

TASCAM

TEAC Professional Division

D00889210B

DM-3200

DM-4800

Digital Mixing Console

AUTOMATION GUIDE

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1 – Introduction

The TASCAM DM-3200 and DM4800 (referred to in this manual as “TASCAM DM”) are capable of writing and reading mix moves, as well as editing and refining mix moves during replay, all synchronized to timecode. No external computer is necessary, as all control of the automation is made from the TASCAM DM’s control surface.

Automated mixes are stored on the TASCAM DM’s CF card as part of a project and can be off-loaded via the TASCAM Mixer Companion Software to a personal computer, as well as being easily transported on the card between facilities equipped with the TASCAM DM.

Here are a few reasons to use mixer automation:

- Tedious moves, (such as mutes), that occur at the same place in the program each time can be written to the automation system for playback. This allows you to focus on the creative aspect of listening and

mixing, instead of the mechanical aspect of pressing the mute keys at the right time, every time.

- Mix moves can be refined to your satisfaction then the automation system will read those moves back every time in exactly the same way.
- A mix can be recalled at a later time for further refinement.

The TASCAM DM’s automation system has been designed to be intuitive, using the mixer’s familiar control surface and a minimum number of key-strokes, to stay out of the way of the creative process of mixing.

Using This Manual

The following type conventions are used in this manual:

BOLD CAPS for physical keys on the mixer’s control surface.

LIGHT CAPS or Light First Letter Caps for on-screen controls in the display .

First Letter Caps for names of operational modes and functions.

Automated Controls

The following mixer controls of the TASCAM DM can be automated:

- Fader levels
- Mutes
- Panning (including surround panning parameters, LFE level, etc.)
- Image parameters for linked channels
- Effect settings
- EQ settings: Gain, Frequency, Q, EQ On/Off switching, individual EQ band switching and TYPE switching between High/Low Pass Filter, Peaking & Shelving
- Auxiliary send levels, Pre/Post switching and pan/balance settings
- Auxiliary master send levels
- COMPressor settings: threshold, ratio, attack, release, etc.
- GATE settings: threshold, range, hysteresis, attack, hold, decay, etc.
- Buss and stereo buss assignments, and Aux 1-2 assignments from busses (including stereo buss)
- In surround mode, surround assignment and assignment to center and LFE channels.
- Buss master levels
- Library recall (all libraries)

The following mixer controls of the TASCAM DM **cannot** be automated:

- Digital trim (stored as part of the Initial Status, however)
- Analog **TRIM**
- Control Room monitor switching
- LCD navigation
- Transport controls
- Fader layer switching
- Global mixer setup parameters

NOTE

It is not possible to change the surround mode, group settings, channel link settings, buss pan following stereo pan setting, or pan switch settings while automation data is being replayed.

Moves for different mixer controls do not have to be automated in the same pass. Just as in multi-track recording, it is possible to concentrate on one specific control at a time, building up the automated mix over a number of passes.

The TASCAM DM’s automation system allows this to occur by intelligently switching automation modes transparently on a per control basis.

This work done by the TASCAM DM automation system provides a high degree of flexibility while not

1 – Introduction : Setup

requiring constant attention from you. Of course, the TASCAM DM's automatic mode switching may be over-ridden at any time for "power user" operation.

The automation is synchronized to timecode. This could be external Linear Timecode (LTC or commonly referred to as SMPTE/EBU) or MIDI Timecode (MTC) from either the **MIDI IN** port or through the USB connection.

A Note on Touch-Sensitive Faders

When using the touch-sensitivity of the faders in automation, you should always use your fingers to touch the faders. If you use a pencil or ruler, etc. or

Alternatively, the TASCAM DM's own internal timecode generator can be used to synchronize the automated mix moves and slave the external recorder.

The event resolution for mix moves on the TASCAM DM is one event per quarter timecode frame. At a timecode rate of 30 frames per second, non-drop, this equates to about 8 milliseconds per event.

even your fingernails to touch them, the fader will not register as having been touched.

Setup

There are two possible sources of timecode to which the TASCAM DM's automation can lock. Both are equal in functionality and accuracy. Your choice will

depend on what you have available in your situation. The choices are listed here:

Timecode

There is an RCA jack (**TIMECODE IN**) on the back of the TASCAM DM which accepts SMPTE/EBU timecode.

To use this timecode with the automation system, go to the AUTOMATION display, and then select TC IN as

shown below in Figure 1, *Timecode source selection (showing USB MTC selected)*.

If you don't see this screen, press the POD 1 switch and use the POD 1 encoder and **ENTER** key to select **SETUP** from the popup menu.

MTC

This refers to MIDI Timecode being received at the TASCAM DM's MIDI IN or through the USB port. The source of MTC could be a Digital Audio Workstation (DAW) that does not support LTC, or any other source of MTC.

Use the AUTOMATION SETUP screen to select either MTC (USB) or MTC (MIDI IN), depending on the source of the MIDI timecode received.

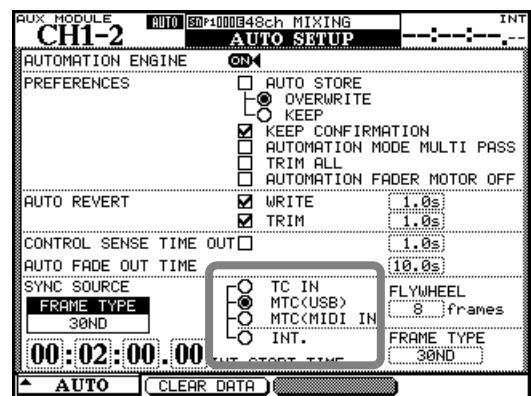


Figure 1: Timecode source selection (showing USB MTC selected)

2 – Starting out with the timecode

While the TASCAM DM automation system is extremely powerful, it is also very easy to use. This Quick Start covers much of what you need to know to run the system. The rest of the manual provides details on the concepts of the system and how to use it to its fullest potential.

- 1 Connect a SMPTE/EBU or MTC (timecode) source to the TIMECODE IN or MIDI IN on the rear panel of the TASCAM DM or make sure that your DAW is outputting MTC over the USB connection.

Choose the appropriate setting in the AUTOMATION display. Be sure your recorder is set to output the correct type of timecode.

Access the automation screens

- 2 Load an existing project, or create a new one, as described in the *Owner's Manual* (“About projects and libraries”).

NOTE

Any automation data currently active that has not been stored will be deleted.

- 3 Press the AUTOMATION key, and then the POD 1 switch to bring up the pull-up menu.

- 4 Use the POD 1 encoder to select the FILES option and press the POD 1 switch or ENTER key.

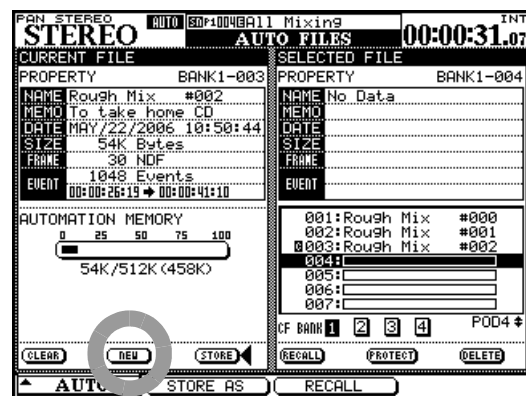


Figure 2: The automation FILES display

- 5 Move the cursor to the on-screen NEW button, and press ENTER.
- 6 Press ENTER again to confirm that any existing automation data is to be discarded.

Turn on the automation

- 7 Press the POD 1 switch again. Use the POD 1 encoder to select SETUP and press the POD 1 switch or ENTER key:

- 8 Move the cursor to the onscreen AUTOMATION ENGINE button at the top of the screen, and press the ENTER key to turn on automation.

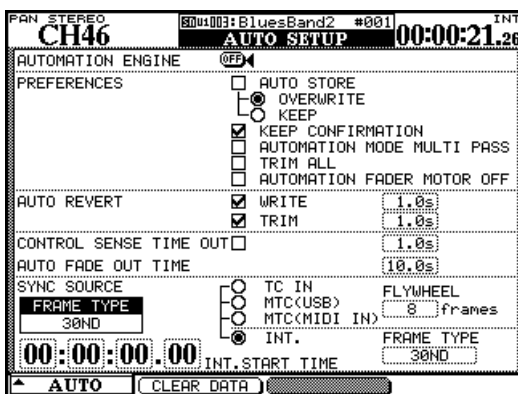


Figure 3: Automation SETUP screen

Make the initial settings

- Operate your recorder and navigate and operate the TASCAM DM as you normally would during a mix. You are not writing mix moves

yet! The TASCAM DM's automation system stores control settings as you change them.

Store the current settings

- Store the current mix data using the **AUTO FILES** display, and pressing the **POD 2** switch (STORE AS).

Use the cursor keys, number keys, **CLR** key, and the data wheel and the **ENTER** key to name your mix.

See the *Owner's Manual* section on libraries for further details of naming and editing library entries.

This automation data will be stored as part of the current project (and will be time-stamped for future reference).

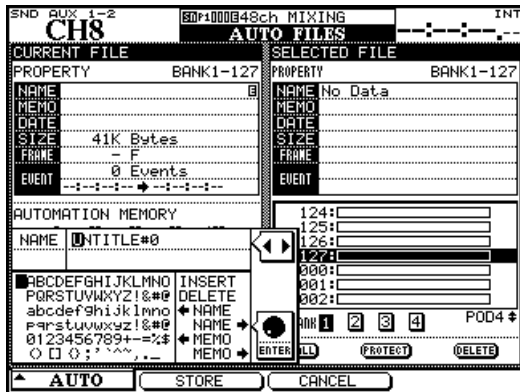


Figure 4: Naming a mix

Write some fader moves

- Once you have the mix basically set up, write some fader moves:
 - With timecode running, press the **WRITE** key.
 - Touch a fader with your finger and move it up or down.
 - Release the fader when your mix move is complete. When you release the fader, it automatically returns to its previous setting.

- Rewind the recorder and play the section again. The TASCAM DM plays back the moves you just wrote.
- You can press the **WRITE** key, and touch and move the faders to write new mix moves at will.

Write some mute moves

- Now write some mutes (these are Switch Events):
 - With timecode running, press the **WRITE** key.
 - Press some **MUTE** keys to change the mute settings on and off.

- Rewind the recorder and play the sections again. The TASCAM DM plays back the Switch Events you just wrote to the **MUTE** keys (in other words, the **MUTE** indicators and status will change in sync with the incoming timecode).

2 – Starting out with the timecode : Setup

Write some Aux send moves

- 13** Write Aux send moves using the touch-sensitive faders:
- To place the Auxiliary Sends 1 & 2 under fader control, select the **AUX 1-2** level encoder mode (**SHIFT + top key**) and then use the **FLIP** key to assign the faders to Aux 1-2 level.
 - Press the **WRITE** key and start the timecode.

- Touch a fader and move it up or down to write a mix move for Auxiliary Send 1 for that channel.

Release the fader when your mix move is complete. When you release the fader, it automatically returns to its previous setting.

Writing encoder or POD moves

- 14** Write encoder moves (for example pan):
- Turn on the Control Sense timeout (if it is not already on—see “CONTROL SENSE TIME OUT & Switch Events” on page 23).
 - Select the pan encoder mode.
 - With timecode running, press the **WRITE** key.
 - Turn the encoders to write the mix moves.

- After the encoder movement has stopped for one second, the control will automatically return to its setting before being moved if the control sense timeout parameter is set appropriately (assuming the Control Sense Timeout is turned on).

NOTE

You may want to disable AUTO REVERT or adjust the CONTROL SENSE TIME OUT using the AUTO SETUP screen, when automating POD or encoder controls.

Trimming existing mix moves

- 15** This allows you to trim an existing mix move (that is, to adjust the overall level of the move). For example, the move you wrote in step 6 may be good but the move itself needs to be louder.
- With timecode running, press the **TRIM** key.

- At the desired time, touch the fader to be trimmed with your finger and raise it. You will hear the previous moves with the addition of the amount of trim you’re adding.
- Release the fader when you are finished trimming. The fader returns to reading previous, untrimmed mix moves.

Finishing up

- 16** Remember to store your mix into your libraries (as described in “Store the current settings” on page 7).

Happy mixing!

Modes

Before going further, a brief description of automation modes and functions will be helpful. More detailed explanations of how these modes operate, along with how automatic mode switching is carried out, will be included in the Operations section of this manual (“Operation” on page 16).

Auto

This is the default mode for all controls when the automation system is enabled. The intelligent mode switching that occurs is done within Auto mode.

When a control is in Auto mode and timecode is received, the control enters *write ready* if the **WRITE** indicator is lit, or *trim ready* if the **TRIM** indicator is lit. The control reads previous data, if any, until moved, then enters the appropriate state (writing or trimming).

If neither of these two global indicators is lit, the status of the control depends on whether any mix data has been written to it. If mix data already exists, the control enters write rehearsal when timecode is received (any movement of the control will be heard but not written). If no mix data exists, it enters static

ready (any control movement will update its Static data).

It is possible for a single control, or group of controls, to drop into and out of writing or trimming in one pass. It is further possible to switch between Write and Trim modes on the fly; even adjusting the Revert Time during a mix pass will be recognized by the automation system. The only exception is Write to End, which must be completed by stopping the timecode.

NOTE

Generally, a control that has dynamic mix moves written is said to be in Dynamic mode. A control that has no dynamic mix moves written is said to be in Static mode.

Write

Think of this as “record-ready” on a multi-track recorder. When Write is enabled, all controls that are in Auto mode will normally read existing mix moves.

As soon as you adjust a control, while Write mode is enabled, that control will begin writing new mix moves, overwriting any pre-existing data.

3 – Automation overview : Modes

Trim

During a mix there may be sections where there are good mix moves on a control but the overall level of that control needs to be raised or lowered while preserving the existing moves.

Trim mode is used to make such relative offsets to existing mix moves for the duration of the Trim operation. The diagram below should help in the understanding of this concept.

