

### Overview

This instruction sheet describes the steps necessary to rebuild the heating and control system of 2" – 4" heaters. It will convert them from a thermostatic switch to electronic controls located inside the handle with a knob for setting the temperature and a heating indicator light.

This instruction sheet covers 4 kits (2" & 4" and 120 Volts & 240 Volts) for rebuilding the following 8 different heaters.

Old	New	
214901	214905	2mlmc Sidewall & Socket 100-120V Htr Assy
214902	214906	2mlmc Sidewall & Socket 200-240V Htr Assy
215501	215505	2mlmc Bp 100-120V, 50/60 Htr Assy
215502	215506	2mlmc Bp 200-240V, 50/60 Htr Assy
424308	424315	14mlmc Sidewall & Socket 100-120V htr Assy
424309	424316	14mlmc Sidewall & Socket 200-240V htr Assy
424304	424317	14pb Bp 100-120V, 50/60 Htr Assy
424305	424318	14pb Bp 200-240V, 50/60 Htr Assy



PH02749-12-04

### Heater Conversion Kits:

Contents of A227001 2" Heater Handle/Controller Rebuild Kit, 120V

Qty	Item	Description
1	214701	Mlmc Htr Cover Plate Gasket
1	8163114	Model 215505 Part No Label
1	8163112	Model 214905 Part No Label
1	MAH00036	#6-32ncx3/8lg self tapping screw
2	MAH00055	1/4-20nc X 1"Lg SHCS SS
1	227001	2" Heater Handle/Controller Rebuild Assembly, 120V
1	43800101	Instruction Sheet (this paper)
1	MJL00057	# 7 (.201) Drill bit



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Contents of A227002 2" Heater Handle/Controller Rebuild Kit, 240V

Qty	Item	Description
1	214701	Mlmc Htr Cover Plate Gasket
1	8163107	Model 215506 Part No Label
1	8163113	Model 214906 Part No Label
1	MAH00036	#6-32ncx3/8lg self tapping screw
2	MAH00055	1/4-20nc X 1"Lg SHCS SS
1	227002	2" Heater Handle/Controller Rebuild Assembly, 240V
1	43800101	Instruction Sheet (this paper)
1	MJL00057	# 7 (.201) Drill bit



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## 2"- 4" Heater Rebuild Kits

A227001, A227002, A438001, A438002

Contents of A438001 4" Heater Handle/Controller Rebuild Kit, 120V

Qty	Item	Description
1	436301	Cover Plate Gasket
1	8163108	Model 424315 Part No Label
1	8163110	Model 424317 Part No Label
1	MAH00036	#6-32ncx3/8lg self tapping screw
2	MAH00055	1/4-20nc X 1"Lg SHCS SS
1	438001	4" Heater Handle/Controller Rebuild Assembly, 120V
1	43800101	Instruction Sheet (this paper)
1	MJL00057	# 7 (.201) Drill bit



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Contents of A438002 4" Heater Handle/Controller Rebuild Kit, 240V

Qty	Item	Description
1	436301	Cover Plate Gasket
1	8163109	Model 424316 Part No Label
1	8163111	Model 424318 Part No Label
1	MAH00036	#6-32ncx3/8lg self tapping screw
2	MAH00055	1/4-20nc X 1"Lg SHCS SS
1	438002	4" Heater Handle/Controller Rebuild Assembly, 240V
1	43800101	Instruction Sheet (this paper)
1	MJL00057	# 7 (.201) Drill bit



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Tool list for 2" – 4":

- 3/16" hex wrench
- 5/64" hex L-key
- channel lock pliers
- medium width tip flat screw driver
- 3/16" diameter x 5" long punch or rod
- hammer
- Drill Press (required for proper alignment and depth)



PH02353-07-02

### Step 1

Unplug the heater and let it cool to room temperature. Protect the butt plates from abrasion during this rebuild. Remove the 2 screws attaching the heater handle with a 3/16" hex wrench. Discard the screws. Unscrew the thermometer and pull the handle away from the body. Keep the thermometer, its guard, and the stripper bar.

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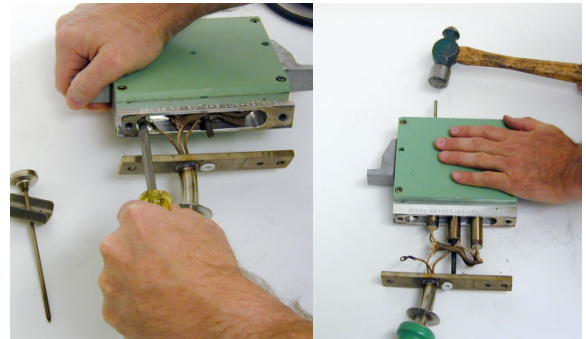


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### Step 2

Unscrew the ground wire and discard the screw. Pull out both heater cartridges and the thermoswitch. If they are stuck use a 3/16" diameter x 5" long punch to knock them out from the bottom. Discard the old handle assembly, gasket and power cord.

