



MARINE CARBON MONOXIDE (CO) ALARM USER'S MANUAL

MODELS 60-541 and 60-542

PATENTS PENDING

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ATTENTION: This user's manual contains important Carbon Monoxide (CO) alarm installation, operation, troubleshooting and warranty information. Read, follow, and keep this manual for future reference.

NOTE: If you install or purchase this alarm for another person, give this manual to that person.

IMPORTANT: This unit must be replaced within 5 years of its production date. See Owner's replacement Record in this manual. The replacement date indicates the date beyond which the device may no longer detect carbon monoxide accurately.

WHY EVERY BOAT NEEDS A SAFE-T-ALERT™ CO ALARM

Everyone is at risk for carbon monoxide poisoning! Particularly sensitive are children, pregnant women, the elderly and people with lung or heart disease or anemia! Carbon monoxide (CO) is an odorless, colorless gas that prevents the blood from carrying oxygen to vital organs. CO is 200 times more likely to replace oxygen in the blood. The Consumer Product Safety Commission (CPSC) recommends use of at least one carbon monoxide alarm located outside of sleeping areas. For best security locate an alarm in each sleeping area.

ABOUT CO GAS AND YOUR NEW CO ALARM

Because CO is a colorless, odorless, tasteless and highly poisonous gas; it can endanger lives even at low levels of concentration. Your CO alarm will alert you to potentially dangerous situations. **The following symptoms may be related to CO POISONING and should be discussed with ALL members of your household and guests on your boat:**

- **Mild Exposure:** Headaches, running nose, sore eyes, often described as "flu-like" symptoms.
- **Medium Exposure:** Dizziness, drowsiness, vomiting.
- **Extreme Exposure:** Unconsciousness, brain damage, death.

NOTE: Many cases of reported CO poisoning indicate that while victims are aware they are not well, they become disoriented. They are unable to save themselves by either exiting the building or calling for assistance. **Young children and pets may be affected first.**

Your SAFE-T-ALERT™ CO alarm helps protect your household members and guests in enclosed sleeping areas from CO produced while using your boat. CO gas is produced when any type of fuel is incompletely burned. Potential sources of CO in and around your boat can include gas or diesel engine exhaust, portable space heaters, galley gas stoves and ovens, defective engine exhaust systems, portable grills, other docked, moored and rafted boats. All produce CO.

The following are also sources of CO that may affect your boat:

- Extended operation of unvented fuel burning appliances can build up high CO levels.

- An idling vehicle near a boat can cause high levels of CO to build up.
- Temperature inversions can trap exhaust near the ground.
- CO build up can be caused by reverse/negative venting of fuel burning appliances including: 1) Clogged, loose or faulty stacks of (clothes dryers, furnaces and water heaters, etc.), 2) wind direction and/or velocity, 3) simultaneous operation of multiple fuel burning appliances, and/or exhaust fans.

The electronic sensor in your SAFE-T-ALERT™ CO alarm is self-cleaning and very sensitive to CO gas. It will not react to non-hazardous levels of most other gas.

NOTE: The TEST/RESET button on the SAFE-T-ALERT™ CO alarm accurately tests all alarm functions. It is the only way to test the alarm.

WARNING:

LIMITATIONS OF CARBON MONOXIDE ALARMS

CO ALARMS WILL NOT WORK WITHOUT POWER. Some examples causing no alarm power are a blown or missing fuse, broken wire, a faulty wire connection or circuit breaker, or a discharged battery.

CAUTION-THIS ALARM WILL ONLY INDICATE THE PRESENCE OF CO GAS AT THE SENSOR. CO gas may be present in other areas. MTI recommends that alarms be installed in all sleeping areas.

CO ALARMS MAY NOT BE HEARD. The alarm's loudness is designed to meet or exceed regulatory standards, however, the alarm may not be heard if alarms are located in remote locations or behind closed doors. Persons who are hard-of-hearing, have consumed alcoholic beverages, taken prescription, non-prescription or illegal drugs, may not hear the 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. This device may not alarm at low CO levels. This CO alarm is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with the Occupational Safety Health Administration (OSHA) commercial or industrial standards. Individuals with medical problems may consider using warning devices, which provide audible and visual signals for CO concentrations under 30 ppm. See the section, Visual and Audible Alarm Signals, in this manual for further information.

