4901 Horns and 4903 Horn/Visible Units Installation Instructions

INTRODUCTION

The 4901 Horns and 4903 Horn/Visible Units are Notification Appliances listed by Underwriters' Laboratories (UL). Notification Appliances provide an audible and/or visible warning indication of an alarm condition when activated from the control panel of a UL-listed, Simplex Protective Signaling System. **When Notification Appliances emit sound and/or flash a light, they indicate the possibility of an emergency situation that requires your immediate attention.**

Notification Appliances, and the Protective Signaling System itself, have certain limitations and requirements for safety, placement, installation, and testing. Since you must know the limitations and adhere to the requirements, **keep** these instructions at a central location for future reference so that all people who use, maintain, and test the Protective Signaling System have access to this information.

LIMITATIONS

1. **Notification Appliances do not sense any hazardous conditions** such as smoke, fire, explosion, etc.; they are activated by a control panel as part of a system that does sense such conditions.
2. **Notification Appliances do not provide their own power.** They receive their power from the Protective Signaling System. If power is not supplied to the Notification Appliances (for whatever reason), the Notification Appliances will not provide an audible and/or visible warning. THEREFORE, BACK-UP POWER SUPPLIES, OR OTHER BACK-UP POWER SOURCES, ARE RECOMMENDED FOR THE PROTECTIVE SIGNALING SYSTEM.
3. **Notification Appliances provide a specific rated output level for sound and/or light.** The output level must meet the requirements of the intended protected areas. Although the 4901 and 4903 Notification Appliances meet the current UL standards for sound and/or light intensity, the protected areas may have walls, doors, carpeting, furniture, insulation, or other obstacles that reduce or even block the sound or light. For all applications, the sound and/or light output must provide enough intensity to alert all occupants of the protected areas including those occupants that are sleeping or hearing/visually-impaired for whatever reason. If these occupants cannot hear and/or see the Notification Appliances within the

Suffix "H" following an 8-digit Product ID number denotes humid-application appliance.

PER-21-204 (574-687)
Rev A

LIMITATIONS (Continued)

protected areas, you must increase the quantity and/or intensity of the sound/light output so that the occupants can hear and/or see the Notification Appliances when activated. Refer to National Fire Protection Association (NFPA) National Fire Alarm Code 72, Chapter 6.

4. **Notification Appliances are not a substitute for insurance coverage.** All users should have adequate levels of life and property insurance.

SAFETY

Always install, maintain, and test Notification Appliances within their specifications. **Failure to follow all safety precautions and instructions may result in loss of life and property due to non-functioning Notification Appliances.**

Some Notification Appliances use high voltage. **To avoid the electrical hazard of high voltage, make sure that the electrical power for the Notification Appliance circuit is disconnected at the control panel before installing, repairing, or internally adjusting any Notification Appliance.**

Even with electrical power removed, some Notification Appliances (such as visible strobes) store a high voltage charge. **The high voltage can cause injury resulting in death from electrical shock. DO NOT TOUCH EXPOSED CIRCUITRY.**

PLACEMENT

The placement of Notification Appliances must conform to:

- Latest NFPA standards and guidelines
- Sound (Audible Frequency) and/or Light Intensity Analysis of Intended Protected Areas
- Local Authority Having Jurisdiction (AHJ) Requirements

Notification Appliances are not intended for installation within hazardous locations as defined by the National Electrical Code (NEC) or the NFPA. Contact Simplex for information on Explosion-Proof Notification Appliances designed for hazardous environments.

Install Humid-Application Notification Appliances at indoor locations that minimize exposure to direct sunlight. Direct sunlight can cause fading of lettering or reduce the effective light output of Visible Notification Appliances. In all locations, check periodically for letter fading; order replacement units as necessary.

Humid-Application appliances are intended for applications where high humidity is present, either by geography or installation site (locker room, indoor pool area, steam-producing industrial equipment area, etc.).

You must place Visible Notification Appliances at a point on the wall that is 24 inches (60.96 cm) or more below the ceiling.

For Notification Appliances that are intended or labeled for a particular use (such as FIRE), DO NOT USE FOR OTHER APPLICATIONS.

