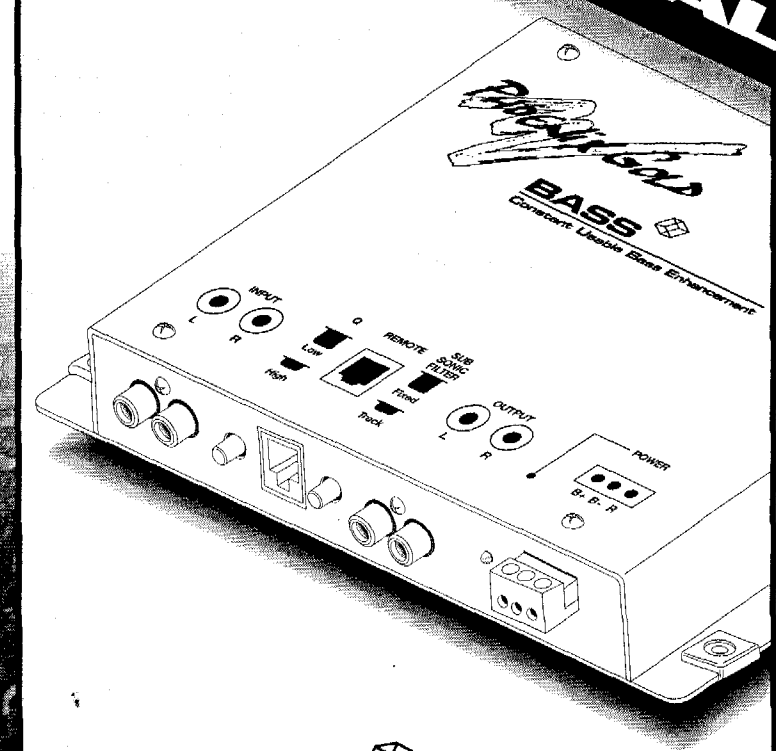
OWNER'S MANUAL



BASS

Constant **U**sable **B**ass **E**nhancement

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BASS

Constant Usable Bass Enhancement

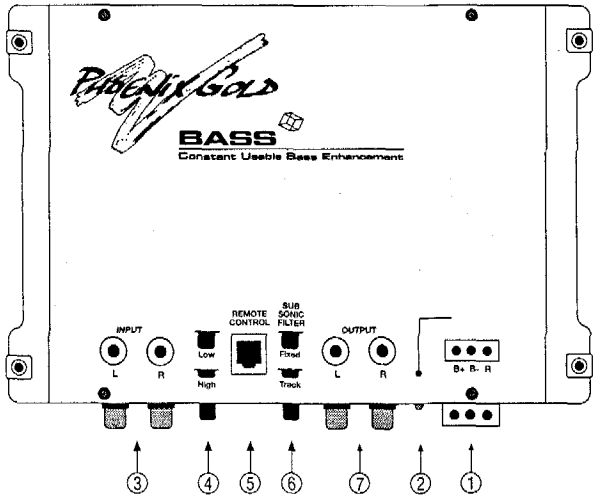
FEATURES

CUBE—Constant Usable Bass Enhancement
Remote Control for Boost Level, On/Off, Level & Center Frequency
Variable Subsonic Filter
Isolated Battery and Signal Grounds
Switching Power Supply
Designed and manufactured in Portland, OR USA

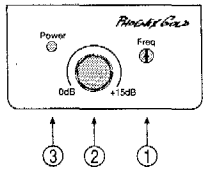
SPECIFICATIONS

Bass Boost Center Frequency, cont. variable	20Hz to 110Hz
Boost Characteristic, switch selected: Wide	Q=2
Narrow	Q=6
Boost Level, cont. variable	0 to +15dB
Subsonic Filter	
Slope	18dB per octave
Tracking Frequency	1/3 Octave below Boost Freq.
Fixed Frequency	25Hz
Frequency Response (excluding boost)	20Hz to 30kHz ±1.5dB
Total Harmonic Distortion (@ 1kHz)	< 0.02%
Signal to Noise Ratio (A weighted, 1VRMS)	>90dB
Maximum input signal level	8VRMS
Signal Gain, input to output (excluding boost)	0dB (unity)
Input Impedance	8kΩ
Battery Voltage Range	10.5 to 15V
Idle Current	0.25A
Dimensions (processor)	1.26"H x 6.88"W x 5.13"D
Dimensions (remote control)	1.25"H x 2.35"W x 2.75"D

PROCESSOR UNIT



1. Power Connector: Make connections using the supplied detachable plug. *Connect the B+* terminal to battery positive and the B- terminal to chassis ground. Connect the R (remote) terminal to a switched 12VDC source to allow the Bass Cube to be turned on/off by the head unit.
2. Power LED: This green LED lights up when the Bass Cube is on.
3. Input RCA Connectors: Connect to head unit or signal processor line outputs.
4. Q Select: This switch selects either a wide low-Q or narrow high-Q bass boost response characteristic for the Bass Cube.
5. Remote Control Jack: Plug the modular telephone-style cord connected to the remote control unit into this jack.
6. Subsonic Filter: This switch sets the internal subsonic filter for either tracking or fixed operation. In the Tracking position, the filter's cutoff frequency varies, tracking 1/3 octave below the boost frequency. In the fixed position, the filter cutoff frequency is set at 25Hz.
7. Output RCA Connectors: Connect to the bass amplifier line inputs.



