

The Art of Tape Recording—IV

JOEL TALL*

The mechanics of tape editing—covering the actual methods of cutting and splicing magnetic tape recordings into a finished program.

DISREGARDING every other quality which makes tape recording valuable to professional workers in audio, tape would still continue to be valued because of its facility of editing. How well the tape can be edited depends upon the judgment of the production personnel, the expertness of the tape editor, the recording itself, and last and possibly least, the facilities that are available. In any case, the edited version of the recording can be no better than the original as far as tonal quality is concerned, although some improvement in tonal balance can be achieved through the various processes of re-recording.

There are certain logical steps which must be taken in the production of a completely edited tape before the tape is ready for playback. Consider one simple form of tape editing, the process by which a talk or speech is condensed without disturbing its meaning or impact. Assume that a half-hour recording of a political speech must be cut to nine minutes and thirty seconds air time. The permission of the speaker must be obtained to condense the speech, and its sense must not be disturbed. Obtain a typed draft of the speech, if it is available, or have a competent stenographer

* Columbia Broadcasting System, New York.

make a typewritten transcript from the tape itself. After this transcript of the speech has been studied, a capable director can condense the speech into the required time *on paper*. (A word of warning may be in order at this point. Occasionally a speaker will wander from his script and "extemporize." In such cases the tape editor will be at a loss unless he makes a practice of not discarding any part of the recording until the editing job is finished.) After the speech has been edited on paper, the production personnel and the tape editor should monitor the tape two or three times: first, to make certain that the excerpts preserve the ideas the original tape contained; and second, that the parts that are to be joined together are "joinable."

That strange word "joinable" means this: A speaker will try to convince his audience by the use of oratorical devices. He will change mood, level, pace, and inflection. He may be sad, joyful, sarcastic, cynical or earnest. It is impossible to edit tape without taking into consideration all of these factors. To attempt to separate mood from pace or level from inflection is useless. They must be considered together, in the many combinations of sounds that make the human voice a most expressive musical instrument. The art in tape editing lies

in the editor's ability to interpret correctly the many factors contained in speech and to utilize them in producing a coherent and authoritative product. Because of this, there can be no hard and fast "rules of editing." There are some fairly adequate generalizations that will result in better productions. For example, it would create a weird effect if a phrase spoken in a high-pitched, excited voice were joined to another phrase in a calm, low-modulated voice. Or suppose that the speaker were popular and frequently had to over-ride applause during his speech. A phrase from the "applause in background" portion could not be joined to a phrase from the "no applause" portion without dubbing-in applause where it is needed.

Where to Cut and Why

As the advertisements tell us, tape is edited by cutting with scissors and splicing the two ends together with an adhesive. The actual methods now in use will be described later. Right now the question is "Where shall I cut the tape?" There are many places where you *can* cut it but there is only *one* spot that is exactly right. In order for you to understand why there is only one right place to cut the tape, we shall diverge from editing to a short discussion on the subject of "hearing."

