



Electric Motor Testing Tip of the Week

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Importance of Properly Seating Brushes on DC Motors

Brushes are used to carry current from the armature to the commutator. They must be seated properly to allow for proper current density across them.

If they are not properly seated, the part that is in contact with the commutator will have a higher current density than usual. This can result in overheating of the brushes causing them to come off of their neutral axis, arcing and sparking, streaking of commutator film, and damage to machine. These are not good things.

So, after an overhaul or a periodic cleaning, it is a good idea to take a look at the wear on your brushes. If seating is required, here is one way this can be accomplished:

- Take a roll of sandpaper that is the width of the commutator, and long enough to wrap around the circumference of commutator with 2 to 3 inches of overlap.
- Tape the sandpaper to the commutator using masking tape, versus duct tape, to avoid leaving a strong residue on the commutator. Wrap the paper around the commutator and have the overlap cover the tape. This way, to the brushes, it seems as if you have one continuous roll of sandpaper underneath them.
- Load one brush holder with a row of brushes. Adjust tension so that paper can slide under them when the commutator is spun, but still get a good grip on paper.
- Spin the commutator by hand and observe the brush wear.
- Repeat for each row of brushes.
- Once seating is complete, remove the sandpaper and tape, and clean out the commutator and armature area via a vacuum and/or LOW-pressure air.
- Remove any masking tape residue via a canvas wiper (rolled and looped canvas cloth). If the residue is too strong for the canvas to remove it, use a flexible abrasive stone (made like a large eraser). Be aware that if the flexible abrasive stone is used, you will end up removing film from the commutator. If some of the film is removed, you must completely remove the film via the stone. A commutator film run in MUST be completed once the film is removed.

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or lou@pdma.com.