PRO-TECH

SIGNALING E196731 LISTED US IAS 6-96-2nd EDITION CO ALARM

# OWNER'S MANUAL for Models:

| MODEL | DESCRIPTION |
|---|---|
| 7010 | 120 Volt CO Alarm, Direct Plug-In, Single Station. |
| 7020 | 120 Volt CO Alarm, Direct Plug-In, Single Station with Restraining Flange. |
| 7050 | 120 Volt CO Alarm, Line Cord Plug-In, Single Station with Restraining Flange. |
| 7080 | 120 Volt CO Alarm, Direct Wire-In, Single Station with Restraining Flange. |
| 8010 | 120 Volt CO Alarm with LED Digital Display, Direct Plug-In, Single Station. |

ELECTRICAL RATING: 120 VAC, 60 Hz, 8 VA .

**IMPORTANT!** **READ ALL INSTRUCTIONS BEFORE INSTALLATION AND SAVE THIS MANUAL FOR FUTURE REFERENCE**

**CAUTION!** **This alarm will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas. This carbon monoxide alarming device is designed to detect carbon monoxide gas from any source of combustion. It is not designed to detect smoke, fire or any other gases. This device is designed to protect individuals from the acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. If in doubt consult a medical practitioner**

## CONTENTS OF THIS MANUAL.

**WARNING!** **DISCONNECTING OR LOSS OF AC POWER WILL RENDER THIS UNIT INOPERATIVE.**

***Do not try to repair this CO alarm yourself. Refer to the instructions in section 11 for service.***

# 1. INFORMATION ABOUT CARBON MONOXIDE

## WHAT IS CARBON MONOXIDE?

Carbon monoxide (CO) is a highly toxic, invisible, odorless, tasteless gas.

## HOW IS CO GENERATED IN THE HOME?

Carbon monoxide is generated through incomplete combustion of fuel in various home appliances. Faulty ventilation of furnaces, water heaters, fireplaces, wood burning stoves, and space heaters are the major cause of high CO levels in the home. Automobile and small engine exhaust are another source of CO.

## HOW DOES CO POISON PEOPLE?

The human body depends on oxygen for the burning of fuel (food) to provide us with the energy that allows our cells to live and function. Oxygen makes up approximately 21% of the atmosphere and enters our lungs when we breathe. In our lungs the oxygen combines with the hemoglobin in the blood (oxyhemoglobin) and is carried in the blood stream throughout the body where it releases oxygen to the cells.

Carbon monoxide is dangerous because it bonds more tightly to the hemoglobin (carboxyhemoglobin) than oxygen does. When CO combines with hemoglobin, the hemoglobin's ability to combine with oxygen is lost. As the carboxyhemoglobin concentration rises, people become nauseous, unconscious and ultimately die (see below).

## WHAT ARE THE SYMPTOMS OF CARBON MONOXIDE POISONING?

Many people often confuse carbon monoxide poisoning with the flu; the initial symptoms being very similar. Different concentrations of CO over various lengths of time cause different symptoms.

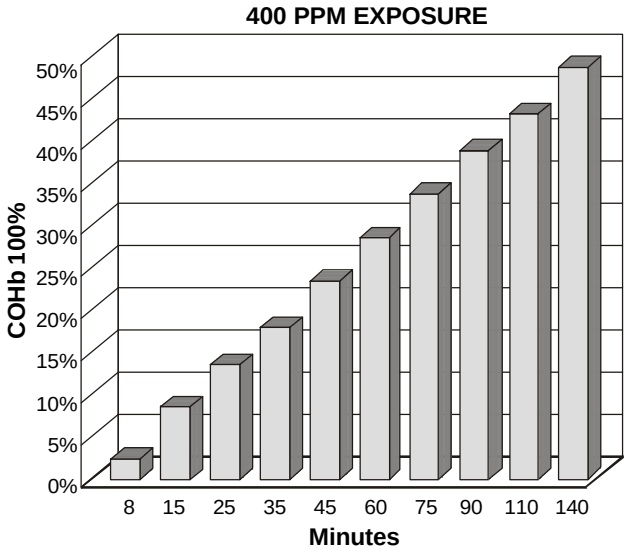
The following symptoms may be related to *CARBON MONOXIDE POISONING* and should be discussed with ALL members of the household.

| | |
|---|---|
| MILD EXPOSURE: | Headaches, running nose, sore eyes, often described as “flu”-like symptoms. |
| MEDIUM EXPOSURE: | Dizziness, drowsiness, vomiting. |
| EXTREME EXPOSURE: | Unconsciousness, brain damage, death |

Many cases of CARBON MONOXIDE POISONING indicate that while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the building or calling for assistance.

