



**04-011B
5 July, 2005**

TROUBLESHOOTING NOISE IN M400E ANALYZERS

I. PURPOSE:

This note serves as a guide to troubleshooting noise in M400E analyzers.

II. TOOLS:

None

III. PARTS:

API PN# 05101-0000 "UV detector simulator"



The electronics used in T-API analyzers are sensitive to Electrostatic Discharge (ESD). When working on any T-API device, please ensure that you are properly grounded prior to handling or touching any electronic circuitry in the analyzers! For more information on how to protect sensitive components from ESD during handling, please contact T-API customer service and ask for the ESD Service note number 03-022.

IV. PROCEDURE:

1. Press the TST button until you see O3REF= displayed on the front panel. Watch the voltage for a couple of minutes. It should not change more than .5mV.
2. Remove the cover. At the very end of the bench, toward the back of the analyzer, on the right side, locate the 8 pin connector (it has 4 wires connected to it). Remove this connector. Plug this connector into the 05101-0000 board. This will simulate a detector signal that is equivalent to a normal detector on zero air.
3. Press SETUP-ENTR-MORE-DIAG (on older software it will be SETUP-MORE-DIAG-ENTR). The top line of the display should show SIGNAL I/O. Press ENTR.
4. Press JUMP and enter the number 25. Press ENTR.
5. Press NEXT until you see PHOTO_DETECTOR. Watch this voltage for a few minutes and verify that it does not go above 4950mV. This voltage should not change more than 0.5mV or so.
6. Press NEXT until you see SAMPLE_PRESSURE. Verify that the voltage displayed does not exceed 4950mV (with the pump running). If it is above 4950mV then the pressure/flow board is bad and must be replaced.
7. Press NEXT. You should see SAMPLE_FLOW. Verify that the voltage displayed does not exceed 4950mV (with the pump running). If it is above 4950mV then the pressure/flow board is bad and must be replaced.

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8. Press NEXT until you see REF_4096_MV. Watch this voltage. It should not change more than 2mV. If it is moving more than 2mV and the voltages in steps 3-5 are correct then the mainboard is faulty and needs replacement.
9. If the voltage in step 3 is jumping around and exceeding 4950mV, and the voltage in step 6 is changing more than 2mV then you will need to unplug the lamp and check the voltage in step 6 again. If the voltage in step 6 is stable with the lamp unplugged then the lamp is faulty and needs replacement. If the voltage in step 6 is still unstable with the lamp unplugged then the mainboard is faulty and needs replacement.
10. If the analyzer passes the above tests, and is still noisy or spiking, or if you were referred here from step 3, then disconnect the pump. If the analyzer is quiet with the pump off, but noisy with the pump on, then the problem is pneumatic. Leak check, verify flow, test pump or clean the bench tube. If the analyzer is still noisy with the pump on, try connecting a charcoal scrubber to it. If the analyzer is quiet with the charcoal scrubber, then the problem is likely an interferent.

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