

Sound: Equipment and Supplies

Sound Equipment

SOUND CONTROL EQUIPMENT

sound control board for controlling the operation and volume of speakers and microphones; inputs and controls music, voice-overs, or effects from tapes, records, and CDs

headphones for listening to and fine-tuning the sound track

headset for communicating between the sound board operator and the stage crew; may be a complex system or radio- or battery-operated

RECORDING AND PLAYBACK EQUIPMENT

amplifiers for providing a power supply to speakers and other audio equipment

equalizers for evening out sound production during multiple-microphone usage

mixer for mixing input sounds from microphones, turntables, tape decks, or other input devices

speakers for projecting sound into the house

compact disk player, turntable, cassette deck, and reel-to-reel deck for recording and playing music, voice-overs, or effects

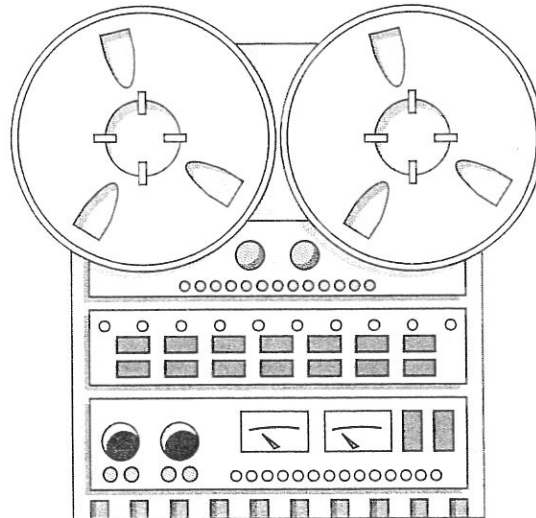
microphones (floor mic, standing mic, hanging mic, wireless mic) for recording and amplifying music and voices

transmitter and body pack for operating wireless microphones

Sound Supplies

ASSORTED RECORDING SUPPLIES

cassette tapes, reel-to-reel tapes, microcassette tapes, splicing tape, nonrecording cue tape, grease pencils, 9-volt batteries (for wireless microphones and headsets)



Reel-to-reel tape deck

Sound Basics

In a sound system, sound is transmitted as electrical signals from a device such as a microphone or turntable and recorded onto magnetic tape—or, in a computerized system, onto a computer file. The signals are blended in a **mixer** and sent to **equalizers**, which even out their tone. The manipulated signals are then boosted by **amplifiers** to drive **speakers**, from which they are broadcast as audible sound.

Most sound used for theatrical production is recorded on reel-to-reel tape decks; the 1/4-inch tape is easy to edit and mark with exact cues. A **cue** is a signal for something to happen; in this case, a cue is a point on the tape at which recorded sound should begin to play. In computerized systems, all editing is done on the computer; no tape is required.

Editing Audiotape

Editing audiotape involves **splicing**, the cutting and rejoining of pieces of magnetic tape containing recorded sound. It takes practice, but you can splice together sounds from various sources to create a seamless and continuous series of sounds. More often, however, you will edit to create a **show tape**, a tape of distinct sound segments that will be played at particular points in a performance.

On a show tape, the nonrecording leader tape, or **cue tape**, runs between segments of tape with recorded sound. The cue tape segments are labeled using a grease pencil. It's best to leave at least 1/2 inch of magnetic tape between the splice and the beginning of a cue and about 1 foot of magnetic tape after the sound ends. Insert about 2 feet of leader tape between cues.

SPLICING AUDIOTAPE

1. Place the uncut audiotape, magnetic (shiny) side down, in the groove of a splicing block and cut it with a nonmagnetic single-edge razor blade (fig. 1). If no splicing block is available, cut the tape with a scissors at a 45° angle; a 90° splice tends to create a gap in the sound production at the point of the splice (fig. 2).
2. Do the same with the end of the second tape to be joined to the first—whether recorded audiotape or cue tape.
3. Lay both ends in the splicing block next to each other and firmly apply a short (1-inch) piece of splicing tape to join the two tapes (fig. 3).
4. Trim away any edges (fig. 4).

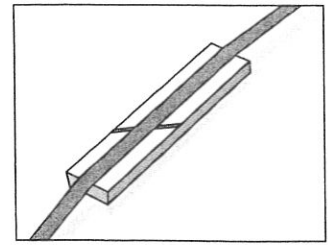


fig. 1

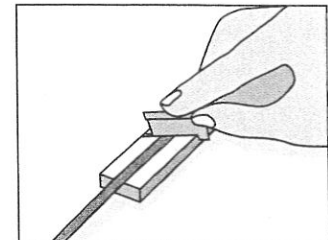


fig. 2

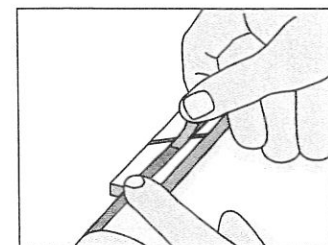


fig. 3

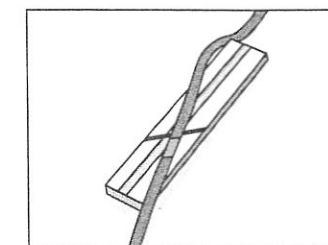


fig. 4



TECH TIPS: RECORDING AND EDITING SOUND

- Record sounds at a high enough volume to avoid unwanted “noise” but not so high that you have distortion; it’s easier to decrease the volume on the playback and maintain quality than to increase the volume, which can also increase the noise level.
- When you are finished recording a sound, use the pause lever before pressing the stop button to avoid a popping sound.
- Instead of marking your sound cues on leader tape, you can record them orally onto the recording tape. This means you have to use a headset when you are cueing sound. Leave 2 feet of recording tape between the sounds, with volume set at 0.
- Use reel-to-reel tape recorders instead of cassette tape recorders for sound that needs editing. Standard cassette recorders travel at a slow speed, which means the sound takes up a very small space on the tape. This makes the sound difficult to locate and edit.

