



# XL250 & 500 - CDi Ignition Models up to 1982 12 Volt Conversion

**Skill Rating: Expert**

Honda use an unusual electrical system composed of two separate charging systems, one supplying AC power, the other DC. There are two stages to this conversion; first re-configure the generator to a single coil that supplies AC to the headlamp as well as sufficient DC to charge the battery and power the rest of the lights. The second part of the conversion installs a single 12V regulator rectifier that plugs in to the original wiring loom, so the bike's wiring is not changed at all. The bike's shop manual is required to refer to.

***We stress that this kit has an 'expert' rating, requiring a great deal of skill and experience to carry out this work successfully. The generator and engine can be seriously damaged by in-expert assembly or set up.***

**There are NO changes needed to the ignition, the original HT coil is still used.**

## **What do I have to do?**

- Access the generator windings and carefully identify each winding - pictures to help are provided.
- Cut away the wiring from the DC coil - this left in situ but now un-used.
- Remove the large AC coil
- Remove all the old wiring loom LEAVING the CDi source wire in place, this is re-connected!
- Fit the new 12 volt coil
- Run the new wiring and add new connectors.
- Check clearance between rotor & stator

## **Regulator up-grade**

- Remove the 6 volt AC regulator & 6 volt DC regulator rectifier.
- Fit the new combined 12 volt regulator rectifier.
- Connect the matching wire colours from the generator and new regulator and bike's wiring.
- Replace any non compatible connectors that have been used to repair connection points (opposite connectors are supplied in our kit).

We offer "Accessory Packs" with 12 volt indicator relay, horn and 12 volt bulbs. Pack 1 has no battery and we can export this worldwide. Pack 3 has a replacement battery for the common 6N6-1B. Bikes with a smaller 4 amp battery require Accessory pack 4. These packs are priced lower then buying the parts separately.

Important - you will need to select a headlamp bulb extra to the accessory pack! We are not able to look up the bulb for you as there are different versions, however our website has good clear pictures of the different types.

## **Recommendations**

- Use the same fuse as specified in the manual, this does not need to be changed for a different one.
- Use only the correct Japanese motorcycle crimp terminals as supplied with the kit. Avoid using other types.
- All crimp connections must be made using the correct crimping tools.
- The earth is as important as the feed wires.

If our equipment is mixed with non-recommended parts and the kit does not work as expected, you will be required to fit the correct specified parts BEFORE our technicians can commence trouble shooting.

## **You must not use:**

LED bulbs (LEDS are OK for the indicators)  
HID 'projector' bulbs.

Lithium-ion batteries. Any battery you use must be compatible with a lead acid battery charging system with 14.7 volt nominal output. Note adding LED lights may cause the system to charge at a slightly higher level.  
Use only our regulator/rectifier p/n RR12V-1.

**Warning:** Serious injury and/or damage to your motorcycle can result if you apply 12 volts to a 6 volt battery. Batteries can explode or leak acid if the wrong voltage is applied to them. Battery acid is highly corrosive and toxic. We recommend only AGM or sealed lead/acid batteries, to reduce the possibility of injury and/or damage to equipment.

Technical support is via e-mail only, our techs will not answer questions where the information is found in the shop manual. All work must be carried out by a trained, experienced mechanic. This modification is given an expert rating.

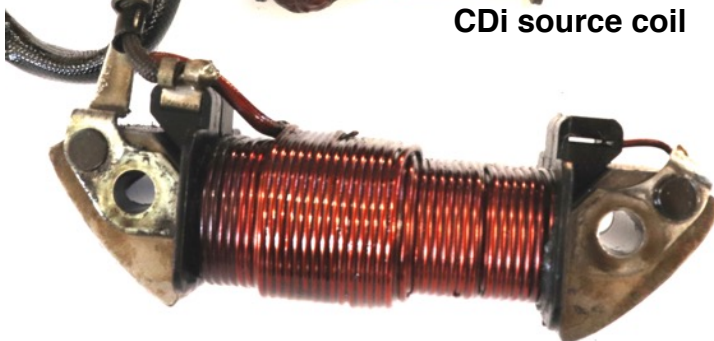
## Fitting Guide

1. Follow the procedure in the bike's shop manual and remove the generator cover.
2. Clean off the engine oil and identify the three different coils. Take pictures or make detailed drawings of the layout and where the coils fit.

