



Title: MPI: GE, 240V,Single Phase, Remanufacturing Instructions (for Third Party)

Doc. Number: 97-xxxx

Revision: A

Page: 1 through 13

Process Owner: Process Development Engineering

Revision History

<u>ECO/ECN</u>	<u>Rev</u>	<u>Date</u>	<u>Author</u>	<u>Pages</u>	<u>Description of change</u>
	A	12/19/01	M.Qua	14	Initial Release

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1. Purpose

This procedure details the disassembly of 240V modules and the retrofitting of the single phase, 240V BAMB(40-1716), 240 V BAMBCCSK (40-0318), and 120 VBAMB onto a GE I70-S meters.

2. Tools and Materials Required

NOTE: A grounded wriststrap must be worn during assembly.

The following tools and materials are required for meter retrofit:

<u>CellNet Part No.</u>	<u>Description</u>	<u>Used On</u>	<u>Quantity</u>
40-1716	GE 240V Single Phase BAMB	240VBAMB	1
40-1719	GE 120V Single phase BAMB		
40-0318	GE 240V Single Phase BAMBCCSK	BAMBCCSK	1
n/a	GE I70 Meter	all	1
29-1126	GE interrupter (labeled w/"G")	all	1
17-1188	GE interrupter installation tool (Spacer=0.225",NEW)	240V BAMB/ BAMBCCSK	1
19-0035	240V BAMB AC cable(new spring clip)	240VBAMB/ BAMBCCSK	2
22-0557	GE housing mounting screws	all	2
n/a	Needlenose pliers	all	1
n/a	Phillips #1 screwdriver (electric)	all	1
n/a	Phillips #1 screwdriver (manual)	all	1
	Other tools that may be required to remove the nameplate, depending on the age of the meter:		
	- Phillips #2 screwdriver (manual)	all	1
	- Chisel blade screwdriver, 1/4"	all	1
	- Spintight 1/4" nutdriver	all	1
n/a	Orange stick (or equivalent)	all	1
n/a	New AC wire installation tool (I70 S-I, I70 S-II)	240V BAMB/ BAMBCCSK	1

DISASSEMBLY INSTRUCTIONS

3. Inspection (refer to 96-0072, Retrofit Meter Quality Acceptance Criteria)

3.1 Inspect the meter and cover for the following:

- Meter and cover cleanliness, and no moisture inside the meter base
- Unacceptable base damage
- Lightning arrestors are in place and undamaged
- Filters are in place
- Cover seal (gasket) is in place
- Insure that the meter is not unidirectional
- Verify that the hi-pot barrier is in position

3.2 Verify that the AEP code on the label matches the meter type:

3.3 Module Inspection: Make sure the green PCB board is securely screwed into the BAMB/BAMMCCSK enclosure. There should be no visible gap between the top edge of the PCB and the top edge of the plastic enclosure.

Note: Place ESD wrist-straps on prior to module disassembly procedure.

4. Module Disassembly

4.1 Carefully remove glass cover from meter.

4.2 Remove screws from module using a Philips #2 Screwdriver. Always use a manual screwdriver when unscrewing the module from the meter in order to prevent debris from falling into the meter.

