

The PA System

A trained operator should be used at all times. A quality system should be purchased for this need.

A professional PA System is an expensive acquisition. However, if hearing the Word of God is important, then consider making this a major priority. One recommended ratio is 10% of the value of your sanctuary.

Twelve Rules For Improved Sound:

1. **Start with proper acoustics**
2. **Get a quality sound system. The estimated cost is 10% of the value of your sanctuary:**
3. **Train your operators (see the intensive training opportunities at our National Break Forth Canada conferences at www.breakforthcanada.com)** : You may also purchase training resources through www.worshipmusic.com
4. **Tune your system. Bring in a professional to set your main room equalizer:**
5. **Show Up at rehearsals. The sound person is a part of the team.**
6. **Sound check. See the points below:**
7. **Set your gain and then leave it unless there is distortion:**
8. **Listen**
9. **Compare your sound with recordings**
10. **Assign a head sound person:**
11. **Use subtractive equalization:**
12. **Control stage volume**

Conducting a Sound Check in a larger church.

1. Make sure that the entire band is there and is committed to this process. At first, the sound checks may take a while but they'll speed up as time goes on. Ask them to be patient. However, try to keep things moving along so that the musicians don't have a chance to get bored. Speak loudly and request with authority (but **be nice!**). It may help to have your own mic that you plug into an extra channel, just to keep things "hopping" when you need to ask something.
2. Check each mic, line, and instrument that's going through the system to make sure it's working. All you need is on or two notes as you're not setting levels or EQ yet.
3. Sound check the drums (if they're running through the PA system). Have the drummer play the kick drum until you have it EQ'd just right (often adding low end and high mid), then the snare (often adding low mid and highs) and then each drum individually. Then, add some reverb to the sound (usually not the kick drum) Then have the drummer play a beat and set the levels until they're balanced.
4. Sound check the bass. (You may wish to add a little bit of low end for power and some highs to add definition)
5. Sound check all the keyboards one at a time.
6. Sound check the guitars

7. Sound check all other instruments.
8. Sound check the vocals. Get the singers to each sing a passage of music one at a time and EQ each voice until it sounds right. Make sure they sing nice and loud and “eat” the microphone. You may need to bring back low mids and lows. Add a little high end for crispness.
9. Now, ask the bass and drums to play a song together. Get them sounding “right” as a unit.
10. Then, add the keyboards until they sound “right” with the bass and drums. (Often, you’ll want to add some highs to the keyboards so that they have a lot of sparkle and cut back the lows on the keyboards so they don’t sound boomy and conflict with the kick drums and bass.)
11. Then, add the guitars and the other instruments one at a time as above.
12. Then, add the vocals to the above and adjust until they sound “right”.

“Mixing” the Band.

1. Have the band play a song (and as many as you need until the mix is right). Unless, of course, the worship service is going on, in which case **they’re** the boss.
2. Listen. Get an idea what you’re after.
3. Start with the vocals. Make sure they’re sounding right. Set the melody as the loudest with the harmonies balanced between themselves and tucked “just” under the melody level. Make them sound as smooth possible. Once you have the vocals just right, then you can start to bring the band up. Your goal is to have the vocals as the loudest with the band just under the level of the vocals, ensuring that you can still hear the vocals plainly.
4. Listen!
5. Bring up the bass and drums until they sound good with the vocals.
6. Listen!
7. Now, bring up the other instruments until the band blend is good.
8. Listen!
9. Be conscious of solos and featured instruments. Turn these up and down as needed.
10. Just in case I didn’t make my point - Listen!

Components of a sound system:

1. Essentials:

- ◆ **Microphones:**
- ◆ **Direct Boxes**
- ◆ **Mixer (Sound board):**
- ◆ **Amplifier**
- ◆ **Main Speakers:**

