



OPERATION & MAINTENANCE INSTRUCTIONS MANUAL

MBT 250/220 CALIBRATION KIT

PACE P/N 6993-0133-P1

NUMBER 5050-0288 REV. B

INTRODUCTION

The following procedure will allow you to effectively calibrate your MET 250/220 system to insure accuracy and maintain peak performance.

Perform the following procedure step by step, in sequence, to:

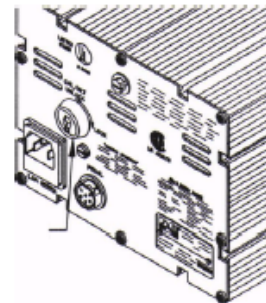
1. Alter Tip Temperature values.
2. Alter Tip Temperature Offset values.
3. Determine and/or alter feature status and defaults stored in the system.
4. Recalibrate the system for accuracy.

PROCEDURE

KEYLOCK OPTION

KEYLOCK

1. An optional KeyLock feature is available from PACE which prevents unauthorized alteration of stored data or calibration of the system. Check the rear panel of the system power source. If the KeyLock feature is present there will be a KeyLock switch located in the upper left portion of the panel. Use the key to turn the switch to the "Unlock" position. If the feature is not present, there will be a round plastic filler plug present at that location.



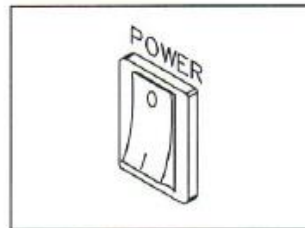
NOTE

The KeyLock switch-must be turned to the "UNLOCK!" position to alter any of the data stored in the memory or to recalibrate the system

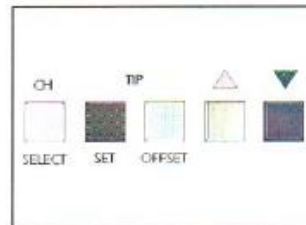


ENTERING CALIBRATION MODE

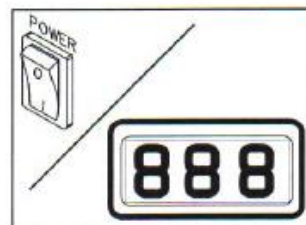
2. Place POWER Switch in the "OFF" (0) Position



3. Press and hold the Tip Temperature Set and Scroll Down Keys.



4. Place POWER Switch in the "ON" (I) Position. All of the system LEDs will light. The Temperature Display will read "888" and change to read "1-X".



5. Release the Tip Temperature Set and Scroll Down Keys. The Temperature Display will now read "CAL" and only the three Channel LEDs will remain lit signifying that the system is now in calibration Mode

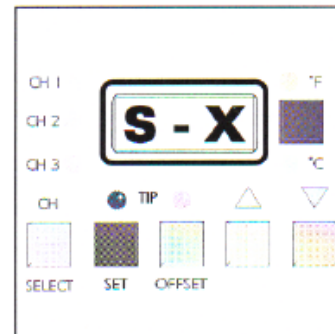




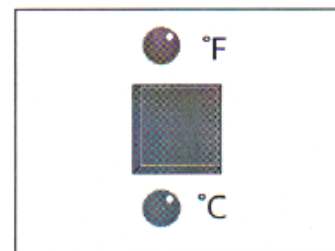
°F or °C READOUT DEFAULT

6. Press and release the Tip Temperature Set

Key. The Digital Readout will display "S-X" (X = 1 - 9). Either the °F or °C will be on. This is the default readout (e.g., if the °C LED is on the Digital Readout will display temperature readings in °C).

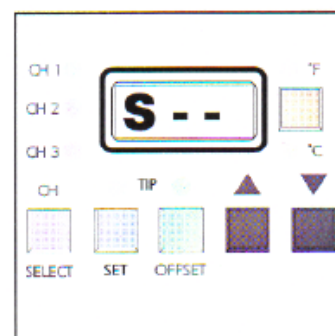


7. Press and release the °F/°C Key to change the default. Each subsequent press and release of the key will change the default



AUTOMATIC SETBACK

8. As received from the factory, the temperature will read "S - -" meaning that Automatic Setback is turned off. A readout of 1 thru 9 on the right side of the Digital Readout indicates time to Automatic Setback in increments of 10 minutes. For example, "S-3" would indicate a timeout of 30 minutes. To change the Automatic Setback feature, press the Scroll Up Key to increase the timeout and/or enable the feature. Press the Scroll Down Key to decrease the timeout.

