

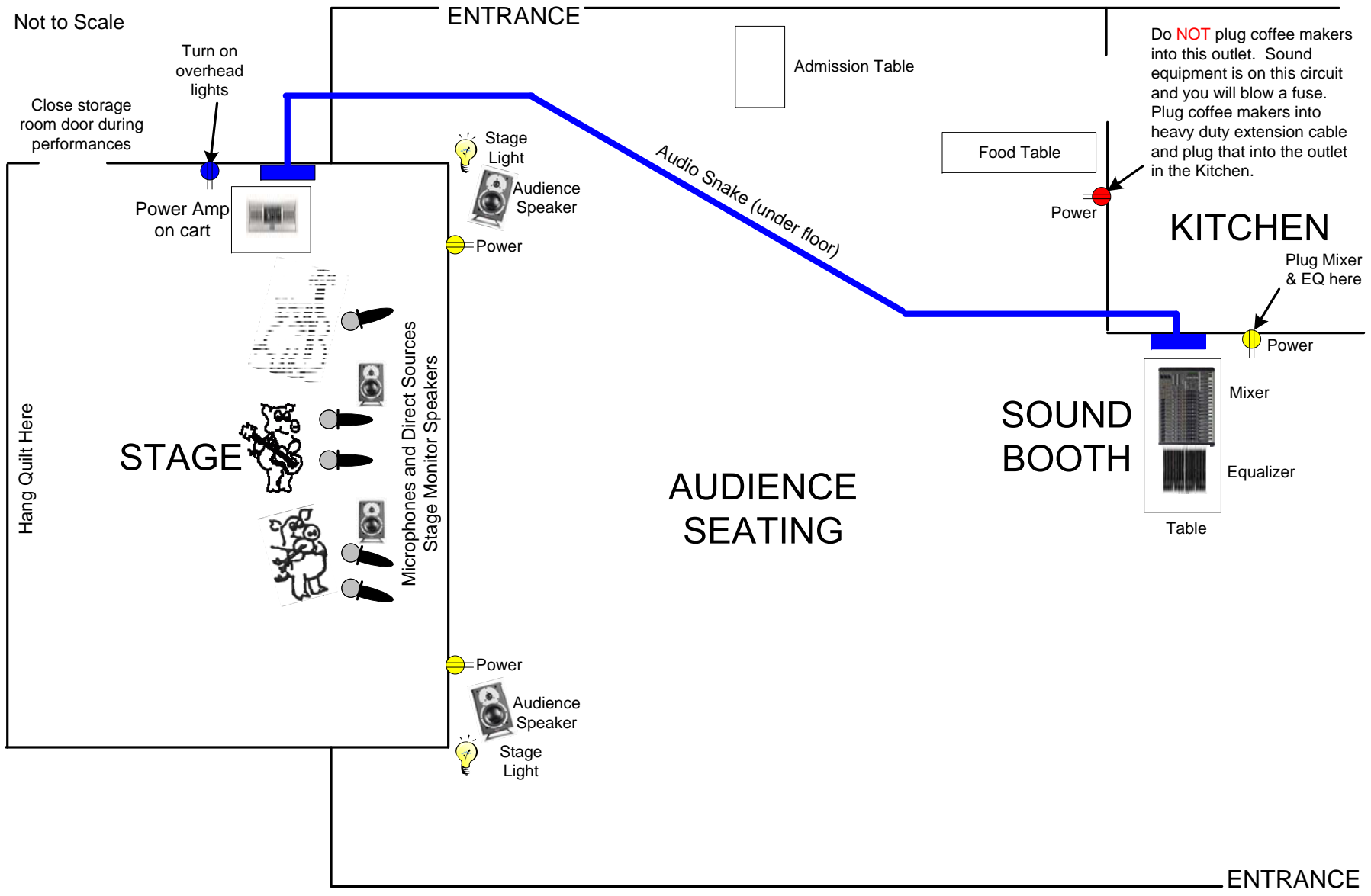
# Sound Operations Manual



[www.WildHogInTheWoods.org/Members/SoundOperations](http://www.WildHogInTheWoods.org/Members/SoundOperations)

