

## 4. EXTRA

EXTRA (Extended Transition Recall Automatic) is a software package for storing and recalling switcher statuses and processes.

EXTRA thus permits storing and recalling individually prepared operating statuses and sequences with different background, key sources, borders, wipe pattern positioning, coloring etc.

EXTRA is used for storing and recalling static settings (statuses, snapshots) and interpolated timelines.

The snapshots and timelines are identified with numbers (Register 1 ... 99). The numbers 100 ... 999 are reserved for other applications (e.g. disk).

EXTRA can be operated in two ways:

- operation via the keys of the EXTRA panel
- operation via the EXTRA menu, and
- operation with the Source Selection keys (EXTRA ME operation) – DD20 / DD30 only

The number of keyframes in a timeline is only limited by the storage capacity of the respective switcher computer and the number of mixing levels and storable functions.

With the *DD30* about 30 complete keyframes may be stored in one timeline. (*DD20*: about 39; *DD10*: about 54, and *DD5*: about 59). If only the keyframes of one mixing level (ME1, ME2 or PP) are to be stored, the number of possible keyframes rises to 72.

The operator can edit a timeline in order to produce more sophisticated effects.

**NOTE**            *The maximum memory available for a timeline is 64 kB. This corresponds to 37% of the total memory. The total memory in the electronics box RAM for snapshots and timelines is approx. 173 kB.*

**DEFINITION OF TERMS**

<b>SNAPSHOT (SNAP)</b>	is a switcher status or the status of a switcher part.
<b>KEYFRAME (KF)</b>	is a static switcher status within one timeline.
<b>TIMELINE (TIML)</b>	is a stored sequence of switcher statuses (keyframes).
<b>DISSOLVE</b>	is a dissolve between static switcher statuses. The analogue values are dissolved, the switching functions are switched at the end of the dissolve procedure.
<b>DISSOLVE TIME</b>	is the time for dissolving between two static switcher statuses.
<b>STORE</b>	is the storing of a static switcher status.
<b>RECALL</b>	is the reproduction of a stored static switcher status.
<b>RECORD</b>	is the storing of keyframes to a timeline in real time.
<b>EDITING (EDIT)</b>	is the creation or the processing of a timeline outside real-time.
<b>PLAY</b>	is the play of a stored timeline.
<b>TRAJECTORY</b>	is the "trajectory" between keyframes.
<b>HOTKEY</b>	are the 15 upper keys of the wipe pattern selection key pad (DD20 / DD30 only).
<b>REGISTER</b>	is a memory location where a snapshot or a timeline can be stored. Registers are identified with a number between 1 ... 99.
<b>REGISTER MODE</b>	is an input mode for the register number in the EXTRA panel, in which the number is entered in one digit (0 ... 9) or in two digits (10 ... 99) followed by functional selections such as <b>Enter</b> , <b>Cut</b> or <b>Auto</b> .
<b>BANK MODE</b>	is an input mode for the register number in the EXTRA panel. The bank number 0 ... 9 corresponds to the tens digit of the register number. When the units digit of the register number is entered, the corresponding snapshot or timeline is triggered immediately (hotkey).

## 4.1 EXTRA PANEL

The EXTRA panel has different functions in the *Diamond Digital DD20/DD30* switchers..

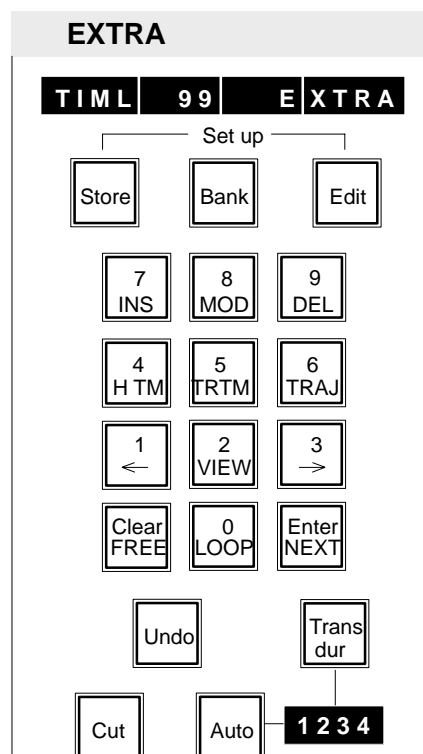
- Input of the transition durations (**Trans dur**) for transitions, DSK, Fade-to-Black and EXTRA fading. For this the keys **0 ... 9** and the **Enter** key are used. For further details please refer to the relevant sections.
- Input of figures in conjunction with the alphabetical keypad for text input.
- Operation of the setup functions. Here the **Store**, **Bank** and **Edit** keys are used with different functions. For further details please refer to section **Setup**.
- Operation of the EXTRA functions. Here the keys with double lettering have different functions in the various operations.

The secondary lettering of the keys **0 ... 9** applies when existing timelines are modified. The secondary lettering **FREE** of the **Clear** key applies when a register is selected. The secondary lettering **FREE** of the **Clear** key serves to select an unassigned register.

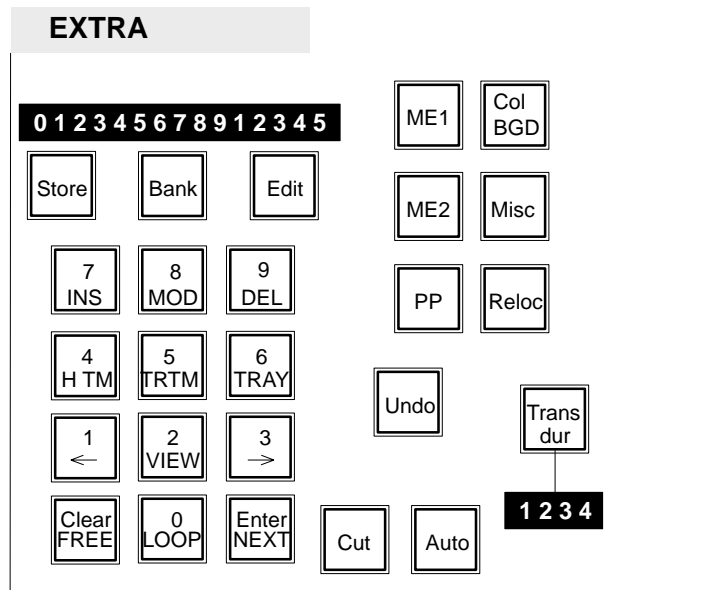
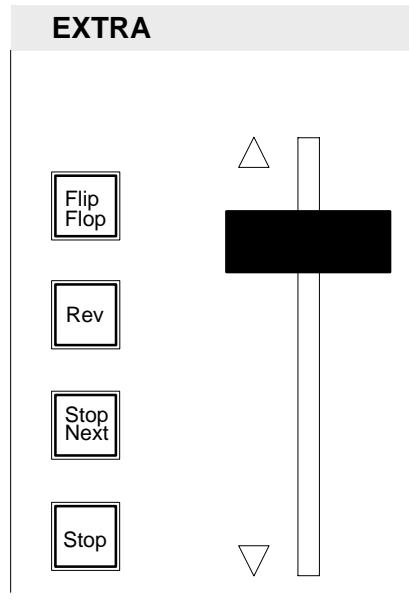
In the following instructions only the applicable function of the double lettering is mentioned.

This section of the operating instructions only describes the EXTRA operation in the EXTRA panel. Further EXTRA operations using the data monitor are described in the section **EXTRA Menu**.