FEATURES

Table 1. Horn Feature Chart

PROD ID (MODEL) NUMBERS*	FIRE MARKING	WALL-MOUNTING		COLOR	
	FRONT VERT	SURFACE	SEMI-FLUSH	RED	OFF-WHT
**4901-9805	X	X	X	X	
**4901-9806	X	X	X		X
†4901-9809	X	X	X	X	
†4901-9810	X	X	X		X
††4901-9811	X	X	X	X	
††4901-9812	X	X	X		X

* ALL 4-INCH (10.16CM) SQUARE HORNS ARE RATED AT 21 TO 30VDC.
** 50mA MAXIMUM, 82dBA AT 10 FEET (3.05M), AND AVAILABLE FOR HUMID APPLICATIONS
† ELECTRONIC HORN WITH THREE (SELECTABLE) TONES (SEE FIGURE 16), 30mA MAX., & 85dBA AT10FT. (3.05M).
†† ELECTRONIC HORN WITH ONE TONE, 30mA MAXIMUM, AND 85dBA AT 10 FEET (3.05M)

Table 2. 1Hz Horn/Visible Units (60 Flashes Per Minute [+/-20%]) — Feature Chart

PROD ID (MODEL) NUMBERS	†CANDELA (CD)				FIRE MARKING		WALL-MOUNTING			COLOR	
	15	30	110	**SYNC FLASH	FRONT VERT	FRONT HORIZ	RETRO-FIT	SURFACE	SEMI-FLUSH	RED	OFF-WHT
*4903-9215		X			X			X	X	X	
4903-9216		X				X	X	X		X	
*4903-9217			X		X			X	X	X	
4903-9218			X			X	X	X		X	
*4903-9219	X				X			X	X	X	
4903-9220	X					X	X	X		X	
*4903-9221	X				X			X	X		X
*4903-9222		X			X			X	X		X
*4903-9223			X		X			X	X		X
*4903-9401	X			X	X			X	X	X	
4903-9402	X			X		X	X	X		X	
*4903-9403		X		X	X			X	X	X	
4903-9404		X		X		X	X	X		X	
*4903-9405			X	X	X			X	X	X	
4903-9406			X	X		X	X	X		X	
*4903-9413	X			X	X			X	X		X
*4903-9414		X		X	X			X	X		X
*4903-9415			X	X	X			X	X		X

*AVAILABLE FOR HUMID APPLICATIONS
**SYNC FLASH REQUIRES USE OF 4905-9914 OR 4905-9922 SYNC CUBE. SEE PAGE 4
† UNDER NORMAL CONDITIONS, ALL MODELS RATED AT 15CD PER UL 1971 HAVE BEEN TESTED FOR 75CD ON-AXIS WHILE ALL 30CD MODELS PER UL 1971 HAVE BEEN TESTED FOR 110CD ON-AXIS.

PER-21-204 (574-687)
Rev A

MOUNTING – HORNS (Continued)

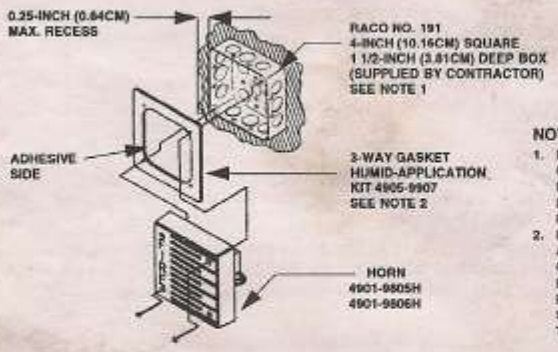


Figure 15. Humid-Application Semi-Flush Mounting of Horns

MOUNTING – HORN/VISIBLE UNITS

CAUTION: Do not bring conduit through the rear of any electrical box.

See Figures 16 through 20 for mounting horn/visible units (and adapter plate if required for surface installation) to the enclosure box. (See Figure 21 for alternate mounting of the synchronizing cube [4905-9914 or 4905-9922].)

