Fellowship Baptist Church

Worship Ministry Sound Technician Training Manual

(2nd Edition)

FBC Worship Ministry Sound Technician Manual

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An Introduction To The Training Process

You have already begun one of the first steps in the sound technician training process – you are reading this manual! This manual lays out the scriptural foundations of your role in the Worship Ministry. It is an important step. It provides you with qualifications with which to examine yourself, gives you a first basic look at what you will be doing through a worship service, and provides you with a technical overview of some of the procedures and equipment you will be working with.

Worship Ministry Interview

In addition to reading this manual, which you should read a number of times, you will need to participate in a *Worship Ministry Interview* with the Worship Leader if you have not already done so. The interview will go through your role as a member of the Worship Ministry and define the qualifications, expectations, and procedures of the ministry on a broader basis. This manual and the *Worship Ministry & Praise Team Manual* go hand-in-hand as part of completing the training expectations of sound technician volunteers.

Hands-on Training & Expectations

Once you have completed the above mentioned training steps, you will be eligible to begin your "hands-on" training in the sound booth, usually beginning on Wednesday evenings. As part of your initial "hands-on" training to be a sound technician, you will work under one or more mentors in the spirit of 1 Peter 5:5 "*Young men, in the same way be submissive to those who are older…"* and Titus 2:6-8. During the training process, you will slowly move from *observing* your mentors, to *performing* those duties while being observed by your mentors. The period of time, number of rotations, or services in which you will be trained will determined on a case-by-case basis and decided upon by your mentors and the Worship Leader. Because the sound technician's role in worship is so critical, it will be expected that you be able to perform your duties at such a level that your work does not considerably hinder the worship process.

The Sound Technician's Role In The Worship Experience

That's right! Your role as a sound technician is a crucial element of the worship ministry, Praise Team, and the *worship* experience of the congregation, members and visitors alike. In fact, your duties of running the sound system *actually constitute worship* in light of Romans 12:1 "*…offer your bodies as living sacrifices, holy and pleasing to God - this is your spiritual act of worship."* And what *you* do as a sound technician has a *direct effect* on how our worship and service is perceived. In understanding this, we want you to know some simple truths about taking on the role of a sound technician.

Your Job Is Part Of Worship

First of all, thank you for your willingness to help Fellowship Baptist Church and the Worship Ministry in this important component of our Sunday morning worship experience. Your assistance as a sound technician enables our service to run smoothly and, in turn, facilitates *an atmosphere of worship that is conducive to spiritual*

growth. Your goal as a sound technician is to serve as a *seemingly invisible* factor of worship that, at the least, does not hinder the worship process and, at the most, helps to enhance the service.

Your Job Is Difficult

You will carry a heavy load from week to week, being responsible for making everything and everyone sound good. When things go wrong or the music is too loud, you will get funny looks from everyone turning around to see what the problem is. A poor sound experience can be a huge *obstacle* in leading the congregation to the *throne of God in worship* – if the praise singers and musicians aren't heard well, it is *difficult to communicate* the message of worship and life that we present each week.

You Are Important

The point to explaining all this is to stress that your job as a sound technician is of *paramount importance* in the worship experience! Operating the sound system provides you with a tremendous opportunity for *service*. It will also exercise your *faith* and *humility* as a servant.   As part of the Worship Ministry and the Praise Team, you serve those who are ministering on the platform. Please know that *we do not take for granted* the time and effort you put into operating the sound system on Sunday mornings!

Qualifications & Characteristics Of A
Godly And Successful Sound Technician

In any area we use our God-given gifts and abilities, there can be defined a number of *characteristics* that will help us excel under that particular role in the Body of Christ. The following characteristics could be considered *qualifications*, if you will, in taking on the role of a sound technician. You may possess them in varying degrees, but we ask you to *closely examine yourself* to see if the role of sound technician is the *appropriate area* in which to use your gifts.

In doing this, consider Romans 12:4 "*Just as each of us has one body with many members, and these members do not all have the same function, so in Christ we who are many form one body…,*" and 1 Corinthians 12:18 "*But in fact God has arranged the parts in the body, every one of them, just as he wanted them to be.*"

Excellence For Christ

A sound technician will pursue God's best through technical excellence in everything he does. Strive to honor Him through a "whatever it takes" work ethic. *(see 1 Corinthians 9:24-27 "…Run in such a way as to get the prize…")* Recognize that God isn't looking for perfection, but *excellence. (see Colossians 3:23-24 "Whatever you do, work at it with all your heart, as working for the Lord, not for men…")* And realize that we can minister to Him and others through a mutual desire to seek God's best.