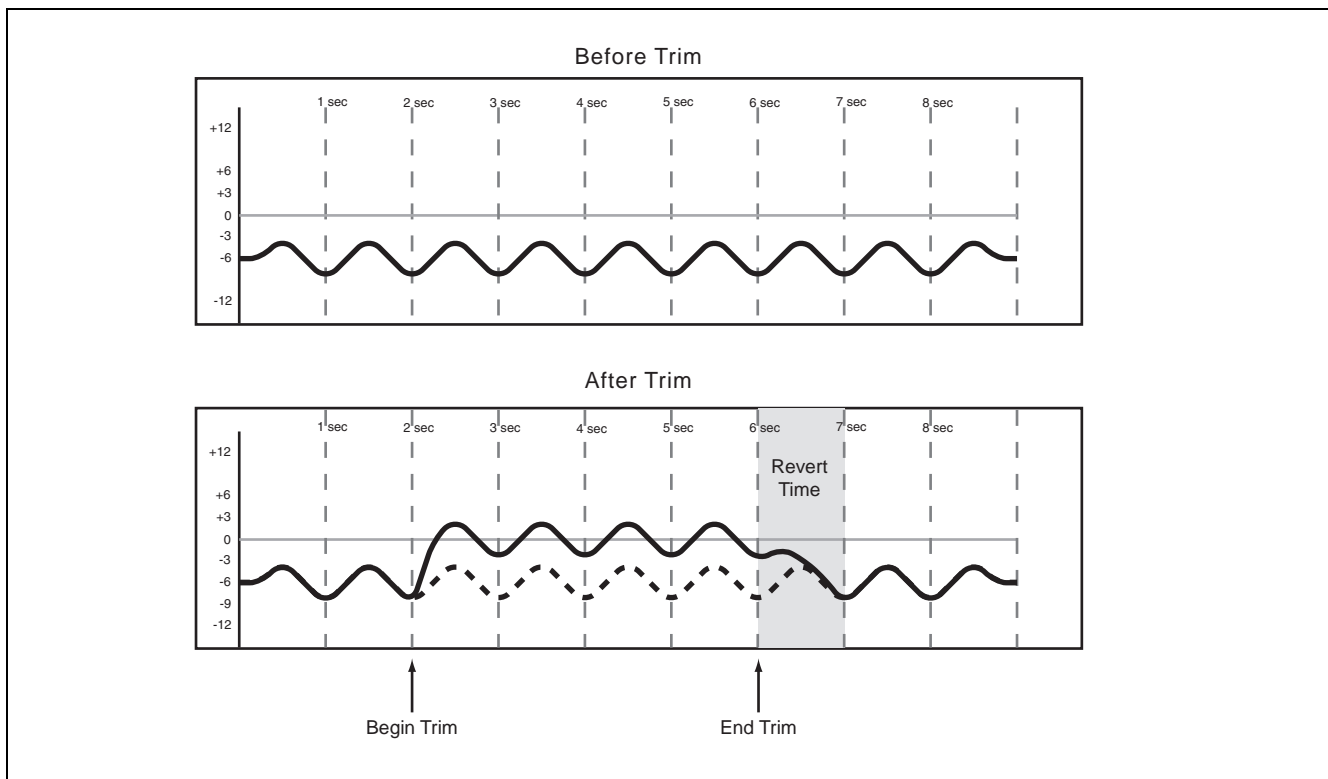


Figure 5: Illustration of trim mode behavior

In the example shown above, a fader is raised at the “Begin Trim” point and released at the “End Trim” point. The upward movement of the fader would be

added to the existing data. When a Trim is performed, the audio passing through the control includes the Trim move in real time.

Static

During the course of an automated mix some controls will require movement (*Dynamic automation*), and some controls will stay in one place with their settings stored in the mix file (*Static automation*).

Any control in Static mode will automatically update its setting in the mix file whenever that control is moved.

NOTE

The control's movement will not be recorded as dynamic automation as long as Write mode is not enabled.

Safe

Any control in Safe mode will only read existing static or dynamic automation. Moving a control in Safe mode will not write any automation data nor

affect the audio passing through that control. It is possible to place all mixer controls in Safe mode by holding the **SHIFT** key while pressing **ALL SAFE**.

Off

This mode removes a control from the automation system completely. A control that is Off cannot record or playback mix moves. However, moving a

control that is Off will affect the audio passing through that control.

Rehearse

Rehearse is a special status that works with Write, Trim and Static modes. Rehearse allows you to

practice or experiment with mix moves without recording them.

Displays

The automation display screens on the TASCAM DM described below are used for the following purposes:

- Enabling/disabling the automation system
- Setting operational preferences
- Setting the master Auto Fade Out time
- Displaying used/available memory

- Over-riding the automation system's automatic mode switching
- Copy/paste of configuration between channels
- Mix file management

In all automation displays, the cursor is moved by using the cursor keys, located to the lower right of the display.

AUTO SETUP

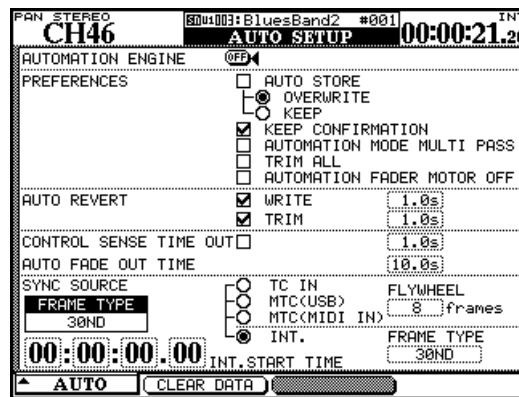


Figure 6: AUTO SETUP screen

Check boxes are enabled/disabled by moving the cursor to the check box and pressing the **ENTER** key. Time values are entered by moving the cursor to the desired box, changing the value with the wheel then pressing the **ENTER** key. Time values flash until confirmed with the **ENTER** key.

To access the automation displays, press the **AUTOMATION** key. Repeatedly pressing the **AUTOMATION** key (or using the POD 1 encoder and switch) toggles between the displays.

AUTOMATION ENGINE This on-screen button enables/disables the TASCAM DM's automation system.

When enabled, AUTO is displayed in the upper left of the display with the currently selected channel, in all mixer displays.

No automation data will be recorded or played back when the automation system is disabled.

AUTO STORE The AUTO STORE option enables or disables automatic storage of mix data.

When turned on, there are two sub-options: **OVERWRITE**, which throws away the previous mix data, and **KEEP**, which keeps the previous mix data as a backup.

KEEP CONFIRMATION When enabled, a pop-up box will ask for confirmation before performing a Keep operation. A Keep operation saves a copy of the current mix, pushing older mixes "down the stack". If all space for mixes is taken, the Keep operation will delete the oldest (unprotected) mix. All mixes saved using Keep are numerically sequenced with highest numbers being the latest mixes.

The default value of this check box is on (keep confirmation is enabled).

AUTOMATION MODE MULTI PASS Normally, the mixer exits Global Write or Global Trim mode when it is no longer receiving timecode.

When this check box is enabled, the mixer remains in Global Write or Global Trim mode until the mode is

3 – Automation overview : Displays

manually disabled. This allows you to perform mix moves at will without having to manually enable Global Write or Global Trim on every pass.

TRIM ALL When enabled, a Trim operation will be applied to all mix moves such as faders (but not switch moves) from the beginning of a mix to its end, regardless of the transport's position within the program.

When timecode is stopped, trimmed events are created by using the latest trim difference (delta). When timecode is running, pre-existing moves are not modified as automation data.

Note that if TRIM ALL is enabled, trimmed events are not recorded, and revert is not performed while timecode is running.

AUTO REVERT When Auto Revert is enabled, a control smoothly matches back to its previous setting when you release it. When Auto Revert is disabled, you must manually punch out of automation recording by pressing the **REVERT** key, or by stopping the incoming timecode—the control will then smoothly match back to its previous setting.

There are independent check boxes to enable Auto Revert for Write and Trim modes.

NOTE

It is possible to enable or disable Auto Revert during a mix pass. The new setting is applied to mix moves only. The following describes an example:

*With the **WRITE** indicator lit, and AUTO REVERT – WRITE disabled, move the faders. Now enable AUTO REVERT – WRITE, and move a different set of faders. These will revert automatically, but the first set will continue to write until you press **REVERT**.*

REVERT TIMES To the right of the Auto Revert check boxes are fields to enter Revert Times. The Revert Time is the amount of time (in seconds) it takes for a control to smoothly match back to its previous setting. There are fields to set an independent Revert Time for Write and Trim modes from 0.5 seconds to 10 seconds in 0.5 second increments.

The ∞ setting in the Revert Time fields enables Write/Trim To End mode, which applies a Write or Trim operation from the point where automation recording began, all the way to the end of the mix.

In the case of Write mode, this overwrites any existing mix data from the point where automation recording began, all the way to the end of the mix.

In the case of Trim mode, this applies the Trim operation from the point automation recording began all the way to the end of the mix.

Here are examples of instances where this would be useful:

- There may be existing mix moves all the way through a song which need to be louder from half-way through the song until the song's end. Using the ∞ setting in the Trim Revert Time field allows you to perform this operation without the need to play the song all the way to the end in order to record the new mix data.
- There may be existing mix moves all the way through a song, however, during the mixing process it is determined that a control should remain at one setting from a point within the song until the song's end. Using the ∞ setting in the Write Revert Time field allows you to perform this operation without the need to play the song all the way to the end in order to record the new mix data.

NOTE

AUTO REVERT WRITE (or TRIM) must be enabled for Write (or Trim) To End to work.

A Write/Trim To End operation must be completed by stopping the timecode. Manually disabling Write or Trim mode while timecode is running will not perform a Write To End operation.

If the REVERT TIME value is changed from the ∞ (infinity) setting to a non-infinite value (that is, anything else), and a Write (or Trim) To End operation is in progress, the controls start reverting immediately.

CONTROL SENSE TIME OUT The TASCAM DM's faders are touch-sensitive, so the automation system knows when you have touched or released a fader, thus punching into or out of automation record.

The POD controls, control surface keys and rotary encoders are not touch-sensitive. These controls must detect movement in order to know when to stop recording manual mix moves and start recording revert moves.

The Control Sense Time Out value allows these controls to punch out of automation record automatically after the specified amount of time has passed without movement of the control. This field can be set from 0.5 seconds to 10 seconds in 0.5 second increments. Event recording restarts if the control is moved again.

TIP

A useful trick is to map the Auxiliary Sends to faders for touch-sensitive control, flipping encoders if necessary.

AUTO FADE OUT TIME This field determines the duration of a linear fade written to the Master Fader when the **AUTO FADE** key is pressed.

3 – Automation overview : AUTO FILES

This field can be set from 0.5 seconds to 10 seconds in 0.5 second increments.

Since this fade is written directly using the Master Fader, it is not possible to change its time value after an Auto Fade has been performed.

To write an Auto Fade:

- 1 Press the **WRITE** key.
- 2 Hold **SHIFT** and press **AUTO FADE** at the point where you want the fade to begin.

To erase an Auto Fade it is necessary to overwrite the duration of the fade manually or by using the Write To End function.

TIP

A linear fade is often not musically desirable. Typically in these cases you will begin the fade at a faster rate and end the fade at a slower rate. Use the Auto Fade function to perform this:

- Press **WRITE**.

- Hold **SHIFT** and press **AUTO FADE** at the point where you want the fade to begin.
- Continue to hold **SHIFT** and press **AUTO FADE** again to restart the Auto Fade Time from the fader's current position.
- This may be repeated as often as desired to slow down the end of an Auto Fade to a mere crawl.

TOUCH function The **TOUCH** key allows you to simulate touch-sensitivity for the PODs, encoders or switch controls.

- 1 Enable the Global Write mode.
- 2 Press and hold the **TOUCH** key, and while holding down this key, move the control to start a write from the control's current value.
- 3 Make the mix moves (or end the write by pressing the **REVERT** key).

Revert actions follow the settings made in the **SETUP** screen.

AUTO FILES

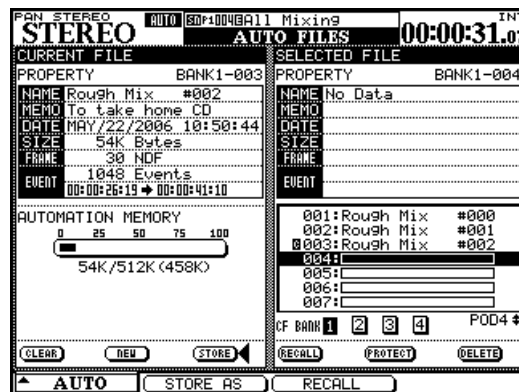


Figure 7: AUTO FILES screen

Top line The word **AUTO** appears beside the selected channel in all mixer displays when the automation system is enabled. The word **WRITE** appears here solid when the mixer is ready to record either Static or Dynamic mix data. The word **WRITE** flashes when the automation system is actually writing mix data on the selected channel. This could be a Write or Trim operation.

On the right the source of the timecode being used by the mixer and the automation system is shown. **TC** indicates Linear Timecode and **MTC** indicates MIDI

Timecode with **INT** referring to the internal timecode generator.

Below this, on the left and right, the current automation file and the highlighted automation file respectively are shown.

The amount of bank memory used by the selected mix is shown.

The **POD 4** encoder and wheel are used to select a stored mix and the on-screen **CF BANK** buttons are used to select the different banks on the inserted **CF** card.

3 – Automation overview : AUTO CONFIG

The other on-screen buttons, etc. work in the same way as for other libraries, allowing deletion, protection, etc. of stored entries.

DELETE permanently erases the contents of the highlighted mix file.

CAUTION

There is no undo for this operation.

AUTO CONFIG

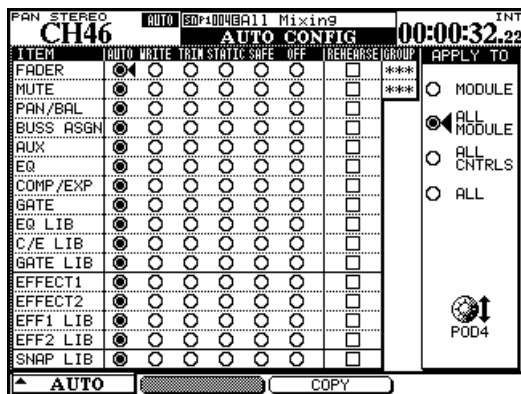


Figure 8: AUTO CONFIG display

The grid represented in the AUTO CONFIG display is used for manual override of the automation's mode switching. The selected channel is displayed in the upper left of the display. If the displayed channel is part of a group, this is indicated in the upper right of the grid.

The changes made in this grid are applied to channel and controls selected by the APPLY TO buttons at the right of the display. Use the rightmost POD encoder to make this selection. Note that it is not necessary to press **ENTER** to confirm this setting.

When a module or control is set to any mode except Auto using this display, that module or control remains in that mode until it is reset back to Auto.

The settings made in this display are saved as part of the mix data.

NOTE

Image settings are part of the PAN control setting.

MODULE When selected, the changes in this display will only be applied to the specified control on the selected channel.

ALL MODULE When selected, the changes in this display are applied to a single control across all channels. For example, with ALL MODULE selected, enabling SAFE in the FADER row places all mixer faders into Safe mode.

ALL CNTRLS When selected, the changes in this display are applied to all controls on the selected channel. This applies the changes to the libraries.

ALL When selected, the changes in this display are applied to all controls on all channels.

COPY This soft key copies the configuration of the currently-selected channel into a special clipboard where it can then be pasted to another channel. A popup message appears when this operation is carried out.

PASTE This soft key (only visible when a configuration has been copied) pastes the configuration copied using the COPY soft key to the currently-selected channel. Note that there is no Undo for this operation.

REVERT

The revert function provides a smooth transition between the events being written and existing mix moves.

Naturally, this only applies to continuous controls, such as faders and pans (there is no smooth transition

that can be made between the on state and the off state of a switch).

See "Revert Time" on page 16, "Auto Revert Choices" on page 16, and also "Disabling Auto Revert" on page 19.

Undo/Redo

The **UNDO/REDO** key provides one level of undo (or if an action has been undone, one level of redo) for dynamic and static controls.

It is a global undo/redo, undoing or redoing all mix moves in a pass.

Undo and redo is not possible if timecode has been stopped and no events have been modified.

Channel LED Indicators

Each channel has an **OL/STATUS** indicator immediately above the fader. When automating a mix, these indicators can be used to show whether a channel is writing, reading or reverting.

Use the **OPTION** display screen to set the function of these indicators. The default use is as overload indicators, as explained in the *Owner's Manual*.

When used as automation indicators, they flash when any control on a channel is writing or reverting. They are lit steadily when all controls on a channel are reading.

