

BX63 INSTRUCTION MANUAL



The JBL BX63 is an active-passive frequency dividing network which accepts a two-channel stereo input and processes it to provide: A) a two-channel stereo signal with the frequencies below 70 Hz attenuated; B) an output that is the sum of the two inputs, filtered to remove frequency components above 70 Hz and equalized to compensate for the response of the subwoofer; and C) an output that is the same as output B but inverted in phase. Together, outputs B and C provide a balanced differential drive that bridges a dual-channel power amplifier.

In addition to providing bridging capability, the active low pass circuitry provides gain variable over a wide range to match a variety of amplifiers and program material.

For the high pass section, only passive components are used, avoiding the possibility of any added coloration.

CONNECTIONS

Be sure that all power to your stereo system is off before making any amplifier connections. Do not yet connect the line cord of the BX63.

The BX63 is connected between your preamplifier and the power amplifier used for your full-range systems. Connect the preamplifier outputs to the "Main In" jacks on the BX63. Connect the "Main Out" jacks of the BX63 to the inputs on the power amplifier. Observe the channel designations.

The "LF Out" jacks of the BX63 should be connected to the inputs of the amplifier for the subwoofer. The BX63 jacks are labeled "Normal" and "Inverted." Because some amplifiers invert phase and others do not, proper phasing is unpredictable at this point. Start with either jack connected to either amplifier input.

If you are using a monophonic amplifier, start with the "Normal" jack.

Connecting a stereo amplifier to the BX63 bridges the amplifier, making it a single-channel unit by feeding a differential signal to the inputs. Most stereo amplifiers can be safely bridged by the BX63. However, a few models with dual power supplies should not be bridged. If you have any doubts about the suitability of your amplifier, check with the manufacturer. If this is not possible, write or call the JBL Service Department.

The BX63 has a rear-panel "Impedance Matching" switch. This should be set to correspond to the input

impedance of the amplifier for your full-range systems. This information is normally found in the amplifier specifications; if not, consult the amplifier manufacturer. If necessary, the switch can be set by ear. (See the section on phasing.)

The AC line cord of the BX63 may be plugged into a "switched" outlet on your preamplifier. (The BX63 draws only 2 watts. If no "switched" outlet is available, the unit may safely be left on continuously.)

PHASING AND FINAL PLACEMENT

At this point, the subwoofer and BX63 are connected to your system. The next steps involve listening tests to determine phasing and the final physical placement. As a precaution, be sure that all AC power to your system is turned off before changing any connections.

Before starting these procedures, select suitable program material. To determine proper phasing, repetitive, percussive bass is a good choice. Well-recorded rock music with a solid bass line (bass guitar, kick drum) is very useful for this purpose. To determine final placement, the best material will be good organ or orchestral recordings with really deep bass content. Make the listening evaluations from your normal listening position.

INITIAL PHASING. Start with all power off, the BX63 "LF Gain" control at "0," and the front panel switch of the BX63 in the "Bypass" position. Turn all power on, and play the program material through the full-range systems at your normal listening level. Switch the BX63 to "Network In" and advance the "LF Gain" control to "1." Switch back to "Bypass" and compare the bass sound level. If there is a difference in low frequency volume level, repeat the process, advancing the LF Gain control somewhat. Continue the process until there is no difference in the low frequency volume level when you switch between "In" and "Bypass."

Now, turn everything off, reverse the polarity,* and turn the system back on. Again switch between "In" and "Bypass." If the "In" position reduces the bass volume level, your original phasing was correct and

*Reverse the polarity at either the BX63 LF output, by exchanging the leads to the "normal" and "inverted" jacks, or by reversing the loudspeaker cable at the subwoofer terminals. (Do not do both, or phase will remain the same.)

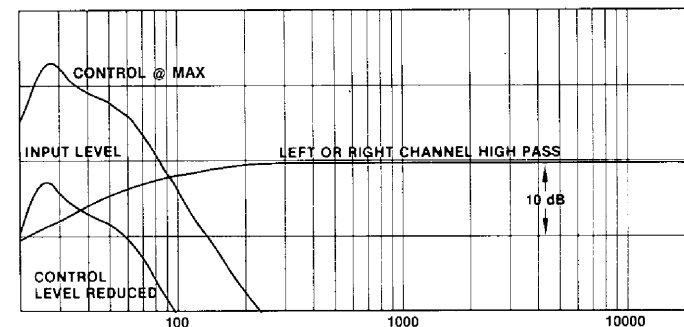
you should return to it. However, if the "In" position now produces a *higher* low frequency volume level, the new phasing is correct and you should reduce the "LF Gain" control (a step at a time) until the volume levels once again match.

The volume control on the main preamplifier governs both the level of the main loudspeakers and the level of the subwoofer. Once the "LF Gain" control is set, therefore, it can remain at the same setting for most listening. However, it is easily accessible as required by various program material.

JBL subwoofers will faithfully reproduce frequencies which are below the useful range of the monitor loudspeakers used in some studios. For this reason, you will find that low bass content varies considerably from recording to recording; you may hear things that the recording engineer did not. The LF Gain control allows compensation as required.

FINAL PLACEMENT. Use the program material (organ or orchestral) recommended for determining placement and do some serious listening. Adjustments in the placement of the subwoofer may make significant changes in the sound you hear. To ensure that you enjoy its full potential, do not settle on final placement until you have tried a number of different locations. There are no hard and fast rules, because no two rooms are alike. Take your time, listen carefully, and trust your ears.

If you have been unable to determine the input impedance of the amplifier for your full-range systems, you may now set the "Impedance Matching" switch by ear. The switch effectively adjusts the roll-off of the main loudspeakers. It is properly set when the sound at the crossover point is neither too "thin" nor too "full" – in other words, the subwoofer and the main loudspeakers are blending in the optimum way.



Voltage drive, BX63 frequency dividing network.

Bass

Maximum Output	18 dBV (10 k Ω output load)
Hum and Noise	-95 dBV (20 Hz - 20 kHz equivalent bandwidth, gain control at "5")
THD	0.01% (0 dB input level)
Intermodulation Distortion (SMPTE)	0.01% (0 dB input level)
Level Control Range	+12, -80 dB
Input Summing Contribution	0.35 dB
Differential Output Balance	0.35 dB
Output Impedance	180 Ω
Power-On Transient Settling	0.1 s

Stereo

Separation	95 dB
Blocking Capacitance	0.22 μ F \pm 5%
Impedance Accommodation	
Low	9-18 k Ω
Mid	18-36 k Ω
High	36 k Ω - ∞ Ω

General

Crossover Frequency	63 Hz
Power Requirements	120 V AC, 50/60 Hz
Power Consumption	2 W
Dimensions	5 $\frac{1}{2}$ in W \times 7 $\frac{1}{2}$ in D \times 1 $\frac{7}{8}$ in H 140 mm \times 190 mm \times 48 mm