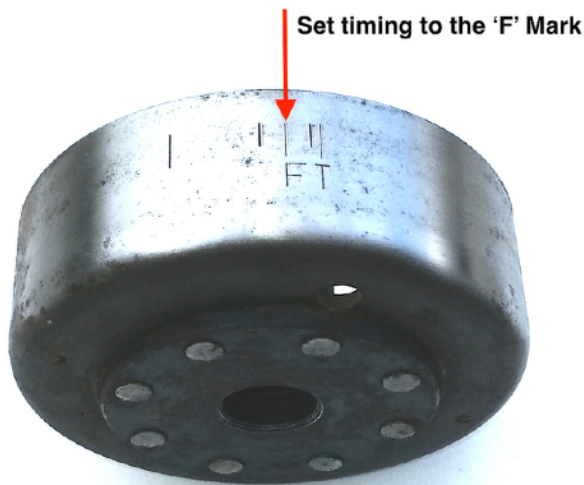
A strobe lamp with an inductive clamp must be used to set up the ignition timing. Set the CDi trim in its midway position then get the timing as close as possible by moving the stator position. Fine adjustments can then be made once the stator is in the correct position.

Set the timing to the 'F' mark at 1,100 RPM viewed with the strobe. To begin:

- Roughly align the rivet on the source winding with the timing mark on crank case as shown in step 2 above.
- Set the CDi trim to the mid position. Use the adjusting tool to rotate the trim fully left and fully right then leave it midway.
- Start the engine and allow it to idle, check the timing. If a large adjustment is needed adjust the position of the stator to align the 'F' mark. If you find you are only a few degrees away, use the trim adjuster.

Rotating the stator anti-clockwise RETARDS the timing, clockwise ADVANCES the timing.

- Once set, replace the adjuster seal, or tape over the hole, and secure the CDi unit to the bike using the supplied cable tie.



Hints and tips:

The CDi trim is only to make minor corrections, it is there to allow fine adjustments to be made quickly and easily and without removing the flywheel. The stator should be correctly positioned first.

- The trim mainly affects the low speed timing.
- Adjustments made on the stator affect timing through the entire RPM range.

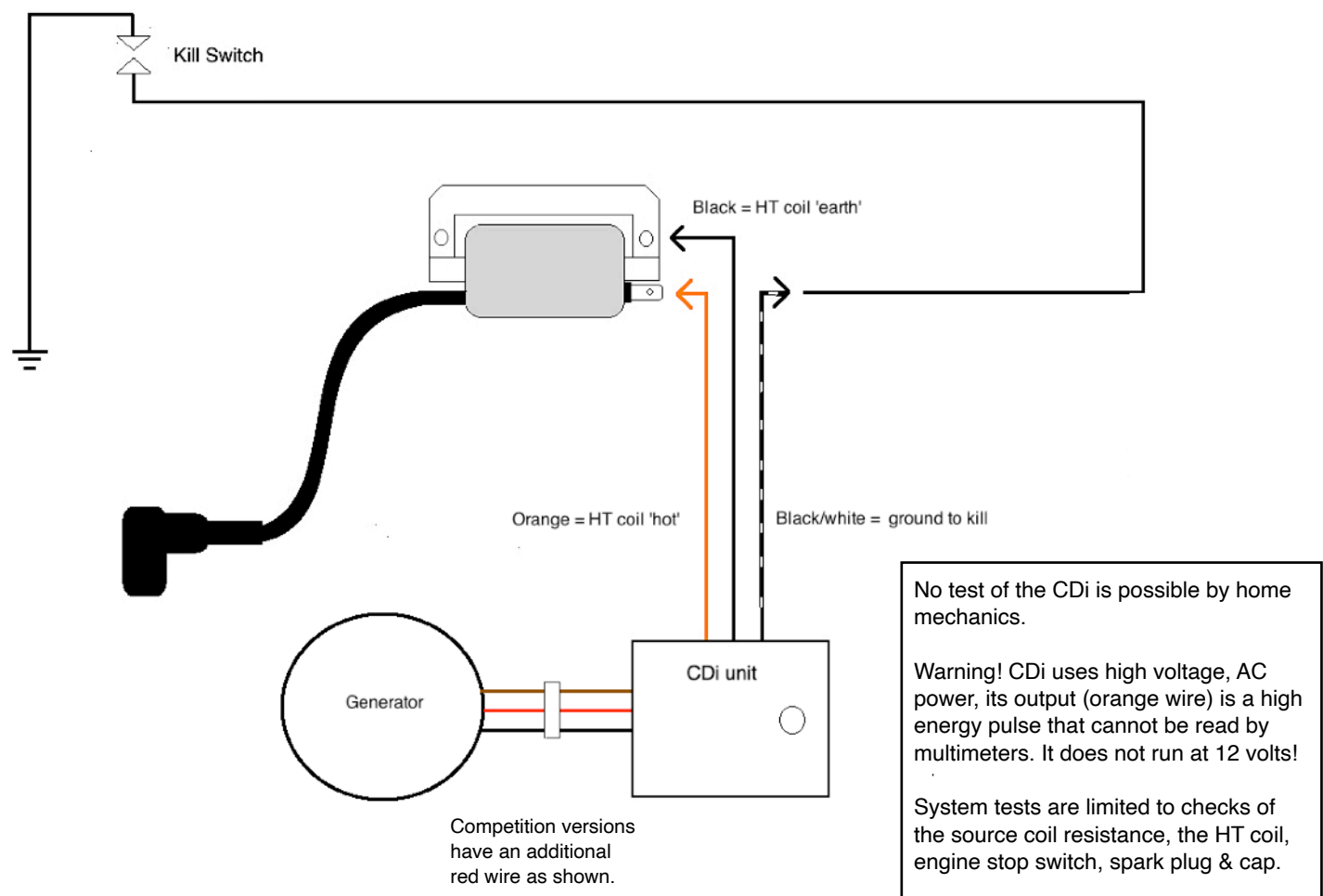
If the engine won't start, make incremental adjustments on the stator, moving it 2-3mm (1/8") at a time, first one way then the other in small even steps. Leave the CDi trim in the mid way position.

