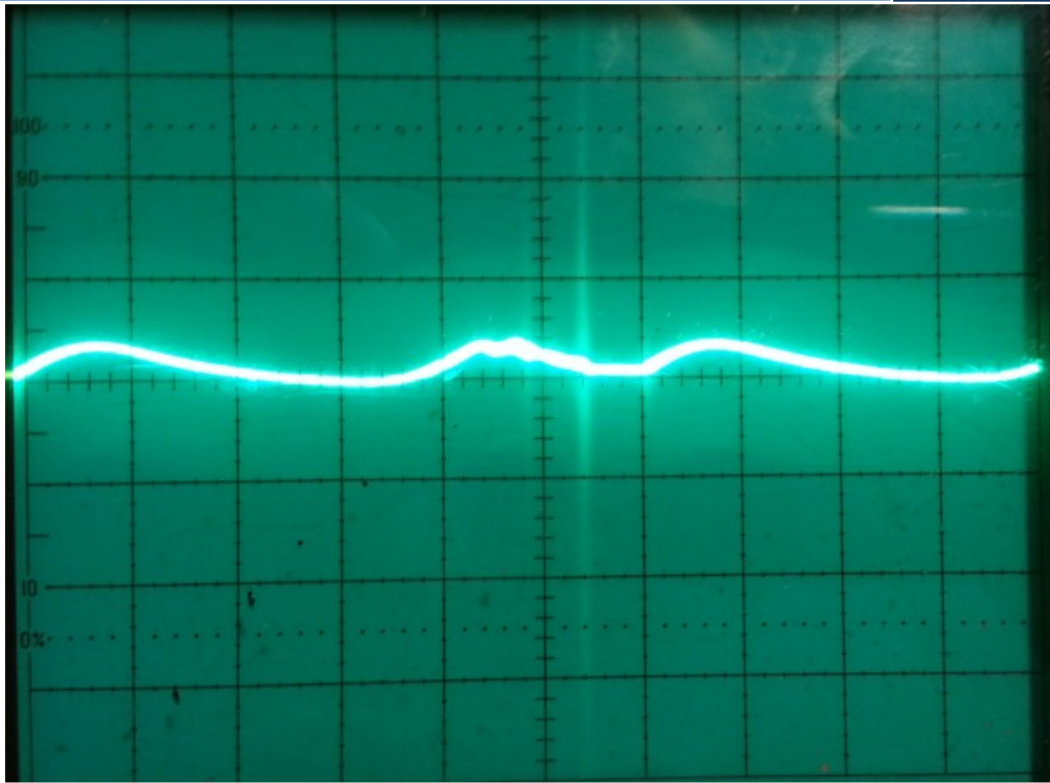


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The 3BGS Pulse Motor



@TachyonCatcher

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The MY1016 3BGS Pulse Motor

There are many versions of the MY1016 motor, the following descriptions are based on the 350watt Unite Motor I have. No suitability claims are made or implied. Build at your own risk.

Parts List

MY1016 Motor

23 AWG Magnet Wire (Approximately 220 ft)

Disassembly

- ___ Remove the gear and spacer from the motor spindle.
- ___ Take out the 4 Phillips screws from the front plate.
- ___ Remove the front plate. Set the bearing, shaft spacers and bearing spring in a safe place.
- ___ Carefully, remove the rear plate. The bearing will need to be worked around the brushes so as not to damage them or the brush springs. Set the bearing and bearing rubber in a safe place.
- ___ Remove the armature out of the case by pushing on the longer motor spindle while holding the casing steady. Careful, this is a finger pincher.
- ___ Take a knife or something with a fine edge and pry open all the brush segment tabs holding the wires from the winding. Open just far enough to free the wires so as not to break the tabs.