NOTES:
1. Tighten screws snugly (do not overtighten).
2. For semi-flush mounting, you must install box either flush or with a maximum 0.25-inch (0.64cm) recess.

When done, check for proper operation.

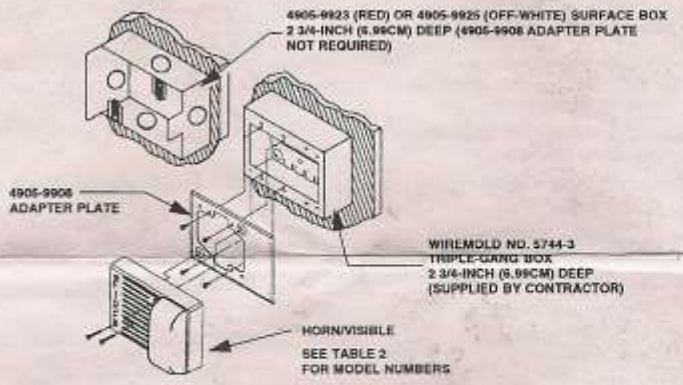


Figure 16. Surface Mounting of Horn/Visible Units

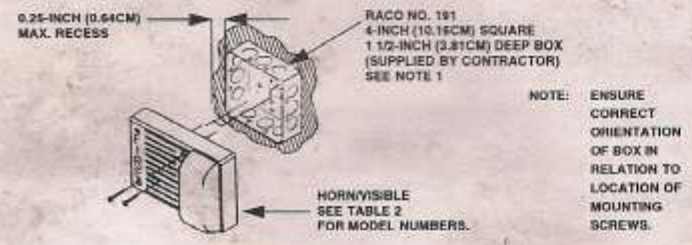


Figure 17. Semi-Flush Mounting of Horn/Visible Units

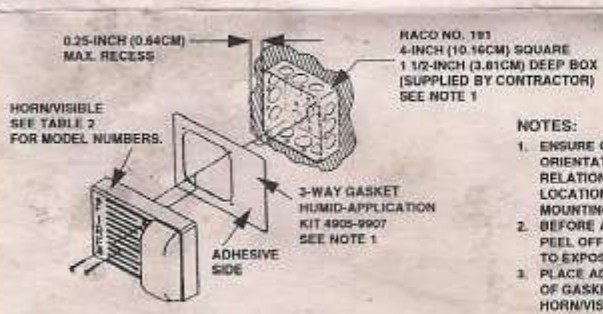


Figure 18. Humid-Application Semi-Flush Mounting of Horn/Visible Units

MOUNTING – HORN/VISIBLE UNITS (Continued)

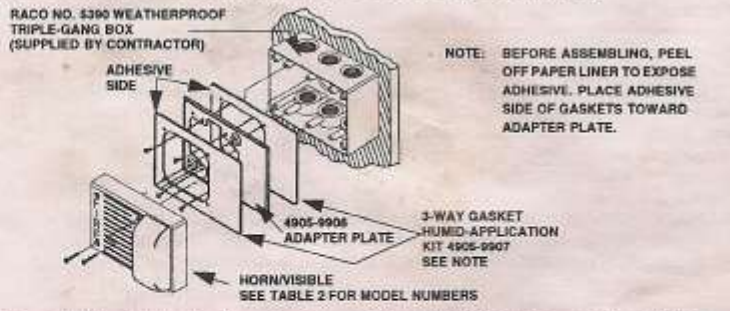


Figure 19. Humid-Application Surface or Semi-Flush Mounting of Horn/Visible Units