Very occasionally we get reports where the timing position was found to be in a very different position. If you cannot set the timing as described, position the stator further away from the stated position in incremental steps. It cannot be stressed enough the importance of working in a methodical manner if you are having trouble finding the initial timing position.

If your new ignition does not spark at all, check the flywheel is the standard points ignition type. If your machine had Yamaha CDi, the flywheel on that system will not work with our kit. You will need to find a points ignition flywheel. Both flywheels are interchangeable.

Our ignitions are industry leading, we design and manufacture in-house to have full control of every stage of manufacture. Each and every system is subjected to quality control checks during manufacture. Every part is function tested and CDi units are fully test run before they are sent out.

Ignition wiring diagram.



Timing	7 Degrees BTDC @ 1100 RPM (+/-3)
Full advance	30 degrees (+/- 1.0) @ 4,500RPM
HT Cap	NGK with suppressor LB, XB or SB series
Recommended spark plug	Standard NGK BPR7ES. Performance version - BPR7EIX
Spark plug gap	0.7 - 0.8 mm (0.028-0.032")
HT Coil	Rex's p/n HTC8
HT Lead	7 mm, silicone or PVC automotive, copper core.
RMK-2 Source coil resistance. Cold engine @ 20 degrees C	V3 to and including V6: Brown to black - 90Ω. Test pass 85 to 95Ω V7 Kits (CDi marked V7): Brown to black - 86Ω. Test pass = 82 to 91Ω
RMK-4 Source coil resistance Cold engine @ 20 degrees C	V3 to and including V6: Brown to black 90Ω. Test pass = 85 to 95Ω. Brown to Red 40Ω. Test pass 38 to 42Ω. V7 Kits (CDi marked V7): Brown to black - 86Ω. Test pass = 82 to 91Ω. Brown to Red 33Ω. Test pass 32 to 34Ω
Recommended 12V Battery	Motobatt MB3U
Recommended battery Eliminator	BE1 - Off road use only.
Charging - lights on @2,500RPM	With battery: 13.8 - 14.9V. With eliminator: 13.8-15.5V
Fuse	10/15A or as per manual. There is no need to change this for 12 volts.