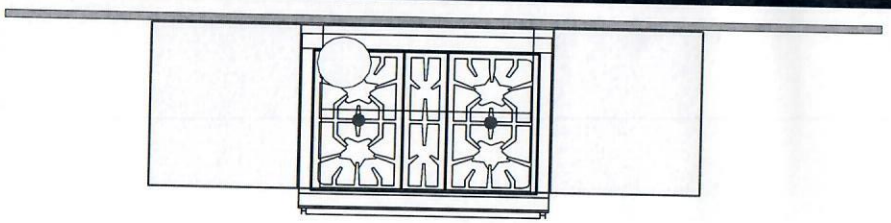
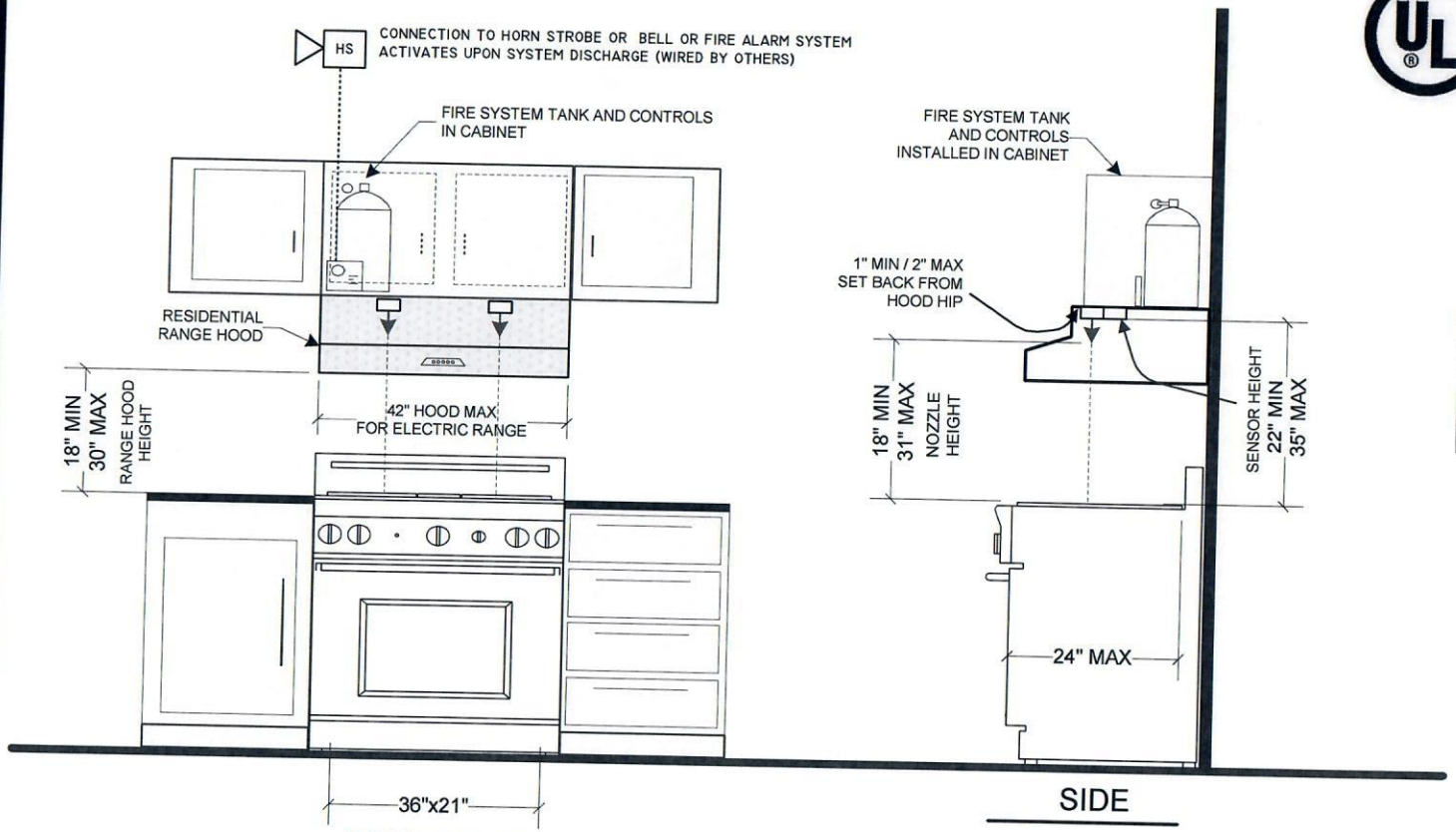
G500-B

GUARDIAN
SAFETY SOLUTIONS INTERNATIONAL, INC.

