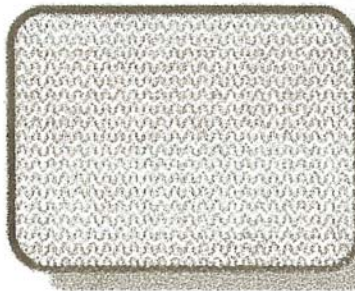
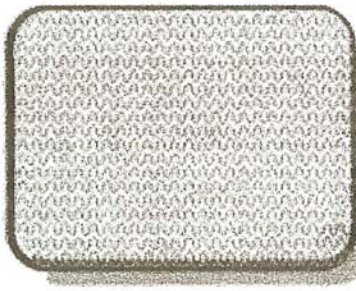
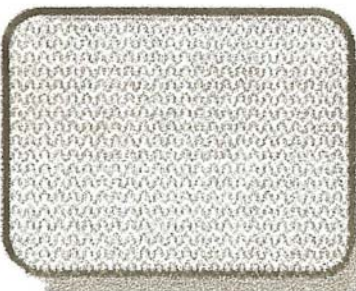


TODAY'S VIDEO

Interim Edition



Dr. Peter Utz

ASSEMBLE EDITING

There are different strategies for piecing together the parts of a TV show. They go by these names:

ASSEMBLE EDIT

INSERT EDIT

AUDIO INSERT

VIDEO INSERT

ASSEMBLE EDITS are produced *in order* from the beginning of the program to the end. They may be performed on blank tape. You first set up the title and then record it. Next, you set up the first scene and record that. Next, you set up your second scene, then your third, then your fourth, until you're done.

For each ASSEMBLE EDIT to be "clean," the VCR must be BACKSPACED a proper distance to get a running start. Put another way, you can't simply push a button and begin the scene immediately. You must first get the tape rolling, let it stabilize, and then simultaneously press the button and begin the action.

Externally locked Referring to a VCR that "listens" to an outside video signal and tries to coordinate its own signal to match the other's timing. Such a VCR can synchronize its sync to another source's sync.

Internally locked Referring to a VCR that plays a tape independently, with its sync timed to its own internal clock.

***Insert edit** Recording of a new video segment amidst old, pre-recorded video-unlike assemble edit, which places each new segment at the tail of the last segment.

***Audio insert** Audio dub performed in the midst of an already recorded tape.

***Video insert** Replacing a segment of old video with new video,

in the midst of prerecorded tape. Audio is not affected (except for hi-fi audio imbedded in the video).

***Mode selector** Knob or button on an editing VCR that sets the VCR into the insert edit, assemble edit, video insert, or audio insert mode.

***Punch-in assemble edit** Assemble edit that is executed manually, live, while the actors perform.

***Editor controller** Remote control device that can backspace two or more editing decks, preroll them, and make them perform an edit.

***Blacked tape** Video recording of black, used to prepare a tape for insert editing.

To perform a manual ASSEMBLE EDIT of live action, here are the steps in detail:

1. See that your audio and video inputs are connected. 2. Check your audio and video levels. On most VCRs, you may do this only after pressing the RECORD/PAUSE buttons. When finished checking, switch the RECORD button off.
3. Play the tape to learn the exact place where you want to EDIT-IN. It is usually more accurate to use the action in the scene as a guide than to use the tape index numbers.
4. Find the VCR's MODE SELECTOR, and switch it to the ASSEMBLE EDIT position. Doing this prepares the VCR's electronics for the upcoming edit.
5. Rewind the tape a ways so that it can play for about five seconds (so that the motor speed stabilizes) before the edit is to be executed.
6. Get ready to cue your talent.
7. Switch the VCR to PLAY.
8. When the edit point comes, push the EDIT button (on some editors, instead of pushing EDIT, you press PLAY and RECORD simultaneously), and cue the talent.
9. Switch the VCR to STOP a few moments *after the scene is over* in order to finish the edit. These few additional moments of extra time after the end of the edit may come in handy later if you decide to attach another scene to the end of this one. If you stop recording abruptly at the end of the scene, your next ASSEMBLE edit will have to be performed with split-second accuracy: If it is too early, it will cut out some of your existing program; if it is too late, you will leave uncovered the messy place where you stopped recording the last scene. Allowing a little "safety" space at the end of your edits leaves you with more leeway to make your next edit.
10. If yours is a mediocre editor, play back your edit afterward to see whether it came out. You may have to do it over.

