

# The Stagehand's Audio Handbook

## Book One

The International Alliance of  
Theatrical Stage Employees

Local 17



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# Section One

## Basic Overview of Stagehand Audio

As a stagehand you will be required to assist the sound designer or sound engineer during the course of setup and performance of shows. At times you may be called on to be the only audio person. As you go through this course you will find the information that is needed for you to fulfill your obligations.

### Tools

First let's discuss the tools that will be helpful. The tools that I mention may be above the required list from the local, but if you plan to pursue audio at an advanced level you will wind up needing them.

1. The **multi-tool**. This is your Gerber type of tool most stagehands are familiar with. It should include at minimum a knife, Philips screwdriver and a flathead. You keep it on you at all times, accessible.
2. A **Sharpie** marker. This is your typical black sharpie, which you will use to mark the board and cable connections with. Never mark directly on someone's equipment. Always use board tape.
3. **Board tape**. This is a white tape between 1/2" and 3/4" in width. Use this with your sharpie.
4. A **crescent wrench**.
5. A **small flashlight** so you can see inside the equipment racks.
6. **Black electrical tape**.
7. A **multi tester**. This tester should have the capabilities to test voltage, ohms and continuity.
8. A **soldering pencil and solder**. This will be used to make simple repairs of bad cable connections.
9. **Wire strippers**.
10. A **cable tester**. This is a specialty tool many different types of cables can plug directly into to test the cables.
11. A set of **precision screwdrivers**. This is a set of screwdrivers of various head types that are very small. Much of the equipment used in audio uses very small screws.

This tool list is just a starting point for someone who wants to pursue audio as a specialty skill. As a stagehand, you are required to bring tools that relate to the job. They must include a multi-tool, a crescent wrench, a black sharpie marker, white board tape, a small flashlight and black electrical tape.

## Audio Systems

The first audio system to understand is a very basic setup that may be used for the situation in which one or two people may be speaking to a group. This system is extremely popular with convention acts that may have a single keyboard player and vocalist.

The signal flow of this system includes a microphone, a microphone cable, a microphone stand, a **powered head mixer**, two full range speakers and two speaker cables. This will most likely be the first sound system you as a sound operator will use. The best advice I can give you is that when you first turn on the power is to make sure that the volume is turned down. This will keep you from making any loud feedback type of sound. There are usually at least two volume controls, one for each channel and the master volume control. Then, bring up the volume controls slowly as you speak into the microphone. Once you can hear your voice at a reasonable volume adjust the tone controls until the sound coming from the speaker sounds like your own voice. The tone controls are labeled as low, mid and high. On some older heads you may see the words bass for the low and treble for the highs.

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The next sound system is the basis larger sound systems are built upon. The signal flow of this sound systems starts with microphones and cables that go into a multi-channel audio snake, which connects to a **non-powered mixer**. This mixer will usually be found out in the auditorium. This is called the **Front of House Mix Position**. This FOH mixer then sends the signal back to a separate amplifier. The amplifier then sends the signal to the speakers.

As the audio engineer gets into larger venues a number of **signal processors** can be used to give the system clarity and volume. These signal processors include the equalizer, the compressor, the crossover, multiple amplifiers, bi-amp, three-way and four-way speaker systems.

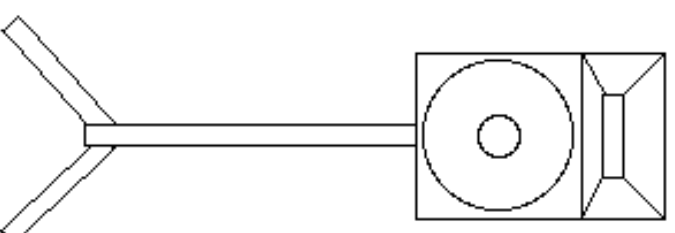
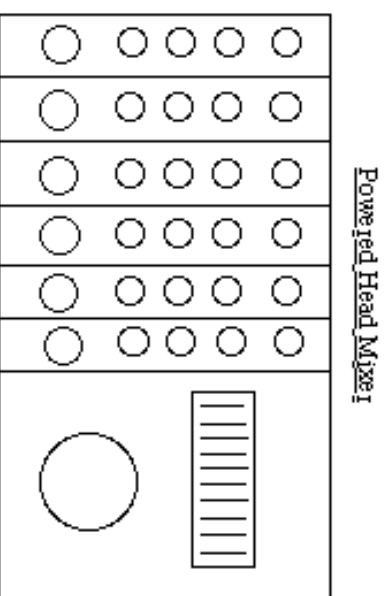
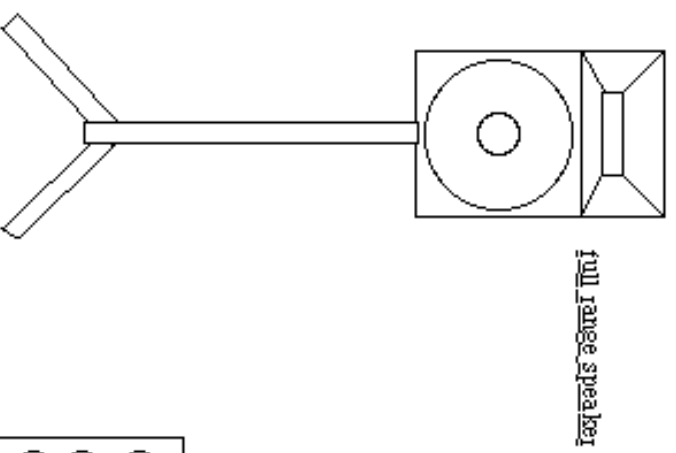
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It is at this point that the monitor engineer may be added to the call and a number of audio mixes now become possible. This is the situation that is usually found with live musical acts or large touring shows. This system is a very versatile system but also very complex. This will be located at an onstage position or in the wings. We will cover this in greater detail later on. This position is called **Monitor World**.

