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Service Note

05-017A
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TROUBLESHOOTING LOCKUP PROBLEMS IN "E" SERIES

I. PURPOSE:

To provide instructions on using special cables to power up the CPU board independent of the rest of the analyzer in order to verify that the CPU is operational.

II. TOOLS:

Laptop or desktop computer

III. PARTS:

CPU Power Cable PN# 05324-0000
CPU Power Cable PN# 05328-0000

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 03-022A.

IV. PROCEDURE:

1. If the unit does not power up (flashing cursor on display) or the unit locks up (static display, no response to buttons) then the first step in troubleshooting is to determine if the CPU is functioning or not. Remove the top cover. Locate the CPU. It is mounted on top of the larger motherboard on the rear panel. In the bottom right corner of the CPU are two LED's. With the analyzer locked up, observe the 2 LED's. The lower one should be on steady. If it isn't, then check the +5V at the relay card to verify that power is available. If the +5V is good, (5.0V +-.1V), then contact customer service for further troubleshooting assistance.
2. If the lower LED is on steady, the upper one should be flashing. If it is not, go to step 4. If it is flashing, connect a laptop or desktop computer to the analyzer's RS232 port using a straight or null-modem 9-pin to 9-pin connector. Open Hyperterm or other terminal program and set it to direct connect to the comm. port on the computer. Set the baud rate to match the analyzer (default is 115,200). Set

it for 8 bits, No parity, one stop bit and set handshaking to NONE or XON-XOFF. Make sure that the terminal program shows that it is “connected”.

3. Observe the LED’s on the rear panel near the RS232 port. There are two. One is marked “TX” and is red. The other is marked “RX” and is green. Both should be lit. If the green LED isn’t lit, locate the DCE/DTE switch near the RS232 port on the analyzer and move it to the other position. Now the green LED should be lit. Press ENTER on your computer keyboard twice, then type a question mark (?) and press ENTER on the computer keyboard. The analyzer should respond with a menu. If it does, then the CPU is working and you should refer to Service Note number 03-028 for I2C bus troubleshooting. If it does not respond, go to step 6.
4. The lower LED of the CPU is steady. The upper LED isn’t flashing. Power off the analyzer. Remove the CPU board and set it on a file folder or other insulating material so it cannot touch metal. Using the 05324-0000 cable, plug the connector end into J5 of the CPU board (white connector, left side, near top). Take the two wires and put the red wire into the red test point on the relay board, and the black wire into the black test point on the relay board.
5. Power up the analyzer. Wait 1 minute. If the upper LED on the CPU still does not flash, then the CPU is bad and needs replacement. If the upper LED does flash, power off the analyzer. Remove the CPU power cable from the CPU and re-install the CPU. Power on the analyzer. If the analyzer still locks up or won’t power up, refer to service note number 03-028 to troubleshoot the I2C bus.
6. The CPU’s upper LED is flashing but there is no RS232 communication. Disconnect the connector from CN3 of the CPU board. Take the 05328-0000 cable and connect the square end to CN3 of the CPU, being sure to align the key plug the same way as the key plug on CN4. Connect the other end of the cable to the computer and attempt to connect using Hyperterm. If the CPU still does not communicate over the RS232 then the CPU is bad and should be replaced.