ACCURACY CHECK AND CALIBRATION PROCEDURE FOR THE ALCO-SENSOR IV

New Alco-Sensor IV's should be checked for accuracy once a week for the first month, and once a month thereafter. Programs which use the Alco-Sensor IV very frequently, or who must meet rigorous quality control regulations, may require a more frequent accuracy check interval.

A. ACCURACY CHECK

1. Insert a clean mouthpiece to start the test procedure.

2. Most instruments will run a blank automatically. A few instruments will require the operator to press the **MANUAL** button to run the blank. A few instruments will also prompt the operator to press the Set button after the blank.

3. Make a note of the Target value of the Mini Alcohol Can, Alcohol Gas Tank, or simulator, and deliver a sample of the alcohol to the Alco-Sensor IV.

If using the Mini Alcohol Can:

Note: Intoximeters does not recommend using the Mini Alcohol Can to perform accuracy cheeks or adjustments on the Alco-Sensor IV. The Mini Alcohol Can should be used only for non-evidential testing.

Connect the Mini Alcohol can, valve, mouthpiece, and Alco-Sensor IV as follows. Remove the clear plastic tubing from the top of the Mini Alcohol can. With a light back and forth twisting motion, attach valve to the stem on the top of the Mini Alcohol can. Insert a clean mouthpiece into the Alco-Sensor IV. Insert the small plastic tubing on the valve into the end of the mouthpiece that is in the Alco-Sensor IV.

When the Alco-Sensor IV flashes ***TEST***, depress the valve on Mini Alcohol can for 4 seconds. On the 3rd second of the 4-second count, press the **MANUAL** button. The Alco-Sensor IV will sample the gas at this time. It is important to press the **MANUAL** button while the gas is still flowing.

4. Note the reading on the Alco-Sensor IV. Press the **SET** button. You can recall the reading at any time before you remove the mouthpiece by pressing the **RECALL** button.

5. If the reading is +/- .010 of the target value on Mini Alcohol Can the unit is considered within calibration limits and no further action is necessary. If the reading is not within limits, the Calibration Procedure should be performed.

Example: Target value of Mini Alcohol can is .113. Acceptable limit is .113 +/1 .010, or any reading between .103 and .123. An accuracy check shows an Alco-Sensor IV reading of .111. This is within acceptable limits, so Calibration Procedure is not necessary.

If using Alcohol Gas Tank:

First, purge the regulator by depressing the valve on Alcohol Gas Tank for at least 10 seconds to allow stale gas to be expelled from regulator. Insert a clean mouthpiece into the Alco-Sensor IV. Make a firm connection between the plastic tubing from the regulator and the end of the mouthpiece. When the instrument displays ***TEST***, allow seven seconds of gas to flow through the mouthpiece. On the sixth second, while the gas is flowing, press the **MANUAL** button. Continue to hold the gas button down for the full seven seconds.

4. Note the reading on the Alco-Sensor IV. Press the **SET** button. You can recall the reading with the **RECALL** button at any time before ejecting the mouthpiece.

5. If the reading is +/- .005 of the target value of Alcohol Gas Tank, the unit is considered within calibration limits and no further action is necessary. If not within limits, the Calibration Procedure should be performed.

Example: Target value of Alcohol Gas Tank is .037. Acceptable limit is .037 +/- .005, or any reading between .032 and .042. An accuracy check shows an Alco-Sensor IV reading of .031. This is not within acceptable limits, so Calibration Procedure is necessary.

If using Simulator:

Prepare the simulator according to manufacturers instructions. Be sure the temperature is at 34 degrees Celsius. Make a positive connection between the output of the simulator and the mouthpiece of the instrument. Blow steadily through the Simulator for about 6 seconds. Press **MANUAL** button on the 4th second, while continuing to blow through the Simulator.

4. Note the reading on the Alco-Sensor IV. Press the **SET** button. You can redisplay the reading at any time by pressing the **RECALL** button before removing the mouthpiece.

