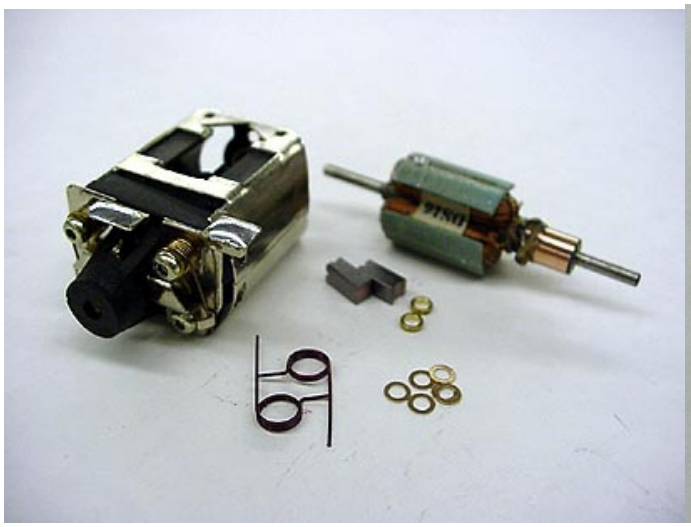
Blue Printing Your Motor

by Mick A & Tyson Jyoce

Below is the basic's to blue printing a C or D can motor from all new parts. In this lesson, we are blue printing a Fast Ones Twister with a balanced 16d armature.

If you are interested in building a Fast Ones Balanced 45 deg. 16d Motor below are the links to the parts!



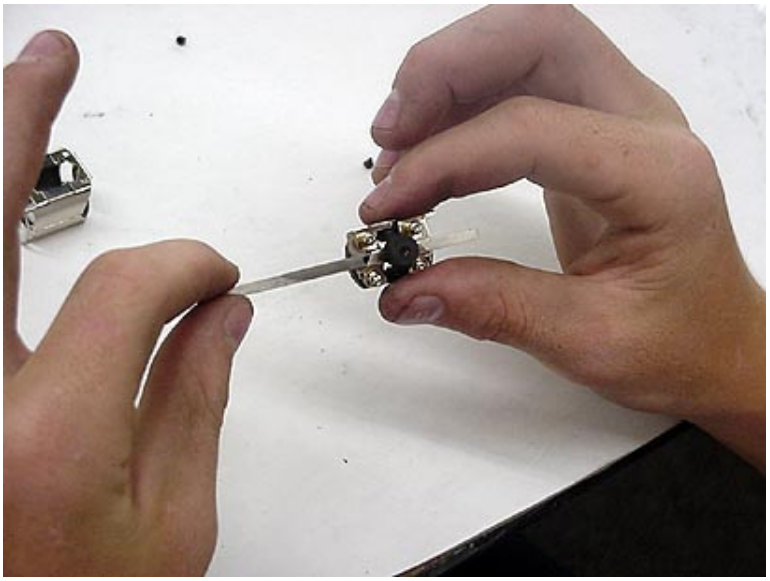
Here are the tools you will need:

Slick-7 Motor Analyzer, Slick-7 Glidex Motor Oil, JK Allen Wrench, Slick-7 Motor Alignment Tools, Magnahone Brush Radius Tool, and Hood Tool.

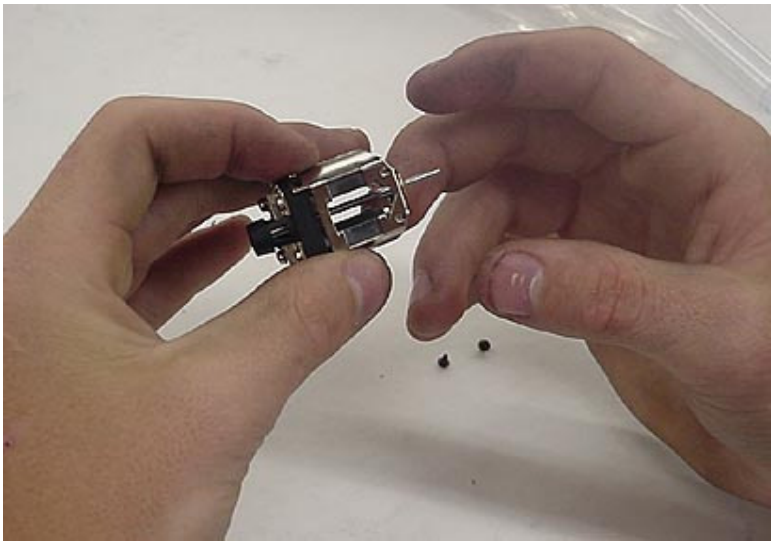
Note: Some of the more expensive tools like the Motor Analyzer and Magnahone tools are tools you can get down the road when you are racing in the Pro classes.