**DC Lighting coil\***



**CDi source coil**



\*Some DC coils may have a cloth covering over the copper wire. This is the same part and is treated exactly the same.

**Large AC coil (this is replaced)**

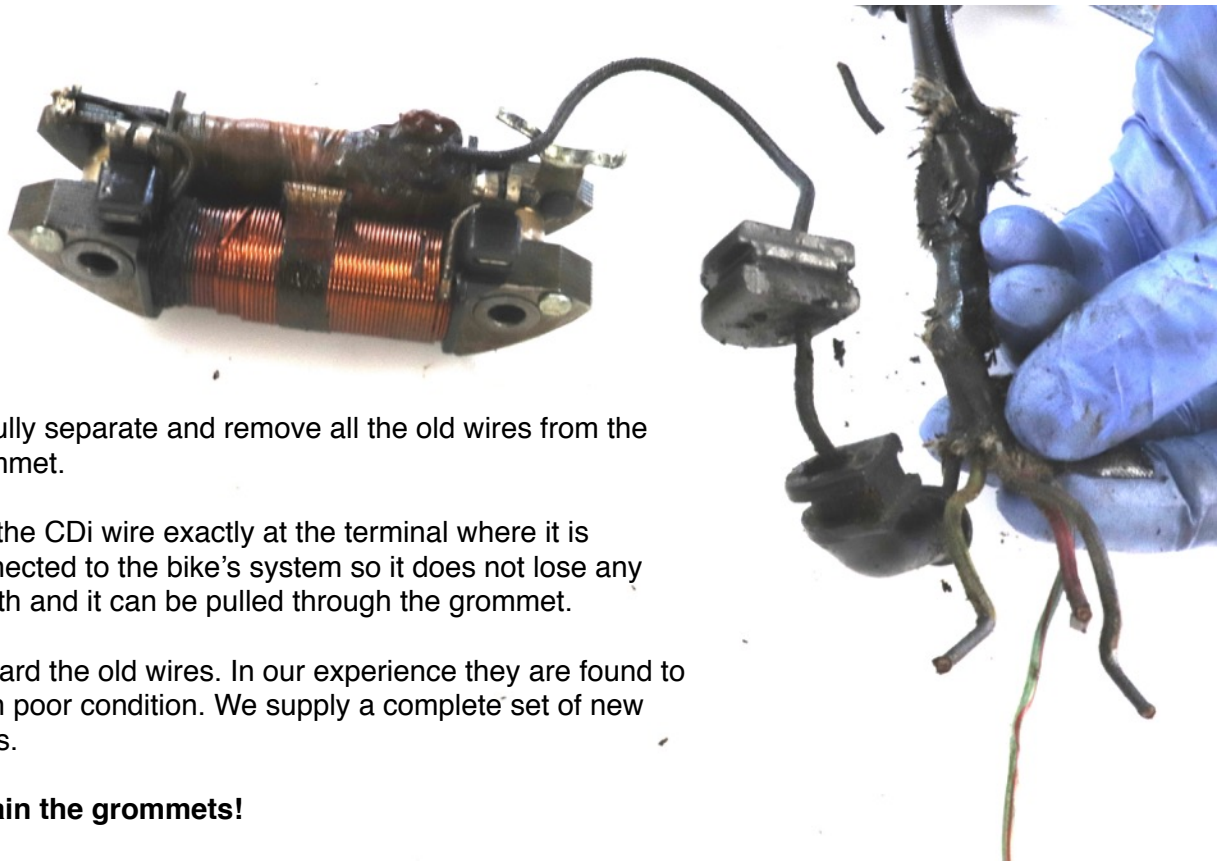
3. Strip the coils out of the case as shown. Snip off both wires from the DC lighting coil at their terminals. This winding is left in situ but is no longer connected to the electrical system.

-Remove the large AC winding

-Separate the wiring loom - **the CDi source coil wire is NOT cut** - leave this attached to it's coil. This wire is taken out of the original wiring loom and used again.



**DO NOT cut the CDi wire!**



4. Fully separate and remove all the old wires from the grommet.

Cut the CDI wire exactly at the terminal where it is connected to the bike's system so it does not lose any length and it can be pulled through the grommet.

Discard the old wires. In our experience they are found to be in poor condition. We supply a complete set of new wires.

