These notes describe how to rewind the Lo speed CDI coil found on KH400 models. A design fault means that every half cycle is shorted out by a diode, the resulting current in the coil heats it up making it break down after some years. This results in poor cold starting, and even worse starting when the engine is hot.

There is a HI speed coil in series with this coil. It is vitally important that the coil is wound the right direction so that the AC voltages add up, as at mid rev range, both coils contribute to the CDI power rail. The original coils are marked with a yellow paint stripe on one end of the laminations.

It is not possible to unwind the original coil as the wire is too thin and the varnish/resin is too hard. The coil has to be cut off with the former.

Take your stator off and take many good photographs. The first photos here show the front and back of the stator as removed. See the burnt enamel or varnish that has dripped out of the fatter LO speed coil, marked 18A20 here.

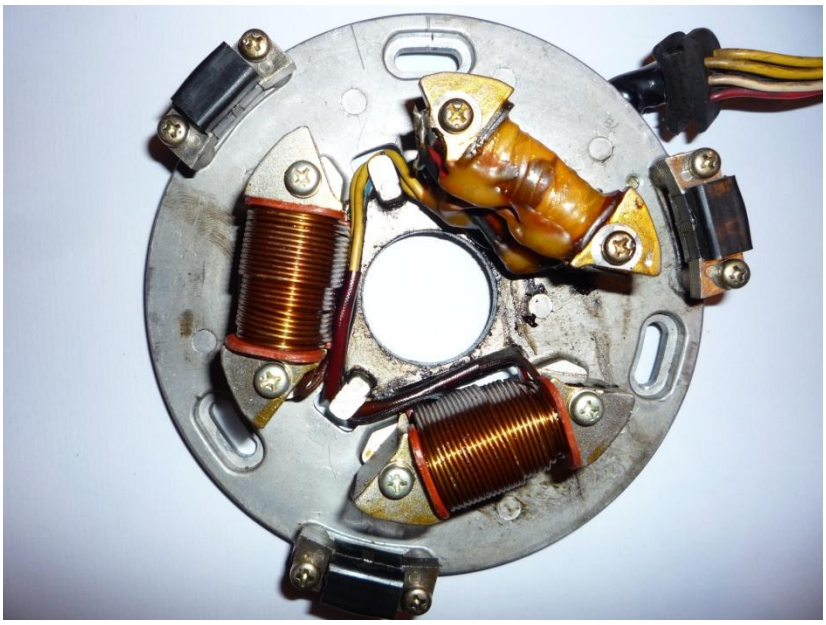

Figure 1 Front view of stator, coils at 2 o'clock

Figure 2 Upper is HI speed, lower is LO speed

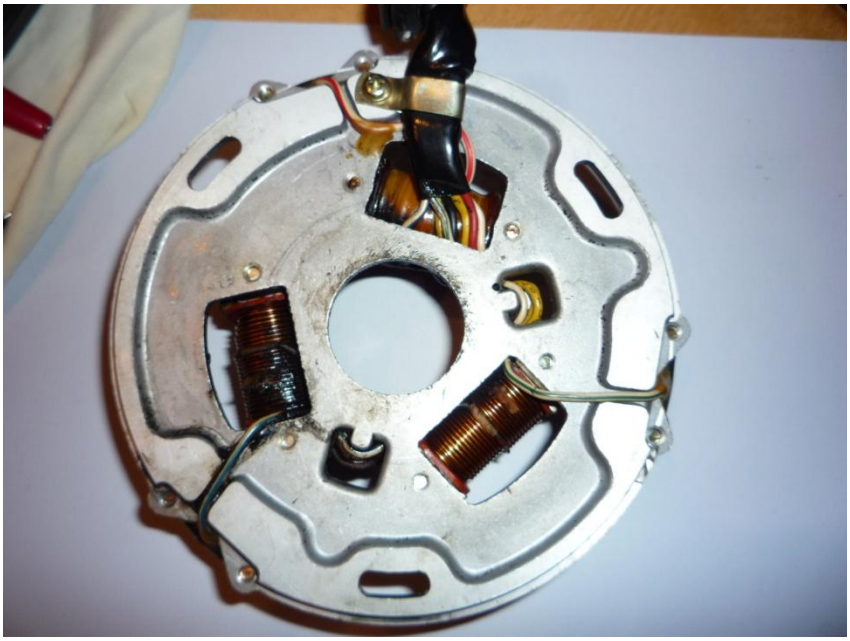

Figure 3 Rear view of stator

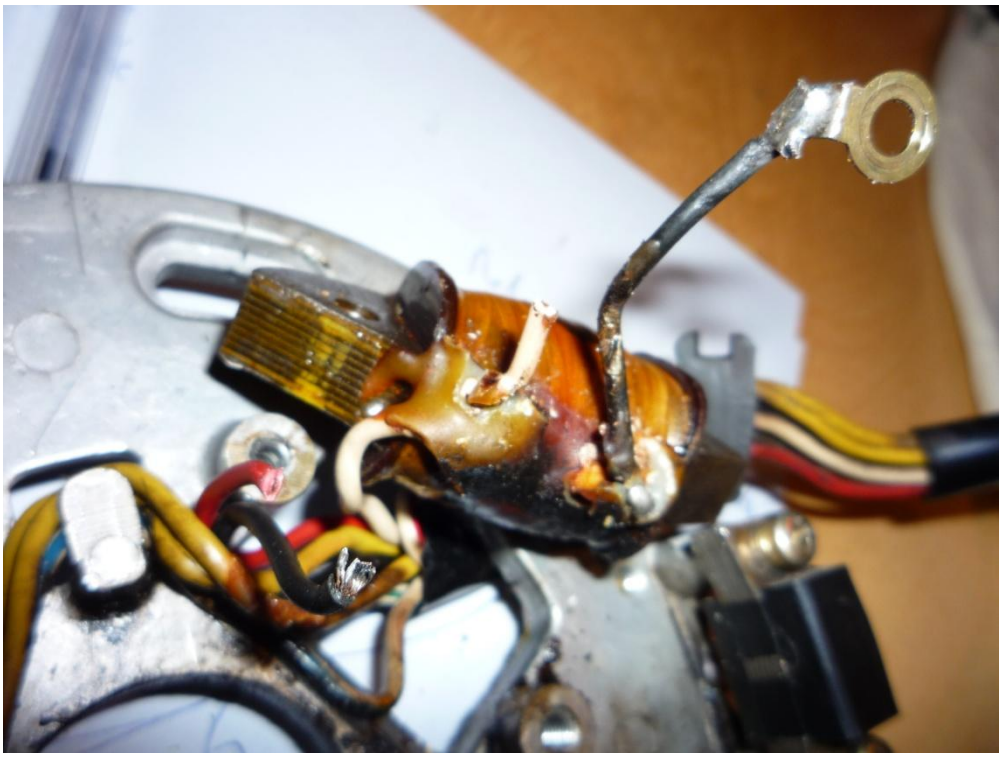

Figure 4 LO speed coil being cut out

Remove the smaller HI speed coil – these don't fail. Carefully cut away some resin and unsolder the wires. Cut out the LO speed coil.

Figure 5 Removed LO speed coil

It is clear to see from figure 5 that you cannot ‘unwind’ the coil.

Hacksaw, cut, scrape, pick, and remove all the copper and cheeks, and all insulation on the laminations. Try and save some of the cheeks for dimensions. Take off some sections of wire with no lumps of resin and measure the diameter with a digital calliper. I made it about 0.15 or 0.16mm.

