

DESIGN, INSTALLATION, OPERATION, INSPECTION AND MAINTENANCE MANUAL

MODEL G600-B RESIDENTIAL RANGE TOP EXTINGUISHER UNIT UL FILE NO. EX 3940





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DEFINITIONS:

WET CHEMICAL: A water based, potassium carbonate and potassium acetate solution which is used as the extinguishing agent.

LISTED: Equipment or materials included in a list published by Underwriters Laboratories, UL LLC (UL) and acceptable to the local authority having jurisdiction, which identifies the equipment or materials as having been tested and determined to be acceptable for use for the specified purpose.

SHALL, MUST or NEVER: Indicates a mandatory requirement.

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SHOULD OR MAY: Indicates a recommendation or that which is advised.

APPLIANCE: For the purpose of this manual, appliance means a residential-type kitchen range supplied by gas or electricity to power and heat range top burners.

G600-B: The Guardian Model G600-B is the standard model offered for typical installations when used in conjunction with a flat faced (bottom) exhaust hood or microwave hood only.

G600B-C: The Guardian Model G600B-C is an alternate model designed for environment's that could periodically subject the system to vibration or jarring. See Page 16 for further explanation and additional limitations.

NOTICE:

Attn: End User/Customer

In the event of a system discharge it is extremely important that the agent be cleaned up immediately with soap and water. Due to the high PH level of the agent, any residual liquid left on stoves and counters for an extended period of time could have a negative affect and cause significant damage to the stove top and electronics. Guardian Safety Solutions International, Inc. is not liable or responsible for clean up or damages incurred due to a discharge.

INTRODUCTION

There exist a variety of causes for cooking fires, but most causes involve unattended cooking. Here are some tips to help prevent a cooking fire in your kitchen.

FIRE PREVENTION TIPS:

- Never leave the kitchen when cooking food.
- Use fresh cooking oil whenever possible. The ignition temperature of used cooking oil can be lower than normal and it may contain left-over solids which can ignite.
- Smoke generated from cooking oil is an indication that the temperature of the oil has exceeded the desired cooking temperature of 350-375 F. As the oil temperature increases, the smoke produced will increase significantly. If this occurs, simply turn the burner down or turn it off to prevent the oil from reaching its ignition temperature.
- Be sure to keep the cooking surface and surrounding counter areas clean and clear of combustible materials which could ignite.
- If you must leave the kitchen when frying food, turn the burner off or remove the pan from the burner until you return.

IN CASE OF A FIRE:

NEVER attempt to move a burning cooking vessel after it has ignited. Any movement could splash burning grease and spread the fire or cause severe injury. **NEVER TRY TO EXTINGUISH A GREASE FIRE USING WATER**. Evacuate the kitchen and call the Fire Department immediately, then alert others and evacuate the building. Let your Guardian G600-B extinguish any range top fire. Because of the heat and smoke associated with a cooking fire, it is recommended that you wait at least 30 minutes after the fire has been extinguished before re-entering the building and approaching your kitchen range.

OPERATION:

The Guardian G600-B system is an automatic fire suppression system designed to detect and extinguish cooking fires on residential type range tops. In the event of a stovetop fire, the sensors will activate at a pre-set temperature and signal the main CPU board. The main CPU automatically sends a signal to release the extinguisher valve assembly, releasing the extinguishing agent and simultaneously activates the CPU-mounted alarm, and the fuel shutoff which disconnects the gas and/or electricity to the range.

APPLICATION AND LIMITATION

- The Guardian G600-B is designed and Listed for the protection of 30 in. wide, gas or electric residential range tops when installed in conjunction with a 30 inch wide exhaust hood or microwave/exhaust hood combination with a flat ferromagnetic underside. The extinguishing system is intended for installation within a kitchen cabinet having an internal height of 12" or taller and located either directly above, or adjacent to the range top and exhaust hood.
- Guardian G600-B System is acceptable for use with either a ductless or ducted exhaust hood.
- The extinguisher enclosure assembly is intended for installation within a protected space, such as a kitchen cabinet as outlined in this manual.
- Only components identified by part numbers in this manual are authorized for use with the Guardian G600-B system unless expressly stated in this manual.
- All electrical wiring and alarm connections are to be in compliance with the National Electrical Code (NFPA 70), National Fire Alarm Code (NFPA 72) and any applicable state or local municipal codes.

RESIDENTIAL RANGE-TOP USE ONLY

- The Guardian G600-B extinguishing system is designed and thoroughly tested in accordance with UL Subject 300A for normal residential type cooking applications which originate from residential range top cooking appliances when used in conjunction with a flat faced (bottom) exhaust hood or microwave hood only.
- The Guardian G600-B extinguishing system is not intended for the protection of commercial "restaurantstyle" cooking equipment.
- The <u>maximum</u> range top cooking surface protected by the Guardian G600-B System is 720 square inches measuring 30" wide and 24" deep.
- The Guardian G600-B is not designed or intended for the protection of areas adjacent to, or within the residential range top, such as nearby counter tops or within the range oven.

PACKING LIST

Check contents for missing or damaged parts (see FIGURES 1, 2, 3 & 4). Check fire extinguisher for proper operating pressure. Needle should point in the operable (green) zone. Report any damage or missing parts to the manufacturer before starting installation.

<u>CAUTION:</u> DO NOT REMOVE SAFETY PIN FROM FIRE EXTINGUISHER AT THIS TIME!!!

Additional equipment or components necessary to install the system in accordance with the instructions and limitations listed are to be provided by the authorized installer if not purchased with the basic system (i.e., electrical Wire, wire mold, shut-off components, etc.). Additional equipment and components may be obtained from a Guardian Safety Solutions International distributor or the manufacturer.

NOTE:

GUARDIAN G600-B SYSTEM COMPONENTS

Each system consists of a pre-assembled enclosure extinguisher assembly, sensor assembly, and distribution/nozzle assembly and one (1) shutoff for electrical or gas stoves, ready for installation in the kitchen cabinet and range hood over the stove.



ENCLOSURE / EXTINGUISHER ASSEMBLY



SYSTEM ENCLOSURE

The system enclosure consists of the pressurized extinguisher cylinder with the chemical fire suppressant, central processing unit control board with plug in connections, solenoid *I* mechanical release valve, cylinder pressure gauge, system base, CPU enclosure and enclosure cover. (See **FIGURE 2**)

The Guardian G600-B is intended for storage and installation in indoor locations having ambient temperatures between 32 deg. and 120 deg. F (0 deg - 49 deg C).

The Guardian G600-B cylinder is normally pressurized to 100 psi. (689 kPa) at 70 deg. F (21.1 deg. C).

CAUTION

DO NOT ATTEMPT TO USE THE GUARDIAN G600-B AS A HAND HELD PORTABLE EXTINGUISHER. SERIOUS INJURY COULD RESULT FROM MISUSE.

THE CHEMICAL AGENT USED IN THE GUARDIAN G600-B IS NOT REGARDED AS A TOXIC MATERIAL, BUT CAN CAUSE IRRITATION IF SUFFICIENTLY BREATHED IN HIGH CONCENTRATIONS. AVOID CONTACT WITH SKIN OR EYES. IN CASE OF CONTACT, FLUSH **IMMEDIATELY WITH WATER FOR 15 MINUTES. IF IRRITATION PERSISTS, CONTACT A PHYSICIAN.** IF TAKEN INTERNALLY, DO NOT INDUCE **VOMITING.** PHYSICIAN CONTACT Α CHEMICAL DEPOSITS IMMEDIATELY. ON ELECTRICAL CONTACTS CAN PREVENT OR REDUCE CONDUCTIVITY OF THE CONTACTS. **ELECTRICAL POWER MUST BE SHUT OFF PRIOR** TO TOUCHING ELECTRICAL APPLIANCES SPRAYED WITH THE CHEMICAL.



FEATURES AND OPERATION OF THE G600-B CPU (P/N G602)

There are several modes of operation. Reset/Power-On Mode, Diagnostic Test Mode, Fire Detect Mode, Shut-Off Sequence, and Alarm Sequence. Several sequences of events occur during each mode as listed below.