MODEL G500-B
RESIDENTIAL RANGE TOP EXTINGUISHER UNIT
UL FILE NO. EX 3940



PLAN



RESIDENTIAL ELECTRIC RANGE

ELEVATION

SIDE

NOTE: FIRE SYSTEM WILL SHUT OFF ELECTRIC UPON DISCHARGE

SIZE	DWG NO	DWG	REV
SCALE N/A		SHEET 1 OF 11	

INSTALLATION INSTRUCTIONS

FOLLOW INSTALLATION INSTRUCTIONS AS OUTLINED IN THE GUARDIAN III OWNER`S MANUAL NO. G310A-B. SEE "SYSTEM INSTALLATION INSTRUCTIONS", PAGES 13-15. FOR PROPER ROUTING AND CONNECTION OF SENSOR WIRES TO THE G502 CPU BOARD, REFER TO FIGURES 27 AND 28, ON PAGES 2 AND 4 OF THIS ADDENDUM. SYSTEM INSTALLATION IS NOT COMPLETE UNTIL AFTER "ARMING THE SYSTEM" HAS BEEN PERFORMED AND PASSED AND THE SYSTEM HAS BEEN ARMED AND IS RUNNING IN "FIRE DETECT MODE". FOR "ARMING THE SYSTEM" SEE PAGE 5 OF THIS ADDENDUM.

APPLICATION AND LIMITATION

GENERAL INFORMATION

- The Guardian III is designed to fit in standard kitchen range hoods and 12" or taller kitchen cabinets above the range.
- Guardian III Systems can be installed in range hoods of either a duct-free or ducted design.
- The extinguisher kit and flex hose shall be installed within a cabinet or other protected space in accordance with these instructions.
- Only components identified by part numbers in this manual are authorized for use unless expressly stated otherwise.

RESIDENTIAL RANGE-TOP USE ONLY

- Guardian III Systems are designed and tested for residential appliances and applications only.
- Guardian III Systems are not intended for protection of commercial or restaurant-style appliances or cooking areas.
- The maximum range top cooking surface protected by the Guardian III Systems is 864 square inches (gas stoves) measuring 24" X 36" and 1,008 square inches (electric stoves) measuring 24" X 42".
- Guardian III Systems are not designed or intended to protect against or extinguish fires on nearby countertops or inside range ovens.
- Guardian III Systems are not designed or intended to protect against or extinguish fires on ranges that incorporate char broilers, deep-fat fryers, rotisserie attachments or similar components.
- Guardian III Systems are not designed or intended to protect against or extinguish fires which may occur in electric or gas skillets, crock pots, deep-fat fryers or other commercial-type cooking appliances.

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.

CAUTION:
DO NOT REMOVE SAFETY PIN FROM FIRE EXTINGUISHER AT THIS TIME!!!

NOTE:

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 an Guardian Safety Solutions International distributor or the manufacturer.

CLEAN UP AND MAINTENANCE

After the system has discharged, disconnect electrical appliances sprayed by the chemical. For electric ranges, breaker to range should be turned off. Use rubber gloves to protect skin. Use a sponge and warm soapy water to wipe off excess chemical. A damp cloth should be used in the final cleaning process. Do not use a water vacuum type cleaner.

CAUTION: WHEN CLEANING THE KITCHEN RANGE HOOD OR WHEN YOUR GUARDIAN III SYSTEM IS REMOVED, THE SAFETY PIN SHOULD BE REINSERTED INTO THE FIRE EXTINGUISHER VALVE ASSEMBLY. TO REARM THE SYSTEM, REMOVE THE SAFETY PIN. (See FIGURE 26)

Weekly, Sonic Receiver is **Not Supervised**. Perform signal test to insure system functions as required. See System Checkout on Page 16.

Monthly, check nozzles for visual signs of obstruction Check pressure gauge. If the needle points to the "recharge" or "overcharged" zone, contact an authorized Guardian Safety Solutions representative immediately for service.

Annually, inspect all components, including fire extinguisher unit, appliance nozzles, sensor, distribution assembly and shutoffs. Replace battery in the central processing unit control board and the "Optional Gas Sonic Shutoff" part # 306-A unit annually from the date of installation. Keep the Guardian III system free of cooking grease residue.

