

SOUND REINFORCEMENT IN THE JAZZ CHOIR

Michele Weir

(www.micheleweir.com and www.michmusic.com)

I. THE EQUIPMENT

A. Microphones

Use one mic per singer whenever possible. Unidirectional dynamic mics are by far the most commonly used in jazz choir; they are relatively durable, and require no batteries or phantom power as condenser mics do. Shure SM 58 is a popular mic choice; it is affordable and does the job well. You'll also need straight (as opposed to *boom*) mic stands for each mic, and mic chords (also known as *cables*) long enough to comfortably reach the board. (It's always a good idea to have extra mic cables on hand. They've definitely been known to break!)

B. Monitor Speakers (What the singers hear on stage)

There should be one floor wedge monitor speaker for every 2-3 persons; it's imperative that your singers can hear well. Also, with an adequate number of monitors, less volume per monitor is needed, and therefore less chance of feedback problems. (Don't forget that you'll also need speaker cables.)

C. Main Speakers (What the audience hears)

Mains are needed for performances only; they are not necessary for rehearsals. Usually two is sufficient for small-medium venues. (Don't forget that you'll also need speaker cables.)

D. Amplifiers (Amplifies the signal going to the speakers)

If you are using monitors and mains that are not self-powered, (some are, and some aren't), you'll need an amplifier for each. Or, a 2-channel amplifier could be used; one channel powering the monitors, and one channel powering the mains.

E. Mixing Board (Also called, *Console, Board, Sound Board*)

Generally, a mixing board combines and processes all sound sources that are plugged into it. For example, when a vocalist sings into a mic, the mic chord is plugged into a channel of the board, and its signal routed thru the board, processed, then sent on to the amplifier(s) and finally on to the speakers.

Mixing boards used for jazz choir often have 16 or 24 channels, and they come in a wide variety of configurations and can have various capabilities.

An *integrated console system* is a mixing board that has not only basic controls such as EQ, but also additional built in features such as an amplifier, reverb, and/or a graphic equalizer. (EQ is short for *equalization*, and has to do with tone control.) This type of board may be convenient for use in daily rehearsals. (Easy set up; fewer things to plug in, and so on.) A *component system* is one where effects processors (reverb, etc.) and amplifiers are separate from the mixing board. (*Reverb* is simply, echo.) This type of system allows for more fine tuning of the overall sound quality, and may be appropriate for use in live performance providing you have a qualified sound technician to run it.

F. Snake

A *snake* is like a big extension chord that runs all mic chords and speaker lines to where the mixing board is located in *the house*. (Where the audience sits.) It is needed for performances only since rehearsal rooms are small enough to run the mic cables directly to the board.

G. Sound System Needs for Rhythm Section

In most cases, the piano needs to be mic'd to be able to be heard in the context of amplified singers and the other rhythm section players. To mic the piano, typically, one or two microphones on boom stands are placed close to the piano strings, or a special *PZM mic* is used. In regard to bass, the volume coming from the bass player's onstage amp is usually sufficient, so additional amplification is not necessary. (Unless you are performing in a very large venue.) Also, it's not necessary to mic the drums in most cases for the same reason. Don't forget to provide floor wedge monitors for rhythm section members! (One for piano, and one or two for bass and drums, respectively.)

H. Extra Equipment (Optional)

A separate *effects processor* provides a variety of possible special effects such as reverb, digital delay, and so on. A *limiter/compressor* can be used to help control sudden extreme volume peaks, helping to avoid feedback and keep the group in balance. *Graphic equalizers* allow individual volume control of certain frequency ranges; very helpful in avoiding feedback and balancing out the overall frequency response of a venue. *Side fill monitor speakers* are particularly helpful with larger choirs standing in two rows. A *separate mixing board* can be dedicated to the monitors, allowing the best possible control over what the singers hear on stage. (Some of the components mentioned here are more common in professional concerts than in educational performances.)

II. USING THE SOUND SYSTEM

A. Setting Up the Gear

1. Assign teams to be in charge of various aspects of P.A. setup and tear down. (There can be a "setup" team and a "tear down" team.) With specific task assignments, this can be done quite quickly. (The first team should start setup prior to class if possible so you don't have to waste precious rehearsal time.)
2. Once the singers are past the initial note learning stage of the music, use the sound system *every rehearsal* if possible!
3. You'll need to recruit and possibly train a sound reinforcement person for your group. It doesn't have to be a professional; the most important characteristics of your potential sound tech are good musical ears and good common sense. Have him or her attend at least several rehearsals prior to the concert so that they become very familiar with the music. Be sure to provide a list of songs in performance order along with the soloist's names and their respective microphone numbers.