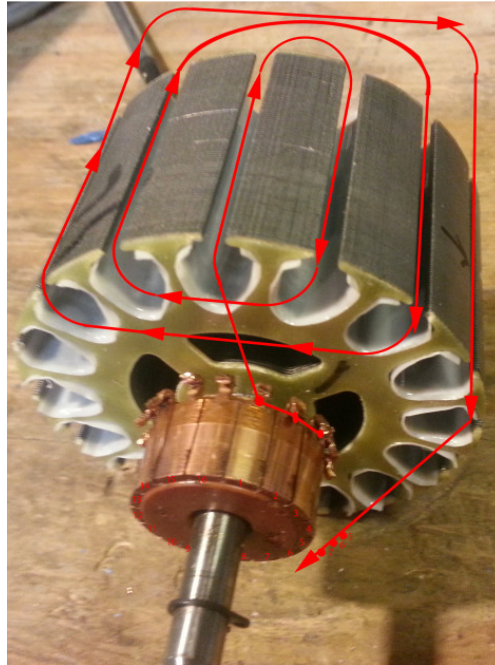


- ___ Remove the windings starting with the brush segment tab that has 2 separate wires going to it instead of a loop. When finished it should look something like this. You are now ready to build your 3BGS pulse motor.



Winding

- ___ You will notice, the center of the armature has a cross + pattern. In the image above there is a mark on one of the solid points from the spindle to the winding segment. This will be the top where you start winding. Make a similar mark on your armature.
- ___ Give yourself a 3 in. (7cm) lead and wind the direction shown in the image below. Do not wind on the same segments shown below, start with the segment that has your mark. This image is to show direction only. Wind 50 turns in the center (clockwise), then move to the next available segments and wind another 50. Finally, Move to the next segments and wind the last 50. Give yourself another lead of the same length. Mark this end with a black marker. We will call this coil1. Put a spot of quick epoxy or superglue to hold your windings tight.

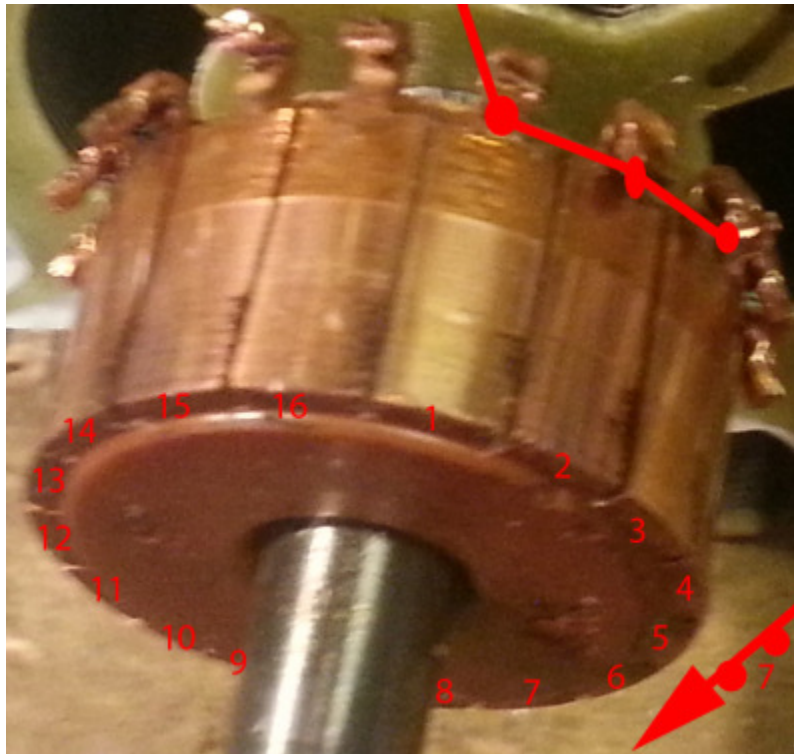


- ___ Flip the armature 180 degrees and repeat the last step. We will call this coil2.
- ___ Your armature should look something like this. Notice the center in relation to the windings.



Connecting the Commutator

Starting with coil1, brush segment that aligns with your mark on the armature and the solid piece from the center, this will be #1. Mark this with your marker. You will take your starting wire (no marking) and stretch it to brush segment 2,3,4 **NOT** 1 as pictured. Strip the enamel off so the tabs will make good contact with the bare wire.



Place the bare wire in the tabs 2,3,4 **NOT** 1,2,3 as shown and close the tabs. Take a hammer and punch, lightly tap the tabs shut. Trim accordingly.

Take the other end of coil1 (marked) and stretch it to 6,7,8. Clean the enamel as above.

Place the bare wire in the tabs 6,7,8 and close the tabs. Take a hammer and punch, lightly tap the tabs shut. Trim accordingly.

You should have #5 brush segment not connected to anything.

Repeat the process for coil2. Use 10,11,12 for the starting wire (no mark).