1. Reset/Power-on

Power-on from inserting the battery or a reset resulting from pressing the reset button cause the same action. Immediately upon reset, the CPU board performs 6 tests before entering Fire Detect Mode. If any of these tests fail, the result is a slowly flashing red indicator. If the main unit passes all 6 tests upon reset, the result is a display of the green indictor for 2 seconds, whereupon it enters Fire Detect Mode and the system is armed.

2. Diagnostic Test

Pressing the test button will enter the CPU into a diagnostic test mode. Press and release; do not hold down. The same tests that are performed at reset are performed during the diagnostic test mode. These are, in the order they occur, check sensor 1, check sensor 2, check battery, check solenoid, check for low pressure(if so equipped), check for pull-pin presence in the pull pin socket(see Figure 3). Upon failing any

Continued on Next Page

particular test, a sequence of audible chirps will sound which represent a failure code (as well as a quick flash of the red indicator). If multiple tests fail then you will hear multiple series of beeps with a pause between each to identify multiple failure codes. Diagnostic failure codes identify which of the six tests failed (see "Diagnostic Failure Codes"). The CPU will then revert to a slowly flashing red indication if the test failed. If all 6 tests pass, the unit will enter a Shutoff Sequence. This provides a way to verify that the entire system is working properly and the Fuel Shutoff function can occur in normal operation. See a further explanation of the Shutoff Sequence in Section 4.

Note: Pressing the Reset button or the Test button should not result in solenoid activation with resultant suppressant dump. **Be sure to always place the pull pin in the handle when servicing to prevent any accidental discharge of the system**.

Diagnostic Failure Codes

One chirp	-	Sensor 1/Remote Pull
Two chirps	-	Sensor 2
Three chirps	-	Battery Voltage
Four chirps	-	Solenoid
Five chirps	-	Low Pressure
Six chirps	-	Pull-pin

3. Fire Detect Mode

During fire-detect mode, the main unit monitors the two sensors to detect high temperature indicating a fire. If a fire is indicated, the CPU will issue an Alarm Sequence (See Section 5. "Alarm Sequence"). During Fire Detect Mode the CPU will continue to silently run all six diagnostic tests. If at any time one of these tests fails (with the exception of the low battery test explained below), the CPU will immediately issue a Shutoff Sequence to prevent use of the cooking appliance until the fire suppression system is serviced. The only exception to this rule is a delay in issuing the Shutoff Sequence if the diagnostic failure is a low battery.

Approximately once per minute the battery is checked. If it is low there will be a short chirp to indicate that the battery needs to be replaced. The unit will continue to function normally, with the warning beep occurring approximately every minute for about 4 $\frac{1}{2}$ hours. If the battery is not replaced before the 4 $\frac{1}{2}$ hours has expired, the system will initiate a Shutoff Sequence. If a reset is initiated in this situation, the CPU will not resume normal

operation, as it cannot pass the reset or diagnostic tests.

4. Shutoff Sequence

A shutoff sequence will cause an audible alarm for 10 seconds, and will disconnect fuel to the cooking appliance. Following the ten seconds of audible alert, the unit will issue a chirp about every minute to alert the owner that the fire suppression system needs to be serviced.

There are six things which will result in a shutoff sequence. These are: (1) Low battery indication has persisted for about 4 ½ hours. (2) A test sequence was executed successfully. (3) The pull-pin was removed from its socket during Fire Detect Mode. (4) An open circuit was detected on one of the sensors during Fire Detect Mode. (5) An open circuit was detected on the solenoid during Fire Detect Mode. (6) If cylinder pressure monitor indicates pressure is low.

5. Alarm Sequence

An alarm sequence will only occur if a low voltage is detected at one or both of the sensors. This is an indication of very high temperatures or of a short across the sensor circuit. This sequence can only occur when the CPU is running in Fire Detect Mode. A short circuit across the sensors at power-up or during a test sequence will result in a test failure which prevents the unit from entering Fire Detect Mode.

The alarm sequence causes an audible alarm, suppressant to be released and the fuel shutoff to disconnect fuel to the cooking appliance. This cycle will continue until the unit is reset or the battery is depleted.

DETECTION SENSOR ASSEMBLY (P/N G605)

The sensor assembly, which is temperature activated, consists of two sensors mounted in a high temperature silicone rubber sleeve. The rubber sleeve contains magnets running along its length that allow for easy installation on the front edge of the underside of the hood or microwave-hood. The detection sensor assembly (p/n G605) is to be installed where normal ambient cooking temperatures do not exceed 300 deg. F (148.8 deg. C).



DISTRIBUTION ASSEMBLY (P/N G604-A)

The distribution assembly consists of one housing and cover with a stainless steel braided hose coming out of it. The stainless steel braided hose has a quick connect fitting installed on the end for easy connection to the valve head of the extinguisher. Inside the housing there are 2 nozzles mounted in fittings connected by a stainless steel tube.

The assembly is installed underneath the hood against the wall. The Nozzles angle shall be adjusted based on the distribution assembly's height above the cooking surface. The nozzles/hose assembly can be removed and reinstalled with the hose coming out the opposite side of the housing depending on installation requirements.

Note:

The stainless steel braided hose with quick connect shall be on the same side of the distribution assembly as the system enclosure, i.e., if the hose is on the left side of the distribution assembly, enclosure shall be mounted inside the cabinetry above the microwave hood / range hood on the far left side or vice versa for the right side.

SYSTEM INSTALLATION INSTRUCTIONS

TOOLS REQUIRED FOR SYSTEM INSTALLATION

11/32" Nut Driver	1" Hole Saw
Tape Measure	Electric Drill
Phillips #2 Screwdriver	Safety Goggles

INSTALLATION INSTRUCTIONS

Before beginning the installation of your Guardian G600-B unit, locate and identify each part. (See FIGURE 1) Turn off the circuit breaker to the kitchen range hood and stove before boring holes. Wear approved safety goggles. Protect stove top and counter surface from falling debris.

Note:

Installation is not considered complete until "Arming the System" is performed as outlined on page 15.

Perform the following:

- 1. Assemble all suggested tools. Remove all components from the box and familiarize yourself with assembly components.
- Review assembly procedures and check physical height and width requirements of cabinet above or beside vent hood. Also check minimum and maximum height requirements for nozzles and sensors. (See FIGURE 5)



- Plan your installation by selecting the desired location of the Guardian G600-B System Enclosure / Extinguisher Assembly. The Guardian G600-B is usually on the left side of the cabinet directly above the hood or microwave hood, however; right side mounting or side cabinet installation is an option.) (See Figure 6)
- 4. Determine the best route from below the hood to the location of the Extinguisher Assembly. Before Drilling, measure the route and make certain that the sensor cable and stainless steel braided hose are long enough to connect to the Guardian G600-B System Enclosure / Extinguisher Assembly in its desired location. The stainless steel braided hose, sensor wire and interconnect cable can route through the same set of holes.
- 5. Using your electric drill and 1" hole saw, drill any holes required for your planned route avoiding damage to any existing wires, plumbing, etc. that may be along the chosen route. Clean up any dust/debris made while drilling.
- 6. Carefully remove the main CPU housing from the Guardian G600-B System Enclosure / Extinguisher Assembly by loosening the thumb screw and removing the front cover of the enclosure -set cover to the side (See FIGURE 2). Using your #2 Phillips driver, loosen the three silver screws in the teardrop slots inside the main CPU housing. Two are on the left side (top and bottom) and one on the right side (top). Once they are loose the main CPU housing can be removed by sliding the housing slightly up and then away from the cylinder- set CPU housing to the side. (See Figure 2)

Place the Guardian G600-B System Enclosure / Extinguisher Assembly in its desired location and fasten the base with two screws installed through the two holes located on the front corners at the base of the housing. (See **Figure 6**)



SYSTEM INSTALLATION INSTRUCTIONS (Cont'd)

- 8. Attach the Sensor Assembly to the bottom of the Hood/Microwave Hood by placing it near the front edge and allowing the inline magnets to secure it in place. It should be installed between 12 and 17 inches away from the rear wall, and as far away from the wall as the hood will allow within the specified range (See Figure 5). Make sure the bottom of the hood is cleaned of all grease before installing the sensor assembly. After installing the sensor assembly along the front, the remaining portion of the tube should run along the bottom side of the hood towards the wall. Next, proceed to feed the sensor wire through the route you planned in steps 3-4. (See Figure 7)
- 9. If you are not using the Wireless Tx/Rx, then now is the best time to run the interconnect cable from the location of the fuel shut-off up to the cabinet where the main CPU will be located. You may choose to run the interconnect cable through a wall mount conduit or raceway to the bottom of the cabinets and then follow the same route as the sensor wire, or you may choose to route it through the wall and up to the cabinet.





