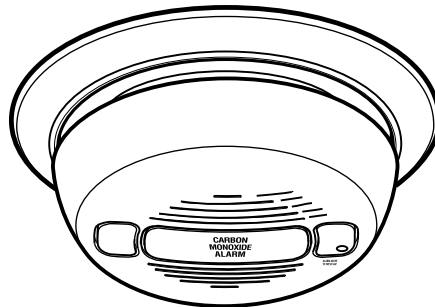




MODEL CO5120B—User's Manual  
*AC Powered Carbon Monoxide Alarm  
With Battery Back-Up*



120VAC 60 Hz .085A Standby .087A Alarm



Model CO5120B

M06-1046-001 6/00

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| LIMITED WARRANTY                                 | BACK COVER |

**PLEASE READ CAREFULLY AND SAVE:** This unit was shipped with a user's manual that contains important information about its operation. If you are installing this unit for use by others, you must leave this manual—or a copy of it—with the user.

## CHAPTER 1: *Introduction*

### **BASIC SAFETY INFORMATION**

---

#### **IMPORTANT!**

Dangers, Warnings, and Cautions alert you to important operating instructions or to potentially hazardous situations. Pay special attention to these items.

#### **IMPORTANT!**

**THIS IS NOT A SMOKE ALARM!** This CO alarm is designed to detect carbon monoxide from ANY source of combustion. It is NOT designed to detect smoke, fire, or any other gas.

#### **IMPORTANT!**

This CO alarm is approved for use in single-family residences. It is NOT designed for marine use.

#### **⚠ CAUTION!**

This CO alarm will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

#### **⚠ WARNING!**

The Silence Feature is for your convenience only and will not correct a CO problem. Always check your home for a potential problem after any alarm. Failure to do so can result in injury or death.

#### **⚠ WARNING!**

This unit does not work without power. If the AC power fails, the battery back-up will power the alarm for at least 8 hours provided the 9V battery is fresh and correctly installed.

#### **⚠ WARNING!**

**NEVER ignore your Carbon Monoxide Alarm if it alarms. Refer to "What To Do If Your CO Alarm Sounds" for more information. Failure to do so can result in injury or death.**

#### **⚠ WARNING!**

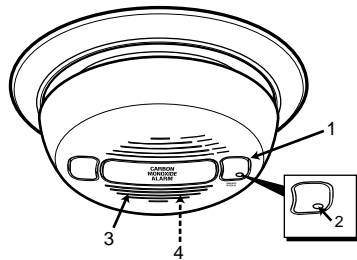
Test the CO alarm once a week. If the CO alarm ever fails to test correctly, have it replaced immediately! If the CO alarm is not working properly, it cannot alert you to a problem.

#### **⚠ WARNING!**

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

## HOW YOUR CO ALARM WORKS

### The Cover Of Your CO Alarm



|   |   |
|---|---|
| 1 | Test/Silence Button   |
| 2 | RED Indicator Light (LED)   |
| 3 | Air Vents   |
| 4 | (Behind the Cover) Alarm Horn: 85db audible alarm for test, alarm, and unit malfunction warning |

### General Information

This CO alarm is designed to be hard-wired and mounted on any standard size wiring junction box, up to 4" diagonal size.

When fully powered, this CO alarm samples the air and takes a new reading about every second. A microchip inside the unit stores each reading, and remembers the levels of CO it has been exposed to over time. The unit goes into alarm mode when it has been exposed to a "critical" level of CO (measured in parts per million or "ppm") within a specified time (measured in minutes).

**General features:** This alarm features a permanently installed sensor, a red indicator light (LED), and an 85 dB alarm horn.

**9V Battery Back-Up.** If AC power is interrupted, the CO alarm will continue to operate, provided the 9V battery is fresh and correctly installed.

**Silence Feature.** The silence feature temporarily quiets the alarm.

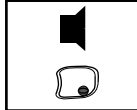
### Malfunction Warning

This unit performs self-diagnostic tests approximately every second. If the alarm malfunctions, it should be replaced immediately.

## Basic Operation

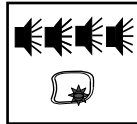
### Normal Operation.

- Horn is silent.
- Red light (LED) is on continuously.



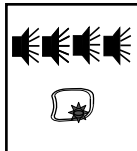
### During Testing

- Horn pattern repeats twice: 4 beeps, pause, 4 beeps, pause.
- Red light (LED) flashes once per second during the 10-second test cycle.



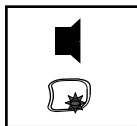
### During An Alarm

- Continuous repeating horn pattern: 4 beeps, pause, 4 beeps, pause.
- Red light (LED) flashes once per second while the unit is in alarm.



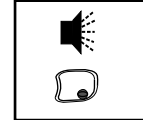
### In Silenced Mode

- The horn is silent for at least 4 minutes.
- Red light (LED) flashes rapidly, once every second on the initiating alarm only.



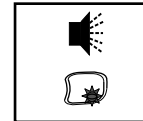
### Low Battery Warning, AC Power ON:

- The horn "chirps" once a minute.
- Red light flashes once each time the horn "chirps".



### Low Battery Warning, AC Power OFF:

- The horn "chirps" once a minute.
- Red light flashes once each time the horn "chirps".



For a detailed list of all light and horn pattern combinations, see pages 24-25.

## CO ALARM SPECIFICATIONS

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**Gas Detection at Typical Temperature and Humidity Ranges:** The CO alarm is not formulated to detect CO levels below 30 ppm typically. UL tested for false alarm resistance to Methane (500 ppm), Butane (300 ppm), Heptane (500 ppm), Ethyl Acetate (200 ppm), Isopropyl Alcohol (200 ppm) and Carbon Dioxide (5000 ppm). Values measure gas and vapor concentrations in parts per million.

**Required Alarm Levels:** Before 10% COHb exposure at levels of 30% to 70% Relative Humidity (RH):

- 400 ppm CO between 4 and 15 minutes
- 150 ppm CO between 10 and 50 minutes
- 70 ppm CO between 60 and 240 minutes

When exposed to a constant level of 30 ppm of CO, this CO alarm was tested not to go into alarm for at least for 30 days.