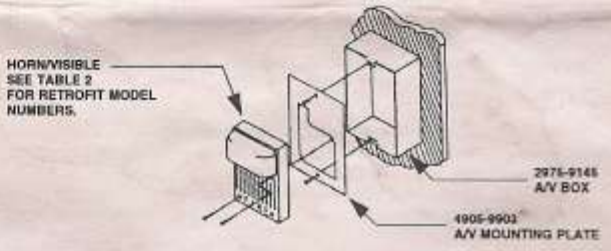


Figure 20. Retrofit Mounting of Horn/Visible Units

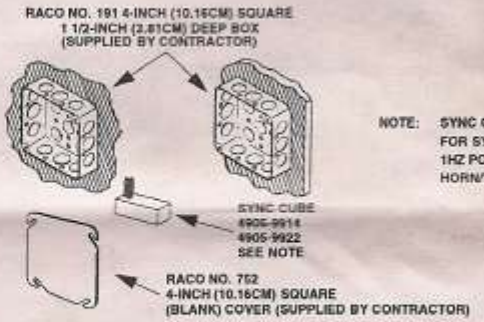


Figure 21. Semi-Flush or Surface Mounting (Alternate) of the Synchronizing Cube

REMOVING THE LENS COVER (See Figure 22)

1. Secure the base of the unit.
2. Insert a small flathead screwdriver into the slot adjacent to cover on the FIRE side of unit.
3. While maintaining an upward force on the cover, use a prying action on one slot at a time before removing cover from the base of the unit.

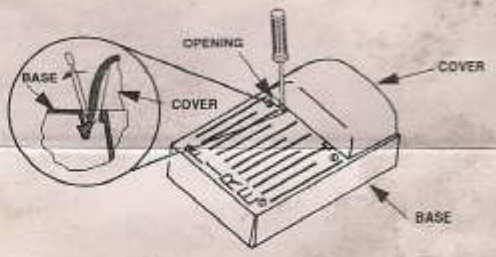


Figure 22. Removing the Horn/Visible Unit Lens Cover

TESTING

Only Qualified Simplex Representatives may perform tests and adjustments for proper operation and sound/light output.

Simplex Representatives check for proper functioning of the Protective Signaling System as well as sound level and light operation of Notification Appliances. Although Notification Appliances are designed to last for many years, units could fail or malfunction at any time. **Do not attempt to repair failed or malfunctioning units. Replace these units immediately, or as soon as replacement units are available.**

Protective Signaling Systems and Notification Appliances require testing at least twice a year by qualified Simplex Representatives.

WIRING (Continued)

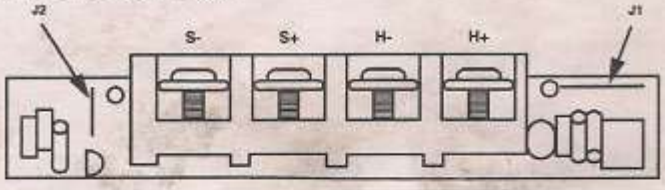
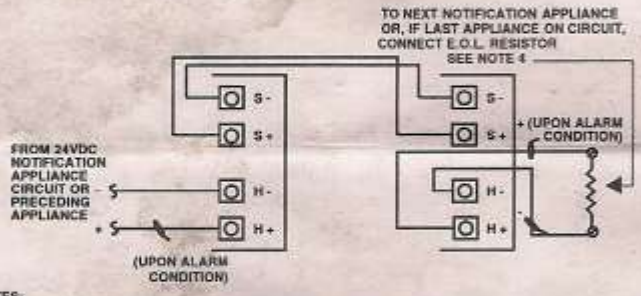


Figure 6. Location of Jumpers J1 and J2 for Horn/Visible Units



NOTES:
1. NOTIFICATION APPLIANCE IS RATED PER INDIVIDUAL NAMEPLATE.
2. FOR SYSTEM WIRING SPECIFICATIONS, SEE 900-036 FOR 2120 CONTROLS OR 900-082 FOR 4100+/4120 CONTROLS.
3. MAINTAIN CORRECT POLARITY.
4. FOR 2120, 4001, 4002, 4020, 4100+, OR 4120 SYSTEM, USE A 10K, 1/2W E.O.L. RESISTOR.