4.3 Carefully place module facedown on the ESD mat on the workbench after disassembly.

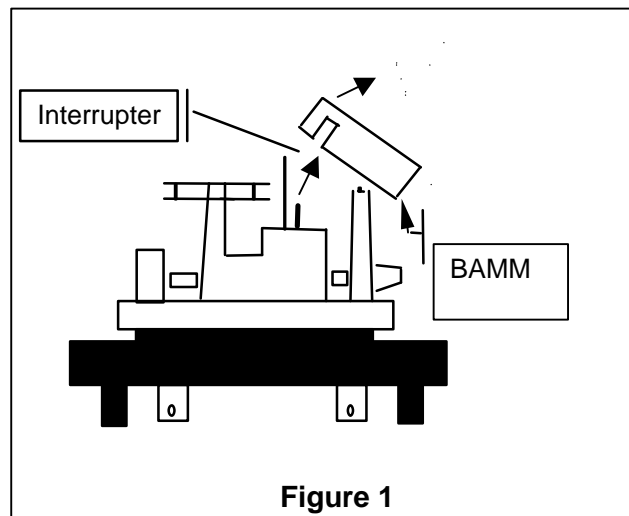


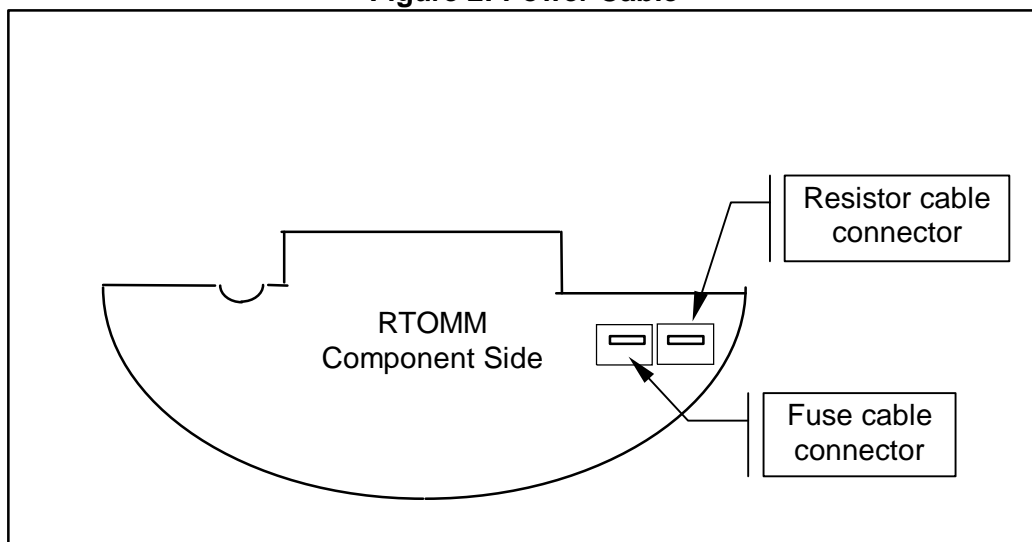
Figure 1

5 AC Cable Disconnection

Note: Old modules (RTOMM) have a different set of cables from the new generation of modules (BAMM/BAMMCCSK). Both types of cables are NOT exchangeable. The RTOMM cables have different inline components on each of the two cables. One of two RTOMM cables has a fuse incorporated on the cable and the other cable has a resistor incorporated on it. The BAMM/BAMMCCSK have 2 identical cables WITHOUT in line components.

5.1 Disconnect AC cable from the module. Use needle nose pliers to disconnect power leads from module. Gently grip on red AC cable tabs with needle nose pliers and disconnect the power leads. Pay close attention not to touch PCB with pliers and not to bend connection tabs on the board. Do not rotate tabs when disconnecting power leads. (Refer to Figure 2)

Figure 2: Power Cable



5.2 Disconnect AC cables from Current Coil. Use needlenose pliers to disconnect power leads from current coil. Grip on the edge of the superclip and gently remove clip from current coils. Remove any debris resulting from disassembly of the superclip from the copper coil.

5.3 Disregard and discard old cables.

5.4 All disassembled modules must be placed in ESD bags for storage.

6. Interrupter Disassembly

6.1 Use needle nose pliers to remove interrupter from disk shaft. Gently pull the interrupter from the disk shaft with the needle nose pliers. Pay close attention when removing the interrupter and make sure that minimal force is exerted on the shaft. The shaft is extremely sensitive to force and can easily be bent when subjected to pressure

6.2 Disregard & discard old interrupters.

ASSEMBLY INSTRUCTIONS

Important Regulatory Requirements/Statements

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device must accept any interference received, including interference that may cause undesired operation.

The BMMCCSK module is factory installed and is inaccessible to the user. The module must be sent back to the factory for any retrofit or maintenance required.

The antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

The BMMCCSK module is designed to transmit only using one loop antenna having omnidirectional gains of not more than 0 dBi.

7.1 Power Cable Installation

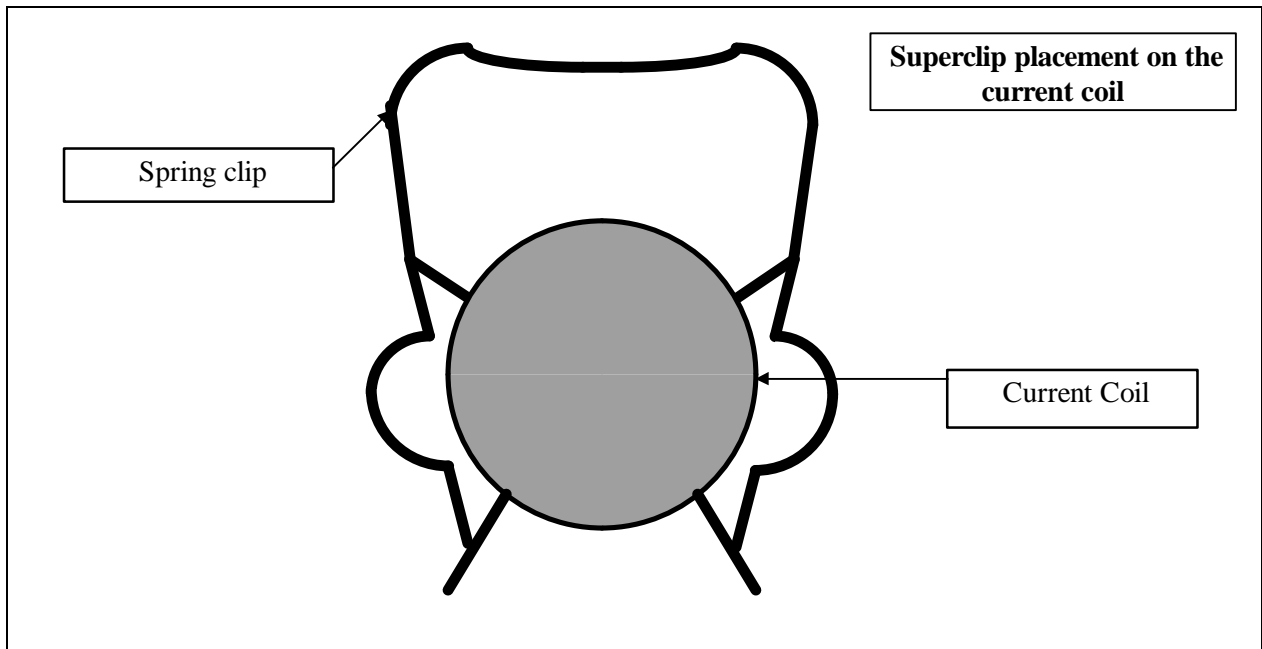
Note: Make sure to use the correct AC cables. The 240V BMM and BMMCCSK use the black AC cables WITHOUT the in-line components. Refer to the addendum part of the MPI for the soldering procedure on 120V GE Meters.

- 7.1.1 Using the wire installation tool grip the superclip along its ears, open the pliers and place the clip onto the current coil, near the end on a straight portion of the coil. When attaching the superclips to the current coil, install the clips as shown in the diagrams below, with the wire exiting the superclip towards you.

