



XE-2
2-WAY ACTIVE DIVIDING NETWORK

OWNER'S MANUAL

INSTALLATION GUIDE



NOTICE

Since the printing of this Owner's Manual, the model number for this electronic crossover system has changed from XE-2 to Kappa 2xe. This is only a name change - all installation and operating instructions and performance specifications remain the same.

INTRODUCTION

The Infinity XE-2 Active Dividing Network is a 2-way active crossover that electronically divides the audio spectrum for connection to front/rear satellite and mono subwoofer systems. Although it's designed to complement our line of digital power amplifiers, you can also use the XE-2 with any other brand of amplifier. When properly installed, this product will exhibit world-class performance and provide unparalleled equalization control for your mobile sound system.

For example, the low-pass and high-pass crossover points are all independently adjustable. This means you can quickly fine-tune your system to create "dips" or "bumps" at critical frequencies for a smooth overall response. Individual front and rear high-pass output level controls allow you to optimally set the system gain to create a pleasing "front stage, rear fill" effect. All these controls are also conveniently labeled for easy adjustment after the unit has been installed. In addition, the XE-2 features:

- Continuously-variable independent low-pass and high-pass crossover settings

- High-pass crossover points continuously variable from 50 to 250 Hz
- Low-pass crossover points continuously variable from 25 to 200 Hz
- Two pairs of high-pass outputs for front and rear stereo channels
- One pair of non-fading mono outputs for low-pass subwoofer application
- Independent level controls for low-pass and high-pass front and high-pass rear, from 0 to +10 dB of gain
- Low-pass crossover slope fixed at 18 dB per octave
- High-pass crossover slope fixed at 12 dB per octave
- Dc-to-dc, 30-volt bi-polar power supply for outstanding dynamic range, isolation from noise, and increased output voltage
- Isolated chassis and signal ground topology for better immunity to ground loops
- Gold-plated RCA inputs with balanced-line configurations provide improved noise isolation and increased signal-to-noise ratio

INTRODUCTION (CONTINUED)

This Infinity product is made with our ongoing dedication to creating the best consumer audio products possible. As a result, you can expect your XE-2 to provide you with many years of listening enjoyment. Save these instructions for future reference.

ABOUT THIS MANUAL

For maximum performance, we encourage you to read the remaining pages before installing and operating the Infinity XE-2 active dividing network. Give special attention to the application drawings starting on page 5 as you design your system.

IMPORTANT! Please read the *Precautions and Notes* (on page 9) before attempting installation.

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DESCRIPTION

All of the XE-2's controls and connections are located on the front and rear panels, respectively.

FRONT PANEL LAYOUT

As shown in Figure 1 below, the front panel contains an LED to indicate "power on," in addition to crossover frequency and level controls for subwoofer, rear, and front outputs.

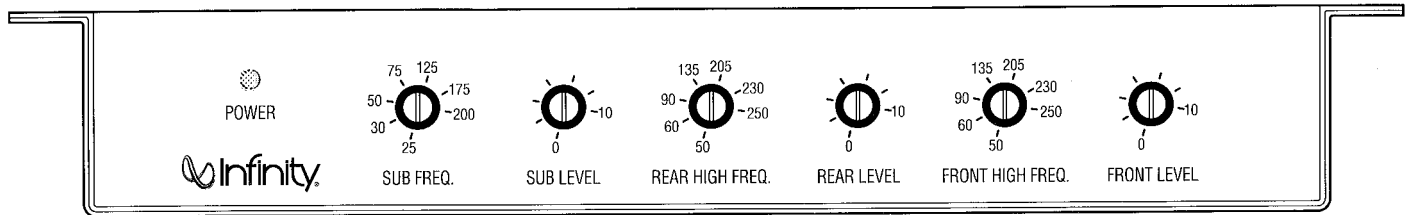


Figure 1. The XE-2's front panel has frequency and level controls for subwoofer, rear (high-pass) and front (high-pass) outputs.

REAR PANEL LAYOUT

As shown in Figure 2 below, the XE-2's rear panel contains stereo front/rear input connectors, stereo

front/rear high-pass output connectors, mono low-pass (subwoofer) output connectors, and a detachable power connector.