WARNING

THIS PRODUCT IS INTENDED FOR USE IN ORDINARY INDOOR RESIDENTIAL, RV AND BOAT AREAS. IT IS NOT DESIGNED TO MEASURE COMPLIANCE WITH COMMERCIAL AND INDUSTRIAL STANDARDS.

HOW TO PROTECT YOUR FAMILY FROM CO GAS

CAUTION- The SAFE-T-ALERT™ CO alarm is designed to protect individuals from acute effects of carbon monoxide exposure. It will not fully safeguard individuals with specific medical conditions. If in doubt, consult a medical practitioner.

To protect your family, you should:

- **INSTALL CO ALARMS PROPERLY.** Carefully read and follow ALL the instructions in this manual. Test your unit every week. Alarms that do not work will not alert you to hazardous levels of CO gas. See the section, Test Procedure, in this manual for further information.

INSTALLATION INSTRUCTIONS

Models 60-541 and 60-542.



WARNING

FAILURE TO FOLLOW THE FOLLOWING INSTRUCTIONS MAY RESULT IN A MALFUNCTION OF THE ALARM AND MAY VOID THE WARRANTY.



WARNING

CONNECT ONLY TO WIRING THAT CANNOT BE TURNED OFF BY A SWITCH OR GROUND FAULT PROTECTOR. ONLY USE UL® OR RECOGNIZED CONNECTORS.



WARNING

THESE ALARMS ARE DESIGNED TO BE MOUNTED ON A WALL OR CEILING 6" (15CM) FROM THE WALL/CEILING LINE. SEE WHERE TO AND NOT TO INSTALL CO ALARMS.



WARNING

SHOCK HAZARD: TURN OFF POWER BEFORE INSTALLING. POWER SUPPLY 12 vDC. RECOMMENDED WIRE SIZE 14GA. CONNECT THE ALARM TO A PROPERLY FUSED CIRCUIT, MAXIMUM OVER PROTECTION DEVICE RATING 15 AMPS. ALL CONNECTIONS MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

Follow these directions when installing your SAFE-T-ALERT™ CO alarm:

1. Select a wall location and drill a 1/4" (6mm) hole for the 60-541. Cut a 4" (102mm) W x 3" (76mm) H hole for the 60-542. **Note:** The 60-542 requires 1 3/8" (35mm) clearance for the case inside the wall.
2. Connect Supply (+) to the Red wire lead. Ground to Black (-) to the Black wire lead.
3. Reconnect the power supply.

NOTE: ALL WIRING METHODS SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE OR CANADIAN ELECTRIC CODE

TEST PROCEDURE



WARNING

TO REDUCE THE RISK OF CARBON MONOXIDE POISONING, TEST THE ALARM'S OPERATION AFTER THE BOAT HAS BEEN IN STORAGE, BEFORE EACH TRIP AND AT LEAST ONCE PER WEEK DURING USE.



WARNING

DO NOT attempt to test the alarm by any other means than by using the TEST/RESET button. DO NOT attempt to produce CO to test the alarm. The TEST/RESET button tests all functions of the alarm and is the ONLY safe way to be sure the alarm is working properly.

The alarm may be tested at any time after power is applied by pressing the TEST/RESET button, located on the front of the alarm. The alarm is working properly if the GREEN indicator light changes color to RED and the horn sounds.

