

# Troubleshooting Information

## Forerunner Color Changers / Power Supply PC Board Level

This information applies to all Forerunner color changers, no matter what size.

### **CAUTIONS:**

1. **The Forerunner system has reversed power connections from the Coloram II system. Connecting a Forerunner product into a Coloram II product will cause significant damage.**
2. **Plugging in the Forerunner color changer PC board to front panel connections off by one pin (at the pc board) will kill other color changers in the same daisy chain, as well as the Forerunner supply. After working inside the color changer, check this before powering it up.**

### **COLOR CHANGER**

#### **FIRST STEPS:**

1. **Conduct a visual inspection of the board.**

Look at the board, looking for chips in backwards, signs of charring, bare copper traces due to high currents, ICs partially out of sockets, in backwards, or with pins over the side of sockets or bent underneath.

Check for opened traces, lifted pads or poorly made solder joints.

Check for corrosion due to exposure to moisture.

2. **Check the 5 and 11 volt supplies.**

Check the 5 volt regulator output (LM7805). Check the 11V zener diode voltage (near the 100's DMX rotary switch: 9 to 11 volts is okay).

#### **TROUBLESHOOTING – COLOR CHANGER:**

1. **Symptom: Color changer does not respond to DMX commands but the power LED is lit and the DMX LED is flickering.**
  - a. Problem: One or more parts are bad.

Remedy: Replace the CPU (PIC16C73), LM324, and output transistors - in that order.

**2. Symptom: Color changer does not respond to DMX commands – all else appears okay.**

- a. Problem: One or more comm parts are bad – in the color changer or in the power supply

Remedy: Replace the communications chip: LTC485 - maybe both in the color change and the power supply output.

- b. Problem: The cable between the power supply and color changer has been damaged or miswired.

Remedy: Replace the communications chip: LTC485 - maybe both in the color changer and the power supply output.

**3. Symptom: DMX addressing does not work properly.**

- a. Problem: One or more DMX related parts are bad.

Remedy: Replace the 16C73 (uP) first because its easy to replace. If that doesn't fix it, replace the rotary address switch that doesn't work.

**4. None of this seems to be working.**

When things aren't going right and nothing makes sense, check your power supply voltages and grounds. It's simple to do and often solves baffling problems. Check power for each chip at the chip, not from the bottom of the board. OHM them out first to either power or ground, then power the board up and check for the proper voltage.

## **POWER SUPPLY**

### **FIRST STEPS:**

**1. Conduct a visual inspection of the board.**

Look at the board, looking for chips in backwards, signs of charring, bare copper traces due to high currents, ICs partially out of sockets, in backwards, or with pins over the side of sockets or bent underneath.

Check for opened traces, lifted pads or poorly made solder joints.

Check for corrosion due to exposure to moisture.

**2. Check the 24 volt and the 5 volt supply.**

Check the 24 volt power supply output and the 5 volt regulator output (LM7805).

**TROUBLESHOOTING – POWER SUPPLY:**

**1. Symptom: Color changer does not respond to DMX commands.**

a. Problem: One or more communication parts are bad.

Remedy: Replace the communications chip: LTC485 - maybe both in the color changer and the power supply output.