**Audible Alarm:** 85dB minimum at 10 feet.

**Power:** Powered by 120VAC. The 9V battery back-up provides 8 hours of standby and sounds alarm for 12 hours with fresh battery. When AC power is on, red light (LED) shines continuously. Under battery power, red light flashes once a minute.

**Malfunction:** Horn chirps and light blinks 3 times (in rapid succession) every minute.

**Dimensions:** 5.4" diameter (approx.)

**Supply Voltage:** 120VAC 60Hz .085A Standby .087A Alarm

**During Alarm:** Repeating alarm horn pattern: 4 beeps, pause, 4 beeps, pause.

- Stand-alone unit: red light (LED) flashes rapidly, once per second.
- Interconnected series: red light (LED) flashes rapidly, once per second on the Initiating alarm. Red light (LED) on all other alarms will not flash.

**Warranty:** 5-year limited warranty.

**Standards:** Underwriters Laboratories Inc. Single and Multiple Station carbon monoxide alarms UL2034.

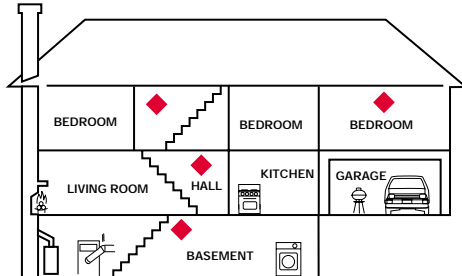
According to Underwriters Laboratories Inc. UL2034, Section 1-1.2: "Carbon monoxide alarms covered by these requirements are intended to respond to the presence of carbon monoxide from sources such as, but not limited to, exhaust from internal-combustion engines, abnormal operation of fuel-fired appliances, and fireplaces. CO alarms are intended to alarm at carbon monoxide levels below those that could cause a loss of ability to react to the dangers of Carbon Monoxide exposure." This CO alarm monitors the air, and is designed to alarm before CO levels become life threatening. This allows you precious time to leave the house and correct the problem. This is only possible if alarms are located, installed, and maintained as described in this manual.

## CHAPTER 2: Installation

### WHERE TO INSTALL CO ALARMS

The Consumer Product Safety Commission (CPSC) recommends the use of at least one CO alarm per household, located near the sleeping area. For added protection, install additional CO alarms in each separate bedroom, and on every level of your home.

If your bedroom hallway is longer than 40 feet, install a CO alarm at BOTH ends of the hallway.



◆ SUGGESTED AREAS FOR INSTALLING CO ALARMS

#### ***In a Single-level Home:***

- Install at least one CO alarm near or within each separate sleeping area.
- For added protection, install an additional CO alarm at least 20 feet (6 meters) away from the furnace or fuel burning heat source.

#### ***In a Multi-level Home:***

- Install at least one CO alarm near or within each separate sleeping area.
- For added protection, install at least one CO alarm on each level of the home. If you have a basement, install that CO alarm at the top of the basement stairs.
- For added protection, install an additional CO alarm at least 20 feet (6 meters) away from the furnace or fuel burning heat source.

#### **⚠ WARNING!**

This alarm must have AC or battery power to operate. If the AC power fails, the battery back-up will power the alarm if the 9V battery is fresh and correctly installed. If AC power fails, and the battery is dead or missing, the alarm cannot operate.

## **WHERE NOT TO INSTALL CO ALARMS**

---

### **DO NOT locate this CO alarm:**

- In garages, kitchens, furnace rooms, or in any extremely dusty, dirty or greasy areas.
- Within 5 feet of any cooking appliance. The alarm should be between 5 and 20 feet from any cooking appliance.
- Closer than 20 feet from a furnace or other fuel burning heat source, or fuel burning appliances like a water heater.
- In extremely humid areas. This alarm should be at least 10 feet from a bath or shower, sauna, humidifier, vaporizer, dishwasher, laundry room, utility room or other source of high humidity.
- In areas where temperature is colder than 40°F (4°C) or hotter than 100°F (38°C). These areas include unconditioned crawl spaces, unfinished attics, uninsulated or poorly insulated ceilings, porches, and garages.
- In turbulent air, like near ceiling fans, heat vents, air conditioners, fresh air returns, or open windows. Blowing air may prevent CO from reaching the sensors.
- In direct sunlight.

### **⚠ WARNING!**

This CO alarm is designed for use inside a single-family home or apartment. It is not meant to be used in common lobbies, hallways, or basements of multi-family buildings unless working CO alarms are also installed in each family living unit. CO alarms in common areas may not be heard from inside individual family living units.

### **⚠ WARNING!**

This CO alarm alone is not a suitable substitute for complete detection systems in places which house many people, like hotels or dormitories, unless a CO alarm is also placed in each unit.

### **⚠ WARNING!**

**DO NOT use this CO alarm in warehouses, industrial or commercial buildings, special-purpose non-residential buildings, RVs, boats, or airplanes. This CO alarm is specifically designed for residential use, and may not provide adequate protection in non-residential applications.**



## USING THE OPTIONAL LOCKING FEATURES

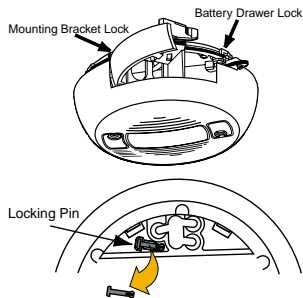
The optional locking features are designed to prevent unauthorized removal of the battery or alarm. It is not necessary to activate the locks in single-family households where unauthorized battery or alarm removal is not a concern.

These CO alarms have two separate locking features: one locks the battery compartment, and the other locks the CO alarm to the mounting bracket. You can choose to use either feature independently, or use them both.

Tools you will need:

- Needle-nose pliers
- Standard/Flathead screwdriver.

Both locking features use locking pins, molded into the mounting bracket. Using needle nose pliers or a utility knife, remove one or both pins, depending on which locking features you use.



