

Sound Operations Manual



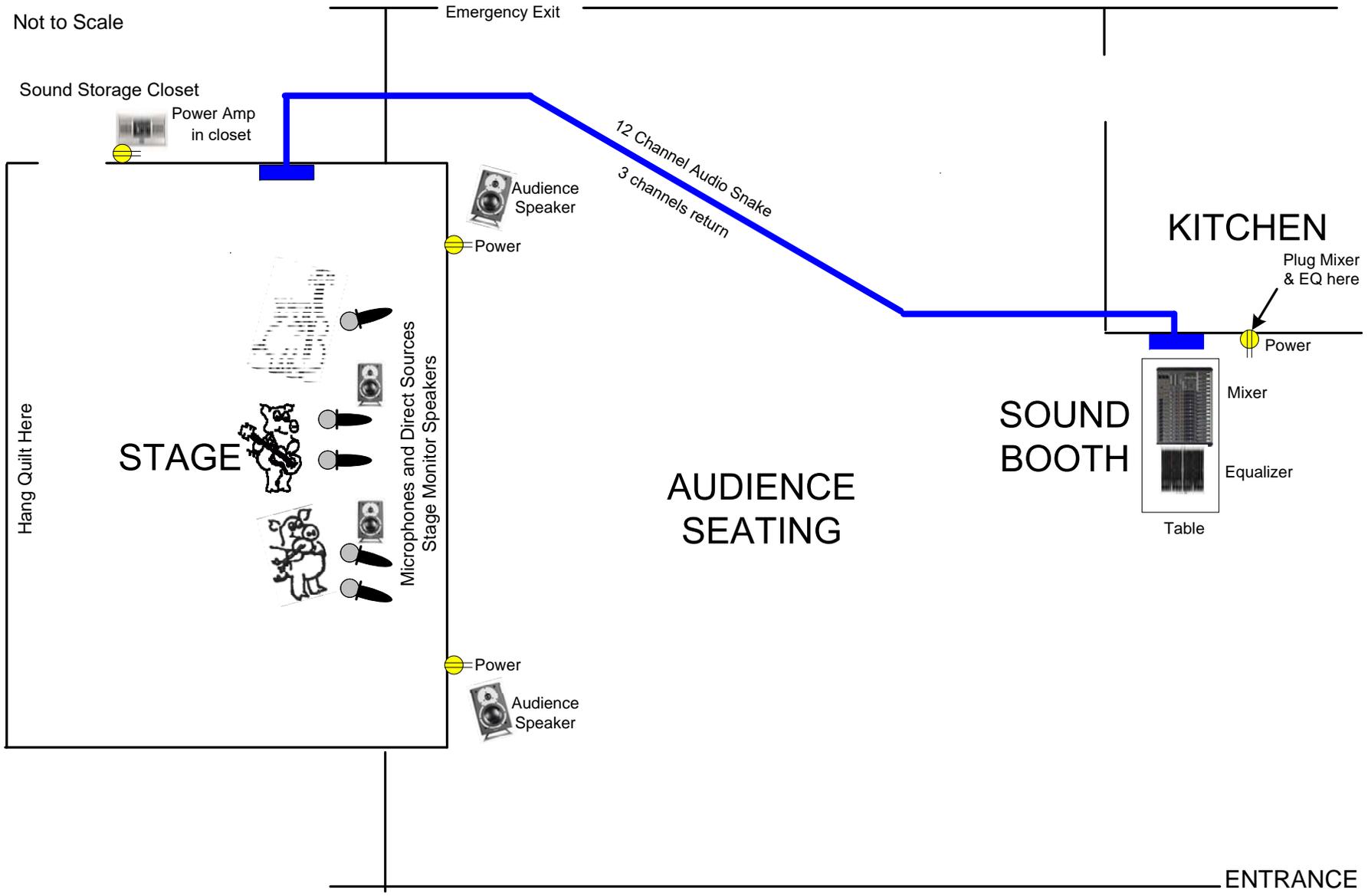
www.WildHogInTheWoods.org/Members/SoundOperations