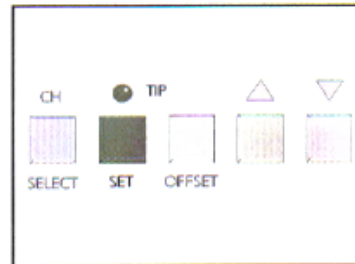


9. Press the Tip Temperature Set Key to store the °F/°C default and Automatic Setback value in system memory. The Digital Readout will revert to display "CAL" and only the Channel 1 LED will remain lit



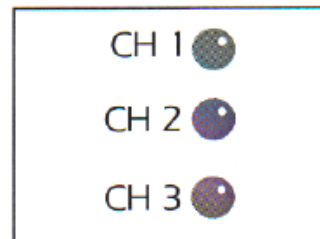
AUTOMATIC SHUTDOWN

10. The system enables the Automatic Shutdown feature only when the Automatic Setback feature is enabled. No additional steps are necessary.



CHANNEL SELECTION

11. The Channel 1 LED is now lit signifying that Channel 1 is ready for calibration. Perform steps 12 through 21 to calibrate. As channels change, repeat these steps for each channel.

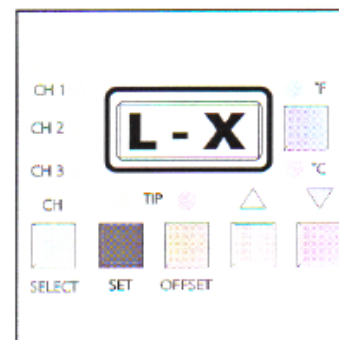


NOTE

All temperature limits are stored in system memory in degrees °F

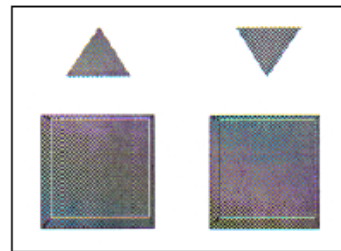
LOWER TEMPERATURE LIMIT SETPOINT

12. Press and release the Tip Temperature Set Key. The Digital Readout will now display "L-X" (X = 1-9). This is the stored value of the Lower Temperature Limit in increments of 100°F. For example, if the "L-5" is displayed, the lower limit is 500°F.

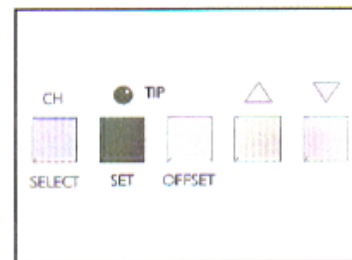




13. Press Scroll Keys as necessary to increase (Scroll Up Key) or decrease (Scroll Down Key) the Lower Temperature Limit value.

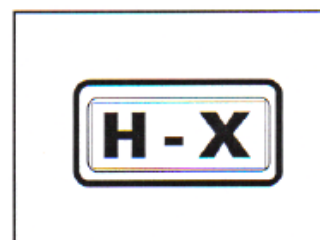


14. Press and release the Tip Temperature Set Key to store the display value into memory.



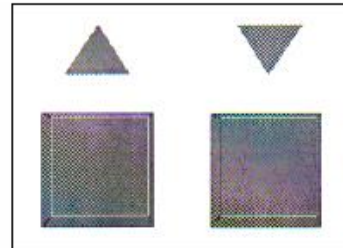
UPPER TEMPERATURE LIMIT SETPOINT

15. The Digital Readout now displays "H-X" (X =1-9). This is the stored value of the Upper Temperature Limit in increments of 100°F in the same manner as the Lower



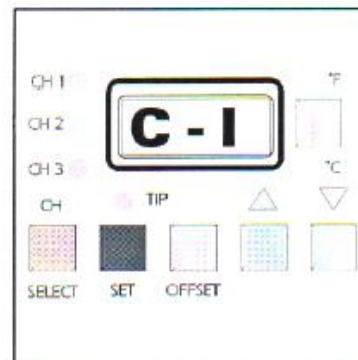


16. Press Scroll Keys as necessary to increase (Scroll Up Key) or decrease (Scroll Down Key) the Upper Temperature Limit value.

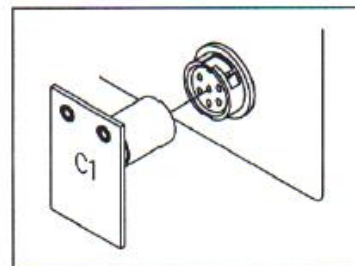


17. Press and release the Tip Temperature Set Key to store the displayed value into memory. The Digital Readout will now display "C-1"

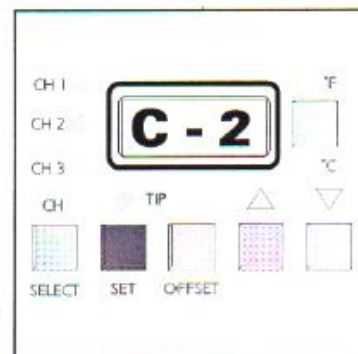
NOTE
If you do not wish to recalibrate for readout accuracy, press the Tip Temperature Offset Key and perform steps 12 through 17. After all channels have been calibrated, you may exit the Calibration Mode by pressing and releasing the Tip Temperature Offset key again.