- 10. The distribution assembly must be centered above the cooking appliance when it is installed. Firmly mount the distribution housing in the corner formed by the back wall and the hood. This is done by using two self-tapping screws to anchor into the hood above and two 1-1/4" screws to secure to the wall behind. Screws in the wall must be located where they will go into the walls studs or into a wall anchor. Screws going into the hood must be located where they will not damage any part of the hood including wiring, electronic components, etc. A total of four screws must be installed. After the housing is mounted, place the Nozzle/Hose assembly in the housing with the hose on the same side as your planned route. Slide the 2 clamps onto the mounting posts in the hosing. Center the Nozzle assembly and then secure it into place using the 11/32" Nut Driver to gently tighten the two clamp nuts onto the stainless steel pipe. (See Figure 5, 7, 8 and 9)
- 11. Route the stainless steel braided hose through the route planned in steps 3 and 4. You may need to place a piece of tape over the end of the quick coupling to prevent debris from entering the hose as you pull it through the route. Once the hose is pulled into the cabinet, route it through the housing and connect it to the cylinder using the quick coupling located under the handle. (See Figure 6)
- 12. Reinstall the main CPU enclosure back onto the Guardian G600-B System Enclosure / Extinguisher Assembly and tighten the three screws loosened in step 6. Route and connect the sensor wires, solenoid wire and pressure gauge wire to the main CPU. (See **Figure 2 and 3**) Note: sensor 1 and sensor 2 plugs are interchangeable and can be plugged into either connector.
- 13. Attach the green ground wire to an earth ground by using a self-tapping screw and fastening it to a grounded metal part of the hood. (See Figure 2)

SYSTEM INSTALLATION INSTRUCTIONS (Cont'd)

AIMING THE SPRAY NOZZLES

- Determine the height between the top of the cooking surface and the top of the distribution assembly housing. It must be between 16 inches and 27 inches.
 (See FIGURE 5)
- 15. Loosen the two clamp nuts using the 11/32" Nut Driver. Loosen the clamps just enough to be able to adjust the nozzles, but leave enough pressure that the nozzles will stay in the position you rotate them too. Make certain that the nozzle assembly does not slide left or right in the housing during adjustment or the housing cover will not fit properly. The Nozzle Assembly must be centered in the housing for proper fit of the housing cover over the nozzles.
- 16. Using the Nozzle Aiming Gauge provided, adjust the nozzles to the correct angle based on the height determined in step 14. This is done by placing the Gauge in the housing and aligning the nozzles spray hole with the corresponding height/angle on the Gauge. Once in the correct position tighten the clamp nuts to secure the Nozzles in place (See Figure 9 & 10. The example in Figure 9 is set to 23 inches or 45.9 degrees.)
- 17. Place the gauge back in the housing to make sure the nozzles are still at the correct angle; that they did not shift during the tightening process.
- 18. Mount the cover on the Distribution Housing by sliding the bottom of the cover into the housing below the nozzles and then rotating the cover up over the nozzles. Carefully install 4 self-tapping screws through the top of the cover and into the pre-drilled holes of the housing.



ELECTRIC SHUTOFF (P/N G319)

The electric stove is shut off during system activation by two methods. One of the following interface options is used with the electric shutoff. (1)- Using the interconnect cable **(standard)** from the Main CPU Control board to the electric shutoff completes a hardwired signal which in turn activates the shutoff unit. (2)- When using the Wireless Transmitter / Receiver **(optional)**, the shutoff, by way of the Wireless Receiver, continuously monitors for a "Signal" sent from the Main CPU board through the Wireless Transmitter. In the event of system activation, the Wireless Receiver responds to the signal and activates the shutoff. Both methods cause all electrical power to the stove to shut off. The dry contacts provided on the Guardian G600-B CPU are never to be wired directly to the cooking appliance to facilitate appliance shut-down. Either an electric shutoff (P/N G319) or gas shutoff (P/N G316-A) shall be used.

In the event that the electric shutoff is activated or an interruption in power occurs, it must be reset. (See "Reset Stove", p.12)

INSTALLATION

NOTE: Ensure the Electric Shutoff is installed within the same room as the Main CPU control board (part #G602) for proper unit operation.

- 1. Turn" **OFF**" electricity to the range.
- 2. Identify your electric plug configuration; 3-prong, 4-prong or hardwire. (See FIGURES 11A, 11B, and 11C).
- 3. Remove the stove power cord from the wall outlet and plug it into the outlet on the electric shutoff unit (See **FIGURE 14**).
- 4. Insert the stove shutoff power cord into the wall outlet.
- 5. Plug the "Interconnect Cable" into the shutoff.
- 6. Install Interconnect cable between electric shutoff and Main CPU. (See FIGURE 13)
- 7. Plug the interconnect cable into the correct position on the main CPU. (See **FIGURE 3**)
- 8. Turn "ON" electricity to range.





HARDWIRED

FIGURE 11C

HARDWIRED SHUTOFF Description:

This option is available on the electric shut off if the power cord and receptacle are not needed and is hardwired by a licensed electrician. (See **FIGURE 11C**)



Typical connector configuration for 3 prong, 4 prong, and Hardwired Electric Shutoff's

FIGURE 12



WIRELESS ELECTRIC SHUTOFF Description:

To convert the electric shutoff to a wireless version, the standard interconnect cable is replaced with the Wireless Tx/Rx Assembly.

The interconnect socket on the shutoff is compatible with both the interconnect cable and the Wireless Tx/Rx. Either interconnect option is available and can plug into the electric shutoff. In some cases a wireless version of the shutoff device may be required. If this is the case, the Wireless Tx/Rx Assembly is required to shut off the stove. (See **FIGURE 24 and 25**)



Reset Stove

- 1. The electric stove shutoff unit may be reset by locating the circuit breaker supplying power to the stove and turning it off and then back on, or
- 2. Momentarily unplugging the shutoff from the wall outlet and plugging it back in.

NOTE: Method two (2) requires the stove circuit breaker to be in the "ON" position. Method one (1) is preferable since the stove does not need to be moved.

P/N G610B April, 2016 (Rev 0)

GAS SHUTOFF (P/N G316-A)

The Gas Shutoff Assembly G316-A is the shutoff supplied with the Guardian G600-B system when protecting a gas stove. Features provided with this shutoff include the following:

- It is designed with a "Fail Safe Mode" consisting of a Normally Closed (N/C) valve that is energized continually. <u>Loss of power</u> or <u>activation</u> due to a fire will close the valve, shutting off "gas flow" and "electrical power" to the stove.
- 2. The standard Interconnect Cable will be provided or an optional "Wireless Transmitter/Receiver" is available upon request.
- An extra set of dry contacts for switching external devices during system activation are provided via the optional Interface Enclosure Assembly (P/N G317-A)
- 4. The shutoff also has a manual "power reset" feature to eliminate any possibility of an automatic reset/activation of the valve occurring after a fire or loss of power.

INSTALLATION OF GAS STOVE SHUTOFF

NOTE:

- Gas stove shutoff must be installed within the same room as the central processing unit control board (Part #G602) for proper unit operation.
- Turn "OFF" electric power and gas to the stove prior to installation.

