

# KTM AC to DC Stator Conversion Instructions

## (Floating the ground)

### Overview:

The following procedure is intended to convert AC (Alternating Current) electrical systems to DC (Direct Current). A qualified technician should perform this process. These instructions and illustrations are based on a KTM EXC stator, some other models that can be converted with these instructions are:

KTM 400-525 All Models

KTM 250,300 All Models

This document assumes that the stator already has lighting coils. If your stator does not have lighting coils, changing the flywheel and stator is possible.

### Tools Required (in addition to standard hand tools):

- Flywheel puller
- Soldering Iron
- Heat Gun
- Wire cutters
- Wire strippers

### Preferred Tools (in addition to standard hand tools):

- Crimping Kit (Trail Tech Part# HT230C)

### Step #1

- Remove the stator cover, shifter, gas tank and seat to expose the connections to the stator wiring.  
**Note: 4 strokes are oil-bath stators so the bike needs to lay on its side to retain the oil.**
- Disconnect the 12v + terminal from the battery.
- Disconnect stator wires at connectors and any fasteners holding the wiring to the frame.

### Step #2

- If required, remove the flywheel using the appropriate puller.
- For two-cycle KTM's, the stators rotational location is critical to the engines performance – note the stators location and mark it if necessary.
- For two stroke models, remove the stator plate bolts and remove the stator.

### Step #3

- Locate the stator Ground wire (see Fig. 1). Heat solder and remove this wire from the ground lug. (see Fig. 2)
- Locate the stator AC Output wire (see Fig. 1). Heat solder and remove this wire from its solder lug. (see Fig. 2)  
Straiten these two wires and trim if necessary.
- Locate the stator Center Tap wires (see Fig. 1). Heat solder and remove these wires from their solder lug. (see Fig. 2)

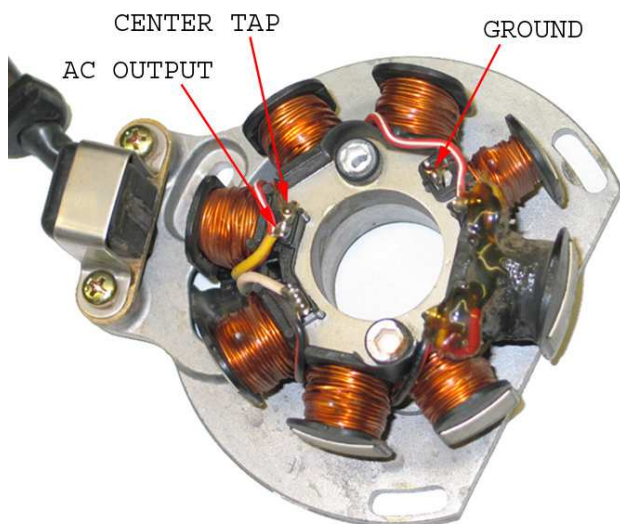


Figure 1.

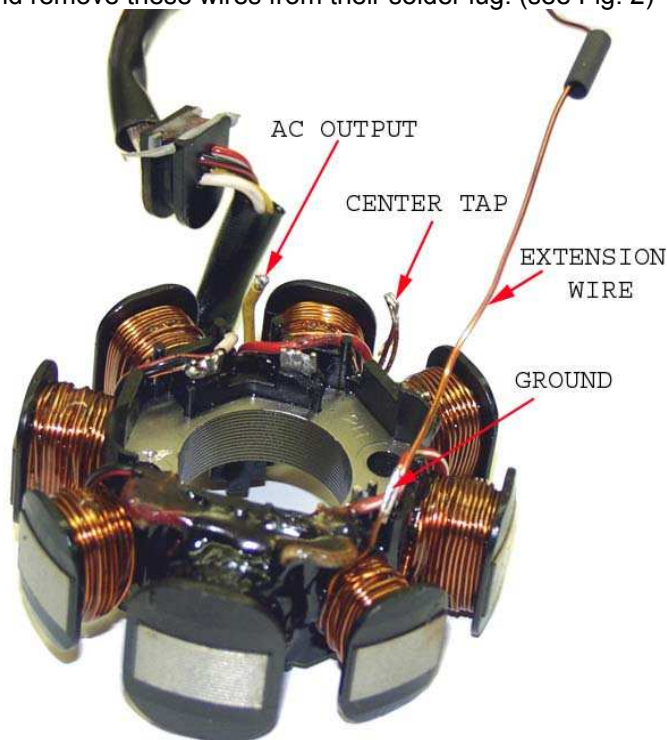


Figure 2.

