



Hot Runner Maintenance Guide

Updated Nov 10, 2023



Scroll for d

Production-Ready Checklist

Hot Half

- Ground Connection
- Ohms / Continuity
- No Heater Shorts

Mold Box

- Ground Connection
- Miswires or Opens
- Connector Condition

Cables

- Ground Connection
- Miswires or Opens
- Shorts
- Connector Condition

Controller

- Ground Connection
- Connector Condition
- Controller Maintenance

Incoming Power

- Ground Connection
- Condition

Link to Training Guide:

[fastheatbyspark.com/
hot-runner-
maintenance-training/](https://fastheatbyspark.com/hot-runner-maintenance-training/)

Hot Runner Maintenance

- Measure hot runner components both at room temp and operating temp to determine actual “Soak Time”
- Inspect hot runner components for signs of wear or leakage, excess residue or off-gassing

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 **MoldTRAX**
TRACK THE PAST. SECURE THE FUTURE.



MoldXChecker®

- Specify the controller side connectors on the cables.
- Plug into the MoldXChecker instead of your hot runner controller.
- Quickly see ohm readings for heaters and thermocouples
- Instantly see if there is a short and on which zone/s



Hot Runner Maintenance

- MoldTRAX – measure t/c Ohms at room temperature and record at each PM
- Note last Ohm reading before a t/c failure to predict failure of similar t/cs

Temperature	Resistance Value
-200 °C	18.49 Ohms
-100 °C	60.25 Ohms
0 °C	100.00 Ohms
100 °C	138.50 Ohms
200 °C	175.84 Ohms
300 °C	212.02 Ohms
400 °C	247.04 Ohms
500 °C	280.90 Ohms
600 °C	313.59 Ohms
650 °C	329.51 Ohms

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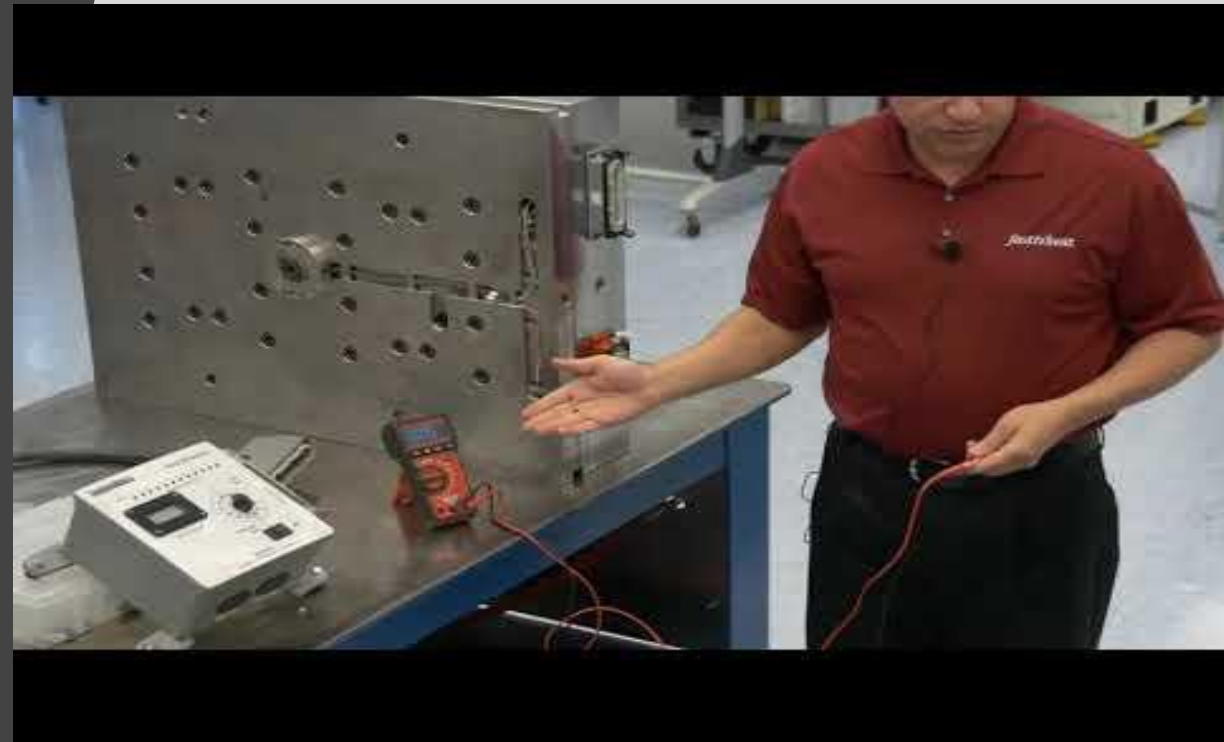