REMOTE CONTROL UNIT

1. *Frequency: This control sets the center frequency of the* bass boost effect.
2. Bass Boost Level/Effect Switch: This compound control switches the boost effect on and off and sets the boost level. Pull the knob out to engage the boost. Rotate the knob to adjust the boost level.
3. *Effect LED: This red LED lights up when the bass enhanc*ing effect is active.

INSTALLATION

The Bass Cube system comprises a signal processor unit and a remote control unit. Signal and power connections are made to the processor, typically located near other signal processors and the amplifiers. The remote control is designed to be conveniently mounted near the driver's seat on the dashboard or console. A standard 4 conductor modular phone cable connects the remote control to the processor.

The Bass Cube can be installed in the vehicle's power supply at any point prior to the subwoofer amplifier. However, high bass boost levels can easily result in clipping which may produce distortion in subsequent signal processors. For this reason, we recommend installing the Bass Cube so that it drives the subwoofer amplifier directly.

Installation Guidelines

- Disconnect all car audio components from their power supply before beginning the installation of your system.
- The Bass Cube is designed for use in 12V negative ground electrical systems. Installing in positive ground electrical systems will cause serious damage.
- If this product is installed or used in any method other than those outlined in this manual, it could affect its performance and/or void the warranty.
- Do not route audio cables and power cables together! Doing so almost always causes noise in your car audio system.
- Never mount the Bass Cube near the engine, heating ducts, etc. Excessive heat from these sources can damage the unit.
- Make sure the Bass Cube is securely mounted to a solid surface. This protects connections from stress and damage.

Processor Installation

- Select a mounting location for the Bass Cube processor.
- Plan signal and power cable routing before mounting the processor.
- When satisfied with the mounting configuration, use the processor unit as a template to mark mounting hole locations. **Remove the processor** and drill pilot holes at the marked points, then mount the processor using appropriate screws.
- Connect signal and power cables.

Remote Control Installation

The remote control unit consists of a control circuit board in a two-piece metal enclosure. The unit is shipped configured for surface mounting using the enclosure, but the circuit board may be removed from the metal enclosure for stand-alone through-panel mounting in panels up to 0.3" thick.

- Select a convenient location for the remote control unit.
- If surface mounting the metal enclosure, use the enclosure base as a template to mark mounting hole locations. **Remove the enclosure base** and drill pilot holes at the marked points. Partially install two of the supplied mounting screws and slip the slotted side of the enclosure in place, then install the remaining screws.
- Use the enclosure base to locate and drill holes for through-panel mounting. Attach the circuit board to the panel using the nuts and washers supplied.
- Route the modular phone cable from the remote control to the processor. Be careful not to pinch or damage the cable, and keep it away from sources of high heat. Plug the cable into the remote control and processor.

ADJUSTING THE BASS CUBE

The Bass Cube provides variable enhancement of bass frequencies. The level of peak boost varies from 0 to +15dB, and the frequency at which peak boost occurs is adjustable from 20Hz to 110Hz. Either a low-Q or high-Q boost characteristic can be selected. The Low-Q characteristic boosts a wide range of frequencies and is useful for general sound quality enhancement. The High-Q characteristic boosts a narrow range of frequencies and can be used to tune a subwoofer system for maximum output.

TUNING THE BASS CUBE

Following are general guidelines for using the Bass Cube with the two common classes of subwoofer enclosures, sealed (includes free-air) and vented (includes bandpass). Sealed enclosures exhibit a shallow rolloff (12dB/ octave) and a relatively high resonant frequency. The Bass Cube Q Select switch should be set to the Low-Q (wide) position and the Frequency control set approximately one octave below the subwoofer's resonant frequency. In vented enclosures, the rolloff of the system is quite steep below the tuning frequency (typically 24db/ octave). In this case, the Bass Cube should be set for High-Q (narrow) operation. Never set the Bass Cube boost Frequency below a vented enclosure's tuning frequency, because woofers in vented enclosures cannot handle much power below the tuning frequency. For maximum output from a vented enclosure, set the Bass Cube boost Frequency to the tuning frequency. Set the Subsonic Filter switch to the Tracking position to rapidly rolloff response below the boost frequency to avoid damage to the woofer.

Prior to tuning the Bass Cube, make all other system adjustments, including crossover frequencies, gains, and phase. These adjustments can be made with the

Bass Cube in the signal path, but make sure the effect is turned off (control knob pushed in). Then verify operation of the Bass Cube by pulling the control knob out and slowly increasing the boost level while listening for changes in subwoofer response. Once operation of the Bass Cube is confirmed, adjustment can proceed.