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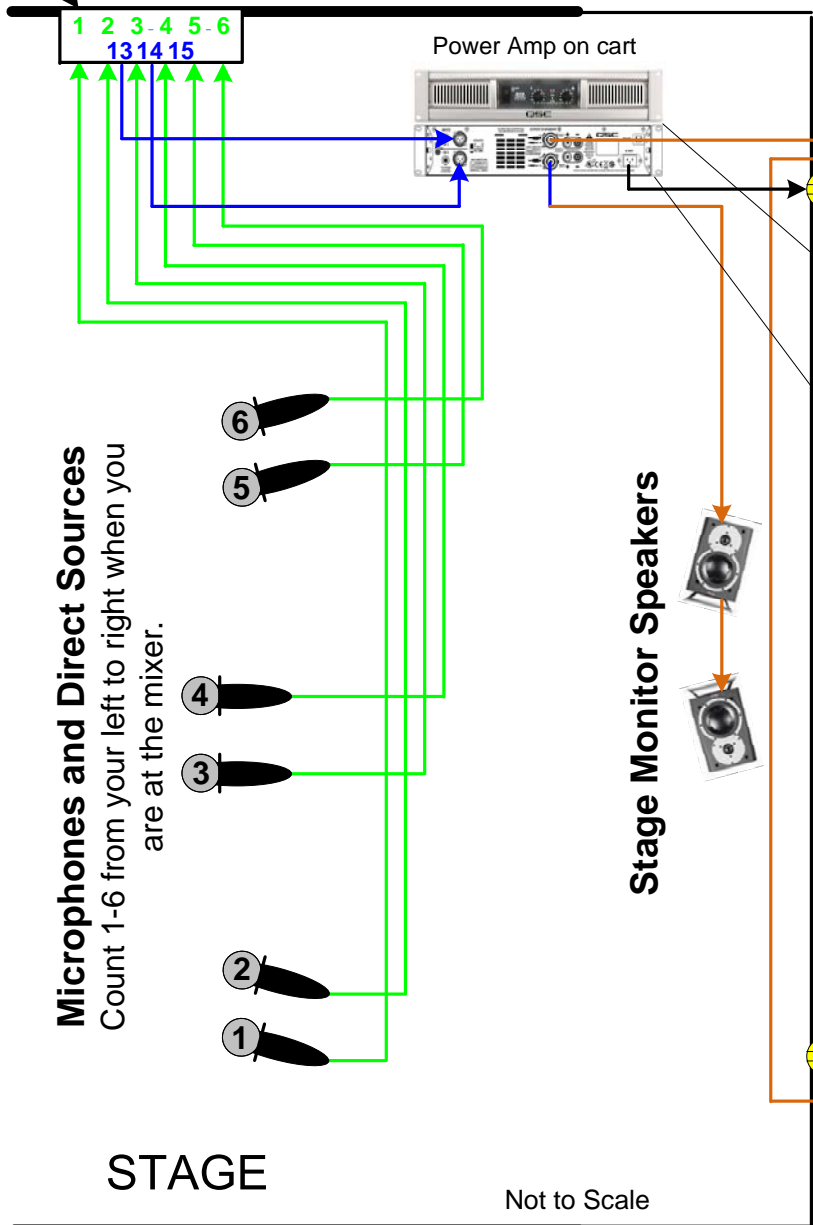
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# Overview of the Stage and Floor at Wil-Mar

### Audio Snake to/from Mixer

- 1-12: Voice (microphones) & Instrument channels
- 13-15: From mixer to power amp to speakers
- 16: Future Light Control Panel