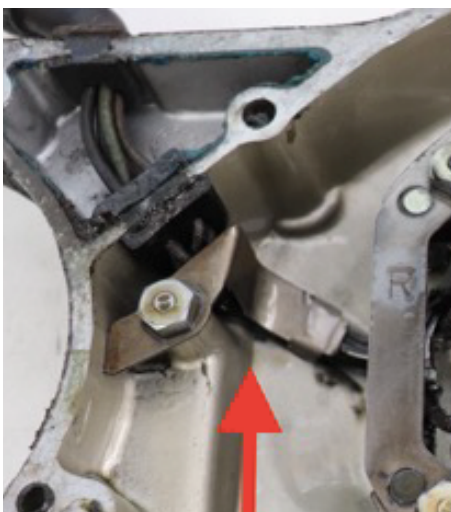
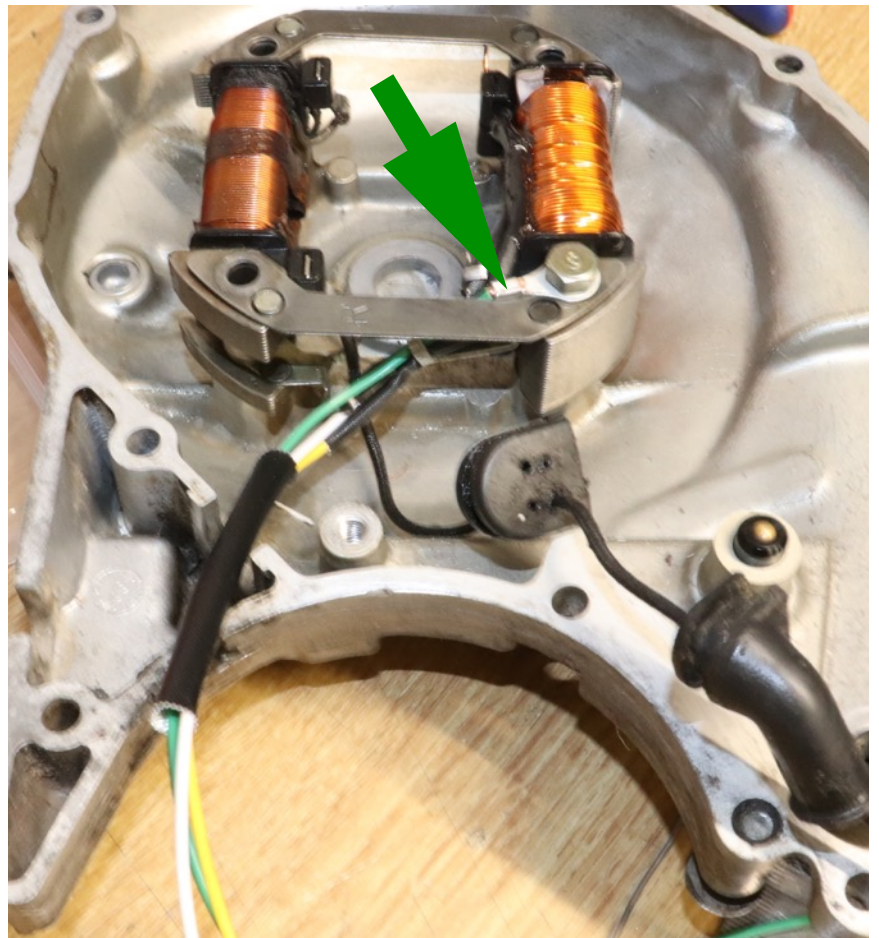
**Retain the grommets!**

5. Mount the new LC-7 lighting coil where the old AC coil was fitted.

Add the green earth wire as shown

Place the high temp sleeve over the three wires coming from the LC-7 coil.

This sleeve **MUST** fully cover the wires where the metal retaining tab fits.





