

# Diagnosis

## *Thermocouple Errors E 001 and E 002 in NCAT Asphalt furnace*

The Thermocouple Errors can be diagnosed with basic tools and equipment

NCAT Asphalt Furnace
Revision Date: November 30, 2016

**NOTE!**

Many of these steps involve removing Covers and Panels that will expose High-Voltage wiring. Lock-out and Tag-out Procedures must be followed along with CAUTION for these circuits.

Errors E 001 and E 002 indicate an Open, Failed or Disconnected Thermocouple temperature sensor for either the Chamber or Filter heated areas.

Typically the Cause of these Errors is a Failed Thermocouple. Replace the thermocouple respective to the Error.

E 001 indicates the Chamber area thermocouple, part number TC859X1A

E 002 indicates the Filter area thermocouple, part number TC1087X1

(or TC859X2A for older models with Serial Number starting 859 or 945)

If replacing the respective Thermocouple does not resolve the Error, then additional diagnostics below can be followed.

Verify the Thermocouple Wiring at Terminal block

This picture shows the normal positions and insulation color-matching for the Thermocouple wires on the Terminal Block.



Verify the Thermocouple is functional with a Resistance or Continuity measurement.

Disconnect a Thermocouple wire-pair from the Terminal block.

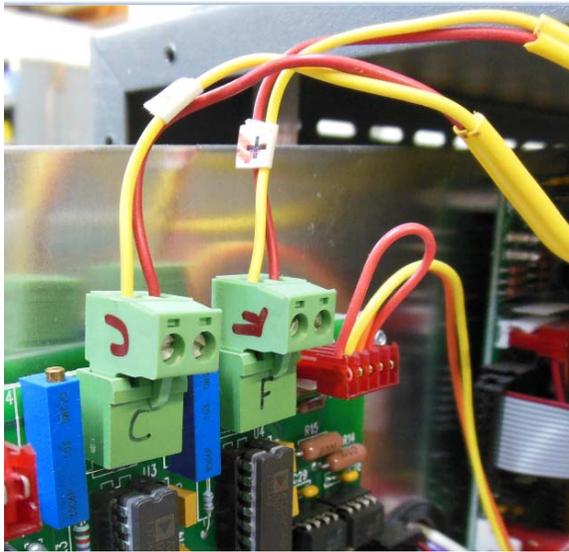
Measure for resistance or continuity at these wire-ends of the thermocouple.

If 'open' resistance is found, check these wires and Thermocouple tip for any breaks.

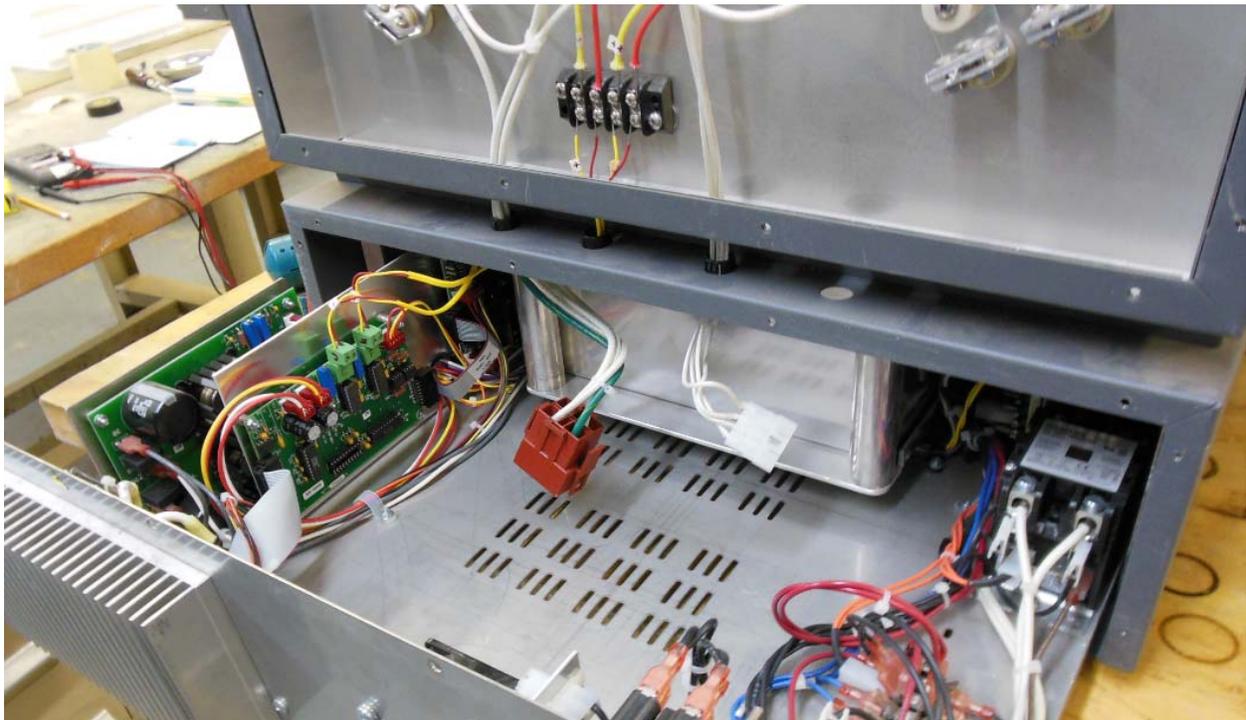
If 'closed' or resistance is about 2-Ohms, reconnect these thermocouple wires to the terminal block.

Verify the Thermocouple Wiring at Analog-Digital board

These Red and Yellow thermocouple wires connect from the bottom of the Thermocouple Terminal Block on the Rear, to Green connectors at the Analog-Digital board shown below.



Carefully follow the Instructions on Pages 81 through 86 in the Service Manual LT1275X3 to disconnect specific wire plugs and fasteners to open this Control Tray shown below.



Assure the Red and Yellow wires are secure at the terminals of the Green connectors. Unplug the Green connector and measure for resistance at the terminals of this Green connector.

If 'open' resistance, check these wires for any breaks or loose connections.

If 'closed' or resistance is about 2-Ohms, Connect the Green plugs with the Red and Yellow wires to the proper sockets on Analog board.

The Chamber thermocouple is connected to socket J2, toward Rear.

The Filter thermocouple is connected to socket J3, toward Front.

Close the Control Tray, reconnecting the Plugs disconnected to open the Control Tray.

Power 'on' Furnace to check the Error message has been cleared.

If the error codes E 001 or E 002 persists, the fault may be in the Analog Board, part number 'PC859X3A', or the Logic board, part 'PC859X1A S'.