**Microphones and Direct Sources**  
Count 1-6 from your left to right when you are at the mixer.

STAGE

Not to Scale

**Main Audience Speaker (Stage Left)**

### Power Amp Back Panel

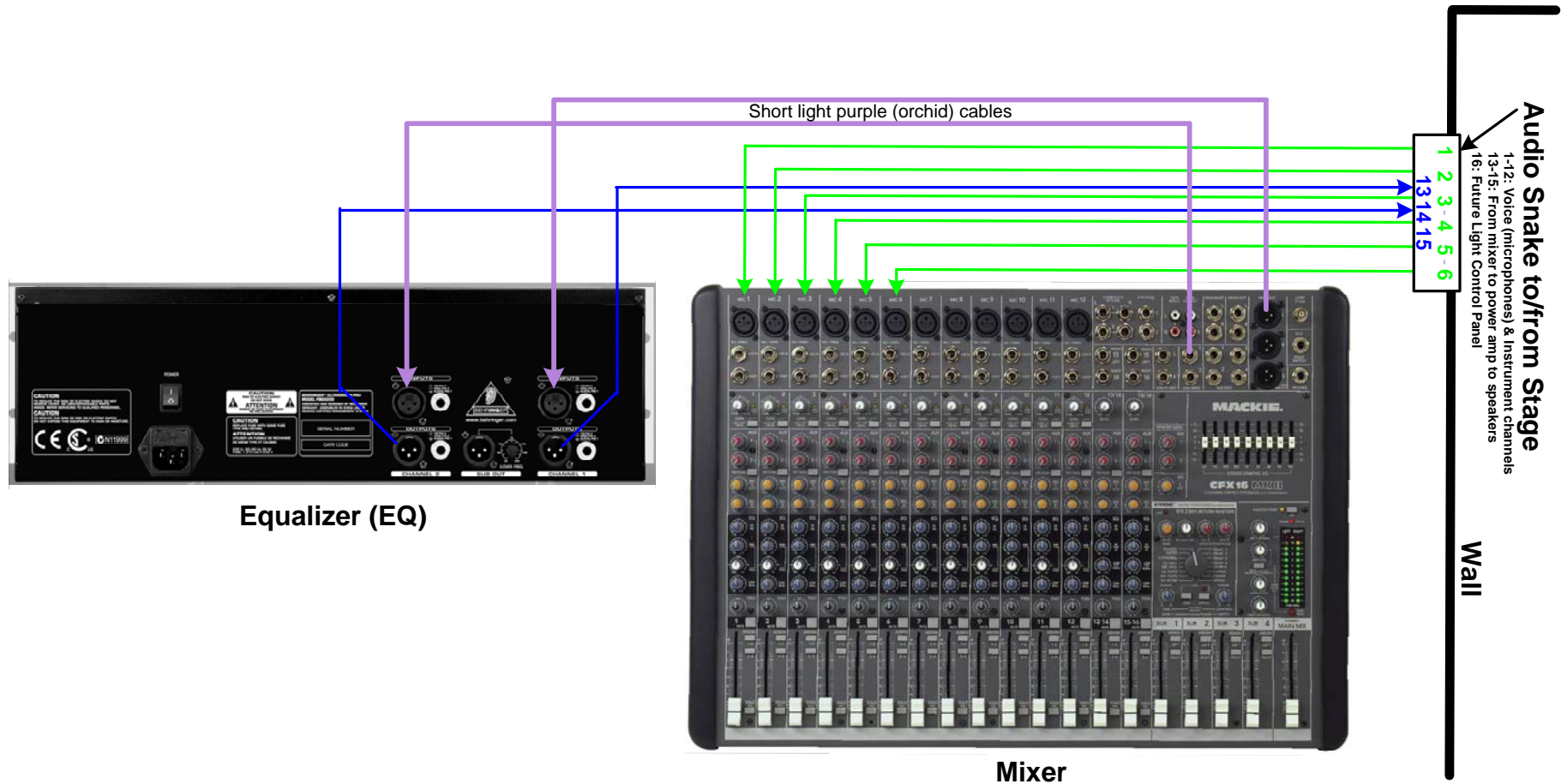
Use short XLR (microphone) cables to connect Snake 13 to Amp Input 1 (feed for MAIN speakers) and Snake 14 to Amp Input 2.

Use speaker cables (with ¼ inch Tip/Sleeve plugs) to connect Amp Output 1 to the Stage Left **Main** (Audience) Speaker. Daisy-chain the stage right Main speaker to the left speaker.

Use another speaker cable to connect Amp Output 2 to the Stage Left **Monitor** speaker. Daisy-chain the stage right Monitor speaker to the left speaker.

**Main Audience Speaker (Stage Right)**

# Setup on Stage



The **green lines** are from the microphones and other sound sources on the stage.

Connect **Snake Channel 1** to Mixer Input 1, Channel 2 to Input 2, etc.

The **blue lines** are from the outputs of the Equalizer. Connect Channel One output to Snake Channel 13.

Connect **EQ OUT 2** to Snake Channel 14.