## What if the CDI source wire is bad?

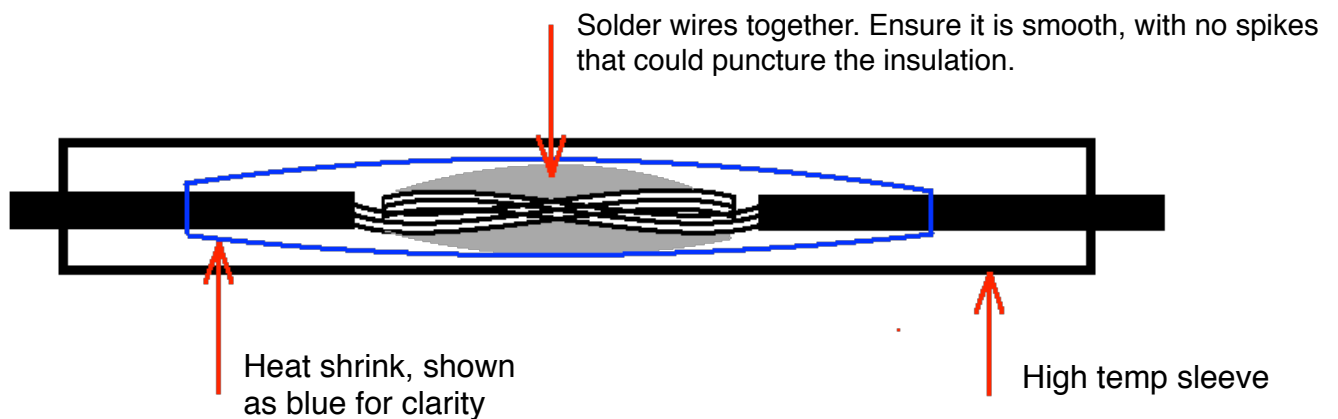
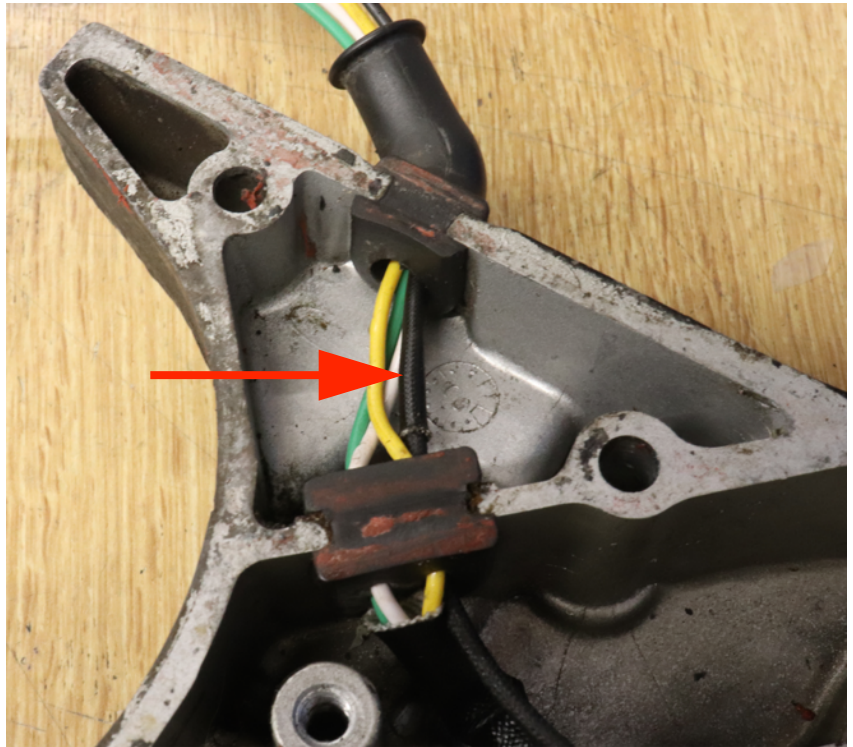
Included is a length of black wire, heat shrink and high temp sleeve to repair the CDI wire should this be needed.

We recommend that the new wire is soldered to the old wire between the two engine grommets, as shown:

- Strip back the insulation
- Clean the wires with solvent to remove all oil
- Twist the new wire to the original and solder them.
- Ensure the solder is smooth with no spikes