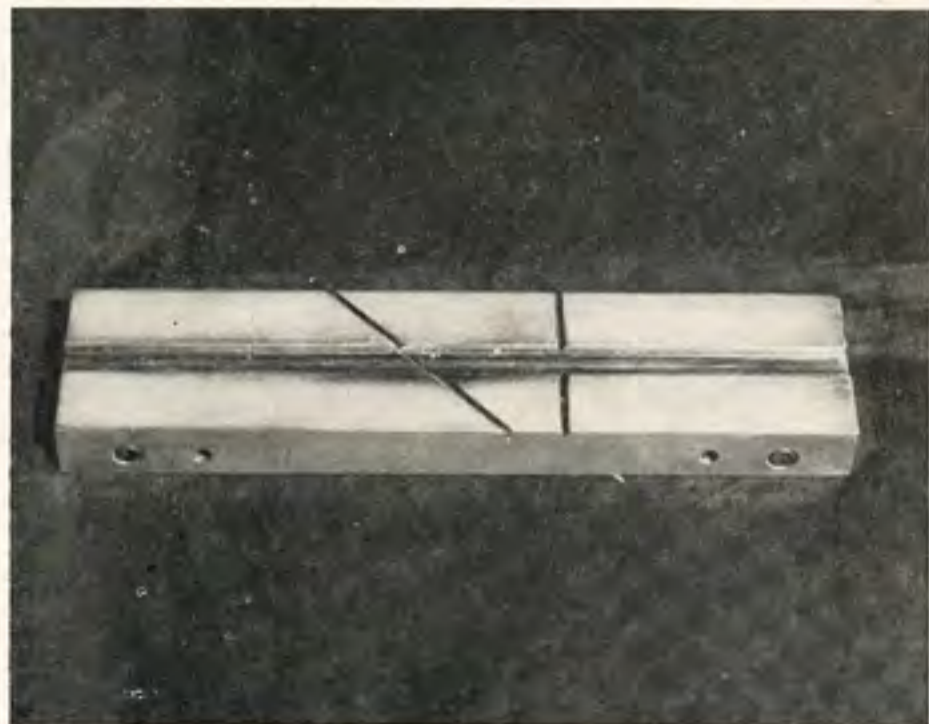


Fig. 1, left. Adjustable splicing block. The original was designed by the author in 1947 and made by Victor Piliero, CBS engineer. Fig. 2, right. Method of marking a cut with a grease pencil inserted through the marking aperture which is at the center of the playback head.

The human ear, when it is behaving normally, can understand, or perceive, an unrelated sound following another sound after a period of time approximately 0.14 seconds long. At the standard tape speed of 15 inches per second, that length of time represents about 2.27 inches of tape. (The ordinary key-click at the above speed would occupy from $\frac{1}{4}$ to $\frac{1}{2}$ inch of space on the tape.) This 2.27-inch space, in normal speech, represents about twice the distance between words. Therefore, to edit accurately, you must find the right place to cut within a space of one to two inches. Within that space you must try to match, as closely as possible, the background sound recorded at the beginning of the next phrase to be joined. After you have noted that the backgrounds match, you must still observe the speaker's natural "pace." The speaker's "pace" or "gait" will vary according to what he is saying and his natural pace must be observed and followed in the edited version so that it is the same as in the original recording. In this connection do not forget that the man who speaks must breathe. Allow time for this function even though it is not audible. The expert tape editor will observe natural breathing habits and edit accordingly. Occasionally this will force him to clip out "breaths" of various lengths and intensities, and sighs and hesitant speech sounds, and insert them in their proper places in the edited tape.

Mood, pace, level, and inflection should be considered together. When a speaker becomes angry or excited, he generally speaks more rapidly, at an increased level and in a higher pitched voice. The tape editor should be able to judge, before cutting the tape, whether two wanted sequences of a tape recording can be joined with reasonable naturalness and credibility. If it is evident

Fig. 5. Tape ends are joined together in the splicing block. The #41 Scotch tape is applied at an angle to the magnetic tape so there will be the least possible disturbance to smooth motion of the tape through the head assembly.



that they cannot be matched together as originally recorded, they may be matched by re-recording, utilizing some of the methods previously noted. If re-recording is inconvenient, and the sequence is absolutely necessary to the show, a pause of matching background sound may be put between the two segments to give the sequence some flavor of actuality.

It is not desirable to end a sentence with an "up" inflection unless the speaker is meant thus to interrupt himself or to be interrupted by another voice or sound *immediately*. There must be no pause whatsoever on an interruption of this nature. It should be completely evident to the listener that it *was* an interruption and no background sound should intervene.

At other times the editor will find places in his show where a pause is required for an effect, dramatic or otherwise. In such cases it is important that the background sounds in the pause match the background of the end of the preceding tape segment and that of the

beginning of the following one. If there is an unavoidable change in the character of background sound from one tape sequence to another, there is only one short-cut to making the whole thing believable. That is to leave in the background of one *or* the other sequence and clip the other sequence close to the first word. Another way to achieve homogeneity is to dub both sequences accompanied by another masking sound at fairly low frequencies, but intelligibility will then be diminished.

Where a transition effect on tape is needed it may be obtained either by re-recording and cross-fading or by using a recorded fade-out of one background and a fade-in of the other background. Effects of this nature on tape are limited only by the ingenuity of the engineer and his experience in the medium.

Editing Quiz Shows

Radio showmen who are alive to the possibilities of tape consider it is best used for editing audience-participation shows. It is only by using tape that some