**CO GAS EXPOSURE VERSUS TIME**
**(400 PPM EXPOSURE)**

| MINUTES | RESPONSE |
|---|---|
| 8 | NONE |
| 15 | NONE |
| 25 | SLIGHT HEADACHE |
| 35 | HEADACHE |
| 45 | HEADACHE AND NAUSEA |
| 60 | DROWSY |
| 75 | VOMITING |
| 90 | COLLAPSE |
| 110 | COMA AND PERMANENT BRAIN DAMAGE |
| 140 | PERMANENT BRAIN DAMAGE - DEATH |




# 2. SPECIFICATIONS

| | |
|---|---|
| CO RESPONSE TIME | @ 70 PPM 60~240 MINUTES<br>@ 150 PPM 10~50 MINUTES<br>@ 400 PPM 4~15 MINUTES |
| POWER SOURCE | 120VAC, 60Hz, 8VA |
| OPERATING TEMPERATURE | 40°F (4.4°C) TO 100°F (37.8°C) |
| ALARM | 85 dB AT 10 FEET |
| DETECTION FREQUENCY | SAMPLING EVERY 2.5 MINUTES |
| LED DISPLAY (MODEL 8010) | DIGITAL READ-OUT FROM 30 PPM TO 500 PPM. LED DISPLAY WILL FLASH "500" IF LEVEL EXCEEDS 500 PPM. |
| DISPLAY TOLERANCE @ 50% RH, 22°C±3°C IN UPRIGHT POSITION | 30-500 PPM ± 30% |

**WARNING!** **This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards. Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30 ppm.**

# ⚠ WARNING

**Actuation of your CO alarm indicates the presence of carbon monoxide (CO) which can KILL YOU.**

**If alarm signal sounds (the red LED will glow and the alarm will sound 4 short beeps in every 6 seconds):**

1) **Operate reset/silence button to temporarily silence alarm;**
2) **Immediately move to fresh air - outdoors or by an open door or window. Check that all persons are accounted for. Do not re-enter the premises or move away from the open door/window until the emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition;**
3) **Call your emergency services (tel. no. ) [fire department or 911].**
4) **After following steps 1- 3, if your alarm reactivates within a 24 hour period, repeat steps 1 - 3 and call a qualified appliance technician (tel. no. ) to investigate for sources of CO from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturers' instructions, or contact the manufacturers directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.**

**If "service" (trouble) signal sounds (the red LED will flash and the alarm will beep once per minute while the green LED will blink continuously):**

**See section 11 for return address for servicing.**

**Condition which can result in transient CO situations such as:**

1) **Excessive spillage or reverse venting of fuel burning appliances caused by outdoor ambient conditions, such as:**
   i) **Wind direction and/or velocity, including high gusts of wind. Heavy air in the vent pipes (cold/humid air with extended periods between cycles).**
   ii) **Negative pressure differential resulting from the use of exhaust fans.**
   iii) **Simultaneous operation of several fuel burning appliances competing for limited internal air.**
   iv) **Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.**
   v) **Obstructions in or unconventional vent pipe designs which can amplify the above situations.**
   vi) **Poorly designed or maintained chimneys and/or vents.**
2) **Extended operation of unvented fuel burning devices (range, oven, fireplace, etc.).**
3) **Temperature inversions which can trap exhaust gases near the ground.**
4) **Car idling in an open or closed attached garage, or near a home.**

**WARNING!** **The installation of the device should not be used as a substitute for proper installation, use, and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems.**

# 3. RECOMMENDED LOCATION OF ALARMS:

The Consumer Products Safety Commission (CPSC) recommends the use of "At least one CO alarm per household located outside the sleeping area" (see diagram "A").