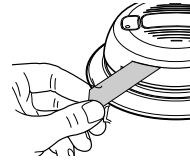
## The Battery Compartment Lock

### TO LOCK THE BATTERY COMPARTMENT:

#### IMPORTANT!

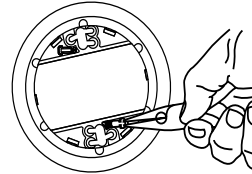
Do not lock the battery compartment until you have activated the battery and tested the battery back-up.

1. Activate the battery back-up by removing the "Pull to Activate Battery Back-Up" tab. Push and hold the test button on the CO alarm's cover until the alarm sounds: 4 beeps, pause, 4 beeps, pause.

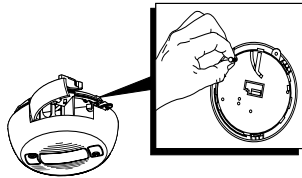


**If the unit does not alarm during testing, DO NOT lock the battery compartment! Install a new battery and test again. If it still does not alarm, replace the CO alarm immediately.**

2. Using needle-nose pliers or a utility knife, detach one locking pin from the mounting bracket.



3. Push the locking pin through the black dot on the label on the back of the CO alarm.



#### TO UNLOCK THE BATTERY COMPARTMENT:

##### IMPORTANT!

Once the CO alarm is installed, you must disconnect it from the AC power before unlocking the battery compartment.

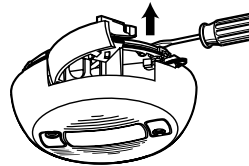
##### ⚠ DANGER!

**ELECTRICAL SHOCK HAZARD.** Turn off the power to the area where the CO alarm is installed before removing it from the mounting bracket. Failure to turn off the power first may result in serious electrical shock, injury or death.

##### ⚠ WARNING!

Always discharge the branch circuit before servicing an AC or AC/DC CO alarm. First, turn off the AC power at the circuit breaker or fuse box. Next, remove the battery from CO alarms with battery back-up. Finally, press and hold the test button for 5-10 seconds to discharge the branch circuit.

1. Remove the CO alarm from the mounting bracket. If the unit is locked to the bracket, see the section "To Deactivate the Locking Feature."
2. Disconnect the power connector by gently prying it away from the back of the CO alarm.
3. Insert a flathead screwdriver under the head of the locking pin, and gently pry it out of the battery compartment lock. (If you plan to re-lock the battery compartment, save the locking pin.)



4. To re-lock the battery compartment, close the battery door and reinsert the locking pin in the lock.
5. Reconnect the power connector to the back of the CO alarm, reattach the CO alarm to the mounting bracket, and restore the power.

##### IMPORTANT!

When replacing the battery, always test the CO alarm before re-locking the battery compartment.

### ***The Mounting Bracket Lock***

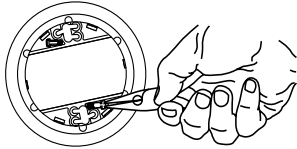
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**Tools you will need:**

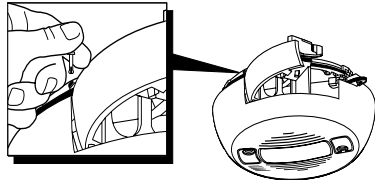
- Needle-nose pliers
- Standard/Flathead screwdriver

**TO ACTIVATE THE BRACKET LOCK:**

1. Using needle-nose pliers, detach one locking pin from the mounting bracket.



2. Insert the locking pin into the lock located on the pivoting hinge of the battery door.



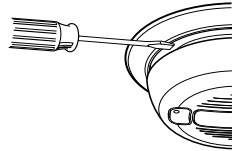
3. When you attach the CO alarm to the mounting bracket, the locking pin's head will fit into a notch on the bracket.

**TO DEACTIVATE THE BRACKET LOCK:**

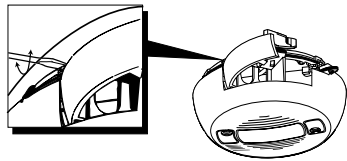
**⚠ DANGER!**  
**ELECTRICAL SHOCK HAZARD.** Turn off the power to the area where the CO alarm is installed before removing it from the mounting bracket. Failure to turn off the power first may result in serious electrical shock, injury or death.

**⚠ WARNING!**  
Always discharge the branch circuit before servicing an AC or AC/DC CO alarm. First, turn off the AC power at the circuit breaker or fuse box. Next, remove the battery from CO alarms with battery back-up. Finally, press and hold the test button for 5-10 seconds to discharge the branch circuit.

1. Insert a flathead screwdriver between the mounting bracket pin and the mounting bracket.

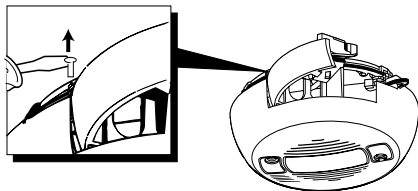


2. Pry the CO alarm away from the bracket by turning both the screwdriver and the CO alarm clockwise (right) at the same time.



***TO PERMANENTLY REMOVE THE BRACKET LOCK:***

Insert the flathead screwdriver between the locking pin and the lock, and pry the pin out of the lock.



## **HOW TO INSTALL YOUR CO ALARM**

This unit is designed to be mounted on any standard wiring junction box up to a 4-inch diagonal size, on either the ceiling or wall. Read "Where to Install" and "Where Not To Install" CO alarms before you begin installation. If a junction box is not already in place, install one using standard #12 or #14 gauge copper wire.

**⚠ WARNING!**

**This alarm must have AC or battery power to operate. If the AC power fails, the battery back-up will power the alarm if the 9V battery is fresh and correctly installed. If AC power fails, and the battery is dead or missing, the alarm cannot operate.**

### ***Before you begin installation***

Find the pair of self-adhesive labels included with this CO alarm.

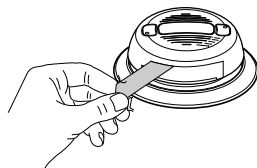
- On each label write in the phone number of your emergency responder (like 911) and a qualified appliance technician.
- Place one label near the CO alarm, and the other label in the "fresh air" location you plan to go if the alarm sounds.