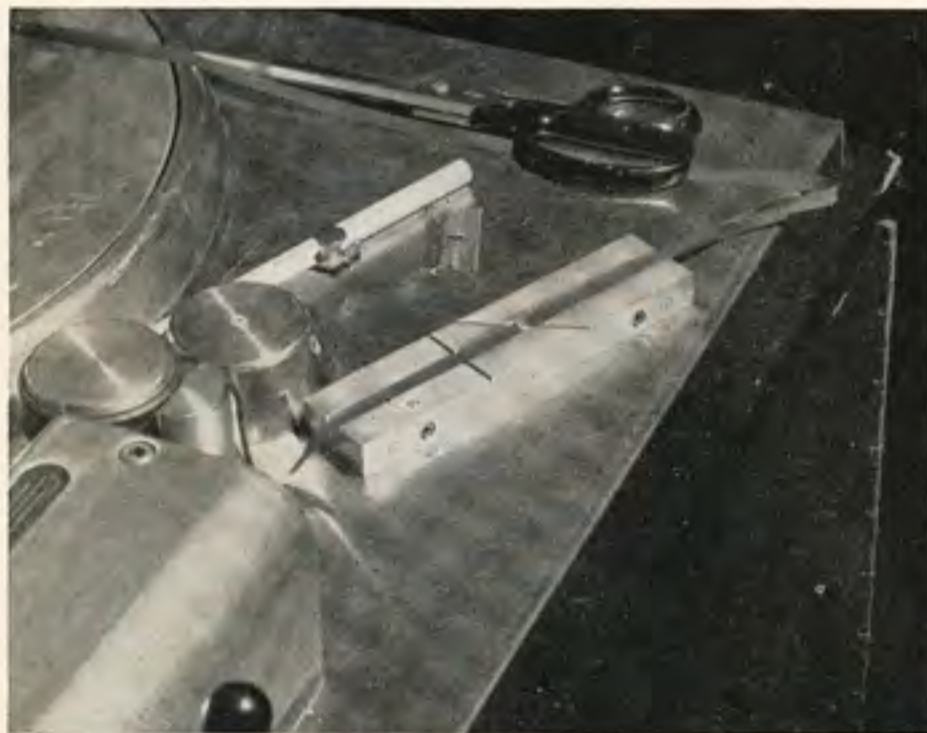


Fig. 3, left. Marked tape ready to be cut at the first mark. Use a slicing action when cutting to avoid fracturing the tape ends. Fig. 4, right. Running off tape to be discarded. This section of the tape is between points previously marked.

artists turn in consistently excellent performances. The artist (or master of ceremonies, if you prefer) is then relieved of the fear of a "dead" or "wise" participant, for he can be clipped out easily.

There is no great obstacle for the engineer who edits a first-class quiz-show. If he understands his medium and knows the routine of the show, he can turn in a very creditable job. The same conditions prevail as in the editing of a speech, except that the pace is generally faster, there are more interruptions and the backgrounds change rapidly. Perhaps it will be of use to outline the procedure in editing a typical quiz show.

The show was recorded in duplicate and lasted approximately forty-five minutes. The personnel of the show knew it was being recorded for editing. If an error in a music cue or commercial was made, the show was stopped and the error corrected. (In most cases, however, because of background change, it proved to be better to use the original than the amended version.)

When the original show was performed it was also recorded on disks for the use of the producer. He and his staff would then time the sequences needed, figure out the necessary editing and approximate the position of each part in the finished show. Thus when the time came for editing the tape, the editor knew approximately whether or not the parts would fit together. Rarely, however, would the show be put together in anything like the sequence in which it was recorded. To get listeners' interest, the first contestant in the original show might become the fifth in the edited version and vice versa. In order to fit these parts of a tape-puzzle together it was necessary to match wherever possible. Some pieces joined on applause,

Fig. 8. Tape editor A. J. Sisco splicing tape at NBC cutting room. (NBC photo)



others on a laugh. Once, when it was necessary to cut the show by one chorus of a song the same note in two different choruses was cut in half and the two half notes joined together. Luckily the musicians stayed in pitch. However, it is possible to edit musical numbers in this way only when the music is played rapidly and there is little reverberation. It is not workmanlike to edit music unless it is possible to hit the same note exactly, played by the same instruments in the identical manner. All factors must match, otherwise a re-recording session and cross-fading is called for. After the show was edited to the proper time (29 minutes and 45 seconds), the edited tape was played back and a copy made on fresh tape. While recording the copy, which was for air use, the levels were corrected so that the overall effect was as smooth as possible.

It can be readily understood that the tape editor must be more than a mechanical splicer of loose ends of tape. Whether

the show be musical, dramatic or quiz, the "feeling" of the show determines how it should be edited.

Many special instances could be cited, but the following is an example of what can be accomplished through the exercise of judgment and common sense.

Several years ago a recording of a native woman made on one of the South Pacific Islands required editing. She had recorded, in English, her distrust and distaste for the invaders of her island. As she said the word "Soldiers!" explosively, she followed it with a nervous laugh. In the sequence in which her words had to be used, the little nervous laugh after "those soldiers" would have been completely misunderstood. Thus, in order to retain what dramatic value there was, the laugh was changed into a sob by inverting its inflections, which left the sequence entirely in character.