CO poisoning can happen anywhere in the home, but because most CO poisoning cases occur while people are sleeping, the best location for the CO alarm is near the sleeping area in the home. If there is more than one sleeping area in the home (on a different floor) or the bedroom doors are closed during the night, you may need more than one CO alarm.

Carbon monoxide at room temperature [68$^{o}$F (20°C)] is slightly lighter than air (density of 0.96716). However at 32$^{o}$F (0°C) carbon monoxide is much heavier than air (density of 1.250). Because the density of CO at room temperature is close to the density of air, it disperses easily through the air, similar to the scent of perfume dispersing uniformly in all directions. This characteristic makes it possible for CO alarms to be mounted anywhere in the room or hallway, including both wall and ceiling areas.

Locate the first alarm in the immediate area of the bedrooms. If more than one sleeping area exists, locate additional alarms in each sleeping area.
Locate an alarm in every room where someone sleeps with a door closed. The closed door may prevent the alarm from waking the sleeper.
Locate an alarm on every level of the home.
For Mobile Home Installation see below.
DO NOT install unit within 5 feet of cooking appliances.

**MOBILE HOME INSTALLATION:**

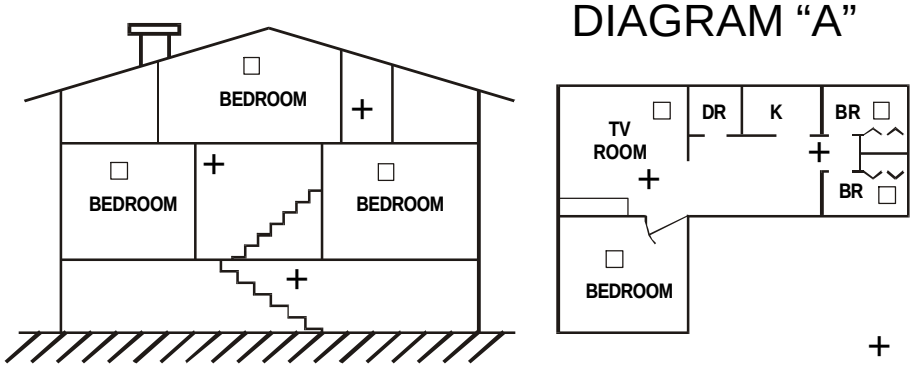
Mobile Homes built in the past five to seven years have been designed to be energy efficient. Install CO alarms as previously outlined (refer to RECOMMENDED LOCATIONS and diagram A ).

In mobile homes that are not well insulated compared to present standards, extreme heat or cold can be transferred from the outside to the inside through poorly insulated walls and roof. This can create a thermal barrier which can prevent the CO from reaching an alarm. In such units, install the CO alarm on an inside wall.

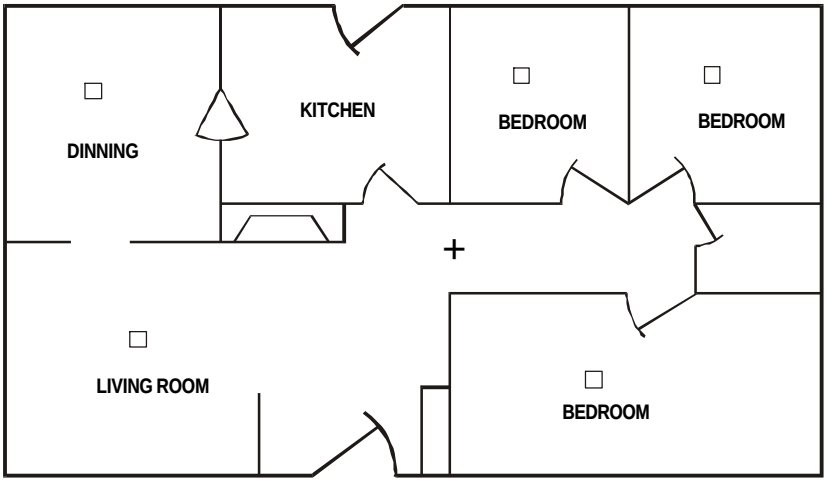
If you are not sure about the insulation in your mobile home, or if you notice that the outer walls and ceiling are either hot or cold, install the alarm on an inside wall.