The global Revert indicator above the **REVERT** key follows the behavior of the channel indicators when they are used for automation.

4 – Operation

Operating the TASCAM DM's automation system is designed to be intuitive and transparent to the mixing process, while offering power and flexibility previously unavailable on a mixing console.

The steps below, combined with an understanding of the information on the previous pages, will have you automating your mixes in no time.

Setting Up Your Mix

Action: Enable the automation system in the AUTO SETUP display by moving the cursor to the on-screen AUTOMATION ENGINE button and pressing **ENTER**.

Result: The settings of all mixer controls are stored into the current mix memory. Changing any settings will automatically update those settings in the current mix memory. This is just like mixing on an analog console except the system now knows where every

control is set. The automation system sees these controls as being in Static mode.

Action: Store the mix file in a card memory bank (see “AUTO FILES” on page 14).

Result: Until a mix is stored in a memory bank, it only exists in the current mix memory. The current mix memory is erased when the console is powered off, so storing a mix in a memory bank is required for later recall.

Writing Mix Moves

Action: Press the **WRITE** key before or after starting timecode so that its indicator lights. With timecode running, perform the desired mix move.

Result: With the console in Write mode, any movement of a control while timecode is running is written to that control by the automation system.

In the case of the touch-sensitive faders, writing begins when a fader is touched.

In the case of POD controls, writing will begin when the control is moved.

Once dynamic mix moves have been written to a control, the automation system automatically changes that control from Static mode to Dynamic mode, in order to read mix moves. Controls that have not had mix moves written to them remain in Static mode, even if those controls are on the same channel as a control that has had dynamic mix data written to it.

Revert Time

When a control stops recording mix moves, it “reverts” to the setting that existed before recording the mix move. The previously existing setting could be a dynamic mix move or a static control position. The amount of time it takes to make a smooth match from the end of the recorded mix move to the previously existing setting is called the *Revert Time*.

A Revert Time is applied, even when the timecode is stopped, past the point where the timecode stopped, to ensure a smooth transition between the new mix move and the control's previous setting.

Auto Revert Choices With AUTO REVERT – WRITE enabled, the automation system stops writing mix moves automatically on a per control basis without the need to end writing manually. In this case, controls stop writing mix moves at different times, depending on when they were released

(faders) or when movement ended (POD controls and encoders).

In the case of touch-sensitive faders, reverting begins when the fader is released.

In the case of POD controls and encoders, reverting begins when the CONTROL SENSE TIME OUT value has expired without the control being moved. The CONTROL SENSE TIME OUT value allows the POD controls and encoders to respond as if they are touch-sensitive (even though they are not).

When a Revert occurs, the control smoothly matches back to its previous value, based on the set value of the Revert Time. The previous control value could be a control's Static position or a control's Dynamic mix moves.

Revert does not apply to switch events, as these become readable following the Control Sense time-out interval has elapsed.

4 – Operation : Writing Mix Moves

See the diagrams below to understand how this works:

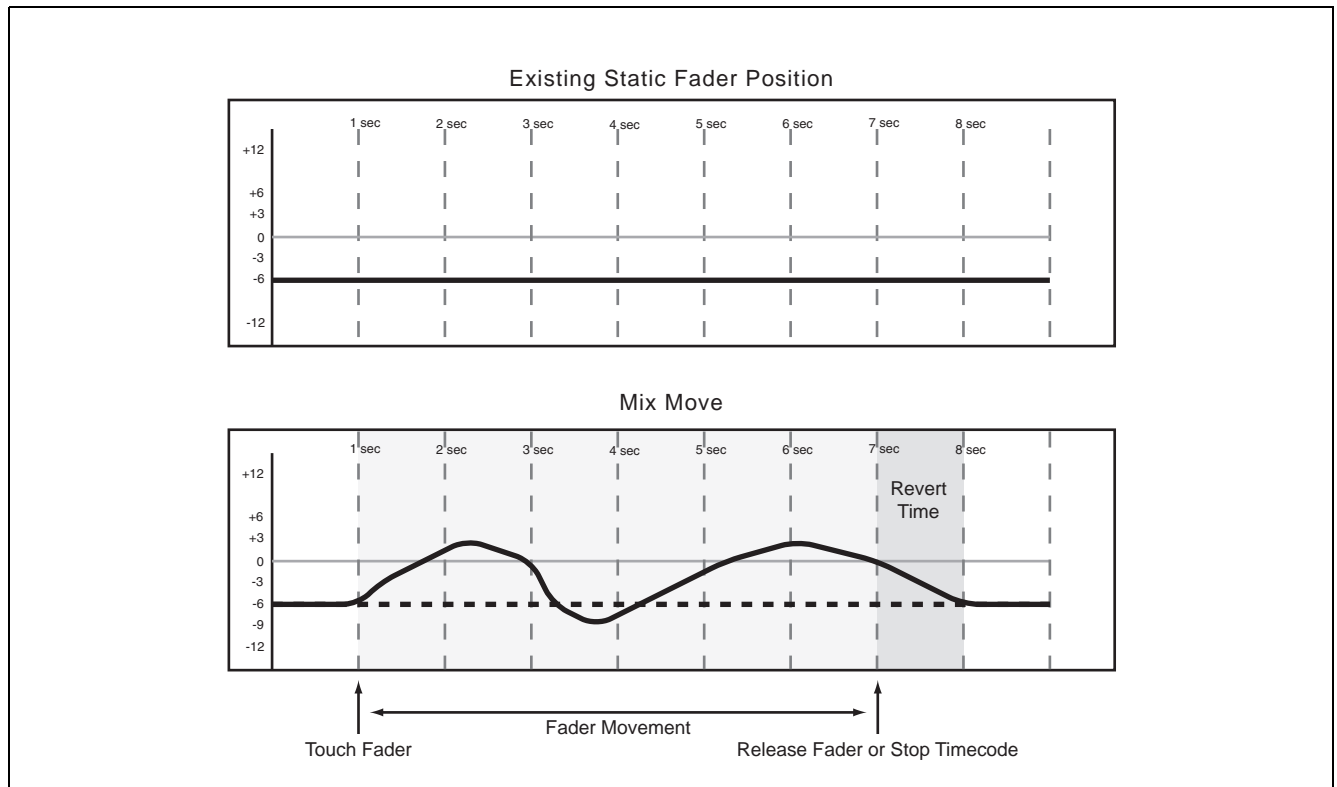


Figure 9: Writing a fader move over a previous static fader position with Auto Revert enabled

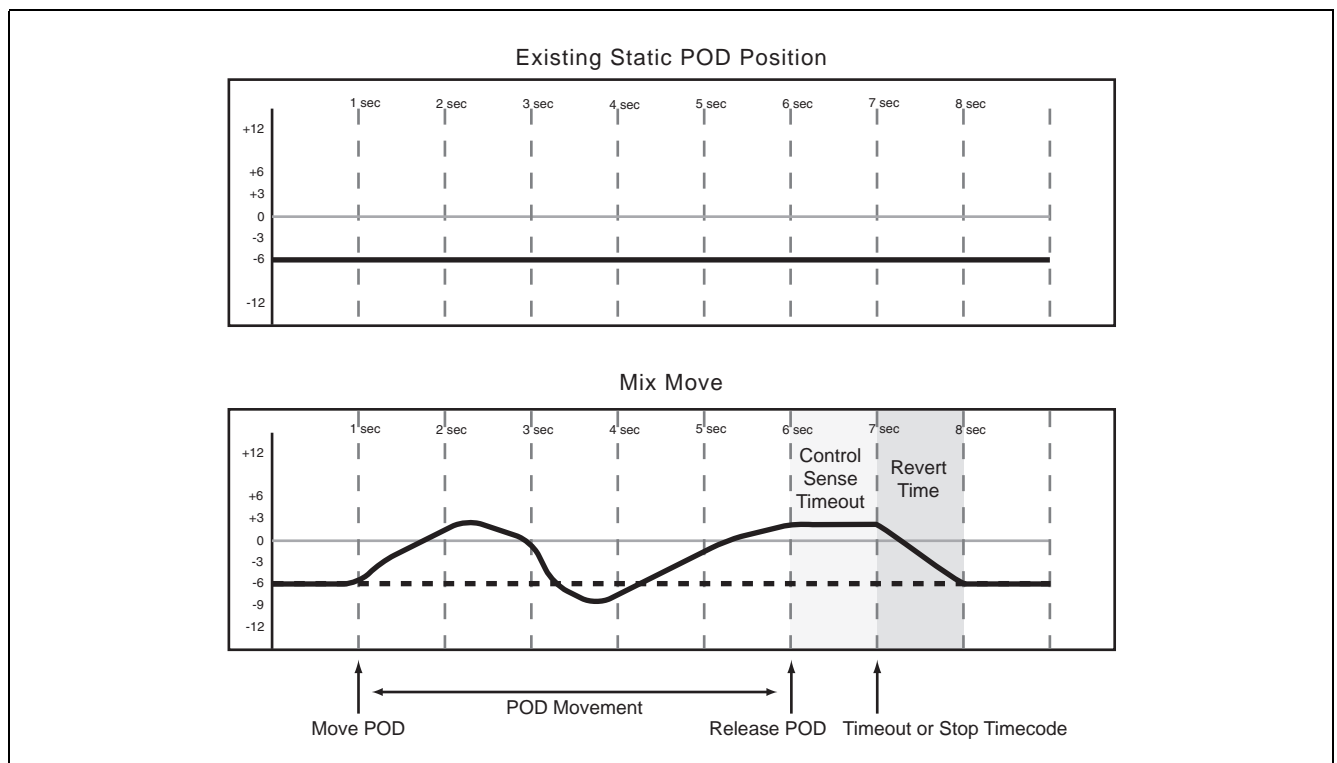


Figure 10: Writing a POD (or encoder) move over a previous static position with Auto Revert enabled

4 – Operation : Writing Mix Moves

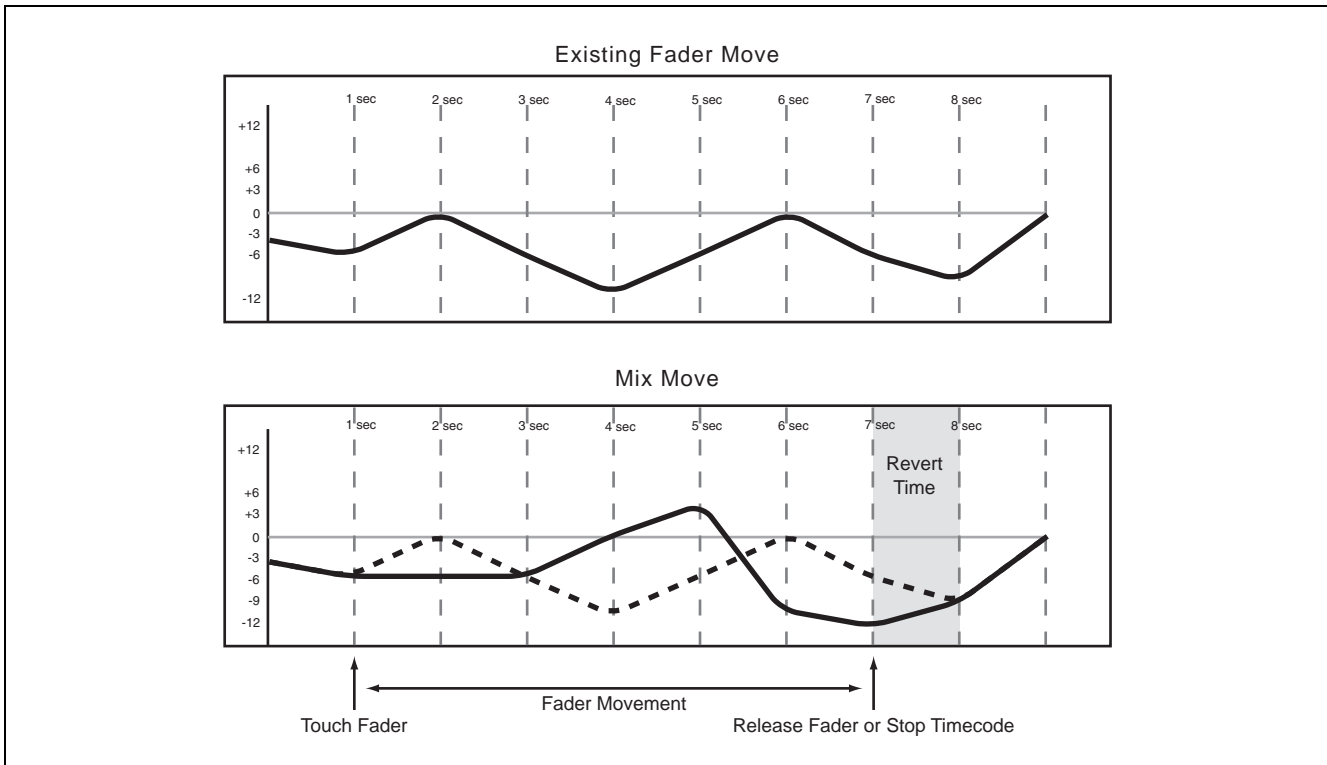


Figure 11: Writing a new fader move over a previous Dynamic fader move with Auto Revert enabled

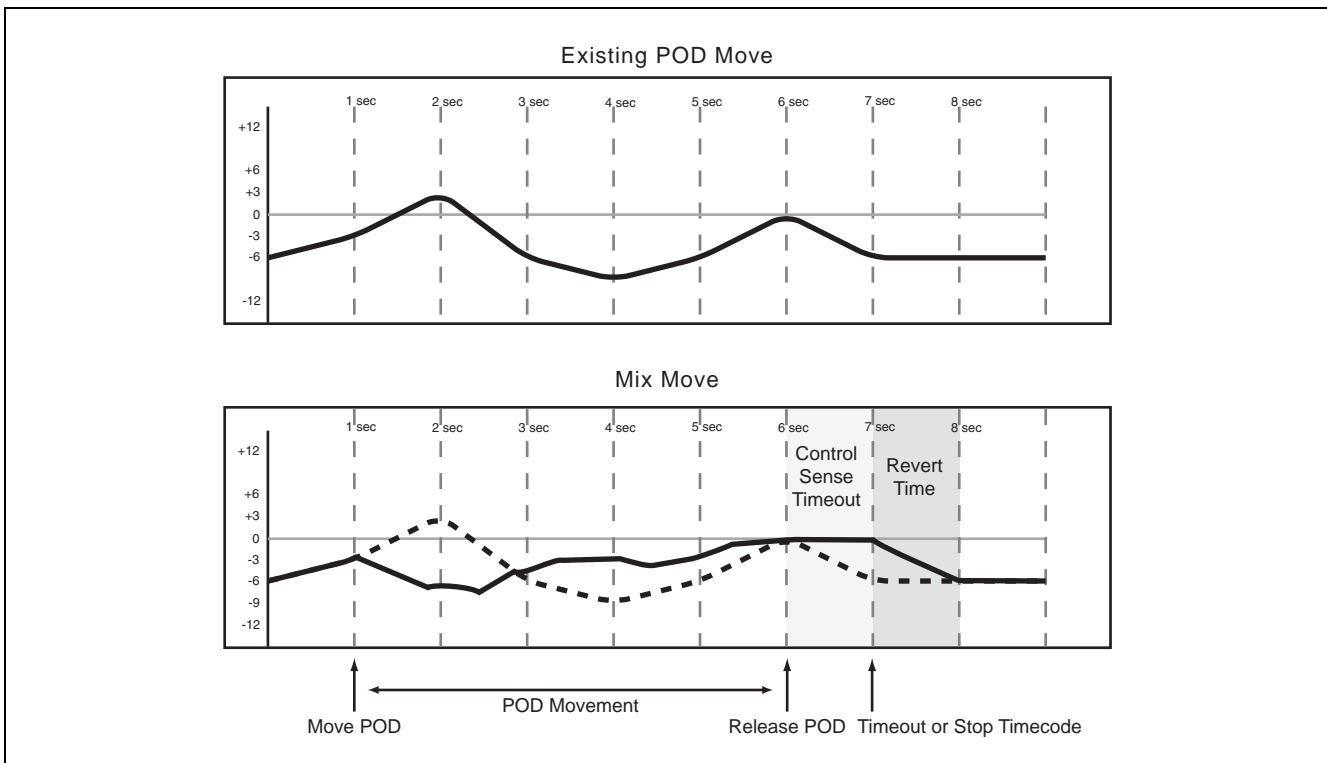


Figure 12: Writing a new POD (or encoder) move over a previous Dynamic move with Auto Revert enabled

4 – Operation : Writing Mix Moves

Disabling Auto Revert allows you to manually stop writing mix moves, either by stopping the timecode, or by pressing the **REVERT** key. In this case, **all** controls that are writing mix moves will stop writing simultaneously when **REVERT** is pressed or timecode stops.

