



ACCURACY CHECK AND CALIBRATION PROCEDURE FOR THE ALCO-SENSOR

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

A. ZERO DISPLAY CHECK

The purpose of Zero Display Check is to assure the unit is free of alcohol from previous tests.

1. Depress **READ** button. .000 should be seen for at least 7 to 10 seconds. For two digit model, display should show .00 with a minus (-) sign flashing.
2. If above condition is NOT seen, depress SET button and recheck in 1 minute.

B. ACCURACY CHECK

The purpose of an Accuracy Check is to determine if the unit is within acceptable calibration limits.

1. Check temperature on back of Alco-Sensor. Any visible number verifies proper operating temperature.
2. Perform Zero Display Check as described above.
3. Be certain SET button is depressed.
4. Attach Alco-Sensor to either the Mini Alcohol can, the Alcohol Gas Tank, or a Simulator.
5. Make a note of the Target value of the Mini Alcohol can or Alcohol Gas Tank. If using a Simulator, Target value is usually .100, depending on the solution being used.

If using Mini Alcohol can:

Connect the Mini Alcohol can, valve, mouthpiece, and Alco-Sensor 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 the small plastic tubing on the valve into the end of the mouthpiece which is closest to the mounting hole in the side of the mouthpiece. Attach the mouthpiece to the Alco-Sensor.

Depress valve on Mini Alcohol can for 4 seconds. On the 3rd second of the 4 second count, depress the READ button and hold it down. This ensures that a flow of gas is going through the mouthpiece when the READ button is depressed. If using Alcohol Gas Tank: First, purge the regulator by depressing valve on Alcohol Gas Tank for at least 10 seconds to allow stale gas to be expelled from regulator. Press tank valve for seven seconds. Press the READ button on the sixth second BEFORE releasing Alcohol Gas Tank valve, so that the Alco-Sensor samples the gas while it continues to flow.

If using Simulator:

Blow steadily through the Simulator for about 6 seconds. Press READ button on the 4th second, while continuing to blow through the simulator.



6. Observe the reading on the Alco-Sensor until it peaks and becomes stable for 5 seconds.

7. If the reading is \pm .005 of the target value for the Alco-Sensor III (\pm .01 for the Clinical Alco-Sensor), the unit is considered within calibration limits and no further action is necessary. **If not within limits, the Calibration Procedure should be performed.**

Example #1: Target value of Mini Alcohol can is .113. Acceptable limit is any reading between .108 and .118. The Accuracy Check shows an Alco-Sensor III reading of .111. This is within acceptable limits, so Calibration Procedure is NOT necessary.

Example #2: Target value of Mini Alcohol can is .09. Acceptable limit is any reading between .08 and .10. Accuracy Check shows a Clinical Alco-Sensor reading of .07. This is not within acceptable limits, so Calibration Procedure IS performed.

C. CALIBRATION PROCEDURE

The purpose of the Calibration Procedure is to adjust the sensitivity of the Alco-Sensor to bring it into correct calibration.

1. Using the screwdriver provided in the Alco-Sensor case, turn the calibration screw located on the right side of the unit two full turns **clockwise**. This increases the sensitivity of the Alco-Sensor, resulting in a higher than normal reading.

2. Perform the Zero Display procedure as described earlier to see that unit is free from traces of alcohol from previous tests.

3. Take a reading of the Mini Alcohol can, Alcohol Gas Tank, or Simulator, as described in the Accuracy Check procedure.

4. Quickly remove Alco-Sensor from the can, tank, or simulator and insert screwdriver in the calibration screw.

5. Carefully observe the reading. When the reading goes above the target value (the value marked on the can, tank, or simulator), immediately turn the calibration screw counterclockwise until the reading on the Alco-Sensor just approaches, but does not go below the target value. The reading will continue to rise, and the screw should again be turned counterclockwise to bring the reading to the target value, **but** not below it. The reading may rise a bit more, and another slight adjustment may be necessary to bring the reading down to the target value.

Note: Under **no** circumstances should the screw be turned clockwise to increase the reading on the Alco-Sensor **during this** procedure. If during the calibration the screw is turned too far, resulting in the reading going below the target value, DO NOT bring the reading UP by turning the screw clockwise. **Instead**, wait to see if the reading will **rise on its own** to the target value. If it does rise past the target value, the screw may then be turned counterclockwise to lower the reading. If the Alco-Sensor reading does not rise to the target value, let the Alco-Sensor rest for several minutes with the SET button depressed, and repeat the calibration procedure.

6. Once the unit has been calibrated, depress the **SET** button. (Always leave the **SET** button depressed when the Alco-Sensor is not in use).

7. Verify calibration by performing an Accuracy Check. Acceptable limits immediately after adjustment are \pm .003 of target value.

Note: The Alco-Sensor III and Clinical Alco-Sensor lose sensitivity if more than five positive tests are performed in an hour. Therefore, accuracy checks repeated at close intervals should be avoided. The Alco-Sensor should be allowed to rest for five to ten minutes between accuracy checks to allow the fuel cell to adequately recover.



GLOSSARY

Accuracy Check: A procedure to see how accurately the Alco-Sensor is reading. This procedure is done to determine if the Alco-Sensor needs adjustment or not.

Calibration Adjustment: A procedure which adjusts the accuracy of the Alco-Sensor by turning a screw.

Target Value: The alcohol value printed on the Mini Alcohol can, Alcohol Gas Tank, or Simulator. This value is different for every Mini Alcohol can. For a simulator, the target value is almost always .100. Alcohol Gas Tanks come in values of .038 and .082. Actual target value is determined using an elevation chart on the tank.