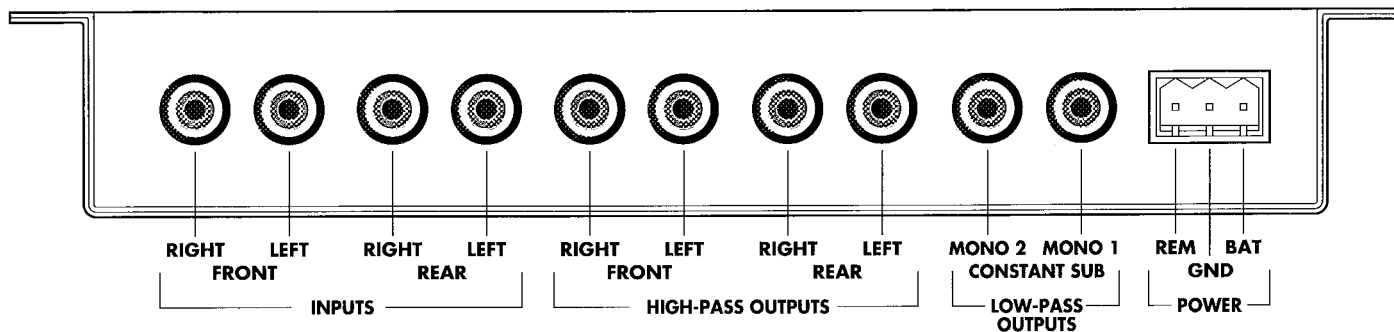


Figure 2. The XE-2's rear panel contains input, output, and power connections.

APPLICATIONS

As shown in Figures 3 through 6 (on pages 5 to 8), the XE-2 can be configured in several variations.

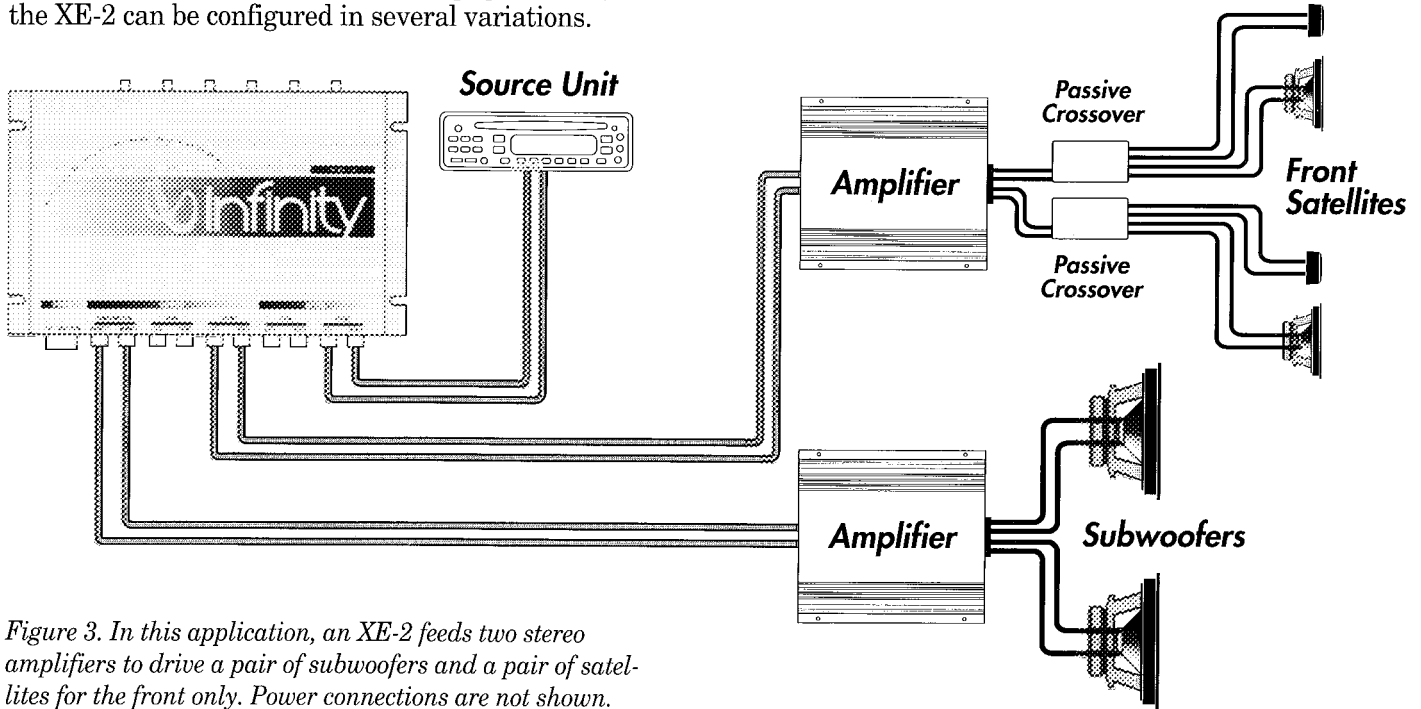


Figure 3. In this application, an XE-2 feeds two stereo amplifiers to drive a pair of subwoofers and a pair of satellites for the front only. Power connections are not shown.