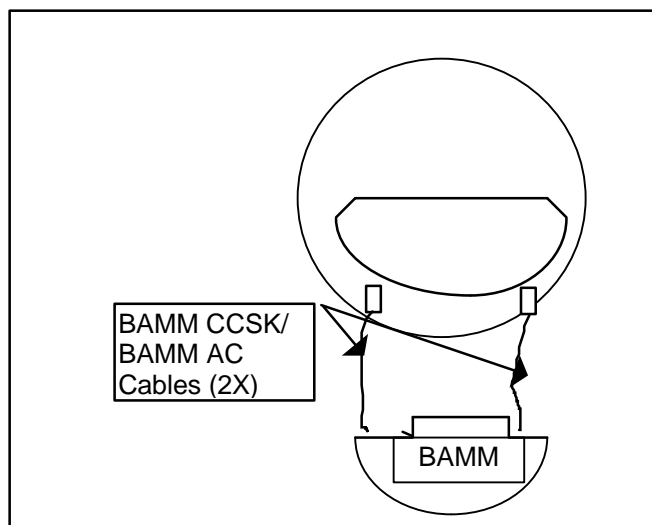
Notes:

1. Never place a superclip over the insulated portion of a current coil.
2. Jaw opening on the clip installation tool must be set to predetermined dimension:
 - a) for GE I70 S-I, jaw opening = 0.22
 - b) for GE I70 S-II, Jaw opening = 0.34
3. It is preferred to have all clip prongs engaged with the current coil. On some meters, due to size of current coil and clip, the upper prongs do not become engaged. Acceptance criteria for clip engagement is:
Clip must not slip on current coil by pulling (slight tug) on the wire.

4. Do not attempt to re-use the wire. Reject the wire.



BAMM/BAMMCCSK AC Cable Assy.



7.1.2 Use the needlenose pliers to grip the AC cable fast-on connector, then press it fully onto the fast-on tab on the BAMM/BAMMCCSK. Repeat for the other cable.

Note: Do not attempt to straighten a BAMM/BAMMCCSK fast-on tab that is bent. If the fast-on connector cannot be fully seated onto the tab because the tab is bent too much, reject the BAMM/BAMMCCSK.

8. Interrupter Installation

8.1 Insert the interrupter into the interrupter installation tool as shown below. It is important that the interrupter and the interrupter tool are properly oriented.

Handle the interrupter from long side of hub not the interrupter blades. Do not touch the interrupter blades as you insert the interrupter into the tool.

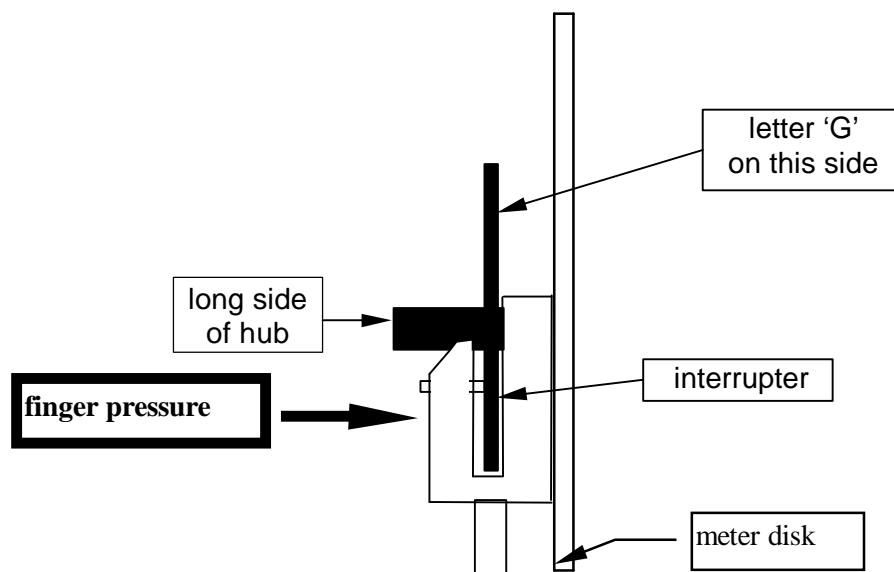


Figure 3: Interrupter Installation

8.2 Carefully position the interrupter next to and parallel to the meter shaft with the spacer side 2of the tool **resting totally flush** on the bottom of the meter disk. Use your finger or thumb to press the tool totally flush against the disk when you snap the interrupter onto the disk.

