QUADRANT Training

I. General

A. Display (8 digit Large LCD)
1. Concentration and gas shown together
   (**10 CO** means 10 ppm CO, **20.9 O2** means 20.9% O2, etc..)
2. Alternates between gases
3. Alternates in menus

B. Visual Alarm (front of enclosure)
1. General LEDs on either side of display
2. Individual LEDs for each gas

C. Audio Alarm (top of enclosure)

D. Operation Buttons
1. **ON/OFF** (Turns instrument on/off)
2. **ENTER/Backlight** (chooses or turns on backlight)
3. **+** (takes up ↑ in a menu)
4. **-** (takes over → in a menu)

E. Location of sensors (top of enclosure)

II. Turn instrument on (press **ON/OFF** button, hold for a second, and release).

A. LEDs come on and audio alarm beeps.
B. Instrument performs a self-test for approximately 30 seconds.
C. After test, display begins to alternate gas readings.
D. Confidence chirp every 60 seconds.
E. To turn instrument off, press and hold the **ON/OFF** button for 3 seconds, display counts down.

III. Combustible Gas Display

The instrument combustible has been pre-programmed for 25 different combustible gas and vapor responses. Start with the instrument off. Press the **+** button, and then simultaneously, press the **ON/OFF** button and release them together. Quickly press the **+** button to sequence through the available gas and vapor responses. Press the **ENTER** button to choose the desired gas response.

REMEMBER: **Do not infer from the ability to change the combustible gas display that the combustible sensor only detects the chosen gas. The sensor is not specific and therefore responds to many combustible gases without the ability to differentiate them. The correct use of the instrument depends upon the user's knowledge of the application to identify which combustible gas to display.**

IV. Alarms

A. Alarms are preset, but can be changed in the maintenance menu.
B. When alarm concentration is reached audio and visual alarms activate. (simulate if possible)
C. Visual alarms latch until condition clears.
D. Audio alarm can be acknowledged (silenced) by pressing the **ENTER** button.
E. Gas alarms beep, fault alarms are steady tone.

V. Batteries/Charging

A. 4.8 Volt nicad pack is supplied standard. Runs for 12-16 hours (or longer) on a full charge.

B. To charge the instrument batteries, drop the instrument into its charging base (with power supply connected and inserted into wall outlet). The charging base LED is red and instrument LCD shows ----- across the display. When fully charged (up to 4 hours) the charging base and instrument LEDs flash and the instrument LCD shows **** across the display. An auto-zero (zero the gas readings and set oxygen to 20.9%) is automatically performed when the instrument is removed from the charging base, if the instrument has been on charge for at least 10 minutes. An auto-zero is **NOT** a substitute for calibration.

C. An alkaline insert battery pack is available from the factory.

VI. Operation Menu

A. Press OPTION + button to cycle through display screens.

B. **Time/Date** shows the current time and date of the internal clock.

C. **Acc X.YZ** is the current battery voltage. 5.40 volts is common after being charged, instrument goes into low battery around 4.8 Volts.

D. **min gas=** shows the minimum value the instrument has seen for that gas since it has been turned on. There will be a min reading for each sensor in the instrument followed by the max.

E. **max gas=** shows the maximum value the instrument has seen for that gas since it has been turned on. There will be a max reading for each sensor in the instrument.

F. **STE gas** shows the current STEL calculation for that toxic gas. There is a STEL reading for each toxic sensor installed and it appears after the instrument has been on for 15 minutes.

G. **TWA gas** shows the current TWA calculation for that toxic gas. There is a TWA reading for each toxic sensor installed and it appears after the instrument has been on for several minutes.

H. **COD 0000** is the password key entry screen. The password is selected using the + and - buttons and entered with the **ENTER** button. Entry of the proper password provides access to the maintenance menu. The default password is 1270. Entering the wrong password is indicated by a quick BAD CODE prompt and return to the main display.

VII. Maintenance Menu

***** Turn the instrument off if a menu has been entered that shouldn't have been *****

A. Enter proper password at **COD 0000** display.

B. **Auto-SET** allows you to "zero" the gas reading. This should only be done when necessary and in a fresh air environment!!! Press **ENTER** at this screen initiate the procedure. **yes no?** is displayed. Press **ENTER** to complete the procedure or **+** to cancel it. Auto-Set only appears after the instrument has been on for 10 minutes.

C. **program** allows the user to program a sensor. Programming includes turning the sensor on or off and setting the alarm points. In the case of the combustible sensor, it also allows the user to change the gas display.

Press the **ENTER** button to enter the program menu. **chan gas** is displayed, where gas is the sensor that can be chosen. Press the **+** button to cycle through the gases. Press **ENTER** to choose the desired sensor. **ON** or **OFF** is displayed. Press the **+** button to alternate the sensor on or off. Press the **ENTER** button. The gas is displayed *(pressing the* **+** *button when the combustible sensor is being programmed allows the user to change the display to another combustible gas or vapor display)*. Press **ENTER** again. The full scale range of the sensor is displayed. It is not changeable, press **ENTER** again. **hal xyz** is displayed. hal means high alarm point, and xyz is the concentration. It can be changed using the **+** and **-** keys. Press **ENTER**. *If programming the oxygen sensor,* **lal xyz** *is displayed for the low alarm point. It also can be changed, press* ***ENTER*** *to move on.* **yes no ?** is displayed. Press **ENTER** to acknowledge changes or **-** to cancel.

D. **calib** allows the user to calibrate a chosen sensor. Press the **ENTER** button to enter the calibration menu. **chan gas** is displayed, where gas is the sensor. Press the **+** button to cycle through the gases. Press **ENTER** to choose the desired sensor. **C G XYZ** is displayed, where C G means calibration gas and XYZ is the concentration. Press the **+** and **-** buttons to change the concentration if necessary. Oxygen is preset to 20.9%. Press the **ENTER** button. **0 : X** is displayed where 0 indicates the zero reading and X is the sensor signal. The instrument should be in a fresh air environment. When the reading is stable, get the calibration gas ready and then press the **ENTER** button. **S: Y** is displayed where S indicates the span reading and Y is the sensor signal. Apply the span gas, when the signal reading is stable, press the ENTER button to finish. **yes no ?** is displayed. Pressing **ENTER** completes the procedure, pressing **-** cancels it.

E. **cell chg** is a procedure done when a new sensor is installed in the instrument. It is very similar to the calibration procedure, but additional time is required because the instrument makes internal adjustments. It is best to follow the procedure outlined in the manual.

F. **End** is the exit out of the maintenance menu. Pressing **ENTER** takes the user out to the main display.

G. The maintenance password is preset to **1270**. It can only be changed with the COM2000 software.

Sections I through V are for basic users.
Sections I through VI are for advanced users.
Sections I through VII are for advanced users and maintenance personnel.