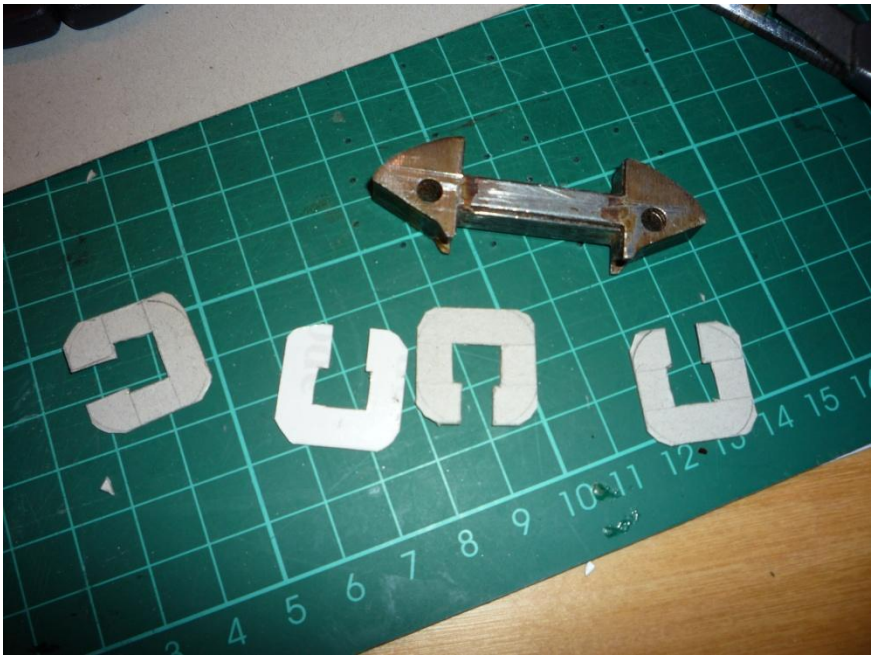

Figure 6 The cleaned up laminations

Now comes the first tricky bit. Take the small HI speed coil and put a 1.5V battery across it. Get a compass and record the terminal polarity and the way the compass needle points. Put the LO speed laminations next to the HI speed coil, in the way they are mounted on the stator. Wind 20 turns of hook up wire around the laminations and put the battery across them. Get the compass and check the way the needle goes. If the needle points the same way, record the direction you have wound the wire on. Draw a diagram. Kawasaki painted yellow stripes on the coils – don't use these as you have cut the windings off! If the needle is pointing the other way, undo the wire, wind the other way, put the battery on, confirm the compass needle direction and record the direction with a diagram.

Make up 4 cardboard cheeks. Fit one. Coat in araldite, put the second one round the other way, coat in araldite. Fit the other two in the same way. Let the araldite set. Get some adhesive cotton tape and wind two turns on the lamination core. Do not use insulating tape. Use cotton bandage and araldite if you want. Basically, just insulate the whole core.

Make up a rod to hold the laminations in a drill. I used 4mm steel studding. Locknuts and internal serrated washers hold it well. Adjust it so it runs perfectly concentrically. Spend a lot of time doing this or it will snatch at the wire as you wind it on.

Set it up in an electric variable speed drill and do a couple of practice runs.