Because you are pushing the EDIT button manually and proceeding with a "live" show, the preceding process is called a PUNCH-IN ASSEMBLE EDIT. Later we'll see how computerized EDITOR CONTROLLERS can "tell" an editing VCR to perform an ASSEMBLE edit.

The preceding editing technique is the one used most frequently in studio situations when someone flubs a line. You would stop the tape, back it up, and play it, looking for a pause in conversation or some other appropriate place to EDIT-IN. Let your talent know where you will be EDITING-IN so that the speaker will know what to say next. Change your camera angle so that you don't get a JUMP CUT (a strange looking cut in which a talent's head "jumps" from one position to another but nothing else changes in the scene). If you can let your talent hear the audio as the VCR plays before it edits, your performers may be able to synchronize their words and pacing with the words on the tape.

Further more, the words that they hear on the tape can cue them more accurately than a pointed finger, which they might see only if they were looking at one of your crew members—a look that may appear awkward. Next, back up the tape again, play it, press the EDIT button when you come to the selected spot, and continue recording.

INSERT EDITING

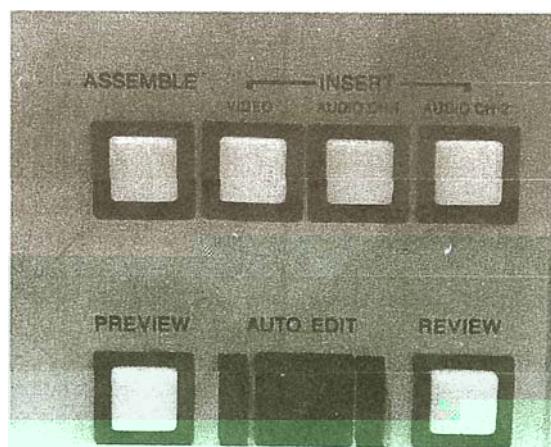
INSERT edits are often made in the *middle* of a program. They are frequently used to correct an error or to change something after your program is finished. INSERT edits *do not* lengthen or shorten your program. They merely replace one part of your program with a new part. They are *always* made over previously recorded tape.

An entire program can be made out of INSERT edits. The INSERT edits may be recorded in sequence or out of sequence on a prerecorded or BLACKED tape. To edit a fifteen minute tape using this mode, you would first record sixteen minutes of black. Using the ASSEMBLE EDIT mode; then you would rewind your tape and switch your VCR to the INSERT EDIT mode and record the beginning title, the first scene, the second scene, and so on in order; or if you wished, you could record the beginning title and skip ahead to the ending credits, and then do scenes 3, 4, and 5, and then go back to insert scenes 1 and 2 later.

Notice that an INSERT edit is done over already-existing video (or black). The INSERT edit won't work if there isn't old video to come back to when you end the INSERT. If you expect your new material to run past the end of your old recording, then do an ASSEMBLE edit, not an INSERT.

To perform a manual INSERT edit of live action, here are the steps in detail:

1. See that your audio and video inputs are connected. 2. Check your audio and video levels by temporarily pressing RECORD/PAUSE (unless the VCR monitors them in the STOP mode). When finished, switch the RECORD button off.



MODE SELECTOR on an editing VCR.

