Audiobook Support Materials

STREAM GREAT-SOUNDING AUDIO
Guide for Streaming Church Services and Other Events

Bill Gibson

Stream Great-Sounding Audio: Guide for Streaming Church Services and Other Events

by Bill Gibson

Acknowledgments

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1. Putting a Free Streaming System Together

The modern church sound operator's view has changed quite a bit!

The Aphex 124B facilitates the integration of professional and semi-professional gear.

2. Gearing Up

A quick glance at the back of the Roland V-1HD, reveals how simple it is to connect 4 HDMI outputs from cameras, a USB computer connection, along with audio I/O and HDMI connections to preview and final output monitors.

This mixer includes two balanced XLR outputs, two 1/4-inch balanced TRS outputs, and an AES XLR output.

3. iOS Audio Interface

iConnectivity Audio2+ ($249.99 street)

• Multi-host Device ports – use with one computer device plus an iOS device at the same time, or up to two computer devices (Mac OS/Windows) at the same time
• Audio passThru™ routes audio digitally between computer devices
• 2 XLR 1/4-inch TRS combo analog inputs, each with individual 48V phantom power toggle and impedance switching
• 4 1/4-inch TRS balanced analog outputs
• 1/4-inch stereo headphone output with independent mix
• MIDI in/out
• High-resolution audio - up to 24-bit/96kHz AD/DA conversion
• USB audio and USB-MIDI Class-Compliant
• Capacitive touch display and control surface

PreSonus Audiobox iTwo ($159.95 street)

• Bus-powered USB 2.0/iPad audio interface
• 24-bit resolution; 44.1, 48, 88.2, and 96 kHz sampling rate
• 2 microphone inputs with low-noise, high-headroom, Class A mic preamplifiers and +48V phantom power
• 2 switchable line/instrument inputs
• 2 balanced 1/4-inch TRS main line-level outputs
• MIDI In/Out
• Stereo headphone output with independent level control

- Zero-latency monitoring via internal analog mixer (variable mix via Mix knob)
- Signal present and clipping LEDs
- Compatible with almost all recording software for Mac®, Windows®, and iPad®

IK Multimedia iRig Pro Duo ($199 street)

- 2 XLR 1/4-inch combo guitar, mic/line inputs
- Class-A preamps with improved gain range and phantom power
- 2 balanced 1/4-inch outputs
- Headphone out with direct monitoring
- MIDI 2.5mm IN/OUT with breakout cables
- Ergonomic controls for maximum precision
- Powered by 2 AA batteries, bus power, or optional power supply

IK Multimedia iRig Stream ($79.99 street)

- Stereo line input over RCA connectors
- Audio level LED indicators to dial in the right gain fast
- Up to 48kHz/24bit resolution
- Pre-mixes audio sources down to stereo or mono
- Loop-back mixes incoming signals with your device's audio
- Headphone out with integrated mic input to talk over your music
- Powered by your device for use on the go

Focusrite iTrack Solo ($129.99 street)

- 1 XLR microphone input
- 1 Unbalanced 1/4-inch instrument input
- 2 Gain knobs with halo signal indicators
- 48V phantom power switch
- Direct monitor switch
- USB Connection LED indicator
- Headphone output
- 2 unbalanced monitor outputs - RCA Phono
- DEVICE LINK port to connect iTrack Solo to iPad
- USB 2.0 Port

4. The Audio Feed for the Live Stream
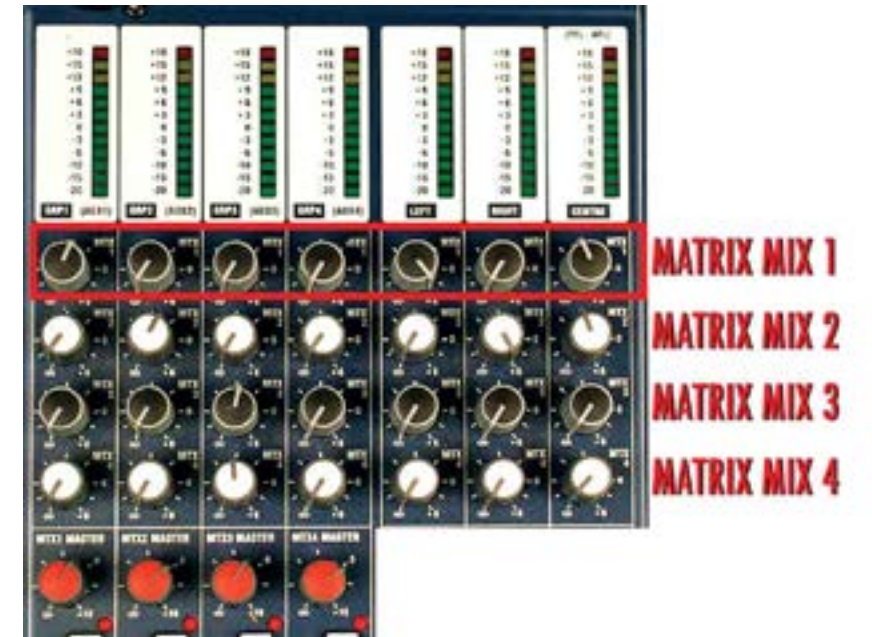
The matrix provides multiple mixes that enable the separate re-balancing of the subgroups, mains, and especially in modern digital mixers with added flexibility, auxiliary mixes.