Every **Twelve (12) years** empty and hydrostatically test the fire extinguisher cylinder and flexible hose assembly to the marked pressure, per NFPA 17A. Replace the liquid chemical with new agent (P/N 79372) **DO NOT** combine chemicals.

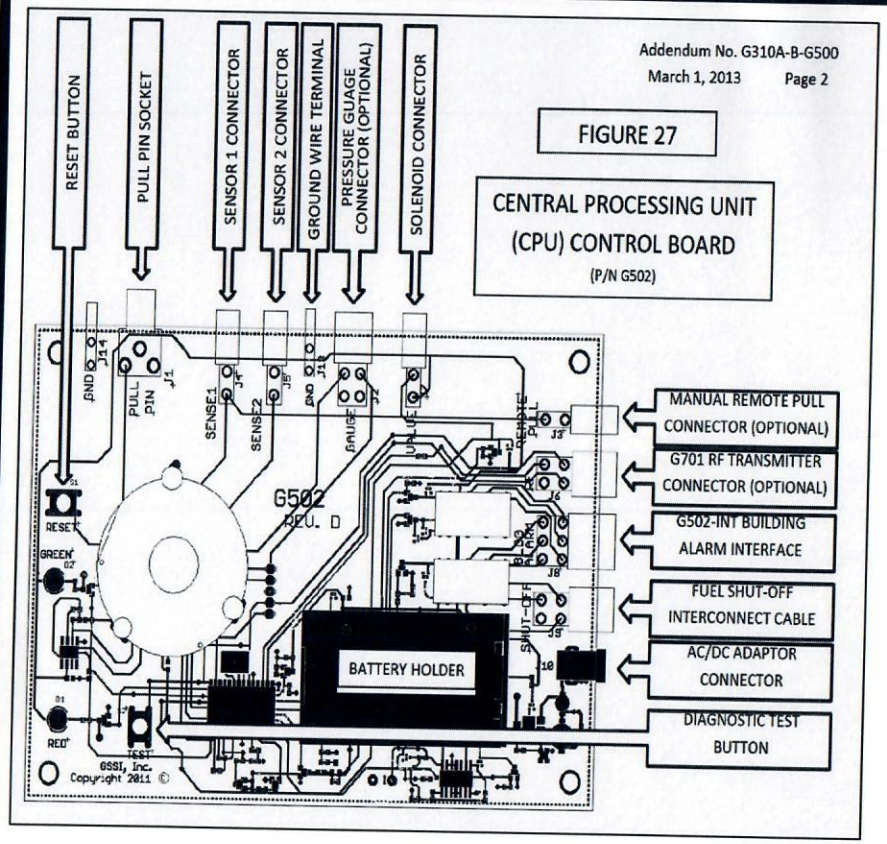
NOTE: Before replacing the liquid chemical agent, the extinguisher cylinder, valve assembly, valve piping adapter, piping kit and nozzles must be thoroughly cleaned by flushing with water. It is recommended to wear approved type eye protection and rubber gloves when cleaning parts.

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

		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 2 OF 11	

FIGURE 27

CENTRAL PROCESSING UNIT (CPU) CONTROL BOARD (P/N G502)



FEATURES AND OPERATION OF THE G502 CPU

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 27). UPON FAILING ANY 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

SIZE	DWG NO	DWG	REV
SCALE N/A		SHEET 3 OF 11	

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 ½ hours. If the battery is not replaced before the 4 ½ 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 optional cylinder pressure monitor indicates pressure is low.

Note: If the CPU is connected to the fuel shutoff device with the interconnect cable, and unit is battery powered only (no AC adapter), removing the battery will cause fuel to the cooking appliance to disconnect. The audible alert will not sound. Once

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.

Note: If the CPU is connected to the fuel shutoff device with the interconnect cable, and unit is battery powered only (no AC adapter), removing the battery will cause fuel to the cooking appliance to disconnect. The audible alert will not sound. Once