When a Revert is triggered by stopping the time the Revert Time is still applied to the control code, beyond where timecode was stopped, for a smooth match from the end of the new mix move to the control's previous setting.

See the diagrams below to see how this works:

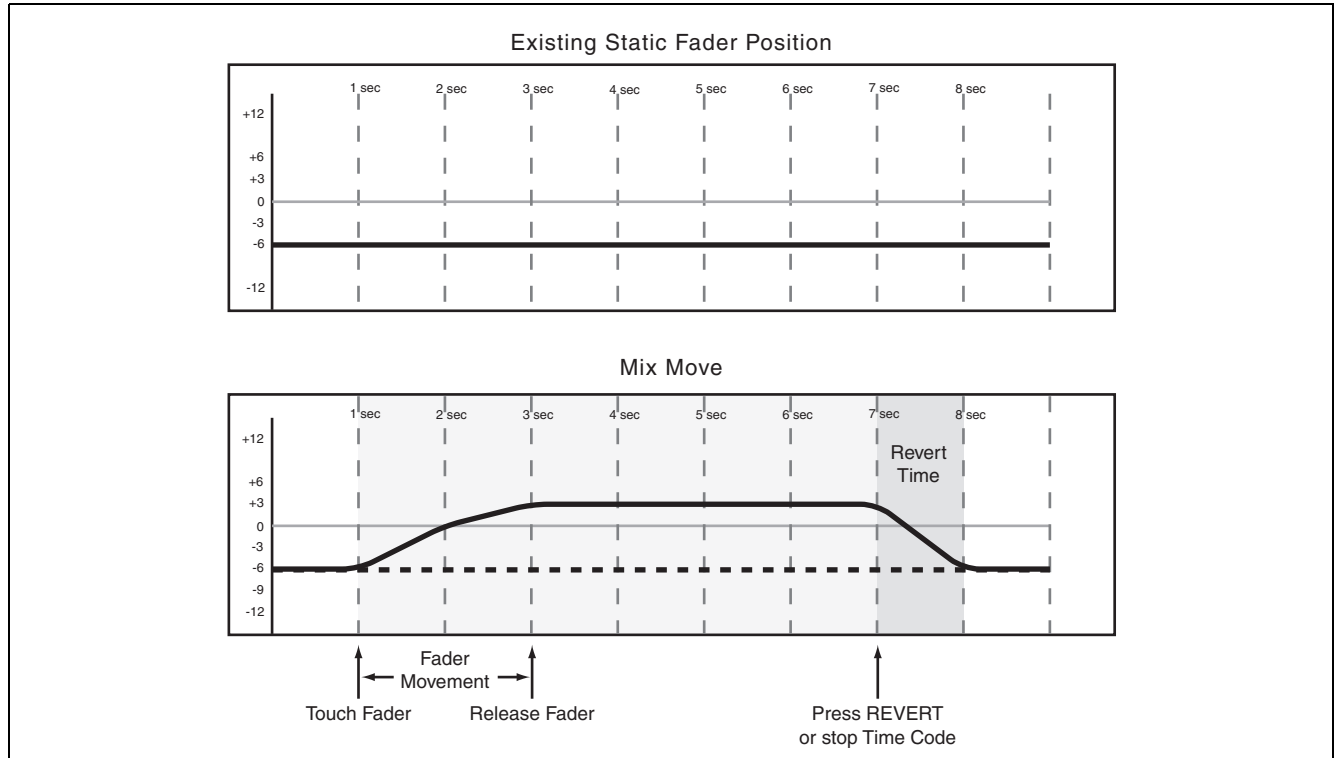


Figure 13: Writing a new fader move over a previous Static fader position with Auto Revert disabled

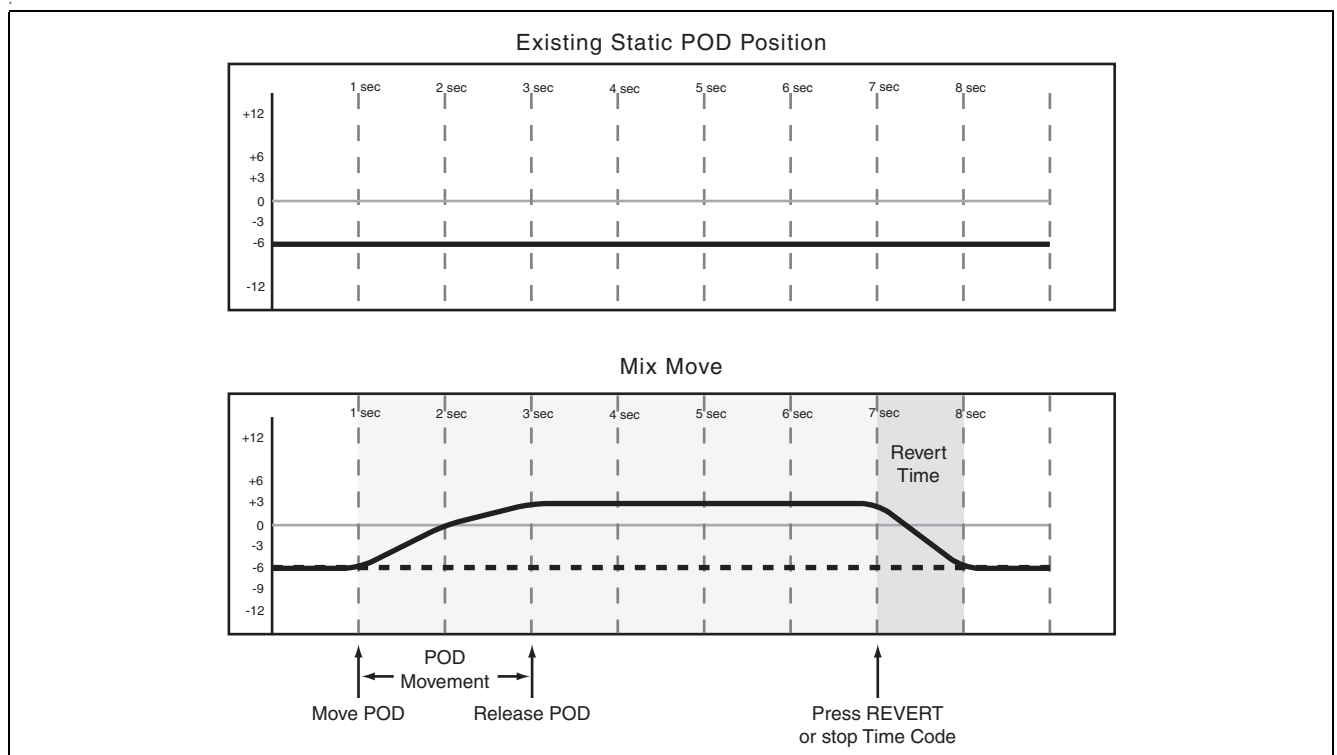


Figure 14: Writing a new POD or encoder move over a previous Static position with Auto Revert disabled

4 – Operation : Writing Mix Moves

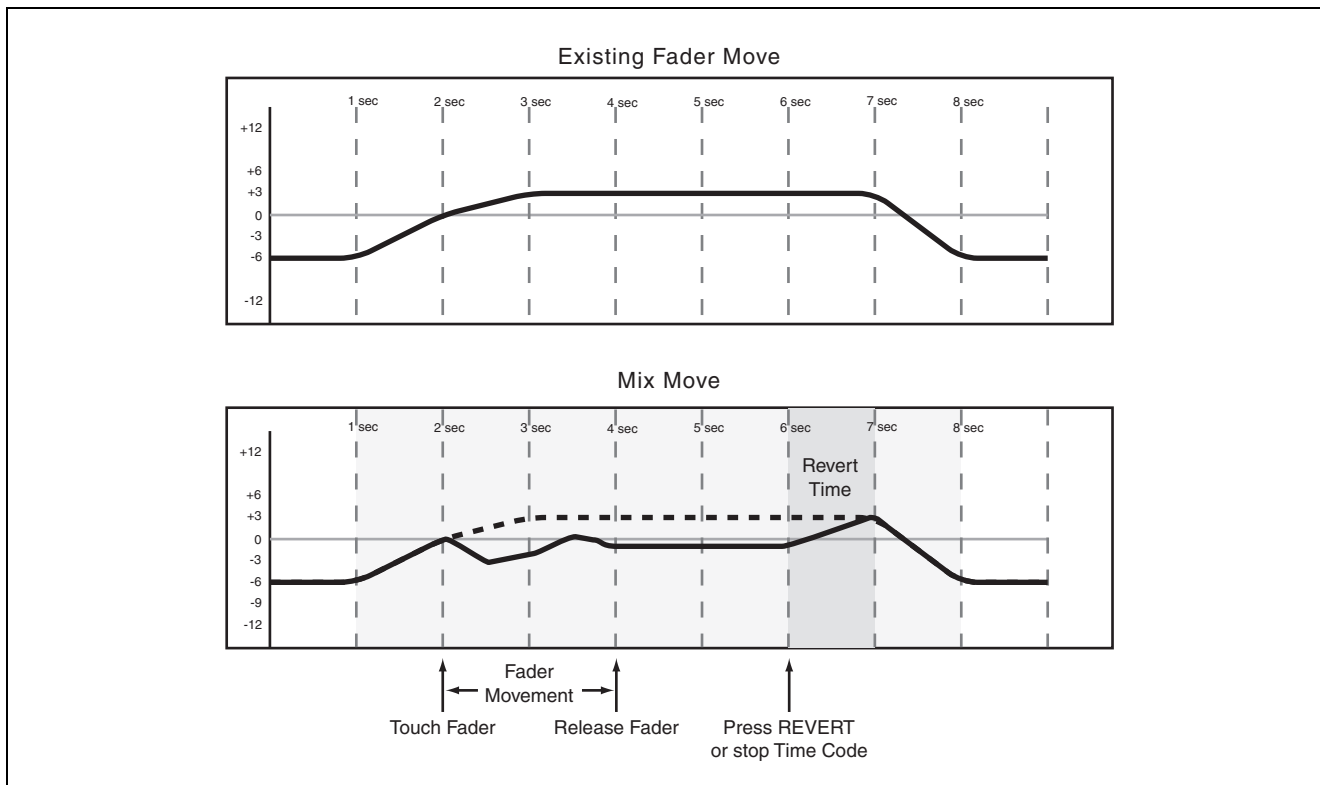


Figure 15: Writing a new fader move over previous Dynamic fader moves with Auto Revert disabled

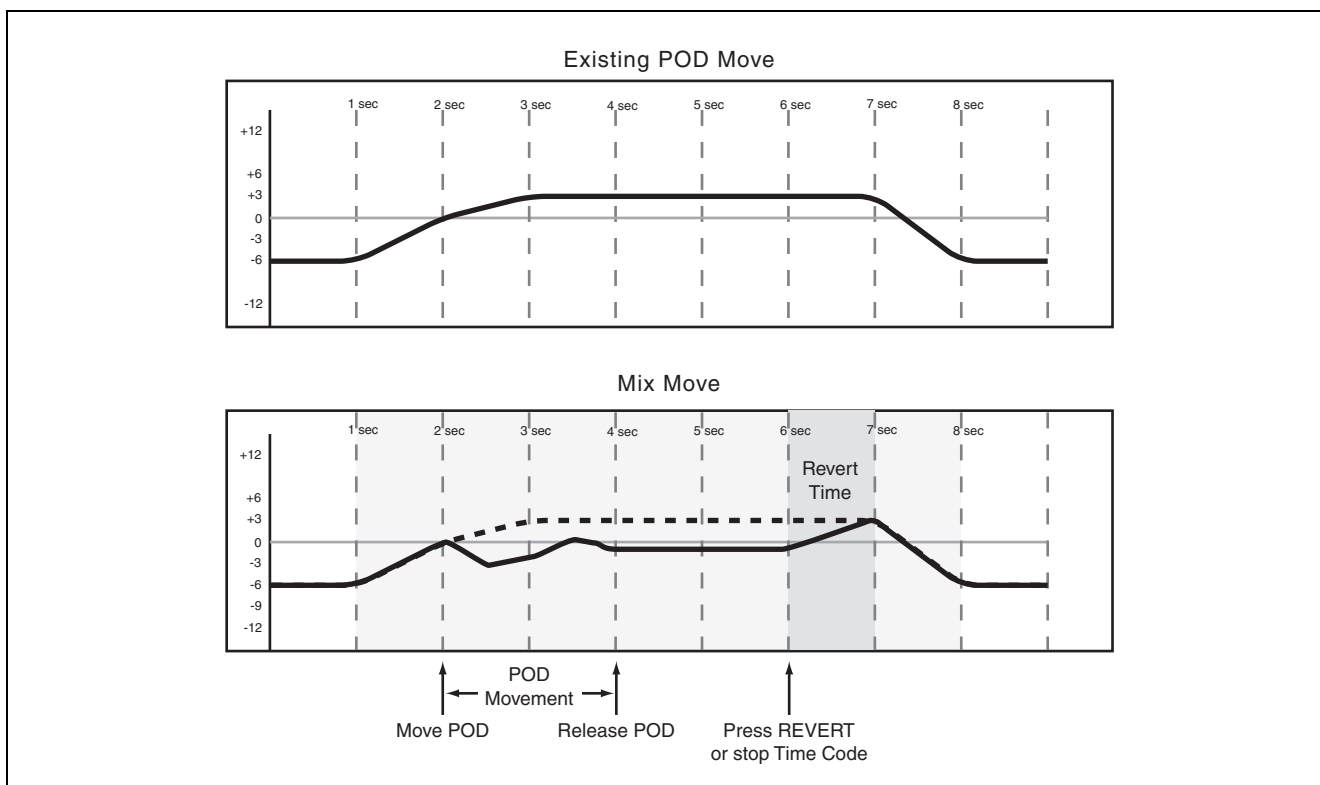


Figure 16: Writing a new POD or encoder move over previous Dynamic moves with Auto Revert disabled

4 – Operation : Writing Mix Moves

Write To End:

When the Write Revert Time is set to ∞ , you are essentially telling the automation system to maintain a control's last setting from the point where the automation recording ends, all the way to the end of the program. This is called *Write To End*. In this case, any mix moves existing in the time between the end of automation recording and the end of the program will be erased.