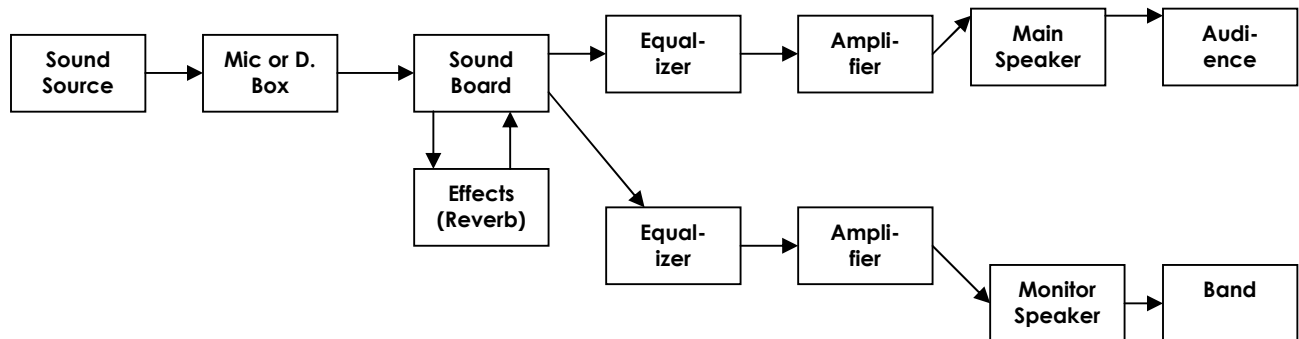
2. Very Important:

- ◆ Equalizer:
- ◆ Monitors:
- ◆ Monitor Amplifier:
- ◆ CD Players:
- ◆ Cassette Recorder:

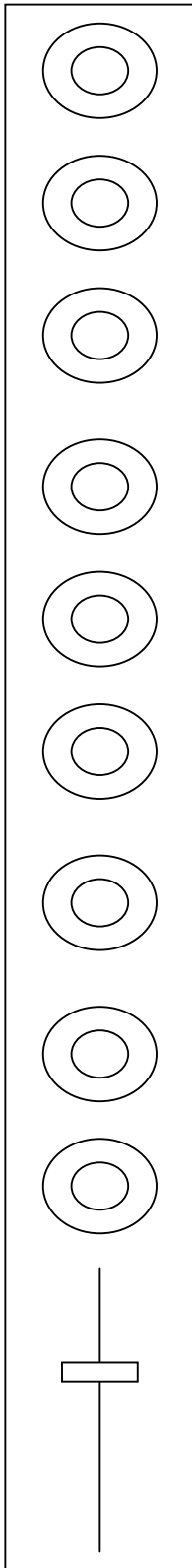
3. Next in line:

- ◆ Reverb / Effects:
- ◆ Compressors:
- ◆ Gates:
- ◆ Sub-woofers:
- ◆ Anti-feedback Units:
- ◆ Other:

Sound System Flow Chart:



A brief explanation of a channel on a mixing board:



Gain: The gain basically sets the amount of signal that comes into the rest of the mixer. If you allow too much in you distort the circuitry. If you allow too little in, you induce noise.

High or Treble: Like a home stereo system, this dictates how much treble (high frequencies) to boost (increase) if past 12 o'clock or how much to cut (decrease) if less than 12 o'clock.

Mid Frequency: This sets the center frequency, which will be affected by the amount of boost or cut you use on the mid-frequency knob.

Mid: This dictates how much mid frequencies to boost (increase) if past 12 o'clock or how much to cut (decrease) if less than 12 o'clock.

Bass: This dictates how much bass frequencies to boost (increase) if past 12 o'clock or how much to cut (decrease) if less than 12 o'clock.

Send 1: You dial in the amount of sound you wish to send to an effect unit or to the monitors. Always use "post fader" for effects and "pre-fader" for monitors.

Send 2: You dial in the amount of sound you wish to send to an effect unit or to the monitors. Always use "post fader" for effects and "pre-fader" for monitors.

Send 3: You dial in the amount of sound you wish to send to an effect unit or to the monitors. Always use "post fader" for effects and "pre-fader" for monitors.

Pan: This is like a balance control on a stereo (left or right). Most church PA systems are set up in mono so you can use this to set up "groups"

Fader: This selects the amount of signal you want to go to the main faders of the soundboard.

Other Controls:

Mute: Cuts the signal from the main mix

Solo: Allows you to hear just that channel, usually only in the headphone mix

Assign: Allows you to assign a channel to a mixer "group"

Peak or Overload LED: A light that goes red when distorting, green when signal is present

EQ in/out: A switch that allows you to cut out the equalization to run flat (no EQ)

Pre/post fader switch: A switch to choose between pre or post fader for a "send"

Low Cut: a switch that drastically cuts the amount of low bass rumble. Good for vocals.