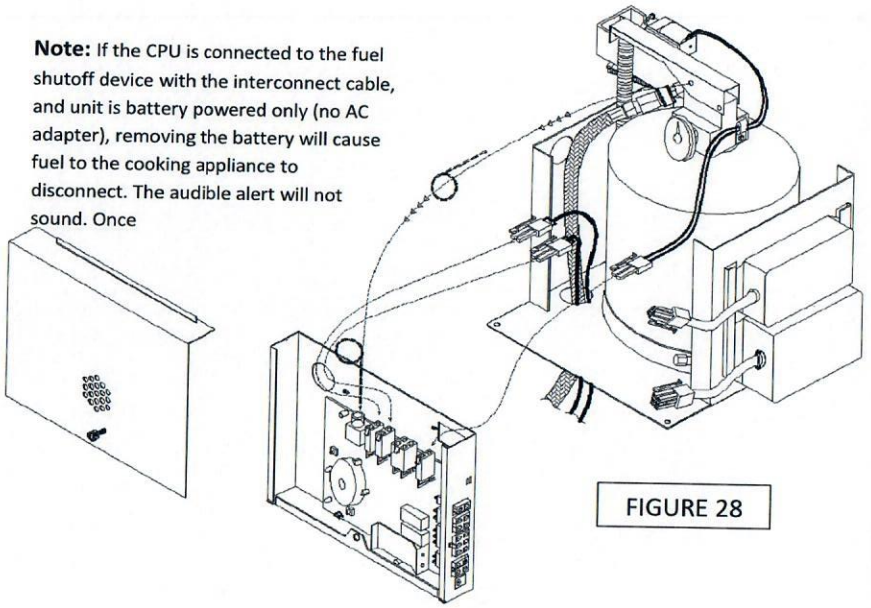


FIGURE 28

		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 4 OF 11	

G500-B

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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.

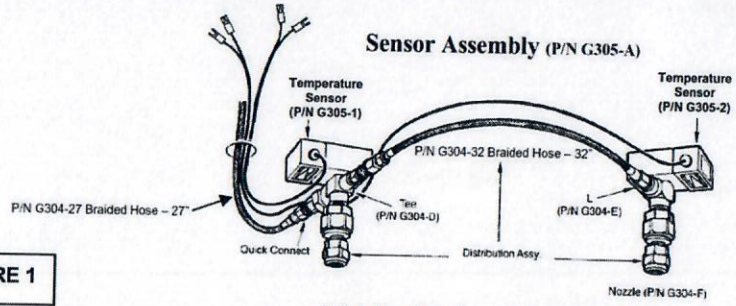
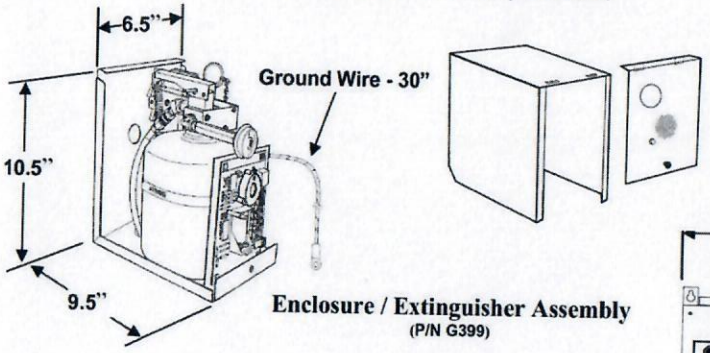
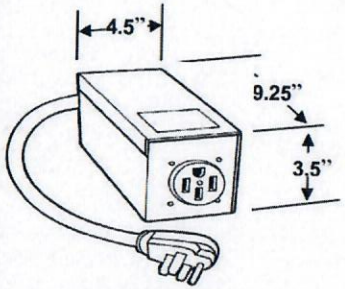


FIGURE 1

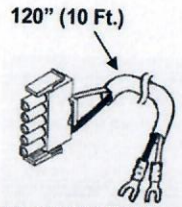
Distribution Assembly (P/N 304-A)



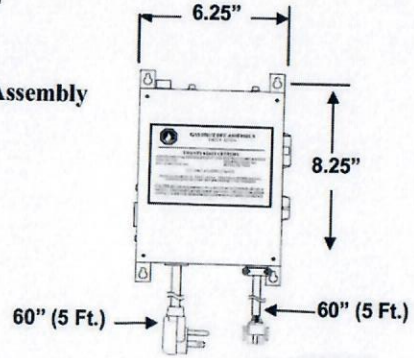
Enclosure / Extinguisher Assembly
(P/N G399)

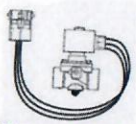


Electric Shutoff (P/N G319)
(4 prong Standard-3 prong available)



Interconnect Cable (P/N G322)
(Standard with Electric and Gas Shutoff)
(Sonic Receiver Accessory available)





Gas Shutoff (P/N G316-A)
(8.25" x 6.25" x 2.67")

Operation: 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 remote alarm if installed, which in turn shuts off the power supply, gas or electricity, to the range.

