

# Using Drums in the Church

*Psalm 150:4,6—Praise Him with the drums...Praise Him with the cymbals, yes, loud resounding cymbals.*

## Church Drums

**T**HE EMERGING POPULARITY OF gospel and contemporary Christian music has not only brought change to the entertainment and music industries, but to the church as well. This change has introduced new rhythmic and upbeat music into the church, thus emphasizing the use of drums.

The fear, though, of many music directors and pastors is that the addition of drums will not only raise the overall volume of the music, but overpower the other instruments.

This fear can easily be dispelled by using the proper techniques of tuning, baffling and mic'ing drums. By observing the following guidelines, the drums can become a dy-

namic addition to the church service.

### FIRST THINGS FIRST

Imagine using a \$1,000 mic on a \$100 guitar, or a cheap set of strings on a Stradivarius violin. The results would obviously be disappointing. What might not be obvious, though, is that poor sounding drums will not be helped by expensive mics or an elaborate sound system. The equation still holds true—garbage in, garbage out. So the place to begin is to properly tune the drums. The best person for the job is a drummer, but if he or she is inexperienced in tuning, you would want to follow these basic guidelines.

Each drum should be tuned to a specific pitch, similar to a timpani. Personal taste will dictate what pitches will be used. Begin with the tom-toms. If there are three, pitch them low, medium and high, and if just two, low and high. With drum key in hand, begin by tightening the first lug so that the drum head reaches the desired pitch. Continue diagonally across the head and tighten the second lug so that the head matches the pitch of the first. Proceed in the same manner until all eight lugs are tightened and the head is completely tuned. If a bottom head is being used on the same drum, tune it similarly only at a slightly lower pitch. The kick and snare drum should be tuned in the same manner. It is common practice to remove or cut a hole in the front head of the kick drum and insert a pillow or rug inside (see *Figure 1*). This is done to reduce the resonance of the drum and produce a deep punchy sound. It also facilitates an opening for a mic.

If after tuning the drum still sounds flat or dead, it is possible the head may need changing. Check for dents. The more there are, the less the head will resonate. Replace with either a plastic head or an oil-filled head. Another method of tuning that I have used with much success is match tuning. Match tuning is using a sampled drum from a drum machine as a standard and tuning the real drums to it. There are many inexpensive drum machines on the market (under \$300) that produce excellent sampled drum sound with incredible authenticity. Two

*Figure 1. The kick drum pillow and mic in position.*



people, each equipped with a wireless headset, are needed to tune the drums in this way. First, mic the real drums and connect the drum machine to your sound system. Have one person in the audience monitoring the sound while the other person strikes the real drum followed by the corresponding drum sample. Simply tune the drum by matching it to the electronic sampled drum. Mic placement will play a major role in the final sound and can only be arrived at through trial and error. Let your ears be the final judge.

After the drums are tuned, the next things to check for are any rattles, vibrations and ringing. This may sound trivial, but remember that a small squeak won't sound small after it's amplified through a sound system. Play each drum individually and check for any ringing from other drums. Inevitably, the snare drum will cause you the most frustrations. When any drum in the set is hit loud enough, especially the bass drum, the snare will vibrate. To minimize this, simply tighten the snare. If it persists, a small piece of duct tape placed at the end of the snare wire should dampen the rattle.

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When using duct tape on any of the drum heads or cymbals, remember that too much tape will eliminate overtones, causing the drums to sound dead and/or the cymbals to lose their brightness. Gauze pads or tissue paper can also be used to reduce vibration and ringing. Simply fold a piece of tissue paper to the size of a matchbook. Move this pad to the location on the drum head where the unwanted noise is occurring, then secure it with duct tape. The ringing in cymbals can be reduced with masking or duct tape applied on the underside of the cymbal in radial strips.

### **TO BAFFLE OR NOT TO BAFFLE?**

Now that the drum set is tuned up and free of rattles, rings and vibrations, the next question is whether you need to decrease the overall loudness of the drum set by using baffles. The answer lies in the acoustical properties of the church. A church whose interior is constructed of mainly hard, nonporous surfaces (especially in the area where the drums are located) will require baffling. Baffles (or gobos) are walls or partitions constructed of soft, porous material which absorb sound. In the church setting described above, the drum set should be enclosed by baffles (see *Figure 2*). To maintain the drummer's vision, glass or plexi-glass continues from the top of the baffle to the top of the highest cymbal.