No doubt it is understood that recognition of sound depends upon the speed at

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which the tape moves past the head. The faculty of recognizing sounds at various speeds must be well-developed if the tape editor expects to achieve any appreciable speed and finesse. Constant practice is required, so that the ear becomes familiar with all commonly encountered sounds.

The easiest sound to recognize—and therefore to edit—is the sound of *s* and similar sibilant sounds such as *ch*, *sh*, *ts*, *tz*, and so on. The hard sounds of *t*, *p*, *b* and similar sounding combinations of sounds are also quite easy to recognize. The sounds of *r*, both round and guttural, are more difficult to determine, especially when they occur in the middle of a word. Compound sounds, such as the beginning *y* of *you* and other *y* and *u* sounds, are difficult to apprehend and sometimes are recognizable only at normal tape speed. The tyro editor would do well to practice the recognition of sounds and to exercise himself in the art of editing tape by cutting out slurred *r*'s, *u*'s and other sounds as mentioned above.

Editing of musical recordings is done in the same manner as that of voice and sound, with the exception that the editor of music should be acutely conscious of rhythm, pitch, and "overhang." By "overhang" is meant those lingering tonal beats, especially of string instruments, that are somewhat similar to reverberation. Because of these lingering overtones, it will often be difficult to edit a musical piece without the use of re-recording techniques. However, in some cases, by cutting at the beginning of a bar exactly, an acceptable job can be done.

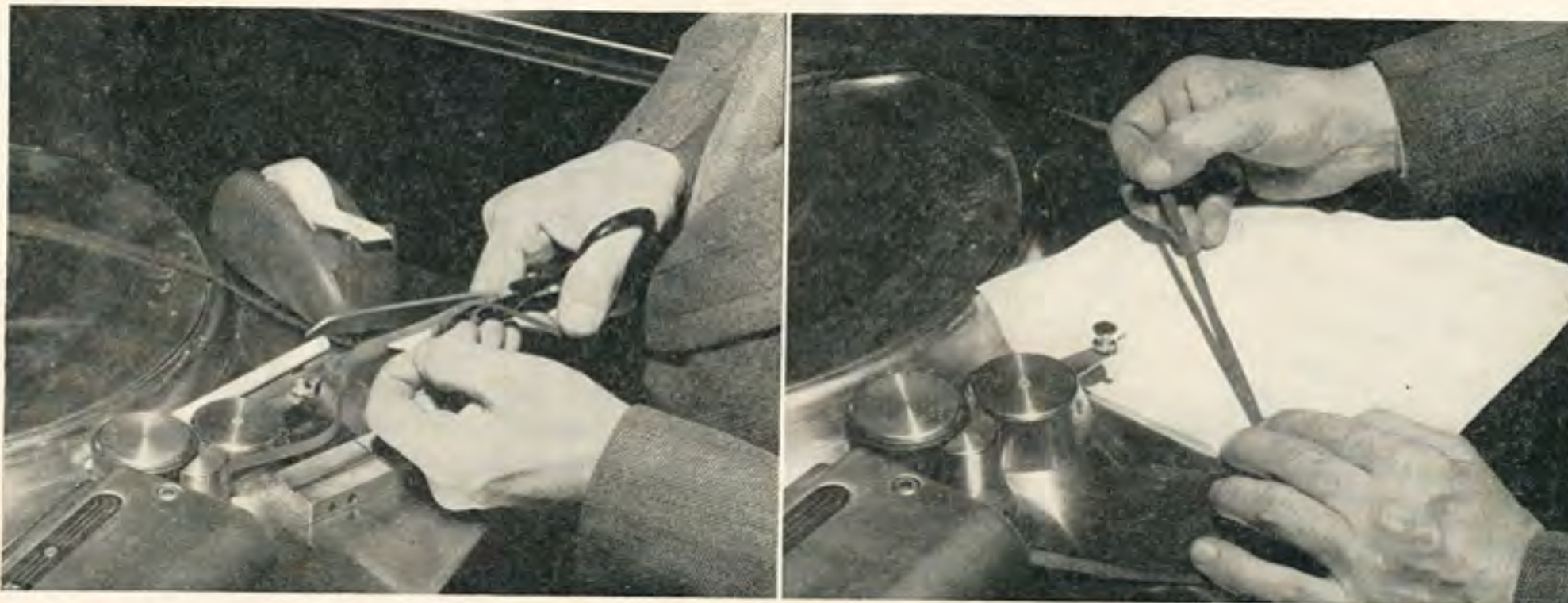


Fig. 6, left. Undercutting at the splice. The cut should taper out at both ends. Fig. 7, right. A completed splice. Note that the cut can be seen. A perfect splice cannot be noticed easily when running through the playback machine.