Technical Support Note

Title: Checking for air Leaks during Calibration
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Overview:

Before an analyzer is field calibrated, the user should confirm that the exhaust gas delivery system is air tight. The Bridge EGA products are field calibrated through the probe tip using a 'tailpipe adapter' with the probe assembly intact, to make sure the calibration is as accurate as possible and replicates the manner in which the analyzer is most often used – tailpipe gas measurement. This system operates under a vacuum as it pulls gas from the tailpipe, and extraneous air leaks can dilute exhaust gas and calibration gas. The air-tightness of the probe/sample line/ analyzer should be confirmed before field calibration is attempted.

Signs of Air Leaks – High O2 During Calibration:

Calibration gas contains no oxygen in it. If you continue to see oxygen readings on the gas analyzer when flowing calibration gas, you are getting some ambient air (which contains 20.6% oxygen) inadvertently into the sample gas. **Trouble-shoot to find and correct the source of the air leak and do not continue calibration if you see more than 0.50% Oxygen on the O2 display when flowing calibration gas.**

Remove the Probe Assembly, and check the O2 reading and CAL gas accuracy just using the sample line:

If the tailpipe probe is removed from the sample line, and the end of the sample line inserted into the clear plastic tube (tailpipe replicator) attached to the CAL gas tank regulator, then a check can be made of the gas analyzer accuracy without the probe. Insert the end of the sample line fully into the tube so it is resting on the gas outlet from the regulator.

The user should see the oxygen reading go below 0.5% and can confirm general analyzer accuracy using this method prior to full calibration. If the O2 reading does not go below 0.5%, either there is a leak in the sample line, its connection to the EGA, or there is insufficient gas flow from the CAL gas cylinder to the analyzer.

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Re-connect the probe to the sample line and repeat the procedure:

Reconnect the probe to the sample line, and insert it fully into the tailpipe replicator and repeat the process above – confirming low oxygen readings and looking for and correcting air leaks in the probe assembly. Pay particular attention to ambient air leaks that may occur from the one-way valve at the bottom of the probe water trap – which can be easily tested by placing a thumb over the bottom of the water trap to provide a gas-tight seal.

Once it is confirmed that there are no air leaks in the gas delivery system, the analyzer may be calibrated with the procedures given in the analyzer and/or gas calibration manual using the analyzer front panel Calibration controls.

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