Now we can get started: Here one of our top young racers, 14 year old. Tyson Jyoce examines the motor before assembling it.

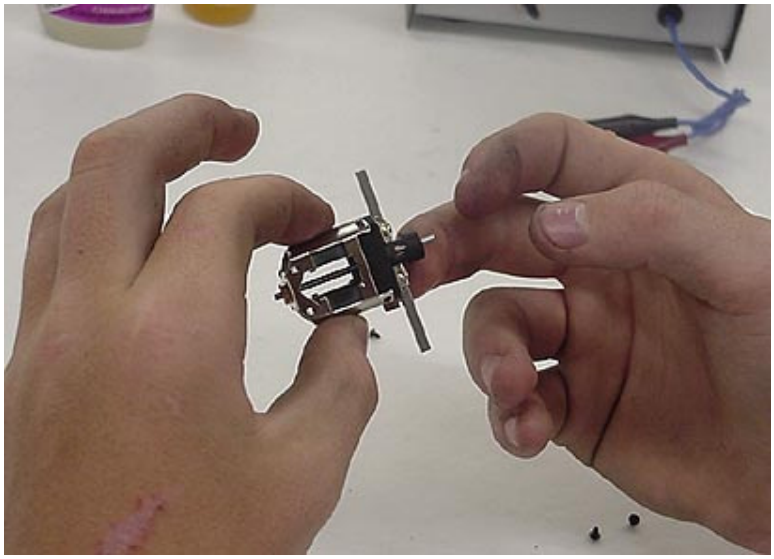
Tyson checks the alignment of the Endbell. The tool (Slick-7 Brush Alignment Tool) should slide through the brush hoods without a hang up! Make adjustments by loosening the endbell screws and wiggling the tool as you are aligning it, and then tighten down the screws.



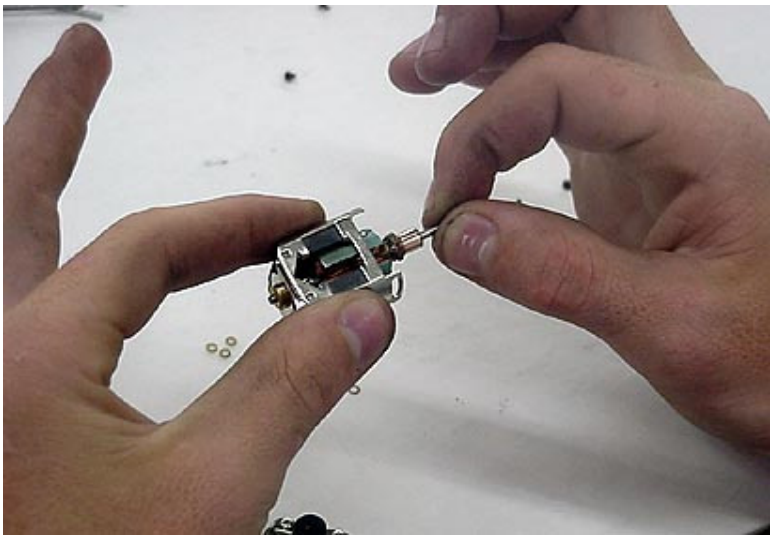
If you still have small hang-ups use the (Magnahone Hood Tool), which the Pros use to get that perfect alignment and also so the motor brushes do not hang up.