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PH02345-07-02, PH02344-07-02

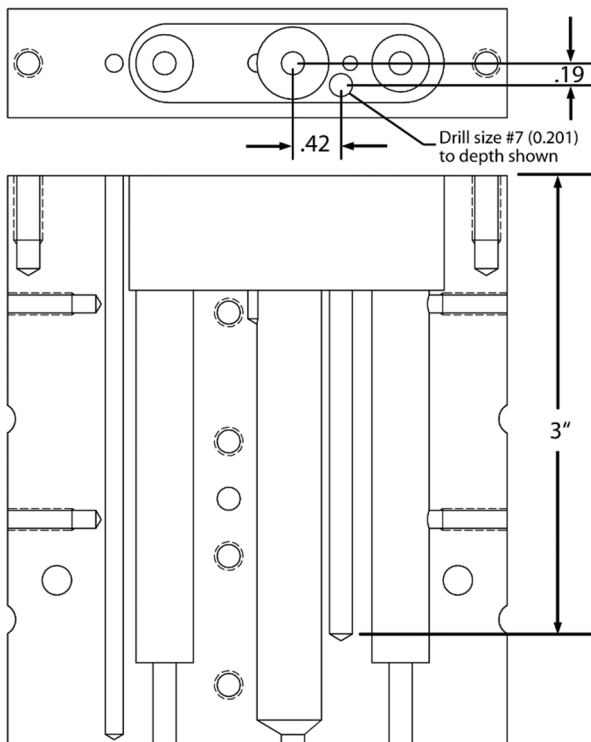
### Step 3

If the heater body already has the hole called out in the diagrams, skip to Step 4. Otherwise, use a drill press and provided drill bit to drill a hole in the heater body in the location shown in the diagrams and the depth listed below. A Drill Press is required for this operation to ensure proper position and depth.

3" for the 2" and 4" heater bodies.

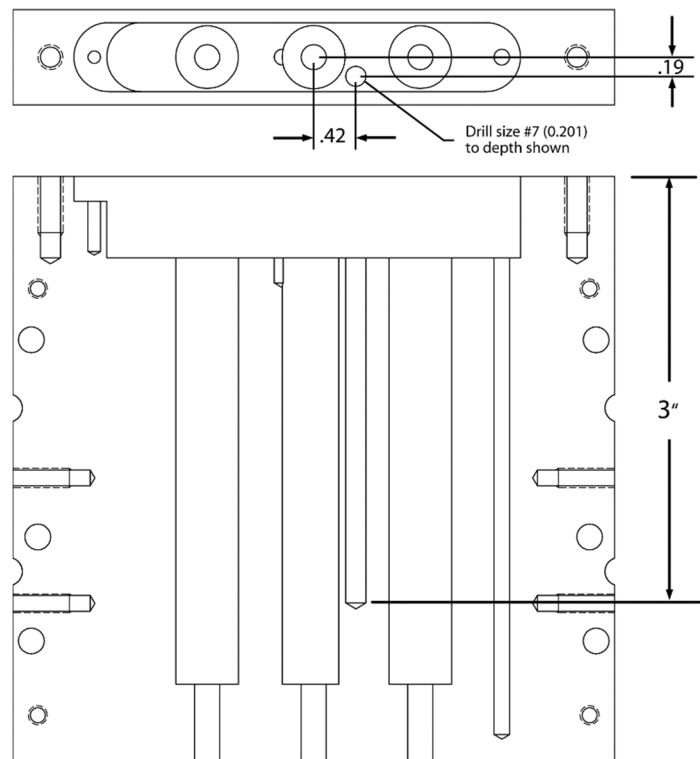
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### 2" Heater Body



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### 4" Heater Body

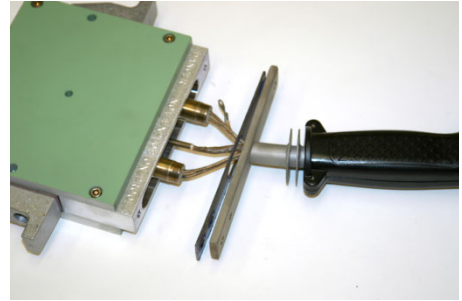


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**Step 4**

Put the cartridge heaters and RTD through the slot in the gasket. Align the handle with the body so that the thermometer holes in the body, gasket and handle line up. Slide the heater cartridges into the outer holes and the RTD into the drilled hole in the body. Make sure the cartridges are all the way in, at least flush with the bottom of the body recess.