Cooperation & Recognition Of Authority

A sound technician must have a **cooperative spirit**. Remember Colossians 2:12-13 "*Therefore, as God's chosen people, holy and dearly loved, clothe yourselves with compassion, kindness, humility, gentleness and patience. Bear with each other and forgive*

whatever grievances you may have against one another..." and 2 Timothy 1:7. Encourage and support other members of the team and those who are served through your technical gifts. We should build up one another, and have the responsibility of eliminating any word or action that is not constructive to our team. Therefore, think twice before speaking. Don't overemphasize skill, but rather total dependence on the Lord.

   Remember that as a sound technician, you are not the final say on the way the sound system is run. We are to submit to each other and to our leadership, out of respect for each other as fellow brothers and sisters in Christ. *(see Hebrews 13:17 "Obey your leaders and submit to their authority. They keep watch over you as men who must give an account. Obey them so that their work will be a joy, not a burden, for that would be of no advantage to you.")* In the end, the *Worship Leader* and the *Pastor* are the authority on how worship should sound and how to run the sound system.

Experience & Teachability

   A sound technician should have some *quality experience* at running a sound system. If you have not worked on a professional level then you should *pursue foundational training*. As you are additionally responsible, individually and as a team, for further technical development (such as classes, workshops, or self-study), be prepared to humbly share with and learn from others in regards to new information and techniques.

Knowledge Of The Sound System

   Think of your job as to that of a *musician* - having a relationship with the sound equipment that is similar to the one a musician has to their instrument. The thing that often separates good musicians and poor ones is practice, practice and more practice, until the instrument nearly becomes an extension of the individual. You need to do the same. *(Psalm 33:3 "Sing to him a new song; play skillfully, and shout for joy.")* First, get to know four aspects of the sound system exceeding well: **the soundboard, the rack equipment, the monitor system,** and **the microphones**. These aspects are covered with some depth later in this manual.

Sense Of Music & Ability To Listen

   A sound technician not only needs to know the *mechanics* of running the sound equipment, but must also have a *sense of music* in order to get the proper blends of music and vocals. *Your ears* are the most *powerful tool* you have as a sound technician. That's what the whole job is about - *hearing*. Your ears are the reference point for the entire congregation.

   Spend time listening to professional musicians, singers, and speakers. Fix that sound in your mind and *work hard to match that sound* when you reinforce the Praise Team musicians and singers, Pastor, or any other users of the sound system. On musical selections, for instance, there should be an appropriate blend between background music and vocals with the vocals being the most important (clear and audible), but the music loud enough for the worship to not feel "dead." This means that you need to keep your ears "turned on" and "tuned in" at all times.

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A General Runthrough For A Typical Sunday Morning

    The following chronologically generalizes the procedures expected of the sound technician on a typical Sunday morning before, during, and after the worship service. A useful tool is the *Sound Technician Check List* located later in this manual. It is suggested that you photocopy the check list and have one handy each time you come to the sound booth for your duties. Also, the *Detailed Procedures, Tips, And Guidelines* section found later in this manual contains more detailed instructions and tips in carrying out many of the procedures addressed in this section.

    Elements of these procedures as defined in the *preparation*, *sound check*, *prepare to record the service*, and *during the service* sections also apply to the sound technician's duties for mid-week rehearsals. Please know that we need your assistance for both Sunday *and* mid-week rehearsals.

ARRIVAL: Whenever possible, please arrive at 8:00 AM, earlier if possible, on each Sunday morning you are scheduled as sound technician. On a typical Sunday morning the Praise Team will shoot to begin practice no later than 8:15 AM and your presence enables practice to go smoothly and helps us "weed out" any potential problems with the equipment. It is important for the service to run as smoothly as possible. Remember, what we do on Sunday morning will have a direct impact on those in attendance, particularly visitors. We want to strive for excellence in every area of our ministry, and your assistance helps us achieve that excellence.

PREPARATION: Upon arriving, you will want to turn on any and all necessary equipment for that particular Sunday (see the procedure "*Turning On And Shutting Down The Sound System"* later in this manual). You will also notice that an *Order of Worship* should be nearby the mixing board. If it is not, please request a copy from the Worship Leader.   The *Order of Worship* will be your guide for the worship service, and you should read it through, making any necessary notes and asking any questions prior to our practice, if possible. Our goal is to make sure that we are all communicating to minimize any and all confusion or ambiguity.

SOUND CHECK & REHEARSAL FOR PRAISE TEAM: The first order of business will be to conduct *sound checks* on the mics and instruments (see the procedure "*Performing A Sound Check"* later in this manual). Then, during practice be prepared to make *slight adjustments* to the various settings on the soundboard according to the needs of the Praise Team musicians and singers (see the details for "*Setting Fader Levels - A General Guideline"* later in this manual). We also expect your cooperation in "perfecting" the sound and your patience in dealing with that process. In return, we commit to being patient, understanding that your job requires a great deal of time and skill.

