

Gerling Laboratories Motor Control Reinstallation Instructions

For the FC150BJ, FC250BJ and FC350BJ Series

**Before Following These Instructions
Make sure that the line power cord is disconnected**

It is possible that the control box and/or motor associated with your motor control has a defect which contributed to the original failure of your controller. In order to insure that this does not happen again I urge you to make the following tests before you reinstall your controller.

The tests can be made with any ohmmeter and use the ten wires that go to the controller.

Ohmmeter test – (1) Connect the two test points together. Note the reading. This is a “short circuit”. (2) Note the reading when the test points are not touching anything. This is an “open circuit”

If you are concerned about the results of any of the tests, email me and I will quickly respond with a diagnosis.

Motor

This test is the most important of the tests. Most of the problems found outside the controller have been associated with the motor. The two most prevalent and an open armature winding and bad brushes

Use the wires that go to terminals A- & A+ Set the “Forward – Off – Reverse” switch to “Forward”.

1. Measure the resistance between the wires. It should be between 3 and 10 ohms.
2. Hand rotate the lathe chuck while testing. Do this very slowly, slower than the time constant of the ohmmeter. The resistance might vary an ohm or two but should not go low or high at any rotation position. Reverse direction of rotation of the chuck and repeat.
4. Set the switch to the middle position or “Off”. The ohmmeter should show an open circuit.
5. With the switch in the “Forward” position, measure the resistance from one wire and then the other to ground. The ohmmeter should show an open circuit.

Potentiometer

Use the wires that go to P1, P2 and P3. They should be tagged P1, P2 and P3 (On a very few systems, there is a wire that goes to P4. This wire can be ignored during these tests.)

6. Measure the resistance between P1 and P3. It should be about 4700 ohms.
7. Set the speed control knob to half speed. Measure the resistance between P1 and P2 and then between P2 and P3. Each measurement should be about one half the resistance measured in step 6.

Potentiometer Switch

Use the wires that go (to AC1 or 3) and terminal position 5. The wires can be tagged 3 and 5.

8. Set the speed control to zero or off and measure the resistance. It should be a short circuit.
9. Turn the control to any speed setting. The ohmmeter should show an open circuit.

External Interlock

Use the wires that go to terminals 6 and 7. On some machines there will be a short circuit between these terminals. On some, the wires will go to the F /O/ R switch. These are the wires to be tested.

On a very machines the wires will go to an interlock switch external to the control box. Be very careful with these wires. If either wire touches ground while power is on, the controller will be damaged beyond repair. Make sure the wires are not pinched.

10. Measure the resistance with the switch in the forward position and then in the reverse position. In either position the resistance should be a short circuit.
11. Measure with the switch in the center or off position. The ohmmeter should show an open circuit.

Fuse

12. Check the fuse rating. It should not be higher than 5 amperes. A higher value could permit damage to occur to the PC board traces. Attached is a 5 ampere fuse which you can use if necessary.

Note – 5 amp is for 110V machines – 230V machines use 3 Amp.

Install

13. Carefully connect each wire, slightly pulling on it to make sure that it is securely fastened.

Thank you for taking the time to make these tests

Gerling Laboratories
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