NOTE

A *Write/Trim to End* operation must be completed by stopping the timecode. Manually disabling Write or Trim mode while timecode is running will not perform a *Write To End* operation.

AUTO REVERT must be enabled to use *Write To End*.

See the diagrams below to understand how this works:

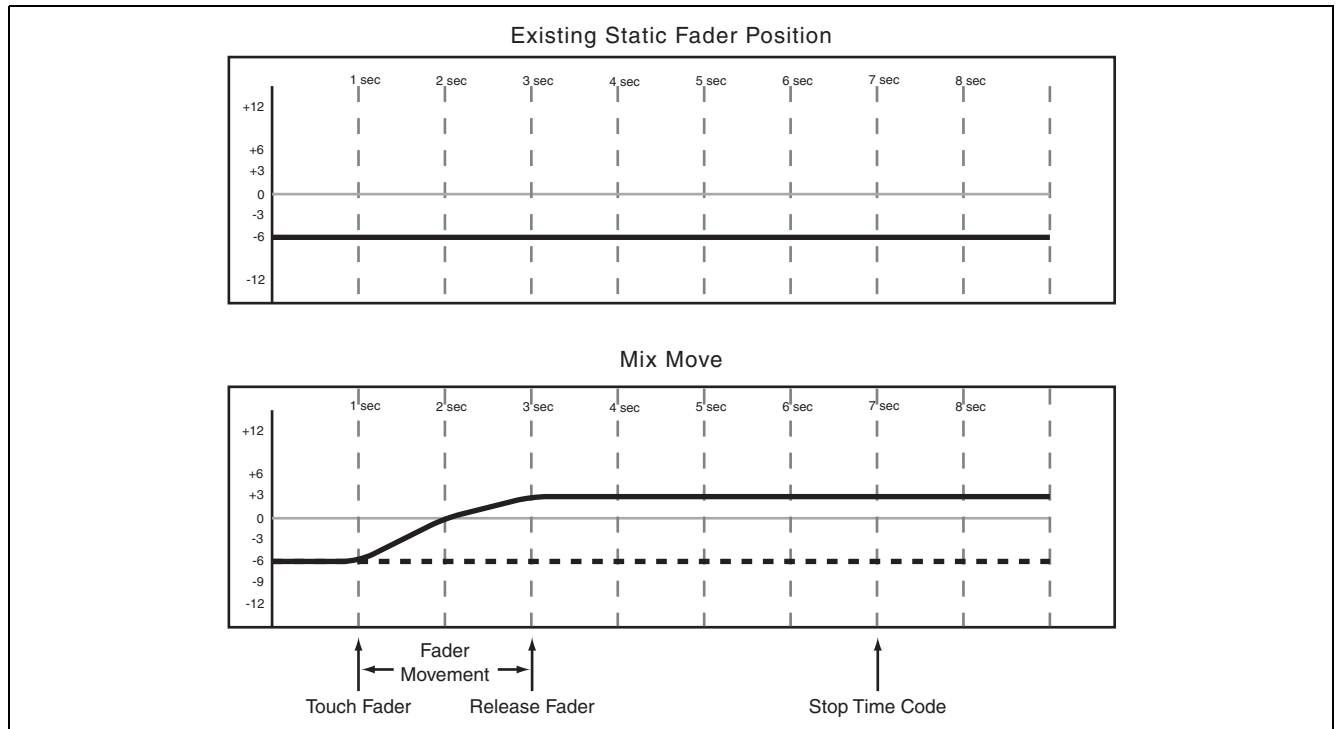


Figure 17: Write to End over previous Static fader position

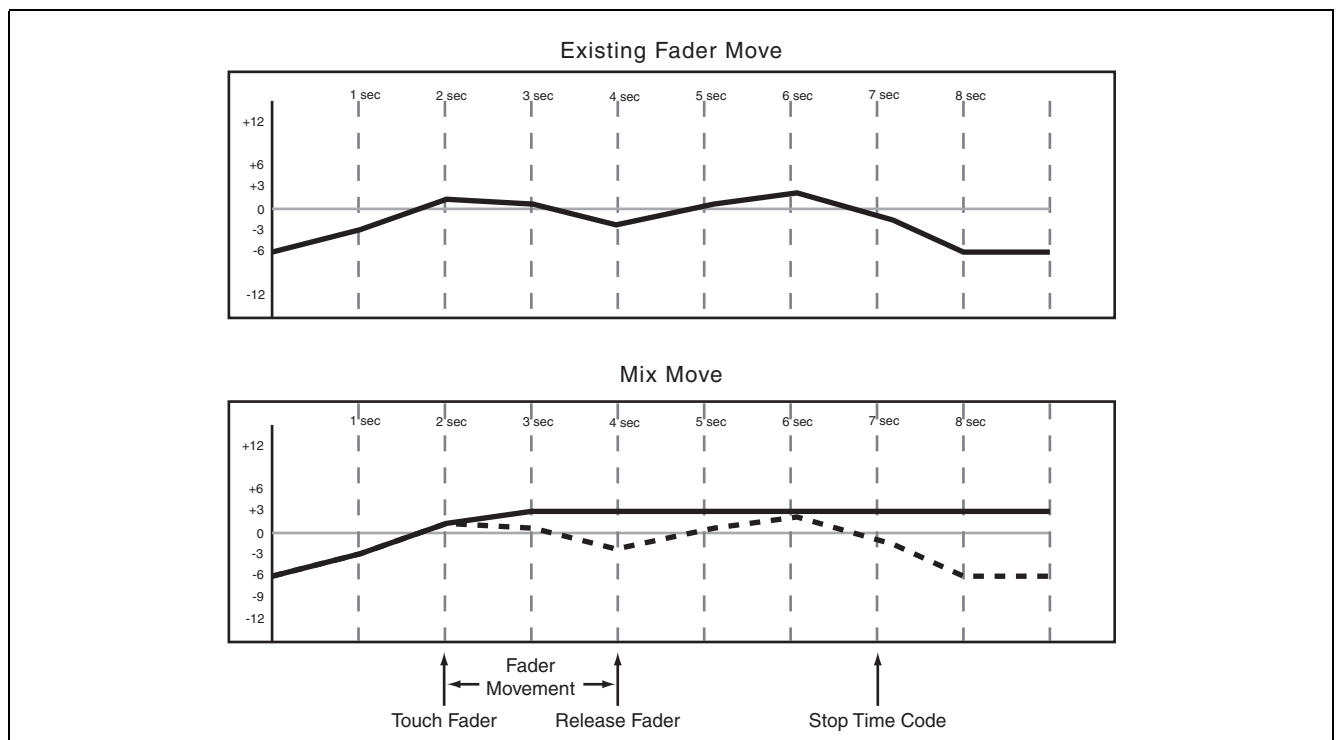


Figure 18: Write to End over previous Dynamic fader moves

4 – Operation : Writing Mix Moves

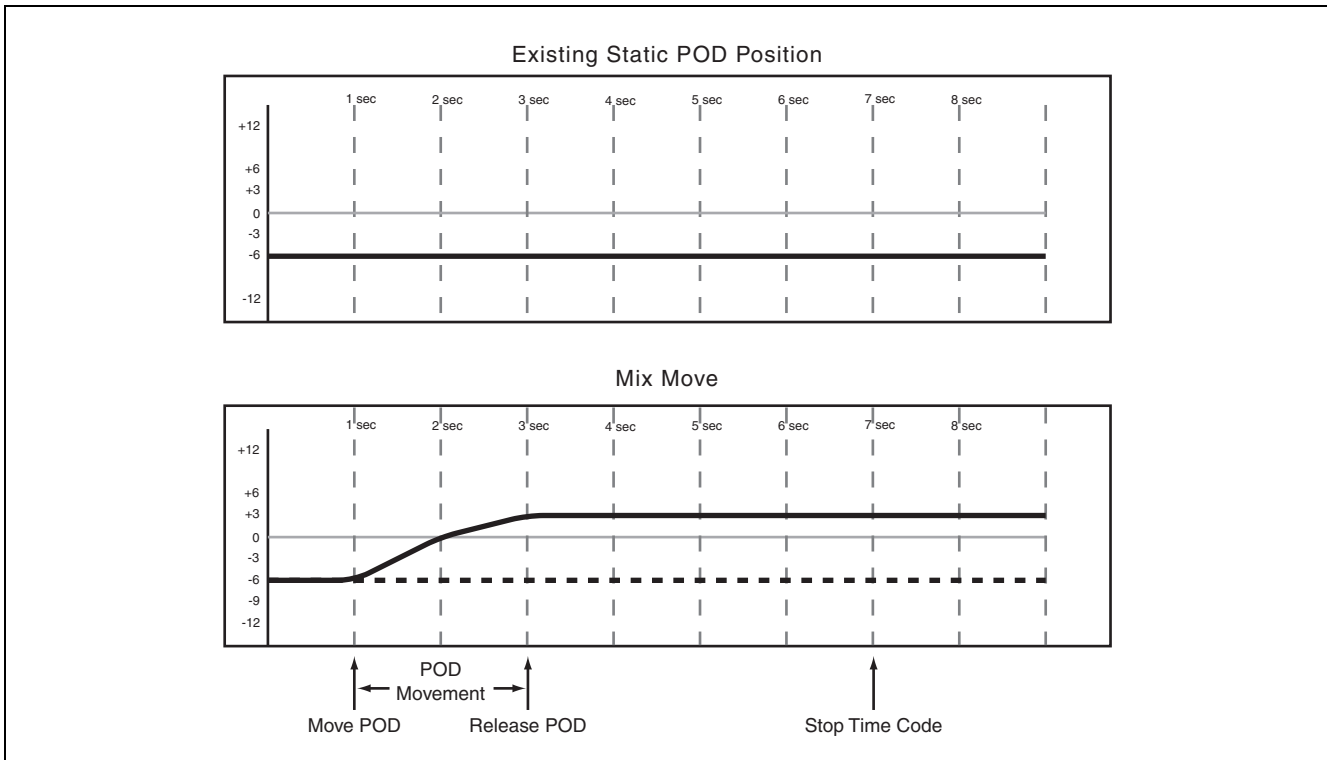


Figure 19: Write to End over previous Static POD or encoder position

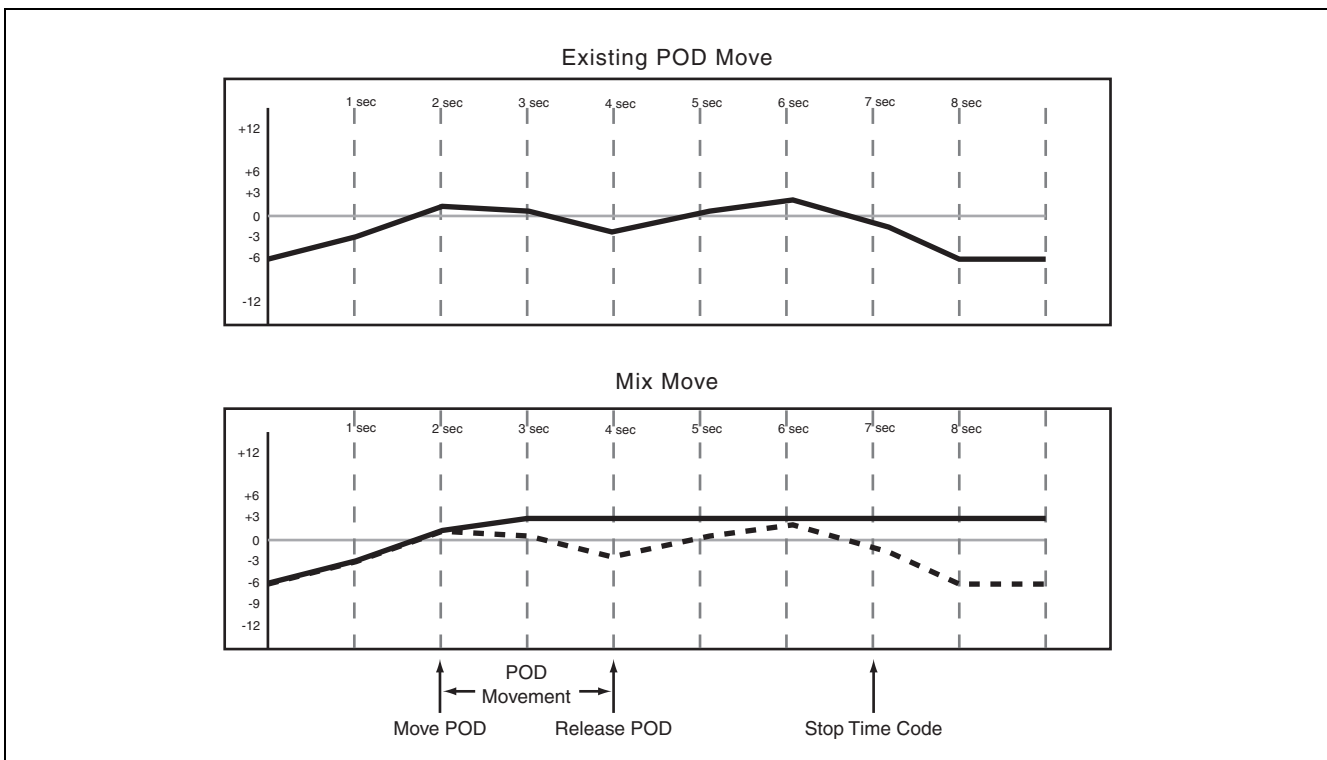


Figure 20: Write to End over previous Dynamic POD or encoder moves

Writing Switch Events

Switch Events are defined as the switching of any “on/off” controls. Examples of such controls are **MUTE** keys and the **EQ ON** key.

Action: Press the **WRITE** key before or after starting timecode and its indicator lights. With timecode running, press the desired key or keys to write the switch event at the desired timecode location.

Result: This works for muting, EQ On/Off, EQ band type switching, Auxiliary send Pre/Post switching and Library Recall.

Once a switch event has been written to a control, the automation system automatically changes that control from Static mode to Dynamic mode, in order to read mix moves.

Controls that have not had switch events written remain in Static mode, even if those controls are on the same channel as a control that has had other mix data written to it.

In write mode, existing events are not replayed, but in trim mode, they are played back and merged.

Revert Time

Because switch events are not continuous data like fader moves, there is no need to make a smooth tran-

sition. This setting has no effect on writing switch events.

CONTROL SENSE TIME OUT & Switch Events

The TASCAM DM’s faders are touch sensitive, so the automation system knows when you have touched or released a fader, thus punching into or out of automation writing.

The control surface keys are not touch sensitive. These controls write a switch event when pressed,

while Write or Trim mode is enabled. CONTROL SENSE TIME OUT allows these keys to punch out of automation writing automatically, after the specified amount of time has passed without being pressed. This field can be set from 0.5 seconds to 10 seconds in 0.5 second increments.

4 – Operation : Writing Switch Events

Auto Revert Choices:

With AUTO REVERT — WRITE/TRIM enabled, the automation system stops recording switch events automatically on a per control basis, without any need to end writing manually. In this case, keys stop recording switch events at different times, depending on when they were last pressed and depending on the value set in CONTROL SENSE TIME OUT.