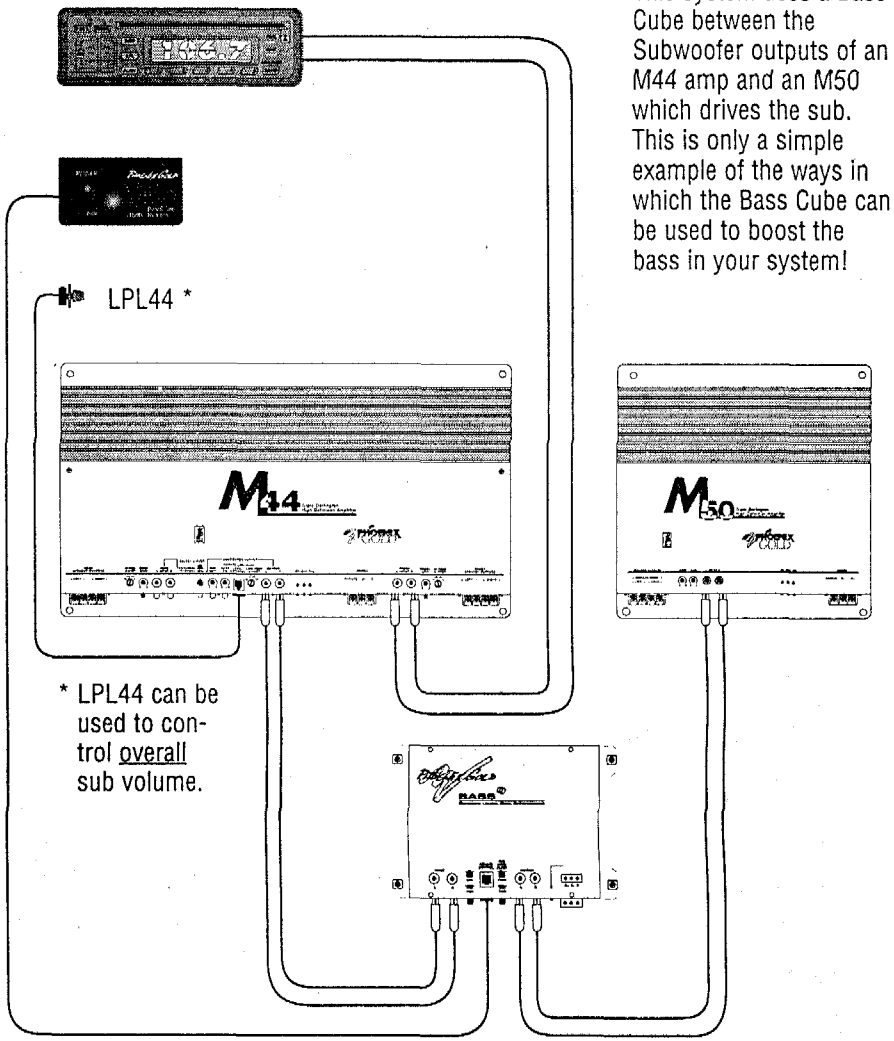
For enhancing sound quality, configure the Bass Cube as follows.

- Select Low-Q and Fixed Subsonic Filter on the main unit. (Use Tracking Subsonic Filter with a vented enclosure.)
- Turn the Bass Cube on by pulling the control knob out. Set it to approximately three quarters of its range.
- Listen to a variety of music while adjusting the frequency of the boost from high to low using the control on the dash mounted control unit. Choose a frequency that gives the best overall sound quality improvement for tape, CD and radio. Move the control knob in and out to check the effect of the bass boost. When you're satisfied, you're done!

For highest SPL (sound pressure level), configure the Bass Cube as described below.

- Set up an SPL meter and microphone in the vehicle. If adjusting for a competition, set up the microphone in the exact location described in the rules for the contest.
- Turn the Bass Cube off by pushing the control knob in.
- Use a test CD with sine waves on individual tracks from 20Hz to 110Hz to measure the decibel level at each frequency. The volume, bass, treble and fader controls should be set the same for every frequency tested. Locate the frequency that produces the highest decibel level in the vehicle.
- Select High-Q and Tracking Subsonic Filter on the main unit.
- Turn the Bass Cube on by pulling the control knob out. Set it to approximately three quarters of its range.
- Play the frequency track of the test CD that produced the highest decibel level.
- Adjust the frequency control on the control unit to obtain highest possible reading on the SPL meter. You're done!

Note: If the rules for the SPL contest allow you to choose the software that your system will be judged with, use software that contains bass frequencies that will take advantage of the vehicle's natural abilities. If the contest rules require you to use a particular piece of software, it may be necessary to readjust the frequency of the Bass Cube to make the most of that software.



This system uses a Bass Cube between the Subwoofer outputs of an M44 amp and an M50 which drives the sub. This is only a simple example of the ways in which the Bass Cube can be used to boost the bass in your system!

Still have questions?

If you have questions or are a bit confused about some of the features of the Bass Cube, don't hesitate to call our Technical Support Department at (503) 288-2008.