**NOTE:**  
 A qualified appliance technician is defined as “a person, firm, corporation, or company that either in person or through a representative, is engaged in and responsible for the installation, testing, servicing, or replacement of heating, ventilation, air conditioning (HVAC) equipment, combustion appliances and equipment, and/or gas fireplaces or other decorative combustion equipment.”

**Activating the battery back-up**

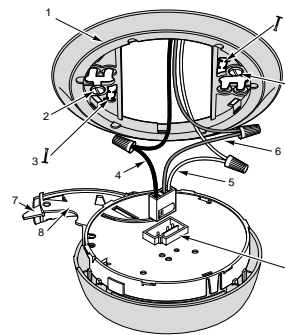
**IMPORTANT!**

Activate the battery back-up by removing the “Pull to Activate Battery Back-Up” tab. You do not need to open the battery compartment and reposition the battery during installation.



**When you activate the battery, the red light will flash once, and the horn will “chirp” once.** Test the battery back-up. Press and hold the test button on the cover until the alarm sounds: 4 beeps, pause, 4 beeps, pause.

**The Parts Of This CO Alarm**



|   |  |
|---|--|
| 1 | Mounting bracket                             |
| 2 | Mounting slot and screw                      |
| 3 | Optional locking pins (break out of bracket) |
| 4 | Hot (black) AC wire                          |
| 5 | Neutral (white) AC wire                      |
| 6 | Interconnect wire (violet)                   |
| 7 | Lever to open battery compartment            |
| 8 | Swing-out battery compartment                |
| 9 | Quick-connect power connector                |

## **SINGLE-STATION INSTALLATION**

Tools needed: Standard/Flathead screwdriver.

**⚠ DANGER!**  
**ELECTRICAL SHOCK HAZARD.** Turn off power to the area where you will install this unit at the circuit breaker or fuse box before beginning installation. Failure to turn off the power before installation may result in serious electrical shock, injury or death.

To install this unit:

1. Remove the mounting bracket from the base. Position the screw slots on the mounting bracket over the screws in the junction box. Tighten the screws.
2. Using wire nuts, connect the power connector to the AC power.
  - Connect the white wire on the power connector to the neutral wire in the junction box.
  - Connect the black wire on the power connector to the hot wire in the junction box.
  - Tuck the violet wire inside the junction box. **It is used for interconnect only.**



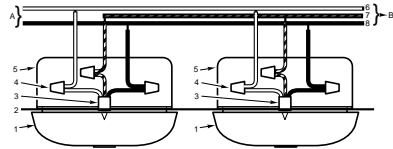
3. Plug the power connector into the back of the CO alarm.
4. Position the base of the alarm over the mounting bracket and turn. The alarm can be positioned over the bracket every 60°. Turn the unit clockwise (right) until the unit is in place.
5. If you are only installing one unit, restore power to the junction box.
6. Make sure the unit is receiving AC power. Under normal operation, the red indicator light will shine continuously.
7. If the red power indicator light does not light, **TURN OFF POWER TO THE JUNCTION BOX** and recheck all connections. If all connections are correct and the red power indicator still does not light when you restore the power, the unit should be replaced immediately.



**⚠ DANGER!**  
**ELECTRICAL SHOCK HAZARD.** Do not restore power until all CO alarms are completely installed. Restoring power before installation is complete may result in serious electrical shock, injury or death.

## INTERCONNECTING MULTIPLE CO ALARMS

### Interconnecting Multiple CO Alarms



|   |  |
|---|--|
| A | Unswitched 120VAC 60Hz source                              |
| B | To additional Model CO5120B CO Alarms, Maximum = 18 alarms |
| 1 | Carbon Monoxide alarm                                      |
| 2 | Ceiling or wall  |
| 3 | Power connector  |
| 4 | Wire nut   |
| 5 | Junction box   |
| 6 | Neutral (white) AC wire                                    |
| 7 | Interconnect wire (violet)                                 |
| 8 | Hot (black) AC wire  |

Interconnected units can provide earlier warning of a CO problem than stand-alone units, especially if the problem starts in a remote area of the dwelling. If any unit in the series senses CO, all units will alarm. To determine which CO alarm initiated an alarm, refer to the table:

|                     |                         |
|---------------------|-------------------------|
| On Initiating Alarm | Red LED flashes rapidly |
| On All Other Alarms | Red does not flash      |

All wiring must conform to all local electrical codes and Article 760 of the National Electrical Code. Refer to NFPA, Chapter 2 and/or your local building code for further connection requirements.

### **⚠ WARNING!**

**AC and AC/DC CO alarms can be interconnected. Under AC power, all units will alarm when one senses CO. When power is interrupted, only the AC/DC units in the series will continue to send and receive signals. AC powered CO alarms will not operate.**

### **IMPORTANT!**

Interconnect units within a single family residence only. Otherwise all households will experience unwanted alarms when you test any unit in the series. Interconnected units will only work if they are wired to compatible units and all requirements are met. It is recommended only **BRK Electronics®** carbon monoxide alarms CO5120B be interconnected.

**Interconnected units must meet ALL of the following requirements:**

- A maximum of 18 units total may be interconnected. (See page 13 for details.)
- The same fuse or circuit breaker must power all interconnected units.
- The total length of wire interconnecting the units should be less than 1000 feet. The interconnect wire should be Type 18 gauge AWM or larger, rated at least 300V.
- If an interconnect wire is not already part of your household wiring, you will need to install one.

**Failure to meet any of the above requirements could damage the units and cause them to malfunction, removing your protection.**

**TO INSTALL:**

1. Remove the mounting bracket from the base. Position the screw slots on the mounting bracket over the screws in the junction box. Tighten the screws.
2. Strip off about 1/2" of the plastic coating on the violet interconnect wire on the power connector.

3. Using wire nuts, connect the power connector to the AC power.

- Connect the white wire on the power connector to the neutral wire in the junction box.
- Connect the black wire on the power connector to the hot wire in the junction box.
- Connect the violet wire on the power connector to the interconnect wire in the junction box. Repeat for each unit you are interconnecting. Never connect the hot or neutral wires in the junction box to the violet interconnect wire.