### EXTRA panel DD10



**EXTRA panel  
DD20/DD30**



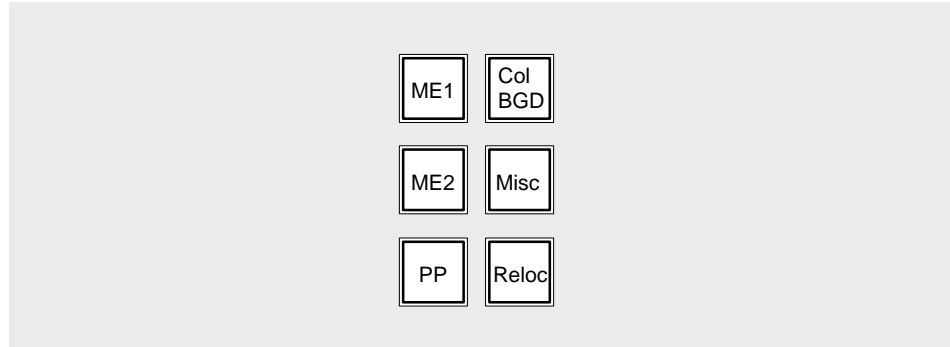
### 4.1.1 DISPLAY

If no editing function or store function is selected, the 16 digit display of the EXTRA panel may show the following indications:

Display 1	Display 2	Display 3	Display 4	
REG	XX			No register is selected. The register is empty.
REG	24			Register 24 is selected. The register is empty.
REG	B 24			In Bank mode, bank 2, position 5 is selected (this corresponds to register 24). Register 24 is empty.
SNAP	05	S 005	----	Register 05 is selected. The register contains a snapshot and has no particular name (a default name will be used).
SNAP	B 05	S 005	----	As above but in Bank mode bank 0 with hotkey 5.
SNAP	05	ABCDEF	GH	Register 05 is selected. The register contains a snapshot with the name "ABCDEFGH". <b>The name can only be entered in the EXTRA menu.</b>
SNAP	B 05	ABCDEF	GH	As above but in Bank mode 0 with hotkey 5.
TIML	16	T 016	----	Register 16 is selected. The register contains a timeline and has no particular name (a default name will be used).
TIML	B 16	T 016	----	As above but in Bank mode bank 1 with hotkey 6.
TIML	16	KLMNOP	QR	Register 16 is selected. The register contains a timeline with the name "KLMNOPQR". <b>The name can only be entered in the EXTRA menu.</b>
TIML	B 16	KLMNOP	QR	As above but in Bank mode bank 1 with hotkey 6.

#### 4.1.2 DEFINE MEMO IN EXTRA-PANEL (DD20 / DD30 ONLY)

The EXTRA panel permits a rough but fast filtering for storing and recalling snapshots and timelines.



In **generating** a snapshot or a timeline, the lighting keys show which switcher selections are stored. In **recalling** a snapshot or a timeline, the lighting keys show which switcher sections are affected by the stored functions. If the recalled section is smaller than the available target section, only the recalled section is affected.

*Example:*

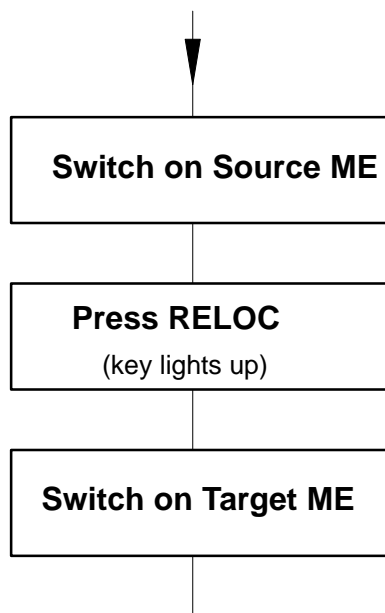
*Mixing level ME1 is stored. The entire switcher is ready for recalling. Only ME1 is affected, the other sections of the switcher remain unchanged.*

The indication is also shown in the EXTRA menu under DEFINE MEMO.

### 4.1.3 RELOCATING TO A DIFFERENT MIXING LEVEL (DD20 / DD30 ONLY)

When a snapshot or a timeline is recalled, the Relocate function permits addressing a different mixing level (ME) than that used during storing, i. e. a relocation can be switched.

This function is activated with the **Reloc** key.



If several MEs are selected as source, the ME with the highest number (PP = ME3) is used as a source.

The EXTRA menu always shows the source ME in Define Memo.

The functions of the keys including those in conjunction with Reloc can be seen from the following table:

Key	Relocate OFF <b>Reloc</b> key does not light up	Relocate ON <b>Reloc</b> key lights up
<b>ME1</b> Key does not light up Key lights up	<b>Mischebene ME2</b> is not stored or not restored is stored or restored	relocate to ME1
<b>ME2</b> Key does not light up Key lights up	<b>Mischebene ME1</b> is not stored or not restored is stored or restored	relocate to ME2
<b>PP</b> Key does not light up Key lights up	<b>Mischebene PP</b> is not stored or not restored is stored or restored	relocate to PP
<b>COL</b> <b>BGD</b> Key does not light up Key lights up	<b>Hintergrundfarbflächen</b> is not stored or not restored is stored or restored	no function
<b>MISC</b> Key does not light up Key lights up	<b>Sonstige AUX, DVE, Store</b> is not stored or not restored is stored or restored	no function



#### 4.1.4 ENABLING AND DISABLING BANK MODE

The Bank mode in the EXTRA panel permits access to a stored snapshot or timeline with a single key (hotkey). The bank number is the tens digit of the register. The hotkeys are the units digits of the register. The Bank mode may be enabled during storing but this does not have any particular benefit.

##### **Enabling Bank mode**

Hold the **Bank** key down and select the desired bank with the numeric keypad. The **Bank** key lights up. In the display a "B" appears before the register number.

Example: **S N A P B 0 5 S 0 0 5 - - - -**

##### **Disabling Bank mode**

Press the lighting **Bank** key.

#### 4.1.5 SELECTING A REGISTER DURING STORING

During the storing of snapshots or timelines the register to be used for storage must be selected. The procedure is the same for both cases. However, the indication in the display differs.

for snapshots  
for Timelines

**STOR**  
**EDIT**

- If the register number is to be taken over that was shown before the actuation of the **Store** or **Edit** key, no further selection is necessary.

*Note:* In storing, the contents of the register may be overwritten, assuming that the logged-in USER has stored in the register.

- With the **FREE** key the next unassigned register can be selected.
- By entering a one- or two-digit number in the numeric key pad and confirming with **Enter**, any register may be selected. An incorrect entry can be cancelled by pressing **Clear**.

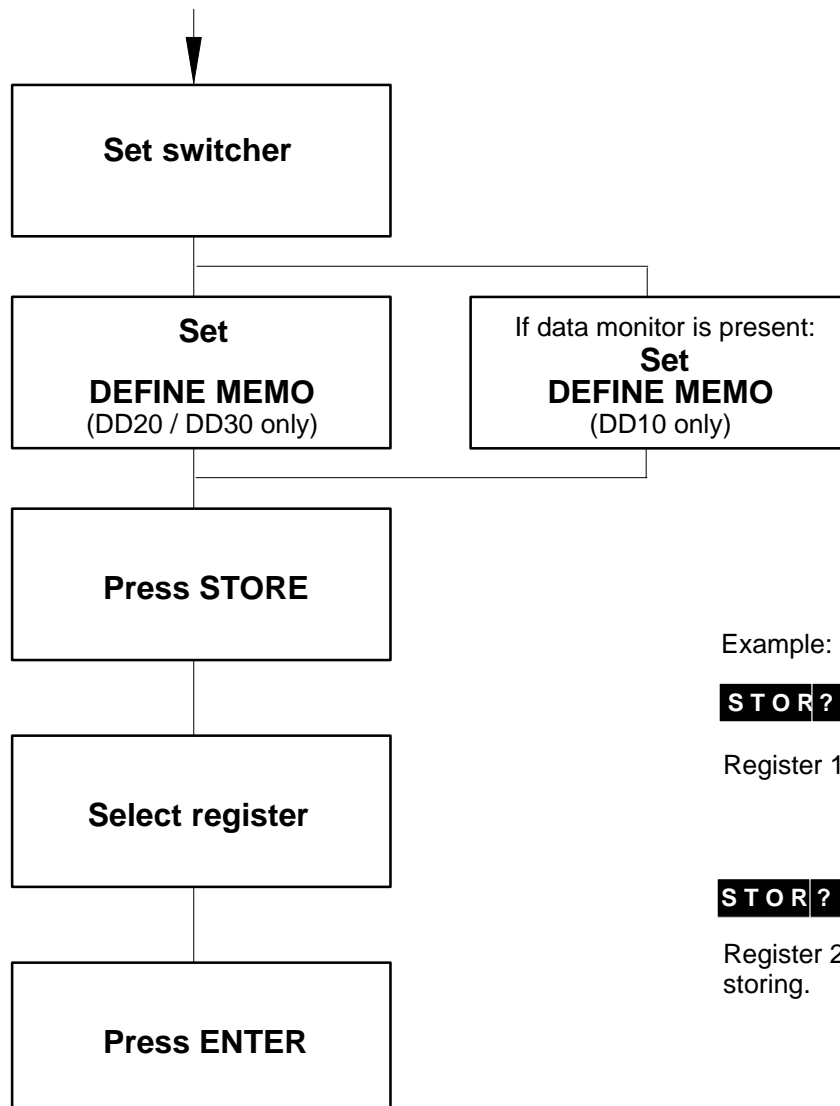
*Note:* In storing, the contents of an assigned register will be overwritten, assuming that the logged-in USER has stored in the register.