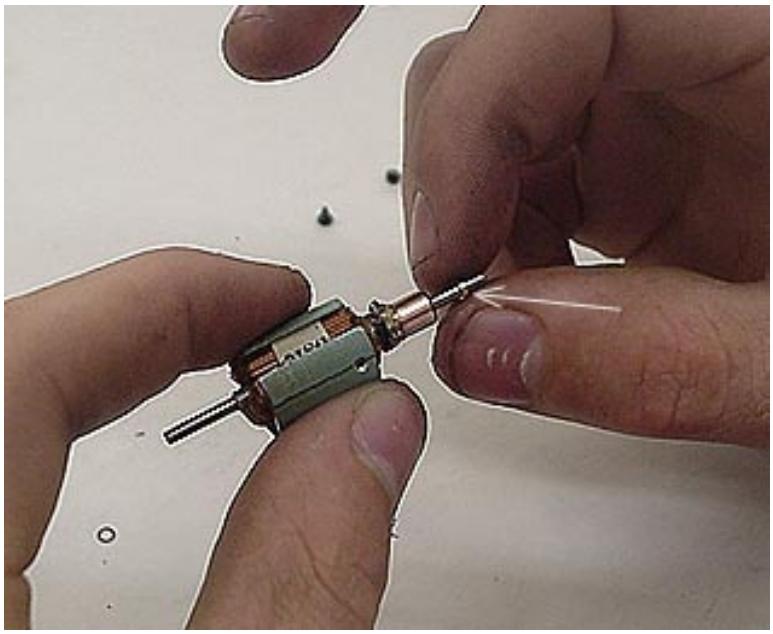
Another handy tool is the (Slick-7 Bushing Alignment Tool) which you can get both the (Slick-7 Brush & Bushing Alignment Tool) in one package. The Bushing tool is used to check the alignment of the can & endbell bushings.



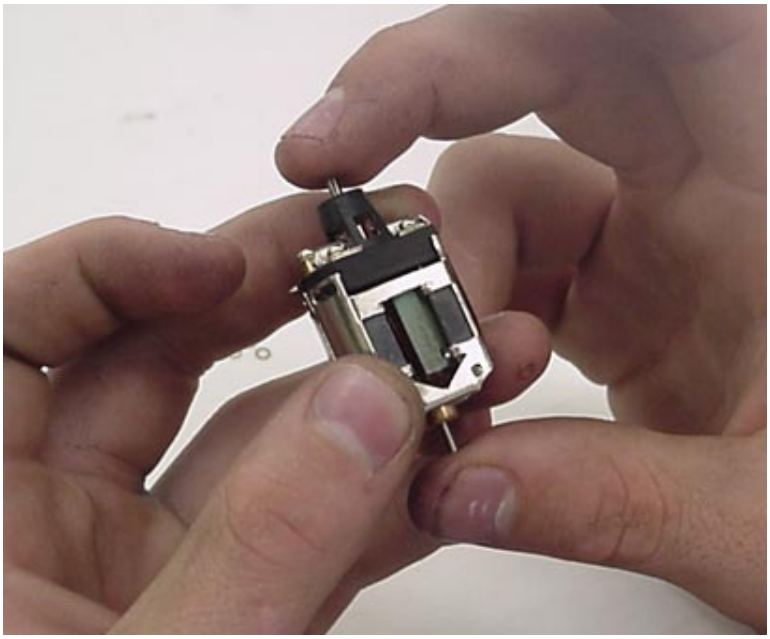
The final check is using both the (Slick-7 Brush & Bushing Alignment Tool) to make sure the brush hoods are in alignment with the center of the armature shaft.