3. Play the tape and learn the exact place where you want to EDIT-IN. A point where activity pauses is best. Remember this spot, and jot down the tape index number so that you can come back to the spot easily. You may also use the action in the scene as a guide to the EDIT-IN point.
4. Now play ahead to find the appropriate place to EDIT-out, that is, to terminate the new recording and go back to the original presentation. Again, a pause in action and conversation is usually a good place to come back to the old material from your edit. Once you find the place, note the number on your index counter. If you wish, you may also use a stopwatch to accurately measure the length of time between the EDIT-IN and the EDIT-OUT points.
5. After learning the EDIT-IN and EDIT-OUT points, find the MODE SELECTOR, and switch it to the INSERT EDIT mode. Doing this prepares the electronics for what is about to happen.
6. Rewind the tape a ways so that when the edit is performed, the tape speed and motors have stabilized and are running smoothly.
7. Switch to PLAY.
8. When the edit point comes, push the EDIT button (or PLAY and RECORD buttons or whatever the manufacturer instructed), and cue the talent.
9. Pay close attention to your timing. Get ready to press END INSERT, EDIT, or whatever button stops the process. Unless the manufacturer says otherwise, switching to STOP is *not* the way to end an INSERT edit.
10. About half a second before the INSERT is destined to end, hit the proper button. Depending on the VCR, the EDIT-OUT may take up to half a second to actuate (because the VCR's electronics sometimes need this amount of time to line up the old sync and CONTROL TRACK that it will be going back to with the new sync that it is now recording; the result is a smooth edit with stable sync).

Essentially what you have done is to record a new passage starting with the first index number and ending with the second number. Doing this means that the performance must be timed to last *exactly* the length of tape you wish to delete. If the replacement scene is too short, you end up with a long, pregnant stare at someone's smiling face while you wait for the final index number to come up. You *must* wait for the number because if you terminate the edit too soon, you will end up not deleting the tail end of the segment that you want removed. If the replacement scene is too long, you'll end up erasing your way into the following material, which you wanted to keep.

This process is not easy. Besides being mechanically difficult, it requires precision timing from the performers and the VCR operator alike. To make things worse, the tape index counter isn't always that accurate and will throw you off by a second or so anyway. Therefore, a stopwatch may be a better choice for tracking the length of your edit.

The aspect of INSERT editing that makes it so difficult is the fact that once you've EDITED-IN, you're flying blind. You can't see what you are erasing; you see only what you are recording. You have no visual cue for when to stop, other than your index counter or your timepiece. Add to this the fact that if you make a mistake and EDIT-IN too long a passage, you'll irrevocably erase the next scene as you record over it. For this reason, it is worthwhile to rehearse the edit several times in order to get the timing exact. You may wish to play the tape; *pretend* to edit (as it plays); have the performers dress-rehearse the scene; then *pretend* to stop the edit and, by looking at the screen at this point, determine how far off you were and what should be done about it.

An Important Technical Difference Between Insert and Assemble Edits

When you ASSEMBLE-edit, the VCR records the picture, sound, sync, and CONTROL TRACK pulses. The VCR produces the CONTROL TRACK pulses in step with the incoming vertical sync pulses. You'll remember that the CONTROL TRACK will be used by the VCR during playback to synchronize the movement of the tape through the VCR with the spinning video heads so that the heads retrace exactly the same path that the record heads took when making the recording. The CONTROL TRACK pulses are thus the "drumbeat" that keeps the tape and heads moving in step.

If the incoming video (and sync pulses) is smooth, strong, and steady, the VCR will make perfectly measured CONTROL TRACK pulses. If, however, the video (and sync) wavers, then the CONTROL PULSES go into arrhythmia. If you are ASSEMBLE editing, each edit point should have a perfect changeover from the old recorded CONTROL TRACK drumbeat to the newly recorded CONTROL TRACK drumbeat. When edits are perfect, the old and new pulses line up perfectly. If, however, an imperfect edit is performed, there will be a glitch in this smooth train of pulses. This glitch will also appear in your picture.

INSERT editing, on the other hand, doesn't create CONTROL TRACK pulses. These pulses have to be laid down ahead of time (perhaps as you create your BLACKED tape). While INSERT editing, the VCR synchronizes the existing CONTROL TRACK pulses with the incoming video so that the picture is laid down in exactly the right place on the tape. During editing, the CONTROL TRACK is never touched. If it was laid down correctly at the beginning, it will remain good no matter what pictures you INSERT-edit on the tape. Bad edits and bad sync won't hurt the CONTROL TRACK (they won't make good pictures, but at least they won't hurt the CONTROL TRACK). Figure 14-6 diagrams the differences between ASSEMBLE and INSERT edits.