Figure 7. Wiring for Horn/Visible Units Using a Single Horn and Visible Notification Circuit (See Table 2 for Model Numbers)

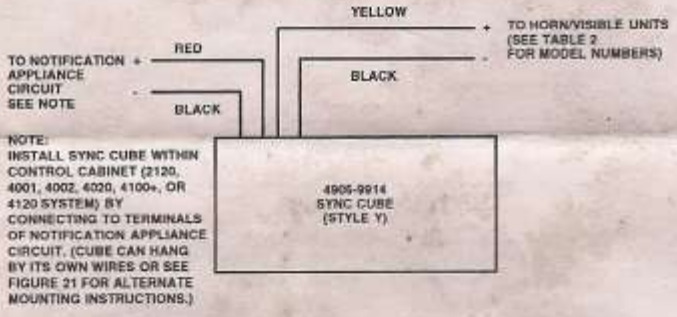


Figure 8. Style Y Wiring for Synchronizing 1Hz Horn/Visible Units

NOTE:
INSTALL SYNC CUBE WITHIN CONTROL CABINET (2120, 4001, 4002, 4020, 4100+, OR 4120 SYSTEM) BY CONNECTING TO TERMINALS OF NOTIFICATION APPLIANCE CIRCUIT. (CUBE CAN HANG BY ITS OWN WIRES OR SEE FIGURE 21 FOR ALTERNATE MOUNTING INSTRUCTIONS.)

Figure 9. Style Z Wiring for Synchronizing 1Hz Horn/Visible Units

MOUNTING – HORNS

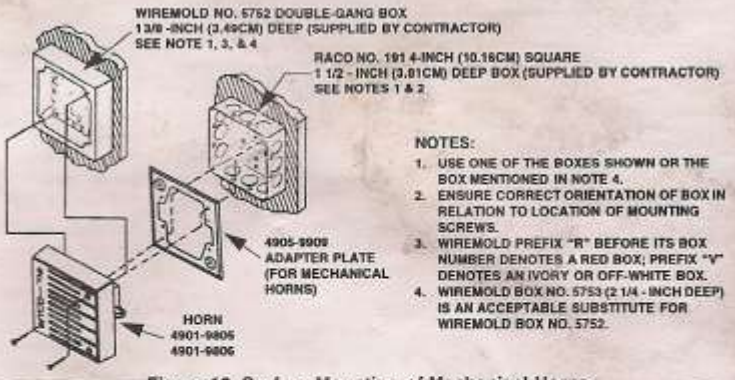
CAUTION: Do not bring conduit through the rear of any electrical box.

See Figures 10 through 15 for mounting horns (and adapter plate if required for surface installation) to the enclosure box.

NOTES:
1. Tighten screws snugly (do not overtighten).
2. For semi-flush mounting, you must install the box either flush or with a maximum 0.25-inch (0.64cm) recess.

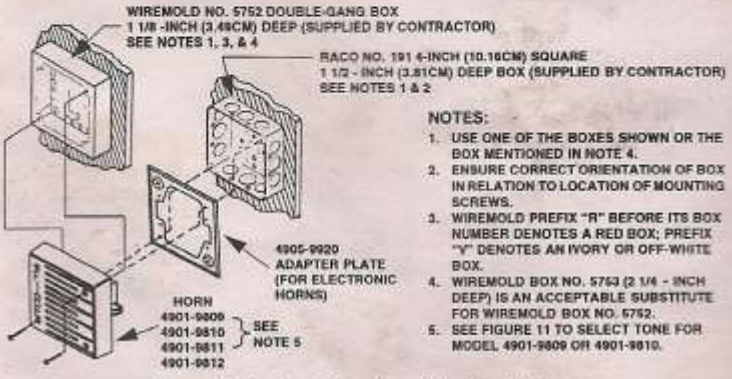
When done, check for proper operation.

MOUNTING – HORNS (Continued)



NOTES:
1. USE ONE OF THE BOXES SHOWN OR THE BOX MENTIONED IN NOTE 4.
2. ENSURE CORRECT ORIENTATION OF BOX IN RELATION TO LOCATION OF MOUNTING SCREWS.
3. WIREMOLD PREFIX "R" BEFORE ITS BOX NUMBER DENOTES A RED BOX; PREFIX "V" DENOTES AN IVORY OR OFF-WHITE BOX.
4. WIREMOLD BOX NO. 5753 (2 1/4 - INCH DEEP) IS AN ACCEPTABLE SUBSTITUTE FOR WIREMOLD BOX NO. 5752.