After a little practice, apps like this are extremely useful for checking the mix in the house or for performing the mix for streaming completely separated from the FOH mix.

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6. Monitoring

Two excellent and yet very different headphones: Sony 7505 and Blue Mo-Fi.

This combo, Auratone 5C and Yamaha NS-10s, has been a crucial factor in the mixing of countless great-sounding albums since they were released in 1978.

7. Panning

Mix ingredients that are easy to hear in stereo (above left) can quickly be covered up in mono (above right). Once the basic stereo positioning is set, it's a good idea to finish setting the mix up while listening in mono. This approach forces you to set balances very carefully and to adjust equalization and effects so that instruments and voices are distributed from high frequencies to low.

8. Equalization

Use a high-pass filter (HPF) on instruments like bass guitar and kick drum to make sure the mix level isn't driven up by sub-bass frequencies that most people won't hear and that might distort small speakers and earbuds..
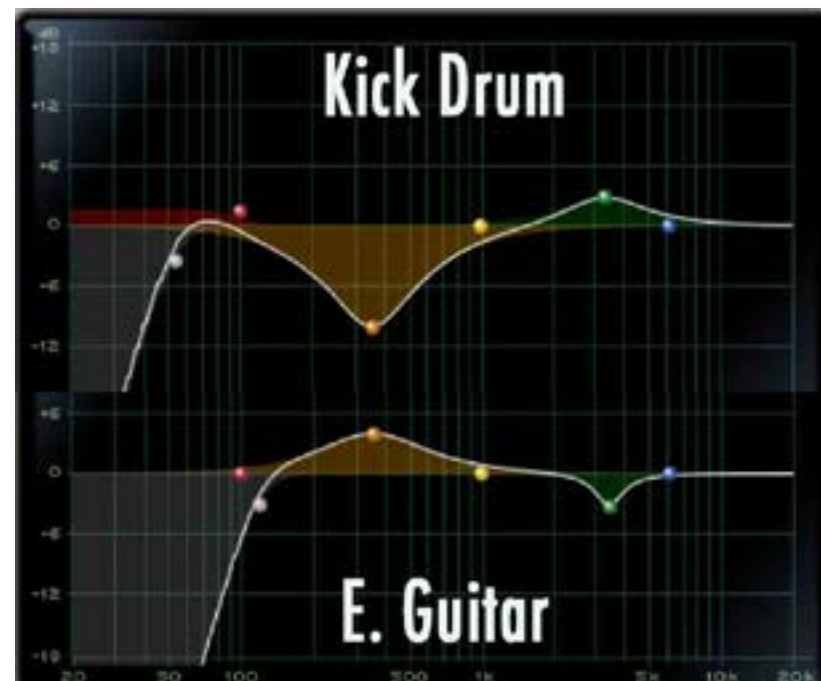

Video demonstrating the use of EQ to uncover the kick drum tone.

Try moving the mics one to three feet away from the singer for a clear sound and a good balance between the voice and guitar.

These two EQ curves compliment one another. Where we decreased the low-mid band on the kick drum we've boosted the electric guitar to fill out its tone. And, where we boosted 3 kHz for the kick attack, we've cut 3kHz on the electric guitar to mellow out its tone.