- **MAKE REGULAR VISUAL INSPECTIONS.** Check all fuel burning equipment including gas water-heaters, kitchen gas stoves, space heaters, gas dryers and all pilot lights. Check the color of the pilot flame. The color should be blue.
- **MAKE REGULAR VISUAL INSPECTIONS OF THE ENGINE AND GENERATOR EXHAUST SYSTEMS.** Cracked exhaust systems can allow CO to enter the boat living area.
- **PROFESSIONALLY MAINTAIN YOUR ENGINE AND GENERATOR.** Although gas engines and generators produce CO, a poorly tuned engine and generator will produce greater amounts CO.
- **KEEP THE COCKPIT AND PASSENGER AREA WELL VENTILATED.** When idling, traveling at slow speeds or when the canvas is up at any speed, under certain conditions high CO levels can collect in the open air and can enter enclosed areas (station wagon effect).

WHERE TO INSTALL CO ALARMS

- **FOR MINIMUM PROTECTION,** install CO alarms near all sleeping areas.
- **FOR MAXIMUM PROTECTION** install CO alarms in all sleeping areas. (See Figure 1)

WHERE NOT TO INSTALL CO ALARMS

- **DO NOT INSTALL ALARMS** behind furniture, drapes, pillows, in closets or areas that will block air flow to the alarm.
- **DO NOT INSTALL ALARMS** within 12 inches (30cm) of opening windows, exterior doors, heating or return vents, or other drafty areas or 6" (15cm) of the wall/ceiling line.
- **DO NOT INSTALL ALARMS** within 5 feet (1.5m) of any cooking appliance.

The following diagrams provide additional alarm installation information:

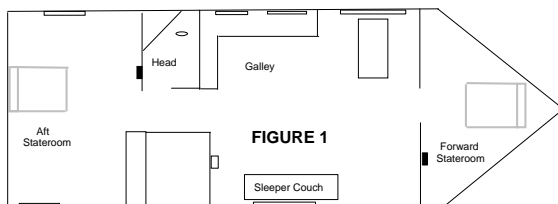


FIGURE 1

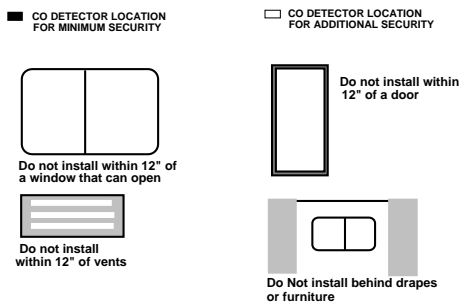


FIGURE 2

OPERATION

Each SAFE-T-ALERT™ CO alarm is equipped with a self-cleaning CO sensor and requires a ten (10) minute initial warm-up period to clean the sensor element and achieve stabilization. The GREEN indicator will flash on and off during the 10 minute warm up period.

The GREEN power ON indicator should glow continuously after the warm up period. If the ON indicator light does not light, see the section, **Trouble-Shooting Guide**, in this manual for further information. **Do not attempt to fix it yourself.**

VISUAL AND AUDIBLE ALARM SIGNALS

This SAFE-T-ALERT™ CO alarm is designed to be easy-to-operate. The alarm has an indicator light that displays a specific color for each monitored condition. There also is a matching sound pattern for alarm conditions.

1. **LOW CO ALARM** – is indicated by a **FLASHING RED LIGHT AND 4 AUDIBLE “BEEPS” THEN OFF FOR 5 SECONDS**. These signals indicate the presence of 70 ppm or more of CO. **IMMEDIATE ACTION IS REQUIRED**. See the section, **Procedures To Take During An Alarm**, in this manual for further information. This cycle will continue until the TEST/RESET button on the front of your unit is pressed. The TEST/RESET button temporarily silences the CO alarm. Ventilate the area. The **RED** light will continue to flash until the CO has cleared, or the alarm will reactivate in approximately 6 minutes in the event CO is still present. If the level of CO continued to rise above 100 ppm, the **FLASHING RED LED** will change to **STEADY RED**.

2. **HIGH CO ALARM** - is indicated by a **STEADY RED LIGHT AND 4 AUDIBLE “BEEPS” THEN OFF FOR 5 SECONDS**. These signals indicates that the CO level is over 100 ppm. **IMMEDIATE ACTION IS REQUIRED**. See **Procedures To Take During An Alarm**. This cycle will continue until the TEST/RESET button on the front of your unit is pressed. Ventilate the area. The **RED** light will stay ON until the CO has cleared, or the alarm will reactivate in approximately 6 minutes if the CO is still present.