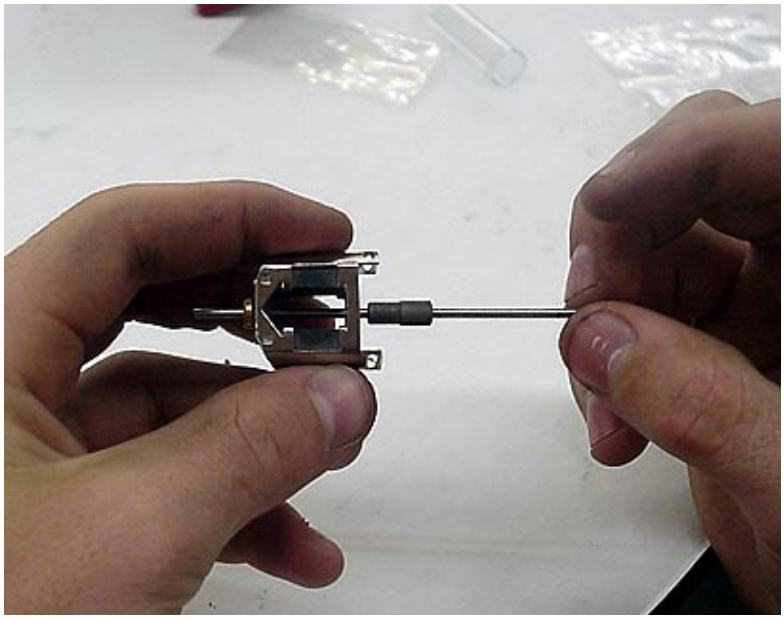
Carefully without touching the commutator the armature is installed to check and see how many and what type of armature spacers it will need and to check the alignment of the can & endbell bushings by spinning the arm.



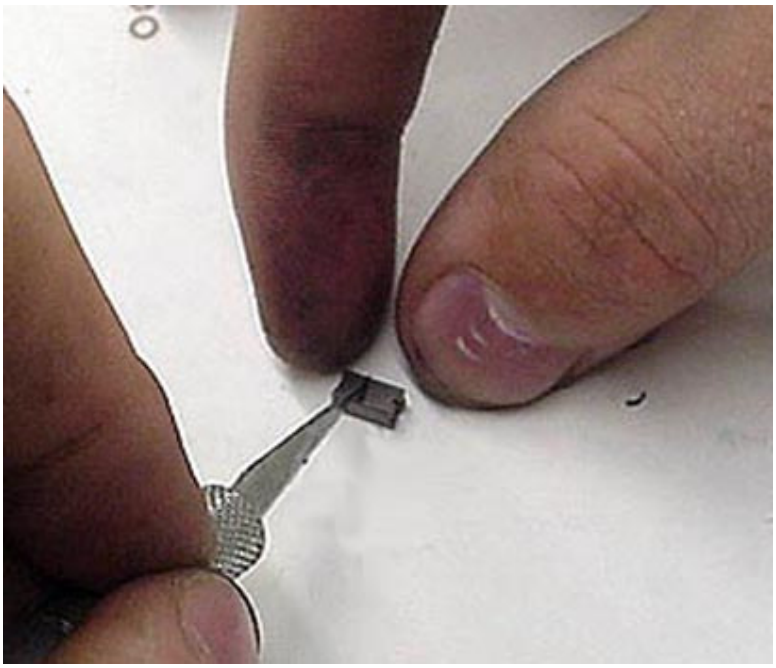
It looks like it is going to take the (Slick-7 .030 Arm Spacers) ,one on both sides and also two of the (Koford .007 Arm Spacers) on the com side of the arm. Each arm spacing is different. Make sure you do not put all the arm spacers on just one side of the arm unless that is where you see the entire gap.



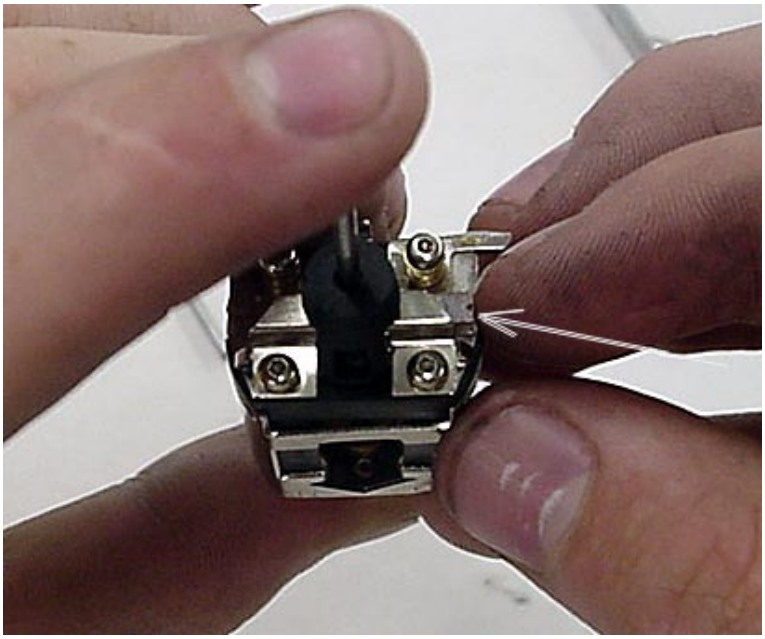
Assembling it all back together to check the spacing of the arm, it may need another one of the thin (Koford .007 Arm Spacers). If it is to tight, take one of the .007 arm spacers out until you feel a slight bit of play. Normally you will have a gap on both sides of the arm shaft and installing arm spacers on both sides to take up that gap but not too tight leaving approx. .005 play (a little less than a .007 arm spacer)



