

DC Motor Maintenance

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DC motors are bought and sold every day. Is it because these users have understood for sometime that the key to long motor life is very basic? It is schedule motor maintenance, particularly with DC motors. Let us focus on some basic maintenance points of the DC motor.

The enemy of any motor is foreign matter and heat. This is a condition that motors have to operate under. So how can we bolster their defense? Periodic maintenance with careful attention to the following items will greatly help.

Be sure all power is secured before working on the motor.

Take off inspection plates on the motor. It is always to your advantage to vacuum a motor, not "blow out" a motor. Depending on the size of the motor, it will be surprising how much you can vacuum out using a small rubber hose of some sort and a little patients.

Check the brushes for wear. Some manufacturers have wear marks on the brush to help you determine whether to replace the brush or not. Be sure that the brush moves freely in the brush holder and that there is some spring tension. A quick check of all the brush holder springs should give you a reasonable idea of what is normal. Check the portion of the brush that comes in contact with the commutator to make sure it is wearing evenly and that there is a polished surface. The commutator should have a chocolate brown appearance. It should not appear like shiny copper. That chocolate film is protecting your motor. Clean between each commutator bar to remove foreign matter.

If you have a blower motor mounted on the DC motor, the filter should be checked at least once a week and cleaned if you are in doubt. Most motor failures occur because filters are not cleaned.

Bearing lubrication is a two-edge sword. You can under-grease and you can over-grease. Either situation will kill the motor. Motors should be checked every three months for proper greasing. This can be done by removing the drain plug (usually below the bearing), connecting a grease gun (hand) to the upper grease fitting and, using light pressure on the gun, look for grease to come out of the lower drain plug.

If you have a really talented maintenance crew, there are probably simple things that they do in between motor maintenance that takes less then 30 seconds to confirm the health of the DC motor in question. Perhaps they are doing the following:

Place a magnetic temperature gauge over the field windings of the motor (on the exterior of the motor). If it is left on the motor, both the maintenance crew and the operator soon become accustomed to a "standard" reading. Each time a maintenance engineer passes the motor, a quick glance will tell you if the motor is running "hotter" then normal.

It is surprising how quickly a maintenance engineer learns to determine proper airflow through a motor by simply holding his hand over the discharge port of the DC motor. He will quickly be able to ascertain if the blower motor filter is clogging up or foreign matter in the motor, etc.

Listening to a motor for a mere 15 seconds will advise you of either vibration problems or bearing problems. Vibration could be a result of bearing problems, belt tightness or even misfiring SCR's in the drive unit supplying power to the DC motor

It is hoped that this article will make all aware that you don't need to be an engineer or a motor designer to keep your motor healthy and in good operating condition. Listening and observation, along with good schedule motor maintenance, will keep you healthy, wealthy, and wise.

- John Lowenstom Davis-Standard Corp

See also:

- Calculating DC drive power
- Drive overload
- The extruder drive
- Extruder drives

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