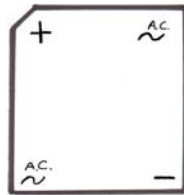


Bridge Rectifiers

The bridge rectifier is used in all D.C. rectified permanent magnet motors. The rectifier is a black square device with four terminals, marked plus, minus, and two A.C..

They are usually mounted on underside of the top end bell of the motor. They are used to convert A.C. current to D.C. (Direct Current). They look like this.



They are also used in other applications such as: battery chargers, brush and drive motors in extractors.

They consist of four diodes.

The most common symptom of a shorted rectifier is:

1. Drawing high current 25 to 50 Amps.
2. Tripping the circuit breaker, almost immediately (with in seconds).

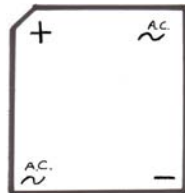
Testing the Bridge Rectifier

1. Unplug machine from A.C. outlet.
2. Remove motor cover and identify bridge rectifier.
3. Set your multi-meter (preferably an analog type) in the ohms position. (Note: Some digital meters don't have a diode testing function.)
4. Disconnect the wires from the rectifier. Note which wires go on each terminal.
5. Test for continuity with the two probes across the two A.C. terminals. If continuity exists, replace the rectifier. If no continuity exists go to step 6.
6. Using the opposite probes from meter and test for continuity on the same two A.C. terminals. If continuity exists, replace the rectifier. If no continuity exists in either direction the rectifier is OK.

NOTE: The rectifier can short in either one or both directions.

Replacing the Bridge Rectifier

1. Carefully remove the wires from the bridge rectifier noting which wires are on each terminal.
2. Remove the screw that mounts the bridge rectifier and remove rectifier.
3. Apply a generous coat of thermo or heat sink compound over the entire back (flat) side of the rectifier. This is critical for proper heat dissipation. (The heat sink compound can be obtained at local Radio Shack or electronic supplier.)
4. Mount the rectifier using the same screw and tighten. Do not over tighten. The rectifier should not turn by hand.
5. Connect the proper wires to the terminals.
6. Assemble and Test the machine.



Note: Rectifiers fail for these reasons:

1. Over heating
 - A. Not properly heat sunk (no heat sink compound)
 - B. In adequate cooling of motor.
 - C. Under gauge extension cords.
 - D. Mounted loosely
2. Surges or spikes from:
 - A. Loose connections such as faulty receptacles, plugs and loose wires.
 - B. Over loaded circuits. It recommended that the machine be operated on a devoted 15 or 20 amp. Circuit. No other devices on that circuit.
3. Under rated rectifier for the application. (Note: floor machines require a 50 amp. 600 volt rated rectifier)