VALVE INSTALLATION

It is suggested that a licensed plumber familiar with local and state codes install the gas valve (P/N # G316-1) on the incoming service line to the stove. Adhere to manufacturers installation and maintenance instructions.

Wiring must comply with local and national electrical codes.

The solenoid valve is designed for a continuous duty cycle. When the solenoid valve is energized for a long period, the enclosure becomes hot and can be touched by hand only for an instant. This is a safe operating temperature.

Normally, the valve is installed between the gas lines manual shutoff and the flexible service line from the stove. Be sure that the manual valve is closed prior to installation of valve. (See **FIGURE 15**)

NOTE: The gas valve has an "in" and "out" orientation. The Installer must make certain that the valve is installed correctly.

Install the "Gas Shutoff Control Box" before relocating the stove back for regular cooking conditions.



MANUAL GAS SHUTOFF VALVE

FIGURE 15

GAS SHUTOFF CONTROL BOX INSTALLATION

- 1. Locate required tools and hardware for installation.
- 2. If stove is not unplugged, remove the plug from the outlet.
- Determine the optimal location either behind the stove or in an adjoining cabinet for installation of the Gas Shutoff Control Box (Part # G316-2). (See FIGURE 16) Consider accessibility to activate the manual reset. From the Gas Shutoff Control Box route the cables to gas valve and power cord to wall outlet.

NOTE: Check the length of cables for adequate length prior to installation of the Gas Shutoff Control Box.







- Wireless Receiver Board into the Gas Shutoff Control Box.
- 6. If Interconnect Cable is used, route the cable from Gas Shutoff Control Box to the Main CPU board. Plug the interconnect cable into the "SHUT-OFF" connector of the Main CPU board. (See FIGURE 3 page 5)
- 7. Plug the power cord from the stove into the Gas Shutoff Control Box and then the power cord for the Gas Shutoff Box into the wall outlet.

WIRELESS GAS SHUTOFF Description:

To convert the standard shutoff to a wireless version, the standard interconnect cable is replaced with the Wireless Tx/Rx Assembly.

The interconnect socket on the shutoff is compatible with both the interconnect cable and the Wireless Tx/Rx. Either interconnect option is available and can plug into the gas shutoff. In some cases a wireless version of the shutoff device may be required. If this is the case, the Wireless Tx/Rx Assembly is required to shut off the stove. (See FIGURE 24 and 25)

Resetting Gas Shutoff Assembly

1. Turn power "ON" to the stove.

CAUTION: "GAS WILL BE FLOWING TO THE STOVE WHEN PERFORMING THE NEXT STEP"

2. The "Gas Flow" indicator light should be lit. If not, push the "Power Reset" switch (first) and then the "Valve Reset" switch (second) to arm the control box.

Note: In the event that the gas shutoff is activated or an interruption in power occurs, it must be reset.

ARMING THE SYSTEM

After completing the physical installation of the main unit, sensors, shut-off, and any optional equipment, the following procedure is performed:

CAUTION -DO NOT REMOVE PULL-PIN FROM TANK UNTIL INSTRUCTED.

Ensure the following installation tasks have been completed:

- 1. Connect sensor 1 and sensor 2 to the CPU board.
- 2. Connect the fuel shut-off to the CPU board via the interconnect cable if this option is used.
- 3. Connect wireless transmitter to the CPU board and wireless receiver to the fuel shut-off if wireless shut-off option is used.
- 4. Verify that the solenoid connection is present and connected to the CPU board.
- 5. Connect the optional AC adapter to the CPU board if supplied.
- 6. Insert the 9 Volt battery into the battery holder.

With the cylinder pull-pin still installed in the agent tank, initiate a Diagnostic Test by press and release of the diagnostic test button. The test should fail and issue 6 chirps, indicating that the pull pin has not been removed from the tank. If the result is a lesser number of chirps followed by the series of six chirps, then some diagnostic test other than the pull pin test has failed and the system should be troubleshot before proceeding further (See Diagnostic Failure Codes pg.6). Once any troubleshooting has been resolved, retest until only the 6 chirp Diagnostic Failure Code occurs.

- 1. Verify that the fuel shut-off is powered and is reset. (See page 12 for Electric, page 14 for Gas)
- 2. Next, check that the **solenoid release latch is engaged** (See **Figure 28** p.19) and then remove the pull pin from the agent cylinder and insert the pull pin in its socket on the CPU board (See **Figure 2 & 3** for location).
- 3. Push and release the reset switch. A momentary green light will indicate that all initial tests have passed. **If blinking red light results**, remove the pull pin from the CPU board and place it back in the agent cylinder and perform further diagnostic checks.
- 4. If the reset yielded a green light, leave the pull pin in the CPU. A final step is to turn on a burner and momentarily push and release the diagnostic test button. If there are no failures detected the CPU will run a Shutoff Sequence (The alarm will sound for 10 seconds and shut off fuel to the stove followed by a beep every minute). This allows complete verification of system function all the way to fuel shut-off but without the chemical agent dump. If the stove does not shut-off (burner shuts off and begins to cool down), additional troubleshooting is required.
- 5. Reset the CPU board by pressing the Reset Button (See **Figure 3**) and confirm the green indicator momentarily lights up.
- 6. Make sure all burners are off, then Reset the fuel shut-off (See "Reset Stove" page 12 for electric stoves or "Resetting Gas Shutoff Assembly" page 14)

This completes the steps for "Arming the System". The installation of the Guardian G600-B system is now complete.

P/N G610B April, 2016 (Rev 0)

ALTERNATE CAM ACTIVATION

(SYSTEM MODEL G600B-C)

For installations where the system will be subject to vibration, there is an alternate Model G600B-C cam activated system available.

The System is the same as the G600-B Solenoid Model with the following exceptions:

- The G600B-C uses a trip motor with cam for activation instead of a solenoid. (See **Figure 19**)
- The G600B-C cannot be installed with the optional Wireless Rx/Tx. The Interconnect cable (P/N G622) must be used.

FIGURE 18

The G600B-C System uses the G602-C Main CPU board. This version of the Main CPU board includes a "Motor Test/Advance" Button and includes a "TRIP MOTOR" connection on the board instead of a "VALVE" connection. (See **Figure 26**)

Note: Test the Trip Motor and Cam Monthly by removing the pull pin from the Main CPU and placing it in the handle. Press the "Motor Test / Advance Button" and allow the cam to make one full revolution, stopping the advancement of the Cam just before making contact with the Latch. (See **Figure 19**) After testing, return the pull pin back into the pull pin socket on the Main CPU board and press the "Reset" button. The green indicator should momentarily illuminate to indicate the system is "Armed".

TRIP MOTOR CONNECTOR E GUAGE (OPTIONAL) SENSOR 1 CONNECTOR **GROUND WIRE TERMINA** SENSOR 2 CONNECTO PULL PIN SOCKET **RESET BUTTON** PRESSURE CONNECTOR (CENTRAL PROCESSING UNIT (CPU) CONTROL BOARD (P/N G602-C) ÷ Û. Ð Ð MOTOR TEST/ADVANCE 0 · 0 019 Ó C ~ Õ 🗘 0 0 0 0 0 Ø BUTTON 00 50 🗐 R PULL Q 0 00 SENSE1⁴ MANUAL REMOTE PULL Œ LUN L CONNECTOR (OPTIONAL) 0 0 G701 RE TRANSMITTER Ð <u> 100</u> ONNECTOR (OPTIONAL G6Ø2-C D Ø REV. A' 0 G502-INT BUILDING Ø ALARM INTERFACE संस् ० ० GREEN Ë 00 FUEL SHUT-OFF Æ 00 INTERCONNECT CABLE 0 0 BATTERY HOLDER to Bo DIAGNOSTIC TEST O BUTTON 0 ₊0 0 - ° - •



FIGURE 19

ACCESSORIES

Building Alarm Interface (P/N G502INT)

DESCRIPTION:

The optional Building Alarm Interface (P/N G502INT) is provided to allow easy interfacing to external device i.e. automatic telephone dialers, monitored security alarm systems, building fire alarm systems and other warning/protective equipment. It allows for remote monitoring of the system in case of system discharge or diagnostic failure. The Building Alarm Interface provides one set of dry latching contacts that switch when an Alarm Sequence occurs (See section "5. Alarm Sequence" page 6) and one set of dry latching contacts that switch in the event of a Shutoff Sequence (See section "4. Shutoff Sequence" page 6.) The Building Alarm Interface connects to the G602 CPU board and easily mounts on the side of the cylinder enclosure. Contact Rating is 0.6A 125VAC, 2A 30VDC. (See Figures 2, 3, and 20)





Manual Remote Pull Station (G309-A)

DESCRIPTION:

A manual remote pull station is available where local fire codes or circumstances require the capability to manually activate the range top extinguisher system. (See **FIGURES 21, 22 & 23**)



Manual activation of the system will cause the extinguisher unit to fully discharge extinguishing agent, shut off the range top burners and activate the alarm or other electrical accessory. Once activated, the automatic sequence cannot be interrupted.