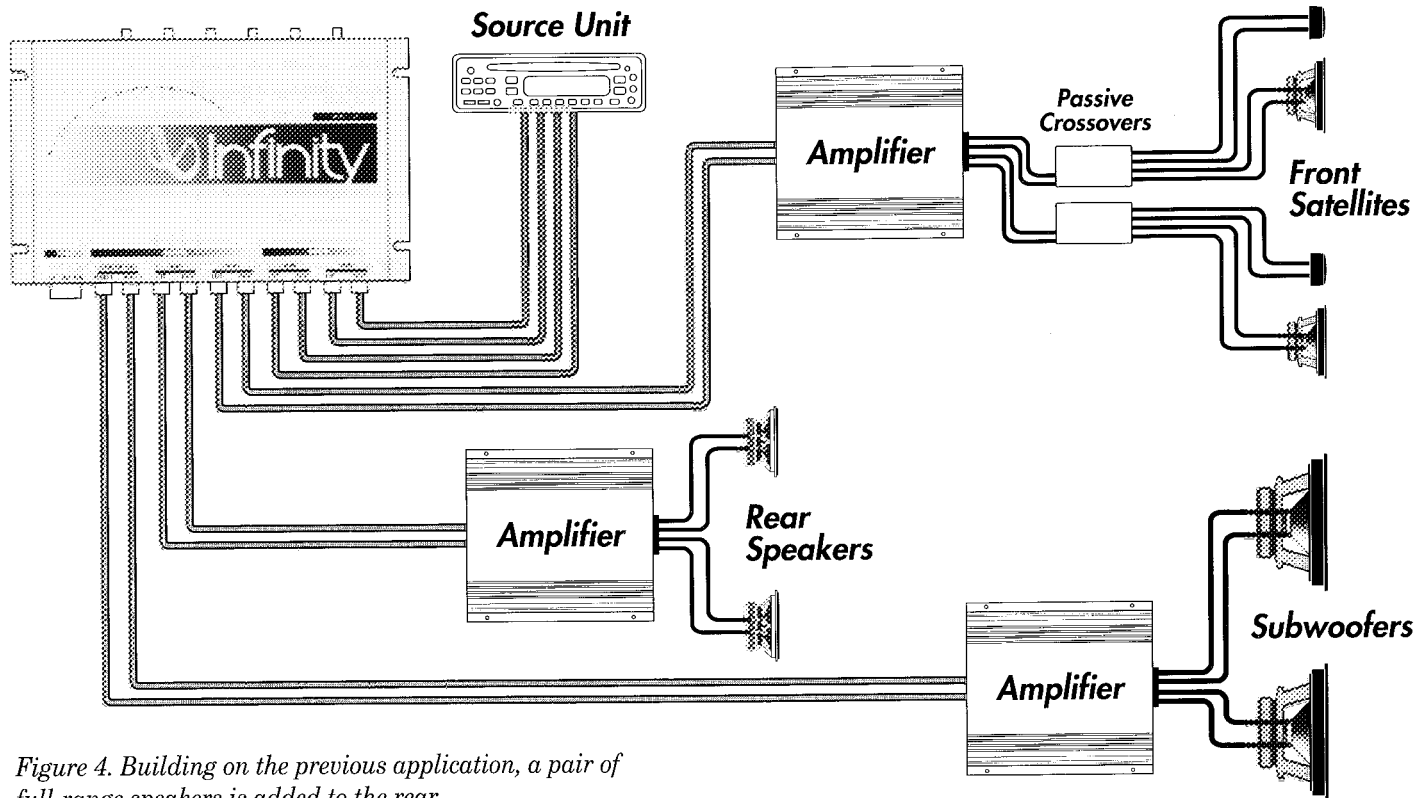


Figure 4. Building on the previous application, a pair of full-range speakers is added to the rear.