SIZE	DWG NO	DWG	REV
SCALE N/A		SHEET 5 OF 11	

SENSOR ASSEMBLY (P/N G305)

The sensor assembly, which is temperature activated, consists of two (2) metal housed detector assemblies with two (2) different wire lengths. Sensor one (1) is 30" long (**P/N G305-1**) sensor two (2) is 54" long (**P/N G305-2**). (See **FIGURE 4**)

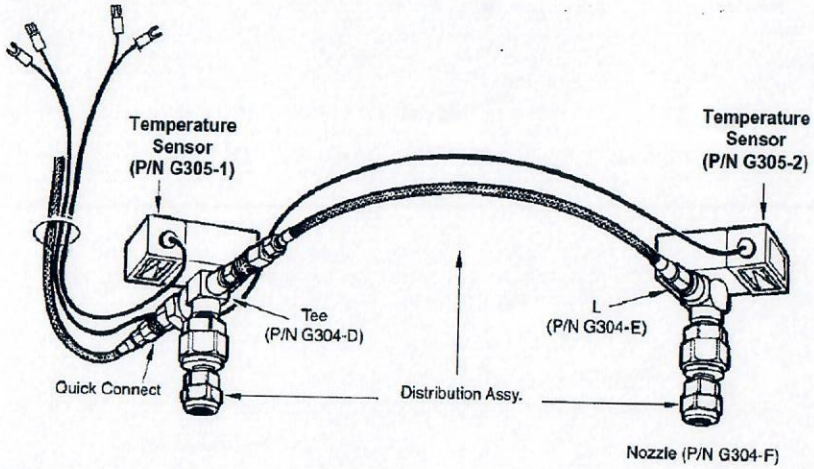


FIGURE 4

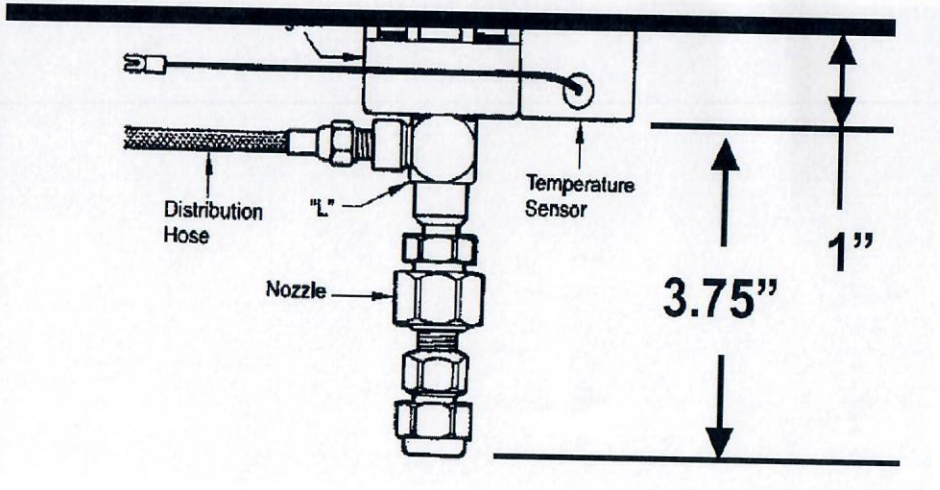
DISTRIBUTION ASSEMBLY (P/N G304-A)

The distribution assembly consist of two (2) Teflon lined stainless steel braided hoses and two (2) magnetic based adjustable nozzle assemblies. The hose assembly from the extinguisher has a length variation of 22"- 30". In addition, the hose assembly between the nozzles ranges in length from 27"- 36".