MoldTRAX
TRACK THE PAST. SECURE THE FUTURE.



Hot-Half Maintenance the Old Way

- Check resistance of heaters and thermocouples to make sure they have continuity and to judge their ohm readings versus their specified values. Use an ohm meter and manually touch each zone; example 1:13, 2:14 etc.
- To find a direct heater short, touch the body of the hot-half and then touch each pin.
- At the press controller alarms for open circuits requires someone to climb up to the mold box to verify.



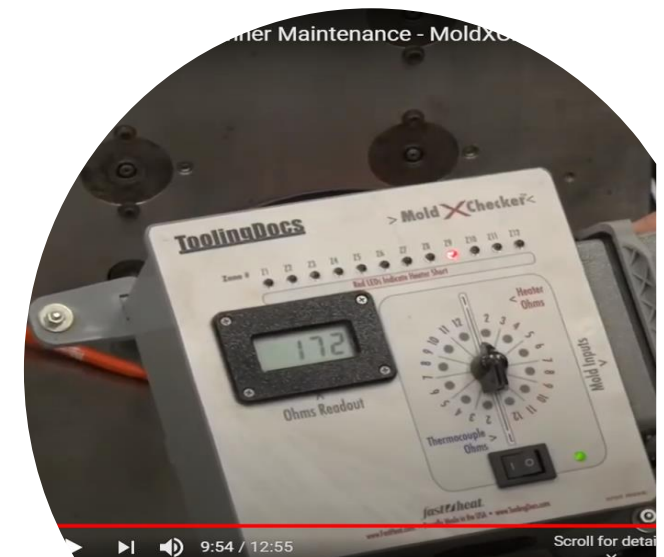
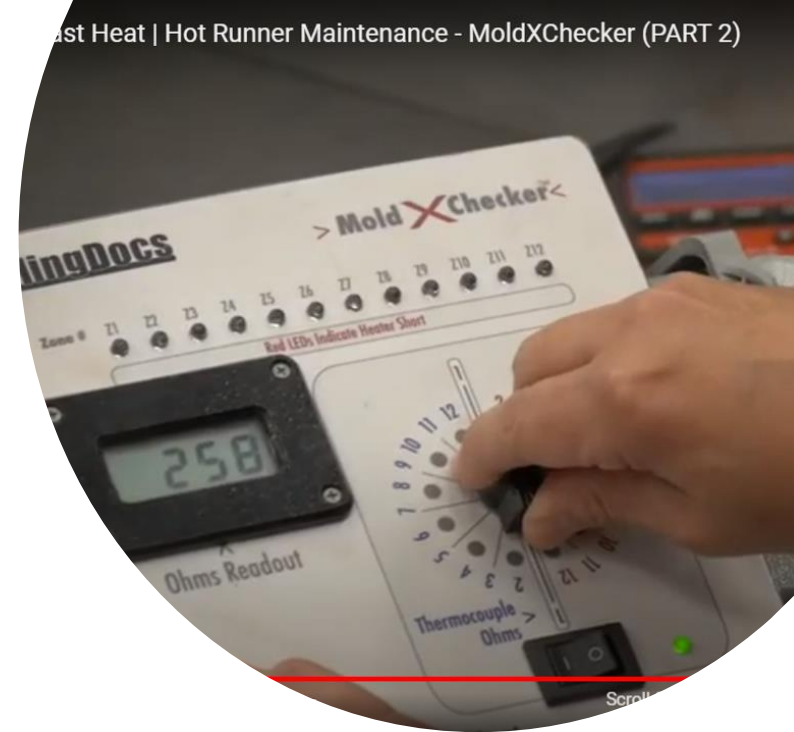
<https://youtu.be/zt9Vr31mx6s?t=65>