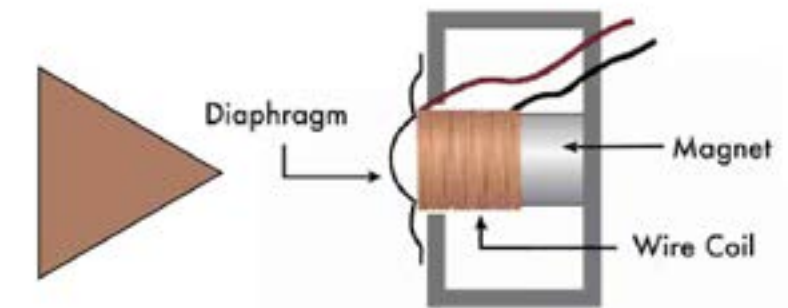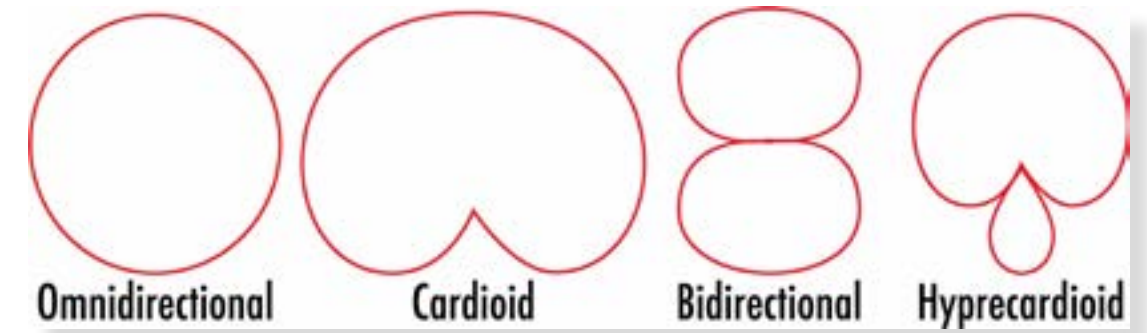As I bypass and engage the EQ, it's easy to hear that the sound from the rest of the drum kit that are being removed are thick and unattractive. If the drums would've been in a room with a full band, that same sonic benefit would be heard on the leakage as the EQ was bypassed and engaged.

9. Reverberation

Demonstration of predelay.

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Demonstration of decay time (reverb time, RT).

Demonstration of movement through the room.

11. Microphones

With the dotted lines, this graph demonstrates the proximity effect on the Shure Beta57A.

Omnidirectional   Cardioid   Bidirectional   Hyprecardioid

This video clip demonstrates the dynamic mic capsule's response to a sound wave.
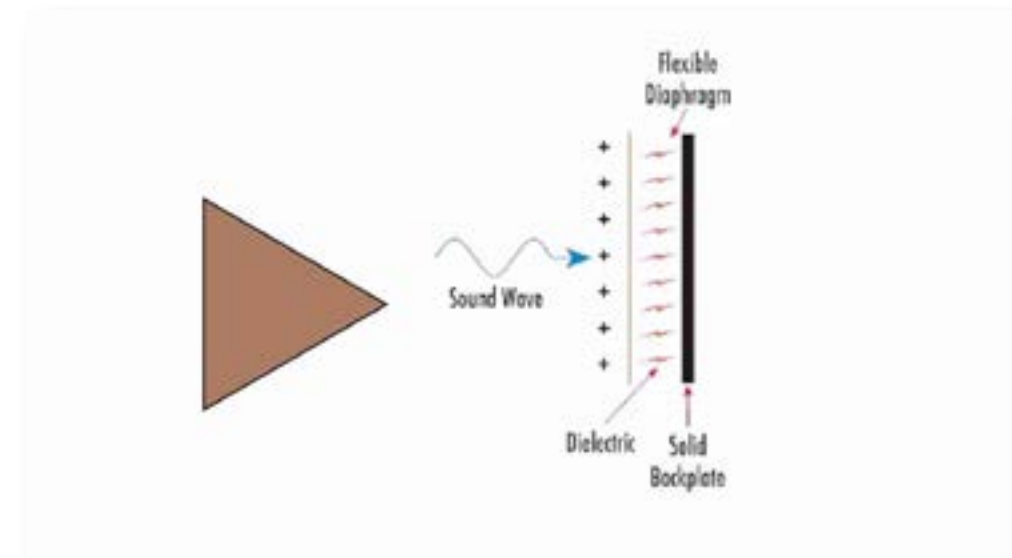
This video demonstrates how sound waves vibrate a very thinly coated plastic diaphragm to move electrically charge air, which is the source of the audio signal that's sent to the mixer.