Tape Loops

Because recorded sounds must often be cued up in overlapping patterns, it’s a good idea to have more than one tape deck. When a sound or sound effect must continue in the background of a scene for an extended period of time (for example, rainfall, crickets, or wind), you need to make a **tape loop**. A tape loop requires the use of a reel-to-reel tape deck, and no other use can be made of that particular deck while the loop is running during the scene. Other sounds, effects, music, and so on, can be run through the system at the same time, but not from the deck being used for the loop.

MAKING A TAPE LOOP

1. Locate (or create) the desired sound or effect. Record it on high-quality magnetic recording tape repeatedly for at least 2 feet of tape. Be careful that the sounds do not overlap, but are smoothly consistent throughout the tape.
2. Carefully place the tape around both reels, but do not attach it. If possible, use small reels. Run one end through the tension rolls and heads of the machine. Bring the two ends of the tape together, leaving no slack in the loop. On the dull side of the tape, mark with a grease pencil the spot where they come together.
3. Carefully remove the tape from the tape deck and splice the two ends together at the grease-pencil mark.
4. Replace the loop carefully around the empty reels, holding back the tension rollers while slipping the tape past the heads. If the tension seems tight enough, play the tape.
5. If the tension is not tight enough, resplice the loop to make it smaller. If there is a jump or glitch in the sound at the splice, you may have to resplice a small amount to eliminate it.

Sound Design and Production

Sound fulfills three distinct functions in the theatre: it amplifies speech, provides special effects, and supplies music to enhance the mood and meaning of a play. You can manipulate the sounds you produce by changing the tone, intensity, or balance of sound through the speakers.

Script Analysis for the Sound Designer

Like the other designers, the sound designer must read the script to understand its needs. Read once for meaning, and then a second time to imagine the sound effects. In your Theatre Notebook write a list of what you hear as you read. You can refine the list later.

Some scripts will require nothing more than music and a few doorbells; others have more unusual and challenging demands. For Eugene Ionesco's *Rhinoceros*, sound technicians had to recreate the sound of stampeding rhinos. They produced the sound simply by thumping gently on a live microphone, then playing the tape at reduced speed.

Collecting Sounds

Before you reach for your favorite song, remember that recordings, like books, are copyrighted. If you wish to record sounds from television, radio, or prerecorded sources, you must make sure the sound is in the public domain or get written permission from the copyright holder.

Nevertheless, you can use recordings to get ideas for sounds you will need. You also can experiment with sounds to create effects of your own. For example, you might tape a sound and alter the speed on the playback. You can change the settings on your equalizer to boost the treble or bass. You can add reverberation, or cause feedback to mix with the sound. You might also put the sound through a synthesizer or add other sounds to the mix.

Sources of Sound

You can categorize the sounds you collect for a production into three general categories:

- **recorded sounds** recorded music and sound effects available on records, tapes, and CDs
- **created sounds** music played live and sounds created by you
- **found sounds** sounds heard in locations such as zoos, construction sites, and playgrounds

Consider the opportunities for sound in the performance art scene. The script mentions the sounds of clinking silverware and French cabaret music that fades and swells with the voice-over. A **voice-over** is a recording of a voice that plays over other sounds. The voice-over itself is another layer of sound that is used in the scene. What other sounds can be added to enhance this setting? What sounds are suggested by the café?

The sounds you might use here are not constant. Rather, they come in and out at various points in the action. Since they are not scripted, it's up to the sound designer to decide where they will occur. Adding sound to a scene such as this requires layering sounds. You would likely record each type of sound on a separate track. A **track** is a path along which information is recorded electronically; typically, a track is one of a series of parallel paths. Individual tracks can be manipulated to adjust volume and other sound characteristics. Tracks can then be mixed together through a mixer (p. 86) to achieve a variety of dramatic effects. Although you can manipulate the sound characteristics of a track on a reel-to-reel system, you need a computerized system to manipulate the sequence of the tracks. For example, if you recorded the silverware and the sound of a truck horn as it passed by the café at the same point on a reel-to-reel tape but on different tracks, you could manipulate the sound characteristics of each track individually, but you couldn't change their sequential relationship to each other; you can't move the sounds, only record over them. In a computerized system the sequence of tracks can be changed, providing more options for mixing.

On a computerized sound system, the hardware typically has a built-in synthesizer. A **synthesizer** is an electronic device used to synthesize, or artificially create, sounds. With the appropriate synthesizer software, you can invent sounds within the computer system or create realistic sounds without having to depend on recorded and found sounds (p. 232).

A built-in synthesizer will also allow you to compose music. Special software programs and separate synthesizer units can be added to your system for more control and flexibility. You can compose short pieces of music to underlie scenes or parts of scenes or compose entire symphonies, all of which can be manipulated track by track along with other sounds to create your show tape.