SOUND CHECK & REHEARSAL FOR SPECIAL MUSIC: The Praise Team rehearsal should be finished by about 9:15 AM. You can refer to the *Order of Worship* to see if there is special music. If so, whoever is sharing will need to sound check and rehearse. You will need to direct them to a specific mic (make sure they know to return to that mic), cue any tape or CD (such as a background track), set special

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levels (making notes so you can reset those levels later), and provide any other sound needs they may have for their offering.

SOUND CHECK FOR THOSE SPEAKING: Sometime after our morning rehearsals and sound checks are finished, the different people that will be speaking will need to conduct sound checks on such mics as the pulpit mic (for the person doing opening prayer), wireless handheld mic (for the person doing the offering prayer), lapel mics (for the person delivering the sermon), or others.

Before this sound check, the batteries in each of the wireless mic transmitters must be tested and the mic receivers should be turned on, if needed. Lastly, make sure the wireless mics are in their assigned positions and that the users of the mics know where to find them. (See the details for "*The Care And Feeding Of Wireless Mics*" later in this manual.)

PREPARE TO RECORD THE SERVICE: Also, sometime after our morning practice is finished and before the worship service begins, you will need to prepare the cassette recorder deck and cassette tapes to record the worship service. Recordings should be made of both the *worship music* and then the *sermon*, using *two different cassette tapes* in the recording cassette deck and switching just before sermon. Be sure each tape is labeled appropriately, cued to record, and that the recording volumes are at an appropriate level for the music and then the speaking. Although it is not the priority responsibility, you may need to check and slightly adjust the recording level throughout the service. (See the details for "*The Recording Cassette Deck*" under "*The Rack Equipment*" later in this manual.)

BACKGROUND MUSIC: At approximately 15 minutes prior to the service (10:30 AM) you should cue a preselected CD for "background music" as people begin to enter into the sanctuary. The CD to play is usually indicated on the *Order of Worship*. If neither the Worship Leader nor the *Order of Worship* specifies a particular CD, choose an appropriate if you cannot obtain a suggestion.

JUST BEFORE THE SERVICE: Please be at the mixing board 5 minutes prior to the commencement of the service (10:40 AM). This will ensure that the things are ready to go when either the Worship Leader or a speaker begins the service. It will also allow you enough time to review the *Order of Worship*. This is also a good time to begin recording the worship service. When the Worship Leader or a speaker begins to approach the stage, *be prepared* to fade the CD when given the *appropriate signal*.

DURING THE SERVICE: The most important thing to remember during the worship service is **attentiveness** - being ready, focused, and alert at all times. The amount to which you are focused on the sound and the service will reflect in the *quality* and *flow* of worship.

This means paying attention to the Pastor, any person speaking, and the Praise Team musicians and singers. Also pay attention to what song is being performed, any CD or tape being played, and always be checking to see if the house speaker levels are appropriate. One common practice is to turn mics off momentarily when

being moved or placed in mic stands. This is good, but be mindful to *turn back on* any mics, instruments, monitors, and other items as needed - especially those that have been turned off earlier in the service.

Another good point to remember is to *maintain stability* in the way you carry out your duties. If you are constantly changing volume settings, adjusting tone, moving microphones etc., you can easily confuse the users of the sound system. Make sure you work out technical details in rehearsals where everyone expects change and adjustment.   Once you reach the worship service, try to *keep things stabilized*, so that users can maintain the reference points you have already established. (Refer again to "*Setting Fader Levels - A General Guideline*" later in this manual)

Of course, there will be times when certain things go wrong and are beyond our control. The best thing to do is to *remain level headed* and "go with the flow." The *Order of Worship* should be your guide. Also watch the Worship Leader for any cues, verbal or visual, as the service progresses. *Always be ready and attentive* for unplanned events or changes.

Another responsibility of the sound technician is to make note of the timing for each event during the worship service. This means writing down the starting and ending times of different sections of the service (usually on the *Order of Worship* which will be returned to the Worship Leader at the end of the service).

FELLOWSHIP TIME: During the Fellowship Time, either the Praise Team or a preselected CD should play some background music. Check the *Order of Worship* to see which is planned and which CD (and track) to play, if necessary. Stay attentive. *Be ready* to fade off the CD and to turn on mics, instruments, and monitors as needed. It is especially important to watch the Worship Leader for cues at this time.

TIME OF RESPONSE TRANSITION: When transitioning into the *Time of Response*, the Pastor or person delivering the sermon will usually end with a prayer. This prayer time is a transition for the entire Praise Team. The musicians and singers will quietly take their places on the platform, taking their instrument and mics in hand. This is the perfect opportunity to momentarily turn off channels to prevent a disruption of the prayer time. It is also important to *turn back on* instruments and monitors that have been turned off earlier in the service so that the Praise Team can gently begin to play background music under the prayer.

