How to Make a More Efficient DC Motor

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The purpose of the experiment was to find out if changing different variables in a small DC motor would influence the efficiency of the motor, and if the efficiency is changed which variable influences it the most. The hypothesis was if 5 variables in a DC motor are changed like adding wire, wrapping the wire tighter, amount of teflon tape, poles of the magnets, and position of the armatures, then the efficiency of the motor will change because the current flowing through the motor will also change. Research revealed that a DC motor is a direct current motor that takes current flowing in one direction and turns it into mechanical energy. The materials used were copper wire, teflon tape, two armatures, permanent magnets, commutator, motor base, copper brushes, magnetic rod, screws, allen wrenches, alligator clamps, power source, RPM reader, and weights. These materials were used to make the controlled DC motor, and then change different variables on it. The 6 motors were tested and the RPM, torque, horsepower, and efficiency were found. The most important information that was found during this experiment was that by increasing the amount of wire, the motor will be faster than the controlled motor. It also showed that the motor with the tightly wrapped wire was also faster. The motors with changed armature position and the changed poles of magnets did not work at all. This data proves the hypothesis was supported because the controlled motor data was different from the other 5 motors.

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