4. Plug the power connector into the back of the CO alarm.



5. Position the base of the alarm over the mounting bracket and turn. The alarm can be positioned over the bracket every 60°. Turn the unit clockwise (right) until the unit is in place.

**⚠ DANGER!**  
**ELECTRICAL SHOCK HAZARD. Do not restore power until all CO alarms are completely installed. Restoring power before installation is complete may result in serious electrical shock, injury or death.**



6. Make sure each unit is receiving AC power. Under normal operation, the red light (LED) will shine continuously.
7. Test each CO alarm. Press and hold the test button until the unit alarms: 4 beeps, pause, 4 beeps, pause.

**IMPORTANT!**

In a series of interconnected alarms, you must test each alarm separately by pressing and holding the test button. Make sure all units alarm when each one is tested.

**IMPORTANT!**

If any unit in the series does not alarm during testing, TURN OFF POWER and recheck connections. If it does not alarm when you restore power, replace it immediately.

### CHAPTER 3: *If Your CO Alarm Sounds*

**⚠ WARNING!**

**Actuation of your CO alarm indicates the presence of carbon monoxide (CO) which can kill you. When your CO alarm sounds, you must not ignore it!**

***If the Alarm Sounds:***

1. Operate the Test/Silence button.
2. Call your emergency services, fire department or 911. Write down the number of your local emergency service here: \_\_\_\_\_
3. Immediately move (everyone) to fresh air—outdoors or by an open door or window. Do a head count to check that all persons are accounted for. Do not re-enter the premises, or move away from the open door or window until the emergency services responder has arrived,

the premises have been aired out, and your CO alarm remains in its normal condition.

**(Do not remove or disconnect the alarm!)**

4. After following steps 1-3, if your CO alarm reactivates within a 24-hour period, repeat steps 1-3 and call a qualified appliance technician 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. Write down the number of a qualified appliance technician here:

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### ***Using the Silence Feature***

---

#### **⚠ WARNING!**

**NEVER disconnect the power to your CO alarm to silence the horn—use the silence feature. Disconnecting the CO alarm removes your protection! See previous page for details on responding to an alarm.**

The silence feature is intended to temporarily silence your CO alarm's alarm horn while you correct the problem—it will not correct a CO problem. While the alarm is silenced, it will continue to monitor the air for CO.

When CO reaches the "Alarm" level, it will sound—repeating horn pattern: 4 beeps, a pause, 4 beeps, etc. Press and hold the Test/Silence button until the horn is silent. The initial Silence cycle will last approximately 4 minutes.

**To silence an interconnected series of alarms, you must press the Test/Silence button on the initiating alarm (the unit with the flashing red**

**light). If you press the Test/Silence on any other alarm, it will only silence that unit, not the whole interconnected series.**

#### **NOTE:**

After initial 4-minute silence cycle, the CO alarm re-evaluates present CO levels and responds accordingly. If CO levels remain potentially dangerous—or start rising higher—the horn will start sounding again.

#### **While the detector is silenced:**

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**If the CO alarm...** is silent for only 4 minutes, then starts sounding loudly—4 beeps, then a pause, 4 beeps, then a pause. Red light (LED) continues flashing...

**This means...** CO levels are still potentially dangerous.

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#### **If the CO alarm...remains silent...**

**This means...**unit has returned to normal operation.

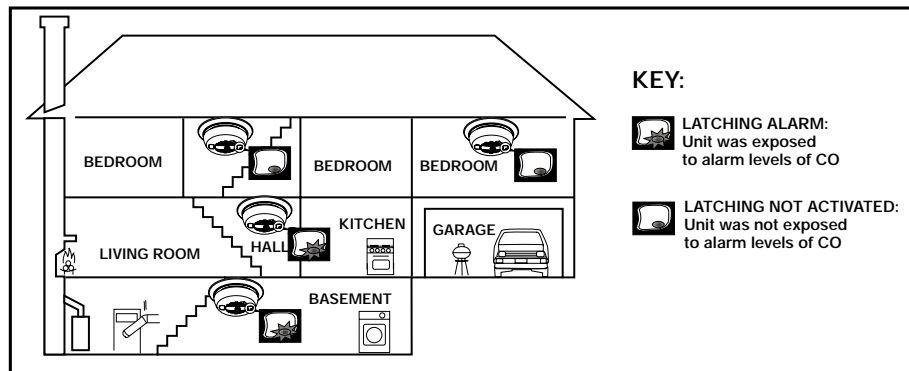
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### ***Finding the Source of CO After an Alarm***

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Because CO may dissipate by the time an investigator arrives, it may be difficult to locate the source of CO. See Chapter 5 "What You Must Know About CO." **BRK Brands, Inc. shall not be obligated to pay for any carbon monoxide investigation or service call.**

### The "Latching Alarm" Indicator:



The Latching Alarm Indicator is activated after a CO alarm is exposed to alarm levels of carbon monoxide. After CO levels drop below alarm levels, the red LED will begin to flash once every 5 seconds. It will continue to flash or "latch" until you clear it using the test button.

This feature helps emergency responders, investigators, or service technicians identify which unit(s) in your home were exposed to alarm levels of carbon monoxide. This can help investigators pinpoint the source of CO.

#### **Non-Interconnected or Stand-Alone Alarm**

Latching Alarm Indicator shows that the unit was exposed to alarm levels of CO.

#### **Interconnected Alarms**

Latching Alarm Indicator shows which alarm(s) in the series were exposed to alarm levels of carbon monoxide.

The Latching Alarm Indicator stays ON until you clear it, so it can alert you to a CO alarm that occurred while you were away from home, even though CO present in the air has dropped below alarm levels.

## CHAPTER 4: *Testing and Maintenance*

### ***Weekly Testing***

---

Push and hold the Test/Silence button on the cover until a loud alarm sounds— 4 beeps, a pause, then 4 beeps. The alarm sequence should last for 10 seconds. If the alarm ever fails to test properly, replace it immediately. If the CO alarm is not working properly, refer to Chapter 10: "Limited Warranty".