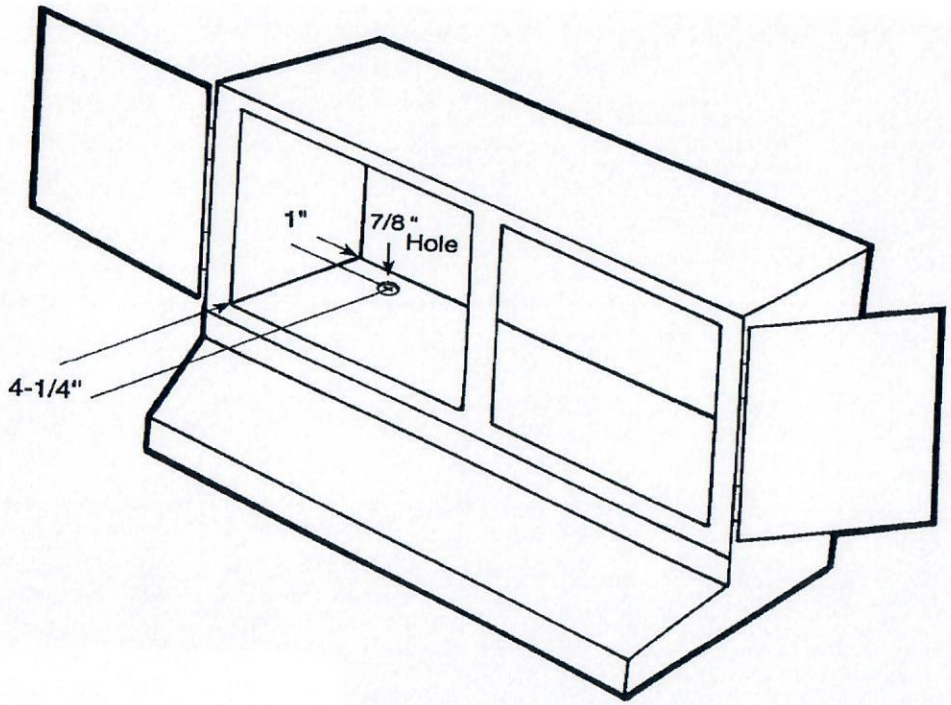
The assembly is installed on the underside of the range hood connecting to the hose from the cylinder extending through the 7/8" hole via the quick connect fitting to the tee. One magnetic base nozzle assembly is placed on each under portion of the range hood, left and right.

Note:
Magnetic base with tee assembly shall be on the same side of the range hood as the system enclosure, i.e., if the magnetic base with "T" is installed on the left side of the range hood, enclosure shall be mounted inside the cabinetry above the range hood on the far left side or vice versa for the right side. (See **FIGURE 4**)