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JPoindexter

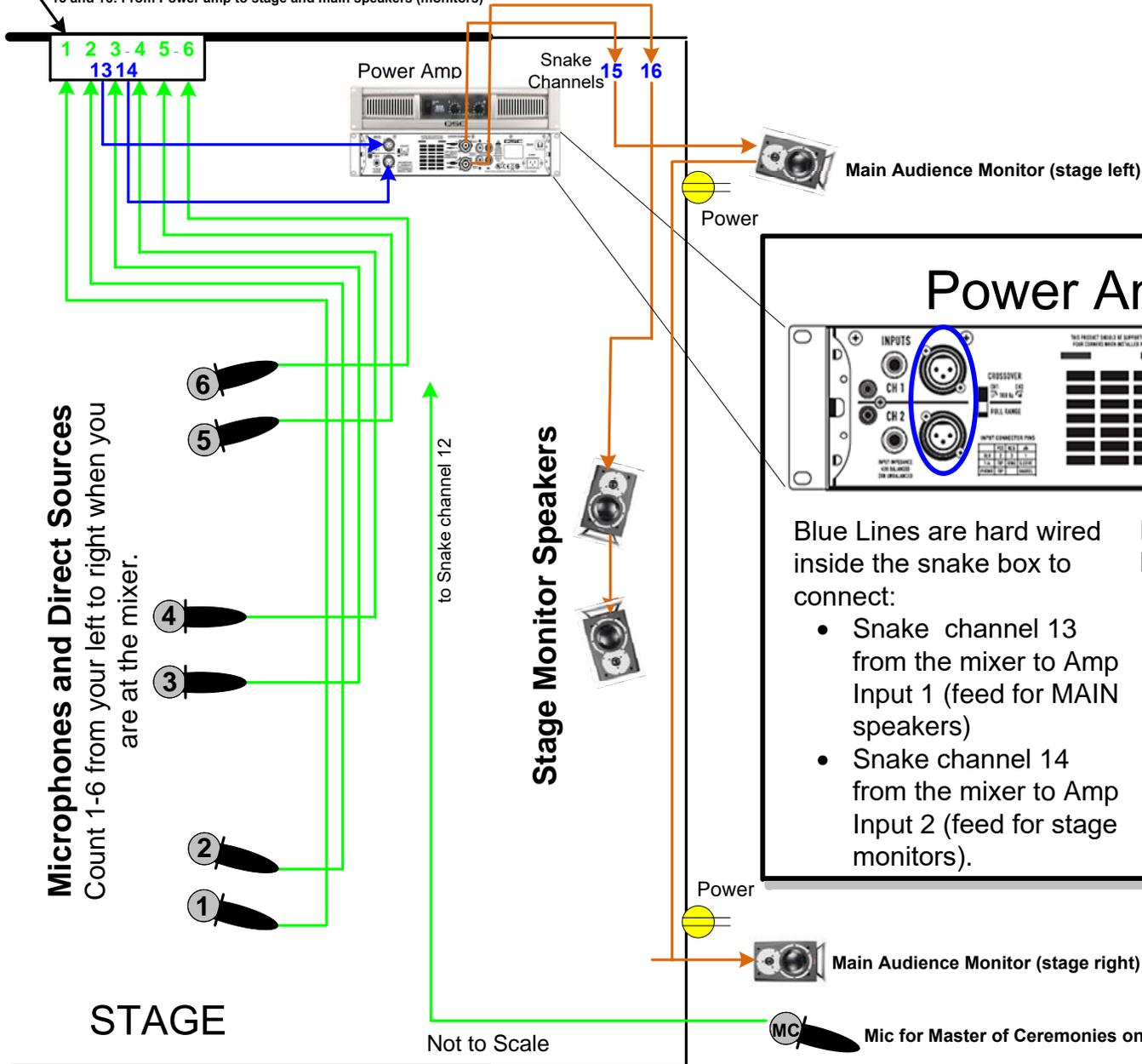
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Overview of the Stage and Floor at Wil-Mar

Audio Snake to/from Mixer

1-12: Voice (microphones) & Instrument channels to mixer
 13 and 14: From mixer to power amp
 15 and 16: From Power amp to stage and main speakers (monitors)