#### **▲ WARNING!**

**The Test/Silence button is the only proper way to test the CO alarm. NEVER use vehicle exhaust! Exhaust may cause permanent damage and voids your warranty.**

#### **▲ WARNING!**

**DO NOT stand close to the alarm when the horn is sounding. Exposure at close range may be harmful to your hearing. When testing, step away when horn starts sounding.**

### ***Regular Maintenance***

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To keep the CO alarm in good working order:

- Test it every week using the Test/Silence button.
- Vacuum the CO alarm cover at least twice a year, using the soft brush attachment. Test the alarm again after vacuuming.
- Replace the battery when the CO alarm "chirps" and the red light flashes once a minute (the low battery warning).

**NOTE:** The low battery warning should last for 30 days, but you should replace the battery immediately to continue your protection.

#### **Choosing a replacement battery:**

This unit requires one standard 9V alkaline battery. The following alkaline batteries are acceptable as replacements. This list supplements the list on the carbon monoxide alarm battery door: Eveready #522 (Energizer); Duracell #MN1604, MX1604 (Ultra). You may also use a Lithium battery like an Ultralife U9VL-J for longer service between battery changes. These batteries are available at many local retail stores. Replacement batteries are commonly available at local retail stores.

#### **IMPORTANT!**

Use only the alkaline or lithium replacement batteries listed. The unit may not operate properly with other batteries. Never use rechargeable batteries since they may not provide a constant charge.

#### **▲ CAUTION!**

**DO NOT spray cleaning chemicals or insect sprays directly on or near the CO alarm. DO NOT paint over the CO alarm. Doing so may permanently damage the CO alarm.**

#### **IMPORTANT!**

Household cleaners, aerosol chemicals and other contaminants can affect the sensor. When using any of these materials near the alarm, make sure the room is well ventilated.

## CHAPTER 5: *What You Need To Know About CO*

### ***What is CO?***

---

CO is an invisible, odorless, tasteless gas produced when fossil fuels do not burn completely, or are exposed to heat (usually fire). Electrical appliances typically do not produce CO.

**These fuels include:** Wood, coal, charcoal, oil, natural gas, gasoline, kerosene, and propane.

Common appliances are often sources of CO. If they are not properly maintained, are improperly ventilated, or malfunction, CO levels can rise quickly. CO is a real danger now that homes are more energy efficient. "Air-tight" homes with added insulation, sealed windows, and other weatherproofing can "trap" CO inside.

### ***Symptoms of CO Poisoning***

---

These symptoms are related to CO POISONING and should be discussed with ALL household members.

**Mild Exposure** Slight headache, nausea, vomiting, fatigue ("flu-like" symptoms).

**Medium Exposure** Throbbing headache, drowsiness, confusion, fast heart rate.

**Extreme Exposure** Convulsions, unconsciousness, heart and lung failure. Exposure to Carbon Monoxide can cause brain damage, death.

### **▲ CAUTION!**

**Some individuals are more sensitive to CO than others, including people with cardiac or respiratory problems, infants, unborn babies, pregnant mothers, or elderly people can be more quickly and severely affected by CO. Members of sensitive populations should consult their doctors for advice on taking additional precautions.**

### ***Finding the Source of CO After an Alarm***

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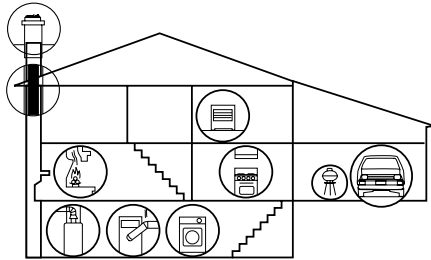
Carbon monoxide is an odorless, invisible gas, which often makes it difficult to locate the source of CO after an alarm. These are a few of the factors that can make it difficult to locate sources of CO:

- House well ventilated before the investigator arrives.
- Problem caused by "backdrafting."
- Transient CO problem caused by special circumstances.

**BRK Brands, Inc. shall not be obligated to pay for any carbon monoxide investigation or service call.**

### **Potential Sources Of CO In The Home**

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**Fuel-burning appliances like:** portable heater, gas or wood burning fireplace, gas kitchen range or cooktop, gas clothes dryer.

**Damaged or insufficient venting:** corroded or disconnected water heater vent pipe, leaking chimney pipe or flue, or cracked heat exchanger, blocked or clogged chimney opening.

**Improper use of appliance/device:** operating a barbecue grill or vehicle in an enclosed area (like a garage or screened porch).

**Transient CO Problems:** “transient” or on-again-off-again CO problems can be caused by outdoor conditions and other special circumstances.

**The following conditions can result in transient CO situations:**

1. Excessive spillage or reverse venting of fuel appliances caused by outdoor conditions such as:
  - Wind direction and/or velocity, including high, gusty winds. Heavy air in the vent pipes (cold/humid air with extended periods between cycles).
  - Negative pressure differential resulting from the use of exhaust fans.
  - Several appliances running at the same time competing for limited fresh air.
  - Vent pipe connections vibrating loose from clothes dryers, furnaces, or water heaters.
  - Obstructions in or unconventional vent pipe designs which can amplify the above situations.
2. Extended operation of unvented fuel burning devices (range, oven, fireplace).
3. Temperature inversions, which can trap exhaust close to the ground.
4. Car idling in an open or closed attached garage, or near a home.

These conditions are dangerous because they can trap exhaust in your home. Since these conditions can come and go, they are also hard to recreate during a CO investigation.

### ***How Can I Protect My Family?***

---

A CO alarm is an excellent means of protection. It monitors the air and sounds a loud alarm before Carbon Monoxide levels become threatening for average, healthy adults.

**A CO alarm is not a substitute for proper maintenance of home appliances.**

To help prevent CO problems and reduce the risk of CO poisoning:

- Clean chimneys and flues yearly. Keep them free of debris, leaves, and nests for proper air flow. Also, have a professional check for rust and corrosion, cracks, or separations. These conditions can prevent proper air movement and cause back-drafting. Never "cap" or cover a chimney in any way that would block air flow.
- Test and maintain all fuel-burning equipment annually. Many local gas or oil companies and HVAC companies offer appliance inspections for a nominal fee.
- Make regular visual inspections of all fuel-burning appliances. Check appliances for excessive rust and scaling. Also check the flame on the burner and pilot lights. The flame should be blue.