You are more likely to get a *perfect* CONTROL TRACK throughout your tape if you've recorded it in your studio from beginning to end using your best equipment. Now you can trust your CONTROL TRACK. If instead you ASSEMBLE EDIT your production, hungry gremlins may sneak up and bite you. If, for any reason there is a deviation or corruption of

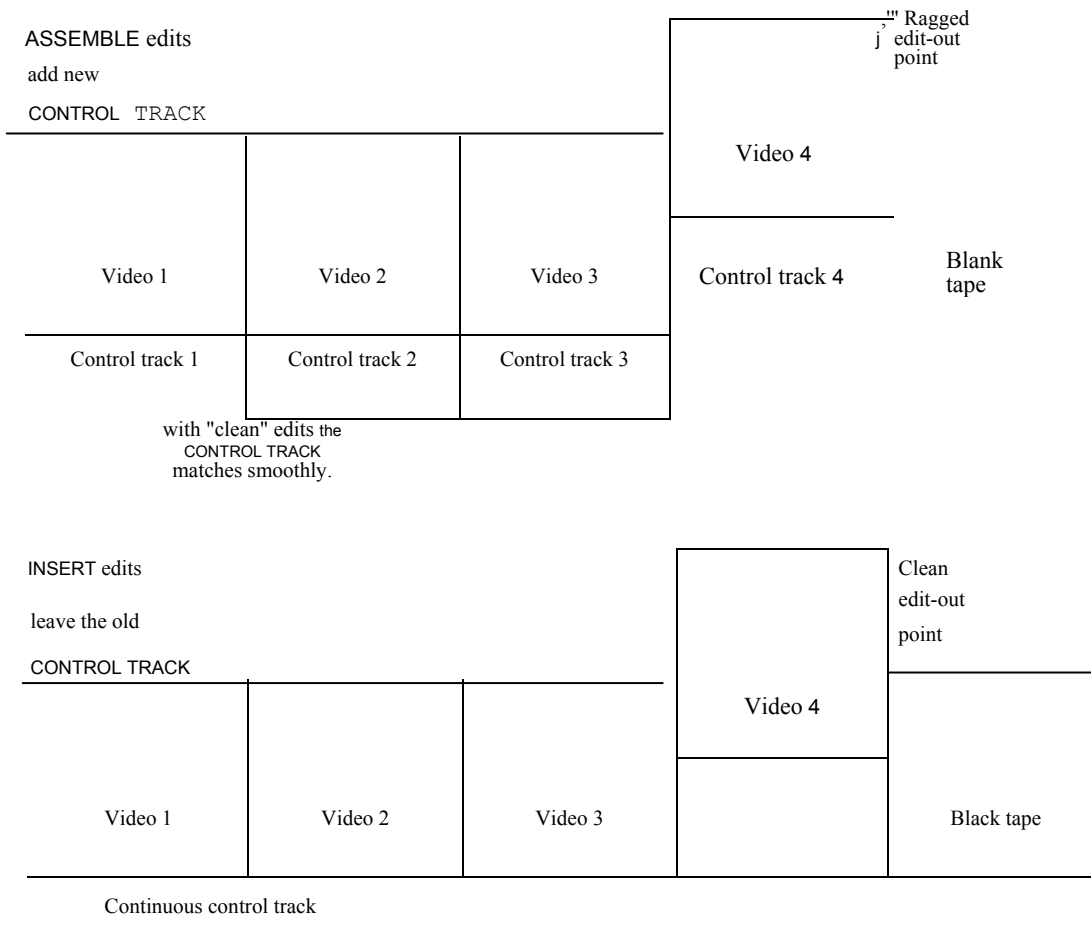


FIGURE 14-6 ASSEMBLE VS INSERT editing.

the CONTROL TRACK, the videotape will not play correctly at this point. Your picture may roll, tear, or break into snow or other garbage, depending on the circumstances.

