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FALL 2009

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anyone who
wants to learn
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Praise and Worship ... Vocal Microphone Techniques

Worship styles, regardless of which denomination, demand a lot from the sound system. In praise and worship, the vocal microphones are very important. If the vocals can't be heard, the congregation has difficulty following the worship service. So how can the vocal quality be maximized? The microphone selection and placement work together to maximize vocal quality.

Microphone Selection

It's a good idea to know the microphone's characteristics before you select the vocal microphones.

Most microphones can be sorted into two generalized categories: handheld and distant-use (ensemble) microphones.

Handheld microphones are usually distinguished by the ball-shaped grille (see Figure 1). They are usually designed

with a low-frequency roll-off to compensate for proximity effect. When most directional microphones are used within 12" of the sound source, the bass response of the microphone is increased.

Another style of microphone that allows your hands to be free is a headset microphone (see Figure 2). These microphones provide clean, natural sound. They are comfortable and can be worn with most hairstyles.



Figure 1 Typical shape for a handheld microphone



Figure 2 Headset microphone

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Figure 3 Typical shape for a distant-use microphone

Distant-Use microphones usually have a small grille. And, the handle or barrel is narrow (Figure 3). Why is it important to know what type of microphone to select? If you place a handheld microphone 2 or 3 feet from a vocalist, the sound will lack bass frequencies. The ensemble microphone will sound much better at a distance, because it has a flatter bass response.

Microphone Placement Methods

Handheld It is best to use one handheld microphone per vocalist. However, it isn't always realistic for a church to have that many microphones on hand all the time, not to mention the number of inputs on your mixer. Also, to achieve the most similar output characteristics, it is wise to use the same model of microphone for every vocalist.

You can also use a handheld microphone for every two vocalists by following these suggestions:



Figure 4 Two vocalists positioned to sing from one microphone

1. Mount the microphone on a stand. Two vocalists can easily center themselves side by side when the microphone is on a stand (Figure 4). Vocalists have a tendency to hold the microphone closer to themselves if they hold it in their hand.

2. Position the two vocalists so they are cross-focused (as in Figure 4). This will keep the vocalists from moving out of the microphone's pick-up pattern and will maintain a uniform level from each.

3. If possible, have two similar voices on one microphone, such as two sopranos or altos.

4. The lead vocalist should still have their own microphone.

Distant-Use (Ensemble) If it's necessary to use one microphone for three or more vocalists, use a Distant-Use microphone. Position the vocalists far enough from the microphone so they are within the pick-up pattern.



Figure 5 Rotate the microphone from left to right to hear the pick-up pattern

To help picture a microphone's pick-up pattern, imagine a flashlight with an adjustable beam. "But I can see the flashlight beam. How can I hear the microphone's pattern?" Here's a simple trick. While listening through headphones, have someone sing (and hold) a single note. At the same time rotate the microphone from center (on-axis) to left or right (see Figure 5). Make sure the distance between the microphone grille and vocalist doesn't change. You will notice the level drop as the microphone is rotated away from its on-axis direction. This will enable you to **hear** the pattern of the microphone.

A Final Note

As the sound operator, you are part of the worship team. You have the power to make or break a long rehearsed worship song. With that power comes responsibility, it needs to be taken seriously.

Please call us with your sound questions or needs.

■ Travis Ludwig

TECH TALK Getting a Firm Grasp on Gain Settings

The first task for the mixer is to amplify the very low output of the microphones and balance them with any other instrument or background tracks from a CD deck or iPod. This is the first question that usually comes up: How do I know where to set the volume (level) controls when starting from scratch? Every mixer or mixing console has an optimum position for each individual channel level control and master output level control(s). If set up accordingly, the mixer performs at its best. The first place to check for this type of information is the operator manual. If no manual is available, the following guidelines offer a good starting point.

1. Look for an indicator on each level control such as a heavy white line or hash mark. If your mixer has faders (sliders), then look for the zero dB point. Usually this point will have positive numbers above and negative numbers below it. If your mixer has rotary knobs, determine the full rotation of each rotary pot. The best starting position will be 1/2 to 2/3 up; on a scale of 0 to 10, about 5 or 6.

2. With all the individual channel faders fully down in level and any tone controls (EQ) set flat (no boost or cut), set the master or main output fader(s) to their optimum position.

3. Next, choose the primary channel (often the pulpit microphone). With someone talking into the microphone, adjust the input gain or trim for the desired volume.

4. The individual channel faders should not be too high or too low. You should allow yourself plenty of room for smooth, gradual fades or increases in level.

5. After you have adjusted the first channel to a fairly good position, choose the next channel and repeat the procedure until its channel fader is in the same general position as the first channel fader.

6. You will find that as you add more channels, the overall system volume will increase; compensate by lowering the master output fader(s) a bit. Also remember that the potential for feedback increases with an increase in the number of microphones on at any one time.

7. If, after you've finished this procedure, the overall system level is

still too loud, reduce the level control at the appropriate power amp. Before doing this, check to make sure that any other devices between the mixer and power amp (an equalizer for instance) have their input and output level faders set for unity gain if possible.

8. Now that you have a fairly good level and balance, listen for anything that may be too loud and do some fine adjustments.

You should be on your way to a good start. Give yourself opportunity to practice with the mixer.

■ Travis Ludwig