Figure 10. Surface Mounting of Mechanical Horns



NOTES:
1. USE ONE OF THE BOXES SHOWN OR THE BOX MENTIONED IN NOTE 4.
2. ENSURE CORRECT ORIENTATION OF BOX IN RELATION TO LOCATION OF MOUNTING SCREWS.
3. WIREMOLD PREFIX "R" BEFORE ITS BOX NUMBER DENOTES A RED BOX; PREFIX "V" DENOTES AN IVORY OR OFF-WHITE BOX.
4. WIREMOLD BOX NO. 5753 (2 1/4 - INCH DEEP) IS AN ACCEPTABLE SUBSTITUTE FOR WIREMOLD BOX NO. 5752.
5. SEE FIGURE 11 TO SELECT TONE FOR MODEL 4901-9809 OR 4901-9810.

Figure 11. Surface Mounting of Electronic Horns

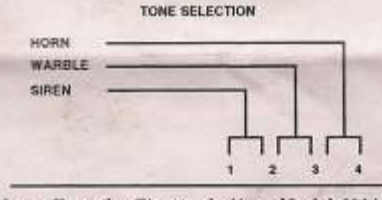
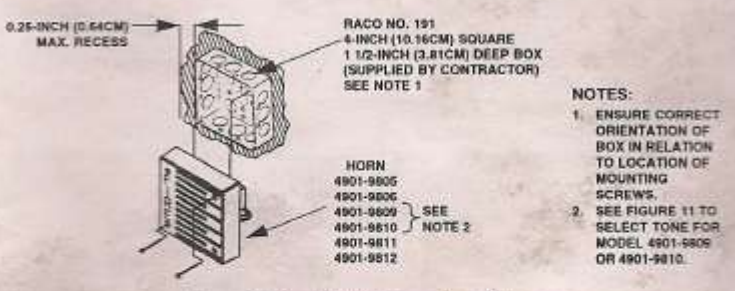
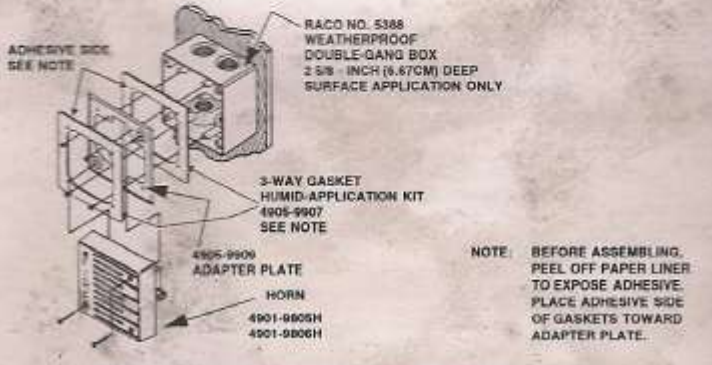


Figure 12. Selecting a Tone for Electronic Horn Model 4901-9809 or 4901-9810



NOTES:
1. ENSURE CORRECT ORIENTATION OF BOX IN RELATION TO LOCATION OF MOUNTING SCREWS.
2. SEE FIGURE 11 TO SELECT TONE FOR MODEL 4901-9809 OR 4901-9810.

Figure 13. Semi-Flush Mounting of Horns



NOTE: BEFORE ASSEMBLING, PEEL OFF PAPER LINER TO EXPOSE ADHESIVE. PLACE ADHESIVE SIDE OF GASKETS TOWARD ADAPTER PLATE.