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

Stage Monitor Speakers

Power Amp Back Panel

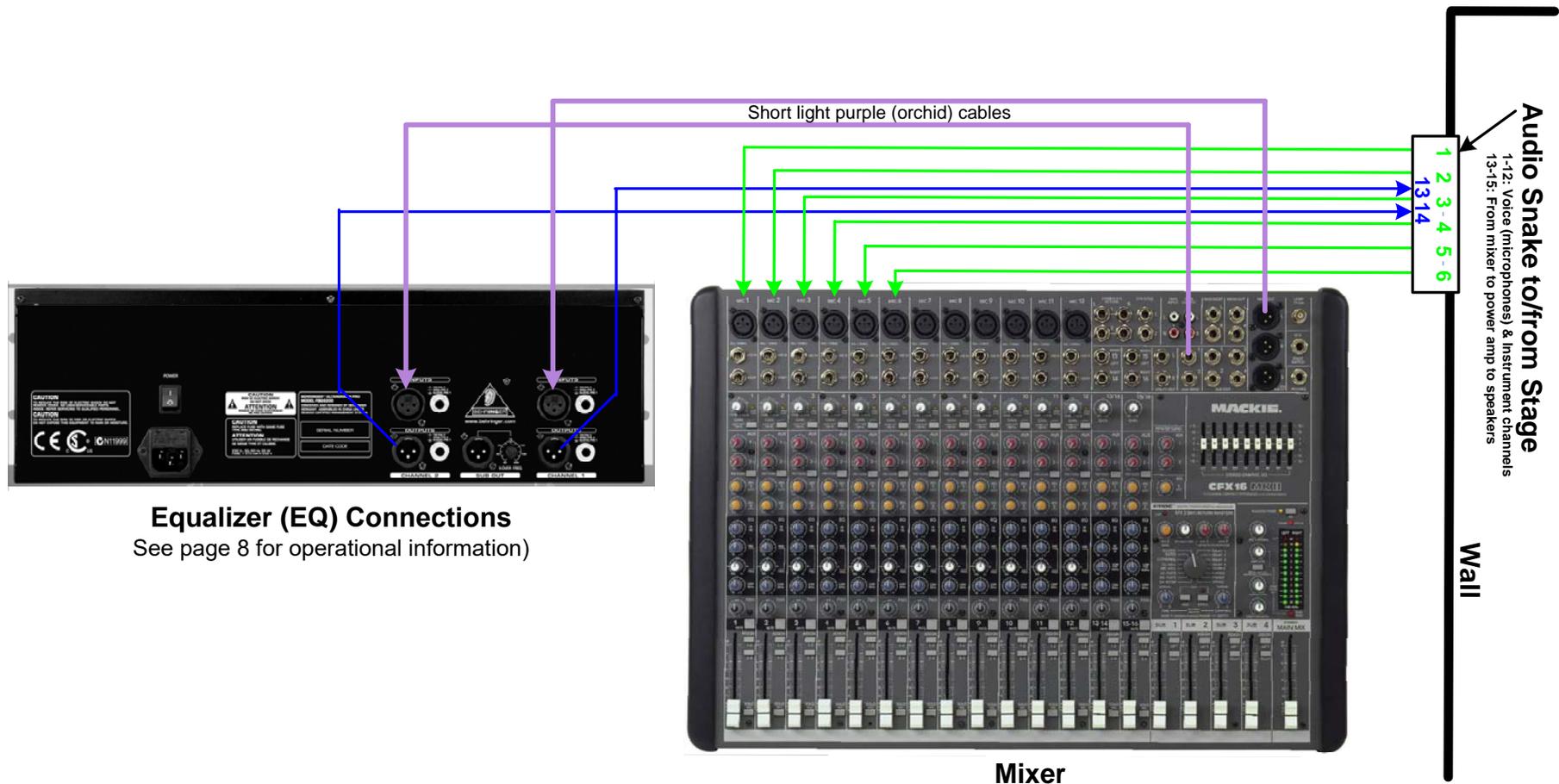
Blue Lines are hard wired inside the snake box to connect:

- Snake channel 13 from the mixer to Amp Input 1 (feed for MAIN speakers)
- Snake channel 14 from the mixer to Amp Input 2 (feed for stage monitors).

Brown Circlehard wired in the snake box 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.

Setup on Stage



Equalizer (EQ) Connections
See page 8 for operational information)

Mixer

The **green lines** are from the microphones and "directs" 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

Start Here:

1. Bring out the rugs, quilt and stand, two black carts and 2 speaker stands from closet.
2. Setup the speaker stands on the main floor.
3. Roll the carts to near the stands to mount main speakers on stands.
4. Remove stage monitors from carts to the stage floor. Then roll carts to the back off the stage.
5. Now you can place rugs and secure with gaffers tape.
6. Hang the Hog quilt along the back wall of the stage when you have a second person to help.