CLOSING: Once the service is finished, either the Praise Team or a preselected CD should play some background music as people exit the sanctuary. Check the *Order of Worship* to see which is planned and which CD to play, if necessary. Return any materials to their proper place or owner (i.e. special music tapes or CDs, wireless mics, etc.).   The timing notes and recorded worship service should be given to the Worship Leader. About 10 or 15 minutes should be given for people to exit *before* fading off the CD and shutting down the sound equipment (see the procedure "*Turning On And Shutting Down The Sound System*" later in this manual).

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Detailed Procedures, Tips, and Guidelines

The following provides a more detailed technical overview of some of the procedures you may need to perform in your duties as a Sound Technician. Realize, of course, that this is by no means an exhaustive source of information on the subject of running sound systems.

Turning On And Shutting Down The Sound System

1. Turn the soundboard on first

2. Next comes the rack equipment (EQs, Tape Decks, etc.)

3. Then the VCR Deck A (Also VCR Deck B, if needed. VCR decks should be set on channel "AU" and the video switch unit should be set to Deck A)

4. Turn on the TV in the foyer

5. Then the amplifiers for the house speakers and the monitors (This includes in order, the monitors EQ, monitors amp, and house amp)

6. *The reverse is done to shut down the sound system.*

The reason for this order is important. Turning on the soundboard a surge of power to energize the circuits. The same thing happens when you turn on the rack equipment and other items. Up to this point, the surges don't go through the system to the speakers. If they did it would make a big "pop" noise that could blow speakers – that would be bad ☺   It is always handy to refer to the reminder on the rack equipment which reminds, *"Amps on last, off first."*

Performing A Sound Check

LINE CHECK: Ask each musician, vocalist, and any person speaking, to individually play their instrument or speak into their assigned mic. Simply make sure that the *sound is coming through*, that you have made *notes* of which channels are assigned to which people (it's a good idea to label the channels on the soundboard with white tape or indicators), and that the users know which mics or inputs they must return to later. When needed, remind vocalists and those speaking to do so within 3" of the mic and to NEVER point the mic at the monitor or house speakers (see *"Some General Guidelines For Feedback"* later in this manual).

CHANNEL CHECK: Adjust each channel's fader and monitor settings to the individual's preference, keeping in mind the Worship Leader is the *final authority* on all settings and levels. It is a good idea to first adjust the channel's monitor speaker levels with the *house speakers off* by turning off the mains. Then turn on the mains and adjust the channel's fader setting to adjust the house speaker volume, creating an appropriate mix between the house and monitors. Monitor settings should be "0" for any mic channel used solely for speaking (i.e. pulpit mic, wireless mics, etc.) to prevent the added chance for (see *"Some General Guidelines For Feedback"* later in this manual)..

MIX CHECK: The mix check is done by the Praise Team musicians and singers playing through some music or by playing a CD or tape. It involves adjusting both the house and monitor settings and achieving a *balanced mix between the two*. Try

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to avoid a great amount of *monitor spill*. Monitor spill is sound originating from the monitor speakers that unintentionally spills off the platform and can be heard by the audience or congregation, muddying the house speaker mix. *(Note that there are situations where monitor sound intentionally makes its way off-stage, but this sound is not called monitor spill—spill is unwanted sound coming off the stage.)*

The monitor settings will often be loud, but we do NOT want the monitor speakers to *provide the bulk of the volume* to the congregation. To avoid this, try temporarily *turning off the monitors* to see if enough volume, if any, is coming from the house speakers. If the volume from the house speakers is *too low*, or if the monitor speakers are providing the bulk of the volume, you need to turn up the main or channel faders. As you turn up the main or channel faders to the house speakers, you will find that they will not make the volume louder as much as enhance the overall sound with clearer and higher frequencies.

Also know that turning the main or channel faders up or down, or adjusting the EQ dials will not affect the monitor speaker volumes or quality.

You may ask "Why set the monitor volumes with the mains off?" Well, if you set the monitors with the mains on, the Praise Team musicians and singers actually hear the mains more than the monitors because the sound from the house speakers bounces of the back wall when hardly anyone is in the sanctuary. But when the sanctuary gets full, the congregation reduces the sound from bouncing, and now all that can be heard on the platform are the monitor speakers. *Then the monitor speaker levels will be off from the Praise Team's needs and expectations.*

Setting Fader Levels - A General Guideline

KEEP IT CONSISTANT: It is good practice to adjust faders to a *predetermined, common setting* across all channels (0db is optimum). Then adjust the gain to make the fader settings appropriate. This way, when you achieve a good mix, it will be *easy to recall* visually because all the faders should be at the same setting. Of course, things change through a worship service and sometimes faders need to be moved up or down, but you will always have a *visual reference point* to return to.

MAKE AN EXCEPTION: Unfortunately, adjusting faders to a *predetermined, common setting* will does not always work for every channel. Some devices, such as CD and cassette tape players, may have such a high or low sound signal you will find it impossible to get the volume from the speakers as high or low as you want, no matter how you adjust the gain. In these cases you must make an exception to adjusting the fader to the *predetermined, common setting*.

