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## Transco Magnetic Sign Ballast Service and Troubleshooting Guide

Transco engineers have combined 30 years of sign industry manufacturing experience with the highest quality materials available in the world today to produce a complete line of sign ballasts that are easy to install and easy to troubleshoot should problems ever occur.

The following troubleshooting procedures will dramatically reduce the amount of time that is required to identify problems associated with fluorescent lighted signs. It is to your benefit that you follow these steps in order. Replacing a sign ballast without troubleshooting the problem will most always result in another failed ballast or problematic situation.

It is very important that if a potential problem is present at any stage that it be corrected before moving on to the next troubleshooting step.

**Step 1:** Check to be certain that the ballast is being used in a combination of lamp size and number of lamps that is consistent with the rating on the ballast label. **NOTE:** Transco only offers 2 ballast models that are rated to run lamps longer than 8-ft. These are the TRA-4120-2040 and the TRA-2120-1020. Any lamps larger than 8-ft operating on a Transco ballast other than these mentioned will need to be replaced with the correct size ballast. This is a common mistake that can easily be avoided in the manufacturing process. Transco offers 14 ballast models so selecting the appropriate ballast size never has to be an issue. *Symptoms of this problem can be overheating and shutting down of the ballast, reduced lamp life, and complete ballast failure.*

**Step 2:** Cut off the power to the sign.

**Step 3:** Open the sign.

**Step 4:** Look for visible signs of wiring shorts, arching, burn marks, evidence of water, missing wire nuts, etc.

**Step 5:** Remove all lamps.

**Step 6:** Turn on the power to the sign.

**Step 7:** Using an AC volt meter or pocket-sized AC voltage alert safety device, check the sign frame for any voltage before continuing to the next step. A short to the sign frame can create a dangerous situation resulting in electrical shock or even death. *Symptoms of this problem usually involve a circuit breaker that has tripped to off.* If voltage is detected and circuit breaker hasn't tripped off at the service panel, then the sign is not bonded correctly. Check the sign frame for proper grounding by measuring the voltage between the sign cabinet and the neutral (white) wire. If any voltage is present, this must be corrected before moving to the next step. Cut off the power immediately and correct the situation.

**Step 8:** Check the voltage on the primary power to the sign. Voltage readings must be within 5% of the input rating on the ballast. 120 volt ballast with an input rating below 115 volts or above 125 volts would represent a problem. *Symptoms of this problem can be overheating and shutting down of the ballast, reduced lamp life, and complete ballast failure.*

### Special Primary Power Related Considerations:

- *Is the voltage reading being taken during the daytime when other devices that use power may be turned off?*
- *Are there other devices that turn on at night that may cause the voltage to drop at the sign such as other signs, parking lot lights, manufacturing equipment, cooking ovens, X-ray machines, etc?*
- **Fluctuations in power are a common problem for fluorescent sign ballasts.**

**Step 9:** After insuring that the sign frame is safe to touch, it is time to check the voltage at each of the fluorescent lamp sockets. Using an AC volt meter, check the voltage across the pins on each of the fluorescent lamp sockets. Readings should be consistent on every socket in a range between 3.5 and 4.5 volts. Readings of unusually high voltage (i.e. 12 - 17 volts) or unusually low voltage (i.e. 0 volts) will identify precisely where the problem is located. This usually indicates that the ballast wires are wired incorrectly at the locations where the voltage fluctuations occur, or there is a disconnected wire, or loose connection on a wire nut. *Symptoms of this problem can be overheating and shutting down of the ballast, reduced lamp life, and complete ballast failure.*

**Step 10:** Reinstall the lamps and check input amps. If input amp readings are higher than the input amp rating on the ballast and all other issues have been ruled out, replace the ballast and start over at Step 1.

**Remember.**

Replacing a failed ballast without making an effort to determine why it failed will most always result in another failed ballast in that sign. Save yourself time and money by doing a proper investigation in the first place.

**When Manufacturing.**

**Step 9** should be used in the shop during the manufacturing process to determine if a sign has been wired correctly. Many problems can be avoided if this test is performed before the sign leaves the shop. Most companies will simply install the lamps and if it “lights up”, then the assumption is that the sign is wired correctly. Lamps are not a good indicator for correct wiring. In fact, there are many incorrect ways to wire a sign ballast and only one possible correct wiring combination. An accurate digital volt meter can determine the consistent voltage at each fluorescent lamp socket and inform you of a potential problem before it occurs.

*“At Transco we believe that you expect more from your partners than just another slogan. We strive at every level to be the best at what we do every day and we guarantee that you'll notice the difference.”*

*Henry Brown, III, President  
Transco, Inc.*

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