# WARNING! TEST YOUR CO ALARM AFTER MOBILE HOME HAS BEEN VACANT AND AT LEAST ONCE A WEEK DURING USE.

DIAGRAM "A"




+ CO alarm placement for minimum protection.




□ Additional CO alarm location for added protection.

## 4. WARNING! LOCATIONS TO AVOID:

**NEAR THE COOKING AREA:** CO may be generated in the cooking process and cause false alarms. Also cooking grease can build up on the alarm and cause nuisance alarms.

**CLOSE TO A FURNACE, WATER HEATER, OR SPACE HEATER:** These devices often spill out small amounts of CO when they first turn on.

**IN OR NEAR BATHROOMS:** Steam and high humidity can cause nuisance alarms.

**IN GARAGES:** Automobile exhaust contains CO and will cause the alarm to alarm.

**IN DUSTY AREAS:** Dust can build up on the alarm and cause nuisance alarms or failure to alarm.

**IN CLEANING SUPPLY ROOMS:** Chemicals used in household cleaning and painting supplies can cause nuisance alarms.

**IN VERY HOT OR COLD AREAS:** Do not install the alarm in areas which are below 40°F (4.4°C) or above 100°F (37.8°C).

**IN HAZARDOUS LOCATIONS:** This alarm is not suitable for installation in a hazardous location, as defined in the National Electrical Code.

# 5. INSTALLATION INSTRUCTIONS:

**NOTE:** REVIEW SECTION 3, ***RECOMMENDED LOCATIONS OF ALARMS*** AND SECTION 4, ***LOCATIONS TO AVOID,*** PRIOR TO INSTALLING YOUR ALARM.

The proper power for the 7020, 7050, 7080 and 8010 CO alarms is 120 volt single phase, supplied from a non-switchable circuit which is not protected by a ground fault interrupter.

**Installation 7020:**

The model 7020 is a direct plug-in unit. Remove the original screw from the center of the receptacle and plug the alarm into the bottom outlet. The alarm is secured to the receptacle by inserting the longer screw (provided) through the restraining flange of the alarm, and screwing into the receptacle. **Be sure that the outlet where you install the alarm is not controlled by a switch**, and that it is not obstructed by bedding, furniture, drapes, etc.

**Installation 7050:**

The model 7050 is designed to be wall mounted. It has an attached line cord. **Be sure that the outlet where you plug in the cord is not controlled by a switch,** and that the alarm is not obstructed by bedding, furniture, drapes. etc.

Using the enclosed wood screws and anchors, secure the mounting plate on the wall within cord reach of the outlet.

Install the CO alarm on the mounting plate and slide down to lock.

Secure the alarm to the mounting plate by inserting the short screw (provided) through the restraining flange of the alarm, and screwing into the mounting plate.

Plug in the cord to operate the alarm.

**Installation 7080:**

The model 7080 should be installed on a U.L. listed or recognized junction box which must not be controlled by a switch. All connections should be made by a qualified electrician and meet all jurisdictional codes. **Power to the circuit must be turned off prior to installation.**

Secure the mounting plate to either a 2"x4" or octagonal electrical box using the appropriate holes.

Install the CO alarm onto the mounting plate and slide to lock in place.

Secure the alarm to the mounting plate by inserting the short screw (provided) through the restraining flange of the alarm, and screwing into the mounting plate.

Turn on the A.C. power to operate the alarm.

**Installation 8010:**

The model 8010 is a direct plug-in unit. **Be sure that the outlet where you install the alarm is not controlled by a switch**, and that it is not obstructed by bedding, furniture, drapes, etc.

## IMPORTANT! SAFETY INSTRUCTIONS:

Add the telephone numbers of the emergency service provider and a qualified technician to the adhesive labels "⚠ WARNING". Place one label next to the alarm, and the other label near a source of fresh air where you plan to gather after the alarm indicates the presence of carbon monoxide.

# 6. OPERATION, TESTING 7020, 7050, 7080, 8010.

**OPERATION:** The CO alarm is operating once A.C. power is applied (green LED is on) and testing is complete. For model 8010, the LED display will count down from "999" to "000" successively.