The manual pull station is installed at a height not exceeding 60" from the floor and should be located in the path of exit. Avoid locating the manual pull station where the occupant would have to reach over the range top-cooking element to activate the system. (Some jurisdictions require certain distances.)

NOTE: An Identification sign shall be installed indicating "**Pull Station for Range Top Fire Suppression ONLY.**"

Installation:

- 1. Determine the best location for the manual pull station. The location must be accessible as required.
- 2. Install cable in conduit or attach using cable clamps as required by jurisdiction.
- 3. Feed the cable wire through the access hole into the system enclosure.
- 4. Position the cable wire on the same side of the cylinder as the sensor wires.
- 5. Plug the connector into the "REMOTE PULL" connector on the Main CPU.(see Figure 3 and 21)
- 6. Cut the wire to length, strip and crimp ends and connect to terminal strip contact on remote pull.(see **Figure 22**)
- 7. Verify that manual remote pull station is working after "Arming the System" page 15. Caution: Temporarily install a spare pull pin in the handle when testing the Manual Remote Pull to prevent fire suppressant dump.

ACCESSORIES (CONTINUED)



Wireless Transmitter and Receiver Assembly (Tx/Rx)

DESCRIPTION:

The optional Wireless Receiver(Rx) (P/N G702, see **FIGURE 24**) and Wireless Transmitter(Tx) (P/N G701, see **FIGURE 25**) are provided for situations where an Interconnect Cable is not an acceptable means of connecting the CPU to shut-off the cooking appliance when the fire suppression system activates. Simply mount the Wireless Transmitter on the side of the System Base and plug it into the CPU (see **FIGURE 2 and 3**). The Wireless Receiver plugs into the Fuel Shutoff in place of the Interconnect Cable and is mounted on the wall behind the appliance (see **FIGURE 13** on page 12 and **FIGURE 17** on page 14.



Alarm / Strobe Assembly (P/N G320-A)

DESCRIPTION:

Both electric shutoff and gas shutoff provide an interface for a (120 volt-5A) alarm / strobe. This assembly has a Plug & Play configuration for ease of installation. Install in optimum location for visibility. This feature is mainly used with the strobe function.

To perform an operational check of the alarm/strobe assembly, perform the "Arming the System" function as outlined in Page 15 of this manual. See **FIGURE 10** below.



Interface Enclosure Assembly (P/N G317-A)

DESCRIPTION:

The optional Interface Enclosure Assembly (P/N G317-A) is provided to allow easy interfacing to external devices or other warning / protective equipment. The Interface Enclosure Assembly provides one set of dry contacts when connected with the Gas Shutoff (P/N G316-A) and two sets of dry contacts when connected to the Electric Shutoff. Contact rating is 120 VAC 5 amps. Verify that contacts switch during shut-off activation. See Page 15 for "Arming the System" procedures. (See **FIGURE 27**)





INSPECTION AND MAINTENANCE

Monthly, Check the discharge nozzles and heat detection sensors for visual signs of obstruction and check the pressure gauge. If the needle points to the "recharge" or "overcharged" zone, contact an authorized Guardian Safety Solutions representative immediately for service. For G600-C Motor/Cam System see Page 16 for additional instructions.

Annually, a Guardian Safety Solutions, Intl. Distributor, holding all appropriate licenses/approvals for the jurisdiction in which the system is installed, shall test the function of and inspect all components, including fire extinguisher unit, appliance nozzles, sensor, distribution assembly and shutoffs. Replace battery in the central processing unit control board annually from the date of installation. Use only Duracell MN1604 or Energizer EN22. Keep the Guardian G600-B system free of cooking grease residue.

Every **Twelve (12) years,** a Guardian Safety Solutions, Intl. Distributor, holding all appropriate licenses/approvals for the jurisdiction in which the system is installed, shall empty and hydrostatically test the fire extinguisher cylinder and flexible discharge hose assembly to the appropriate test pressure (300psi). Refill extinguisher using new wet chemical agent by purchasing a recharge kit (P/N G-BRK) from Guardian Safety Solution's, Intl. (See NFPA 17A, Par. 7.5.3). **DO NOT** combine chemicals.

FIGURE 29



AFTER A DISCHARGE

IN THE EVENT A FIRE SHOULD OCCUR AFTER THE GUARDIAN G600-B SYSTEM HAS BEEN INSTALLED AND EXTINGUISHED A FIRE, PROCEED AS FOLLOWS:

CLEAN UP

CAUTION: WHEN CLEANING THE KITCHEN RANGE HOOD OR WHEN YOUR GUARDIAN G600-B SYSTEM IS REMOVED, THE SAFETY PIN MUST BE REINSERTED INTO THE FIRE EXTINGUISHER VALVE ASSEMBLY.

After the system has discharged, be sure to disconnect all electrical power to the range top appliance and turn the gas off, in the case of a gas range top. **Breaker to range should be turned off before servicing**. Use rubber/latex type gloves to protect skin and safety glasses for eye protection. Use a sponge and warm soapy water to wipe off excess chemical. A damp cloth should be used in the final cleaning process to remove all residual extinguishing agent. It is critical to be thorough as any residual agent remaining is capable of causing damage. Do not use a water vacuum type cleaner.

NOTE: Before replacing the liquid chemical agent, the extinguisher cylinder, valve assembly, valve piping adapter, distribution assembly, hoses and nozzles must be thoroughly cleaned by flushing with water and thoroughly dried. Wear proper eye protection and rubber or latex type gloves when cleaning parts.

A complete system inspection and servicing must be accomplished **immediately** following a system discharge. Consult an authorized fire equipment company for service or proper procedure.

RECHARGE / REACTIVATION OF SYSTEM

CAUTION: Before replacing the fire suppressant agent, the extinguisher cylinder, release valve assembly, or other system components, appropriate eye protection and rubber or latex type gloves must be worn.

- 1. Make sure the breaker to the stove and hood is turned off before servicing.
- 2. Remove the 9V DC battery from the CPU board.
- Disconnect heat sensor 1 & 2 connections from the Main CPU board and remove the heat sensors from underneath the range hood/ microwave hood. Clean sensors thoroughly with soapy water, rinse with clean water. Blow off with clean dry air then set aside and allow to fully dry. After a fire the sensor assembly must be replaced. (P/N G605-A)

NOTE: Make sure the pressure gauge indicator needle is in the "Recharge" area of the gauge face and that the internal pressure of the agent cylinder has been completely expelled and the pull-pin is re-installed in the handle prior to disconnecting the quick connect.

- Disconnect the quick connect below the handle and remove the distribution assembly from underneath the microwave hood / range hood.
- 5. Thoroughly flush the distribution assembly with water to remove any residual fire suppressant. Inspect distribution assembly (hoses, fittings, nozzles) for leaks or other damage and wipe dry with a clean cloth. Blow clean dry air through the assembly then set aside and let completely dry.

