



**99-003 Rev D
2 May, 2007**

REPLACING PROMS IN ANALYZERS

I. SCOPE:

This service note addresses the procedure for prom replacement in “A” style NO_x, “A” style SO₂, CO, CO₂, O₃ analyzers, as well as M700 calibrators. This service note does not apply when replacing the CPU.

II. TOOLS:

Flat Blade screwdriver.

III, PARTS:

N/A

III. PROCEDURE:

1. You will have to go into the VARS menu and record some of the VARS that are listed there for the proper operation of the analyzer. To get to the VARS menu press “SETUP_MORE_VARS_929_ENTER” then press the next button until you get to the VARS that pertain to the analyzer that you are working on.

2. M100A
Slope=xxxx
Offset=xxxx
RS232_mode=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M200A
NO_x_slope=xxxx
NO_x_offset=xxxx
NO_slope=xxxx
NO_offset=xxxx
RS232_mode=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M200AH

NO_x_slope=xxxx
NO_x_offset=xxxx
NO_slope=xxxx
NO_offset=xxxx

MEASURE_MODE=xxxx
RS232_mode=xxxx
CONV_TYPE=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M300
CO_slope1=xxxx
CO_offset1=xxxx
CO_slope2=xxxx
CO_offset2=xxxx
RS232_mode=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M360
RS232_mode=xxxx
CO2_slope1=xxxx
CO2_offset1=xxxx
CO2_slope2=xxxx
CO2_offset2=xxxx
DIL_factor=xxxx
Serial_number=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M400
O3_slope1=xxxx
O3_offset1=xxxx
O3_slope2=xxxx
O3_offset2=xxxx
RS232_mode=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M400A
O3_slope1=xxxx
O3_offset1=xxxx
O3_slope2=xxxx
O3_offset2=xxxx
RS232_mode=xxxx
Lamp_pwr_enable=xxxx
Photo_prop=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)
Baud rate (SETUP_MORE_COMM_BAUD)

M700
Dark_offset=xxxx

O3_slope=xxxx
O3_offset=xxxx
O3_gen_flow=xxxx
O3_gen_mode=xxxx
Perm_flow=xxxx
RS_232_mode=xxxx
Factory_opt=xxxx

Machine ID (SETUP_MORE_COMM_ID)

Baud rate (SETUP_MORE_COMM_BAUD)

Any sequences that you have stored in the sequence menu (not in the VARS menu).

3. Remove power to analyzer.
4. Remove cover from analyzer.
5. Locate V-F/CPU assembly, mounted on the motherboard.
6. On the right edge of the V-F card, you will see an edge connector plugged into a backplane assembly. The backplane assembly is held into the motherboard by a large flat-blade captive screw. Loosen this screw.
7. Lift the V-F/CPU assembly up from the motherboard and pivot it so that you can access the CPU. Removal of some cables from the CPU assembly may be required.
8. Locate the EPROM. This IC has a label on it that lists the model number, Prom revision number, etc. Use the flat blade screwdriver to remove this, noting which end has the "Pin 1 notch".
9. Install the new EPROM into the CPU, ensuring that the "Pin 1 notch" is oriented correctly.
10. Install V-F/CPU assembly back into analyzer.
11. Power on unit.
12. Press SETUP-MORE-DIAG. You will see the 818 password displayed. Change it to 929 and press ENTR. Press NEXT until you see RESET MEMORY displayed. Press ENTR. Press EEPROM and ENTR. The analyzer should go through a power on sequence, then display SYSTEM RESET. Clear the warnings.
13. Follow the procedure in your manual to calibrate the A/D-D/A circuits.
14. Follow the procedure in step 1 to access the Factory Options and any other VARS that you have written down when you checked the VARS in step 1. Enter the numbers recorded in step 1. After pressing ENTR, EXIT out to the sample menu, wait 5 seconds & turn off the power. Wait 5 seconds & turn the power back onto the analyzer. The power must be cycled to the machine for the factory options and the other changes that you have made to the VARS to take affect.
15. For the M300 and M360 analyzer you will want to recalibrate the Dark calibration in the DIAG menu when you are finished changing the prom and have the unit up and running.
16. For the M400 you will probably want to recalibrate the Dark calibration and the bench calibration (you will need to have some external source of O3 for the bench calibration), when you are finished changing the prom and have the unit up and running.
17. For the M400A you must measure the flow at the rear panel of the analyzer. then write this number down. Input the VARS into the VARS menu according to the above text. Go into the DIAG menu into the FLOW CALIBRATION menu. Once you push the ENTER button enter in the flow that you measured at the rear panel of the analyzer, then push ENTER.
18. Now go into the DIAG menu & do the dark calibration of the analyzer, & then redo the calibration of the analyzer & the ozone generator calibration.
19. If you are changing a prom in an M700 and have recorded any sequences that you had entered you will want to reenter the sequences now.
20. On M700 with photometer bench or a M400, a bench calibration should be done at this time, this will require that you have an external Photometer for the M700 and a source external source of O3 for the M400.
21. On Model 400 and 700, with O3 generator, you will have to perform the O3 Gen. calibration as described in the manual.
22. For all analyzer models, perform factory calibration per the appropriate manual.