5. If the reading is +/- .005 of the target value of the Simulator, the unit is considered within calibration limits and no further action is necessary. If not within limits, the Calibration Procedure should be performed.

Example: Target value of Simulator is .100. Acceptable limit is .100 +/- .005, or any reading between .095 and .105. An accuracy check shows an Alco-Sensor IV reading of .106. This is not within acceptable limits, so Calibration Procedure is necessary.

B. CALIBRATION PROCEDURE

The purpose of Calibration Procedure is to adjust the sensitivity of the Alco-Sensor IV to bring it into correct calibration. We recommend using the Alcohol Gas Tank or Simulator to perform calibration adjustments. We do not recommend using the Mini Alcohol Can for this procedure.

> *Note: If the temperature is not within the range of 23-27 degrees Celsius, the Alco-Sensor IV will not allow the calibration procedure to be performed. If the temperature is high, remove the mouthpiece and put the unit in a cool place for a few minutes. If the temperature is too low, remove the mouthpiece and put the unit in a warm place, such as your pocket, for a few minutes.*

1. Remove the battery cover to expose the calibration switches. While holding down switch #1 (the far left hole) with the calibration tool, insert a mouthpiece into the instrument. When the instrument displays four squares, release switch #1.

2. While the display displays ***.000*** from the black check, insert the calibration tool into switch #3 (the button on the far right) and hold it down until the blank is completed. See your manual for a picture.

3. After the blank is completed, the ***.000*** display will change to another number. This number will be the one that was used for the last calibration. When this number appears, release switch #3. If the display show temp> or temp<, remove the mouthpiece, bring the unit to proper temperature, and start the procedure again.

4. On some instruments, after a few seconds the display goes to ***SET***; if so, press the **SET** button to cock the sampling pump. The number will return to the display.

5. Adjust the number in the display up (by pressing switch #1) or down (by pressing switch #2) until the number matches the value of the standard that you are using. For example, if the value of your Alcohol Gas tank is .037, you should adjust the number on your Alco-Sensor IV to read ***.037***.

> ***IMPORTANT: If your instrument already displays the value of your alcohol standard this does NOT mean that your instrument is calibrated. You must proceed to the next step.***

6. Use the calibration tool to press switch #3 again. The display will display ***CAL***. The Alco-Sensor is ready now to read the alcohol standard.

7. Follow the instruction for the Calibration Check to deliver the alcohol standard (Mini Alcohol Can, Alcohol Gas Tank, or Simulator) to the instrument. Use the same procedure as when performing an Accuracy Check, using the **MANUAL** button to sample the standard.

8. The instrument will re-display the number entered in Step. 5. When the instrument displays ***SET***, press the **SET** button. Remove the mouthpiece at the intermittent beep.

> ***IMPORTANT: The final display will always be the same number that you set the display to. It does NOT mean that your have successfully calibrated your instrument. You must perform an Accuracy Check to confirm that the instrument is calibrated.***

9. After a two-minute wait, use a new mouthpiece to perform an accuracy check to confirm the calibration. The Accuracy Check result should be +/- .003 of the target value. If not, then repeat the calibration procedure. If two attempts to calibrate the Alco-Sensor IV fail to produce an acceptable accuracy check, then the instrument should be taken out of service and technical assistance requested.

GLOSSARY

Accuracy Check: a procedure used to see how accurately an Alco-Sensor IV is reading and determine if the Alco-Sensor IV needs a calibration adjustment or not.

Calibration Adjustment: A procedure that adjusts the sensitivity of the Alco-Sensor IV. The Alco-Sensor IV makes this adjustment in its computer chip

Target Value: The expected reading an alcohol standard will produce.

Alcohol Standard: A means to produce and alcohol vapor of a know alcohol concentration. The manufacturer recommends using the Alcohol Gas Tank or Simulator for use with the Alco-Sensor IV. Some customers use the Mini Alcohol cans, but these do not have the same accuracy as the other alcohol standards.

If you have questions, comments, or difficulties calibrating your instrument, please contact AlcoPro, Inc. at 800-227-9890.