NOTE: If leaks or other damage is found in the distribution assembly, do not reinstall distribution assembly until those parts, which are leaking or damaged, have been replaced. See Parts List, Page 21, if required.

- Disconnect extinguisher cylinder release valve connections from the CPU board (See FIGURE 2 & 3, Pages 4-5).
- 7. Disconnect spring from the extinguisher handle.
- 8. Remove the extinguisher cylinder assembly from the mounting base by loosening the cylinder band.
- 9. Unscrew and remove the extinguisher cylinder valve head *I* siphon tube assembly from the extinguisher cylinder. Rinse and thoroughly flush with water to remove all residual fire suppressant.
- 10. Pour out any residual fire suppressant, which may be left in the extinguisher cylinder.
- 11. Refill extinguisher cylinder with 4.9 lbs. (54 oz.) of wet chemical agent (Part #G-BRK) fire suppressant.
- 12. Replace the extinguisher cylinder valve head O-ring, valve stem and spring. Reinstall valve head/siphon tube assembly into the extinguisher cylinder. Do not combine *l* mix new and old chemicals or suppressants.

CAUTION: Do not use the extinguisher cylinder gauge to determine when the intended charge pressure has been reached. A separate laboratory gauge mounted in-line with the nitrogen supply line is to be used to determine the agent cylinder pressure. The target cylinder pressure of 100 psi. (at 70 deg. F) should vary to compensate for ambient temperature when pressurizing the cylinder. (See the pressure/temperature graph in Fig. 28, page 19)

- Connect a nitrogen supply line to the 1/8" male quick connect fitting and pressurize to the appropriate pressure. (See Figure 28, page 19)
- 14. Reinstall the extinguisher cylinder assembly in the enclosure base.
- Refer to initial Installation / Arming the system / activation instructions to complete reinstallation / reactivation of the system. (See FIGURES 3, 5, 7, 8, 9, 10, and 28), Pages 5, and 8-10, 15, 19.

PARTS LIST				
Page No.	Fig No.	Part No.	Description	Qty.
3	1	G699	Enclosure, CPU, Cylinder, solenoid	1
4	2	G601-B-A	Enclosure (Base and Cover)	1
		G603-B	Cylinder Assembly (Pressurized w/solenoid)	1
5	3	G602	CPU Board	1
		G613	AC/DC Adaptor (Only used with Wireless Tx/Rx)	*
7	4	G604-A	Distribution Assembly	1
		G604-F	Spray Nozzle	2
		G604-48	Braided Hose (48inch with disconnect)	1
7	4	G605-A	Sensor Assembly (in sleeve with magnets)	1
17	23	G609-A	Manual Remote Pull Station Assembly	*
		G610B	Owner's Manual	1
		G6U1-V1B	Valve Assembly (Valve Only, No Solenoid)	*
		G612-K-B	Solenoid with Mounting Bracket and Latch	1
		G612-B	Solenoid (No Mounting Bracket, No Latch)	1
18	24-25	G615-A	Wireless Tx and Rx (and AC/DC)	*
18	24	G702	Wireless Receiver (Rx) Assembly	*
18	25	G701	Wireless Transmitter (Tx) Assembly	*
14	17	G316-A Gas Shutoff Assembly		1
14	17	G316-1	G316-1 Gas Valve	
14	17	G316-2	Gas Shut Off Control Box	1
18	27	G317-A	Interface Enclosure Assembly	*
11	11A	G319-3P	3 Prong Electric Shutoff Assembly	1
11	11B	G319-4P	4 Prong Electric Shutoff Assembly	1
11	11C	G319-HW	Hardwired Electric Shutoff Assembly	1
18	26	G320-A	Alarm / Strobe Assembly (110 Volt)	*
3	1	G622	Interconnect Cable (GSO /ESO)	1
17	20	G502INT	Building Alarm Interface	*
16	18	G602-C	CPU Board for Motor/Cam Activation	**
16	19	G699-C	Enclosure, CPU, Cylinder, Motor/Cam	**
		G603-B-C	Cylinder Assembly (Pressurized with Motor/Cam)	**
		G612-K-C	Motor/Cam with Mounting Bracket and Latch	**
		EN22	Energizer EN22 9 Volt Battery	1
		N1604	Duracell MN1604 9 Volt Battery	*

TO MEET UL REQUIREMENTS, USE ONLY DURACELL MN1604 OR ENERGIZER EN22 BATTERIES IN THE GUARDIAN G600-B OR G600B-C SYSTEMS. * Indicates the part is optional or a sub-assembly replacement part.
 ** Indicates the part is an Alternate part for the Model G600B-C.

TROUBLESHOOTING GUIDE

CAUTION: DURING TROUBLESHOOTING PROCEDURES MAKE SURE A SPARE SAFETY PULL PIN IS INSTALLED IN THE EXTINGUISHER HANDLE. THE SPARE SAFETY PULL PIN MUST BE REMOVED FROM THE HANDLE WHEN TROUBLESHOOTING IS COMPLETE.

Main CPU Board (P/N G602)

Problem: No Fire Detect Mode

Check the following: (See FIGURE 3)

• The Main CPU has built in self-diagnostics, see page 5, "Diagnostic Test".

Release Solenoid Latch

Problem: No Activation of Latch

Check the following: (See FIGURE 3)

- The solenoid plug is connected to the correct position on the main CPU and is fully mated.
- Place a spare Pull pin in the Handle. Use a Multi-meter to measure the DC Voltage signal across J9 (VALVE) connector on the board when the system is manually activated by pulling the pull station or placing a temporary short across J3 (REMOTE PULL). If signal does not appear, replace the CPU board. If signal exists, perform next step.
- Disconnect the solenoid valve plug from the main CPU, use a Multi-meter to measure the resistance between the two contacts in the plug coming from the solenoid. The resistance should be approximately 190 ohms. If there is no indication of resistance, replace solenoid.

Electric Shutoffs (P/N G319)

Verify the configuration and determine if the electric shutoff is a 3 Prong, 4 Prong or Hardwired version.

Problem: No Electrical Power To Stove using Interconnect Cable Configuration

- Review installation instruction on pages 8-12 and make sure that the shut-off is properly installed. Perform Reset Stove procedure on Page 12.
- Verify that the Interconnect cable between the Main CPU control board and shut-off is fully plugged into to the correct connector on both ends of the cable and that the connectors are fully mated.
- Press the reset button on the Main CPU and verify the green indicator momentarily lights up.

- Verify power is getting to stove by testing a burner. If there is no power, disconnect the electric shutoff and plug the stove directly into the wall.
- If power to the stove exists by plugging it directly into the wall, replace the electric shutoff. If no power exist to the stove, check site condition.
- For hardwired versions, have a licensed electrician verify that the source power is supplied to the same side of the contactor as the orange wires from the ESO printed circuit board.

Problem: No Shutoff Activation using the Interconnect Cable

- Confirm that power is supplied to the stove through the electric shutoff.
- Press the "Reset" button on the main CPU and make sure that the green indicator momentarily illuminates. If green indicator does not illuminate then run "Diagnostic Test" on pages 5-6 of this manual.
- Verify that the Interconnect cable between the Main CPU control board and shut-off is plugged into to the correct connector on both ends of the cable and that the connectors are fully mated.
- Perform "Arming the System" procedures on Page 15. If power to the stove stays on after a diagnostic test, and there are no Diagnostic Code "beeps", then perform the next step below.
- Disconnect the interconnect cable from the Electric shut off. Using a small piece of wire, create a short across the two outside pins of the white 4 pin socket on the shut-off. Note- Do not make contact with either of the two inner pins. Activation of the shut-off should occur. If activation does NOT occur, replace the shutoff.
- If activation occurs, reset the shutoff, reconnect the interconnect cable and perform **Arming the System** on page 15 again. If power to the stove stays on after a diagnostic test, and there are no Diagnostic Code "beeps" then replace the Main CPU board.

