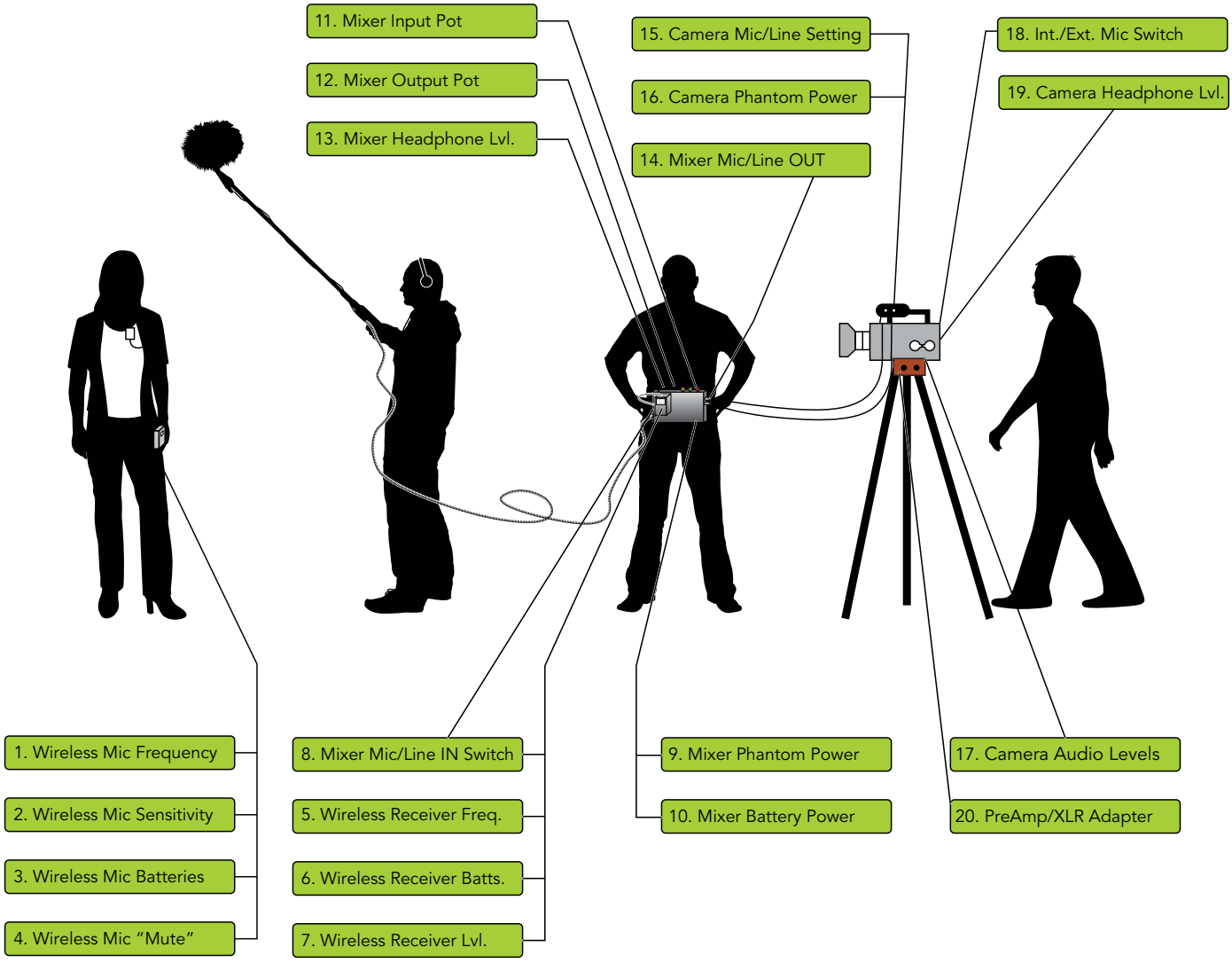
Audio Troubleshooting Guide



When I say, "Your audio is more important than your video," I don't mean in terms of the storytelling—all the elements of storytelling are important. What I really mean is that you have to always pay careful attention to your audio because there is much greater potential for things to go wrong. And when audio problems do occur, they are usually much harder to detect, cover up, or fix (if they can even be fixed at all). To me, that makes audio more important.

There are anywhere from 6 to 20 possible points of failure that might cause you to have bad audio or no audio at all. In most cases, it's simply a matter of a single switch being on the wrong setting. The best and fastest way to diagnose the problem is to physically trace the path of your audio signal (aka "audio chain") in order from the mic all the way through ALL the audio devices, settings, and switches until you get to the final signal being recorded to your camera.

1. Wireless Mic Frequency

Check to make sure that your wireless mic transmitter unit is on the same frequency as your receiver unit. If the frequencies don't match exactly (including the number after the decimal points), you will get no audio signal at all or a weak signal that fades in and out.

2. Wireless Mic Sensitivity

Make sure that you have adjusted the sensitivity on the wireless mic transmitter unit to reflect healthy levels, which should be somewhere just to the right of the middle. If your sound is too low or too hot, this is the first place to check in the "audio chain."

3. Wireless Mic Batteries

Check to make sure that your mic transmitter unit has sufficient battery power—at least two bars or more. It's always best to start out with fresh premium-brand batteries.

4. Wireless Mic "Mute" Switch

Another simple but common mistake is not to realize that the mute button is turned on for the mic unit. (A mistake that I have made on more than one occasion.) Check the "mute" switch on the mixer and look out for a mute indicator on the display screen before you waste a bunch of time checking all the other settings below.

5. Wireless Receiver Frequency

Your wireless receiver is the other half of the wireless mic unit that's picking up the signal being sent by the mic transmitter. It too must be on the exact same channel as the transmitter, or you will get a degraded signal, static, or no audio signal at all.