#### 4.1.6 SELECTING A REGISTER DURING RECALLING

When a snapshot or a timeline is recalled, there are several ways to select a corresponding register.

- If the register shown in the display is to be used, no further selection is necessary.
- To select the next free register, press the **NEXT** key.
- To select a particular register, enter a one- or two-digit number with the numeric keypad.  
If a two-digit number is entered (e.g. 15), the related bank (1) appears in the display when the first digit (1) has been entered. The desired register (15) appears after the input of the second digit.  
The input of the figures *need not* be confirmed with **Enter**. However, the confirmation with **Enter** avoids an erroneous entry of too many digits.  
Errors can be deleted with **Clear** provided **Enter** has not be pressed before.

## 4.1.7 STORING A SNAPSHOT



Example:

**STOR? 17**

Register 17 was selected before.

**STOR? 24**

Register 24 was selected for storing.

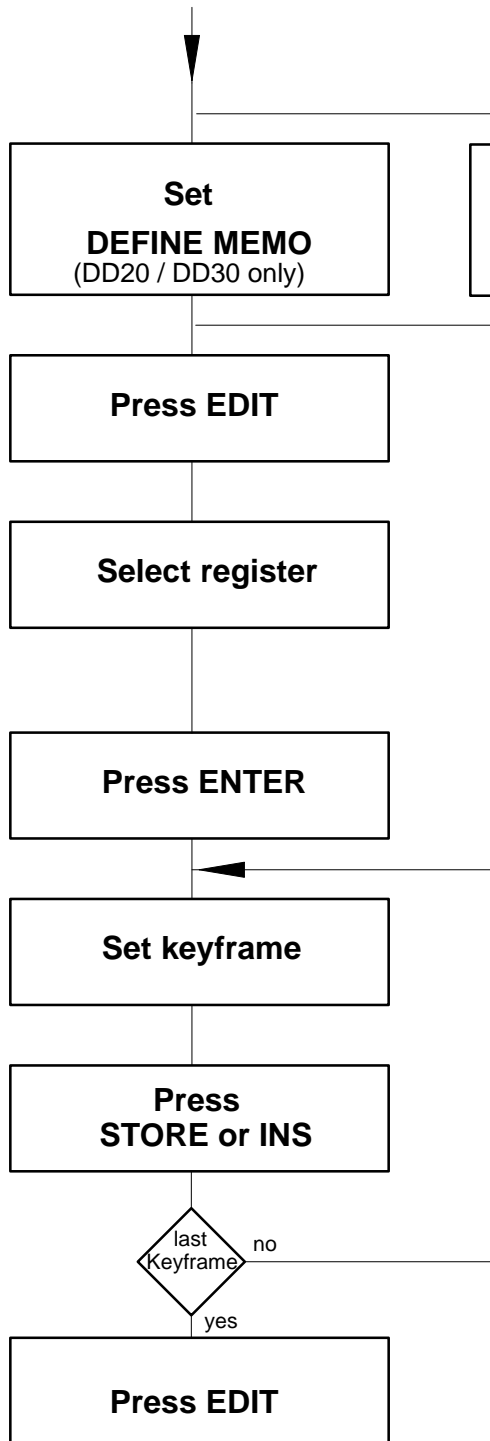
**SNAP 24 STORED**

Indication for about 1 second, if the register was assigned, a short indication shows what was erased.

**SNAP 24 S024 ----**

A Default Name (e.g. **S024**) is assigned.

4.1.8 GENERATING A TIMELINE



Example:

**EDIT ? 17**

Register 17 was selected before.

**EDIT ? 24**

Register 24 was selected for storing. If the register is assigned an indication shows what will be erased.

**E 24 START END**

**E 24 KF 1 END**

**E 24 KF 2 END**

⋮

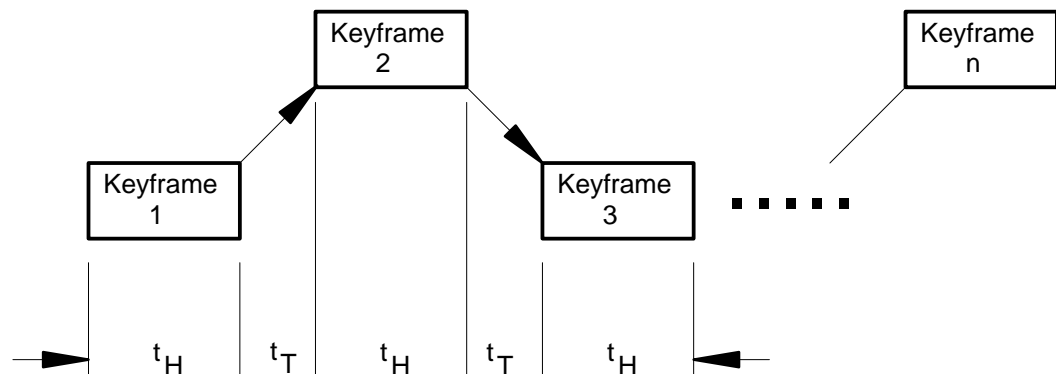
**E 24 KF 8 END**

**E 24 KF 9 END**

short time **TIML 24 CALCULA**

**TIML 24 T024 ----**

The timeline is stored as a chain of keyframes with related dissolves between the keyframes.



#### Store and INS first set

tH = waiting or hold time to 0 frames

tT = transition time to the **Trans dur** time set for Auto in the EXTRA panel.

The dissolve between the keyframes is set to **smooth**.


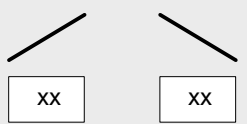
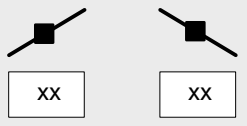
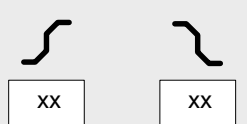
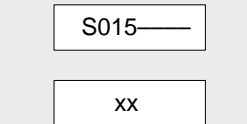
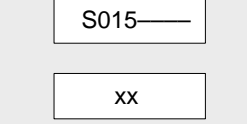
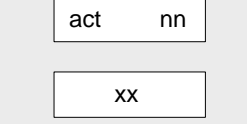

The EXTRA panel permits changing the following components of an existing timeline. For further details please refer to section **Modifying a timeline in the EXTRA panel**.

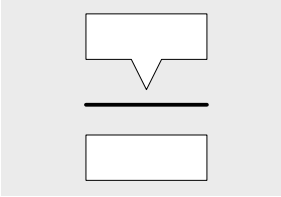
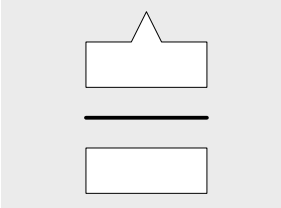
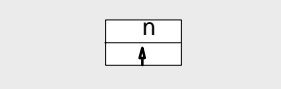
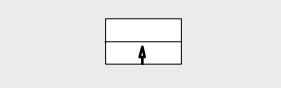

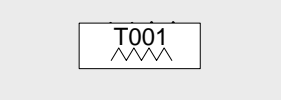
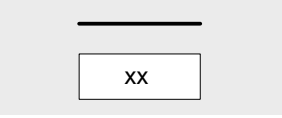
- Waiting or hold time (HOLD) with the **HTM** (hold time) key
- Transition time (TRANS) with the **TRTM** (transition time) key
- Trajectory (TRAJ) with the **TRAJ**jectory key
- Press **INS**ert to insert a key frame before an existing key frame
- Inserting a keyframe with the **INS**ert key
- Starting a loop (LOOP) with the **LOOP** key.
- Ending a loop (ELOOP) with the **LOOP** key.
- Deleting a keyframe with the **DELE**te key.