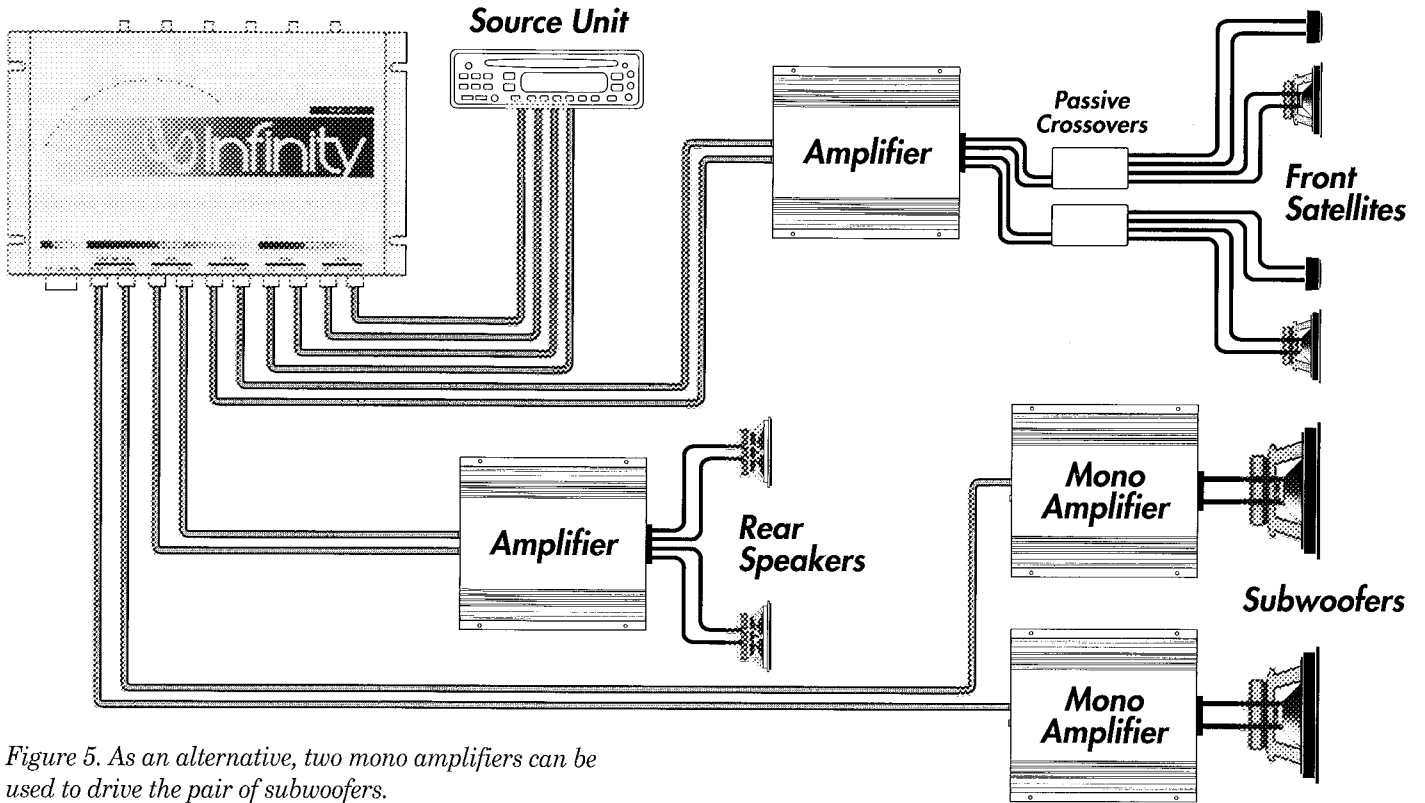


Figure 5. As an alternative, two mono amplifiers can be used to drive the pair of subwoofers.