1:05-1:40

MoldXChecker®

Rotate knob through each zone. Either ohm readings are displayed or an “open” indicated.

- Opens are indicated with a 1 in the display. If your tool is supposed to have a heater or thermocouple on that zone, check your connections first (push back pin, loose wire). If they are good, you’ll need to replace the heater or thermocouple.
- Apply heat to a nozzle tip and quickly rotate through the thermocouple zones to know which nozzle is controlled by which t/c zone.
- Shorts are indicated by a red light on the shorted zone.
- Safely troubleshoot a hot-half while the tool is mounted in an injection molding machine!



MoldXChecker®

New Feature – Safety Ground Test Probe

- In order for the MoldXChecker to detect a short, the ground connection on the mold-side connector must be connected!
- Use the probe to verify it is grounded.



The Problem With Shorts in a Hot Half

- Dangerous – It looks good because each zone has an ohm reading. You can't tell if a wire is pinched!
- Could blow a fuse on the controller or damage the power modules circuits.
- Could blow thermocouples and damage the thermocouple modules.
- Electrical shock to anyone touching the workbench, mold or IMM platen!



<https://youtu.be/oM1H8aqkujY?t=18>

Reference

CableXChecker® - The Answer to a Pile of Questionable Cables!

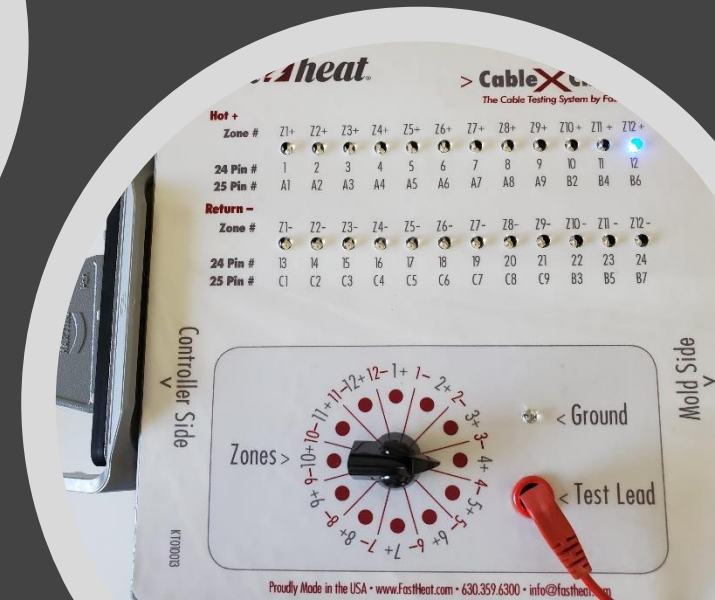
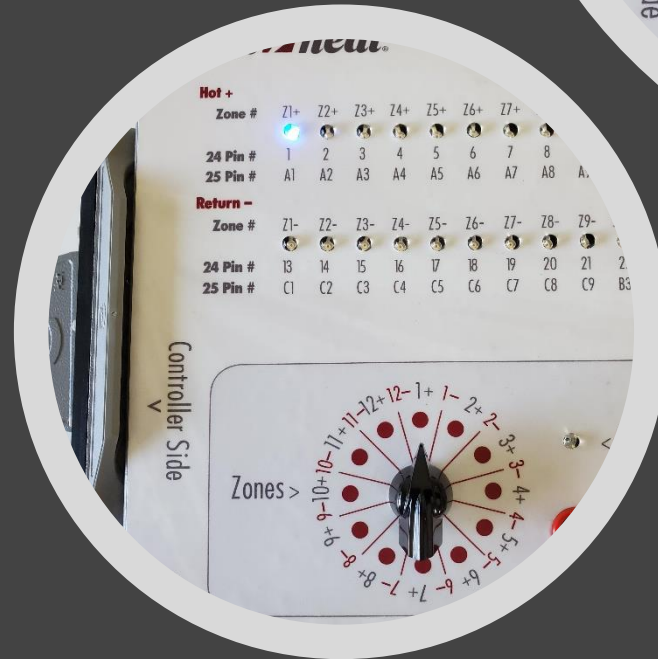
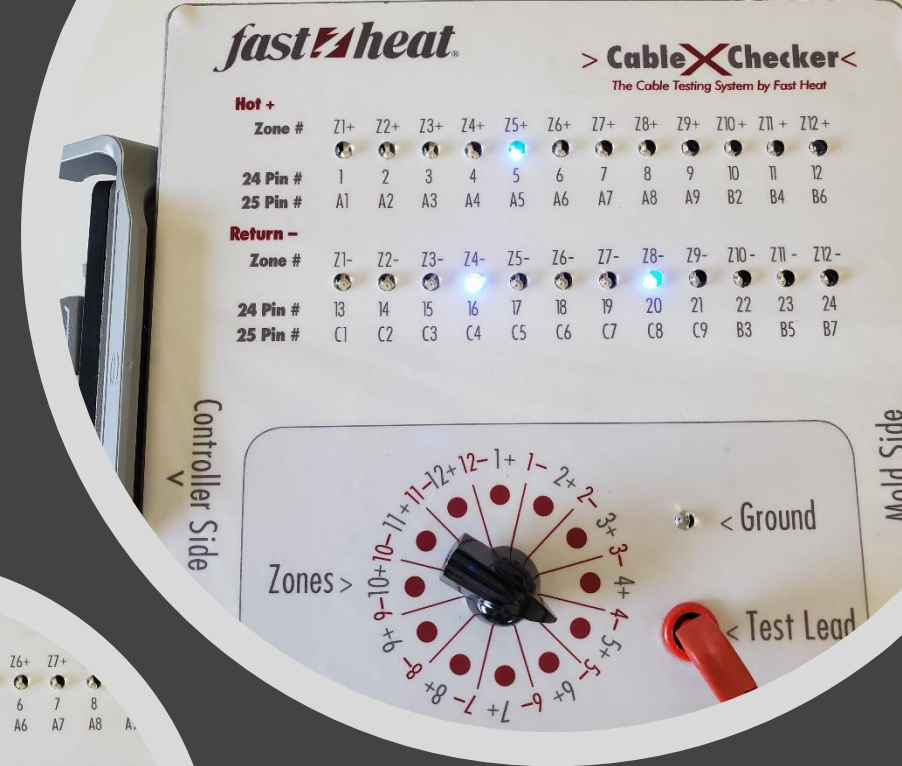
- Specify connector types for both the controller and the mold.
- Confirm the wiring diagram.