TROUBLESHOOTING GUIDE (continued)

CAUTION: DURING TROUBLESHOOTING PROCEDURES MAKE SURE A SPARE SAFETY PULL PIN IS INSTALLED IN THE EXTINGUISHER HANDLE. THE SPARE SAFETY PULL PIN MUST BE REMOVED FROM THE HANDLE WHEN TROUBLESHOOTING IS COMPLETE.

Problem: <u>No Shutoff Activation using the</u> <u>Wireless Transmitter/Receiver</u> <u>Assembly</u>

- Check that Wireless Receiver is plugged properly into the shutoff and that the Wireless Transmitter is plugged properly into the main CPU.
- Make sure that the Wireless Tx/Rx are not installed inside metal cabinets or enclosures that can impede the wireless signal.
- Make sure the shutoff is reset and the stove has power, check that the main CPU has power from a good 9V battery.
- Perform "Arming the System" procedures on Page 15. If power/gas to the stove stays on after a diagnostic test and there are no Diagnostic Code "beeps" then perform the next step below.
- Disconnect the Wireless Receiver from the Shutoff box. Using a small piece of wire, create a short across the two outside pins of the white 4 pin socket on the shut-off. **Note- Do not make contact with either of the two inner pins**. Activation of the shut-off should occur. If activation does NOT occur, replace the shutoff.
- If activation occurs, reset the shutoff, temporarily connect an interconnect cable instead of the Wireless Tx/Rx and perform "Arming the System" on page 15 again. If power to the stove stays on after a diagnostic test, and there are no Diagnostic Code "beeps" then replace the Main CPU board.
- If the stove successfully shut-off using the interconnect cable then try installing the Wireless Transmitter receiver again, reset the gas shut-off and perform "Arming the System" procedures on Page 15. If the stove still does not shutoff, then replace the Wireless Transmitter/Receiver.
- If any unknown wireless interference occurs from a site condition the Interconnect Cable may have to be used.

Gas Shutoff (P/N G316-A)

Problem: No Electrical Power To Stove

- Confirm that power is supplied at the wall outlet. If no power at the wall outlet exist, check the site condition.
- Press the "Reset" button on the main CPU and make sure that the green indicator momentarily illuminates. If green indicator does not illuminate then run "Diagnostic Test" on pages 5-6 of this manual.
- If power exists at the wall outlet, unplug the stove from the wall outlet and plug it into the Gas Shutoff Control box. Plug the control box back into the outlet.
- Verify that the "Power Reset" push button switch is pushed. Electrical power is supplied to the stove. (See FIGURE 17)
- <u>DO NOT</u> push the "VALVE RESET" switch at this time. Pushing the VALVE RESET switch will enable gas to flow to the stove.
- If power still does NOT exist to the stove, unplug stove from the Gas Shutoff Control box and check for 115 VAC on the control box outlet. If there is no power, replace the control box.

Problem: No Gas Flow to Stove

- Confirm that the outlet which the Gas Shutoff control box is plugged into is working properly. If not, check site conditions.
- Make sure any manual gas valves that may be installed in the line to the stove are turned to the open position.
- Press the "Reset" button on the main CPU and make sure that the green indicator momentarily illuminates. If green indicator does not illuminate then run "Diagnostic Test" on pages 5-6 of this manual.
- Plug the Gas Shutoff control box into the wall outlet and momentarily press the "Power Reset" push button. When the switch is pushed it should supply power to the stove and will enable the "Valve Reset" switch on the Gas Shutoff Control Box. (The "Power Reset" must be pressed before the "Valve Reset" Switch will work. This is a safety feature.)
- Momentarily press the "Valve Reset" switch to open the gas valve to the stove. The gas flow indicator light will illuminate.



TROUBLESHOOTING GUIDE (continued)

CAUTION: DURING TROUBLESHOOTING PROCEDURES MAKE SURE A SPARE SAFETY PULL PIN IS INSTALLED IN THE EXTINGUISHER HANDLE. THE SPARE SAFETY PULL PIN MUST BE REMOVED FROM THE HANDLE WHEN TROUBLESHOOTING IS COMPLETE.

- If there is still NO gas flow to the stove, verify that the gas valve is properly plugged into the Gas Shut Off Assembly control box and the connection is fully mated. (The gas valve is normally closed and is energized when power is supplied to it.)
- If there is still NO gas flow, unplug the gas valve and measure for 24 VAC voltage between the black and white wires. If there is voltage measured at the connector, replace the gas valve.

NOTE: After performing the above steps and there is 24VAC at plug and if the gas flow indicator light is not lit indicating gas flow, check the bulb indicator light. It may need to be replaced.

- If there is NO voltage at the connector that plugs into the valve, replace the Gas Shutoff Control box.
- If voltage exists at the connector but gas is still not flowing to the stove when connected, then replace the gas valve.

Problem: No Shutoff Activation using the Interconnect Cable

- Confirm that power is supplied at the wall outlet. If no power at the wall outlet exist, check the site condition.
- Press the "Reset" button on the main CPU and make sure that the green indicator momentarily illuminates. If green indicator does not illuminate then run "Diagnostic Test" on pages 5-6 of this manual.
- Plug the Gas Shutoff control box into the wall outlet and momentarily press the "Power Reset" push button. When the switch is pushed it should supply power to the stove and will enable the "Valve Reset" switch on the Gas Shutoff Control Box. (The "Power Reset" must be pressed before the "Valve Reset" Switch will work. This is a safety feature.)

- Momentarily press the "Valve Reset" switch to open the gas valve to the stove. The gas flow indicator light will illuminate
- Verify that the Interconnect cable between the Main CPU control board and the Gas Shutoff Control box is plugged into to the correct connector on both ends of the cable and that the connectors are fully mated.
- Perform "Arming the System" procedures on Page 15. If power/gas to the stove stays on after a diagnostic test and there are no Diagnostic Code "beeps" then perform the next step below.
- Disconnect the interconnect cable from the Gas Shutoff Control box. Using a small piece of wire, create a short across the two outside pins of the white 4 pin socket on the shut-off. Note- Do not make contact with either of the two inner pins. Activation of the shut-off should occur. If activation does NOT occur, replace the shutoff.
- If activation occurs, reset the shutoff, reconnect the interconnect cable and perform **Arming the System** on page 15 again. If power/gas to the stove stays on after a diagnostic test, and there are no Diagnostic Code "beeps" then replace the Main CPU board.

Problem: <u>No Shutoff Activation using the</u> <u>Wireless Transmitter/ Receiver</u> Assembly

- Check that Wireless Receiver is plugged properly into the shutoff and that the Wireless Transmitter is plugged properly into the main CPU.
- Make sure that the Wireless Tx/Rx are not installed inside metal cabinets or enclosures that can impede the wireless signal.
- Make sure the shutoff is reset and the stove has power, check that the main CPU has power from a good 9V battery.
- Perform "Arming the System" procedures on Page 15. If power/gas to the stove stays on after a diagnostic test and there are no Diagnostic Code "beeps" then perform the next step below.
- Disconnect the interconnect cable from the Gas Shutoff Control box. Using a small piece of wire, create a short across the two outside pins of the white 4 pin socket on the shut-off. Note- Do not make contact with either of the two inner pins. Activation of the shut-off should occur. If activation does NOT occur, replace the shutoff.



TROUBLESHOOTING GUIDE (continued)

CAUTION: DURING TROUBLESHOOTING PROCEDURES MAKE SURE A SPARE SAFETY PULL PIN IS INSTALLED IN THE EXTINGUISHER HANDLE. THE SPARE SAFETY PULL PIN MUST BE REMOVED FROM THE HANDLE WHEN TROUBLESHOOTING IS COMPLETE.

 If activation occurs, reset the shutoff, temporarily connect an interconnect cable instead of the Wireless Tx/Rx and perform "Arming the System" on page 15 again. If power/gas to the stove stays on after a diagnostic test, and there are no Diagnostic Code "beeps" then replace the Main CPU board.

