You should measure between 5 volts and 9 volts ac. If you get any other reading, the filament voltage circuit in the ballast is bad and you should replace the ballast.

Measure the starting voltage by probing between one end of the lamp holder to the other. (see Figure 4) You should measure between 150 and 390 volts ac, depending on the type of ballast and lamps used. If the voltage you measure is not in the correct range, replace the ballast.

Electronic Ballasts

It is easy to check an electronic ballast to see if it is oscillating, which means it is generating the frequency that the lamp needs to operate. Set your DMM to the frequency measurement function. With the light turned ON, probe with your DMM between pins on opposite ends of the lamp holder. You should measure a frequency of 20 to 50 kHz. Normally, if the electronic ballast has failed there will be no output signal at all. If you do not obtain a proper frequency measurement (and about 117 volts ac is present at the ballast line power supply wires), replace the ballast.

6. Where to Go From Here:

By now you should have isolated and fixed the problem. If not, it may be time to replace the fixture completely. If you suspect a more serious problem, call a qualified licensed electrician for help.
Similarly, if you change the ballast, it should be matched to the lamps already in the fixture or to the type you intend to use in the fixture. Check the label on the ballast in your fixture to see what type it is, and what type of lamps it is intended for.

2. That Annoying Buzz

All electromagnetic ballasts generate hum. Look for the “sound rating” of A through F on the ballast’s label. Sound rating A is the quietest. If your ballasts are “B” or higher, you can improve things by upgrading to an “A,” or better yet, an electronic ballast, which is the quietest of all.

An excessively noisy fixture is usually an indication of a poor ground connection or loose mechanical parts in the fixture, which is good news because this is easy to fix.

Before you proceed, unplug the lamp cord or turn OFF the circuit breaker for the fixture you are troubleshooting. Remove the lamps and open the fixture.

Use your DMM to make sure the power is OFF. Carefully unscrew the wire nuts on the connections to the main power supply wires and make sure they are clear of all objects and not touching each other. Set the DMM to the ac voltage function or turn OFF the circuit breaker for the fixture, which is good news because this is easy to fix. Before you proceed, unplug the lamp cord or turn OFF the circuit breaker for the fixture you are troubleshooting. Remove the lamps and open the fixture. Use your DMM to make sure the power is OFF using the procedure described above.

- Verify the main power supply wires are clear of all objects and not touching each other. Turn the circuit breaker or plug in the power cord. Use your DMM in the ac voltage function to check for approximately 117 volts ac between the black wire and ground of the main power supply wires. If you measure low ac line voltage (less than about 108 volts ac) there is a more serious problem with your electrical wiring. Contact a qualified, licensed electrician. If proper ac line voltage is present, you most likely have a failed lamp. Replace the lamp.

- If the light fixture is controlled by a switch, it is important that the “hot” (black) wire is controlled by a switch. NEVER have the neutral wire controlled by a switch. Switching the neutral wire leaves live voltage on even when the switch is OFF.

4. One or More Lamps Won’t Light

When one or more lamps won’t light it’s usually because of a bad ballast, a bad lamp, or faulty wiring. Check the easy things first before you replace a ballast.

- Make sure the light fixture is getting power. Check the circuit breaker to make sure it’s ON, plug in the power cord, turn ON the wall switch, and turn ON the light. If nothing happens, check the outlet for power (see the brochure “How to Safely Test Electrical Outlets”) or check for 117 volts ac power inside the fixture as described earlier in this booklet.

- If only one lamp won’t light, try the lamp in another fixture to see if it works there. If it does not light in another fixture, replace the lamp and see if that fixes the problem.

Next, you’ll need to check for loose connections inside the pin sockets. Before you proceed, turn OFF the power to the fixture using the procedure described earlier in this booklet. Use your DMM to verify power is OFF.

- Remove the lamps. Inspect the pin sockets to see if they are damaged, bent, or loose and failing to properly connect with the pins on the lamp. Replace the entire fixture if the pin sockets are damaged.

- Open the fixture, unscrew all the wire nut connections and examine the wires for a tight, positive connection. Reconnect the wire nuts. For solid wires, do not twist the wires together. Instead, lay them in parallel and screw on the wire nut. It is OK to twist a stranded wire around a solid wire before you install the wire nut. Inspect and tighten every ground connection: the green wire and the ground connection: the green wire in the wire nut. Inspect and tighten the hardware, especially the hardware that connects the ballast to the fixture.

3. Blinking Lamp

A lamp that blinks or does not seem to light fully is a sign of either low ac line voltage or normal lamp failure. Check for normal line voltage first as follows.

- Before you proceed, unplug the lamp cord or turn off the circuit breaker for the fixture you are troubleshooting. Remove the lamps and open the fixture.

- Turn the circuit breaker or plug in the power cord and turn ON the switch for the fixture.

- Turn ON the switch and inspect the lamp. If the light fixture is controlled by a switch, it is important that the “hot” (black) wire is controlled by a switch. NEVER have the neutral wire controlled by a switch. Switching the neutral wire leaves live voltage on even when the switch is OFF.

- Make sure the light fixture is getting power. Check the circuit breaker to make sure it’s ON, plug in the power cord, turn ON the wall switch, and turn ON the light. If nothing happens, check the outlet for power (see the brochure “How to Safely Test Electrical Outlets”) or check for 117 volts ac power inside the fixture as described earlier in this booklet.

- If you measure low ac line voltage (less than about 108 volts ac) there is a more serious problem with your electrical wiring. Contact a qualified, licensed electrician. If proper ac line voltage is present, you most likely have a failed lamp. Replace the lamp.

- If the light fixture is controlled by a switch, it is important that the “hot” (black) wire is controlled by a switch. NEVER have the neutral wire controlled by a switch. Switching the neutral wire leaves live voltage on even when the switch is OFF.

- Make sure the light fixture is getting power. Check the circuit breaker to make sure it’s ON, plug in the power cord, turn ON the wall switch, and turn ON the light. If nothing happens, check the outlet for power (see the brochure “How to Safely Test Electrical Outlets”) or check for 117 volts ac power inside the fixture as described earlier in this booklet.

- If only one lamp won’t light, try the lamp in another fixture to see if it works there. If it does not light in another fixture, replace the lamp and see if that fixes the problem.

- Next, you’ll need to check for loose connections inside the pin sockets. Before you proceed, turn OFF the power to the fixture using the procedure described earlier in this booklet. Use your DMM to verify power is OFF.

- Remove the lamps. Inspect the pin sockets to see if they are damaged, bent, or loose and failing to properly connect with the pins on the lamp. Replace the entire fixture if the pin sockets are damaged.

- Open the fixture, unscrew all the wire nut connections and examine the wires for a tight, positive connection. Reconnect the wire nuts. For solid wires, do not twist the wires together. Instead, lay them in parallel and screw on the wire nut.

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