*If solder is not used ignition problems will occur*

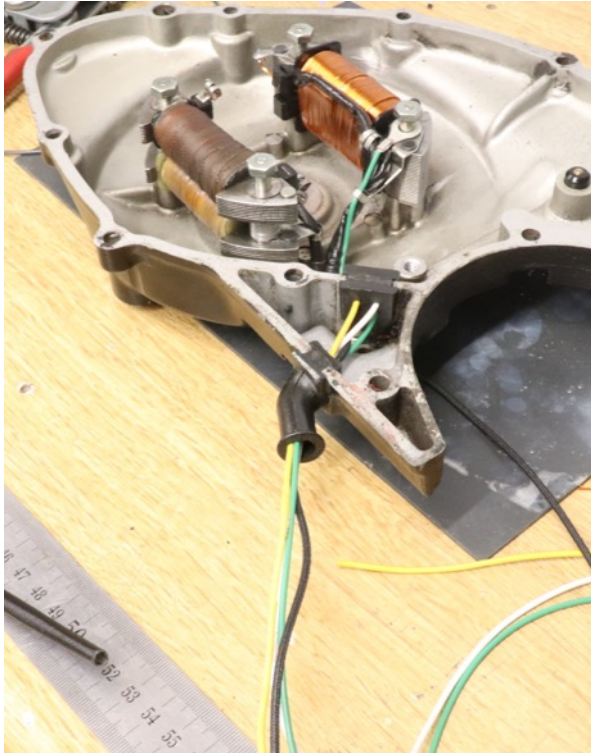
- Insulate the joint with heat shrink
- Cover the heat shrink with high temperature sleeve



***The CDI runs at 200 volts - the soldering and insulation must be perfect to avoid ignition problems***

6. Feed the wires from the generator coils through both grommets

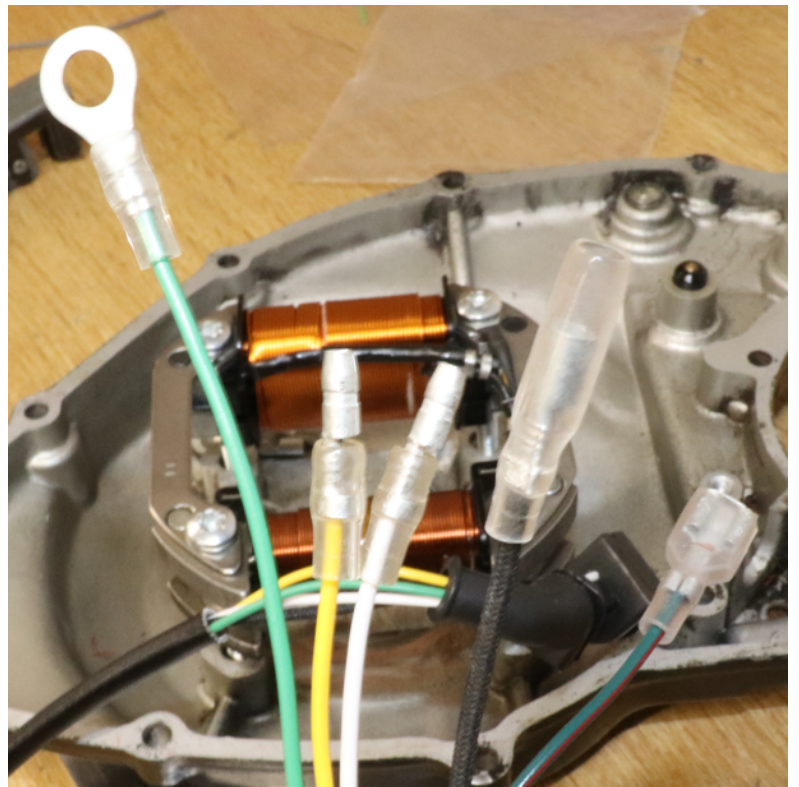
Add the new green/red neutral wire. (May be dark green and red)



7. Fit the 500mm black sleeve and add the terminals supplied in the kit. The correct tool must be used to crimp these.

Wire	Terminal
Black**	Female bullet
White	Male bullet
Yellow	Male bullet
Green/red	Female spade
Green	6mm ring

\*\* Some machines had a CDi source wire that is black with a red collar at the terminal to identify it. Others had a red wire. Both have the same function in supplying the CDi unit with power.



## Checking the Clearance Between Coil and Flywheel Rotor

***The generator and engine can be seriously damaged if the new coil contacts the rotating flywheel***

Remove the generator case central screw-in bung. Offer up the engine case to the engine, ensure it is fully fitted to the location dowels. Do not bolt on at this stage.

Rotate the engine by turning the flywheel nut using a suitable socket through the hole in the cover. Turn the engine at least 5 revolutions with the spark plug removed.

- Listen for rubbing or grating sounds, feel for any resistance while turning.
- Remove the engine cover and inspect the new coil's ends for signs of being rubbed by the flywheel.
- To make it easier to see a rub point, use marker pen to colour both ends of the winding.