Figure 7 First practice run

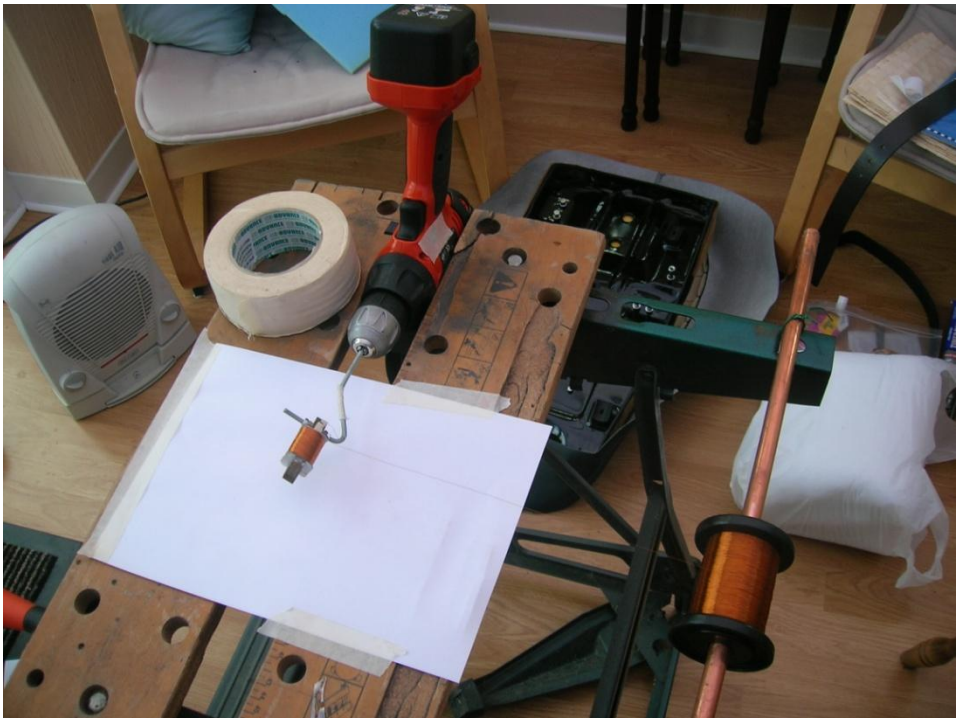

Figure 8 This was my drill and setup

Use adhesive cotton tape and run the start of the wire up the inner side of one cheek. Leave a couple of inches tucked away to terminate later. Referring to the diagram of winding direction, and tensioning with finger and thumb, wind side to side to side as neatly as possible, not leaving any gaps at each end. Each layer should only touch the layer either side to keep the inter layer voltages down. My drill is 700 rpm max, I reckon I was running at about 300rpm, about 5 turns a second.

This is not a 'high' voltage coil, only 200V max.

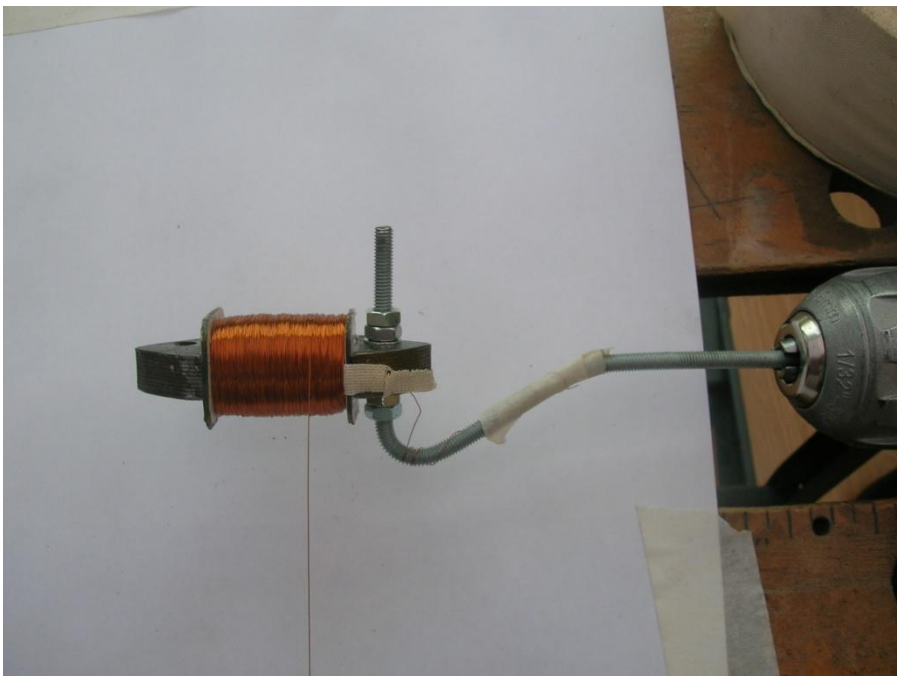

Figure 9 Nearly there.....

Keep going until the former is full. It took me a while, a mug of tea, and stiff back! Wind a few more layers in the central area, a slight central bulge. When it's as full as you dare, scrape some insulation off with a scalpel blade and measure the resistance with a DMM. Mine was 216 ohms. Remove turns and keep scraping and testing, until you get 195 ohms. That's it.

For anyone keen on numbers, I estimate that its 4000 turns, but that's only worked out by areas of wire and former.

Tape off the end and wrap in cotton tape. Seal it all in araldite. Glue the cleaned up terminals back on.