B. Use of the Microphones

1. Singers should hold their microphones close, approximately 1.5 - 2 inches from the lips. This is how to get the most natural and warm tonal response. (There are obvious exceptions, such as when sopranos are particularly high in their range or in a loud passage.) The mic should be held at about a 45 degree angle. Avoid "grabbing" the mic; hands and shoulders should be relaxed.
2. Never (never) step on a mic chord! (In set up, try to get the cables out of the way of the standing and walking area as much as possible.)
3. Never point a microphone toward a monitor or other speaker. (This can cause feedback.)
4. Don't blow into a microphone. Tapping it lightly is OK.

C. The Mixing Board

It's a good idea to get familiar with the features of your mixing board and how they each work. (In many of your rehearsals, it will probably be *you* that is running and tweaking the board, so it's important that you have a good understanding of the beast.) Consider arranging a consultation or two with a pro sound tech, or someone at the store where the system was purchased. Parts of any mixing board may include the *gain* (sometimes called, *attenuator*), *aux sends*, *EQ*, *pan*, *channel faders*, *solo* (sometimes called *PFL*), *bus*, *master fader*, and so on. It's out of the scope of this document to describe the functionality and best use of every part of the mixing console, but it should be fairly easy to find the information you need pertaining to your particular board. One tip: mix with your ears, not with your eyes.

D. The Director Knows Best

Ultimately, *you* know what your group should sound like better than anyone. Decisions on what equipment to buy, and how your choir should sound when singing on it should be guided by what your ears tells you is 'right.' Don't settle for less than quality sound.

III. RUNNING A SOUND CHECK

A. Allow Adequate Time

One of the most important aspects of preparing for your group's performance is to simply *allow enough time* for the whole sound check process. If the PA sound quality isn't good or the singers can't hear well, the results of all of the hard work that has been done in rehearsals may go up in smoke.

When planning for set up and sound check, don't forget to factor into the equation the time it takes to a. transport and set up the sound equipment, b. make sure every mic and speaker is properly up and running, c. EQ the room (if using a graphic equalizer), d. run a sound check with singers and instrumentalists, and e. spend a bit of time simply singing on the system so the singer's ears can adjust and acclimate to the sound. For an 8:00 pm performance, it's ideal to start setting up gear in the afternoon, and run the sound check from about 5:00-6:30, allowing the group some time before the performance to change clothes, eat a lite dinner, and so on.

B. Sound Check Procedure

1. Have one person check each vocal mic one at a time, first with only the monitors on. Start with mic #1, and compare it with mic #2, with the "tester" person requesting the sound tech to turn volumes up or down as necessary to make the volume levels the same. Then, mic #1 should be tested with mic #3, then mic #1 with #4, and so on. (This whole process should take only 5 minutes or less.) Once finished, go thru the same process with the main speakers. (You, the director should go out into the house to listen during adjustments to the mains.) Again, ask the sound engineer to make specific volume adjustments as you go. The general goal is to have all microphones at the same volume level (referred to as, *flat*) so that the *choir balances itself vocally*, as they would in an acoustic situation. (Realistically, later you may have to make special volume adjustments for certain, "special" voices. but try for all of the volume levels to be set flat as much as possible. It's critical that the singer's take responsibility for blending and balancing, just as they do in any choir situation.)

Alternative Procedure: Go thru the same process as above, but with each singer testing their own mic rather than just one person testing them all. Again, make adjustments as necessary to balance out the volumes of each channel, and during the process, be sure that the singers sing or talk on their mic *at performance volume*. Using this process allows the sound engineer to adjust for any particular volume issues that may be apparent in individual singers, and it also allows the engineer to make EQ adjustments for individual voices as necessary. The goal when adjusting EQ is to simply use it as a tool to make the singer sound exactly the way they naturally do, acoustically. If a singer already sounds like *themselves* on the mic, leave the EQ alone.

2. Have the choir sing one or two pieces a capella while you (the director) are in the house to listen for overall volume, balance, EQ and reverb levels. Make any necessary suggestions to the sound engineer.