8.3 Verify that the installation tool is held perfectly vertical, then gently squeeze the pliers until the interrupter snaps onto the meter shaft. If you don't feel or hear the 'snap', the interrupter might be damaged or in the wrong position.

8.4 Remove the interrupter tool from the meter base. **Make certain that the interrupter blade is not twisted while removing the tool. Gently release the tool from the interrupter before removing the tool from the meter.**

8.5 Using 0.025" feeler gage, check for interrupter blade- meter base clearance. The clearance should be checked for all blades and meter base on both sides of shaft. If clearance is less than feeler size(0.025"), the interrupter must be removed and a new interrupter installed. Repeat interrupter placement procedure. If the clearance is still less than 0,025place the meter aside and do not reuse meter. Acceptable versus

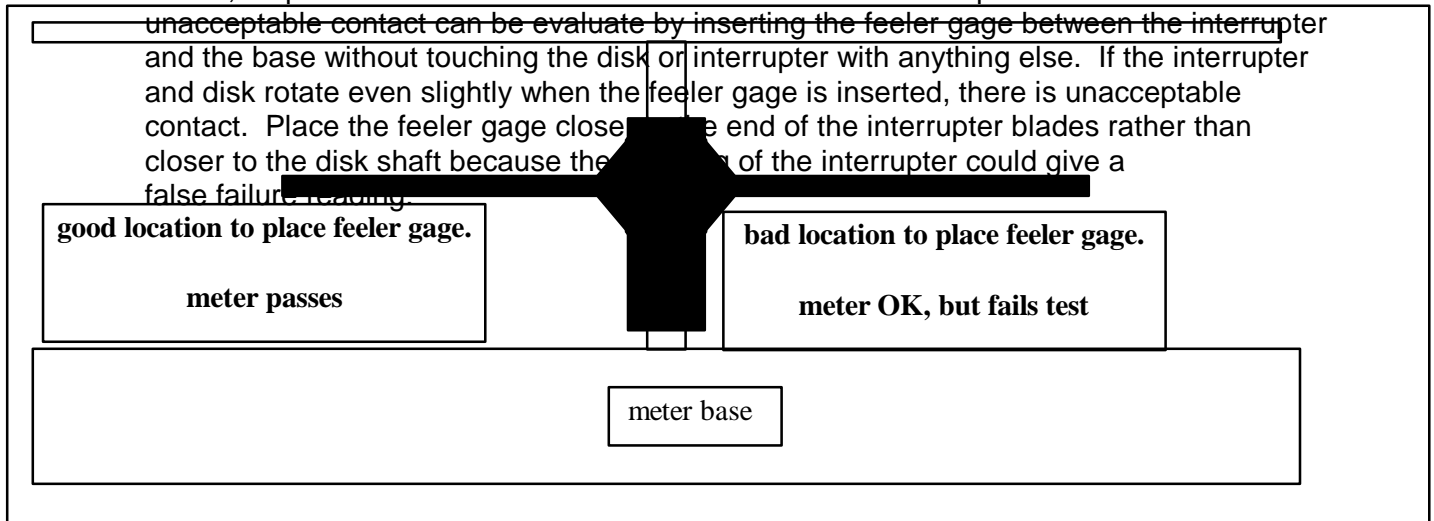


Figure 4: Checking Proper Interrupter Instalation

9.0 BAMM/BAMMCCSK Installation

- 9.1 Take the new barcode label and attach it to the front face of the BAMM/BAMMCCSK. Make sure the label is square and does not interfere with any holes or writing on the enclosure. Verify the quality of the label print and the utility meter ID on the label matches the original label on the module. If there is a discrepancy between old and new label serial number, investigate the problem and print and attach the correct label.
- 9.2 Position the BAMM/BAMMCCSK onto the meter standoffs by rotating the BAMM/BAMMCCSK upwards and over the interrupter. Use the electric torque driver (set to 5 in-lbs) to secure the TOMM to the meter using two module mounting screws. Be very careful not to damage the screw heads.
- 9.3 Again rotate the disk gently to verify that there is no interference with the interrupter against the meter or BAMM/BAMMCCSK.