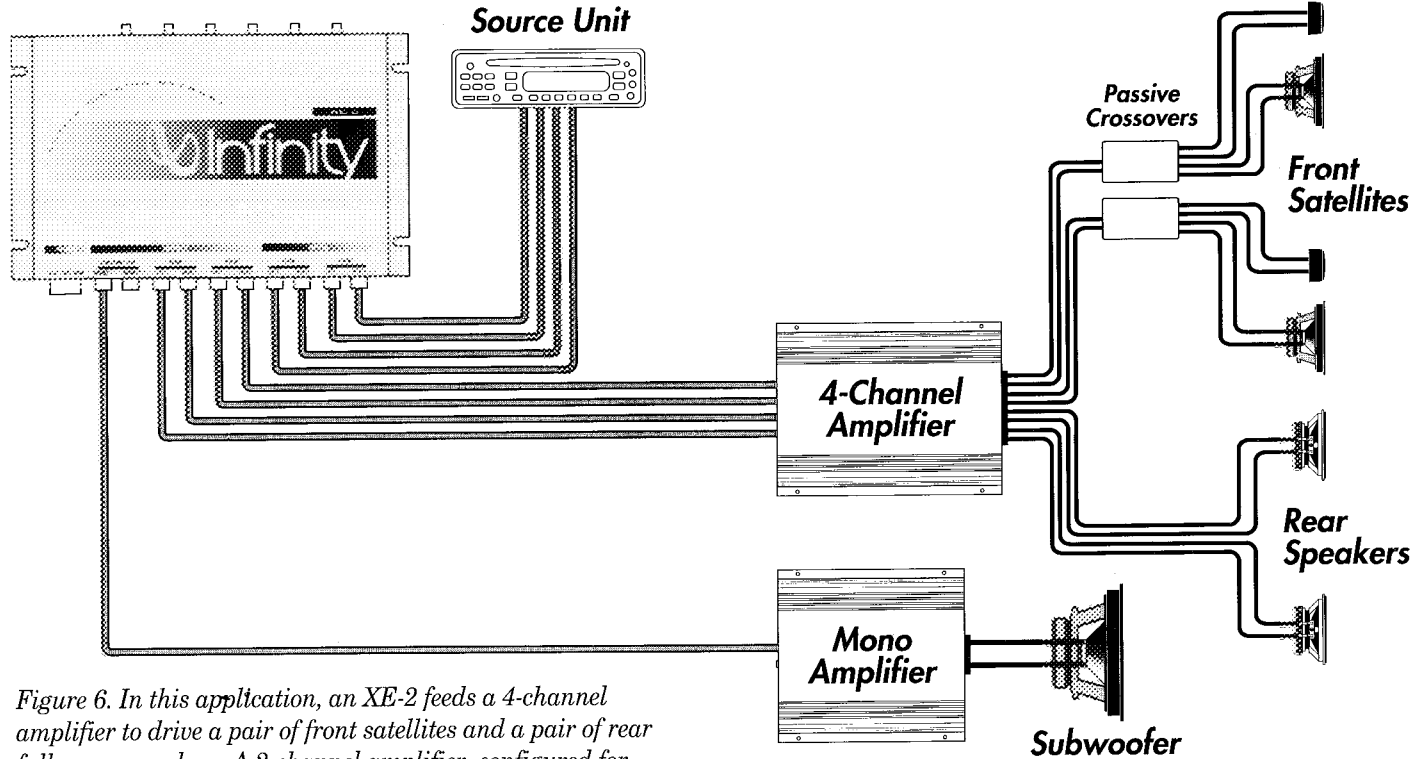


Figure 6. In this application, an XE-2 feeds a 4-channel amplifier to drive a pair of front satellites and a pair of rear full-range speakers. A 2-channel amplifier, configured for bridged-mono operation, drives a single subwoofer.

INSTALLATION

PRECAUTIONS AND NOTES

IMPORTANT! Before starting the installation, please read the remaining pages for instructions and techniques to achieve maximum product performance. Although this guide explains how to install the XE-2 in a general sense, it does not show the exact installation methods for your particular vehicle. Installation of automotive stereo components requires extensive experience in dealing with a variety of mechanical and electrical procedures. If you do not feel you have the experience, do not attempt the installation yourself, but instead ask your authorized Infinity car audio dealer about professional installation options.

- Turn off all audio systems and other electrical devices. As an extra precaution, disconnect the (-) negative lead from the vehicle's battery.
- At the installation site, locate and make a note of all fuel lines, hydraulic brake lines, and electrical wiring. Use extreme caution when cutting or drilling in and around these areas.

- Use the enclosed mounting template (see page 17) as a drilling guide to mark locations for the mounting holes.
- Check clearances on both sides of a planned mounting surface before drilling any holes or installing any screws. Remember that the enclosed screws will extend behind the surface. Always wear protective eyewear when using tools.
- When making connections, make sure that each connection is clean and properly secured.
- The XE-2 is protected by an internal fuse. If it needs replacement, use only a 1A fast-blow fuse. **DO NOT SUBSTITUTE ANOTHER RATING!**

NOTE: To access the internal fuse, turn off the power and then remove four screws from the side panels. The fuse is next to the power connector (see Figure 10 on page 14).

PARTS LIST

Examine and verify that the XE-2 package also includes the following items:

- Four #8 x 3/4" (19 mm) self-tapping phillips sheet metal screws
- One 3-wire quick-disconnect screw terminal (for power connections)

MECHANICAL INSTALLATION

The XE-2 can be mounted virtually anywhere *inside* the vehicle. Select a site that provides easy access to the controls.

1. Use the enclosed mounting template (on page 17) and mark locations for the four mounting holes.
2. Drill a small pilot hole at each marked location, mount the XE-2, and tighten the enclosed screws.

ELECTRICAL INSTALLATION

For best performance, we recommend high-quality double-shielded RCA audio cables for audio connections. You'll also need 18-gauge (recommended) stranded-copper wire, preferably red for power, black for

ground, and blue for remote turn-on. (Alternately, you can use 22- to 24-gauge wire with no significant performance degradation. Or use a larger size, since the power connector accepts up to 12-gauge wire). Strip 1/4" (6 mm) off the ends of each wire and perform these steps:

1. Firmly press the 3-wire quick-disconnect screw terminal into the recessed power pins on the XE-2's rear panel until you hear a click.
2. Connect a short length of (black) wire to the vehicle's chassis, as shown in Figure 7.

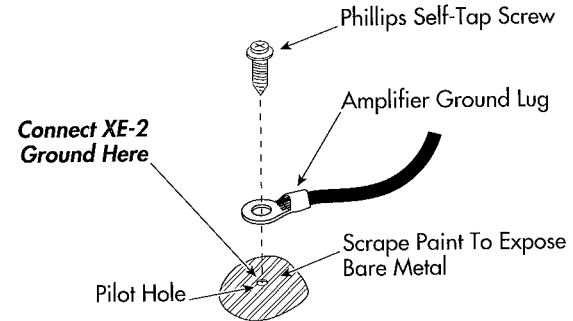


Figure 7. Example of an XE-2 ground connection.

Be sure to remove the paint at the grounding point to expose bare metal. Insert the other end into the GND terminal and turn the screw clockwise to secure the connection.

3. Connect a (red) wire to the vehicle's +12 V dc (constant). Insert the other end into the BAT terminal and fasten the connection.

NOTE: For best performance, and to reduce the possibility of noise or interference, make the "battery" connection directly to the battery, not the accessory fuse panel.

4. Connect a (blue) wire to the system's remote turn-on signal bus. Insert the other end into the REM terminal and fasten the connection.
5. Depending on your system, connect RCA cables from the XE-2 outputs (i.e., Front, Rear, and Sub) to the amplifiers' inputs.

NOTE: It is a good idea to temporarily substitute long audio and power cables to adjust the XE-2 controls from the front listening area of the vehicle.