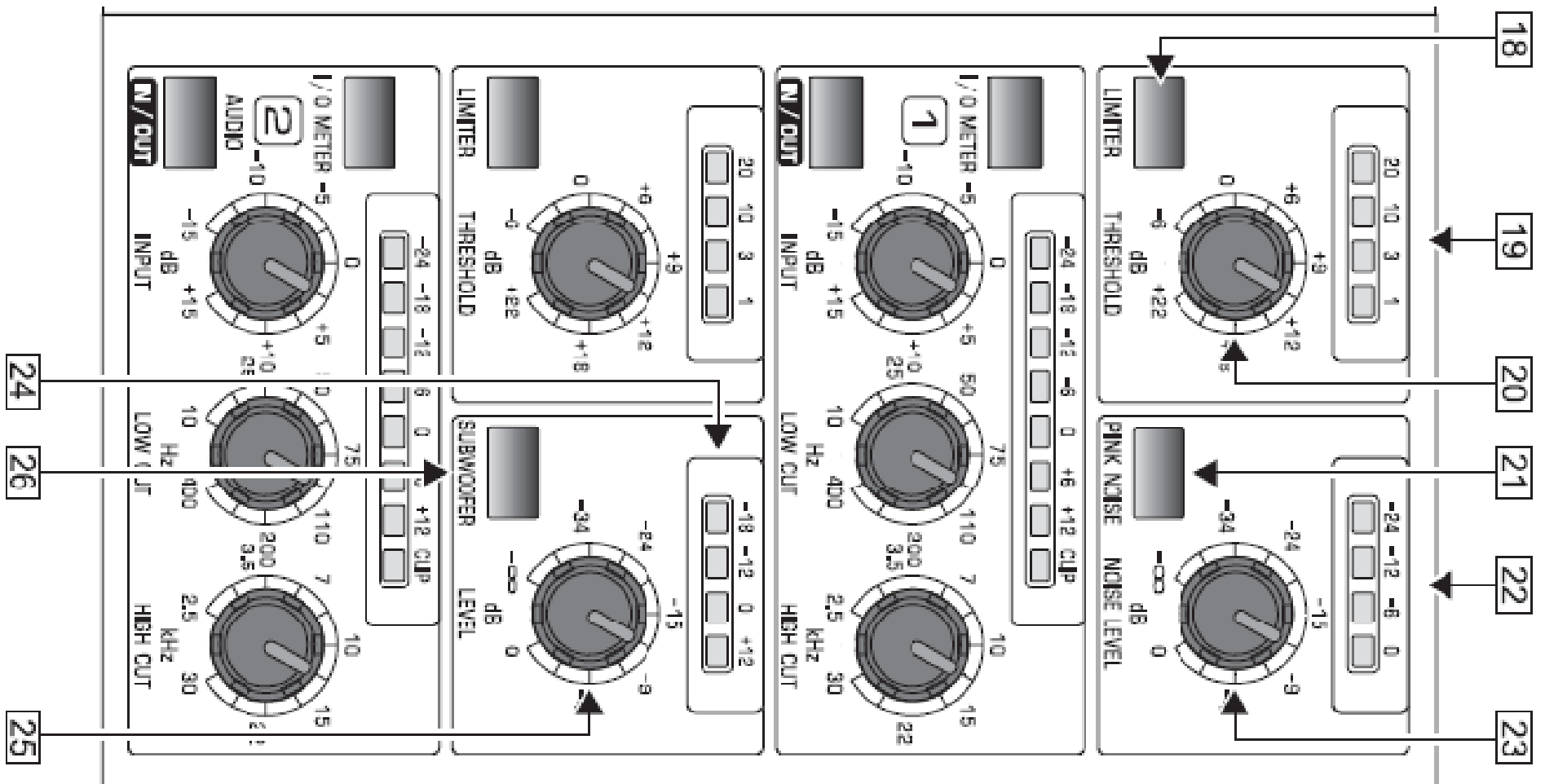
Channel 16 is a spare or backup channel in the Snake and is not typically used.

The **orchid colored lines** are from the outputs of the Mixer to the Equalizer.

Connect **MAIN OUT** left channel output (a 3XLR-M jack) to Channel 1 input on the EQ (a 3XLR-F jack).

Connect **AUX SEND 1** output (a tip/ring/sleeve ¼ inch jack) to Channel 2 input on the EQ (a 3XLR-F jack).

## Setup on the Audio Mixer/EQ Table



It's hard to read the small print on the control panel in a darkened room so we have enlarged it here.

## Equalizer Controls

*Ron Dennis wrote the following tip sheet in collaboration with Phillip the Pig. Ron often is found operating sound at the Hog and other special events and concerts, including for the Madison Folk Music Society.*

#### **Start Here:**

1. Bring out all equipment from closet and set on stage. If there is another group using our floorspace when you arrive, you can usually go ahead to do this step if you do not disturb the other group). Some items (tables, chairs, personal things) may prevent any setup on stage.
2. Hang the Hog quilt on back wall of the stage.