#### Step #4

Solder an extension wire to the ground lead (see Fig. 2). If 18 or 20-gage magnet wire (class H or Class C) is available, the pole can be wound to capacity, an additional 10% of power can be gained for lighting or other use (see Fig 3). **(Note: Be sure to use shrink tube to cover the exposed solder joint)** If magnet wire is not available, standard 140C capable insulated wire can be used. Do not use insulated wire to fill pole, only use insulated wire to complete extension to AC Output wire. The extension wire should be wrapped around the poles to meet the AC Output wire (See Fig 3).

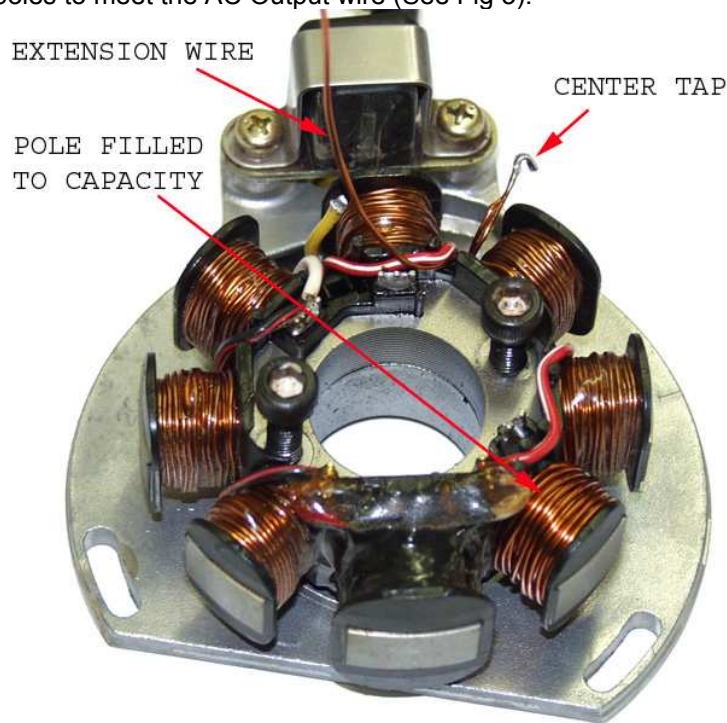


Figure 3.

#### Step #5

Solder Center Tap wires together and cover with 1/8"x20mm length of shrink tube (see Fig 4). Bend center tap wires over and place tightly between poles. This will prevent the center tap wires from being caught by the flywheel and causing damage to the stator. Solder Extension wire to AC output wire and cover connection with shrink tube. If epoxy is available, cover any wire added to pole, AC Output wire and center tap wires with epoxy. Epoxy will prevent any possibility of wires being damaged from vibration or being caught by the flywheel. We have seen many KTM stators modified as discussed here with no epoxy used and no problems have been seen over several years of operation in harsh riding/racing conditions.

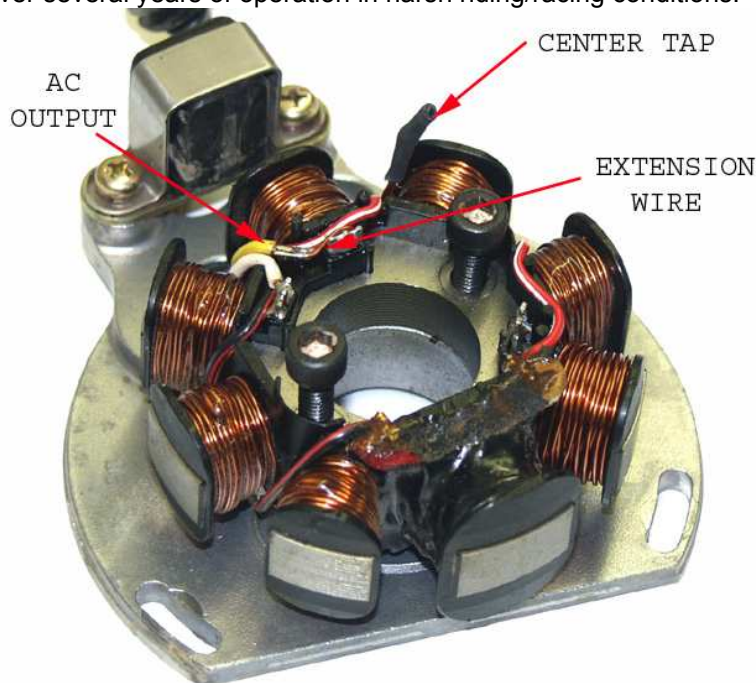


Figure 4.

## Step #6

Locate and prepare wires under fuel tank as shown in Figure 6. Note that some models do not have some of the wires shown in figure 6 jump to Step #9 for bikes not originally equipped with a electric starter and lighting.