In the case of control surface keys, writing ends when the CONTROL SENSE TIME OUT has expired without a key press. CONTROL SENSE TIME OUT allows the con-

trol surface keys to respond as if they are touch-sensitive, even though they are not.

Writing switch events over a Static switch position simply adds the new switch events. When writing new switch events over previous ones, the TASCAM DM automation system provides you with a high degree of flexibility over when writing will end.

See the diagram below to understand this behavior:

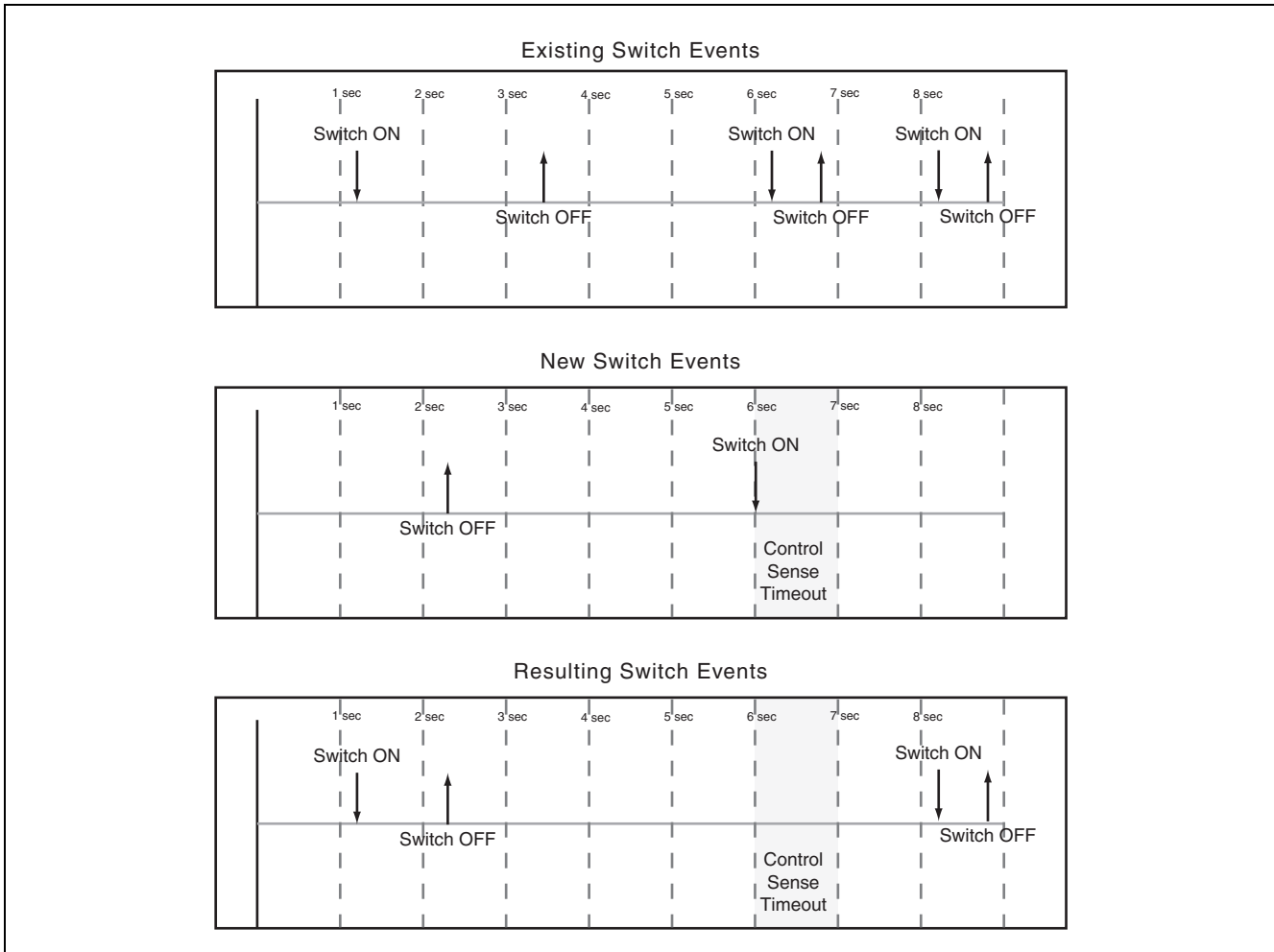


Figure 21: Writing new switch events over previous switch events with Auto Revert enabled

4 – Operation : Writing Switch Events

Disabling Auto Revert allows you to stop writing switch events manually, either by stopping the timecode or by pressing the **REVERT** key. In this case, all controls that are writing will stop writing simulta-

neously when **REVERT** is pressed or when timecode stops.

See the diagram below to understand this behavior:

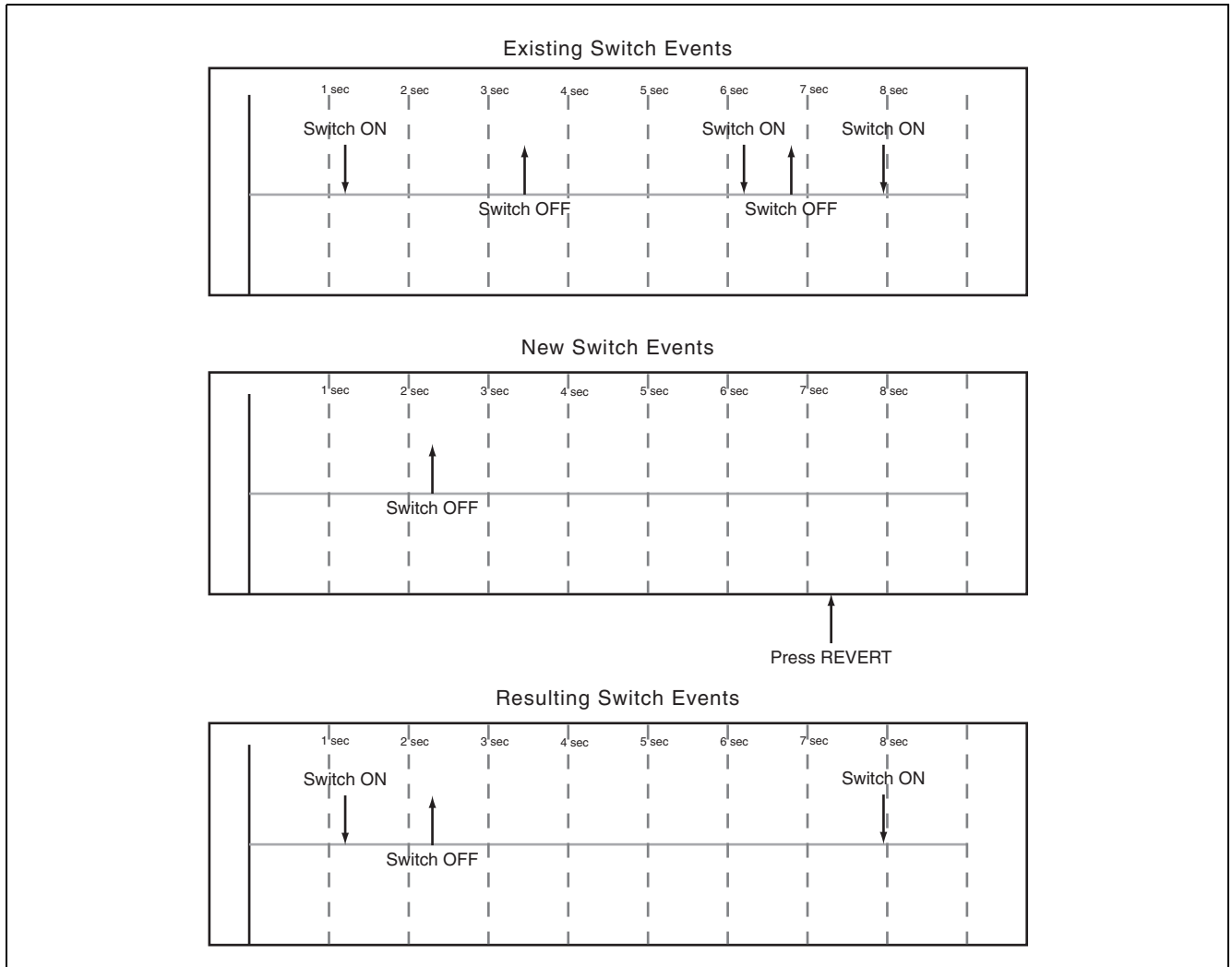


Figure 22: Writing new switch events over previous switch events with Auto Revert disabled

4 – Operation : Writing Switch Events

Write To End:

When the Write Revert Time is set to ∞ S, you are essentially telling the automation system to maintain that control's last setting from the point when automation recording ends, all the way to the end of the program.

NOTE

A Write/Trim To End operation must be completed by stopping the timecode. Manually disabling Write or Trim mode while timecode is running will not perform a Write To End operation.

AUTO REVERT must be enabled to use Write To End.

This is called *Write To End*. In this case, any switch events existing in the time between the end of automation recording and the end of the program will be erased.

See the diagram below to understand this Write to End behavior:

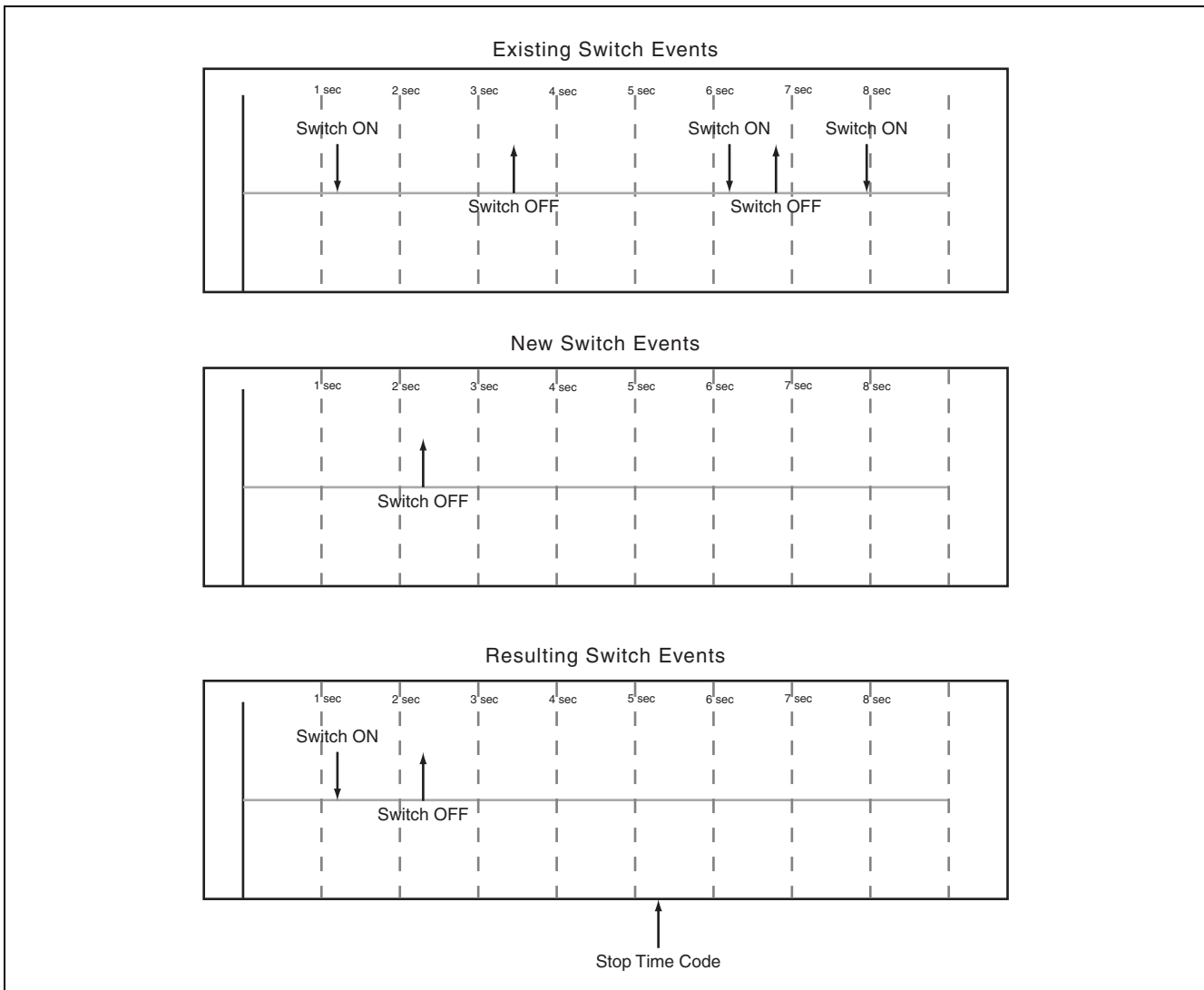


Figure 23: Writing a new switch event with Write to End enabled

Trimming Mix Moves

There may be times when a control has existing mix moves that are good, but the overall level of those moves needs to be raised or lowered. In this case, Trim is used to offset existing moves.

Action: Press the **TRIM** key before or after starting timecode and its indicator lights. With timecode running, perform the desired Trim operation.

Result: With the console in Trim mode, any movement of a control while timecode is running performs a Trim operation on that control. The audio passing

through the control reflects the previous mix moves, combined with the offset created by the Trim operation.

In the case of the touch-sensitive faders, trimming begins when a fader is touched.

In the case of POD controls, trimming begins when the control is moved.

In write mode, existing events are not replayed, but in trim mode, they are played back and merged.

Trim all

If TRIM ALL is enabled in the AUTO SETUP screen, a control can be trimmed while timecode is running to adjust the level of that control for the whole of the automation.

Note that if TRIM ALL is enabled while timecode is running, no events will be recorded.

Stop the timecode to complete the pass.

See also the section in the overview (“TRIM ALL” on page 12).

NOTE

This Trim All function cannot be combined with other global automation modes in the same pass.

Revert Time:

When a control stops trimming mix moves it “reverts” to reading any mix data that existed before trimming began. The previously existing data could be a dynamic mix move or a static control position. The amount of time it takes to move smoothly from

the end of the trimmed mix move to the previously existing data is called the *Revert Time*.

A Revert Time is applied, even when the timecode is stopped, past the point when the timecode stops, to ensure a smooth transition between the trimmed mix move and the control’s previous setting.

4 – Operation : Trimming Mix Moves

Auto Revert Choices:

With AUTO REVERT — TRIM enabled, the automation system stops trimming mix moves automatically per control without the need to stop trimming manually. In this case, controls stop trimming mix moves at different times, depending on when they were released (faders) or when movement ended (POD controls), or when the timecode was stopped.

In the case of the touch-sensitive faders, the revert starts when the fader is released. In the case of POD controls and encoders, revert starts when the CONTROL

SENSE TIME OUT has expired without movement of the control. CONTROL SENSE TIME OUT allows the POD controls to respond as if they are touch-sensitive even though they are not.