Ending wire coil2 (marked) should go to 14,15,16.

Looking down the spindle. Brush segments 1,5,9, and 13 should have nothing connected to them.

Make sure the windings of the last segments of the coils are in contact with the commutator. If so, take a flat blade screwdriver place a piece of tape in the blade and pry the windings away from the commutator.

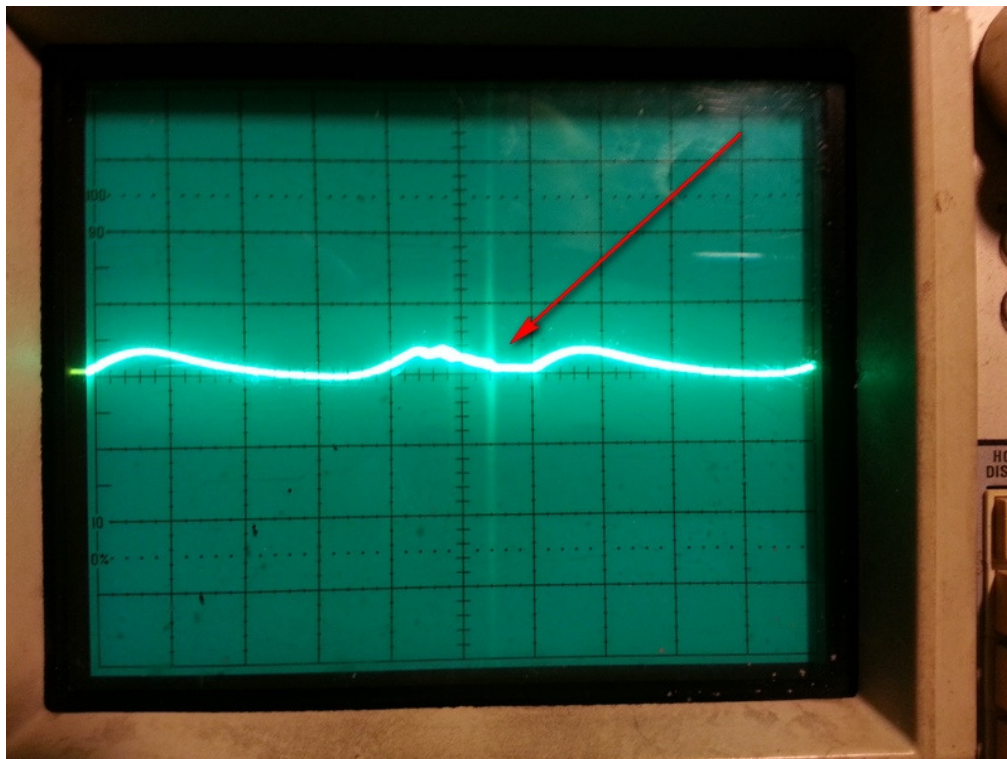
I used the winding shims to balance my rotor putting the bearings on the spindle and setting the bearings in a couple deep-well sockets on the bench. After giving the armature a slight nudge to get it to move, I would stick a shim on the top segment to counter the heavier side on the bottom. I did this until it would not rest at any one spot.

Your coils should read ~2-3 ohms. Check between your coils and armature iron to make sure there is no short.

Reassembly

- ___ Put the brush plate bearing and bushing in the plate.
- ___ Use long, ¼ in strips of duct tape and tape down the brushes with enough tape sticking out of the case.
- ___ Place the armature in the brush plate and remove the strips of tape.
- ___ Put the armature/brush plate in the housing. This can be tricky as the armature will be attracted by the magnet and want to jump into the housing, popping out of the brushes.
- ___ Once you have the armature/brush plate in the housing, make sure you have the small notch in the brush plate lined up with the housing notch.
- ___ Put the spindle bushings on the front spindle of the motor.
- ___ Put the bearing spring in the bearing holder for the front plate, then the bearing in the plate.
- ___ Take the plate and place it on the housing and spindle. Again, line up the notches.
- ___ Put in the 4 screws and tighten.

You now have a completed 3BGS Pulse Motor. With connection to the 3BGS you should see Scalars like this:



Credits:

3BGS Pulse Motor Design:	Mathew Jones
3BGS (3 Battery Generating System) :	David Bowling
Author:	Randy Arras