18. Unplug the handpiece connected to the Current Channel and plug in the #1 Calibration Assembly.

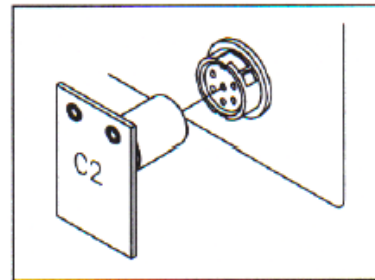


19. Press and release the Tip Temperature Set Key. The Digital Readout will flash (---) to indicate that the system microprocessor circuitry is recalibrating one aspect of the system circuitry, "C-2" will now be displayed.

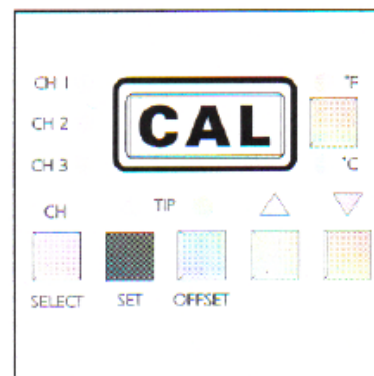




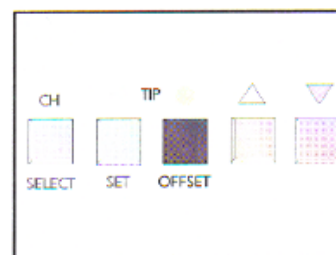
20. Unplug the #1 Calibration Assembly and plug in the #2 Calibration Assembly.



21. Press and release the Tip Temperature Set Key, The Digital Readout will flash "CAL" to indicate that the system microprocessor controlled circuitry is recalibrating another aspect of the system circuitry. "CAL" will now be displayed indicating that calibration of this channel is complete.



22. Press and release the Tip Temperature Offset Key two times to exit calibration. All values, features and defaults entered during the calibration are now stored in memory and all channel tip temperature settings are turned "OFF". All channel Tip Temperature Offset settings are set to the default value of 6°F (3°C).





TEMPERATURE DISPLAY MESSAGE CODES

Listed below are message codes and a description of each which may be displayed on the system power source digital readout during the calibration procedure.

DISPLAY MESSAGE	DESCRIPTION
C-1 OR C-2	Indicates system is ready to process Digital Readout accuracy calibration for a particular channel using the appropriate calibration module.
CAL	Indicates that system is in the Calibration Mode.
E-5	Input to control circuitry unstable. Indicates that no calibration module is connected to the channel being calibrated or the incorrect module has been inserted.
E-6	Loose connection. Calibration input is out of range. Normally occurs if incorrect calibration module is inserted.
H-X (X = 1 thru 9)	Indicates the Current Channel is ready to accept new Upper Temperature Limit setpoint X (X times 100°F).
L-X (X = 1 thru 9)	Indicates the Current Channel is ready to accept new Lower Temperature Limit setpoint X (X times 100°F).
OFF	Setpoint for this channel is below Lower Temperature Limit setpoint.
S--	Indicates that the Automatic Temperature Setback (and Power Down) feature is disabled (turned off).
S-X	Indicates that the Automatic Temperature Setback (and Power Down) feature is enabled (turned on) and will set each channels' Set Tip Temperature back after X times 10 minutes of handpiece inactivity (non-use).
-- (flashing)	Indicates that the system circuitry is proceeding with calibration using the proper calibration module (C-1 or C-2).



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Limited Warranty

Seller warrants to the first user that products manufactured by it and supplied hereunder are free of defects in materials and workmanship for a period of one (1) year from the date of receipt by such user. This Warranty as applied to blowers, motor pumps, x-ray tubes, lenses, optical/lighting probes and cameras is limited to a period of one (1) year. Monitors, computers and other brand equipment supplied but not manufactured by PACE are covered under their respective manufacturer's warranty in lieu of this Warranty.

This warranty does not cover wear and tear under normal use, repair or replacement required as a result of misuse, improper application, mishandling or improper storage. Consumable items such as tips, heaters, filters, etc. which wear out under normal use are excluded. Failure to perform recommended routine maintenance, alterations or repairs made other than in accordance with Seller's directions, or removal or alteration of identification markings in any way will void this warranty. This warranty is available only to the first user, but the exclusions and limitations herein apply to all persons and entities.

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Seller will, at its option, repair or replace any defective products at its facility or other location approved by it at no charge to user, or provide parts without charge for installation by the user in the field at user's expense and risk. User will be responsible for all costs of shipping equipment to Seller or other location for warranty service.

EXCEPT FOR THE REMEDY ABOVE DESCRIBED, UNLESS OTHERWISE REQUIRED BY APPLICABLE LAW, SELLER WILL HAVE NO OTHER OBLIGATION WITH REGARD TO ANY BREACH OF WARRANTY OR OTHER CLAIM WITH RESPECT TO THE PRODUCTS, OR LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL LOSS OR DAMAGE CAUSED BY OR OCCURRING IN CONNECTION WITH ANY OF THE PRODUCTS.

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