If you're interested in knowing more about how each type of mic works, check out my book, The Ultimate Live Sound Operator's Handbook and check out the video training I created on LinkedIn Learning called Microphones Techniques: Essentials.
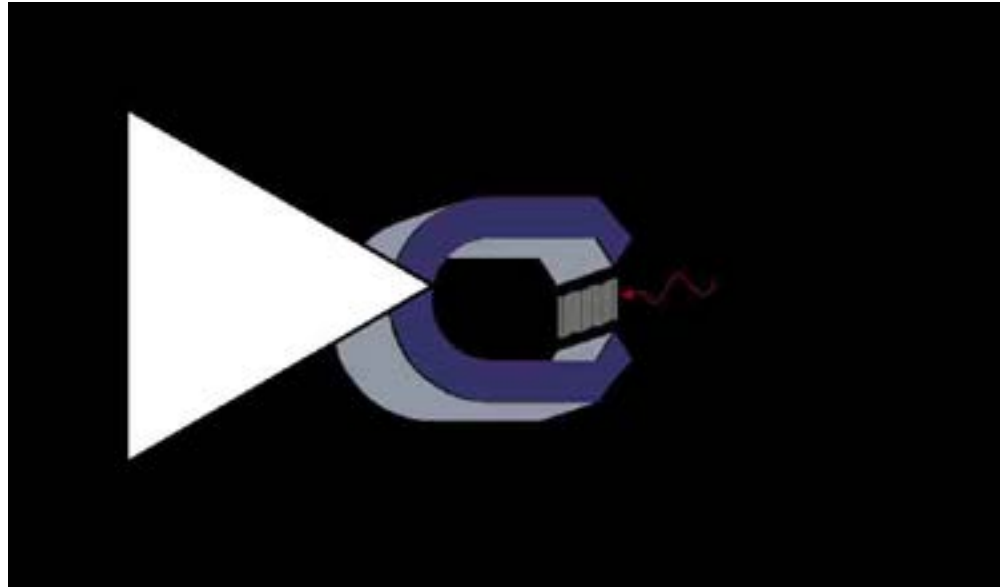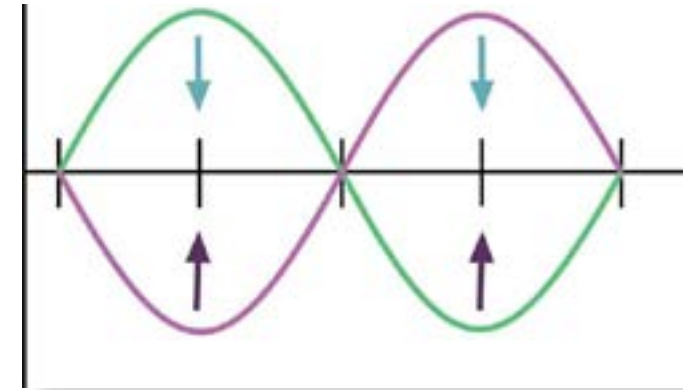

Sound waves vibrate the metal ribbon between two magnets, which is the source of the audio that's sent to the console.

12. Mic Selection and Technique
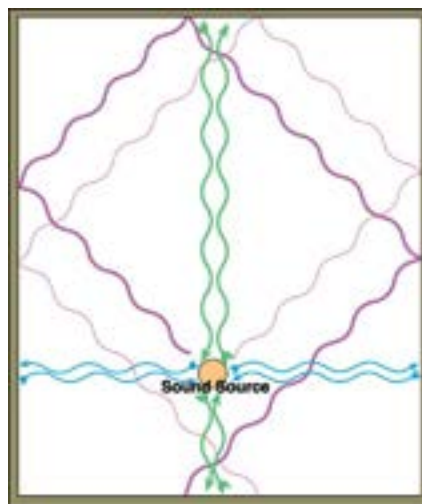
There's more going on at the mic than just the direct sound. Reflections from surrounding surfaces color the combined sound at the mic. Multiple mics in close proximity magnify this problem.