A yellow flame means fuel is not being burned completely and CO may be present. Keep the blower door on the furnace closed. Use vents or fans when they are available on all fuel-burning appliances. Make sure appliances are vented

to the outside. Do not use portable/outdoor grills or barbecue indoors, or in garages or on screen porches.

- Check for exhaust backflow from CO sources. Check the draft hood on an operating furnace for a backdraft. Look for cracks on furnace heat exchangers.
- Check the house or garage on the other side of shared wall.
- Keep windows and doors open slightly. If you suspect that CO is escaping into your home, open a window or a door. Opening windows and doors can significantly decrease CO levels.

**In addition, familiarize yourself with the enclosed checklist, read this manual in its entirety, and make sure you understand what to do if your CO alarm sounds.**

## CHAPTER 6: *Underwriters Laboratories Inc. UL2034*

### **What Levels of CO Cause an Alarm?**

Underwriters Laboratories Inc. UL2034 defines 3 specific alarm points by which all residential CO alarms must alarm. They are measured in parts per million (ppm) of CO over time (in minutes).

#### **UL2034 Required Alarm Points:**

- If the alarm is exposed to **400 ppm** of CO, IT MUST ALARM BETWEEN 4 and 15 MINUTES
- If the alarm is exposed to **150 ppm** of CO, IT MUST ALARM BETWEEN 10 and 50 MINUTES.
- If the alarm is exposed to **70 ppm** of CO, IT MUST ALARM BETWEEN 60 and 240 MINUTES.

#### **IMPORTANT!**

CO alarms are designed to alarm before there is an immediate life threat. Since you cannot see or smell CO, never assume it's not present.

- An exposure to 100 ppm of CO for 20 minutes may not affect average, healthy adults, but after 4 hours the same level may cause headaches.
- An exposure to 400 ppm of CO may cause headaches in average, healthy adults after 35 minutes, but can cause death after 2 hours.

#### **IMPORTANT!**

This CO alarm measures exposure to CO over time. It alarms if CO levels are extremely high in a short period of time, or if CO levels reach a certain minimum over a long period of time. The CO alarm generally sounds an alarm before the onset of symptoms in average, healthy adults.

Why is this important? Because you need to be warned of a potential CO problem while you can still react in time. In many reported cases of CO exposure, victims may be aware that they are not feeling well, but become disoriented and can no longer react well enough to exit the building or get help. Also, young children and pets may be the first affected. The average healthy adult might not feel any symptoms when the CO alarm alarms. However, people with cardiac or respiratory problems, infants, unborn babies, pregnant mothers, or elderly people can be more quickly and severely affected by CO. If you experience even mild symptoms of CO poisoning, consult your doctor immediately!

#### **▲ WARNING!**

**This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure CO levels in compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards.**



## CHAPTER 7: Troubleshooting Guide



**ELECTRICAL SHOCK HAZARD.** Turn off the power to the area where the CO alarm is installed **BEFORE** removing it from the mounting bracket or checking any electrical connections! Failure to turn off the power first may result in serious electrical shock, injury or death.



















The following guide can help you identify a potential problem with the installation or operation of your CO alarm. It is not meant to be an all-inclusive list of all CO alarm conditions. If you are experiencing a condition not covered in the next several pages, please contact Consumer Affairs.

| If your CO alarm does this...  | It means...  | You should...   |
|--|--|---|
| Red light is OFF.<br>Unit will not alarm when you press the Test/Silence button.                 | Unit may not be receiving any power.   | Check the AC power supply. Make sure the power connector is securely attached to the alarm. Make sure a fresh 9V battery is installed to power the battery back-up. |
| Red light flashes once a minute (horn is silent).  | Alarm is not receiving AC power.   | Unit is operating on DC battery back-up. Check the AC power supply.   |
| Once a minute, the red light flashes and the horn "chirps".                                      | Low battery warning.   | Replace the battery in the battery back-up.   |
| Once a minute, the alarm sounds 3 quick "chirps", and the red light flashes quickly three times. | Unit malfunction. Unit needs to be replaced.                                       | Units under warranty should be returned to manufacturer for replacement. See Chapter 8 "Limited Warranty" for details.  |
| CO alarm goes back into alarm 4 minutes after you press the Test/Silence button.                 | CO levels are still potentially dangerous.   | Refer to Chapter 3 "If Your CO Alarm Sounds" for details on how to respond to an alarm. If anyone is feeling ill, EVACUATE your home immediately and call 911.      |
| CO alarm sounds frequently even though no high levels of CO are revealed in an investigation.    | The CO alarm may be improperly located. Refer to "Where to Install Your CO Alarm." | Relocate your alarm. If frequent alarms continue, have home rechecked for potential CO problems. You may be experiencing an intermittent CO problem.                |

If you have questions you cannot answer by reading the manual, call Consumer Affairs at 1-800-323-9005.



















## UNDERSTANDING THE LIGHT AND HORN PATTERNS (AC POWER ON)

When the CO Alarm is operating on AC power...

| Condition  | LED (Red Light)  | Horn  |
|--|--|---|
| POWER UP   | LED flashes ON once, then shines continuously   | Horn "chirps" once.    |
| DURING TESTING                                       | LED flashes once every second during the 10-second test cycle   | Horn pattern: 4 beeps, pause, 4 beeps, pause.                                |
| MISSING BATTERY (DC back-up disabled)                | LED shines continuously   | Horn is silent.    |
| LOW BATTERY  | LED shines continuously    | Horn "chirps" once a minute.    |
| ALARM CONDITION Single CO Alarm (not interconnected) | LED flashes rapidly, once every second    | Horn pattern: 4 beeps, pause, 4 beeps, pause, repeating.                   |
| ALARM CONDITION Interconnected Series of CO Alarms   | LED flashes rapidly on the unit that triggered the alarm. LEDs on the other alarms in the series will not flash.  | Horn pattern: 4 beeps, pause, 4 beeps, pause repeating, on all CO alarms.  |
| IN SILENCE MODE                                      | LED flashes rapidly, once every second    | Horn stays quiet for 4 minutes.    |
| "LATCHING" ALARM INDICATOR                           | LED flashes once every 5 seconds    | Horn stays quiet.    |
| MALFUNCTION  | LED flashes 3 times synchronized with 3 rapid chirps    | Horn sounds 3 rapid chirps ("chirp-chirp-chirp") every minute.             |

