



# Technical Support Note

Title: Troubleshooting low CO and HC readings on a 2 Gas EGA

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38 2-Gas Low Reading Troubleshooting.docx

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## Overview:

The purpose of this document is to provide a method to troubleshoot a 2 Gas EGA for low CO and HC gas readings.

## Preparation:

Make sure the analyzer is fully assembled with the probe, filters, and sample line attached – and has been operating for at least 5 minutes from power on. Service all Zero requests normally with the probe open to the air (not in an exhaust pipe).

If operation seems normal – proceed with the troubleshooting method below.

## EGA Low Reading Troubleshooting Method:

1. With the fully configured (probe, etc) analyzer running, recently Zeroed and sampling room air (not exhaust) – block the gas exit port at the right side of the analyzer momentarily by placing your thumb over it. You should hear the pump begin to ‘race’ as it tries to pump against the restriction. If you do not experience this response, there may be little or no gas flow through the analyzer. You can figure out where the blockage is by removing items from the sampling system. The 25 mm filter on the handle is a water blocking filter, so it is designed to stop gas flow if there is water in the black sample line – so start there by removing the filter and repeating the exercise. If you see good response – continue up the chain until you find the problem.
2. If the gas flow is OK – then gradually put the probe into an exhaust pipe of a running engine (it does not have to be the test vehicle – the service vehicle is probably a better thing to test – as it has a multiple cylinder smooth running engine, long exhaust system, catalytic converter, etc.) Look at the CO and HC readings as you insert the probe. They should both begin to increase as you insert the probe. The strength of this transition is the degree to which you are sampling exhaust gas as the probe is inserted.
3. If the readings still seem to be low – there may be an air leak in the sampling system – probe assembly or sample line. The biggest problem with air leaks is the valve at the bottom of the water trap. To test for this, place your thumb over the

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bottom of the water trap to block the base, and see if the CO and HC readings go up. If this happens, you can unscrew the water trap bowl and flush water through the bowl a couple of times to clean the valve – and then check it again. The valve runs better wet – so this may help. Also see TSN# 35 ‘Water Trap Valve Field Test’ for more information

4. If inserting the probe in the tailpipe gives normal readings, but the readings go low after a Zero with the probe in the tailpipe – it is possible that the ambient air solenoid is not operating properly in the analyzer. This solenoid switches gas input from the probe to an ambient air port on the left side of the analyzer, and if the solenoid is not working correctly, the analyzer will keep drawing in gas from the probe during the Zero process – and the analyzer will think that the probe gas is ambient air and recalibrate itself on it. This can cause low or zero readings so you should do the tests above to confirm it – where the analyzer is pulling room air in from the probe as well as the ambient air port – so solenoid failure has no effect on the Zero process.

Note that if this is the problem – the work around (until the analyzer gets fixed) is to remove the probe from the exhaust pipe and let it sample room air before you Zero it – and when the Zero is done, re-insert the probe.

If these troubleshooting methods do not locate the problem, contact Bridge Analyzers for more troubleshooting assistance, or return the analyzer for service at the location above.

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