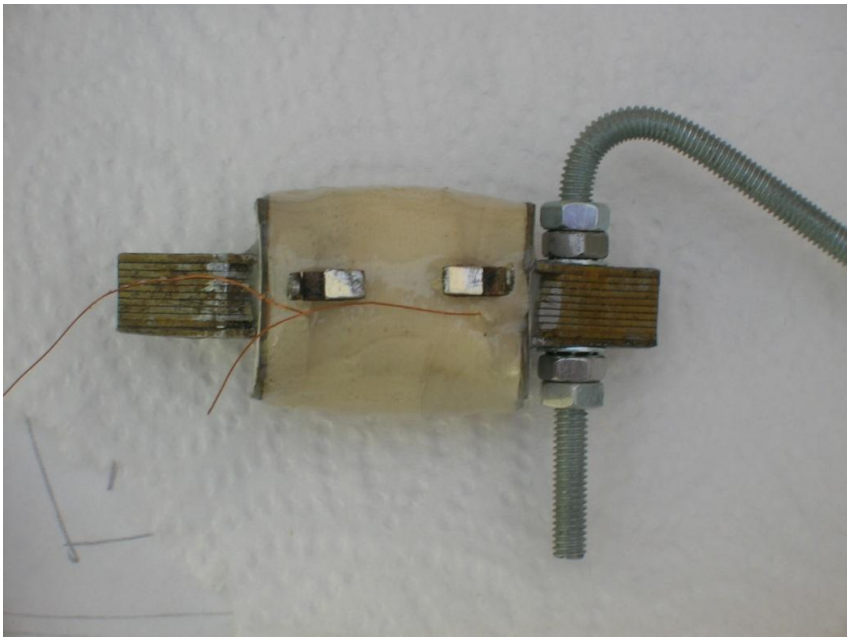

Figure 10 Terminals glued back on

Solder the wires to them. Use more cotton tape and araldite to seal it all over.

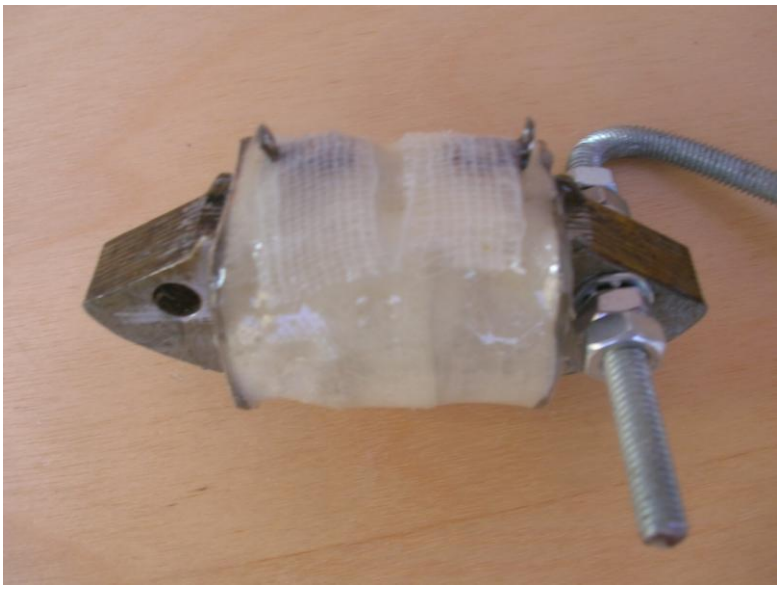

Figure 11 This is it, all done.

Re check the resistance, should be 195 ohms.

Fit it all back and check for clearances of the rotor etc. Make sure its all secured down – refer to the original photographs.

You will need:-

Patience

0.15mm enamelled wire – 38SWG

4mm studding

4mm nuts

4mm star washers

Araldite rapid

Thin card

Electric battery drill

Adhesive cotton tape

Gauze bandage

Solder

Compass

1.5V battery

Scalpel

When I measured my three pick up coils, two were 67 ohms, but one was 40 ohms. I thought it was faulty. When I took my stator apart, the PVC wires were hard and cracked. Where the LH oil seal had been leaking a bit – not anything much to see – it must have got onto one of the cracked pickup wires, and caused a partial short to the stator body. Check your wiring and replace ANY hard PVC wires. Maybe my intermittent misfire is now gone…..

If you are thinking of having a go and need any advice, I am 'martin' on the KH and S triples forum. PM me.

Have fun!