		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 6 OF 11	

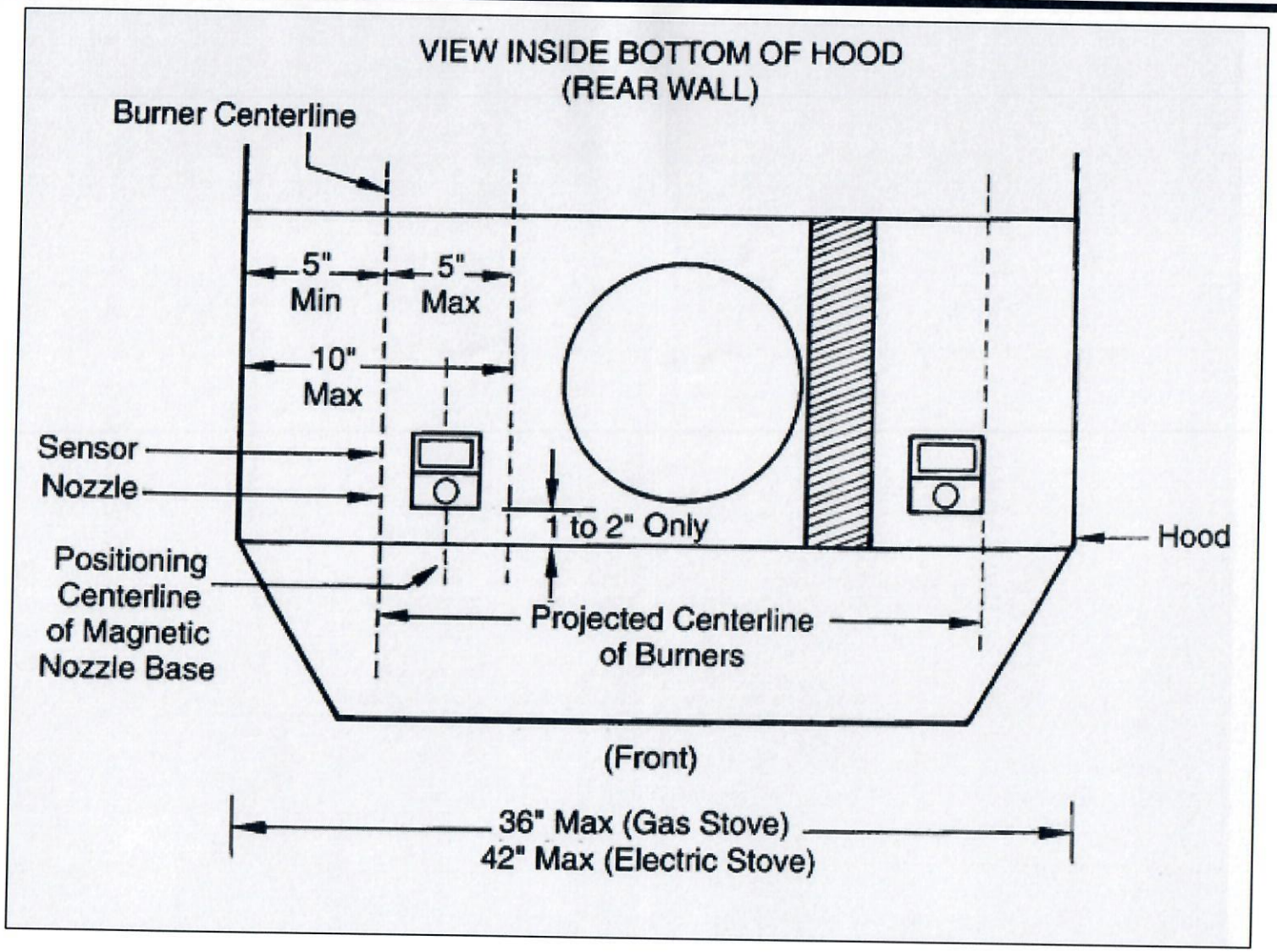


NOZZLE / SENSOR HEIGHT DETAILS



CABINET MOUNTING / LOCATION

	SIZE	DWG NO	DWG	REV
	SCALE N/A		SHEET 7 OF 11	



NOZZLE AND SENSOR POSITIONS

		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 8 OF 11	

AIMING NOZZLES

AIMING THE SPRAY NOZZLES AND PLACEMENT OF TEMPERATURE SENSORS

1. Locate the centerline of the magnetic base nozzle assemblies directly over the burner centerline (front to back) as illustrated in **FIGURE 23**. If needed, the magnetic assemblies can be placed up to 5" inside the burner centerline to the inside of the hood. The magnetic bases are also to be between 1" Min. and 2" Max. back from the inside of the hood hip of the range hood. (See **FIGURES 23** & **25**)

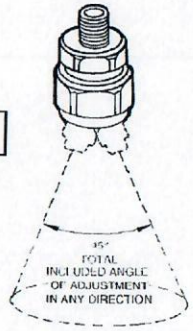
2. Using a 1" box end wrench and a crescent wrench loosen the locking nut on the adjustable ball fitting a point 1/2 way between the center of the front and back burners.

Each nozzle shall be aimed at the respective center point along the burner centerline, between the front and back burner. (Left nozzle -left aim point; right nozzle right aim point.) To adjust the nozzles see **FIGURE 24 & 25**. Be sure to re-tighten the locking nut after aiming is completed, being careful not to change nozzle positions from the correct aim point.

3. After retightening the swivel locking nut of each nozzle, recheck nozzles are aimed correctly.

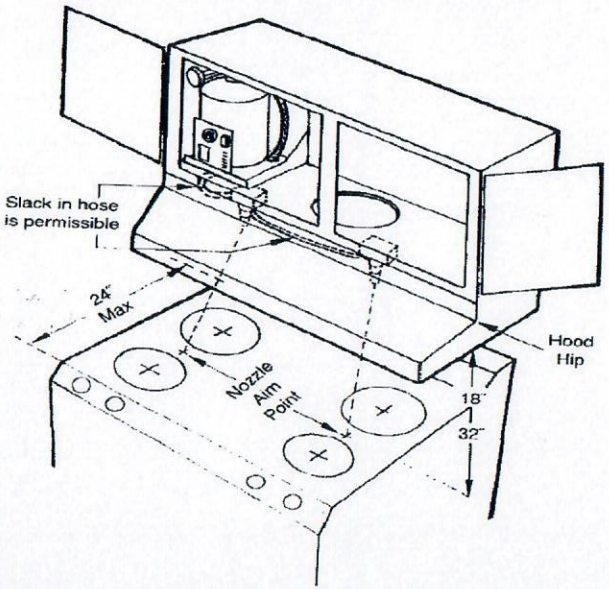
4. Attach the temperature sensors to the side of each Magnetic nozzle base, with the diodes pointed downward towards the stove top.