ADJUSTING THE XE-2

The XE-2 features independent level controls for front, rear, and subwoofer output levels, along with the independent low-pass and high-pass crossover points. These functions will allow you to independently set crossover frequencies and balance the output sound level for the smoothest response.

Start by first checking the specifications of the loudspeakers used in your system, to determine beginning crossover settings. Since you will normally be listening from inside your vehicle, it is best, but not necessary, to perform all final adjustments from the driver's seat.

1. Temporarily move the XE-2 inside the driver's area by running long signal and power cables along the outside of the car.
2. Prior to the adjustment of any level controls, verify that all tone controls are set at flat positions.
3. Start by setting all XE-2 level controls at the middle position, and both low-pass and high-pass crossover settings at approximately 150 Hz.

ADJUSTING THE XE-2 (CONTINUED)

3. Verify that all amplifier input sensitivities are set according to the manufacturer's owner's manual.
4. Play your favorite music and increase the source unit's volume control to about 80% of full volume. Slowly adjust the XE-2's level controls to a point just before distortion begins to be audible. Listen to the overall response and compare the tonal differences as you cut or boost the output levels.
5. Fine tune the response slightly by adjusting the crossover points. Pay close attention to the fre-

quencies where known resonances occur (i.e., 75 through 150 Hz). To reduce these resonances, try setting the low pass lower and the high pass higher than the desired crossover frequencies (see Figure 9 on opposite page).

6. For future reference, mark your final adjustment settings on the template shown in Figure 8 below.
7. Although it's not a requirement, using a real-time analyzer (RTA) is a helpful tool in the critical final adjustments of your completed car audio system. See your authorized Infinity car audio dealer for further assistance.

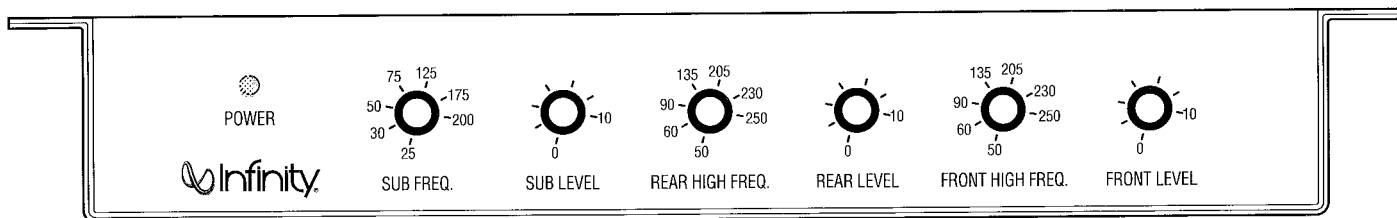
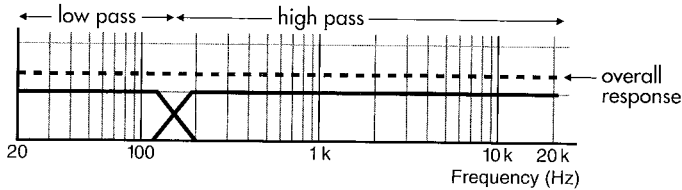
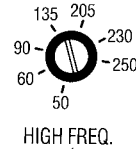


Figure 8. Mark final XE-2 settings on this front panel template.

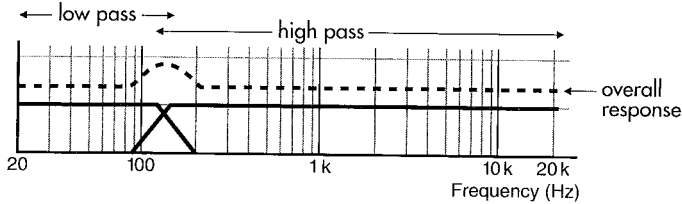
For a "flat" XE-2 frequency response...



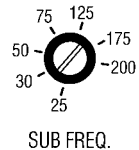
use same settings on HIGH FREQ. and SUB FREQ.



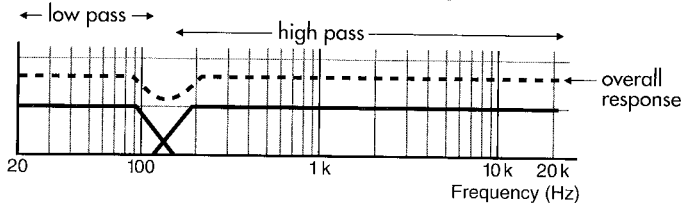
For a "bump" in the XE-2 frequency response...



overlap settings on HIGH FREQ. and SUB FREQ.



For a "dip" in the XE-2 frequency response...



stagger settings on HIGH FREQ. and SUB FREQ.

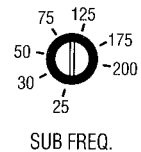
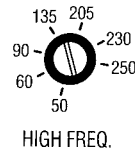


Figure 9. Adjusting the XE-2's filter frequencies.