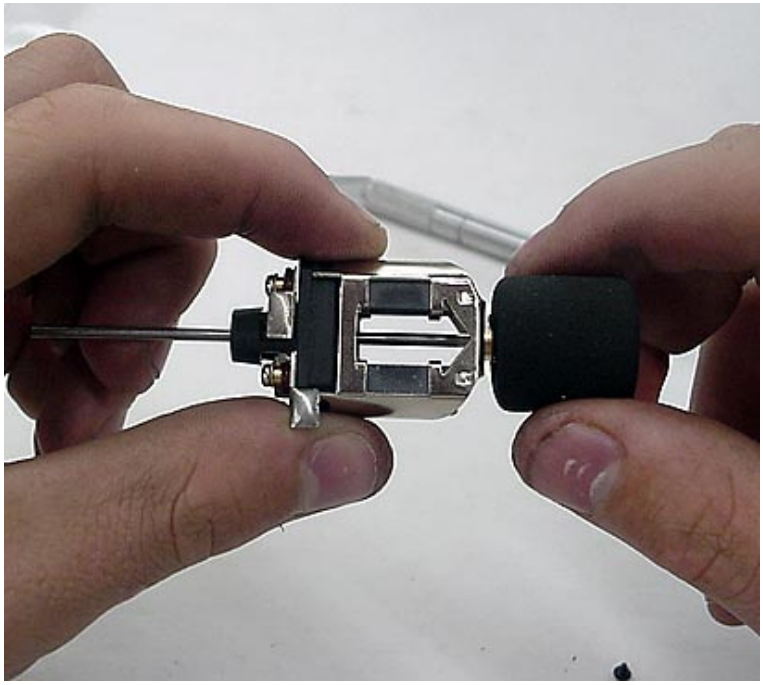
Taking the motor apart and installing the Magnahone Brush Tool to radius the motor brushes right inside the endbell to get the most accurate brush radius.



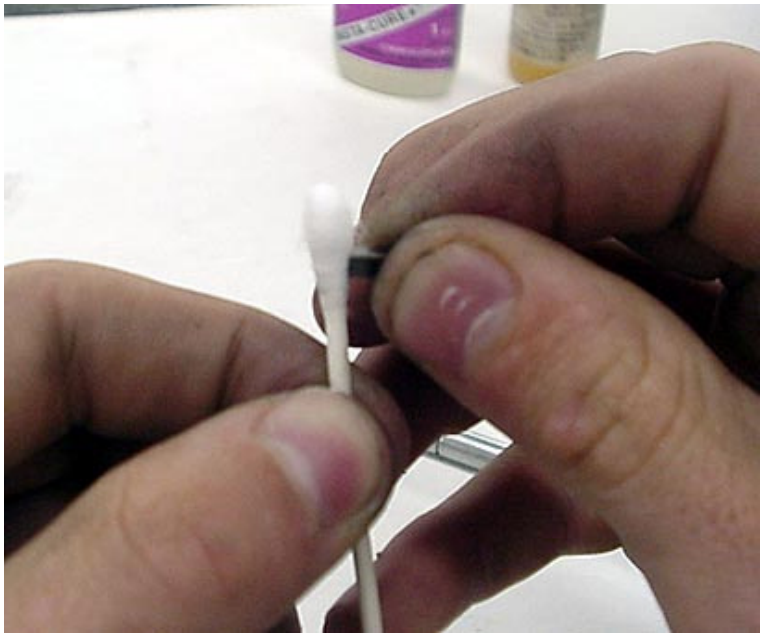
Before installing, the motor brushes to be radiused they are marked left and right so they will be installed back the same way they were radiused