#### **When the earlier group has cleared the floor, proceed with setup.**

1. Take items for door person (containers, sign, etc.) to table near front door.

#### **Stage Setup:**

1. Set up light stands and speaker stands.
2. Take mixer, EQ and cable case to table near the snake box next to the kitchen.
3. Lay carpet on stage, 3 feet from stage front.
4. Put main speakers on stands.
5. Place monitor speakers on stage floor in front of carpet.
6. Put both cable cases on one black cart.
7. Put amp on other black cart and locate near snake box on the stage.
8. Run electrical cord for lights with multiple outlet on end.
9. Plug in amp using the hum eliminator. Leave off (powered down) and with the gains (volume) turned down on front of amp.
10. Run all speaker cables. (the Tip/Ring/Sleeve cables in small brown case #3)
11. Set up mic stands.
12. Run mic cables. (Cables in other small brown case #2)
13. Install mics and direct boxes. (Mics in small silver case)

#### **Mixer/EQ Setup:**

1. Set up Mixer and Graphic Equalizer.
2. Install cables to snake box as needed.
3. Turn mixer main and monitor volumes off.
4. Turn on mixer and EQ.
5. Turn on amp and set levels at mid-point.

#### **Mixer Controls:**

1. Mute off
2. Main master and monitor master at unity
3. Sub 1 & 2 at unity
4. Channels as needed:
  - a. Gain at 2/3
  - b. All channel EQ's set flat
  - c. Bring up all mic channel mains 1/3
  - d. Test mics (you can plug mics in place of DI's to test those channels)
  - e. Turn mains down and repeat with monitors

#### **Input sequence at mixer:**

1. Easiest when looking at stage to go 1, 2, 3, etc. – left to right.
2. Individual preference as to putting all vocals together, then instruments or All inputs associated with one performer (vocal, DI, Instr mic, etc.) – This is normally my preference if the same musicians are expected to play all evening and from the same microphones and pickups.

# **Sound Setup Tips**

### Phillup the Pig's Helpful Sound Hints:

1. Many times at the Hog, you won't know what's needed until performers arrive. Using the best available knowledge, set up and have ready as much as possible. It'll save you time. An extra mic or two is OK. Just set them aside if not needed. Open mic people might use them.
2. When performers are ready for sound check, suggest doing monitor levels first. This usually gives the performers a better/clearer sound balance and your monitor volume will usually end up lower – important in reducing feedback.
3. Do one person at a time to get a balance between their vocal and instrument(s). Then add all in the group and ask for their feedback on monitor balance. When they are satisfied, bring up and balance the house sound.
4. You may want to ask for each individual again if you're having trouble picking out the individual sounds. Use the headset now or during the show to look for a single instrument in the mix, this sometimes helps when trying to adjust or EQ a single mixer input for a particular instrument or voice.
5. Some performers will ask for specific EQ for their voice or instrument. Generally, roll off (reduce) some low end for vocals and add some highs to brighten, but watch feedback. You can ask performers about their preferences, particularly guitars. Stay flat for most instruments, however.
6. This is a listening atmosphere. House sound level should not be high. Walk around the room and adjust for comfortable acoustic style listening. Be able to pick out each voice and instrument.
7. If both the performers and the audience are satisfied with the sound, you've done a good job.
8. If you experience any equipment problems, write it on the clipboard in the closet and when you get home send an email to [info@wildhoginthewoods.org](mailto:info@wildhoginthewoods.org) describing the problem.
9. Find manuals, tutorials and additional information on our web site at [wildhoginthewoods.org/Members/SoundOperations](http://wildhoginthewoods.org/Members/SoundOperations)