4.1.9 COMPONENTS OF A TIMELINE

In the EXTRA panel and the EXTRA menu, the components of a timeline are shown differently as a consequence of the differing display options.

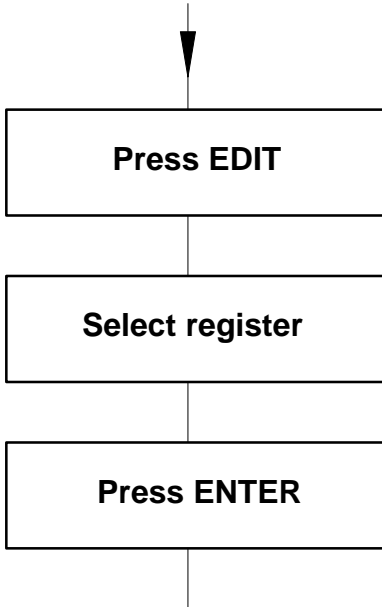
The components marked \* can only be edited and modified in the EXTRA menu. A deletion with **DEL** is possible in the EXTRA panel.

EXTRA panel	EXTRA menu	Comment
<b>START</b> <b>END</b>		Start and end of a timeline
<b>TRAJ linear</b> When calling trajectory with the TRAJ key		Change of trajectory mode by toggling thr <b>TRAJ</b> key in the <b>EXTRA</b> control panel. <ul style="list-style-type: none"> <li>• Dissolve linear i.e. dissolve in xx frames</li> </ul>
<b>TRAJ s-curv</b> When calling trajectory with the TRAJ key		<ul style="list-style-type: none"> <li>• Dissolve (S-Curve)</li> </ul>
<b>TRAJ smooth</b> When calling trajectory with the TRAJ key		<ul style="list-style-type: none"> <li>• Dissolve (smooth)</li> </ul>
<b>TRANS xx</b> When calling transition with the TRTM key		Transition in xx frames
* <b>SN nn</b>		The keyframe is a snapshot (register nn) generated with INSERT STORED with name and hold time in xx frames.
<b>KF nn</b>		The keyframe is generated with INSERT ACTUAL (current switcher status) with the hold time xx frames (nn = serial number)
<b>HOLD xx</b> When calling the hold time with the HTM key		Hold time with keyframes in frames

EXTRA panel	EXTRA menu	Comment
* <b>GPI n</b>		Trigger event symbols for GPI-IN 1 ... 8 ,Time (xx:xx:xx:xx) or User. The timeline waits for the corresponding event Activate EDIT Enbl.
* <b>GPO n</b>		Event symbol for switching the GPO outputs
* <b>LOOP n</b>		Start-of-loop for n cycles
<b>LOOP 0</b>		Start-of-loop for endless repetition
<b>ELOOP</b>		End-of-loop
* <b>TL nn</b>		Timeline T001 (register nn)
* <b>W xx</b>		Waiting time with xx frames

4.1.10 MODIFYING A TIMELINE IN THE EXTRA PANEL

The following procedure is used for all modifications of a timeline:



Modify timeline as described below.  
Several different modifications are possible.

At the completion of all modifications:



Example:

**EDIT ? 17**

Register 17 was selected before.

**EDIT ? 24**

Register 24 is to be modified.

**E 24 START KF 1**

short time **TIML 24 CALCULA**

**TIML 24 T024 ----**



**Note:**

Modifications of an existing timeline always relate to the last keyframe indicated in the display. In the following example this is keyframe 4.

E	2	4	K	F	3	K	F	4
---	---	---	---	---	---	---	---	---

The following actions are effective for the keyframe:

- Changing the keyframe
- Deleting the keyframe
- Changing the hold time of the keyframe

The following actions are effective before the keyframe:

- Inserting a new keyframe
- Return-of-loop

The following actions affect the time belonging to the keyframe:

- Changing the transition time
- Changing the trajectory

The keys **E** and **F** permit a successive selection of the individual events of a timeline.

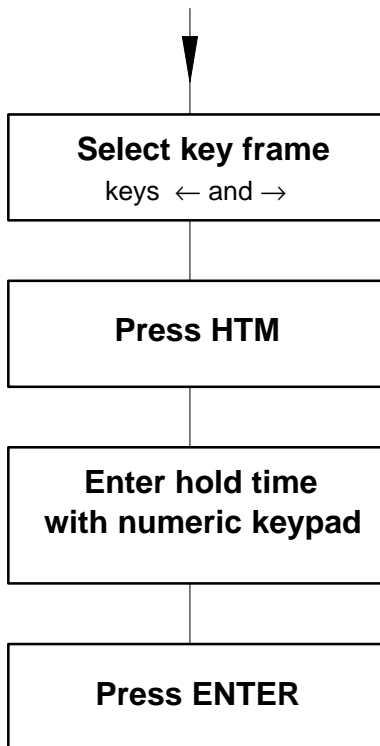
**VIEW**

With the View function enabled (key lights up), the switcher is switched to the status stored in the keyframe (the outputs will be switched).

← →

The keys ← and → permit a successive selection of the individual events of a timeline.

## 4.1.10.1 Changing the hold time



Example:

E	24	START	KF	1
---	----	-------	----	---

⋮

E	24	KF	3	KF	4
---	----	----	---	----	---

Hold time of keyframe 4 is to be changed.

KF	4	HOLD	0
----	---	------	---

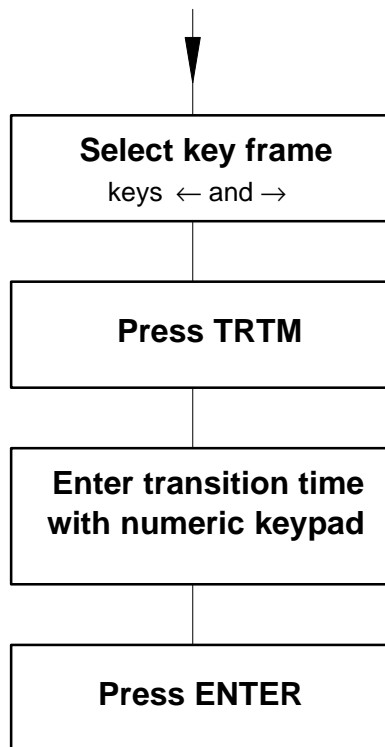
Hold time of keyframe 4 is to be 25 frames.

KF	4	HOLD	25
----	---	------	----

E	24	KF	3	KF	4
---	----	----	---	----	---

Errors can be deleted with **Clear**.

## 4.1.10.2 Changing the transition time



Example:

E 24 START KF 1

⋮

E 24 KF 3 KF 4

Transition time of keyframe 4 is to be changed.

KF 4 TRANS 30

Old transition time is 30 frames.

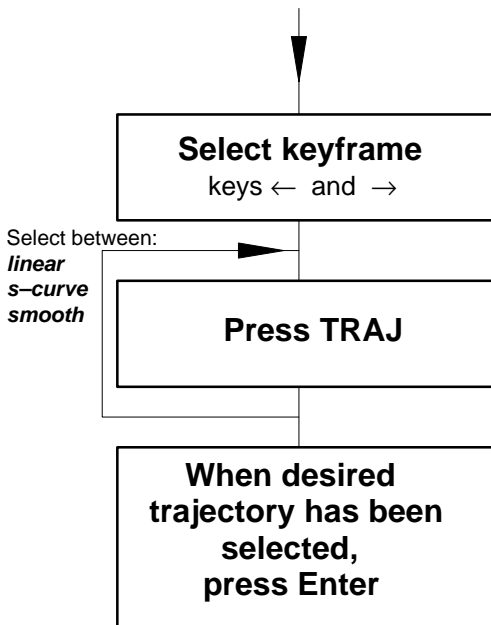
KF 4 TRANS 50

New transition time is 50 frames.