CableXChecker®

Rotate knob through each zone. Bright blue LEDs light up for each zone

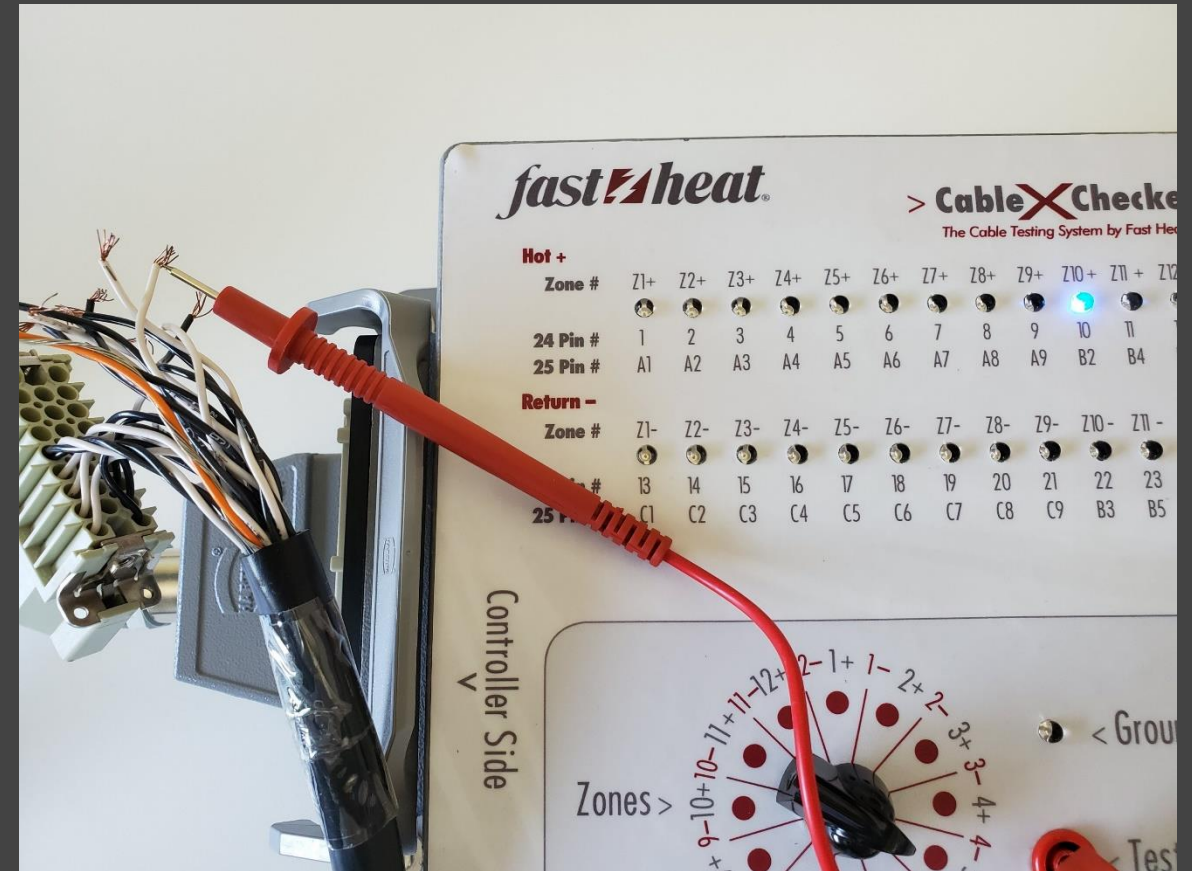
- If a zone does not light up, there is an open circuit. Check connections at both ends.
- If a different zone lights up than where the dial is, there is a mis-wire. Rewire the connector.
- If more than one zone lights up, there is a short. Cut off the connectors and throw the cable away.



CableXChecker®

How to Build or Repair a Cable

- Wire one end of the cable connector.
- Use the probe on each wire of the other end to determine which zone that wire is for.
- Connect the ground wire to the connector.
- Touch the probe to the ground on the connector. The ground light will turn on.



Easier, Faster & 100% Accurate

The Old Way

1. Do you know the wiring diagram?
2. Holding the cable so you can touch each end, touch the pin for each zone's hot and return to verify continuity. **An open could be a mis-wire!** To test you have to touch every pin on the other end to find which other zone it might be connected to.
3. To find a short, there would be continuity between a pin on one side and more than one pin on the other. This is a 576 point-to-point test!



<https://youtu.be/XPsjTkHR4Gs?t=87>

1:27-2:10

The Problem With Shorts in Cables

- Dangerous – It looks good because each zone has an ohm reading.
- Could blow a fuse on the controller or damage the modules or circuitry.
- Could blow a heater.
- Could blow thermocouples.
- Turning on more than one heater at a time if it's between a hot and return.