LEAVE SOME HEADROOM: To avoid supplying too much or too little sound signal to a channel ("peaking" or "flooring"), all gain and fader settings should be *between 20% and 80%* of the full range. This will give you room to adjust the gain or fader up and down, should the need arise during the service. However, take great caution to *avoid adjusting gain settings during the worship service* because a channel's gain DOES affect the monitor speaker level for that channel and may cause problems for the sound system users.

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The Care And Feeding Of Wireless Mics

REPLACE BATTERIES: The battery tester and fresh batteries can be found in the brown cabinet in the back of the sound booth. For each mic transmitter, simply remove the current batteries and place them in the battery tester to determine their charge. If the battery tester indicates the batteries are OK, return the batteries to the transmitter. Or replace the batteries with fresh ones if they are not OK.

TURN ON MIC RECEIVERS: Verify that the mic receivers are on. The ProStar receivers (for the ProStar UHF wireless lapel and handheld mics) are powered through the rack equipment, but the AKG receiver (for the AKG VHF wireless lapel mic) must be turned on and off for each worship service using the small round button on the face of the receiver. The AKG receiver is currently located on the platform for better reception.

PUT MICS IN THEIR PLACE: The assigned place for the lapel mics is on the edge of the sound booth next to the center aisle The handheld wireless mic is set on the first row seat next the center aisle on the sound booth side of the sanctuary. Make sure the mics are tested, in their assigned places, and ready to go *before the worship service* and that they are returned and then put away after the service.

Some General Guidelines On Feedback

TYPES AND CAUSES: Feedback describes any system where the output of that system is returned to its input. It can be either *acoustic* or *electronic* in nature, but it is the acoustic type that is most common when working with sound systems. And acoustic feedback is *almost always caused with mics*.

Mic feedback occurs when the sound, even a small one like the quiet buzz of an electronic device, is picked up by the mic and is amplified being sent to the sound system speakers. From the sound system speakers, the sound is sent back into the room where it is *again* picked up by the mic, further amplified, and so on. This quickly leads to an infinite amplification loop and a loud squealing sound which will eventually damage the speakers.

AVOIDING FEEDBACK: Care should be taken to avoid feedback. It is loud, annoying, and *potentially dangerous* to our ears and sound system speakers. Instruct mic users to keep mics pointed *away* from sound system speakers and to NEVER point them directly at the monitor or house speakers.

ELIMINATING FEEDBACK: Identifying mic feedback can be difficult because it does not always *sound* the same, depending on the frequencies that are being looped. This has a lot to do with how the EQ dials are set for the mic that is causing feedback.

Initially, it is best to *lower the fader setting* until a proper EQ adjustment can be made. Then try to *identify the sound type* of the feedback and adjust that EQ dial. See the following chart for a guideline:

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Mic Feedback Sound	Type of Feedback	Recommended Adjustment
Low rumbling sound	Low frequency feedback caused by a looping of primarily low frequencies	Lower fader volume. Reduce the Low EQ dial and then slowly raise the fader volume to determine if the feedback still exists.
"Echoey" sound with a lowering of mic volumes	Mic "cancellation" caused by two or more mics in close proximity.	Move away or turn off mics that are close to the "problem" mic.
Mid or high-pitched squeal	Mid to High frequency feedback caused by a looping of primarily mid or high frequencies	Lower fader volume. Reduce the mid or high EQ dial (depending on the sound) and then slowly raise the fader volume to determine if the feedback still exists.

Switching Between DVDs, VHS Video Tapes, Or PowerPoint

CHANGING SIGNALS THROUGH THE SIGNAL SWITCHER: The *Signal Switcher* selects video and sound signals from either the PowerPoint Computer, the DVD player, or the VHS decks. The default selection for the *Signal Switcher* is the *VHS Deck A*

The video signals are sent through S-Video to the *sound booth TV*, the *foyer*, the *fellowship hall*, and the *nursery*. However, the *house LCD projector's* "video" input must be selected for the images to be viewed on the screen.

Sound signals for the various selections are also routed through the *Signal Switcher*, but are sent to the soundboard through the "ST1" stereo input. The various audio signals from the *Signal Switcher* can then be adjusted as desired on the soundboard. You should familiarize yourself with the "Stereo Input" area of the soundboard because the layout differs from that of the standard channels.

VHS PLAYBACK DECKS: The *VHS Deck A* and *VHS Deck B* are both for playback and both set to channel "AU" for the blue screen. *VHS Deck A* is usually left on during events so that video and audio static is not sent to the *sound booth TV*, the *foyer*, the *fellowship hall*, and the *nursery*.

DVD PLAYER: The DVD player has numerous functions. In addition to standard DVDs, it has the ability to play or show MP3, MPG, and JPG files from data CDs. You can further familiarize yourself with the DVD player controls and functions through the owner's manual located in the soundbooth.