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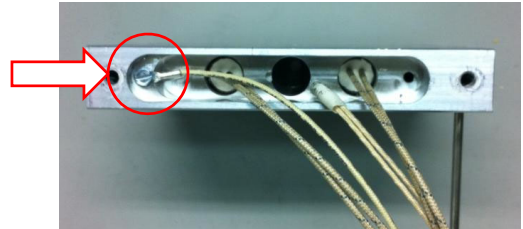


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**Step 5**

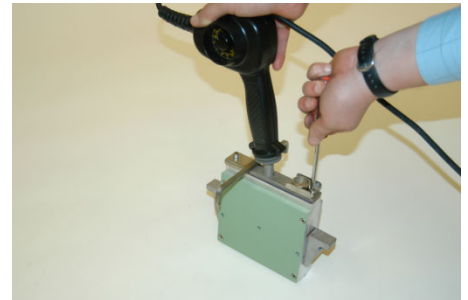
Clean area around the screw hole to ensure good electrical connection.

Attach the ground wire to the heater body with the #6-32 screw.

**Step 6**

Put the handle on the top of the body while pushing the RTD as deep as it will go down in its hole. The wires to the cartridge heaters will fold into the recess. Loosely bolt on the new handle/controller assy with the thermometer guard and stripper bar using the (2) 1/4-20 socket head capscrews. If available, apply high temperature anti-seize compound (not included in the kit) to the screw threads. Install the thermometer and then tighten the two socket head capscrews using a 3/16" hex wrench.

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**Step 7**

Several Part Number Labels may be included in the kit. Choose the one that matches the heater size, voltage and configuration. Affix it to the back of the handle. Be sure it is turned the same way as the MMI logo on the handle. Discard the remaining Part Number labels.

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**Step 8**

The Ground Bonding Test determines whether the safety ground circuit of the heater can adequately handle fault current.

By using a Multi-Meter under ohms measure, connect the black lead to the plug ground pin and the red lead to the heater body.

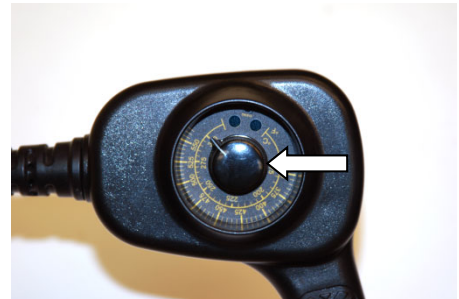
In no case shall the resistance exceed 1 ohm.

If the resistance exceed 1 ohm, open the heater body and inspect if the ground cable is properly connected and its screw is tight enough.

**Step 9**

Put the heater in the bag frame assembly, set the knob to 500F and plug the cord into power. The red indicator light on the temperature dial should glow steadily. If it flashes a signal repeatedly, an error has occurred. Count the flash sequence and unplug the heater. Call McElroy Technical Service at 918-836-8611 for more information.

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**Step 10**

The knob should be calibrated to agree with the surface temperature as measured with a pyrometer. Let the heater come to temperature (indicator light cycling on and off slowly). If the butt plate temperature measurement is not 500F then hold the knob still and loosen its set screw with a 5/64" hex L-key. Turn the loose knob to the measured temperature and tighten the screw (do not over tighten). Turn tightened knob to 500F and measure the temperature after the heater light has cycled a few times.

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**Step 11**

For parts information, refer to the assembly drawing listed on the heater handle part number label. The drawing can be viewed and printed via the Internet at McElroy Manufacturing Inc's web site: [www.mcelroy.com](http://www.mcelroy.com).

TX02048-07-16-02



PH02748-12-04

# INSTRUCTION SHEET REVISION HISTORY LISTING

**PART NO:** 43800101

**DESCRIPTION:** 2"-4" HEATER REBUILD KITS

**ORIGINATOR:**

**CHECK:**

**APPRV'D:**

**RELEASED:** 12/04

<u>CHK/APR</u>	<u>REV</u>	<u>DATE</u>	<u>BY</u>	<u>DESCRIPTION OF REVISION</u>
LTD	A	04/30/12	FTS	ADDED STEP 5 AND 8. EMPHASIZING GROUND CABLE INSTALLATION AND GROUND BOND TESTING.
SRB/JBC	B	8/23/18	RLT	REVISED TO UPDATE SHEETS TO MEET CURRENT McELROY STANDARDS.
MRH/BWJ	C	6/16/21	MRH	REVISED TO REPLACE MAH00052 WITH MAH00055 TO INCREASE THREAD ENGAGEMENT AND HELP PREVENT THREAD DEFORMATION.