Figure 14. Humid-Application Surface Mounting of Horns

FEATURES (Continued)

Table 3. Synchronized 1 Hz Horn/Visible Units — Current Chart

CANDELA	INPUT (VDC)	IN-RUSH (mA)	PEAK (mA)	AVERAGE (mA)
15	23.5	200	200	85
15	29.0	200	200	85
30	23.5	200	200	100
30	29.0	200	200	100
110	23.5	325	325	200
110	29.0	325	325	200

Wall-Mounted Units

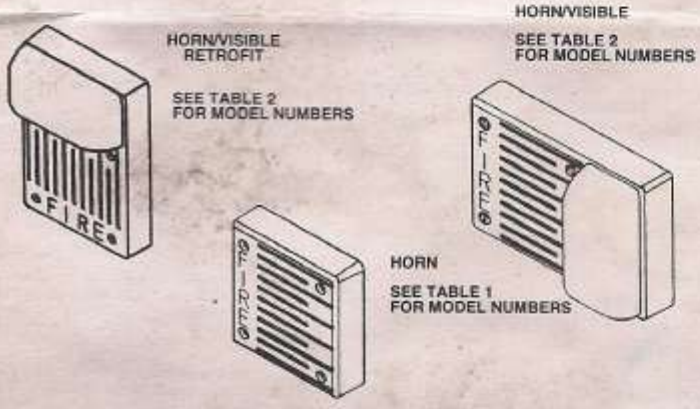


Figure 1. Horns and Horn/Visible Units

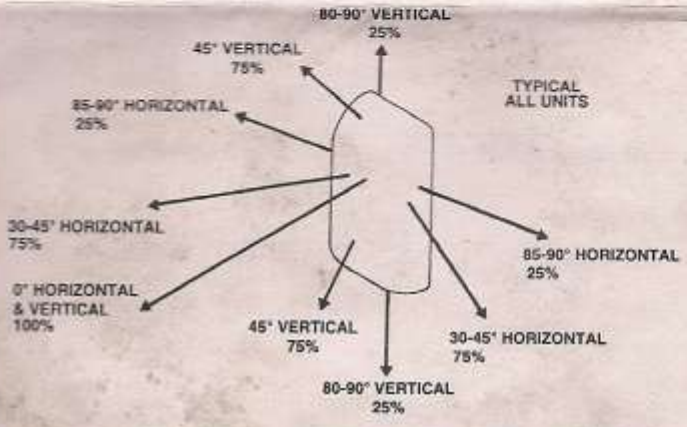


Figure 2. Amount of Light (In Percent) for Various Viewing Angles – Horn/Visible Units

WIRING

WARNING

Make sure that all electrical power is disconnected before starting the installation.

CAUTION: Connect wiring to terminals as shown. Do not loop wires under terminals. Break wire runs to provide supervision of connections. Do not bring conduit through the rear of the electrical box.

Horns

At the enclosure box, connect the contractor wires to the terminals at the rear of the horn assembly. See Figure 3 or 4.

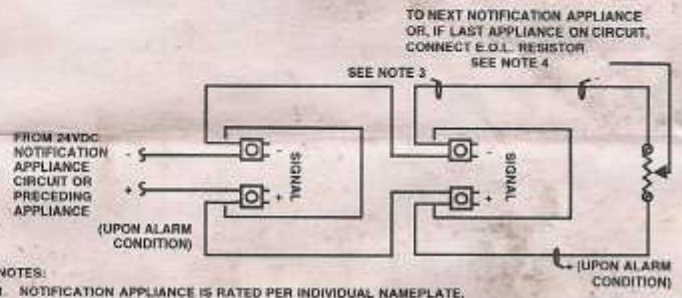
NOTES:
1. When connecting more than one horn to a circuit, ensure that correct polarity is maintained on each unit. See Figure 3 or 4.
2. When connecting the last horn on a circuit, connect the E.O.L. resistor to the terminals as shown in Figure 3 or 4.

WIRING (Continued)

Horn/Visible Units

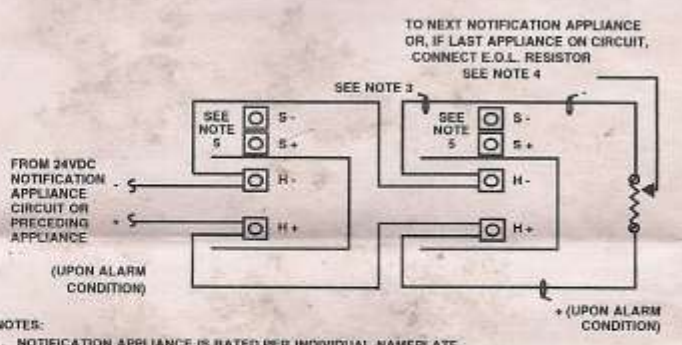
At the enclosure box, connect the contractor horn (audible) wires and the wires for the visible portion to the terminals at the rear of the unit. Refer to Figures 5 through 7.

