Technical Bulletin #TB101

Date: November 8, 2001

Subject: Calibration Procedures for 140B Methane Monitor System – New Detector Baffle Cap

As of November 8, 2001 the CSE 140B Methane Monitor Detector Baffle Cap has been changed. There are two types of 140B Control Unit calibration systems, either the Remote Infrared or the Internal Potentiometer System. The procedures for calibration are the identical to the original procedures and are as follows:

Calibration Procedures: CSE 140B Methane Monitor .

1) Apply power to the 140B Methane Monitor System and allow 5-minute warm-up period.
2) Remove the baffle cap, inspect the inside of the cap, internal screens and face/side ports to insure that they are free of coal dust, mud, water etc. Inspect the sensor head, it should be clean and free of obstructions. If the baffle cap or sensor head contain obstructions clean or replace. Do not use cleaners containing silicone compounds, which may desensitize the sensor.
3) Re-install the new style baffle cap; screw the baffle cap onto the sensor, this will require approximately 3 turns. Secure the new style baffle cap by turning an additional 1 half turn with a pair of channel locks. Do not use the lock ring with the new style baffle cap. Once the new style baffle cap is secured the system is ready for calibration.
4) The 140B Methane Monitor System must be in ambient air (20.9% oxygen and 0.0% methane gas) in order to establish a zero value. If the ambient air contains some other value use a gas cylinder containing certified zero air (20.9% oxygen and 0.0% methane gas) to establish the zero set point. When calibration gas cylinders are used to zero the 140B Methane Monitor set the 142T test stand in an up-right position and adjust to deliver a flow rate of 0.5 liters per minute (1.0 SCFH) of zero air and attach the calibration cap to the end of the hose. Then slide the calibration cap over the baffle cap as far it will go. Allow the gas to flow to the detector for a minimum of 2 minutes. If the control unit displays a value other than 0.0 adjust the control unit to zero.
5) Zeroing the Remote Infrared System: Hold the 140B Infrared Remote Calibrator approximately six inches from the right digit of the 140B LD IR Control Unit. Do not attempt to adjust calibration in bright sunlight or with cap lamp shining directly on the display.
6) Press and hold the zero-up or zero-down key to adjust the control unit display value to 0.0. If the control unit display value was in an over-range condition before calibration, (a flashing 8.8 on the control unit display), it may require holding the Remote Calibrator on the control unit display for several minutes to bring the values back into range.
7) Zeroing the Internal Potentiometer System: Access the 140B Control Unit zero and span potentiometers by removing the top cover of the 140B Control Unit.
8) Adjust the zero potentiometer until the control unit display value is 0.0. If the control unit display value was in an over-range condition before calibration, (a flashing 8.8 on the control unit display), it may require a large number of turns of the pot to bring the values back into calibration.

9) Spanning the Remote Infrared System: Set the 142T test stand in an up-right position and adjust to deliver a flow rate of 0.5 liters per minute (1.0 SCFH) of methane (example 2.5% methane) and attach the calibration cap to the end of the hose. Then slide the calibration cap over the baffle cap, as far it will go. Allow the gas to flow to the detector for a minimum of 2 minutes. If the monitor displays a value other than 2.5% adjust the control unit display with the Infrared Calibrator.
10) Press and hold the span-down or the span-up key to adjust the control unit display value. If the control unit display value was in an over-range condition before calibration, it may require holding the Remote Calibrator on the control unit display for several minutes to bring the values back into range.
11) Spanning the Internal Potentiometer System: Set the 142T test stand in an up-right position and adjust to deliver a flow rate of 0.5 liters per minute (1.0 SCFH) of methane (example 2.5% methane) and attach the calibration cap to the end of the hose. Then slide the calibration cap over the baffle cap, as far it will go. Allow the gas to flow to the detector for a minimum of 2 minutes. If the monitor displays a value other than 2.5% adjust the control unit display with the Span Potentiometer.
12) Adjust the Span potentiometer until the control unit display value is equal to the calibration gas value (example 2.5% Methane). If the control unit display value was in an over-range condition before calibration, it may require a large number of turns of the potentiometer. Remove the calibration cap and let the control unit display stabilize.
13) Note: In instances where a large adjustment was required to calibrate the span value of the control unit, it may result in a slight shift of the zero value. If this occurs repeat the calibration process to fine tune the zero and span values.
14) The CSE 140B Methane Monitor is now calibrated.

How do you determine the difference between the old style baffle cap and the new style baffle cap?

The old style CSE 140B Methane Monitor Detector is equipped with a baffle cap that has a total of 9 side ports and a lock ring.

The New Style CSE 140B Methane Monitor Detector is equipped with a Baffle Cap that has a total of 12 side ports and the lock ring has been removed.