ACCESSING XE-2'S INTERNAL FUSE

1. Turn-off power to all audio components.
2. Unplug the 3-pin power connector.
3. Remove the four mounting screws and the four side panel screws.
4. Lift the top panel to expose fuse holder (next to power connector), as shown in Figure 10.
5. Replace the old fuse with a new 1A fast-blow fuse.
6. Replace the panel screws, remount the crossover, connect the power connector, and restore power.

NOTE: *If the fuse continues to blow, check wiring for a short circuit or contact your authorized Infinity car audio dealer for help.*

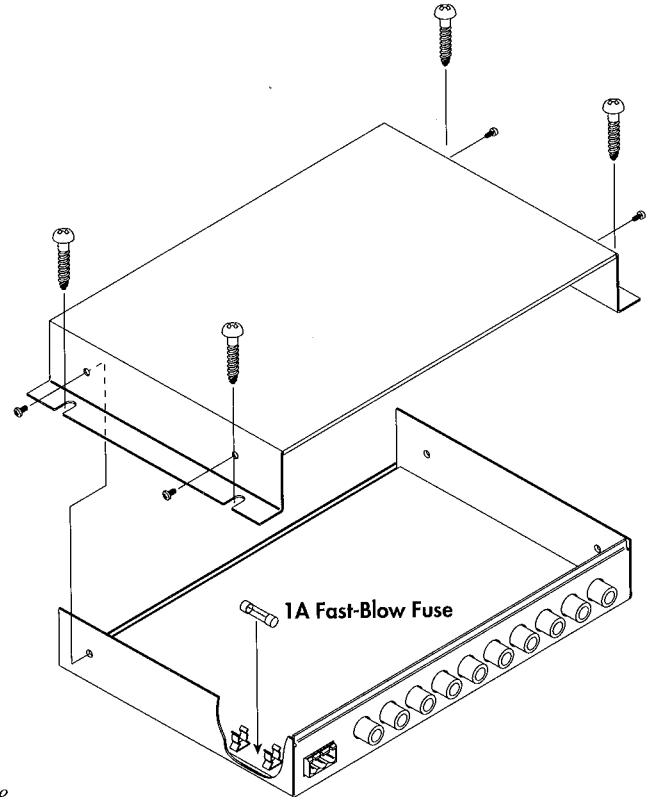


Figure 10. Location of XE-2 fuse.

SPECIFICATIONS

FRONT AND REAR CHANNELS (STEREO CIRCUITS)

<i>Frequency Response:</i>	50 Hz ~ 20 kHz, ± 3 dB
<i>Filter Type:</i>	2nd-order, high-pass, cont. variable, -3 dB, 50 ~ 250 Hz
<i>Total Harmonic Distortion (THD):</i>	$\leq 0.01\%$ at 1 V rms, 50 Hz ~ 20 KHz, 22 kHz filter
<i>Channel Separation:</i>	≥ 55 dB, 50 Hz ~ 20 kHz
<i>Signal-To-Noise Ratio (SNR):</i>	≥ 100 dB, A-weighted filter @ full-rated output (10 Vrms)

SUBWOOFER CHANNELS (MONO CIRCUIT)

<i>Frequency Response:</i>	20 ~ 200 Hz, ± 3 dB
<i>Filter Types:</i>	3rd-order, low-pass, cont. variable, -3 dB, 25 ~ 200 Hz 3rd-order, high-pass, fixed -3 dB @ 12 Hz
<i>Total Harmonic Distortion (THD):</i>	$\leq 0.05\%$ at 1 V rms, 20 ~ 200 Hz, 22 kHz filter
<i>Signal-To-Noise Ratio (SNR):</i>	≥ 110 dB, A-weighted filter @ full-rated output (10 Vrms)

ALL CHANNELS

<i>Input Impedance:</i>	≥ 33 k Ω
<i>Output Impedance:</i>	≤ 100 Ω
<i>Input Gain:</i>	≤ 9.50 dB (Front / Rear) ≤ 4.75 dB (Subwoofer)
<i>Maximum Output Level:</i>	10.0 Vrms
<i>Power Supply Voltage:</i>	± 15 Vdc
<i>Internal Fuse Rating:</i>	1 A, fast-blow
<i>Operating Voltage:</i>	6.2 ~ 16.3 Vdc
<i>Size:</i>	8 ⁵ / ₁₆ "w x 5 ¹ / ₁₆ "d x 1 ³ / ₁₆ "h

Infinity constantly strives to update and improve existing products, as well as create new ones. Therefore, the specifications and construction details in this and related Infinity publications are subject to change without notice.

LIMITED USA WARRANTY – ONE YEAR, INFINITY AUTOMOTIVE ELECTRONICS

HOW LONG IS THIS WARRANTY?

This warranty remains in effect for *one year* from date of purchase.

WHO IS PROTECTED BY THIS WARRANTY?

This warranty protects the original owner and is not transferable, providing that the product has been purchased in the United States. The original dated bill of sale must be presented whenever warranty service is required. For warranty service outside the United States, contact the Infinity distributor in the country where the product was purchased.