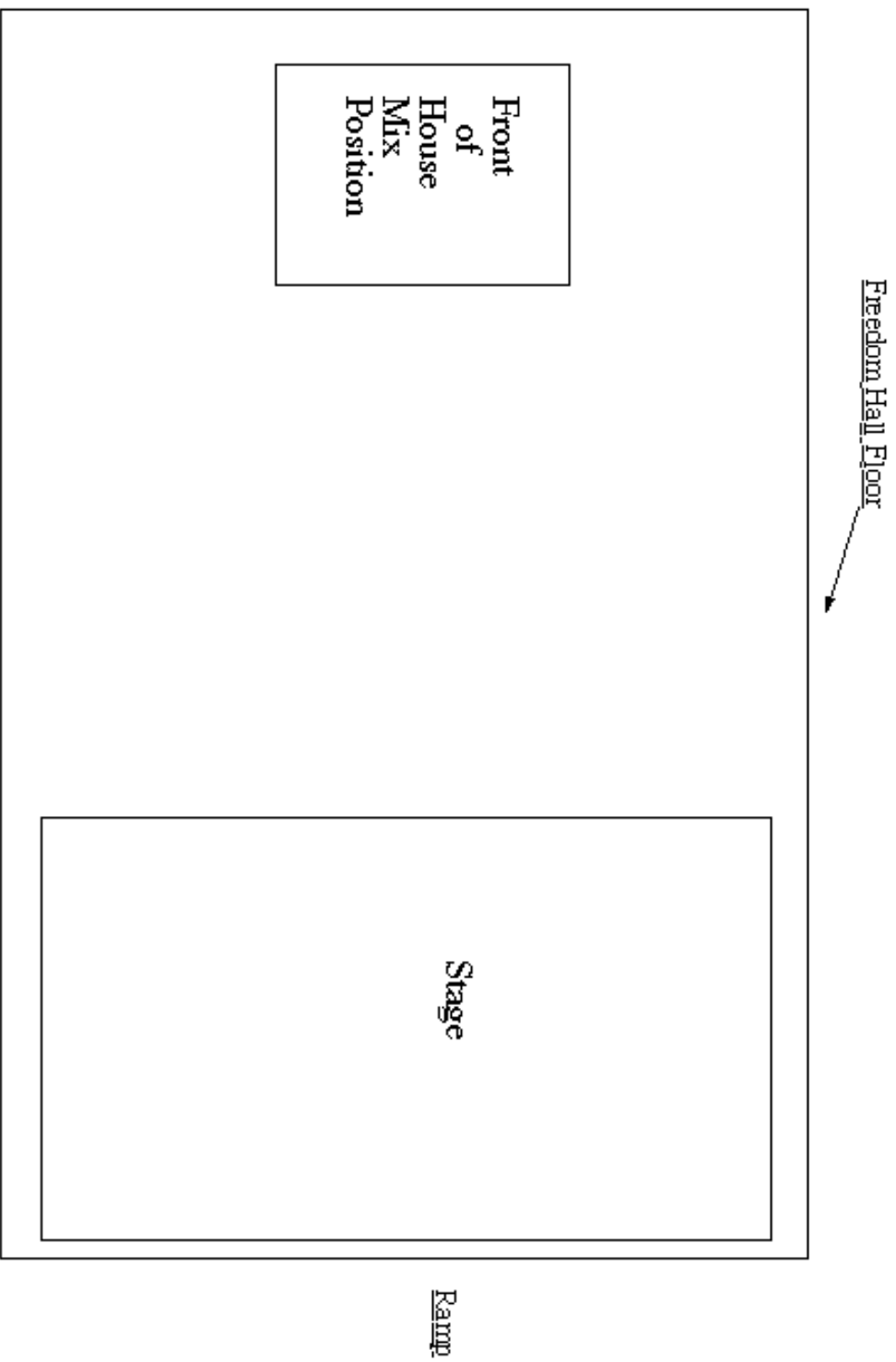
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This has been a quick overview of audio systems. Some of the terms and diagrams will probably be confusing. But as we go along you will see a building process and it will become clearer.