3. **MALFUNCTION/SERVICE SIGNAL** – is indicated by **ALTERNATING RED AND GREEN LIGHTS AND ONE AUDIBLE BEEP EVERY 30 SECONDS**. If this signal sounds, press the TEST/RESET button. If the TEST/RESET button does not clear the signals, check the battery voltage. If the battery voltage is not low, immediately remove the alarm and return for service. See the section, **Warranty Return Procedures**.

SPECIAL MEMORY FEATURE – This SAFE-T-ALERT™ CO alarm has a Peak Level Memory feature that remembers the approximate amount of CO that activated the alarm.

To activate alarm level memory, press the TEST/RESET button for less than 1 second. You can repeat this feature at any time.

The following memory signals indicate the approximate amount of CO present when the alarm was activated:

- (1) **“BEEP” and 1 GREEN FLASH** indicate the memory is clear.
- (2) **“BEEPS” and 2 RED FLASHES** indicate less than 100 ppm.
- (3) **“BEEPS” and 3 RED FLASHES** indicate less than 200 ppm.
- (4) **“BEEPS” and 4 RED FLASHES** indicate over 200 ppm.

You can only erase memory by disconnecting power for 15 seconds.

TROUBLE-SHOOTING GUIDE

Use this chart to trouble-shoot problems with your CO alarm.

PROBLEM	CAUSE/SOLUTION
GREEN LIGHT OFF	1. Wire Connection 2. Reversed Wiring 3. Main Power Off 4. Missing or Blown Fuse 5. Contact Customer Service
NO SOUND IN TEST	Contact Customer Service
NO RED LED IN TEST	Contact Customer Service
LOCKED IN RED ALARM	Contact Customer Service
ALARM WITH RED/GREEN LED AND WILL NOT RESET	Contact Customer Service

HOW TO TAKE CARE OF YOUR ALARM

Your CO alarm is designed to be as maintenance free as possible. To keep your alarm in good working order, you must:

- **TEST THE ALARM WEEKLY.** See the section, **Test Procedure**, in this manual for further information.
- **VACUUM THE DUST OFF THE ALARM COVER.** At least once a year (more frequently in dusty locations), use the soft brush attachment of your vacuum to clean the alarm cover.
- **CLEAN THE ALARM COVER WHEN DIRTY.** Wash the alarm cover by hand. Use a cloth dampened in clean water. Dry with a soft cloth.
- **DO NOT SPRAY CLEANING AGENTS OR WAXES DIRECTLY ONTO THE FRONT PANEL.** The alarm area should be well ventilated when household cleaning supplies or similar contaminants are used.
- **OBSERVE THE COLOR OF THE INDICATOR LIGHT.** At frequent intervals and during your weekly test, check the indicator light on the on the front panel of the alarm. See the section, **Operation**, in this manual for further information.

PROCEDURES TO TAKE DURING AN ALARM

Follow the alarm procedures for your country. The emergency number depends on your travel location.

PROCEDURES TO TAKE DURING AN ALARM IN CANADA



WARNING: Actuation of this device indicates the presence of carbon monoxide (CO) which can KILL YOU. If signal sounds (4 beeps and flashing or solid red light: 1) Immediately move to fresh air - outdoors or by an open door/window. Check that all persons are accounted for. Do not reenter the premises or move away from the open door/window until the emergency responders have arrived, the premises have been aired out, and your alarm remains in its normal condition; 2) call your emergency local service (telephone number _____) (fire department or 911).

