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Subject: ED400 ED700 Motor Resistance

When replacing any ED400 or ED700 control, before connecting the control to the motor, it is recommended that you check the motor for problems.

The expected resistance on the motor (across the red and black wires) should read between 19 and 30 ohms. Acceptable limits are 16 and 30 ohms.

Also, check the isolation of the windings to ground. That is from red to the motor housing and black to the motor housing. In both cases, there should be no connection or continuity indicated.

All of these measurements must be taken with the motor stationary. Even a slow movement of the door can cause wildly inaccurate readings and possibly damage your meter. The checks should be done at several different motor positions (a minimum of 4), including the open and closed positions of the door, to check for 'dead spots' on the commutator. If any of the readings are outside of the acceptable limits, the motor is out of tolerance, and may damage the new control if power is applied to the control while it is connected to the motor.

Two cautions:

1. ***When performing the test the motor is disconnected from the control and has no closing speed control, so maintain control of the door at all times during the testing process to prevent the door from slamming.***
2. ***When you are moving the door it is recommended that you disconnect your meter from the motor to prevent damage to your meter. DC voltage is generated as the door is moved.***

When testing the motor the expected resistance across the windings is 19 to 30 ohm's the acceptable range is 16 to 30. If the motors resistance is lower than 16 or higher than 30 ohm's it is recommended that you replace the operator.

To test Motor resistance:

1. Turn off the 110 VAC supply to the door.
2. With the door in the closed position, unplug the motor from the control
3. Turn on the digital multi-meter.

4. Turn the measurement setting dial on the multi-meter to resistance. The resistance setting is OHM on this meter, on some meters it is the Greek letter for ohms. Turn the dial to the 100 to 200 range depending on the available ranges.

5. Touch the red (positive) lead of the multi-meter to the red wire coming from the motor.
6. Touch the black (negative) lead of the multi-meter to the black wire coming from the motor. The reading that appears on the multi-meter display is the resistance in ohm's and should be between 16 and 30 ohm's.
7. Test the door at several locations as you open it, keep in mind the gear ratio is 152 to 1 (ED400) or 92 to 1 (ED700), moving the motor just a few degrees results in the motor turning several revolutions.

Testing the motor for isolation to ground:

1. When testing the motor for isolation to ground test both the red and black leads separately to ground (the motor's housing) there should be no continuity between the red or black lead from the motor and the motor's housing at any point in the motor's rotation.

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