- 9.4 Position the AC cables low around the perimeter of the meter base, but not into the BAMB/BAMMCCSK housing. Excess cable is folded over for both wires on the clip side.
- 9.5 Install the meter cover. Make sure the power cables are not pinched by the cover.

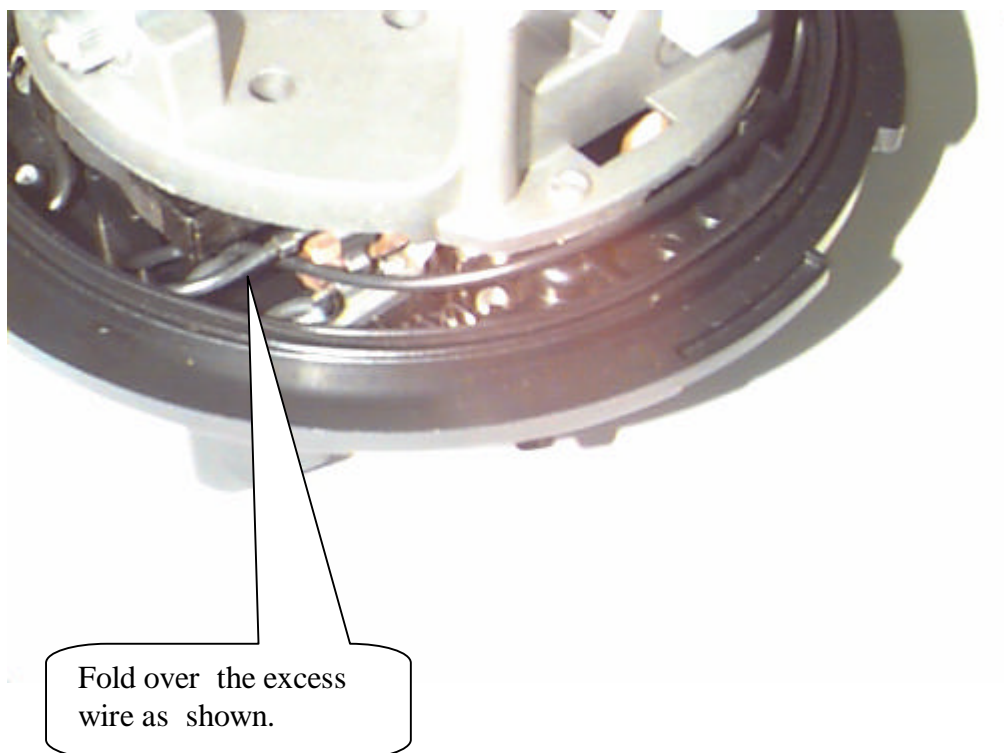
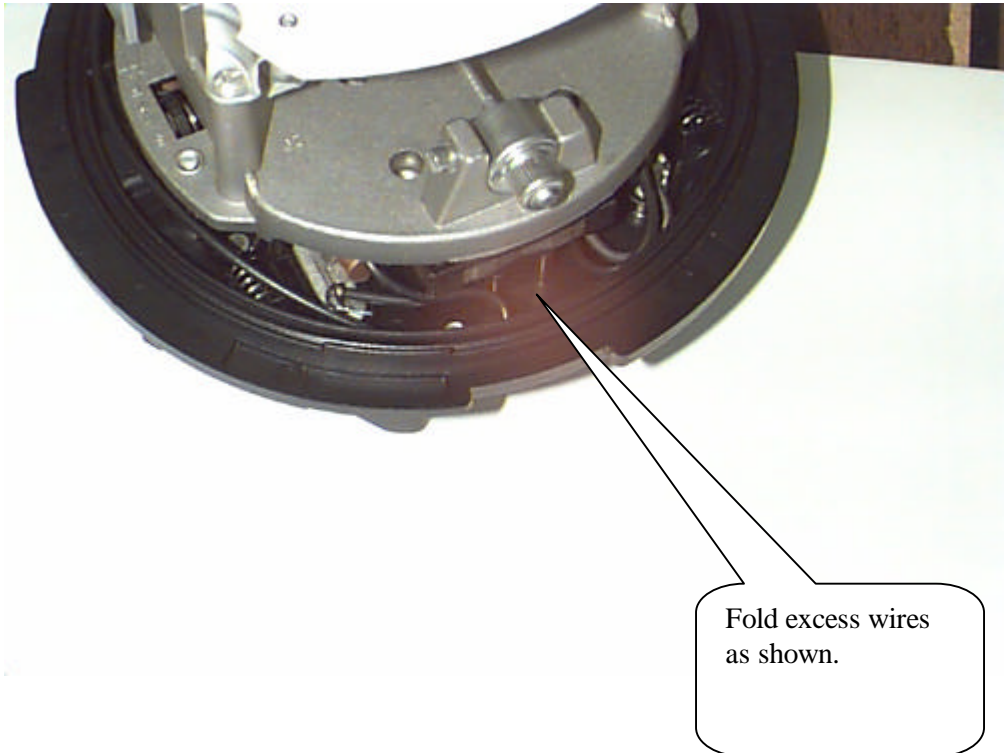