E 24 KF 3 KF 4

Errors can be deleted with **Clear**.

4.1.10.3 Changing the trajectory



Example:

E 24 START KF 1

Trajectory to keyframe 4 is to be changed.

E 24 KF 3 KF 4

KF 4 TRAJsmooth

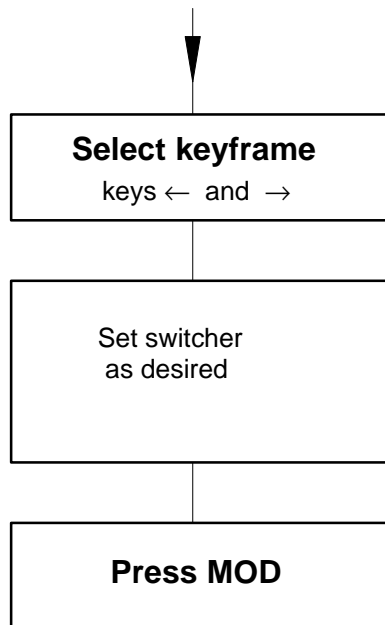
KF 4 TRAJs-curve

KF 4 TRAJlinear

E 24 KF 3 KF 4

- LINEAR** Produces a linear movement at constant speed between the keyframes and sudden changes in the direction of movement and in the speed at the keyframe ("jerky behavior").
- S-CURV** Produces a straight-line course of movement. The speed starts at 0, rises to maximum and falls again to 0. The direction changes with the keyframes (speed curve).
- SMOOTH** Produces a smooth even movement avoiding sudden changes in direction and speed. This makes the movement appear "natural". The controls TENS, CONTI, BIAS, WEIGHT in the EXTRA panel are only effective for Smooth Trajectory (shown on display: DD20 / DD30 only, shown on data monitor: DD10).

#### 4.1.10.4 Changing a keyframe



Example:

E	24	START	KF	1
---	----	-------	----	---

E	24	KF	3	KF	4
---	----	----	---	----	---

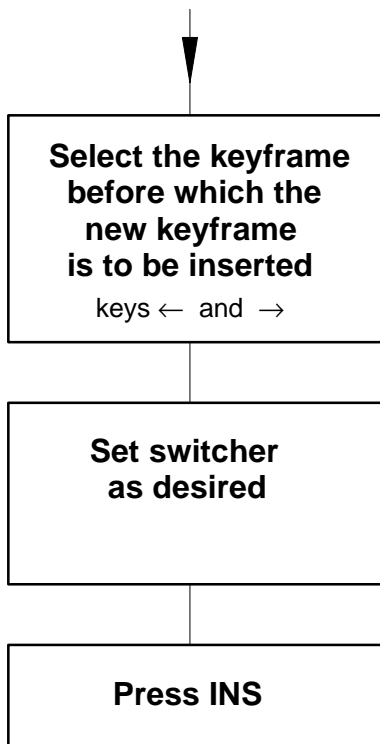
Keyframe 4 is to be changed.

E	24	KF	3	KF	4
---	----	----	---	----	---

The View function may be helpful during adjustment.

**Attention!** The timeline will only be finally stored with the EDIT command at the end.

## 4.1.10.5 Inserting a new keyframe (INSert)



Example:

E	2	4	START	KF	1
---	---	---	-------	----	---

E	2	4	KF	3	KF	4
---	---	---	----	---	----	---

A new keyframe is to be inserted before keyframe 4.

E	2	4	KF	3	KF	4
---	---	---	----	---	----	---

The new keyframe has been inserted as keyframe 4. The previous keyframe 4 now is keyframe 5. The timeline is one keyframe longer.

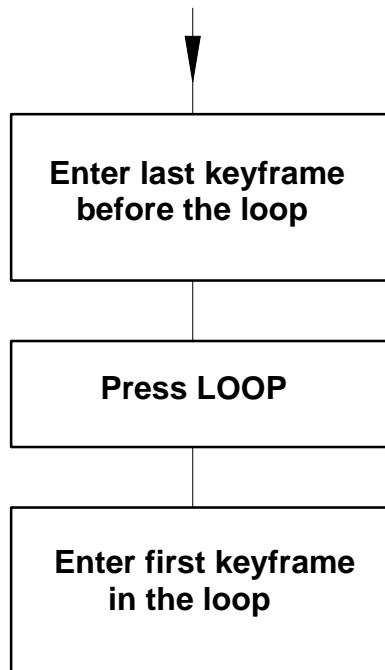
The View function may be helpful during adjustment.

**Attention!** After INSERT, the sequence immediately after the inserted key frame should be checked.

#### 4.1.10.6 Inserting a loop in a timeline

The EXTRA panel only permits the insertion of an **endless** loop in a timeline. Loops with predefined numbers of cycles 1 ... 9 can be entered in the EXTRA menu.

##### *Entering a loop during the generation of a timeline*



Example:

**E 24 | KF | 3 | END**

The **LOOP** key lights up.

**E 24 | LOOP | E | LOOP**

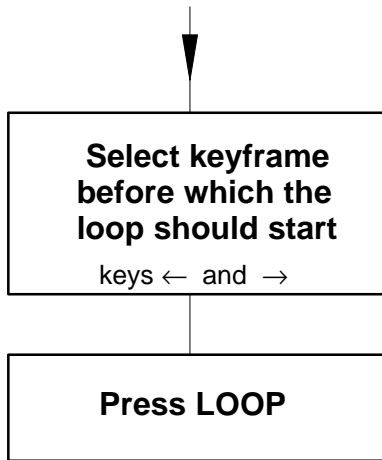
**E 24 | KF | 4 | E | LOOP**

The timeline ends with the end of the loop.

*Note:*

*If the LOOP key is disabled before the end of the timeline, the loop ends at that point. However, as the loop is endless, the end of the timeline will not be reached any more.*

**Inserting a loop  
into an existing timeline**



Example:

E 24 START KF 1

E 24 KF 3 KF 4

The loop is to begin before keyframe 4

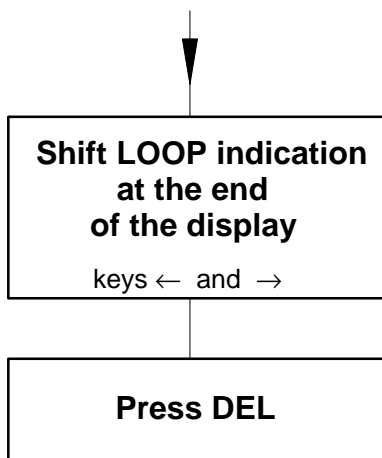
E 24 LOOP0 KF 4

The timeline ends with the end of the loop.

*Note:*

*If the **LOOP** key is disabled before the end of the timeline, the loop ends at that point. However, as the loop is endless, the end of the timeline will not be reached any more.*

**Deleting a loop  
in an existing timeline**



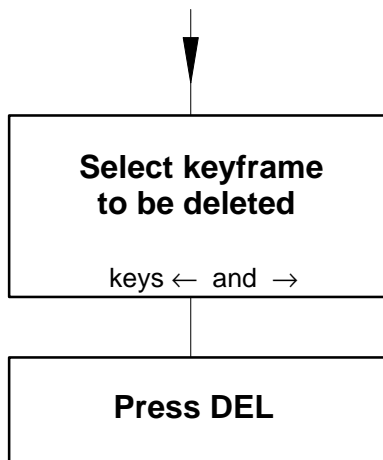
Example:

E 24 START KF 1

E 24 KF 3 LOOP



#### 4.1.10.7 Deleting a keyframe



Example:

**E 24** **START** **KF 1**

**E 24** **KF 3** **KF 4**

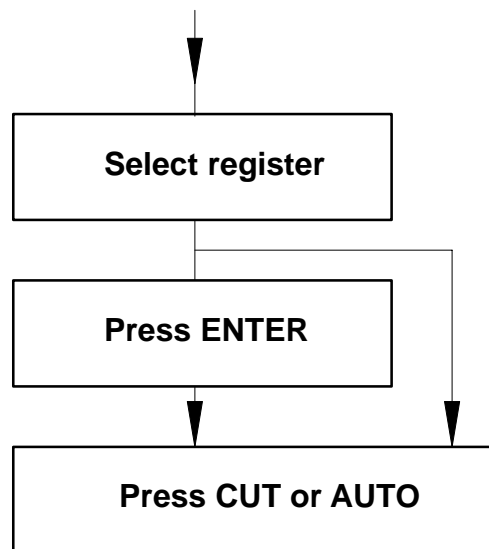
Keyframe 4 is to be deleted

**E 24** **KF 3** **KF 4**

Keyframe 4 was deleted.  
The previous keyframe 5 now is  
keyframe 4.  
The timeline is one keyframe  
shorter.

