The Stagehand's Audio Handbook
Chapter Two

The International Alliance of
Theatrical Stage Employees

Local 17

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Section Two
Microphones and the Direct Input Box

This section will introduce you to microphones and direct input boxes (D.I.). You should become familiar with the most popular of these. I suggest you pay particular attention to this chapter. As a stagehand you will be dealing directly with these audio components on a daily basis.

Microphones are used to turn the audible sound of the human voice, musical instruments and any thing else that makes a sound into an electrical signal. This signal is then sent to the mixer, thru the processors, and finally to the speakers which turn the electrical signal back into an audible sound. There are numerous manufactures and models of microphones, but here we will only look at a few.

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Dynamic Microphones

Shure SM 58

The most popular microphone is the Shure SM 58. This is a very versatile microphone with many applications. It picks up sound from a wide area. However it is most commonly found being used with vocalists or public speakers.

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Shure SM 57

The Shure SM 57 is counterpart to the SM 58 and is used to mic the instruments. It is commonly used on the snare drum and guitar amplifiers. The SM 57 has a narrow pattern that picks up the sound. This makes it useful when instruments may be close together to help eliminate bleed over.

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Shure Beta 56

The Shure Beta 56 is smaller than the other microphones. It is often used on the drum kit over the tom-toms and floor toms.

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Shure Beta 52

The Shure Beta 52 is a much larger microphone than the others. This microphone is used on the kick drum of the drum kit, on the bass guitar amplifier speaker and is good for any low frequency applications.

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Electro Voice RE 20

The Electro Voice RE 20 is a versatile microphone that has been around for a number of years. It is very popular with broadcast and studio engineers. It is also found in the live situation in many applications. This may include anything from overhead microphone placement of a choir to lead vocals.

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Condenser Microphones

Condenser microphones can pick up very faint sounds and are used for a number of applications. This may include overhead placements, on the drum kit for cymbals, and numerous other applications including vocalists. As a general rule, do not put a condenser microphone on the kick drum or bass guitar. The reason being that many condenser microphones can be destroyed by low frequency sounds. The SM 81, AKG 451 and AKG 300 are examples of condenser microphones.

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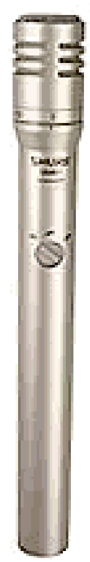
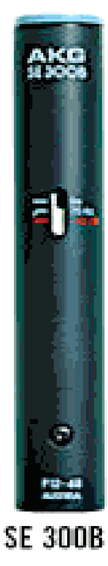
Shure SM 81



AKG 300



Direct Interface Boxes

The Direct Interface (D.I.) Box is used to convert the signal of instruments such as bass guitars and keyboards into a signal that can be sent directly to the mixing console. At times it is preferable to use the D.I. box instead of the microphone because it presents a cleaner signal.

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Surface Microphones

The surface microphone is used frequently in theatre or in dance. This microphone mounts on the floor and is good for picking up tap dancers and cloggers. The microphone is also used to send a signal feed back to the stage manager allowing this person to hear the actor’s voices. The AKG 547 is an example of a surface microphone.

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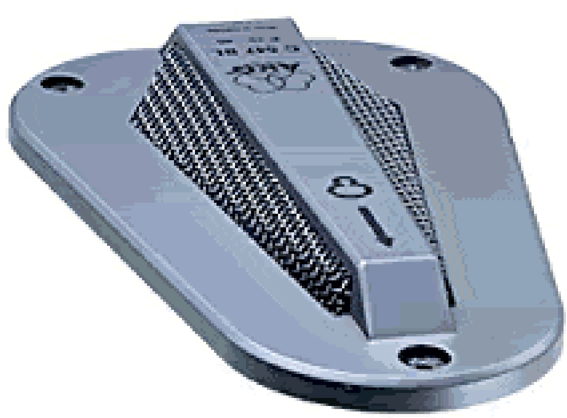
AKG 547



Wireless Microphones

Wireless microphones have become quite popular over the past few years. Wireless microphones allow the performer or speaker to move about freely on the stage and out into the audience. The wireless microphone comes with a base unit that receives the signal the microphone is transmitting. In addition to the handheld version of the wireless microphone, there are also lavalier (clip on) microphones and headset microphones that work with the base unit.

Lavalier Microphone

Head worn Microphone

Podium Microphones

Podium microphones are usually long with the arm of the unit flexible. The microphone attaches to the podium or lectern. This microphone is used for public speaking and panel discussions.

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Windscreen

A windscreen is put over the microphone. It helps eliminate the popping sound that some vocalists make when they breathe. If being used outdoors it keeps the wind sound from roaring in the microphone.

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