POWERPOINT COMPUTER: Like the other video equipment, video and sound signals are also sent through the *Signal Switcher* to the various outputs. When projecting lyric slides through the computer, the *house LCD projector's* input may often be set to "computer" instead of "video" thereby bypassing all signals from the *Signal Switcher*.

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Overview Of The Soundboard, Rack Equipment, Monitors System, And Microphones

The following provides a moderately detailed technical overview of the four main areas of the sound system. Again realize that this is by no means an exhaustive tutorial or overview of the equipment's functions, abilities, and uses.

The Soundboard And Its Controls

Just as each key of a piano is there for a reason, every knob on the board has a function. Do not expect to understand the complete operation of the soundboard instantly. Spend time *developing your skill* just as a musician does. Get to know the limitations of the equipment and system. Practice, rehearse, practice, and rehearse. If you wait until the service begins, you will not be able to concentrate on *your most important job, listening*. The following are some important controls you will find on the soundboard:

GAIN (a.k.a. TRIM): Few controls on a soundboard cause as much confusion as the gain control. It can be thought of as the *"pre-volume"* control. The gain settings of each channel should be adjusted so that channel faders can be set to a *predetermined, common setting* across all channels (0db is optimum).

There are also *sound signal LEDs* next to the gain dial for each channel. Normally green when receiving a sound signal, they turn yellow when the sound signal is nears the upper limit of operation and is about to "clip." Avoid this because overloading or "clipping" a channel causes distortion of the sound signal.

CHANNEL FADERS (a.k.a. CHANNEL SLIDERS): Each channel fader adjusts that channel's sound level in the main mix and sub-group mixes. Each used channel fader should be set at the *predetermined, common setting* across all channels (0db is optimum). The gain control can be adjusted to allow this setting.

CHANNEL SENDS (a.k.a. AUXILLIARY SENDS): Our soundboard has five of these blue dials on each channel. Each are actually separate soundboards within the soundboard.. They allow separate volume settings on each channel that are sent to a separate device (such as the monitors "auxiliary 1," a cassette tape recorder, and/or an effects processor). Channel sends fall into two categories:

1) Pre-Fader Sends. "Pre-fader" means that the fader for that channel does NOT affect the outbound sound signal. Also, "Pre-EQ" means the tone controls do not affect the outbound sound signal. Pre-fader sends are often used to feed a tape recorder or monitor speakers.

2) Post-Fader Sends. "Post-fader" means that the fader for that channel DOES affect outbound sound signal. Post-fader sends are often used to drive external effects units (such as digital reverbs) since it is desirable for the signal sent to the external unit is proportional to the setting of the channel fader.

Our soundboard has two "pre-fader" sends, one "post-fader" send, and two auxiliary sends that each can be switched from being "pre-fader" to "post-fader"

sends. They can be changed by depressing the "pre/post" buttons next to the dials.

SUB-GROUP FADERS (a.k.a. GROUP FADERS or SLIDERS): Labeled from "Group 1" to "Group 4," these faders adjust the level of the sub-group mixes. Using sub-groups is useful in instances where you need to retain a relationship of a set of channel fader settings, but want to increase or lower their respective level as a whole without adjusting the main faders. Each sub-group fader should be set at the *predetermined, common setting* (0db is optimum). Refer to the *"Channel Routing Control"* to determine how to assign individual channels to a group.

PAN CONTROL and SUB-GROUP ROUTING CONTROL: This dial is on each channel and allows either pan control (left to right) or sub-group routing control (odd or even). If the channel's "ST" button is depressed, this control allows a channel's signal to be routed from "left" to "right" in the house speakers. However, If the channel's "1-2" or "3-4" buttons are depressed, the dial control allows the channel's signal to be routed to a sub-group from 1 to 4 and additionally controlled through the sub-group faders.

Sending the signal to sub-groups can be rather complicated, so here are the possible combinations:

Button That Is Depressed	Pan/Sub-Group Routing Control Setting	Where Sound Signal Is Sent
"1-2"	"odd"	Sub-Group 1
"1-2"	"even"	Sub-Group 2
"3-4"	"odd"	Sub-Group 3
"3-4"	"even"	Sub-Group 4

CHANNEL EQ: These dials allow the operator some "artistic license" over the way that a voice or instrument sounds. The "High" and "Low" frequency controls are "shelving filters" that boost or cut everything above or below a *fixed frequency*. The "Mid" control are "peaking" filters that boost or cut a *range of frequencies* centered on the adjustable filter "Frequency."   These dials are also useful in solving microphone feedback problems (see *"Some General Guidelines For Feedback"* earlier in this manual).

METERS: The meter(s) are LEDs used to display the average sound level of the sub-groups or mains. For optimum performance, the signal should be near the *predetermined, common setting* (0db is optimum). This will provide good signal-to-noise ratio and adequate headroom in most cases.