#### 4.1.11 RECALLING SNAPSHOT OR TIMELINE

- In Bank mode snapshots and timelines are directly recalled by pressing a key in the numeric keypad (hotkey).
- In Bank mode:
  - Press and hold down **BANK**.
  - Press numeric key for the desired bank.
- In Register mode snapshots and timelines are recalled as follows:



**Dissolve functions depending on snapshot or timeline preselection (DD20 / DD30 only):**

Key	Snapshot preselected	Timeline preselected
<b>Auto</b>	Dissolve to the snapshot in the time set with <b>Trans dur</b> .	Playing the timeline in the time set with <b>Trans dur</b> .
<b>Cut</b> or Hotkey in Bank-mode	Recall the snapshots.	Playing the timeline in the stored time.
<b>Fader</b>	Dissolve to snapshot.	Playing the timeline.

Note: Timelines that contain an endless loop, that have been generated with the Record function, or that are waiting for an event (GPI, Time) can only be recalled with **Cut**.

**Key functions depending on snapshot or timeline preselection (DD20 / DD30 only):**

Key	Snapshot	Timeline
<b>STOP</b>	Cancelling dissolve.	Cancelling playing.
<b>STOP NEXT</b>		Timeline pauses at next key-frame.
<b>REV</b>		Reverse: timelines are played in reverse direction.
<b>FLIP FLOP</b>		Timeline Play changes running direction at each end.

Note: The following timelines cannot be played in reverse direction:

- time lines created with Record,
- timelines with loops,
- timelines into which snapshots or other timelines are embedded, and
- timelines with trigger events (GPI, Time and User).

**Trans dur**

Entry of the Auto transition duration.

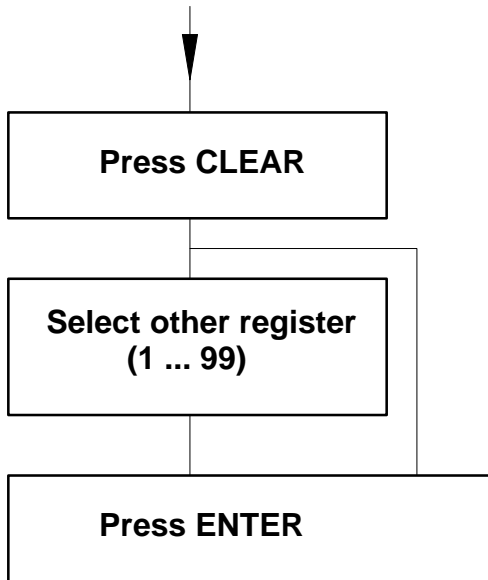
- Press **Trans dur**. The key lights up.
- Enter transition duration with numeric keypad. The time is indicated in the **FRAMES** display.
- Complete the entry with **Enter** or **Trans dur**.

**Undo**

If you press this key, the status before the last recall of a snapshot or a timeline can be restored even if several other keyframes have been performed in the meantime.

### 4.1.12 DELETING SNAPSHOTS AND TIMELINES

The procedure of deleting or clearing a register is the same for timelines and snapshots.



Example:

CLR ?	24		
-------	----	--	--

The register entered after CLR is deleted.

Short time 

SNAP	24	CLEARED
------	----	---------

or 

TIML	24	CLEARED
------	----	---------

REG	24		
-----	----	--	--

## 4.2 BASIC FUNCTIONS STORE, RECALL

### 4.2.1 USING THE EXTRA MENU

#### DD10

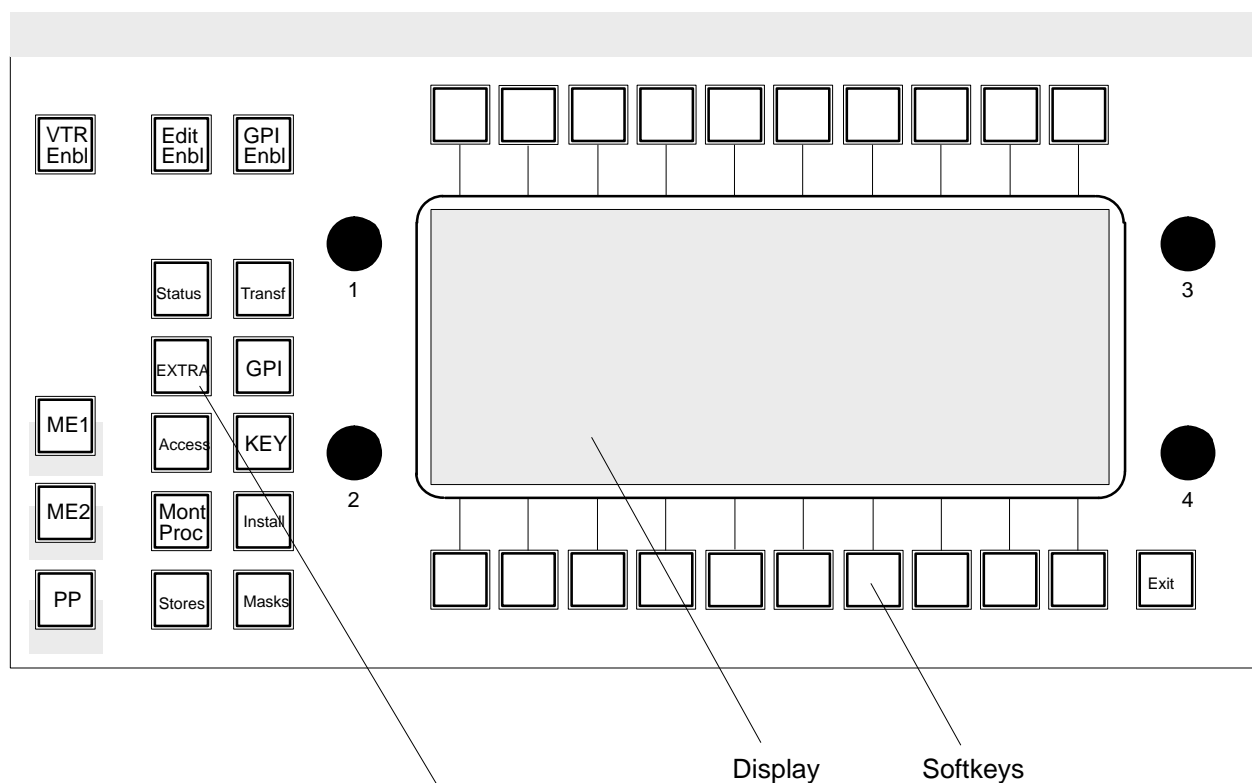
The EXTRA menu can only be selected in conjunction with the **data monitor**. It is identical to the menus of the DD20 and DD30 switchers.

The basic functions of STORE, RECALL and PLAY are more easily operated in the EXTRA panel and are only mentioned here for the sake of completeness.

To select a softkey within a menu, proceed as follows:

- Move the cursor with the mouse of the trackball to the softkey or the timeline or snapshot symbol.
- Click on with **H-Lock** or with the left mouse key.