Figure 5: Proper AC cable Installation and Routing

10. Tools and Materials Required for 120V Meter Module Assembly

NOTE: A grounded wriststrap must be worn during assembly.

The following tools and materials are required for meter retrofit:

<u>CellNet Part No.</u>	<u>Description</u>	<u>Used On</u>	<u>Quantity</u>
19-0109	120V AC BMM cable	120V BMM	2
n/a	Hakko soldering iron #936, non-ESD, temperature controlled base, adjustable wattage (or equivalent)	120V	a/r
n/a	Metcal tip #STTC-137, chisel point (or equivalent)	120V	a/r
n/a	22AWG wire stripper/cutter	120V	a/r
n/a	Sn 63 RA solder Kester# 285	120V	a/r
n/a	Solder braid	120V	a/r
n/a	Foam tipped applicator for flux/solder joint cleaning	120V	a/r
n/a	Isopropal alcohol for flux/solder joint cleaning	120V	a/r

11. Power Cable Installation

Note: Make sure to use the correct AC cables with the 120V BAMM. The 120V BAMM uses the yellow AC cables without in-line components.

11.1 Soldering instructions for 120V meters only

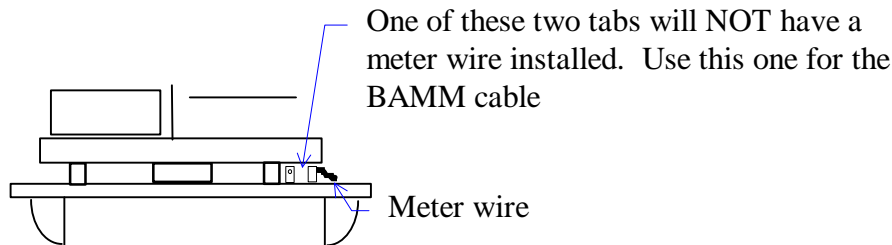
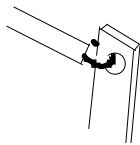


Figure 7: 120v AC Cable Connection

If surface of the eyelet/tab is dirty or corroded, use foam applicator and alcohol to clean the surface. Try not to generate any particles during this process, and be careful to remove any particles you do generate.



Hook pre-tinned and formed wire through eyelet on meter tab and solder wire to tab. Visually inspect meter base for excess solder. Remove any excess solder with the solder braid and/or soldering iron.

Note: No solder splatter or solder balls are permitted inside the meter.

Clean the solder joint with alcohol to remove any residual flux. Give a slight tug on the wire to ensure the solder is securely attached to the tab.

Note: Tab may remain hot for a few seconds. Wait 5-10 seconds before routing the cable near the tab.