MAIN FADERS (a.k.a. MAINS or MAIN SLIDERS): Adjust the level of the channels in the main mix. In addition to the channel and sub-group faders, the main faders should be adjusted to the *predetermined, common setting* (0db is optimum). If this

is not possible, it means that the system gain structure is amiss. Here are two common causes:

1) The first occurs when the meter reads the *predetermined* level (0db is optimum) but the *main faders are barely up*. In this case, the soundboard is difficult to operate because a very *small adjustment of the main fader causes a big increase or decrease* of the speaker levels. This usually means either the system *amplifiers are set too low*, or you are *driving too many channels* at the *predetermined* level and the soundboard can't handle the signal. At that point it's best to either raise the amplifier levels, or lower the gain on all the used channels, respectively (DO NOT make these adjustments without first consulting your mentors and Worship Leader).

2) The other situation occurs when the meter reads *well below* the *predetermined* level (0db is optimum) or shows no indication at all. This means that the device is being operated too low, or too close to its "noise floor." In this case, the system *amplifiers are set too high* and you are reaching the target sound level in your facility well before you move your faders up. Simply lower the amplifier levels (again, DO NOT make this adjustment without first consulting your mentors and the Worship Leader).

The Rack Equipment

It is important to become familiar with the operation of the compact disc player, the recording cassette deck, and the playback cassette deck. You will need to learn the controls to perform the following operations:

COMPACT DISC PLAYER: Know how to access tracks *10 and above* on a CD. Know how to repeat just a single track *and* how to repeat the entire disc. Know how to *randomize* the playback of tracks. Know how to *program a sequence* of tracks and to clear that program. Programs are a useful tool – When cueing a background or single track, for instance, it is a good idea to *program only that track*. This ensures that when the track is finished, the CD player *stops automatically* and does not continue to the next track. You can also program multiple songs with *pauses in between* each.

THE RECORDING CASSETTE DECK: Know the difference between the recording cassette deck and the playback cassette deck. On the recording cassette deck, you should know which buttons to press to *engage recording*. You should know how to verify that the deck is set for autoreverse. You should also know how to *reset the counter.* And lastly, learn how to adjust and monitor the *recording level*. Remember, the LED levels should register *between 0db and 20db* (within the red area) for adequate recording volume.

THE PLAYBACK CASETTE DECK: Also familiarize yourself with the playback cassette deck controls. One important feature is the *Automatic Music Search* function (AMS) which is activated by pressing the "rewind" or "forward" buttons during playback. In most cases, this will bring the tape back to the beginning or end of the song and is a helpful tool in *cueing cassette tapes* to the appropriate place.

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The Monitor System

   The monitor system consists of the monitor amp, two wedge monitor speakers, and two "hot spot" personal monitor speakers. Each channel's blue "auxiliary 1" dial on the soundboard controls the amount of signal that channel sends to the monitor system. In addition, there is a main "auxiliary 1" fader control and *on/off switch* for the overall monitor mix.

   The monitor speakers are vital for everyone who ministers from the platform. They are also the most difficult part of your job because you, as an operator, cannot hear them during the service or performance. Do not leave the monitors to chance. Make sure they are right and you will provide a blessing to those who depend upon them as they minister.

The Microphones

KNOW THE TWO TYPES OF DYNAMIC MICS: A *unidirectional mic* is designed to pick up sound directly in front of, and rather *close to the mic*. Unidirectional mics are best used for solo vocal and instrument applications. An *omnidirectional mic* is designed to pick up sound in a *circular area around the mic*. Omnidirectional is best used for multiple vocal and instrument applications such as choirs and groupings of instruments.

MIC PLACEMENT: *Use as few mics as possible* for any given situation - the ideal number is one!   Get the *mic close to the source* - 1" to 4" for most mics. To avoid feedback problems, try not to place mic near any speaker (see *"Some General Guidelines For Feedback"* earlier in this manual). Also keep in mind that mics give preference to whatever sound is the loudest at the microphone, even if it is not the sound wanted.

WIRELESS MIC PROBLEMS: There are a number of factors that can lead to wireless mic interference and drop outs. The wireless receiver could be fighting with signals from an alternate transmitter, but a common cause could be weak batteries.

We Thank You, And The Lord Thanks You

   Once again, thank you for your willingness to serve in this area of the Worship Ministry at Fellowship Baptist Church. We appreciate your dedication and service and the extent to which our sound technicians are willing to help achieve a smooth overall flow of worship.   As a volunteer, we recognize the sacrifice you are making and the stress that comes with operating the sound system. A lot of time and work goes into preparing for each Sunday, and your dedication will reflect a commitment to making each and every Sunday worship service run as smoothly as possible. May you glorify the Lord through your diligence!

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Appendix A: *Sound Technician Check List*

PREPARATION:
- [ ] Turn on any and all necessary equipment (refer to *"Turning On And Shutting Down The Sound System"* in the manual).
- [ ] Review *Order of Worship* (request a copy if needed).
- [ ] Make necessary notes and ask questions before practice, if possible.