Here are causes for this glitch:

1. You accidentally hit the ASSEMBLE EDIT button when intending to perform an INSERT EDIT in the middle of the tape. Once you hit that ASSEMBLE EDIT button, there is no saving the recording; the beginning of the edit will look fine, but the end of the edit will be ragged, with a glitch and possibly a patch of snow.
2. You ASSEMBLE EDITED a tape from CAMERA MASTERS, one of which had a possibly unseen glitch. These are things that cause CAMERA MASTER glitches:
 - a. The original tape was made on a VCR that was malfunctioning or that deviated from proper specifications.
 - b. The original tape had a physical defect (a fold, nick, scratch, fleck of dirt, or dropout along the edge of the tape that holds the CONTROL TRACK).
 - c. The camcorder or original VCR may have been damp during the original recording, so that the tape became sticky and unable to slide through the mechanism smoothly.
 - d. The camcorder's battery may have become low, reducing the tape speed before shutting down the mechanism entirely.
 - e. The camcorder or VCR may have spun around quickly, causing gyroscopic errors (the spinning video heads and capstan flywheel change speed if the deck is rotated quickly in any direction).
 - f. The camcorder or VCR may have been bumped or jostled during recording.
 - g. There are 101 other possibilities available in Appendix C of Murphy's Law book.
3. You ASSEMBLE EDITED your videotape, and one of the edits was bad.
4. You got a momentary head clog during the ASSEMBLE EDITING process.
5. You performed ASSEMBLE EDITS using two different editing recorders, and their TRACKING was mechanically different.
6. You failed to properly adjust TRACKING on the editing player for each CAMERA MASTER that you played.
7. You readjusted the TRACKING on your editing VCR somewhere along the editing process.
8. You INSERT EDITED over a BLACKED tape, but your black source was unreliable:
 - a. You were using "black burst" from a sick sync generator.

CREATING A BLACKED TAPE

INSERT edits can be made only over existing video and CONTROL TRACK. Although you could record your edits over old *Family Feud* reruns, it is generally neater to prepare (and stockpile) a number of BLACKED tapes.

A BLACKED tape is simply a tape recorded from beginning to end (or at least a little longer than your intended edited tape will be) with a stable, glitch-free CONTROL TRACK. You make such a CONTROL TRACK by feeding stable video (and sync) to your VCR, switching it to the ASSEMBLE or NORMAL mode, pressing record, and letting the machinery do the rest.

Where do you get a stable video signal? At Poverty Productions, Inc., you would probably connect a camera to your VCR and let it record the image. It doesn't matter what the image is. In keeping with the concept of a BLACKED master, you could cap the lens. You may find it a little handier to aim the camera at a clock or stopwatch so that, while editing, you can tell at a glance how much time you have used.

The stability of your CONTROL TRACK depends on the stability of your sync signal. It therefore behooves us to make the most stable video/sync signal that we can.

Feeding your camera external sync from the studio's rock-solid, house sync generator gives a more stable signal than the one generated internally by the camera (in its INT SYNC mode). Just make sure that the house sync generator is set to INT (driven by its accurate internal clock) rather than to EXT (driven by some other outside video source that may waver or be interrupted).

If you have a switcher connected to house sync, you don't need to be bothered with the camera at all. Simply fade to black, and record the black video (which includes sync). *Another option:* If you have a character generator, you can get BLACK out of that if you don't type in any words.

No law says that your tape has to be black. COLOR BARS are pretty. Many sync generators (and cameras too) make COLOR BARS as a handy reference signal. You can tape the COLOR BARS directly from the sync generator and feed the tape into the VCR without tying up other parts of the studio in the process. Furthermore, the less gadgetry you have in the way, the less can go wrong with the signal as it is being recorded. One extra advantage of COLOR BARS: The beginning of every master tape would have a stretch of COLOR BARS before the show starts as a reference signal that technicians may use to adjust the color signal as it comes from the VCR. If the VCR that plays the master tape is out of whack, the bars will be the wrong colors.