### Teardown after the show- Go in reverse order from your setup:

1. As soon as the show is over and before unplugging any audio, mike or power cable:
  - a. Turn down main and monitor volumes on Mixer.
  - b. Turn down volumes on Amp.
  - c. Turn off Amp.
  - d. Turn off Graphic EQ.
  - e. Turn off Mixer.
2. On the Stage:
  - a. The performers will be packing up their instruments and equipment, don't get in their way and ask if they need help with anything. Musicians will usually want to pack up their own stuff.
  - b. Disconnect microphones, remove them from the stands and store in the microphone case **now** to prevent them from falling to the floor during takedown. Might as well return any "Directs" (DI) adapters to the case at this time, too.
  - c. Unplug all cables from the Snake, Amp, Speakers and other equipment, lay on floor until the musicians have cleared the stage.
  - d. Unplug power cable from Amp.
  - e. Remove and collapse mic stands. Stands are the last items to go back into the closet.
  - f. Coil each cable separately and store in appropriate case (mic cables in one box, speaker cables another, etc.
  - g. Remove speakers from stands, collapse stands.
3. At the Mixer:
  - a. Unplug Mixer and EQ cables from the Snake, coil and put in cases.
  - b. Put Mixer and EQ in cases.
4. Put everything back in good shape - ready for next user.
5. Leave notes, if you had any problems with the equipment, on the clipboard in closet
6. Roll up carpet - take down quilt.
7. Stuff everything back in the closet and lock.

## More Sound Setup Tips



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## Ringling Out a Room

I'm no expert on sound but have received many requests from sound-crew volunteers to explain what we are doing when we "Ring Out a Room." So this episode is for folks who know how

to set up and run a basic PA system but are mystified by the "graphic equalizer" ("graphic EQ") built into many of them, which is used for this procedure.

The graphic EQ consists of usually 8 to 12 or more "sliders," each representing part of the sound spectrum. This device provides a way to compensate for those overly lively frequencies of a given room which distort sound, ruin intelligibility of lyrics, and at their howling worst, build into dread "feedback."

### Before Beginning:

Set up all microphones and instruments. Turn off reverb. Start with main volume all the way down. Set individual volumes at about where they will be for the show.

**Note 1:** The illustrations show a four-slider EQ. As I mentioned, most have at least 8 sliders, and many have more. The same technique applies to all.

**Note 2:** This is best done delicately, with the touch of a safecracker.

1. Turn the main volume control up slowly...

2. ...until you start to hear a tone (a HOOT, for example)...

3. ...then turn down SLIGHTLY until the HOOT just disappears. Now go to the graphic equalizer.

4. Start with all the sliders at the halfway point. Raise one slider slowly.

5. If you slide it to the top WITHOUT hearing the original HOOT...

6. ...move the slider back to the halfway point...

7. ...and try another slider. When you DO hear the HOOT!

8. ...move that slider all the way to the bottom. Now go back to the main volume control.

9. Resume turning volume up (Note that you can now turn past where it used to HOOT!)...

10. ...until you hear a new tone developing (a TWEE, for example)...

11. ...then turn down SLIGHTLY until the TWEE just disappears, and go to the graphic equalizer again.

12. Leave the "HOOT" slider at the bottom. Raise a different slider slowly.

13. If you don't hear the TWEE, return that slider to the halfway point.

14. Try another slider. When you DO hear the TWEE!

15. ...Move that slider ALMOST as far down as the first offending ("HOOT") slider.

16. etc. Repeat this process, moving each new offending slider almost as far down as the previous one was moved, and you end up with a sort of reverse curve of the room's acoustic properties which compensates for its oversensitivities.

### More Random Notes:

- In acoustically good rooms, you may find no offensive tones at all. That's great! Just leave all the sliders in a straight line.
- There are many other aids in reduc-

ing feedback and distortion; Ringing Out the Room is just one of them.

- This article covers only the very basics of the technique. At best, it's a good starting point for further experiments.
- Almost forgot: This operation is best

conducted before the audience arrives!

- More than ever, I welcome comments on this Whither Zither. Please send them to me at: [berrymanp@aol.com](mailto:berrymanp@aol.com)

THANKS!!--WZ #73



## Mixer EQ Hints

**EQ Suggestions (setting EQ on the mixer for each instrument and voice):** *Very* dependent on particular player & mic

	Caller	Piano	Fiddle	Guitar	Flute	Bass	Bodhran
High:	+3			+3			
Mid:	+6					+3	+3
Low:	-6		-3	-3	-3		

### Mixing Hints

- go easy: +6 on the board = double the volume, tone change, etc.
- is the caller clearly audible, but not overbearing?
- is each instrument distinct at the back of the hall?
- are the fader positions fairly similar - nothing radical?
- make sure the band can hear in the monitors
- too soft = lack of 'presence' in the music
- too loud = feedback, ear fatigue, 'muddy' sound
- when in doubt, cut levels rather than boost - cut loudest thing first
- adjust as the size of the dance grows or shrinks