If the interior of your church is filled with padded pews, carpeted floors and other porous materials, baffling may not be necessary. Most churches, however, fall into a middle category, a combination of both hard reflective surfaces and soft absorbent surfaces. One such church is the Christian Victory Center in Hempstead, New York. The church meets in a theater where the playing area is a mixture of hard and soft surfaces. A spacious stage made of wood is surrounded by tall brick walls and rows of thick, heavy curtains. The combined surfaces

make necessary only a partial baffling of the drums (see *Figure 3*). The baffle is 3½-feet high and made of plexi-glass and masonite; both highly reflective surfaces. The direct sound of the drums gets reflected back by these materials into the highly absorbent curtains which are directly behind and above the drums. The shorter baffle allows for a more 'live' feel between the drummer and the rest of the musicians. Previously, the drums were totally enclosed. The side and rear baffles were made of highly absorbent material. The front wall was plexi-glass and the ceiling was masonite.

The advantages were extremely low sound levels on stage and total control over the volume through the sound system. This type of baffling produced a true studio drum sound. However, the disadvantages were considerable. First, the drummer was acoustically isolated from the rest of the band. A regular floor monitor or hot spot was prohibitive because it would feed back into the mics, requiring a special headphone system. Ventilation was also a problem. Fan noise would inevitably be picked up by the five mics inside the booth. Finally, this partitioned box was not aesthetically pleasing to the eye. The present baffling set up, therefore, was constructed to utilize the best of both worlds. Remember, the

*Figure 2. In a church setting, baffle-enclose the drums.*





Figure 3. A partial plexi-glass baffle.

main question when designing your own baffling system is "What are the acoustical properties of my church?"

### MIC TECHNIQUE

Probably no other instrument has the combination of mic'ing possibilities and techniques as do the drums. Each technique is based on either the style of music, acoustical environment or desired sound. To achieve a contemporary drum sound however, the most common way of mic'ing is the close mic'ing technique. Starting with the snare drum, most audio engineers prefer the sound of either a moving coil or capacitor mic for snare. The Shure SM57 or Sennheiser 421 both reproduce the sound of the snare very well. Place the mic at a thirty to forty degree angle, horizontal to the drum head and about one inch in from the rim and one inch above the head. Make minor moves from that point to get the sound you like. If you have the luxury of using two mics, place one under the snare in a similar fashion as above. This mic will pick up more of the snare's buzz.

There are two common methods for mic'ing the high-hat. The first is mic'ing it separately using a condenser mic. A good choice is the AKG 451. Place the mic approximately three inches above the high-

hat thirty degrees down from horizontal, pointing away from the snare and toward the drummer's left elbow.

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The second method of mic'ing the high-hat is using one mic for both it and the snare drum. The mic of choice would then either be a Shure SM57 or 58. Place the mic between the snare and high-hat and adjust according to the desired sound. Be careful not to place the mic near the edge of the high-hat; the two cymbals coming together produce a rush of air which will be picked up by the mic.

The kick or bass drum is the foundation of the drum set and along with the bass guitar, supports the rest of the musical elements. It is therefore important to mic it properly. As stated earlier in the section

on tuning, the front head should be removed along with enough dampening material to reduce any unwanted resonance. The mic can either be placed on top of a pillow resting against the head at a ninety degree angle or on a mic stand pointing directly at the head. Either of these methods will produce a fuller sound with maximum bass response. If the mic is pointed slightly away from the head toward the side of the drum, more of its overtones will be emphasized. Since the bass drum produces high levels of sound pressure, a moving coil or dynamic mic should be used. Some good choices are the Shure SM57, the Neumann U67 and the Sennheiser 421.

Tom-toms can be mic'd one of two ways, like the snare from above or from underneath. Place the mic at a thirty degree angle and about two to three inches from the drum head. Mic'ing it any closer than two inches will give the drum a nasal quality. When mic'ing from underneath, remove the bottom head. This mic'ing technique will produce a flatter and more percussive sound. My favorite mic for toms is the Shure SM58. Some other good choices are the Sennheiser 421 or the AKG 414.

Finally, to cover the cymbals, two overhead mics are used. Place them about 15 in. above the cymbals and three to four feet apart. Any high quality condenser mic should be used because it gives the cymbals an open, airy sound. My choice is either the Shure SM81 or the AKG C 1000S.

If your church doesn't own much equipment, or your mixing console has limited inputs, I would suggest using just three mics—one for the bass drum and two overhead. The only adjustment would be to lower the overhead mics in order to pick up the toms, snare and high-hat.

In closing, remember that the presence of a drum set in some churches is still taboo. Even if your drummer played with feathers, it's still a psychological barrier to some congregants.

My suggestion would be to purchase a decent quality drum machine and start using it in services. After the faithful become used to hearing it, the transition to the real thing won't be as traumatic. ▣