- b. The sync generator was genlocked to a deviant source.
- c. You made black from another videotape, perhaps through a time base corrector, and the tape hiccuped.
- d. You recorded black from a capped camera, switcher, or character generator that followed a deviant sync source.
- e. Instead of laying black, you recorded video off the air, and sync was interrupted during a commercial break, or an airplane flew between the transmitter and your antenna, or a bird laid an egg in the feedhorn of your cable company's satellite antenna.

CREATING AN SMPTE LEADER

Every important MASTER tape should have a LEADER, a length of tape that comes before the beginning of the program and takes all the threading abuse. Since your program is never manhandled, it is likely to have fewer dropouts, scratches, and stretches.

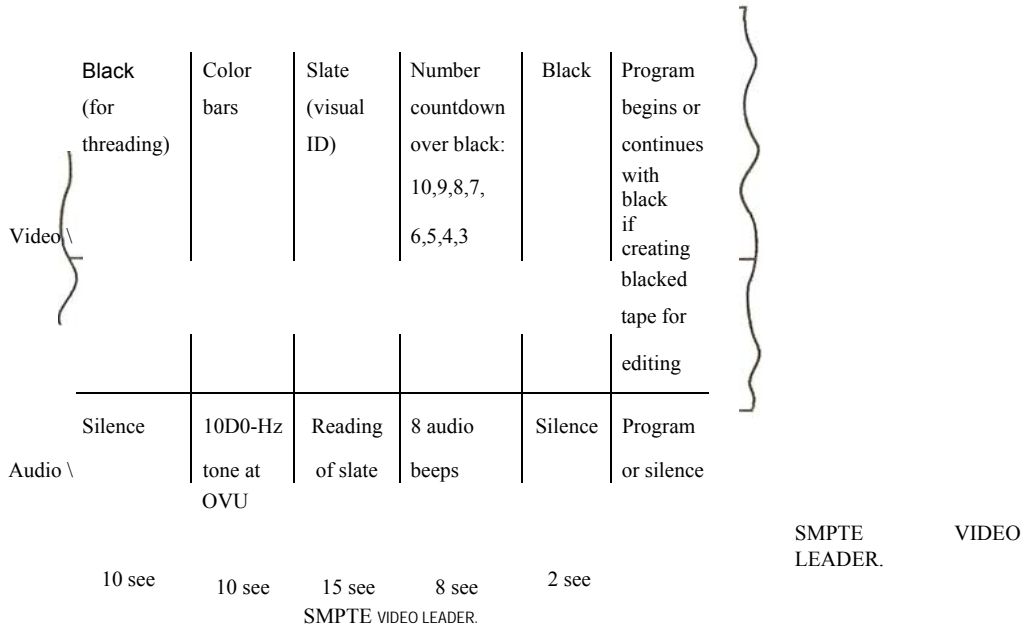
The LEADER can also contain TEST signals useful to technicians who may need to adjust the videotape player when the program is played back or copied. SMPTE, the Society of Motion Picture and Television Engineers, has standardized a series of test signals that can be recorded on the LEADER of your videotape and that will be recognized (even expected) by others in the video industry. It is possible to create your SMPTE LEADER and a BLACKED master tape all at the same time. Here's how:

1. Record ten seconds of black (for threading).
2. Follow this step with ten seconds of COLOR BARS (most duplication houses prefer that this be a full minute). During this time, record an audio tone of 1,000 Hz at a 0-VU volume level.
3. Follow this step with fifteen more seconds of black and silence. Later, you may go back and insert a visual ID (called a SLATE) while audibly reading the contents of the SLATE onto the sound track. The SLATE would immediately identify what the name of the program is, when it was produced, who produced it, where it was produced, what VTR was used to edit the program together (handy to know if the tape someday runs amuck and decides never to play correctly on any other machine but "mother"), and other trivia.
4. Follow this step with ten seconds of leader numbers that go 10, 9, 8, 7, 6, 5, 4, 3, at one-second intervals. This procedure should be accompanied by eight audio beeps at one-second intervals.
5. Following this step there should be two seconds of black and silence.
6. At this point the program should start, but you could continue to record black and silence throughout the rest of your tape. As an extra step, you could also record SMPTE TIME CODE (described later) on the tape.