WHAT IS COVERED BY THIS WARRANTY?

Except as specified below, this warranty covers all defects in materials and workmanship. The following are not covered: damage caused by accident, misuse, abuse, product modification or neglect, damage occurring during shipment, damage from failure to follow instructions contained in the instruction manual, damage resulting from the performance of repairs by someone not authorized by Infinity, or any claims based on misrepresentations by the seller. This warranty does not cover incidental or consequential damages. It does not cover the cost of removing or reinstalling the unit.

You are responsible for transporting your product for repair. However, Infinity will pay return charges if the repair is covered under warranty. Outside the United States, contact your local distributor.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above may not apply to you.

PLEASE MAKE NOTE OF THE FOLLOWING INFORMATION AND RETAIN FOR YOUR RECORDS:

Product Name: Kappa 2xe

Model Number: 03153

Store Name: Crutchfield

Store Phone: _____

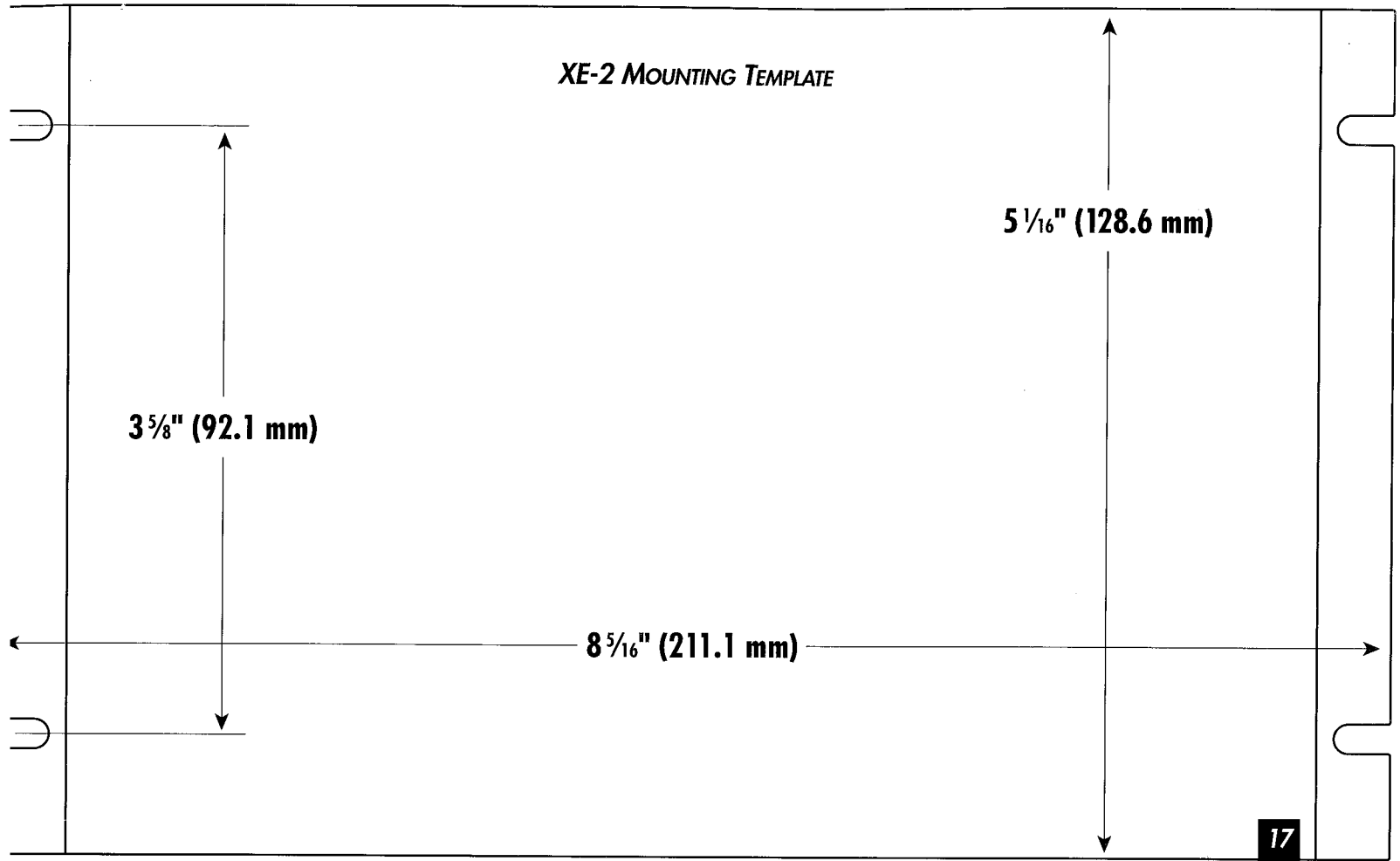
Date of Purchase: 6-1-98

XE-2 MOUNTING TEMPLATE

3 ⁵/₈" (92.1 mm)

5 ¹/₁₆" (128.6 mm)

8 ⁵/₁₆" (211.1 mm)





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