When a Revert occurs, the control smoothly matches back to its previous data based on the amount of Revert Time set. That previous data could be a control's Static position or a control's Dynamic mix moves. See the diagrams below to understand how this works:

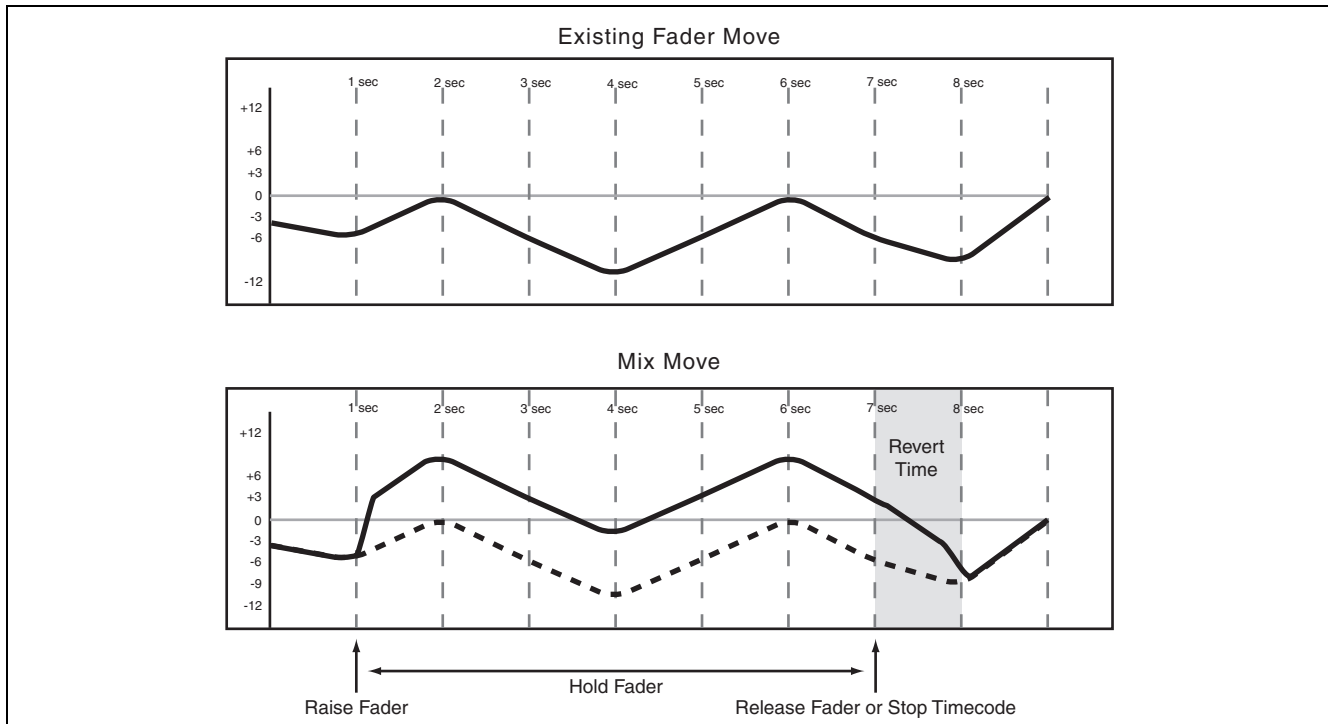


Figure 24: Trimming fader moves with Auto Revert enabled

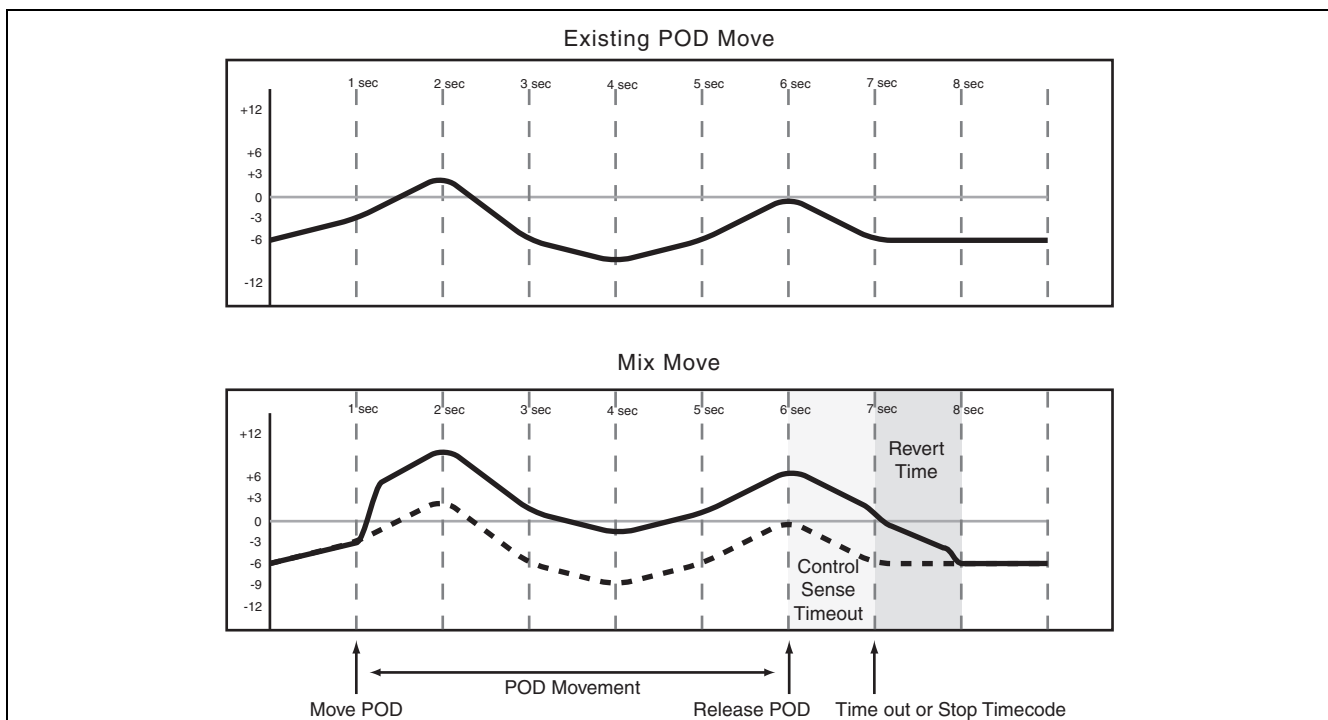


Figure 25: Trimming POD and encoder moves with Auto Revert enabled

4 – Operation : Trimming Mix Moves

Disabling AUTO REVERT — TRIM allows you to manually stop trimming mix moves by stopping the timecode or by pressing the **REVERT** key. In this case, all

controls that are trimming mix moves will stop trimming simultaneously when **REVERT** is pressed or timecode stops.

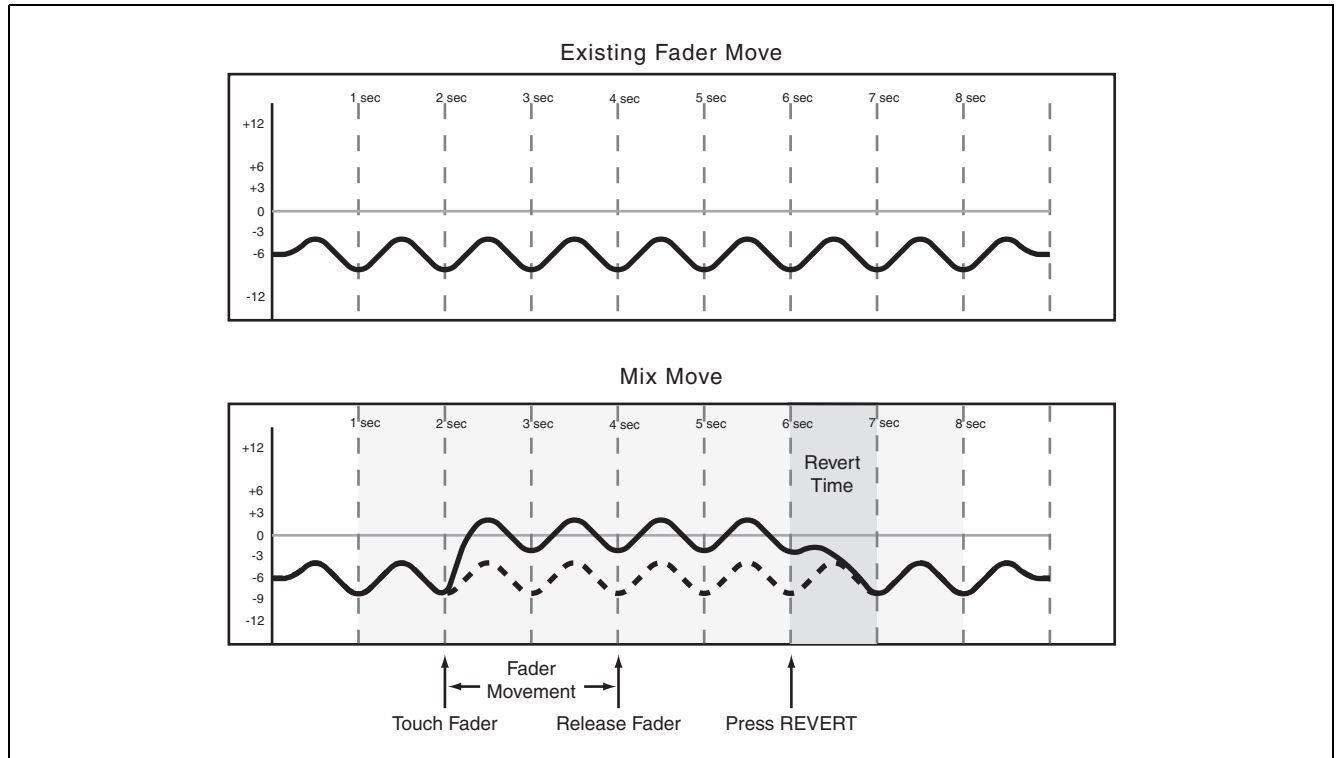


Figure 26: Trimming fader moves with Auto Revert disabled

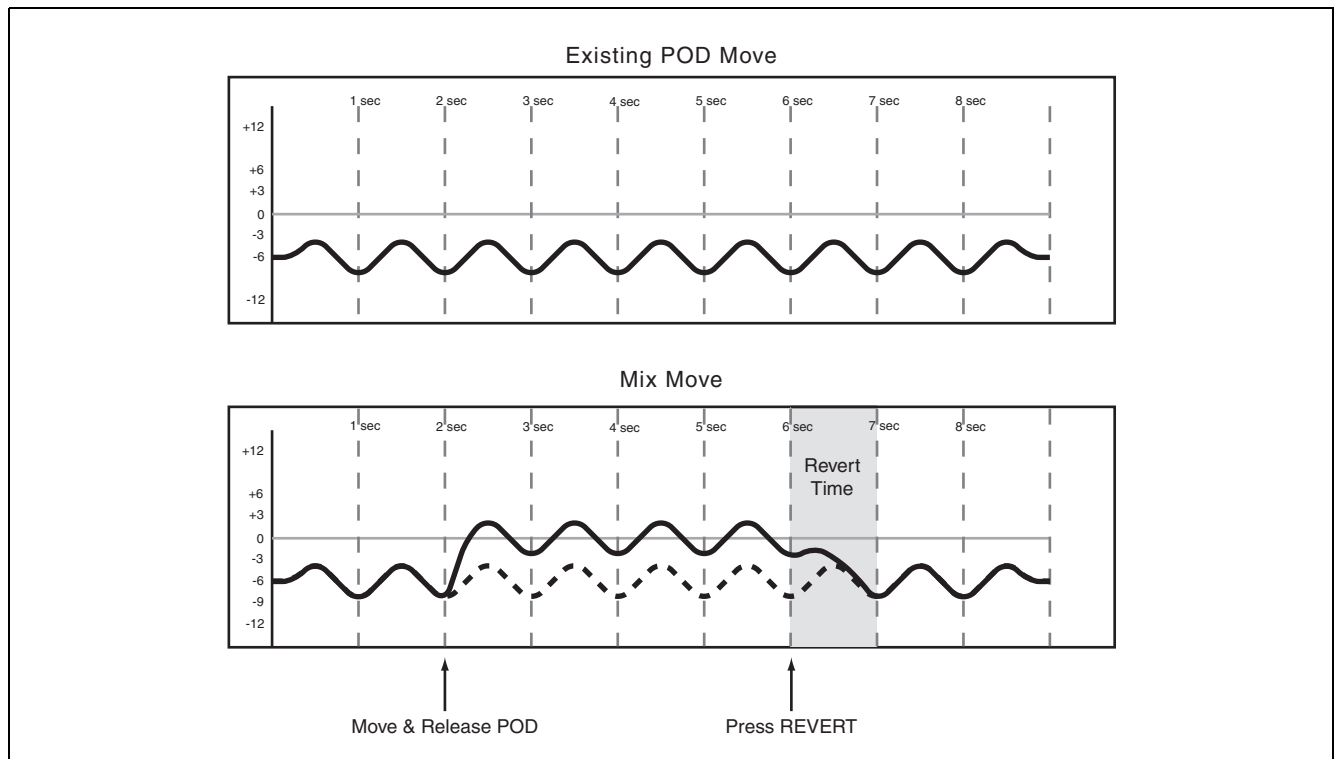


Figure 27: Trimming POD and encoder moves with Auto Revert disabled

4 – Operation : Trimming Mix Moves

Trim To End

When the Trim Revert Time is set to ∞ , you are essentially telling the automation system to maintain the offset created by the trim operation from the point where trimming ends, all the way to the end of the program.

NOTE

A Write/Trim To End operation must be completed by stopping the timecode. Manually disabling Write or Trim mode while timecode is running will not perform a Write To End operation.