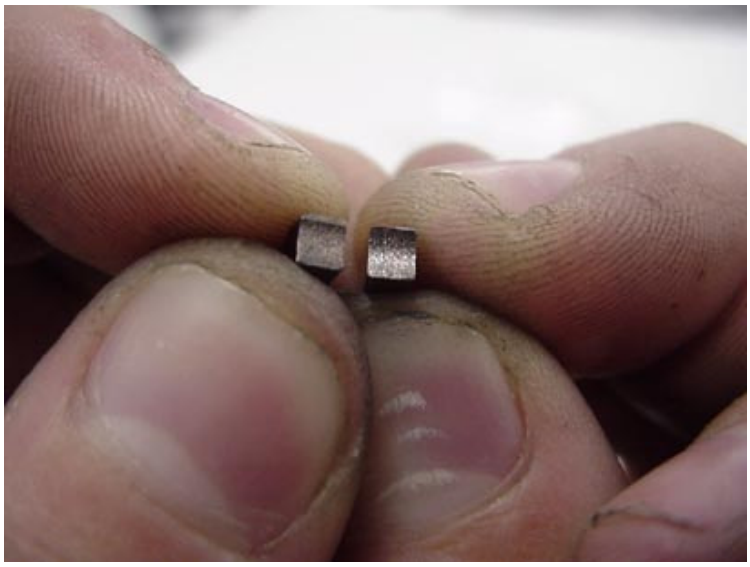
Installing the motor brush to be radiused, check that the brush slides in and out without any hang-ups.



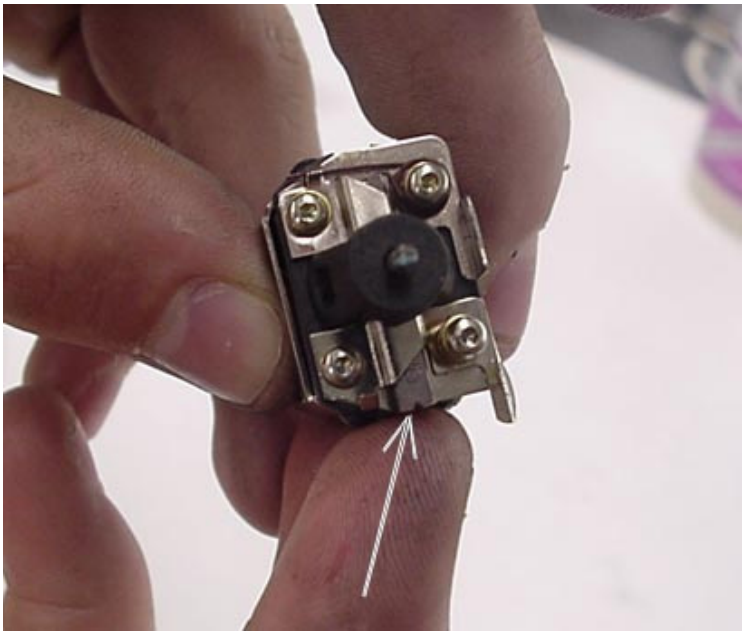
With both motor brushes and motor springs installed, add a tire or a cordless drill to turn the Magnahone Brush Tool to radius the motor brushes.