#### DD20/DD30



**Press this key  
to select  
the EXTRA menu  
and then successively  
select banks 0....9**

Title line

Bank number (may be different to the bank number in the EXTRA panel)

Last function: Restoring status before the last RECALL, DISSOLVE or PLAY

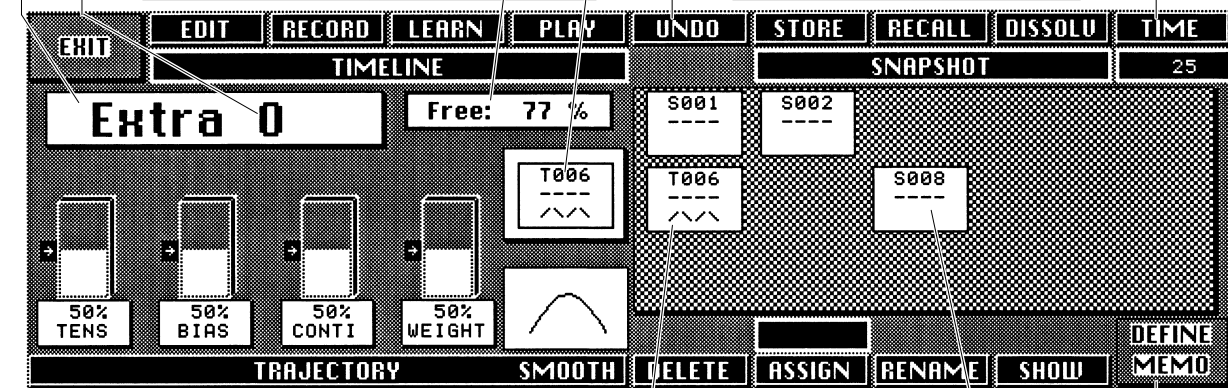
Selected timeline or snapshot

Indication of available storage capacity

Transition duration in FRAMES

Timeline functions

Snapshot functions



Trajectory adjustment  
Please refer to selecton *Trajectory*

Varios function

Submenu

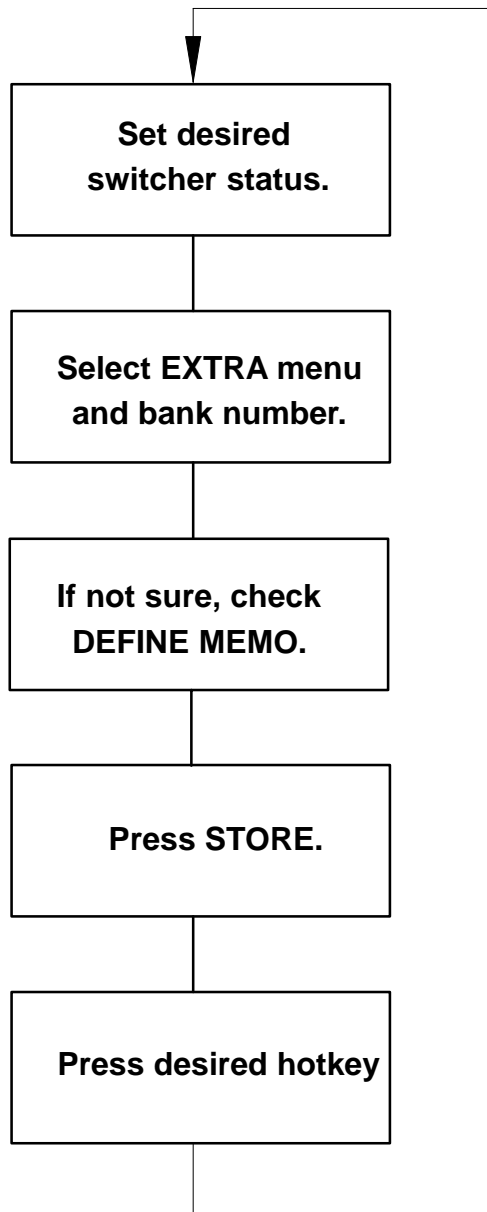
Timeline symbol, can be selected with associated hotkey

Snapshot symbol, can be selected with associated hotkey

The bank number indicated in the EXTRA menu can be changed as follows:

- Press **EXTRA** in the menu panel (DD20 and DD30 only) to select successively Bank 0, 1, ... 9, 0, 1, ... . The bank number is independent of the bank number selected in the EXTRA panel.
- Provided the EXTRA menu is enabled, the relevant bank is enabled in the EXTRA menu when the register or the bank is selected in the EXTRA panel.
- Clicking the **EXTRA** field with the mouse (possible for DD10 with data monitor).

## 4.2.1.1 Storing Snapshots in Menu



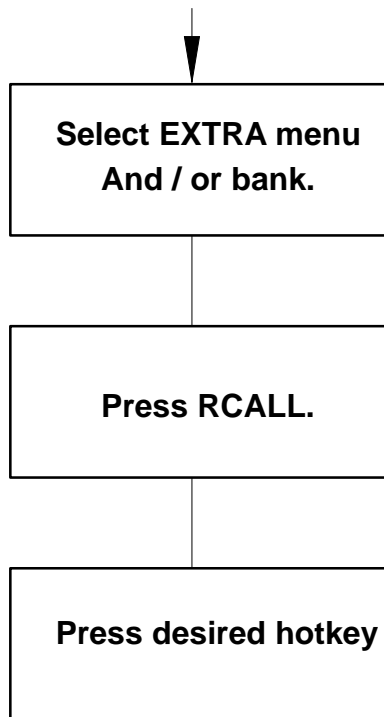
If EXTRA menu is not selected

Store lights up and a running light in the hotkeys prompts the next step (DD20 / DD30 only). To store a new snapshot, select a free hotkey. An already stored snapshot can be overwritten with a new one, provided the logged-in USER is OWNER.

**Comments:**

1. A timeline cannot be overwritten with a snapshot. Any attempt will trigger a warning.
2. In order to disable the procedure without storing, press **Store** again.