Ex. 1-1. A basic audio system.

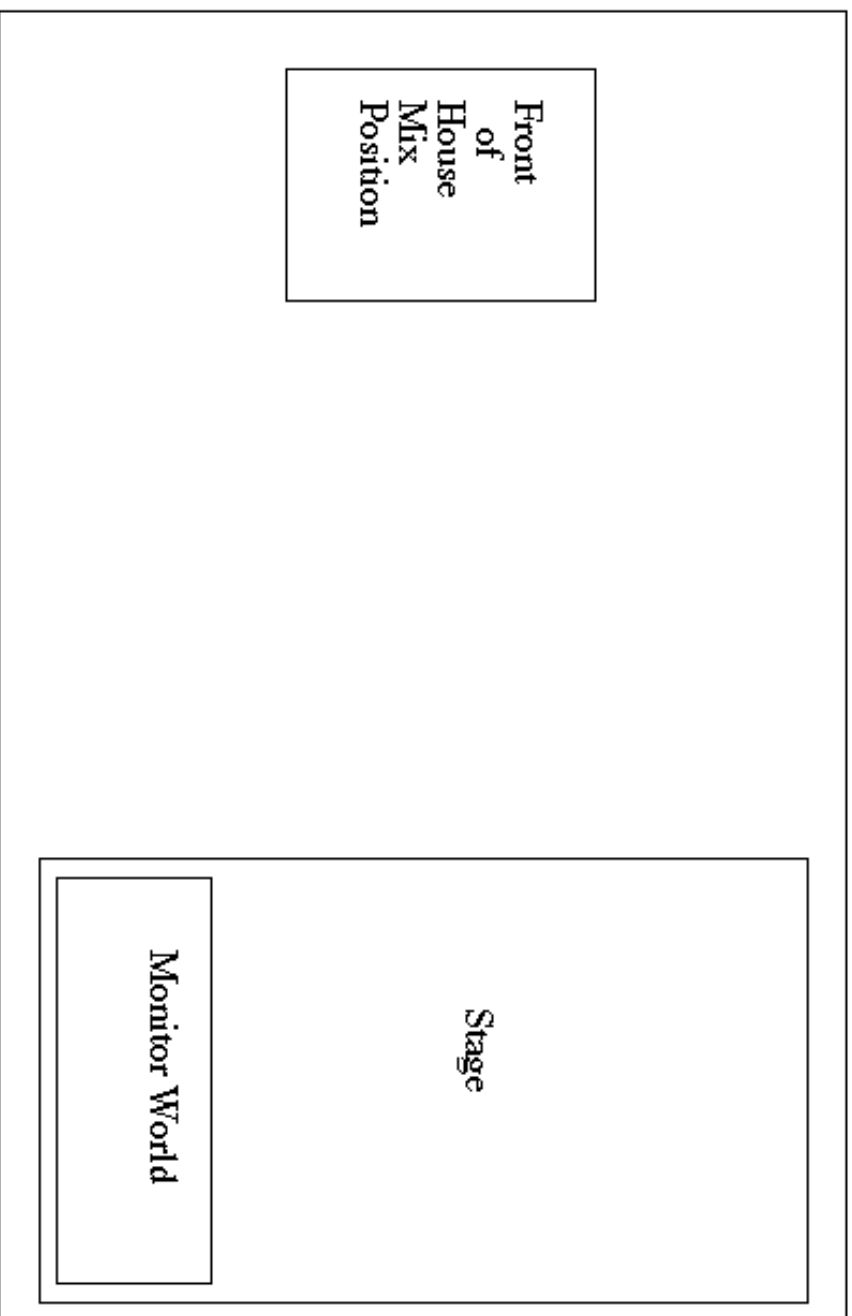


**Ex. 1-2. The Front of House Mix Position**



**Ex. 1-3. Monitor World Mix Position**

Freedom Hall Floor



Ramp