FIGURE 24



TARGET AREA FOR SPRAY NOZZLES

FIGURE 25



		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 9 OF 11	

ARMING THE SYSTEM

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

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 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.

At this point 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 test before the pull pin test has failed (See Diagnostic Failure Codes) and should be troubleshot before proceeding further. Once any troubleshooting has been resolved, retest until only the 6 chirp Diagnostic Failure Code occurs.

- Verify that the fuel shut-off is powered and is reset (range can power on).
- Next, check that the solenoid release latch is engaged and then remove the pull pin. Insert the pull pin in its socket on the CPU board (see Figure 27 for location).
- Push and release the reset switch. A momentary green light will indicate that all initial tests have passed. If blinking red light results, troubleshoot further using the Diagnostic Test.
- If the reset yielded a green light, a final step is to 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 shut-off but without the chemical dump.
- Reset the CPU board by pressing the Reset Button (see Figure 27) and confirm the green indicator lights up for 2 seconds.
- Reset the fuel shut-off (See "Reset Stove" page 10 for electric stoves or "Arming/ Resetting Gas Shutoff Assembly" p12 in the Guardian III Owner's Manual No. G310A-B)

This completes Arming the System.

		SIZE	DWG NO	DWG	REV
		SCALE N/A		SHEET 10 OF 11	

OPTIONAL COMPONENTS AND ACCESSORIES

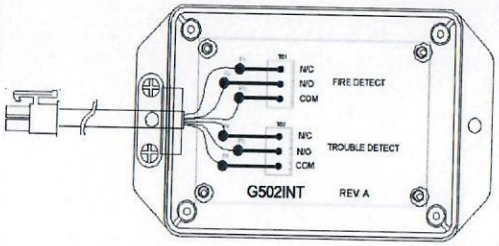


FIGURE 29

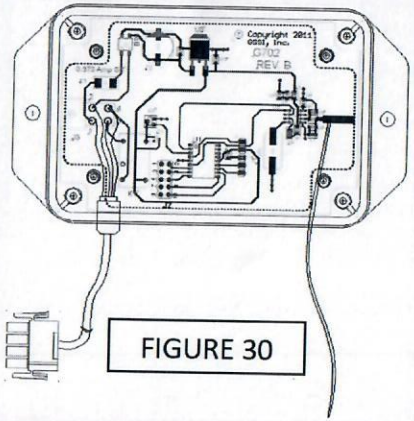


FIGURE 30

BUILDING ALARM INTERFACE

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 4 of this addendum) and one set of dry latching contacts that switch in the event of a Shutoff Sequence (See section "4. Shutoff Sequence" page 4 of this addendum). The Building Alarm Interface connects to the G502 CPU board and easily mounts on the side of the cylinder enclosure. See Figures 27, 28, and 29.

Contacts are rated for :
0.6amps @ 125vac
2.0amps @ 30vdc

WIRELESS TRANSMITTER AND RECEIVER

The optional Wireless Transmitter (P/N G701, see Figure 31) and Wireless Receiver (P/N G702, see Figure 30) are provided for situations where an Interconnect Cable is not an acceptable means of connecting the CPU to the Fuel Shutoff. Simply mount the Wireless Transmitter on the side of the Cylinder Housing and plug it into the CPU (see Figures 27 and 28). 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 14" on page 10 and "Figure 18" on page 12 of the Guardian III Owner's Manual No. G310A-B).

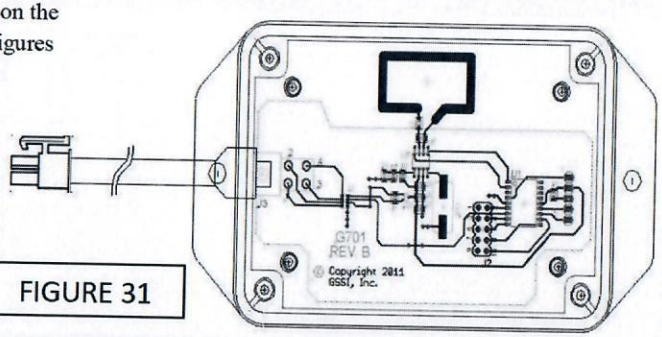


FIGURE 31

	SIZE	DWG NO	DWG	REV
	SCALE N/A		SHEET 11 OF 11	