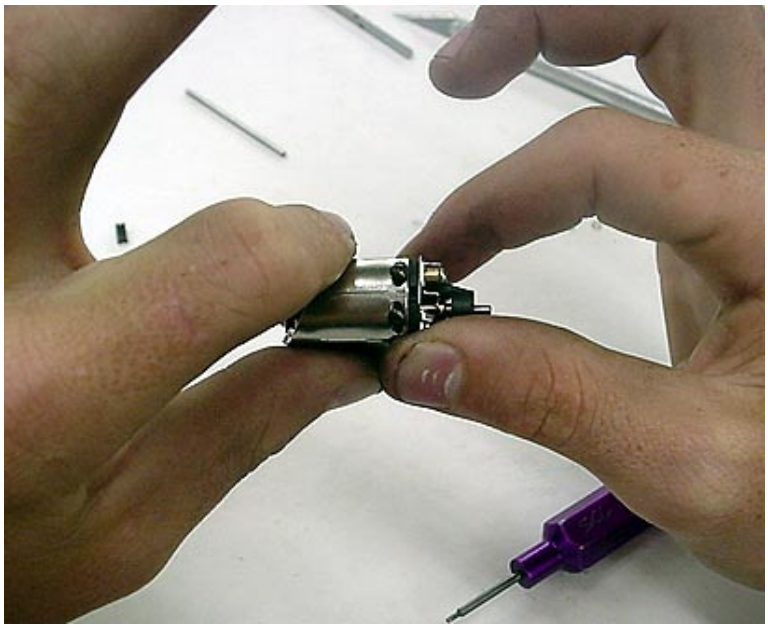
After radiusing the motor brushes, it is time to clean them up. Use a Q-Tip to remove the motor brush dust.



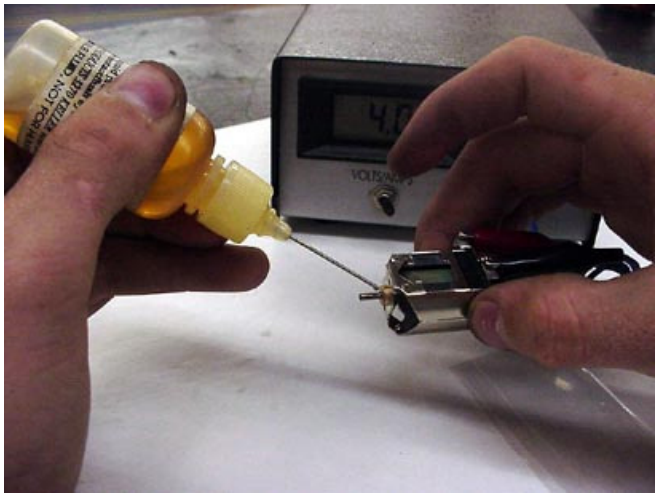
Before and after shot of the motor brushes. Noticed the brush on the right has been radiused all the way to the edges as to make breaking in of the motor a lot faster.



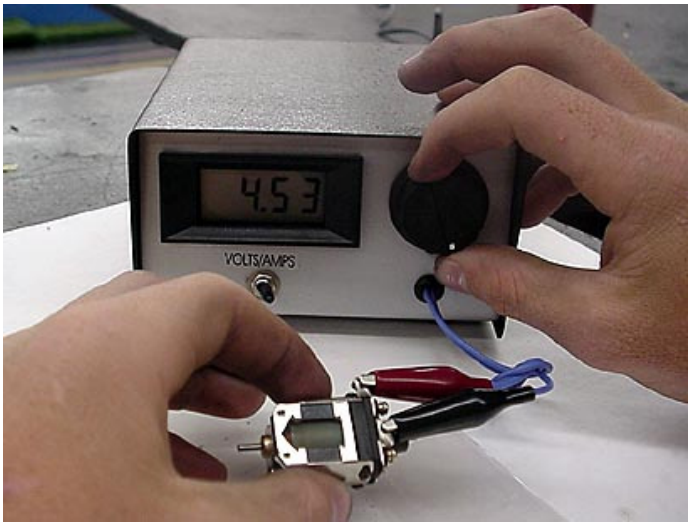
Making sure that there is no hang up on the motor brushes Tyson checks to see if the motor brush falls in and out on its own.



Since this is a Twistor Motor (Parma Rotor motor will do the same job), the timing is twisted up by twisting the endbell clock wise or away from you to crank the timing up!



Already to break it in, motor is oiled with JK Glidex oil.



Break in time! Using a Wright Way Power supply the motor is broken in at 4 volts for approx. 5-8 min.

And there you have it! That was a basic blue printing of a motor which can be applied to any D or C-can motor. You can get into more detail such as magnet matching, soldering in the can oilite, com cutting, etc., but we just wanted to cover the basics of motor building.