<https://youtu.be/v8nAXDuQeVw?t=511>

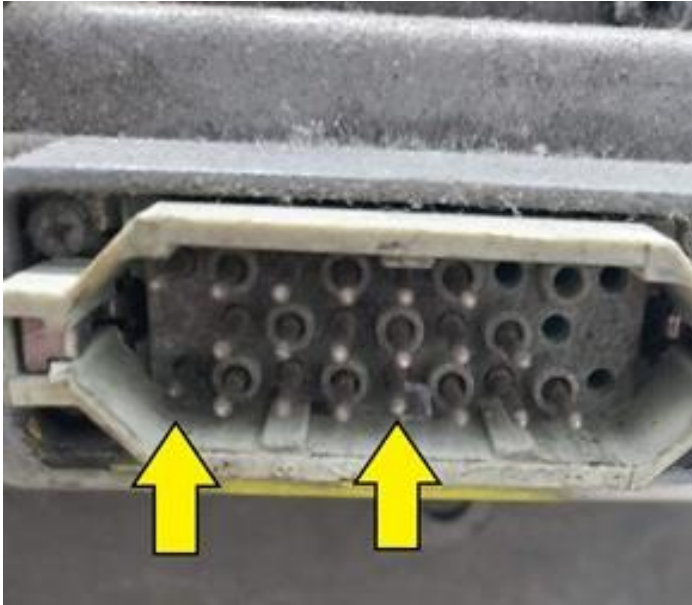
CableXChecker[®]

Summary

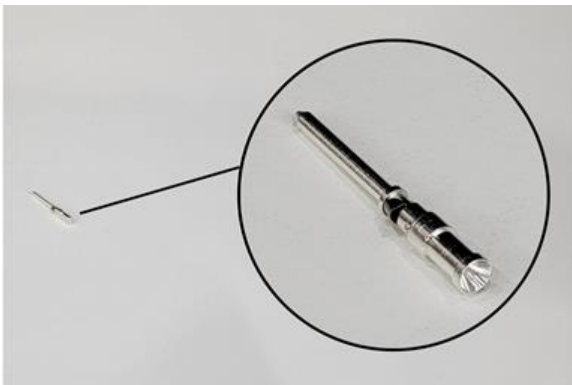
- Plug in a suspicious cable and within seconds, diagnose what is wrong with it – opens, mis-wires and shorts
- Save time wiring new connectors
- Easier, faster & 100% accurate!