**(Note: If the 12v + terminal is not disconnected in previous Step #1 cutting wires may burn the inline fuse)**

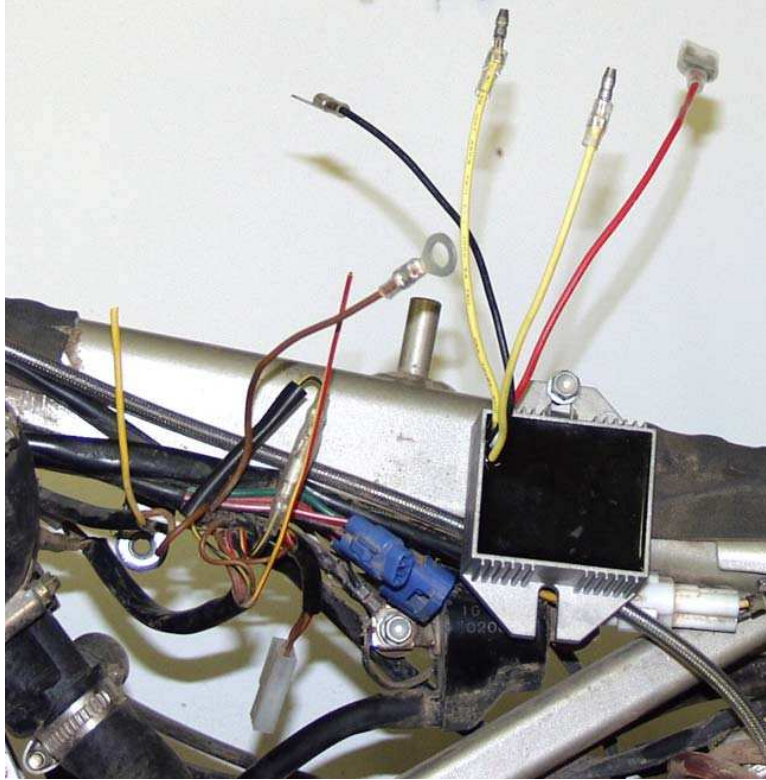
The wire colors are:

Yellow with red stripe – DC power to battery & starter button

Yellow with red stripe – DC power to fan connector – not used in this application.

Yellow – AC power to light switch.

Brown – Ground



**Figure 5.** Bike with electric start & lighting

## Step #7

The parts shown in Figure 6 are removed and scrapped for the DC conversion on a bike equipped with a factor electric start and lighting. Replace the stock Regulator/Rectifier with Trail Tech Regulator/Rectifier Part# 7002-RR150 or equivalent.



**Figure 6**



### Step #8

Connect Yellow and white wires from stator to Yellow wires on regulator/rectifier (see Fig 6.). Note there are no polarity requirements for the Yellow wires into the regulator/rectifier.

Connect the Black Wire from regulator/rectifier and brown wire from stock wiring to frame ground.

**(Note: If frame ground is not desired, the black wire from regulator/rectifier can be connected to the brown wire from stock wiring.)**

Connect the Yellow wires with red stripe to red wire from regulator/rectifier (+ 12 volts DC).

If a small battery is used, the blue wire from regulator/rectifier can be connected to the negative terminal of the battery to prevent over-charging of the battery.

Connect the Yellow wire from stock wiring to the red wire from regulator/rectifier (Yellow is +12 volts to light switch).

If the stock four-stroke battery is used, the blue wire from the regulator/rectifier can be cut and not used. For this option, the black wire from the regulator/rectifier can be connected to the negative terminal of the battery. If frame ground is desired, the black wire from the regulator/rectifier can be connected to frame ground.

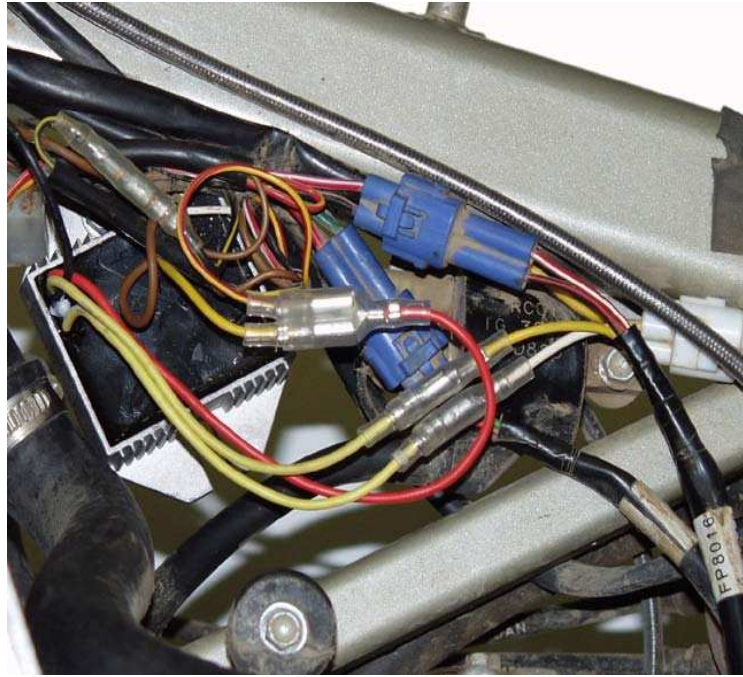


Figure 7.

