

## 1.0 Scope

This instruction covers testing to determine, while in an IR furnace chamber, if an infrared lamp has failed. Applies to most RTC, GBT and LCI infrared furnaces.

## 2.0 Time Required

For standard furnace systems, allocate approximately 3-5 minutes to verify a single lamp. Add 1-2 minutes for each additional lamp in a string and 2-3 minutes for additional lamp strings.

For hermetically sealed (HC) furnace systems, allocate approximately 30-45 minutes to test a single lamp including opening and closing the plenum covers. Add 1-2 minutes for each additional lamp in a string and 2-3 minutes for additional lamp strings in the same plenum. Add 15 minutes for each additional plenum that must be accessed.

Note: A lamp string is 2 or more lamps wired in series.

## 3.0 Tools and Materials Required

Collect the following tools to perform the work:

- Continuity Tester (Ohmmeter preferred)
- 3/8" Box or Open End Wrench
- Control & Element Wiring Schematic
- Replacement lamp(s)

## 4.0 Procedure

### 4.1 Lamp Test

**4.1.1** Remove all power from the furnace, and if a UPS or EPS is installed, locate and shut off the unit. Remove all side covers, completely exposing all lamp terminations.

**4.1.2** Using the schematic as a reference, locate the bus bars linking the elements in each zone. The bus bars are made from aluminum, and are connected to the lamp terminal screws.



Figure 4-1: Lamp Bus Bar

**4.1.3** Starting at the front of the furnace, using the openend wrench remove the bus bars for only zone 1 (top & bottom). Make sure to take note of or record with a camera the location and arrangement of the terminal and bus bar connections.

**4.1.4** Using the multimeter on ohms scale, and a technician on either side of the furnace, check each lamp in the top plenum, first zone by measuring the resistance across the terminations of the lamp.

- a) If the resistance registers and is less than 10 ohms, the element is good.
- b) If the lamp element is broken, or the measured resistance is greater, the element is damaged. Replace the element following the procedure in TEC-250.

**4.1.5** Next, check the bottom half of the zone in the same manner. After verifying the top and bottom lamps, replace the bus bars on the proper terminals, and securely tighten all hardware.

**4.1.6** Following the same procedure, check the other zones, one at a time, throughout the furnace.

**4.1.7** Once the elements have been completely tested, replace the covers on the furnace. Turn on the EPS/UPS (if so equipped) and power to the furnace. Bring the furnace up to temperature, and, next, run a profile verifying that no leaks occurred around the lamps that were replaced.

## **4.2 Lamp Replacement**

**4.2.1** Remove and replace any damaged lamps. See TEC-250 LAMP REPLACEMENT.