**SERVICE (TROUBLE) CONDITION:** The internal microcontroller continuously monitors the sensor and other critical components. If an internal failure of any of these components should occur, the red LED will flash and the alarm will beep once per minute while the green LED will blink continuously. The trouble condition indicates a problem with the unit. Please see section 11 for return address for servicing.

**RED LED (ALARM CONDITION):** When the concentration of CO gas reaches a hazardous level, the alarm signals will activate within the time limits outlined in section 2. The red LED will light when the alarm sounds. The audible alarm signal will sound 4 short beeps in every 6 seconds. The living spaces should be well ventilated when household cleaning supplies or similar contaminants are used. See section 7 for false alarm information.

PEAK LEVEL MEMORY (FOR 8010): To retrieve from alarm memory the highest CO gas level last detected, push and hold down the TEST / RESET button for at least one second. The alarm will numerically display the peak CO gas level for a period of 12 seconds. The alarm will automatically return to the previous reading when the TEST / RESET button is released.

To erase the peak level memory, push and hold down the TEST / RESET button for at least 12 seconds until the display shows “000”, or unplug the alarm.

**TESTING:** To test your alarm, push and hold down the TEST / RESET button for one second. This will simulate a CO concentration of approximately 400 ppm CO gas, and sound the alarm if the electronic circuitry and buzzer are working properly.

An alarm which is malfunctioning and exhibiting the “Trouble” signals (see section 6) will not respond to the above test sequence. The model 8010 will display “Err” if the unit is in trouble condition when the button is pushed.

***DO NOT TRY TO TEST THIS ALARM IN ANY OTHER WAY.***

If no alarm sounds, check the fuse or circuit breaker supplying power to the alarm circuit. If the alarm still does not sound, the unit may be defective or have other failure and should be returned for service (SEE SECTION 11).

**TEST THE ALARM *WEEKLY* TO ENSURE PROPER OPERATION.**

Erratic or low sound coming from your alarm may indicate a defective alarm, and it should be returned for service (SEE SECTION 11).

**MAXIMUM "PPM" READING AND OVERFLOW (FOR MODEL 8010):** The CO alarm is capable of displaying up to 500 ppm CO concentration. Above 500 ppm the LED will display a flashing "500".

**RESET:** The CO alarm will automatically reset themselves when the CO gas which caused the alarm has cleared. The alarm will however continue for at least 4 minutes if not manually reset. You can also silence the alarm by pushing the TEST / RESET button. If CO is still present, the alarm will re-activate within 6 minutes if the CO concentration level is at 70 ppm or greater. If the alarm sounds again after reset, go to section 2... ⚠ WARNING...If alarm signal sounds:... and follow instructions 1), 2), 3), 4).

# 7. FALSE ALARMS:

Carbon monoxide alarms respond to the presence of CO. They do not detect smoke. If the alarm does alarm, follow instructions 1 to 4 under WARNING in section 2.

Some solvents used in chemical cleaning agents, paints, varnishes and the furniture refinishing process, and some propellants used in aerosol hair spray and air fresheners, can cause the alarm signals to activate if used in close proximity to the alarm for extended periods of time. Gasoline or other flammable liquids stored in open containers near the alarm may also cause the alarm signals to activate. *Never store flammable liquids in open containers.*

**IF YOU HAVE BEEN AWAY FROM HOME and you return to find your alarms sounding, DO NOT ENTER YOUR HOME. Call the Fire Department from a neighbor's home.** ***DO NOT RE-ENTER YOUR HOME FOR ANY REASON UNTIL YOU HAVE BEEN ASSURED THAT IT IS SAFE TO DO SO.***

**IMPORTANT:** A newly installed alarm may have absorbed various fumes or gases during transit and storage. This accumulated contamination may cause the alarm to go into the alarm mode during the initial power up. You can choose to do nothing and the alarm will stop sounding in a few minutes, or you can press the Test / Reset button to temporarily mute the alarm. It may be necessary to repeat this procedure several times to clear the sensor of the accumulated contamination. **During this initial startup period, the alarm may not accurately detect the presence of potentially dangerous gas.**