If the winding shows even a small point of contact it must be adjusted.

- Loosen the coil's fixing screws, push the coil to move it away from the area of contact.
- Repeat this procedure until the coil does not touch the flywheel.

When you have confirmed the flywheel is not touching the new lighting coil, refit the engine case with a new gasket, also the bung in its centre then refill the engine with oil. Refer to the bike's shop manual.





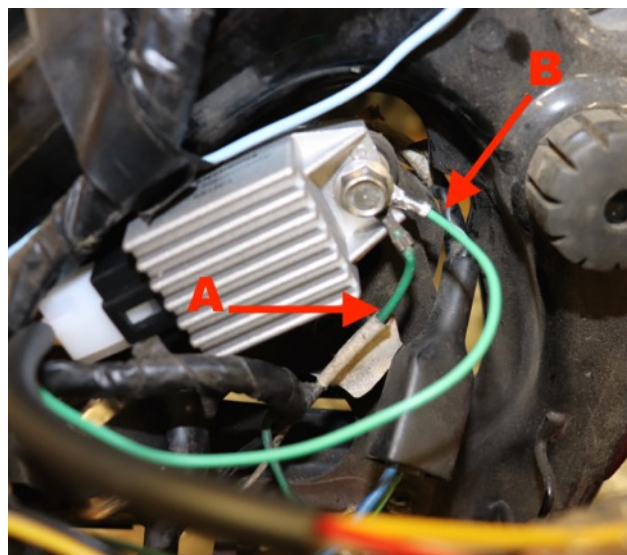
## Wiring

To avoid confusion: Connect the black CDi wire from the generator to the wiring loom. Sometimes this wire may be red. This wire comes from the CDi source coil.

The ignition is totally separate from the charging on these bikes so no changes are made or needed to the ignition. Re-connect the source coil then move on to the charging system.

Locate and remove the 6 volt regulators. The AC regulator has yellow/white and green wires (green may have aged and look black). The DC regulator has 5 wires. These are usually located under the fuel tank.

**Your shop manual will help you locate these parts.**



Fit the new combined regulator/rectifier unit to the bracket where the old DC regulator was fitted. This is the main earthing point. Place the ring terminal of the original loom earth wire (A) under the bolt, along with the ring terminal on the regulator's green wire 'B'. The green from the generator is also connected here.

Identify the black wire at the DC regulator: This wire is not used and is left disconnected. This **MUST** be insulated as it is live. The simplest way is to fit a female bullet with its insulator.

*If you are not certain if you have the correct wire, check that wire becomes live when you switch on the ignition (with a battery fitted). Take care that you have not confused this with the ignition wiring. The ignition is never connected to the battery so will not be live.*

-Connect the wires from the new 12 volt generator to the regulator loom. These are coloured to match up. Use the terminals in the kit if these are required.

-The regulator yellow wire has a double connector, plug the yellow from the generator and the white/yellow that was connected to the old AC regulator.

-Connect the white from the generator to the white from the regulator.

-The green wire from the generator earths at the regulator mounting bolt (position B).

## Troubleshooting

- **General:** Because the wiring system has not been changed except at the regulator, refer to the shop manual for issues such as lighting not working. If you have been working in the headlamp, go back and carefully check your connections. Wire colours fade over time!
- **Charging voltage slightly high:** Voltages that are slightly higher than the given levels are never usually traced to a faulty regulator. This system's output is measured at 2,500 RPM with the headlamp on.
- **Charging voltage slightly low:** Rear brake light stuck on, headlamp bulb too high wattage (recommended 45 watt max). Battery too large (max 4.5 amp/hour). Accessories fitted, heated grips etc taking too much power.
- **Voltage over 20 volts:** Check regulator connectors. Regulators returned will be given full diagnostic testing on our charging system analysis equipment, those returned with damaged rectifiers due to incorrect connection to the battery will not be replaced under warranty.

## General

- This system **MUST** only be used with lead/acid batteries. Lithium batteries must never be used.
- Never use a HiD "projector" or LED headlamps. This system supplies AC power to the headlamp.
- Never attempt to use only the DC output to power all electrical loads.
- This conversion is **NOT** suitable for use with heated grips or clothing.
- To reverse this conversion the generator will have to be rewound back to standard and new 6 volt regulators fitted.