SOUND CHECK/REHEARSAL - PRAISE TEAM
- [ ] Conduct *sound checks* for Praise Team musicians & vocalists (refer to *"Performing A Sound Check"* in the manual).
- [ ] Make *appropriate adjustments* during rehearsal (refer to *"Setting Fader Levels - A General Guideline"* in the manual).

SOUND CHECK/REHEARSAL - SPECIAL MUSIC
- [ ] Conduct sound check/rehearsal for special music (about 9:15 AM), if necessary (check *Order of Worship*).
- [ ] Direct them to a specific mic (make sure they know to return to that mic).
- [ ] Cue any tape or CD before and after (such as a background track).
- [ ] Set special levels and make notes (so you can reset those levels later).

SOUND CHECK FOR THOSE SPEAKING
- [ ] Check batteries in wireless mics.
- [ ] Turn on mic receivers.
- [ ] Conduct sound/line checks mics (Pulpit mic *for opening prayer*, wireless handheld mic *for offering* and lapel mics *for sermon*).
- [ ] Place wireless mics in assigned positions (users should know where to find them).

PREPARE TO RECORD THE SERVICE
- [ ] Prepare, label, and cue tape for *worship music*.
- [ ] Prepare & label tape for *sermon.*
- [ ] Set/check recording volume (LEDs should "peak" in middle of red area).

BEFORE THE SERVICE
- [ ] Begin background music 15 minutes early (10:30 AM)
- [ ] Be ready 5 minutes early (10:40 AM). Begin recording the worship and *prepare to fade the CD* with the *appropriate signal*

DURING THE SERVICE
- [ ] Be ready, focused, and alert at all times. Keep things stabilized as much as possible and watch for unplanned events or changes
- [ ] Turn on any channels that have been turned off, as needed.
- [ ] Note times of service sections.

FELLOWSHIP TIME
- [ ] Start preselected CD, unless Praise Team plays (check *Order of Worship*)
- [ ] Be ready to fade off CD and turn channels as needed. Watch Worship Leader.

MESSAGE TIME
- [ ] Just after the offering & any special music, switch tapes and begin recording the message.

TIME OF RESPONSE TRANSITION
- [ ] Momentarily turn off channels, for mics to be picked up.
- [ ] Turn on any channels that have been turned off for music under prayer.

CLOSING
- [ ] Start preselected CD, unless Praise Team plays (check *Order of Worship*)
- [ ] Return materials to their place or owner (special music tapes or CDs, wireless mics).
- [ ] Fade off the CD shut down sound system *after 10 to 15 minutes*. Provide worship tape and service timing notes to Worship Leader

Appendix B: *Additional Sound Technician Resources*

Books

Audio Made Easy: or How to Be a Sound Engineer Without Really Trying,
by Ira White

Guide to Sound Systems for Worship,
by Jon F. Eiche (Editor)

The Sound Reinforcement Handbook,
by Gary Davis, Ralph Jones (Contributor)

The New Worship: Straight Talk on Music and the Church,
by Barry Wayne Liesch, Donald P. Hustad

Sound Check: The Basics of Sound and Sound Systems
by Tony Moscal

Magazines

Church Production Magazine: Subscribe Online At: www.churchproduction.com

The Church Music Report: Subscribe online At: www.tcmr.com

Internet

Experiencing Worship's *Sound Advice,*
Church Sound & Video Training Headquarters:
www.experiencingworship.com/sound.html

Experiencing Worship's Equipment Pages:
www.experiencingworship.com/equipment.html

Technologies For Worship Magazine-Audio Archives:
www.tfwm.com/twm/articles.html#AUDIO

The Sound Booth, Real SOUND Help For The Church Community:
www.thesoundbooth.com

ProSoundWeb's *Church Talk* Links:
www.prosoundweb.com/install/church_talk/churchtalklinks.shtml

Appendix C: *Key Sources In Creating This Manual*

Indiana Wesleyan University's REL435 Class Website
Worship Guidelines Page, by Beau Hummel
www.indwes.edu/Courses/REL435/beau.html

The Jesus! Ministry Christian Student Equpper Website
Worship Leading Page
www.angelic.org/worshipleading.html

Rath Family Website
Choosing Sound Technicians, by Christopher Rath
rath.ca/Misc/Worship&Sound/Choosing_Sound_Technicians.html

Soundcheck Magazine's Website
The Secret Church Sound Code Book, by Curt Taipale
www.churchsoundcheck.com/code.html

Experiencing Worship's Sound Advice Website
The Sound Team Page
www.experiencingworship.com/articles/sound/2001-6-The-Sound-Team-print.html

Sounddoc Cosnulting's Online Support Website
The Sound Operators Ministry Training Pages
http://www.soundoc.net/Training.html