**PROCEDURES TO TAKE
DURING AN ALARM IN THE USA**

⚠ WARNING: Actuation of this device indicates the presence of carbon monoxide (CO), which can KILL YOU. If signal sounds (4 beeps and flashing or solid red light): **1)** Operate the reset/silence button; **2)** Call your emergency local service (Phone Number _____) (fire department or 911); **3)** Immediately move to fresh air - outdoors or by an open door/window. Check that all persons are accounted for. Do not reenter the premises or move away from the open door / window until the emergency responders have arrived, the premises have been aired out and your alarm remains in its normal operation. **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. (Phone Number _____) 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 manufacturer directly, for more information about CO safety and this equipment. Make sure that the motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

LIMITED PRODUCTS WARRANTY

MTI INDUSTRIES, INC. warrants to the original retail purchaser that its products will be free from defects of material or workmanship for a period of One (1) year from the date of retail purchase. If proven to have been defective in original materials or workmanship and returned, delivery costs prepaid, MTI INDUSTRIES, INC. will replace this product free of charge.

LIMITS OF WARRANTY

Replacement is your exclusive remedy under this limited warranty or any other warranty (including any implied warranty of merchantability for a particular purpose). Any and all implied warranties or merchantability or fitness for a particular purpose shall be limited to the warranty period from the original date of retail purchase. MTI INDUSTRIES, INC., its dealers and distributors shall in no case be responsible or in any way liable for any incidental or consequential damages for any reason. Some states do not allow the limitation or exclusion of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific rights, and you may also have other rights, which may vary, from state to state.

PRODUCT NOT WARRANTED

NOTE- There are no user serviceable parts inside the case. Opening any SAFE-T-ALERT™ product for any reason voids the warranty. This warranty does not cover damage or failure resulting from acts of God, abuse, misuse, neglect, or faulty installation.

WARRANTY RETURN PROCEDURES

It is MTI's experience that a Carbon Monoxide alarm is sounding for a reason. Call, ask your dealer to call, or e-mail our Customer Service Department (as listed below) to trouble shoot the situation.

Customer Service Phone No. - 800-383-0269

Fax No. 847-546-9007

E-mail Service@mtiindustries.com

Web Site: www.mtiindustries.com

If Customer Service determines that the unit is defective, a Replacement Authorization (RA) number will be issued. **No product will be accepted for service or replacement without first obtaining a RA number.**

If authorized, return this product to:

MTI Industries, Inc.

Warranty Dept. RA # (INSERT RA NUMBER HERE)

31632 N. Ellis Drive Unit 301

Volo, IL 60073

NOTE: Mark the RA number in the area shown on the outside of the box!

SPECIFICATIONS

SAFE-T-ALERT™	60-541 and 60-542	
Power Supply	12 vDC	
Operating Voltage	7 – 16 vDC	
Average Standby Current Draw	60 mA @ 12 vDC	
Operational Temperature	-40° F to +150° F -40° C to +66° C	
Relative Humidity	15% (+/- 5%) to 95% (+/- 4%)	
Gas Detected	Carbon Monoxide	
CO Alarm Level	OVER 100 PPM	
Low CO Alarm	70 to 100 PPM	
No Alarm	30 ppm for 30 Days	
Warm Up Time	10 Minutes	
Alarm Silence Time	Under 6 Minutes	
Case Dimensions	60-541 5" x 3" x 1.5" 60-542 6.5"x 3.5" x 1.5"	
Audible Alarm	85 dB @ 10 Feet	
<u>OPERATION</u>	<u>AUDIBLE SIGNAL</u>	<u>VISUAL SIGNAL</u>
NORMAL	NONE	STEADY GREEN
LOW CO ALARM	4 "BEEPS" 5 SECONDS OFF	FLASHING RED
CO ALARM	4 "BEEPS" 5 SECONDS OFF	STEADY RED
ALARM MALFUNCTION	"BEEP" EVERY 30 SECONDS	ALTERNATING RED/GREEN
UL® 2034 Rev. November 14, 2003 Ulc-CSA 6,19-01	Single Station Residential, Recreational Vehicle and Marine Use	

OWNERS REPLACEMENT RECORD

Replace this SAFE-T-ALERT™ propane alarm within 5 years, of the of the production date on the back of the alarm.

Production Date _____

Replace Date _____

Installer _____

NOTE: The replacement date indicates the date beyond which the device may no longer detect accurately. The alarm should be replaced immediately.

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