### Step #9 Bikes without lighting

Find a suitable mounting location for a Regulator/Rectifier see Figure #9.

Connect the 2 A/C output wires from the stator to Yellow wires on regulator/rectifier (see Fig 8.). Note there are no polarity requirements for the Yellow wires into the regulator/rectifier.

Connect the Black Wire from regulator/rectifier to battery or capacitor and or frame ground and lighting (-12 volts DC)

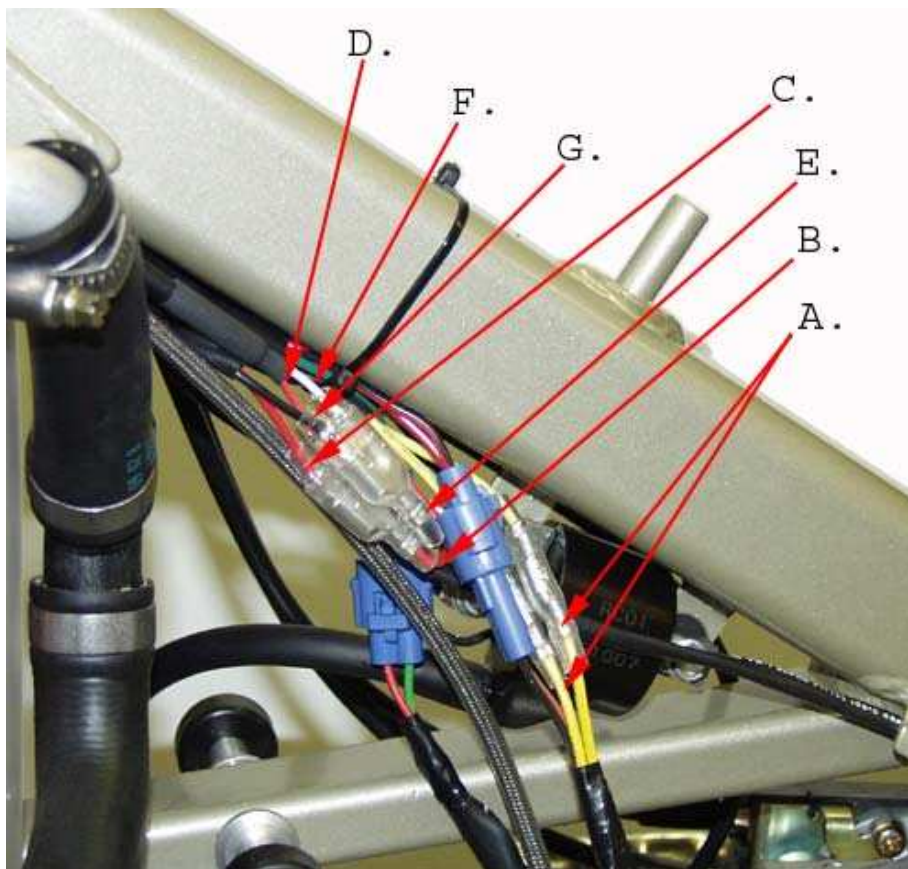
**(Note: If frame ground is not desired, the black wire from regulator/rectifier can be connected directly to the battery.)**

If a small battery is used, the blue wire from regulator/rectifier can be connected to the negative terminal of the battery to prevent over-charging of the battery.

If a stock sized motorcycle battery is used, the blue wire from the regulator/rectifier can be cut and not used.

Connect the red wire from regulator/rectifier (+ 12 volts DC) to the battery and the switch being used for lighting.

The connections shown in Figure #8 are made using Trail Tech Stock Connector Crimping Kit Part# HT230C.



**Figure 8. Bike without electric start or lighting**

Legend:

- a. Yellow - A/C output from stator to Regulator/Rectifier
- b. Red - from Regulator/Rectifier
- c. Red – from Regulator/Rectifier to Battery or capacitor
- d. Red - to Headlight switch
- e. Black - from Regulator/Rectifier
- f. Black - Regulator/Rectifier to Battery or capacitor
- g. White – Headlight ground



**Figure 9.**