Then, on Stage:

1. Put both cable cases on one black cart.
2. Run 15 foot speaker cables between speakers and the snake box on stage. Snake channel 15 goes to the first MAIN speaker. Snake channel 16 goes to the first Stage Monitor.
3. The 30 foot cable goes from the first MAIN to the second MAIN.
4. The 8 foot cable goes from the first Stage Monitor to the second Monitor.
5. Stow the Speaker Cable Case in a cart.
6. Set up mic stands.
7. Run mic cables found in the Microphone Cables box.
8. Install mics and direct boxes. Shure SM-57 and 57a for Instruments and SM-58 for vocals. (Mics in small silver case)
We have 3 direct boxes.

Mixer/EQ Setup at Sound Booth:

1. Set up Mixer and Graphic Equalizer.
2. Install cables to snake box as needed.
3. Turn down mixer main and monitor volumes and reset all sliders and knobs and turn off phantom power, etc.,so you have a fresh setup and nothing lingering from the previous concert.
4. Turn on mixer and EQ.
5. In the sound closet, turn on amp and set levels at 11 o'clock.

Mixer Controls:

1. Confirm that the Mixer's "Mute" button is off
2. Slide mixer's Main master and monitor master at unity
3. Slide Sub 1 & 2 to unity
4. Input Channels on mixer:
 - a. PreAmp Gain at 50%
 - b. All channel EQ's set flat
 - c. Bring up mic channel mains to Unity

Sound Check before talent arrives:

- a. Test mics (you can plug mics in place of DI's to test those channels if talent haven't plugged in yet) and adjust preamps if needed.
- b. Turn mains down and repeat with stage monitors

Note about Mic Input sequence at mixer:

1. Easiest to have reflex reaction when adjusting the mix to assign mics to mixer channels, when looking at stage to assign from left to right. Each musician has their **V**ocal, **I**nstrument, and **D**irect channels grouped together (V,I,D).
2. Alternate individual preference is to group all vocals together, then instruments. However, if someone has to jump in for you, we all use method 1.

Setup Tips

Sound Check Hints:

1. If you are running sound, contact the talent the week before and ask for their stage needs or stage plot. Get their email address from another member or find the talent web page link in our web calendar. 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. Some may sound brighter with mid-ranges turned down a bit. Some guitars may pick up the bass strings more than treble, so reduce base on that channel (except bass fiddle, for example). Otherwise, stay flat for most instruments.
6. We are a listening environment. 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 describing the problem.
9. Find manuals, tutorials and additional information on our web site at wildhoginthewoods.org/Members/SoundOperations