When identical waves combine out of phase, the crests fight against the troughs, changing the overall sound. This happens acoustically and through the use of multiple mics when the waves combine at different points in the wave cycle.
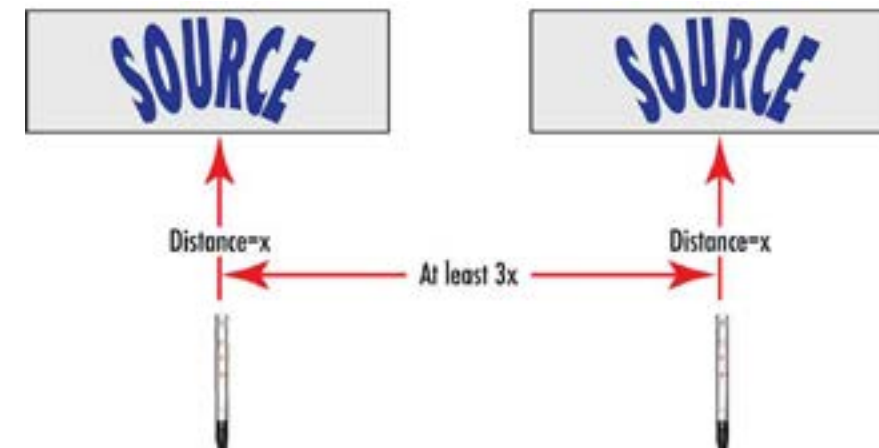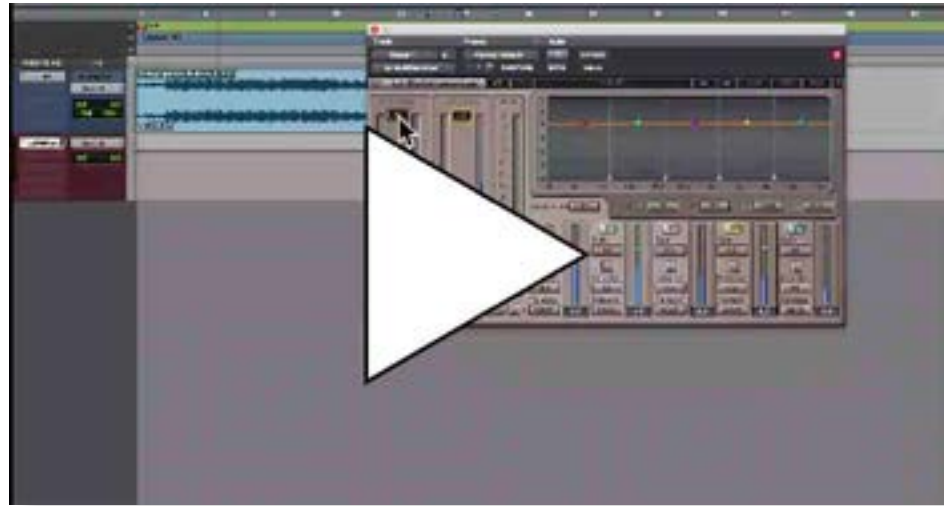

By adhering to the 3:1 rule, you should maintain adequate separation and control.

Compression

Watch this video to see the basic compression parameters in action.

A multiband limiter helps pack each of the bands into a tighter dynamic range—independently! This processor shouldn't be overused; however, used in just the right amount, it can prep your final output so that your audience gets the bets possible streamed-audio quality.

14. Level Calibration and Metering

As soon as analog device is inserted into the signal path, a new set of level-setting considerations arise.

Use 1-kHz sine wave tones to set levels between devices. Many digital mixers provide built-in generators, but they're also easy to find for smartphones and tablets.

Introducing an analog device into a digital signal path creates a need for level setting and calibration.

The Loudness Units Full Scale (LUFS) meters are crucial for comparing many different components in a project.

Other Instructional Offerings from Bill Gibson

- Live Sound: Mixing and Recording. Online course, Berklee College of Music Online
- Microphone Techniques: Essentials. Online training, LinkedIn Learning (Lynda.com)
- First 50 Recording Techniques You Should Know to Track Music. Published by Hal Leonard
- The Hal Leonard Recording Method. Six Volumes. Published by Hal Leonard
- Q on Producing by Quincy Jones with Bill Gibson. Published by Hal Leonard
- The Bruce Swedien Recording Method by Bruce Swedien with Bill Gibson. Published by Hal Leonard
- The Ultimate Live Sound Operator's Handbook: 2nd Edition. Published by Hal Leonard
- The Ultimate Live Sound Operator's Handbook: 3rd Edition. Published by Rowman & Littlefield
- The Ultimate Church Sound Operator's Handbook: 2nd Edition. Published by Hal Leonard
- Al Schmitt on Vocal and Instrumental Recording Techniques by Al Schmitt, adapted by Bill Gibson Published by Hal Leonard
- Recording Vocals with Dave Pensado by Dave Pensado, adapted by Bill Gibson. Published by Hal Leonard
- BillGibsonCourses.com website
- BillGibsonMusic.com website
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