- If the stove successfully shut-off using the interconnect cable then try installing the Wireless Transmitter/Receiver again, reset the gas shut-off and perform "Arming the System" procedures on Page 15. If the stove still does not shutoff, then replace the Wireless Transmitter/Receiver.
- If any unknown wireless interference occurs from a site condition the Interconnect Cable may have to be used.

SECTION I. Chemical Product and Company Identification

Identification of the preparation

Product Name:	"Liquid Fire Suppression Agent"
Chemical Name:	N/A - This is a mixture/preparation.
CAS No.:	N/A - This is a mixture/preparation.
Chemical Formula:	N/A - This is a mixture/preparation.
EINECS Number:	N/A - This is a mixture/preparation.

Use of the preparation

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

Company Identification

Manufacturer/Supplier:	Guardian Safety Solutions International
Address:	8701 John Carpenter Freeway, Suite 230 Dallas, Texas 75247
Prepared By:	Guardian Safety Solutions International
Phone:	(800) 786-2178
Email Address:	sales@guardianssi.com
Internet/Home Page:	www.guardianssi.com

Emergency Telephone INFOTRAC 1-800-535-5053 Account Number: 78764

SECTION II. Hazard Identification

Acute Toxicity:	Category 5
Eye Irritation:	Category 2B
Skin Irritation:	Category 3

GHS Label Elements:		
	Hazard Symbols: Signal Word:	WARNING NONE

Hazard Statements:

H303	May be harmful if swallowed.
H313	May be harmful in contact with skin.
H320	Causes eye irritation
H333	May be harmful if inhaled

Precautionary Statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P234	Keep in original container.
P251	Pressurized container; do not pierce or burn, even after use
P264	Wash hands and face thoroughly after handling
P301+322	If swallowed, drink 2-3 glasses of water.
P302+352	If on skin, wash with soap and water
P305+351+338	If in eyes, rinse cautiously with water for several minutes. Remove contact
	lenses if present and easy to do, and continue to rinse.
P337+313	If eye irritation persists, get medical advice/attention.
P401+402+403	Store in original container in a dry, well ventilated place.

SECTION III. Composition/Information on Ingredients

Ingredient Name:	Potassium Carbonate (Potash).
Chemical Formula:	K_2CO_3 .
CAS No.:	584-08-7.
EINNECS Number:	209-529-3.
Concentration, Wt%:	43-45%

Water.
H2O
7732-18-5.
231-791-2.
58-60%

SECTION IV. First Aid Measures

Eye Contact:Wash with water for a minimum of 15 minutes. If irritation persists seek medical attention.Skin Contact:Wash affected area with soap and water. If irritation persists seek medical attention.Inhalation:Remove from exposure. If irritation persists seek medical attention.Ingestion:Dilute by drinking large quantities of water.

SECTION V. Firefighting Measures

This preparation is an extinguishing media. There are NO extinguishing media which must not be used for safety reasons. NO special protective equipment is needed for fire-fighters. Wear protective equipment appropriate for the fire conditions.

SECTION VI. Accidental Release Measures

Turn off or disconnect electrical sources in the immediate area. For personal protection: Prevent skin and eye contact, see Heading 8. Clean up: Use an absorbent material such as diatomaceous earth, sawdust, etc., and sweep up, see Heading 13. NO harm to the environment is expected from an accidental release of this preparation.

SECTION VII. Handling and Storage

Keep Separate from acids. See incompatibility information in Heading 10. NO special conditions are needed for safe storage. See Heading 10 for incompatibilities. Store in original container. Keep tightly closed until used. There is minimal danger to the environment from a storage release.

The intended or recommended use of this preparation is as a FIRE EXTINGUISHING AGENT.

SECTION VIII. Exposure Controls and Personal Protection

Exposure limit values

There are currently NO occupational exposure limit values for this preparation or any components.

Exposure Controls

Occupational exposure controls

Respiratory protection: Not expected to be needed. Vapors will be water. Hand Protection: Use rubber gloves when handling the preparation. Eye Protection: Use safety glasses with side shields or safety goggles. Skin Protection: No special equipment is needed. Environmental exposure controls: No special equipment is needed.

SECTION IX. Physical and Chemical Properties

General Information Appearance: Odor:

Clear colorless liquid None

Important health, safety, and environmental information

pH:	11.5 ± 1 (at 25 ° C)
Boiling point/boiling range:	About 110 °C (About 230 ° F)
Flash point:	None to boiling.
Flammability (solid/gas):	Not flammable
Explosive properties:	Not explosive
Oxidizing properties:	Not an oxidizer
Vapor Pressure:	About 12mm Hg
Relative Density (Water=1)	About 1.4
Solubility:	
- Water Solubility:	Completely soluble
- Fat Solubility:	Not soluble
Partition coefficient, n-octanol/water:	Not determined
Viscosity:	Not determined
Vapor density:	Not determined
Evaporation rate (Butyl acetate = 1):	N/A

Other Information

Auto ignition temperature:

Does not ignite

SECTION X. Stability and Reactivity

Conditions to avoid

There are no known conditions such as temperature, pressure, light, shock, etc., which may cause a dangerous reaction.

Materials to avoid

Ammonium compounds, acids, corrodible metals (copper aluminum). Reactive metals may react with the water in this preparation. Energized electrical equipment may cause a shock hazard when this fire extinguishing agent is used.

Hazardous decomposition product

Normally stable Hazardous polymerization will not occur. Combustion or decomposition products include CO₂, CO.

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SECTION XI. Toxicological Information

Toxicity data has not been determined for this product. Potassium Carbonate: Oral LD $_{50}$ (rat) = 1870 mg/kg.

SECTION XII. Ecological Information

Ecotoxicity: Not determined Mobility: Not determined Persistence and degradability: Not determined Bioaccumulative potential: Not determined Other adverse effects

Ozone depletion potential: Photochemical ozone creation potential: Global warming potential: None None Release of carbon dioxide by thermal decomposition or chemical reaction could contribute to global warming.

SECTION XIII. Disposal Considerations

No harm to the environment is expected from this preparation. Dispose of in compliance with national, regional, and local provisions that may be in force.

SECTION XIV. Transportation Information

Hazard Class or Division: Not hazardous There are no special precautions known. No harm to the environment is expected from this preparation.

Please Note: Although this material is not considered hazardous, when contained in a stored pressure fire extinguisher pressurized with a nonflammable gas, the extinguisher itself is considered a hazardous material by the U.S. Department of Transportation (USDOT) and Transport Canada (TC). The proper shipping name shall be Fire Extinguisher and the UN Identification Number is UN 1044. The USDOT hazard class is Limited Quantity when pressurized to less than 241 psig and when shipped via highway or rail. Use Class 2.2, Non-Flammable Gas, when shipping via air.

SECTION XV. Regulatory Information

EU Classification:	Irritant
Exposure Limit Values:	None
EINECS Status:	All components are included in EINECS Inventory or
	are exempt from listing
EPA TSCA Status:	All components are included in the TSCA Inventory
	or are exempt from listing.
Canadian DSL (Domestic Substances List):	All components are included in the DSL or are
	exempt from listing.
Environmental restrictions:	None are known
Restrictions on Marketing and Use:	None are known

Refer to any other national measures that may be relevant

SECTION XVI. Other Information

This Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

EU Classification:	
Irritant R 36/37/38	Irritating to eyes, respiratory system, and skin.
S 26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S 36	Wear suitable protective clothing

(HMIS) HAZARDO	US MATER	IAL IDENTIFICATION SYSTEM RATINGS:
HEALTH:	<u>2</u>	4. Severe Hazard
FLAMMABILITY:	<u>0</u>	3. Serious Hazard
REACTIVITY:	<u>0</u>	2. Moderate Hazard
		1. Slight Hazard
		0. Minimal Hazard

(WHMIS) CANADIAN WORKPLACE HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS:

This product is rated: **D2B – Product may irritate skin, eyes, or mucous membrane**.

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT, BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. GUARDIAN SAFETY SOLUTIONS INTERNATIONAL SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT.

N/A = Not Applicable

NDA = No Data Available



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