3. Have the choir sing excerpts of a tune or two with rhythm section. Advise the sound engineer of any adjustments that should be made. For example, can the bass be heard well enough in the house? Are the drums too loud? Check with singers and rhythm section players to be sure they can hear the monitors well. Is enough piano being routed through the vocal monitors?

4. Beware that 90% of the time, one or more singers will complain that they can't hear very well. This is unfortunate, but in my experience, normal! If you've taken all of the steps to get the monitors working well enough so that most singers *do* hear well, then it's best to simply allow the group to sing on the system for a bit until they get comfortable with the sound environment. A good rule of thumb for the singers: *sing less, listen more*.

5. Rehearse walking on and off stage. It can be tricky to negotiate a path around the rhythm section, monitors, mics and chords out there.

C. Sound Check at Educational Festivals

In many cases, available time or festival policy doesn't allow for each group to sound check prior to their performance. The following comments are for cases when a few moments for sound check *is* allowed.

1. Prepare a stage plot to give to the sound engineer identifying the location and voice part of each singer. Also give the engineer a song list of your set, listing all solos (in the correct order) for each song, and noting any special needs you may have such as volume boosts for vocal percussionists, vocal bass lines, and so on.

2. Test each individual mic quickly and ask the sound engineer to have vocal mics even (*flat*) in terms of volume, except for soloists.

3. The director (you) should go out in the house briefly to listen to a portion of a tune with rhythm section if possible. Ask the sound engineer to make any adjustments as necessary. It's best to sound check with a piece that you're *not* performing at the festival so that all pieces are fresh for the audience's ears. And for obvious reasons, this mini-sound check this must be done quickly and efficiently. But if there's clearly a problem, take the time necessary to resolve it before you start your set. (It's amazing how often it is discovered that a mic or monitor are not on at all during these mini sound checks!)

4. Don't be surprised if singers have trouble sounding their best right away in a new performance venue. Learning to blend and balance when hearing yourself and the choir out of speakers takes some getting used to, and each new venue sounds different and takes getting used to.

C. Dealing with Feedback

Feedback is that evil loud/ugly ring that happens sometimes and that we try to avoid at all costs. Technically, it is caused when the sound coming from the house or monitor speakers goes back into the microphones and is then re-amplified. All speakers will eventually feedback if they are pushed past a certain volume threshold. And, that threshold may differ in different rooms because some acoustical spaces have more resonance sensitivity. (For example, rooms with a lot of natural echo.)

Using a graphic equalizer allows you to minimize the volume of certain frequency ranges that resonate most strongly in a particular room and could cause feedback. For concert situations, using graphic equalizers can be very helpful. (In a perfect world, there would be three total: one for the monitors, one for the left main speaker, and one for the right.)

Here are a few common causes of feedback that can easily be avoided:

1. Pointing a microphone toward a speaker. (This is a big no-no)
2. Covering the top (ball) of the microphone with the hand. (Another no-no, even though it is often seen in rock/pop performances.)
3. Sudden, very loud singing, catching your sound tech off guard. (For particularly loud or high notes, singers should pull away from the mic a little.)
4. Overall volume of monitors and/or mains being too loud. Try simply turning everything down a little! This may require the rhythm section to play softer.
5. Inadequate number of monitors. If there are for example, 10 singers but only two monitors, then of course the monitor volumes will need to be pushed to the max, and this is risky.
6. Singers holding the microphone too far from the mouth. Again, anything that requires speaker volumes to be turned up creates more feedback risk.

7. Singers standing too far from the monitors, therefore requiring more monitor volume. (In jazz choir, singers tend to migrate further and further back away from the monitors as the concert proceeds. Everyone once in awhile, they should all take a step back in, closer)

Thanks to Trist Curless, Tom Dustman, David Morton, and Darmon Meader for help in preparing this document.

Available at the MichMusic Store

(www.michmusic.com)

Vocal Jazz Arrangements:

SATB, SSAA and Christmas

Jazz Piano Handbook: Book/CD set, Alfred Publishing

Jazz Singer's Handbook: Book/CD set, Alfred Publishing

Vocal Improvisation: Book/CD set, Advance Music Publishing

CDs: *Night in the City* (Phil Mattson and the pm singers)

Jubilee (Phil Mattson and the pm singers)

The Sound of Music (Bruce Forman and Michele Weir)

MichMusic Personal Study: A mentorshop program for singers and teachers. Internet conferencing sessions available.

(Read more about it at www.michmusic.com)