NOTES:
1. When connecting more than one horn/visible unit to a circuit, ensure that correct polarity is maintained on both audible and visible wiring. See Figures 5 through 7.
2. When connecting the last horn/visible unit on a circuit, connect the E.O.L. resistor to the terminal block as shown in Figures 5 through 7.
3. To synchronize 1Hz Horn/Visible Units (60 flashes per minute), see Figure 8 (Style Y wiring) or Figure 9 (Style Z wiring).



NOTES:
1. NOTIFICATION APPLIANCE IS RATED PER INDIVIDUAL NAMEPLATE.
2. FOR SYSTEM WIRING SPECIFICATIONS, SEE 900-036 FOR 2120 CONTROLS OR 900-082 FOR 4100+/4120 CONTROLS.
3. MAINTAIN CORRECT POLARITY.
4. FOR 2120, 4001, 4002, 4020, 4100+, OR 4120 SYSTEM, USE A 10K, 1/2W E.O.L. RESISTOR.

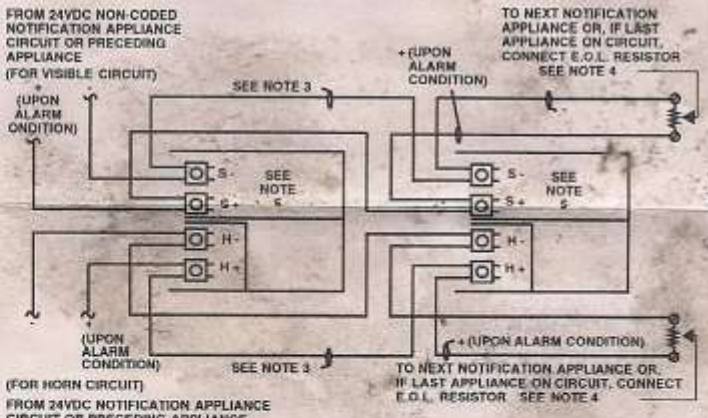
Figure 3. Wiring for Electronic Horns (See Table 1 for Model Numbers)



NOTES:
1. NOTIFICATION APPLIANCE IS RATED PER INDIVIDUAL NAMEPLATE.
2. FOR SYSTEM WIRING SPECIFICATIONS, SEE 900-036 FOR 2120 CONTROLS OR 900-082 FOR 4100+/4120 CONTROLS.
3. MAINTAIN CORRECT POLARITY.
4. FOR 2120, 4001, 4002, 4020, 4100+, OR 4120 SYSTEM, USE A 10K, 1/2W E.O.L. RESISTOR.
5. DO NOT CONNECT WIRING TO S- AND S+ TERMINALS.

Figure 4. Wiring for Mechanical Horns (See Table 1 for Model Numbers)

NOTE: When wiring horn/visible units using separate horn and visible notification circuits (Figure 5), make certain that you remove (cut) Jumpers J1 and J2 shown in Figure 6.



NOTES:
1. NOTIFICATION APPLIANCE IS RATED PER INDIVIDUAL NAMEPLATE.
2. FOR SYSTEM WIRING SPECIFICATIONS, SEE 900-036 FOR 2120 CONTROLS OR 900-082 FOR 4100+/4120 CONTROLS.
3. MAINTAIN CORRECT POLARITY.
4. FOR 2120, 4001, 4002, 4020, 4100+, OR 4120 SYSTEM, USE A 10K, 1/2W E.O.L. RESISTOR.
5. REMOVE (CUT) JUMPERS J1 & J2 SHOWN IN FIGURE 9.

Figure 5. Wiring for Horn/Visible Units Using Separate Horn and Visible Notification Circuits (See Table 2 for Model Numbers)