Once you have made a BLACKED tape with SMPTE leader, do not try to make more such tapes by copying this one. Make each one fresh. Copying this tape would make duplicates with jitter and time base errors recorded onto them. Since your object was to make a pure, perfect CONTROL TRACK, you don't want little timing flaws recorded on your important BLACK master tapes.

9. A brownout slowed the motors on your original tape's VCR, on your edit player, or on your recorder during the recording process.
10. There are thirty-six other possibilities found in Appendix G of Murphy's Law Book.

All of the preceding can wreck your CONTROL TRACK, but the most likely possibility, the one that we all remember doing at least once, is errantly hitting the ASSEMBLE EDIT button when we intended to do an INSERT on a completed-no doubt otherwise perfect-MASTER videotape. This one is the killer; it's your own dam fault, and you knew better, it's just that you were in too much of a hurry. To err is inevitable. Machines don't forgive.



Now that you see the glitch, what can you do about it? The answer is nothing. You can't just redo that one edit on the tape. If you try to use the (NSERT mode to cover the bad edit, it won't help. It will change the video but won't change the defective CONTROL TRACK. If you try to make a new ASSEMBLE edit over the old one (starting the edit a few frames earlier so that the bad edit is totally erased), you will have corrected the defective edit at the beginning of that scene, but now, how do you stop the edit? With the VCR in the ASSEMBLE mode, it is making its own pulses and doesn't have any way to line them up with the CONTROL PULSES that will continue when the edit stops. In other words, you get a nice edit at the beginning, but you get a ragged edit at the end of the scene. Now *that* edit has to be corrected. The only way to fix it is to redo the next scene, and so it goes to the end of your tape. If your original bad edit occurred near the end of the tape, then you lucked out. You'll have to do only a few edits over. If the bad edit occurred in the middle or at the beginning of your tape, you'll experience the joy of creating your magnum opus twice.

In conclusion, it is best first to create a BLACKED tape in the studio and later to INSERT EDIT your scenes onto it.

OVERCOMING THE MURPHY FACTOR WHILE EDITING

Murphy's first law, "Anything that *can* go wrong, *Will* go wrong ... and at the worst possible time, .. applies exquisitely to video editing. Murphy keeps an office of gremlins right next to every editing console. To keep Murphy from flushing your editing project down the tubes, take the following precautions:

1. Put adhesive tape (or a bandage, or something) over the RECORD button of your *playback* VCR. Pushing that button by mistake could wipe out your original CAMERA MASTER.
2. Double-check your mode. Don't get so wrapped up in what you're doing that you forget to *make sure that the MODE SELECTOR is in the proper position*. Lltold numbers of tapes have been ruined by a selector in the ASSEMBLE position during the execution of an INSERT. Hours of audio tracks have been wiped out by an INSERT when a VIDEO INSERT ONLY was called for.

You can still do the edits in order, as if you were ASSEMBLE EDITING.

Again, INSERT EDITING over BLACKED tape is strife insurance; you can have glitchy video or glitchy edits, but they can easily be replaced with clean ones-over the solid foundation of your stable CONTROL TRACK. I can't overemphasize the value of INSERT EDITING over ASSEMBLE EDITING.

A VCR that Fixes Bad Control Track

As an exception to all the rules, the JVC 22 series professional SVHS VCRs (BR-S822U, BR-S622U, BR-S522U) can repair bad control track. such as you get when errantly performing an Assemble EDIT in the middle of a finished tape. Pages 1-10 and 1-11 of the instruction manual (part #9246C) tell how.

Video Insert Only

In the INSERT edit mode, you can replace the video and audio, or you can replace just the video or just the audio. For audio, you have the choice of replacing audio channel 1 or channel 2 or both.

VIDEO INSERT (or VIDEO INSERT ONLY) permits old video to be replaced with new video in the form of an INSERT edit without touching the existing sound portion of the program. *Exception:* Hi-fi audio is part of the video tracks. Replacing the picture replaces the hi-fi sound. The *linear* audio tracks (VHS and SVHS) or PCM tracks (8mm and Hi8) or digital audio tracks (DV) stay untouched.