## UNDERSTANDING THE LIGHT AND HORN PATTERNS (AC POWER OFF)

When AC power is Off, and CO alarm is operating on battery back-up...

| Condition  | LED (Red Light)  | Horn  |
|--|--|---|
| BATTERY BACK-UP POWER UP   | LED flashes ON once, then flashes once per minute   | Horn "chirps" once.    |
| DURING TESTING   | LED flashes once every second during the 10-second test cycle   | Horn pattern: 4 beeps, pause, 4 beeps, pause.                                |
| MISSING OR DEAD BATTERY (DC back-up disabled)  | LED is OFF    | Horn is silent.    |
| <b>WARNING: When the AC power is Off, if the battery is dead or missing, the CO alarm cannot work.</b> |  |   |
| LOW BATTERY  | LED flashes once per minute    | Horn "chirps" once a minute.    |
| ALARM CONDITION Single CO Alarm (not interconnected)   | LED flashes rapidly, once every second    | Horn pattern: 4 beeps, pause, 4 beeps, pause, repeating.                   |
| ALARM CONDITION Interconnected Series of Alarms  | LED flashes rapidly on the unit that triggered the alarm. LEDs on the other alarms in the series will not flash.  | Horn pattern: 4 beeps, pause, 4 beeps, pause repeating, on all CO alarms.  |
| IN SILENCE MODE  | LED flashes rapidly, once every second    | Horn stays quiet for 4 minutes.    |
| "LATCHING" ALARM INDICATOR   | LED flashes once every 5 seconds    | Horn stays quiet.    |
| MALFUNCTION  | LED flashes 3 times synchronized with 3 rapid chirps    | Horn sounds 3 rapid chirps ("chirp-chirp-chirp") every minute.             |

## CHAPTER 8: *General Limitations Of CO Alarms*

This CO alarm is intended for residential use. It is not intended for use in industrial applications where Occupational Safety and Health Administration (OSHA) requirements for carbon monoxide detectors must be met.

**CO alarms will not work without power.** This CO alarm requires a continuous supply of AC power, and a fresh, correctly installed 9V battery to power the battery back-up.

**This CO alarm will not sense carbon monoxide that does not reach the sensor.** This CO alarm will only sense CO at the sensor. CO may be present in other areas. Doors or other obstructions may affect the rate at which CO reaches the CO alarm. For this reason, if bedroom doors are usually closed at night, we recommend you install a CO alarm in each bedroom and in the hallway between them.

**CO alarms may not sense CO on another level of the home.** For example, a CO alarm on the second level, near the bedrooms, may not sense CO in the basement. For this reason, one CO alarm may not give adequate warning. Complete coverage is recommended. Place CO alarms on each level of the home.

**CO alarms may not be heard.** The alarm horn loudness meets or exceeds current UL standards of 85 dB at 10 feet. However, if the CO alarm is installed outside the bedroom, it may not wake up a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. This is especially true if the door is closed or only partly open. Even persons who are awake may not hear the alarm horn if the sound is blocked by distance or closed doors. Noise from traffic,

stereo, radio, television, air conditioner, or other appliances may also prevent alert persons from hearing the alarm horn. This CO alarm is not intended for people who are hearing impaired.

**CO alarms are not a substitute for a smoke alarm.** Although fire is a source of carbon monoxide, this CO alarm does not sense smoke or fire. This CO alarm senses CO that may be escaping unnoticed from malfunctioning furnaces, appliances, or other sources. Early warning of fire requires the installation of smoke alarms.

**CO alarms are not a substitute for life insurance.** Though these CO alarms warn against increasing CO levels, BRK Brands, Inc. does not warrant or imply in any way that they will protect lives from CO poisoning. Homeowners and renters must still insure their lives.

**CO alarms have a limited life.** Although the CO alarm and all of its parts have passed many stringent tests and are designed to be as reliable as possible, any of these parts could fail at any time. Therefore, you must test your CO alarm weekly.

**CO alarms are not foolproof.** Like all other electronic devices, CO alarms have limitations. They can only detect CO that reaches their sensors. They may not give early warning to rising CO levels if the CO is coming from a remote part of the home, away from the CO alarm.

*NOTES*

## NOTES

## Limited Warranty

**BRK Brands, Inc. warrants the enclosed Carbon Monoxide Alarm** to be free from defects in materials and workmanship under normal use and service for a period of five years from date of purchase. BRK Brands, Inc. makes no other express warranty for this alarm.

No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this warranty. The Company's obligations under this warranty shall be limited to the replacement of the alarm if it is found to be defective in materials or workmanship under normal use and service during the applicable period from date of purchase. During the initial one-year period from the date of purchase, such replacement shall be made without charge. During the latter four years of the warranty period, such replacement shall be made at a charge to the Customer not to exceed the manufacturer's cost.

BRK Brands, Inc. makes no warranty, expressed or implied, written or oral, including that of merchantability or fitness for any particular purpose, with respect to the battery.

During the specified warranty period, products should be returned with purchase receipt, shipping prepaid, to: Consumer Affairs, BRK Brands, Inc., 3920 Enterprise Ct., Aurora, IL 60504-8132, USA. Please enclose a note describing the problem.

BRK Electronics® is a registered trademark of BRK Brands, Inc.

The Company shall not be obligated to replace products which are found to be in need of repair because of damage, unreasonable use, modifications, or alterations occurring after the date of purchase.

**The duration of any implied warranty, including that of merchantability or fitness for any particular purpose, shall be limited to the period of five years commencing with the date of purchase. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault.**

**Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.**

For your records, please record:

Date Purchased:

Where Purchased:

M06-1046-001 6/00