Generator Test Plan
Team 14418

Testing was started 12/4/2013 and is ongoing.

Goal

Determine if a particular motor can be connected as a generator and will produce sufficient power output when connected in series with other motors of the same type. We must also determine how many other motors should be connected in series to provide the full 15V output at a reasonable rpm of ~1400 or less. We will only test 1 motor at a time to lessen the cost.

Test Process, step by step

1) Connect the driver, which is a DC Servo Motor, to the motor that needs to be tested as a generator. The drive motor will also output a certain tachometer voltage based on the rpm of the system (the specs of the tachometer are known and are available on edge).

2) Connect the generator to a load resistance of 7Ω. This completes all connections. The drive motor is now connected to the motor being tested and the motor being tested is electrically connected to a load.

3) Turn the drive motor on and increase the rpms of the system until the voltage measures 3V over the 7Ω load. (This would test the motor for a 5-motor design).

4) Make note of the rpm required to raise the voltage to 3V over the load resistance.

5) Now increase rpms of the system until there is ~3.75V over the 7Ω load resistance. (This would test the motor for a 4-motor design).

6) Make note of the rpm required to raise the voltage to 4V over the load resistance.

7) If the results of 4 and 6 are less than 1000rpm, continue to increase the rpms of the system up to a maximum number of 1440 rpm, while making note of the voltage over the load at the increased rpms.

8) Compare results of 4, 6, and 7 to determine if the motor is suitable for the design and how many motors should be used in the design.