# 8. MAINTENANCE : CLEANING YOUR ALARM

You can clean your alarm by using a vacuum cleaner hose and vacuuming around the openings on the alarm. The outside of the alarm can be wiped with a damp cloth. **AFTER CLEANING, TEST YOUR ALARM BY USING THE TEST BUTTON AND CHECK THAT THE GREEN LED IS ON.**

# 9. LIMITATIONS OF CARBON MONOXIDE ALARMS

Carbon monoxide alarms are devices that can provide an early warning of the presence of CO gas at a reasonable cost. However, alarms have sensing limitations and may not always sound a warning of the presence of CO. A.C. powered alarms will not operate if the A.C. power has been cut off, such as by an electrical fire, a tripped circuit breaker or an open fuse. CO alarms must be tested regularly to make sure that they are receiving power and operating properly. Carbon monoxide alarms cannot sense CO that does not reach the alarm, and therefore CO alarms may not detect CO which is in a different area of a home. Furthermore, if the alarm is located on a different level of the home or on the other side of a closed door, it may not waken a sound sleeper. The use of drugs and alcohol may impair ones ability to hear the alarm. If you have a multi-level home, install CO alarms on each level of the home. If the alarm is installed in a hallway and the bedroom doors are kept closed at night, install a CO alarm in each bedroom.

Although CO alarms can help save lives by providing an early warning to the presence of carbon monoxide, they are not a substitute for an insurance policy. Homeowners and renters should have adequate insurance to protect their lives and property.

# 10. GOOD SAFETY HABITS:

**DEVELOP AND PRACTICE A PLAN OF ESCAPE:**

Make a floor plan indicating all doors and windows and at least two (2) escape routes from each room. Second story windows may need a rope or chain ladder.

Have a family meeting and discuss your escape plan, showing everyone what to do in case the alarm sounds.

Determine a place outside your home where you can all meet if an alarm occurs.

Familiarize everyone with the sound of the Alarm and train them to leave your home when they hear it.

Practice a CO / fire drill at least every six months. Practice allows you to test your plan before an emergency. You may not be able to reach your children. *It is important they know what to do.*

**WHAT TO DO WHEN THE ALARM SOUNDS:** See Section 2.

# 11. LIMITED WARRANTY AND SERVICE

The manufacturer, Patrick Plastics Inc., warrants to the original consumer purchaser that the CO alarm shall be free from defects in materials and workmanship from the date of purchase for 5 years.

The alarm should be replaced after 7 years from the date of installation. Write the date on the "REPLACE by" label and affix it to a visible position on the alarm. When the date appears on the alarm is due, it should be immediately replaced.

If this CO alarm is determined to be defective in original materials or workmanship, return it prepaid to the address indicated below with delivery costs prepaid. Do not attempt to repair this product yourself. If determined to be defective in original materials or workmanship, the CO alarm will be repaired or replaced at the sole discretion of the manufacturer.

This warranty is void if the CO alarm's plastic case has been opened, the line cord has been cut, or the product has been damaged by accident, modification of the unit, unreasonable use, neglect, tampering or other cause not arising from defects in original materials or workmanship.

The liability of the manufacturer, or of any of its parent or subsidiary corporations, arising from the sale of this product or under the terms of this limited warranty shall not in any case exceed the cost of the replacement of the CO alarm. In no case shall the manufacturer or any of its parent or subsidiary corporations be liable for consequential loss or damages resulting from the failure of the CO alarm to activate or for the breach of this or any other warranty, expressed or implied, even if the loss or damage is caused by the manufacturer's negligence or fault. These limitations or exclusions may not apply in some states where limitations on the duration of an implied warranty or exclusions or limitations of incidental or consequential damages are not allowed.

This warranty extends to the original consumer purchaser only and may not be altered by any agents, representatives, dealers, distributors or employees.

To return this product for service, disconnect power and/or unplug the CO alarm, and pack carefully in a padded container. Ship prepaid along with your original sales receipt, an explanation of the problem and your return address to:

**Pro-Tech Safety Products**
P.O. Box 493727
Redding, CA 96049
Tel: 1-877-955-TECH (8324)
http://www.protechsafety.com

240-1076-07 6/20/06