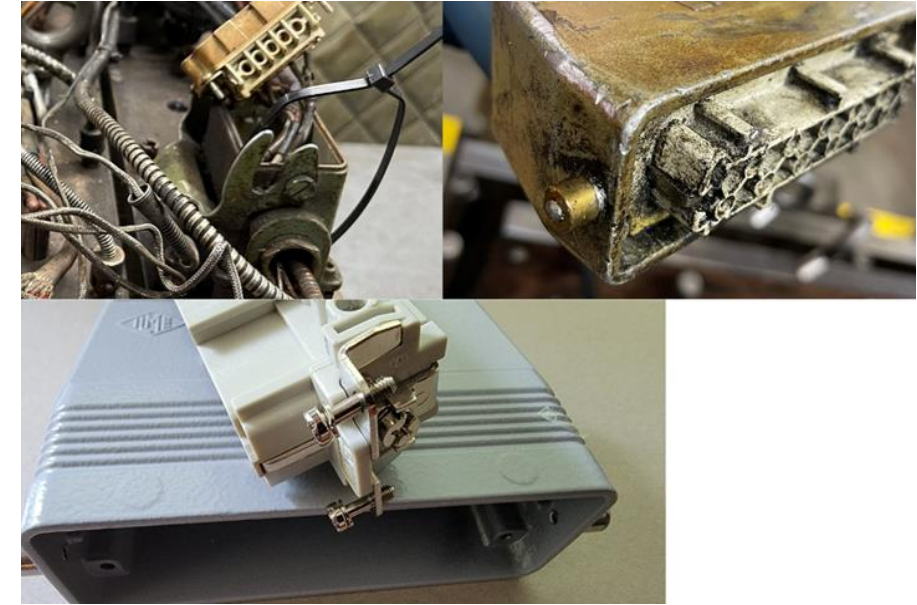
Connector Troubleshooting



Pushed Back or Bent Pins



**Pushed Back Inserts
High Amp Deterioration
(10-amp rating)**



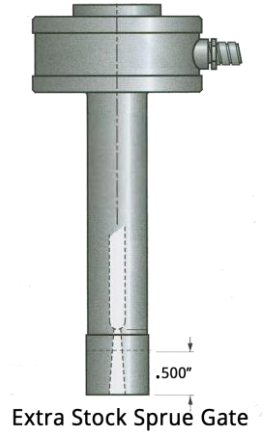
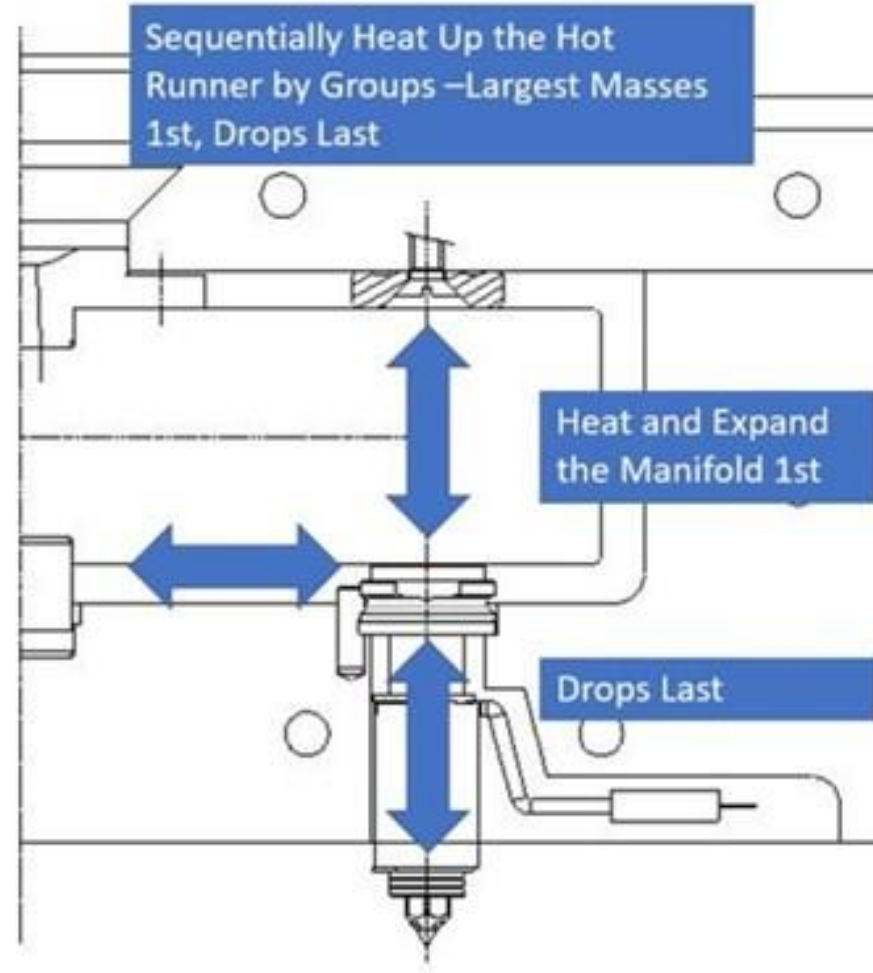
**Loose or Broken Latches
Missing or Loose Ground Wire
Connections**

Recommended Connector



24-pin, molded-in machined pins w/ 16-amp rating

Measure Cold and Hot for Reference



Quiz

1. Why measure t/c ohms?
2. Can you repair a shorted heater cable?
3. At what temperature should you check a hot half for direct shorts?

Still have questions? Call or email Manny Diaz at manny@spark-industries.co or 630-849-1779