### Emergency Response

#### Feedback

- reduce the main monitor level control immediately
- if still feedback, reduce main speaker volume
- once under control, analyze what caused it, bring levels back up

#### Missing sound

- main speakers: check connections, mono/stereo switch
- one mic: check connections
- any switches on the mic itself?
- replace cable and/or mic

#### Teardown

- power down before pulling out wires, etc.
- musicians/instruments out of the way next
- then pack up

## Microphone Placement

### **Guitar**

Don't put the mic directly in front of the sound hole. It creates a boomy uncontrollable mud and is a super feedback generator. However, a good place is over about where the neck meets the body, but pointed back toward the sound hole. Down low and aimed at the bridge also works. Cut the bass a bit if they stay very close to the mic and it gets boomy.

### **Flute and Whistle**

Flute sounds better with an SM-57 and external foam windscreens than with an SM-58. A good mic position is from the top, pointing down across the windstream. If the player is reading music, putting the mic below pointing up gives better visibility. Removing a little bass is often helpful to make flute tone clear in the room. I sometimes add a little high, especially for wooden flute.

### **Mandolin**

You have to set the gain pretty high, put the mic close to the instrument and get the player to keep it there. Unfortunately, this combined with proximity effect is a recipe for low-end feedback if the player lets go of the strings. Make sure the player 'damps' the strings when not playing. An SM-58 is better than a 57.

### **Bass**

With bass, you want to leave the 'lo' flat and boost the mid slightly. This makes the notes stand out nicely in the mix, while still providing that low-end push. Over-boosting the mids will pick up a lot of noise from their fingers on the strings. It is normal to see the clip light come on occasionally for instruments with lots of bass content (and percussion).

Don't ever put bass in the monitor. Its low tones spread very well on stage without it, and the typical monitor setup can't handle its low notes.

### **Accordion/Concertina**

Mic button or piano-accordion on the keyboard side (not the chord-button side). Concertina - it's stereo! Position the mic just above the instrument.

### **Hammered Dulcimer**

Players seem to prefer to have the mic come from the treble (left) side of the instrument. Mic it close and use low gain to minimize ringing.

### **Bodhran**

On the rim or in the back of the drum, about 1/4 of the way in from the edge. Try to get the bass sound of the drum without it being boomy, and to get some high mid-range, so you can hear the articulation of the notes. A little boost at around 4 KHz. Low or no drum in the monitor, unless the band specifically requests it. An SM-58 or other vocal mic will do a better job than an SM-57.

### **Banjo**

The best spot to mic virtually all banjos is at about 5:00 on the head (using the neck as 12:00, looking from the front), about 1" in from the rim, as close to the head as the player can comfortably keep it. This works well for 5-string (oldtime or bluegrass), tenor, and even banjo mandolin. Runnerup is pointed edge-on to the rim at 7:00.

## **Philosophy**

### **Look before twiddling**

Don't twiddle and tweak just to look busy. If any EQ knob is turned more than 90° off center, or a volume knob is turned as far as it will go in either direction - watch out! Settings like this usually mean that something else is wrong, and you just haven't spotted it yet. Look for partially plugged-in cables, check major switches on the mixer, etc.

### **Loudness/presence**

Most problems of sound being difficult to hear are really volume-related. Start by getting the overall volume right, and then the mix, before you spend a whole lot of time playing with finepoints on the tone controls. The best EQ is no EQ - pros use as little as possible, often cutting rather than boosting.

It's critical to have the sound level in the hall at just the right overall volume. If it's too loud, it will be boomy, muddy and echoey. If it's too soft, it gets submerged in shuffling feet and crowd noise, and lacks excitement, even with the best band.

Some halls are just too reverberent. If the sound is muddy, cut the loudest thing on stage, and then judge the overall volume. The best thing to do is focus on overall volume. Try setting everyone to the same level (except for very quiet or very loud instruments) and just varying the overall volume, and you'll get surprisingly close to the best mix.

Finally, remember your obligation to protect the hearing of those present. Very loud sound will be exciting for some people, but painful for others.

### **Your presence**

Relax. Easy-going humor can be a big help. Make sure it's not sarcasm, but honest, simple, harmless humor. It relaxes everyone and lets them and you do the best job possible. When in doubt, a plain smile is *always* in style.