6. Wireless Receiver Batteries

Next up, check to make sure that your receiver unit has enough juice to last the whole gig. Low battery power on ANY sound device is like local TV—nothing but bad news.

7. Wireless Receiver Level Out

Next up, make sure that your wireless receiver unit is being sent out to your mixer or camera at good and healthy levels—generally described as somewhere just right of center.

8. Mixer Mic/Line IN Switch

If you are using a mixer (highly recommended), then the receiver gets plugged into the mixer input, which can be set to receive a mic- or line-level signal. Generally, if you are plugging in a microphone, this will pretty much always be set to "mic." For anything other than a mic it will probably be set to "line." (Imagine that. Something in video that's actually intuitive for a change!)

9. Mixer Phantom Power

Most shotgun mics are condenser mics that require phantom power to work. The phantom power comes from whatever device they are plugged into, be it a camera, mixer, or other device. However, phantom power is yet another switch that must be turned on when using condenser mics or "there shall be no sound for you!"

10. Mixer Battery Power

Always periodically check to make sure that your mixer still has plenty of battery power throughout shooting. Ideally, your mixer will just stop working if the batteries run low, but beware—some models such as the Shure FP-33 field mixer won't just cut off, but actually start to record worse and worse audio as the audio signal dies a slow and ugly death. You won't always catch this quickly in your headphones in a live performance situation, so make it a habit to check routinely. I recommend always starting with fresh premium-brand batteries for every shoot.

11. Mixer Input Pot

Now that we've established that the mixer has good battery levels and that the input jack is set to receive the right kind of signal—mic or line—the next thing is just to make sure that the input pot (aka knob) is turned up sufficiently if you are still getting no audio or low audio.

12. Mixer Output Pot

From the mixer's input pot, the audio signal is sent over to the mixer's output pot, where the level can be adjusted again for whatever device will be recording the final signal—likely a camera or audio recorder. Once you send tone to a camera or recorder and set the levels, it's extremely important that you do not change the output again. (Note that some mixers may not have an output pot, which is fine, because that's one less thing to worry about.)

13. Mixer Headphone Level

Often your audio signal will be getting through to the camera just fine, and you'll be checking all the knobs and meters trying to figure out what's wrong, and the only problem will be that you didn't have your headphone volume (aka monitor volume) turned up. If you see strong audio levels on your peaking meters but are still hearing low levels, you probably have your monitor volume turned down too low.

14. Mixer Mic/Line OUT

Make sure that the "mic/line" setting going out of the mixer is set to the exact same setting as the mic/line switch on your camera. The "line" setting is the stronger of the two types of signals, so set it to "line" whenever you have that option on your camera or recorder. If these settings don't match between mixer and camera, your signal will be extremely weak or horribly over-modulated.

15. Camera Mic/Line Setting

Same thing I said in #14 above, but now you're checking for the correct switch setting on the camera.

16. Camera Phantom Power

If you are going straight into the camera from an external mic and getting no audio signal at all on your LCD screen, you probably have the phantom power turned off. Look for a setting (usually right under the XLR input port) that says "Mic +48V." That's the phantom power. Dynamic (i.e. unpowered) mics and mixers do not require phantom power to operate. Note that you want to always turn OFF the phantom power on your camera or audio recorder for a signal coming in from a mixer or other device (such as a Beachtek or Juiced Link XLR adapter) that already has its own power. Having phantom power turned on unnecessarily could cause funky audio problems or even damage some equipment.

17. Camera Audio Levels

Now that you are sure that the little black box on your camera has all the right settings, check to make sure that the levels for audio channels 1 and 2 are actually turned up. (Some models may use L—left and R—right instead of channels 1 and 2.) Many earlier generation prosumer cameras were designed such that these dials could easily get accidentally bumped during production, which resulted in many amateur audio disasters. Most designs these days have recessed dials or a little plastic shield, making it much harder to accidentally change the levels during normal camera handling.

18. Internal/External Mic Switch

Another little switch to look out for is the internal/external mic switch, which selects between recording a signal from the camera's internal (i.e. built-in or onboard mic) and any external mic or device plugged into the XLR ports. A very common and dangerous mistake is to have another mic plugged in, but to inadvertently have this switch set to "INT" (internal). It's dangerous because filmmakers are often fooled by the fact they're getting audio levels and sound from their headphones, but it will actually be the audio from the onboard mic, when they thought they were recording from a boom or lav, and it usually sounds pretty bad compared to what they should've been getting. The easy way to avoid this everyday audio disaster is to always listen as you give your mic a gentle tap or rub to make sure that the mic you think you're hearing really is the mic that's being recorded.

19. Camera Headphone Level

Yes, this should be a no-brainer, but sooner or later, we all get temporarily stymied by the old headphone volume being turned down low—the audio equivalent of leaving the lens cap on. Just as with the mixer, always check the camera's monitor (aka headphone) volume level if you are hearing very low levels or no levels. It's a simple but common error, especially since we often turn down the headphones when we record bars and tone to camera during our audio setup.

20. PreAmp/XLR Adapter

Although it's not actually hooked up (or needed) in the diagram here, filmmakers shooting on DSLR cameras or cameras without XLR ports, usually will have some sort of audio device such as a pre-amp or XLR adapter that allows them to hook up professional XLR audio mics and devices into their camera's mini-stereo audio input. Make sure these units are turned on, fully plugged in, have sufficient battery power, and the proper mic or line level settings—or once again, you could easily end up with no audio or bad audio.

A final note: So now that you've read all that, I think it's a little more clear why I always say, "Your audio is MORE important than your video." There are many more potential points of failure with audio—some tricky to detect. However, you will learn them all with painful experience, or by having the wisdom to read this book... Smart choice.