To make a manual VIDEO INSERT ONLY with live action, do the following:

1. See that your video source is connected to the VCR's VIDEO IN. Also see that you can monitor the VCR's audio as it plays.
2. Check. your video record level by temporarily pressing RECORD/PAUSE (unless the VCR monitors this process while in the STOP mode). When finished. switch the RECORD button off.
3. Play the tape to learn the EDIT-IN and the EDIT-OUT points. On most machines, you can hear the audio

track playing on the monitor while you are performing the video edit. This is an accurate and convenient guide to where you are on the tape, so that so you may wish to use the audio as your cue for when to begin and to end your VIDEO INSERT.

4. After learning the edit points, switch the VCR's MODE SELECTOR to VIDEO INSERT ONLY.
5. Rewind the tape a ways.
6. Play the tape.
7. When the edit point comes, press the EDIT button. CUE your talent.
8. Pay attention to your timing. Get ready to press the EDIT or END INSERT button when you hear your cue from the audio track.
9. Remember that you may have to press this button half a second before you want the INSERT to end in order to give the electronics time to carry out the process. Once it has, you may STOP the VCR.
10. If your editing VCR is a poor one, check your edit in case it has to be done over.

As mentioned before, your performers could be fed the VCR's sound track (perhaps via FOLDBACK described in Chapter 10) and could learn their cues from that. When they hear a key sentence finish, they should begin their action, timed to follow with the sound playing from the VCR.

Audio Insert Only

With AUDIO INSERT ONLY, you leave the video untouched and change only the audio.; *Exception:* Hi-fi audio is part of the video tracks. You can change only the linear audio tracks (VHS and SVHS), PCM tracks (8mm and Hi8), or digital audio tracks (DV).

The process is much the same as we saw in Chapter 5 under AUDIO DUBBING.

Since the old material is erased as the new material is put on, a slip-up can be dangerous. It's wise to rehearse your AUDIO INSERT to make sure your timing is right.

If you can read lips or follow the action closely ~ you can use your picture as your guide to the EDIT-IN and the EDIT-OUT points. Otherwise, you may have to use your VCR's index counter as a guide.

To perform the AUDIO INSERT edit, do the following:

1. See that your audio inputs are connected. 2. Check your audio levels by temporarily pressing RECORD/PAUSE. When finished, switch the RECORD but

ton off. Be sure to try to match the original sound with the inserted sound. If the AUDIO INSERT changes volume, if a different mike is used, if a different room is used, if the talent is closer or farther from the microphone during the INSERT, or if the talent changes the pitch or pacing of his or her voice, the AUDIO INSERT will stick out like a sore ear.

3. Play the tape and learn the EDIT-IN and EDIT-OUT points.
4. Rewind the tape a ways.
5. Switch the MODE SELECTOR to AUDIO INSERT, and pick the appropriate channel to be recorded.
6. Play the tape.
7. When the edit point comes, push the EDIT button (or AUDIO DUB button). Cue the talent.
8. Pay attention to your timing. Get ready to press the END INSERT, EDIT, or STOP button, depending on what the manufacturer instructed.
9. Play the result back to see whether you got it right.

Remember, you can't INSERT new hi-fi audio on a hi-fi videotape. The hi-fi audio becomes part of the picture when it is recorded, and it remains part of the picture forever (or until both are erased). The low-fidelity *linear* audio tracks *can* be edited or replaced on VHS and SVHS VCRs. Hi8 VCRs let you replace their PCM tracks. DVCRs also have extra audio tracks that are editable.

***Edit-in point** First frame of raw footage video that you wish to copy onto the master tape. Also, the point on the master tape where you wish to start copying the footage. Both can be described by time code numbers.

***Edit-out point** Last frame of raw footage video that you wish to copy onto the master tape. Also, the point on the master tape where you would stop copying the footage.

***Two-channel audio** Capability of recording two sound tracks on a tape.

Audio selector Knob on a VCR that selects whether audio track I or 2 or a combination of both will be played back (or recorded upon).