See the diagrams below to understand how this works:

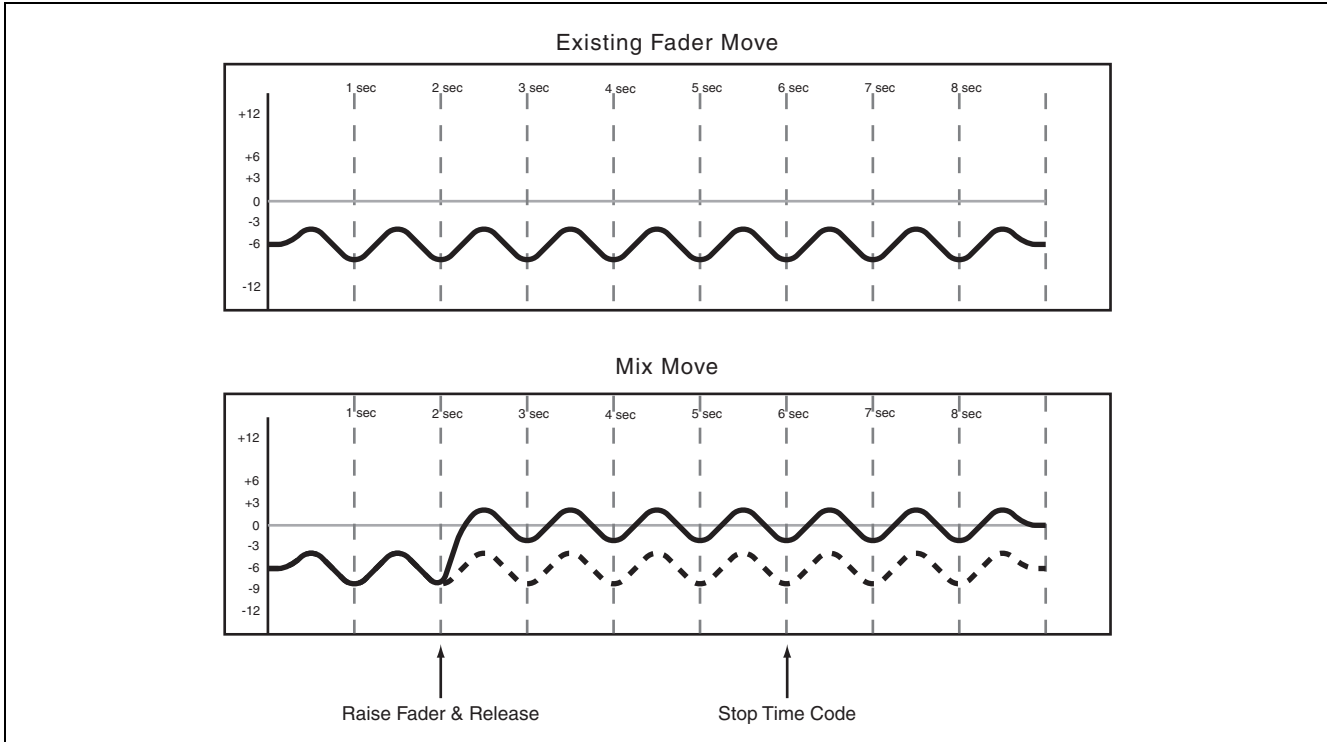


Figure 28: Trimming fader moves with Trim to End enabled

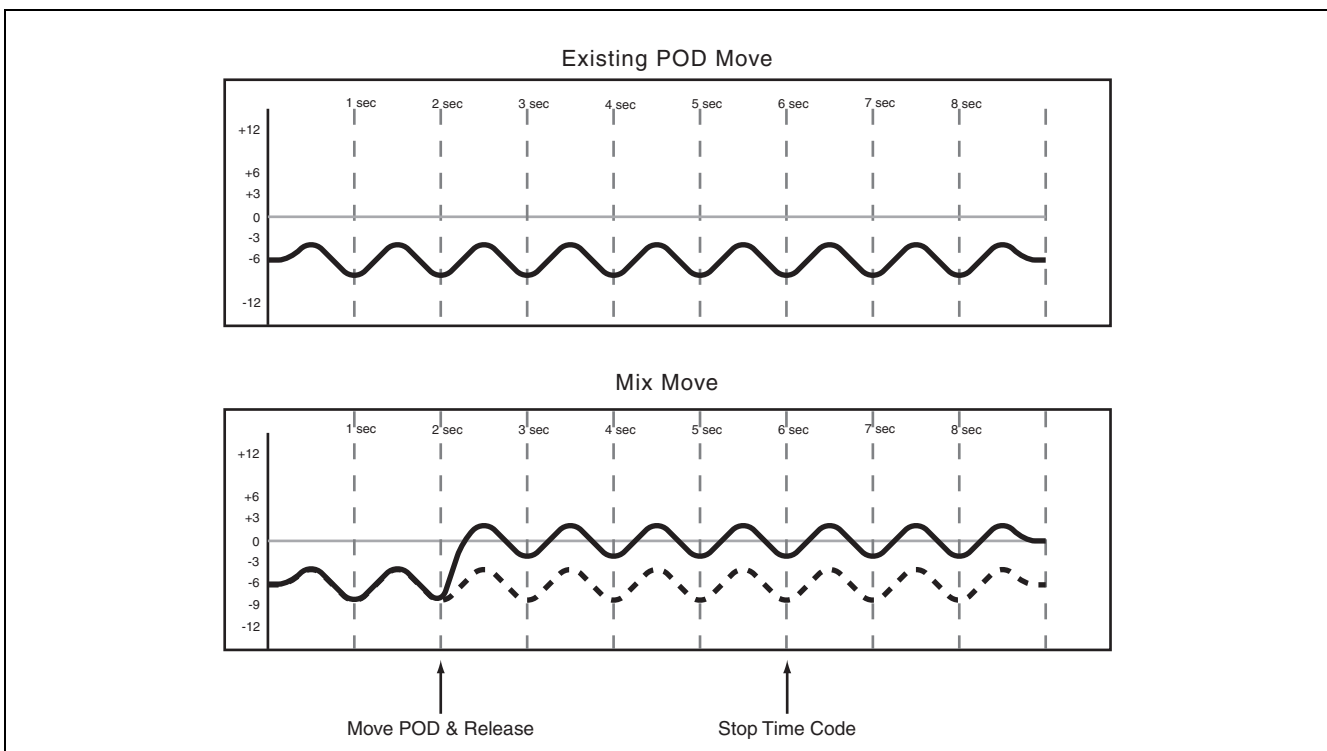


Figure 29: Trimming POD and encoder moves with Trim to End enabled

4 – Operation : Trimming Mix Moves

TIP

Punch into a mix (This can be done with Trim or Write mode).

Start the timecode.

Move a control to its desired position. You will hear the audio follow the move.

*Press the **WRITE** or **TRIM** key to instantly punch that control into automation Write at the new position.*

The result will be the fastest possible move when reading back the mix.

4 – Operation : Initial Status

Initial Status

The Initial Status of a control is its value before the first dynamic mix move is present. Until dynamic mix moves are written to a control, there is no difference between the Initial Status of the control and its Static position.

When dynamic mix moves are written to a control, that control is no longer in Static mode. It is in Dynamic mode. Any change to the mix data on such control takes into account both the Initial Status of the control and any Dynamic data present.

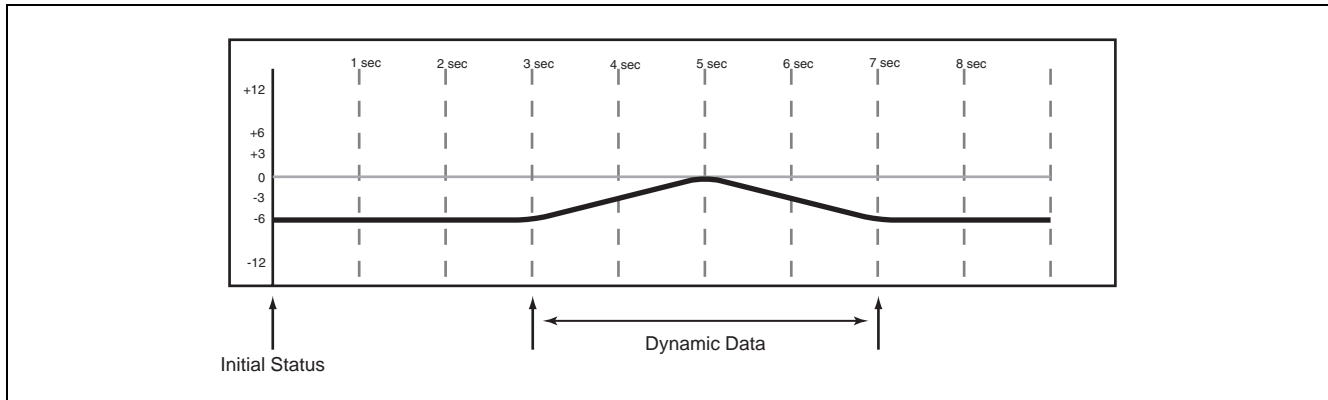


Figure 30: Initial Status and dynamic data

Initial Data

All parameters which may be stored in a snapshot are stored as Initial Data.

Editing the Initial Status

Once a control is in Dynamic mode, any new mix moves written to that control will be dynamic mix moves. If it becomes necessary to alter a control's starting point before the first dynamic move written, Initial Edit is used.

1 While holding SHIFT, press INITIAL EDIT/ EDIT to enter Initial Edit mode. The automation system will stop reading dynamic data and all controls will snap to their Initial Status positions.

2 Adjust any control to change its initial status. In the case of switches, pressing a switch while in Initial Edit mode will change its Initial Status to reflect its new setting.

Hold SHIFT and press INITIAL EDIT/ DISCARD to return all controls to their unedited Initial Data values while remaining in Initial Edit mode.

Hold SHIFT and press INITIAL EDIT/EDIT to exit Initial Edit, saving changes.

4 – Operation : Initial Status

The diagram below illustrates the results of Initial Status editing:

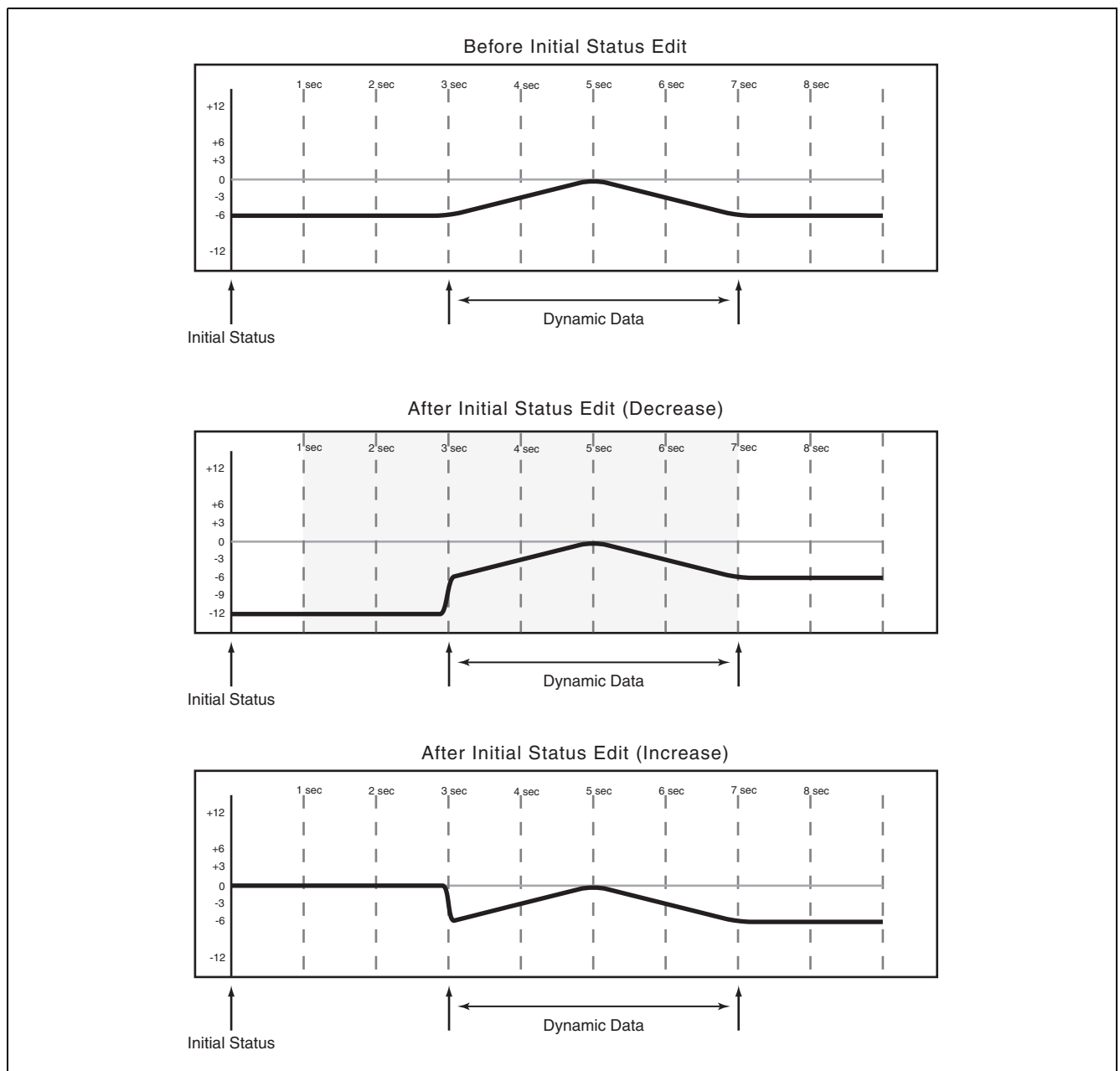


Figure 31: Initial Status editing

4 – Operation : Automating Library Recall

Automating Library Recall

The TASCAM DM automation system is capable of including library recall events as part of an automated mix. These are treated by the automation system as Switch Events.

All TASCAM DM libraries support automated recall:

- Snapshot
- EQ
- Compressor/expanders
- Gate
- Effects

Because there may be differences between control settings recalled by a library and those being played back by the automation system, below are some important things to keep in mind in order to avoid unexpected behavior.

The basic rule is that a mix event (library recall or dynamic mix move) only has priority until another mix event (library recall or dynamic mix move) is played back.

Writing Library Recall Events Over Existing Static Control Positions

When a library recall event is written by the automation system which affects controls in Static mode, the library recall switch event becomes dynamic mix data. However, the controls themselves remain in Static mode with their Initial Status unaffected. In this case, if a dynamic mix move is written after a

library recall, the control will Revert to its Initial Status, not its position after the library recall.

If a library is recalled which affects controls in Static mode without the library recall event being written, the controls will update their static positions as they had been directly adjusted.

Combining Library Recall With Dynamic Mix Moves

Dynamic mix moves are treated in a way similar to continuous data by the TASCAM DM automation system. Library recall events are instantaneous snapshots. If a library recall occurs while the automation system is reading dynamic mix moves, the affected

controls will snap to the positions recalled by the library then snap to reading previous dynamic mix moves as the timecode position crosses the previous data. While this can create some interesting effects when used purposely, it could take you by surprise.

Automating Groups

There are several considerations and possibilities when using the TASCAM DM automation with grouped controls:

- Creating a group containing controls that have existing dynamic automation.
- Automating the Group Master.

- Creating a group containing controls that do not have existing dynamic automation.
- Automating group slaves.
- Removing slaves from an automated group.
- Automation of hierarchical groups.

Grouping Non-Automated Controls

Create the group normally using the **ST LINK/ GROUPING** display. The group master or slaves within the group may then be automated.

A Group Master may be automated just like any other control. The group slaves follow the group master. Automation data is only written by the Group Master. Any group slave that is removed from a

group no longer follows any mix moves written by the Group Master. However, it continues to read its own mix moves.

Any group slave may be individually automated just like any other control. It reads its own moves, which would be offset by the moves of the Group Master.

Grouping Automated Controls

It is possible to create a group containing controls that have existing dynamic automation moves. In this case, the mix moves of the group slaves are maintained while following the overall moves of the

Group Master. Essentially, this is using the movements of the group master to trim the moves of the group slaves. It should be noted that this does not actually write Trim data to the group slaves.

Hierarchical Groups

Simply put, hierarchical groups are “groups of Groups which operate the same way as Master and groups” and can be very powerful mixing tools. Hierarchical groups have Master Groups and Slave

Groups which operate in the same way as Master and Slave controls in non-hierarchical groups.

Hierarchical groups are set up in the **GROUPING LAYER** section of the **ST LINK/GROUPING** display.

Mix File Management

The TASCAM DM automation system’s storage capacity is determined by the size of the Compact Flash card.

The exact number of mixes depends on the type of mix. Some control movements use up more events than others. Pressing a **MUTE** key uses one event, while a complex fader movement uses many.

The Mix Data

The mix data itself contains Initial Status data (i.e. the same kinds of data as are stored in snapshots) and Dynamic data for all automated controls (“Automated Controls” on page 4).

The mix data and library data may then be archived via the USB and supplied TASCAM Mixer Companion software to a personal computer for archival.

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