Sound Check

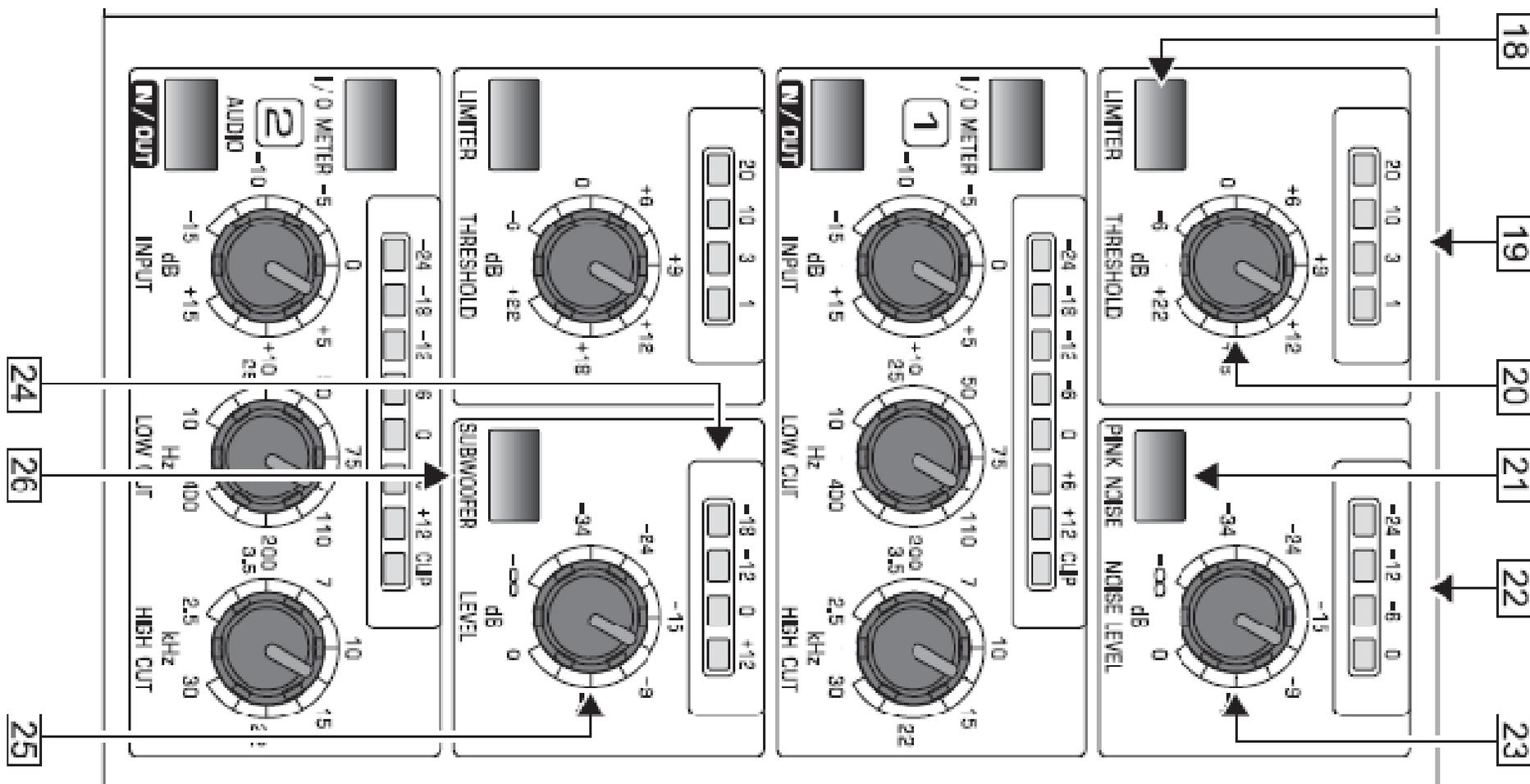
Teardown after the show- Go in reverse order from your setup:

1. As soon as the show is over and before unplugging any audio, mike or power cable, follow this order to prevent popping the amp:
 - a. Turn down main and monitor volumes on Mixer.
 - b. Turn down volumes on Amp in closet.
 - 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, but do 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 take-down. Might as well return any "Directs" (DI) adapters to the case at this time, too.
 - c. Skip to step 3 below until performers are off stage. You don't want to get in their way or knock an instrument over.
 - d. Once performers have cleared the stage, unplug all cables from the Snake, Amp, Speakers and other equipment, lay on floor.
 - e. Before wrapping cables, remove and collapse mic stands and set aside. Stands are the last items to go back into the closet.
 - f. Now the stage should be clear of instruments, mics and stands, etc., so you can wrap (coil) each cable separately and store in appropriate case (mic cables in one box, speaker cables another, etc. By this time, the coordinator and back of house volunteer may be free to assist.
 - g. Remove speakers from stands and store on top of carts, Do not set speakers on their grills as you could dent or scratch them. Collapse speaker stands.
3. At the Mixer:
 - a. Unplug all cables from snake, mixer and EQ.
 - b. Put Mixer and EQ in their protective case.
 - c. Wrap cables and store in brown suitcase.
 - d. Return to Step 2.d.
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.

Take-down after the concert

Additional Tips and Readings

follow this page



Make sure the EQ is "IN" for both channels. If feedback occurs, it will lite up the frequencys involved in the sliders. Rduce the lit sliders enough to eliminate feedback. Channel 1 is the main monitors. Channel 2 is the stage monitors. We don't usually need to adjust the round controls. Do not use the limiter for folk music (button 18 is in OUT position). Pink Noise off. Low Cut filter can be set to 75 to reduce 60 cycle hum and High Cut set to 30 unless you can't control feedback.

Equalizer Controls



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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

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

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Source: All Mixed Up, by Bob Mills 4th Edition 2008 www.bobmills.org/amu/index.shtml

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 windscreen 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.