4.2.1.2 Recalling Snapshots in Menu (DD10: data monitor required)



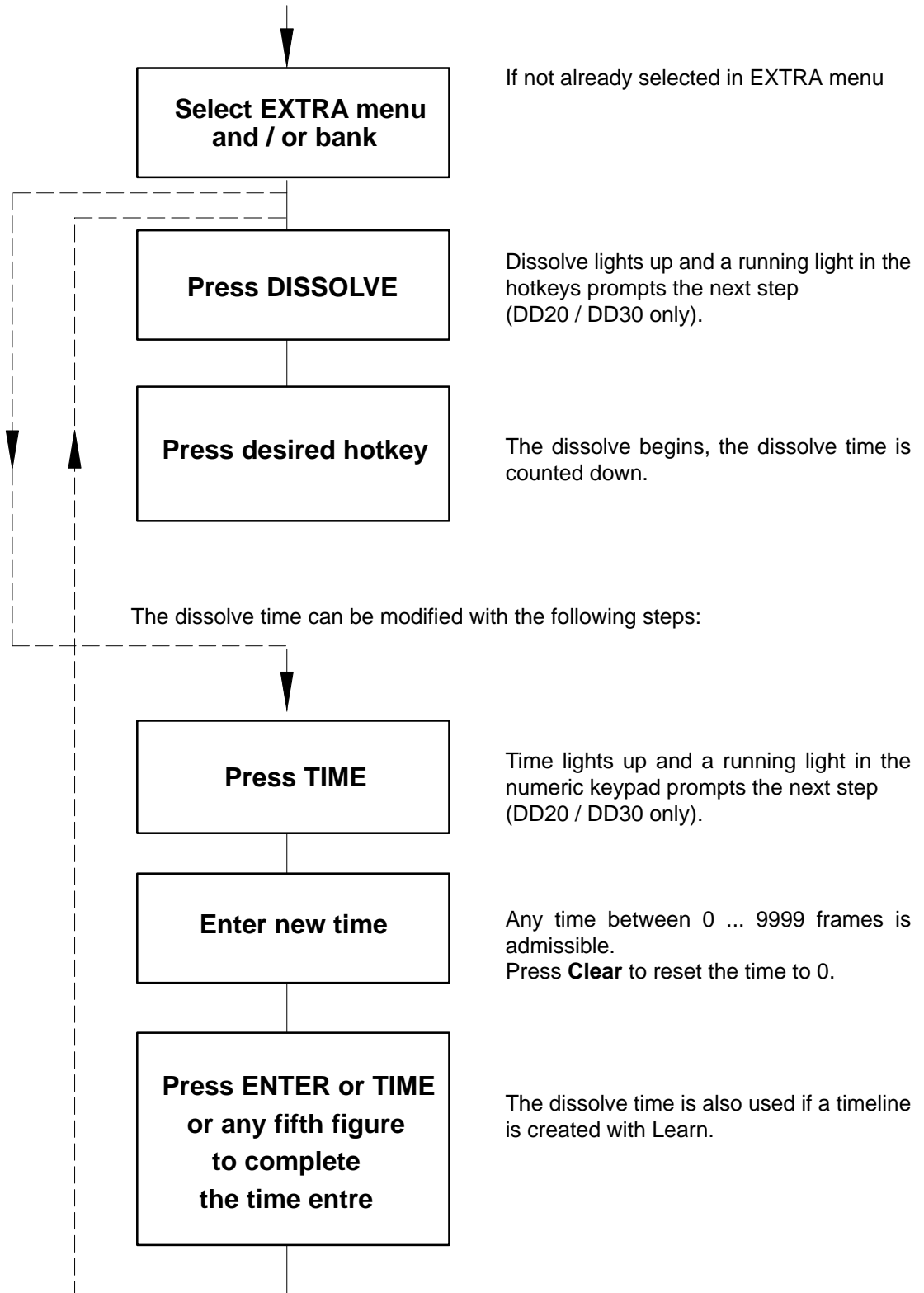
If EXTRA menu is not selected

The current switcher settings are immediately replaced by the settings stored under this hotkey.

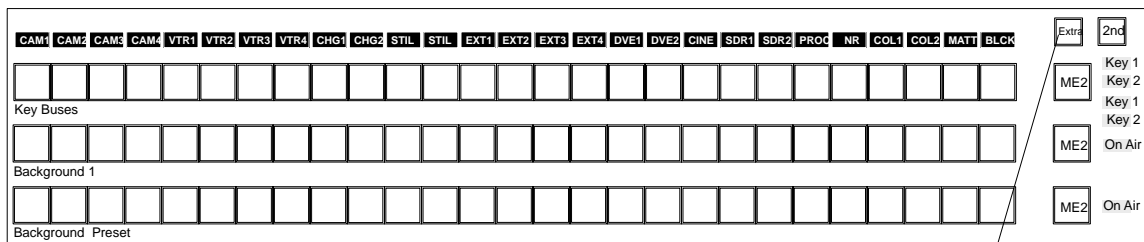


4.2.1.3 Dissolve

If a direct recall of the stored switcher settings is not desired, the Dissolve function can be used to execute a dissolve from the current switcher status to the status of the selected snapshot.



## 4.2.2 USING THE SOURCE SELECTION KEYS (EXTRA ME OPERATION, DD20 / DD30 ONLY)



**Press this key  
to select  
EXTRA ME operation**

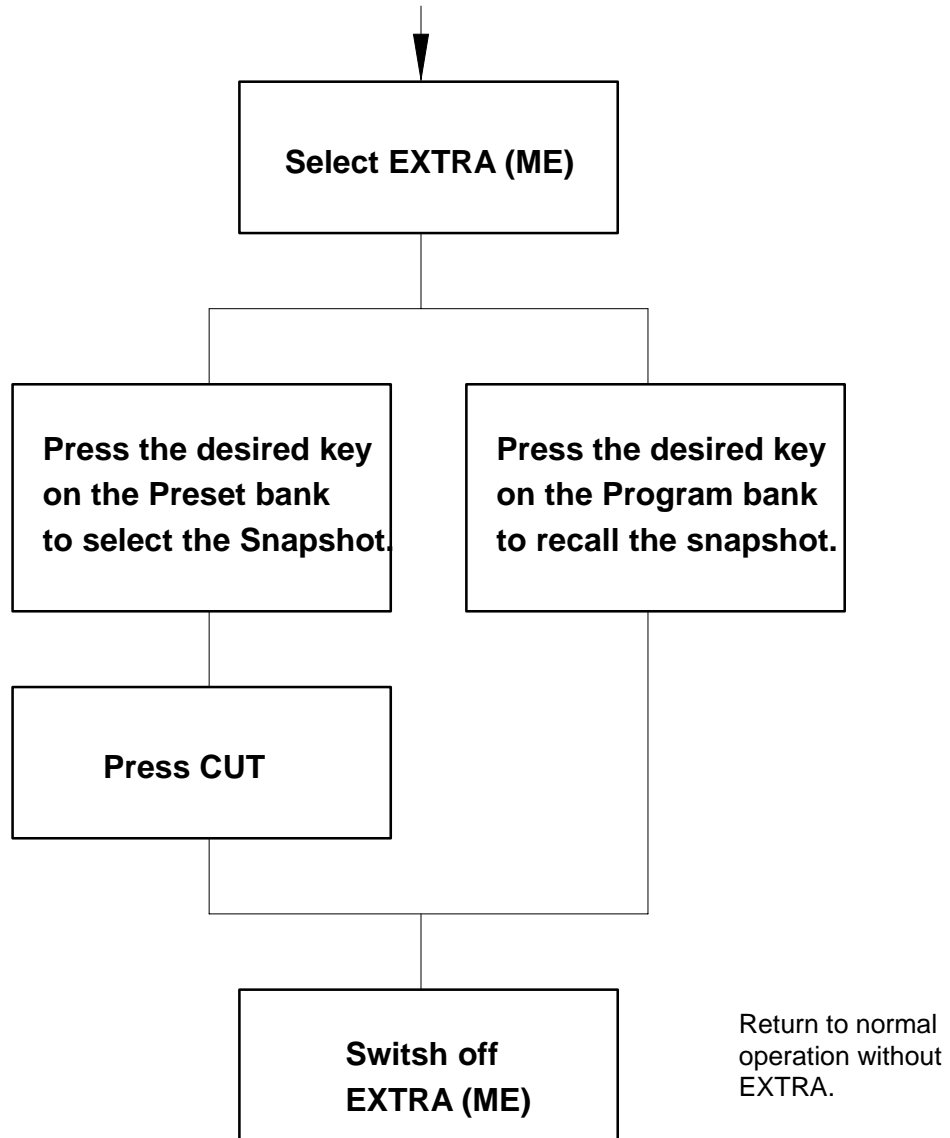
If you activate EXTRA in the matrix panel (ME1, ME2, PP), the keys, displays and the fader in the associated Transition panel are delegated to the special EXTRA functions (see below).

This mode is only useful for switchers that are equipped with the optional Input Mnemonics Display.

- LED display bank shows the stored snapshots (S nnn) or timelines (T nnn).
- Key Buses key bank (no function).
- Background key bank  
EXTRA program bank for direct recall of snapshots and timelines.
- **Background Preset** key bank  
EXTRA Preset bank for the preselection of the next snapshot or the next timeline.
- **2nd** key  
Change-over key for the EXTRA Program Preset key bank.  
2nd inactive: Access to the snapshots and timelines stored under 1 – 27 (DD30)  
2nd active: Access to the snapshots and timelines stored under 28 – 54 (DD30).
- **EXTRA**  
key Selection of EXTRA ME operation.  
key lights up: EXTRA key assignment enabled.  
key flashes: EXTRA Learn mode with "normal" functions of the switcher keys.
- **Cut** key  
(in Transition panel) Recall function for snapshots selected on the Preset bank; or  
Play function for timelines selected on the Preset bank.

- **Auto** key (in Transition panel)  
Dissolve function (with Auto Transition Time) for snapshots selected on the Preset bank; or  
Play function for timelines selected on the Preset bank.
- **Fader** (in Transition panel)  
Manual Dissolve function for snapshots selected on the Preset bank. The dissolve time depends on the manual movement of the fader;  
or  
Play function for timelines selected on the Preset bank. As soon as the fader is moved from its final position, the timeline is started.

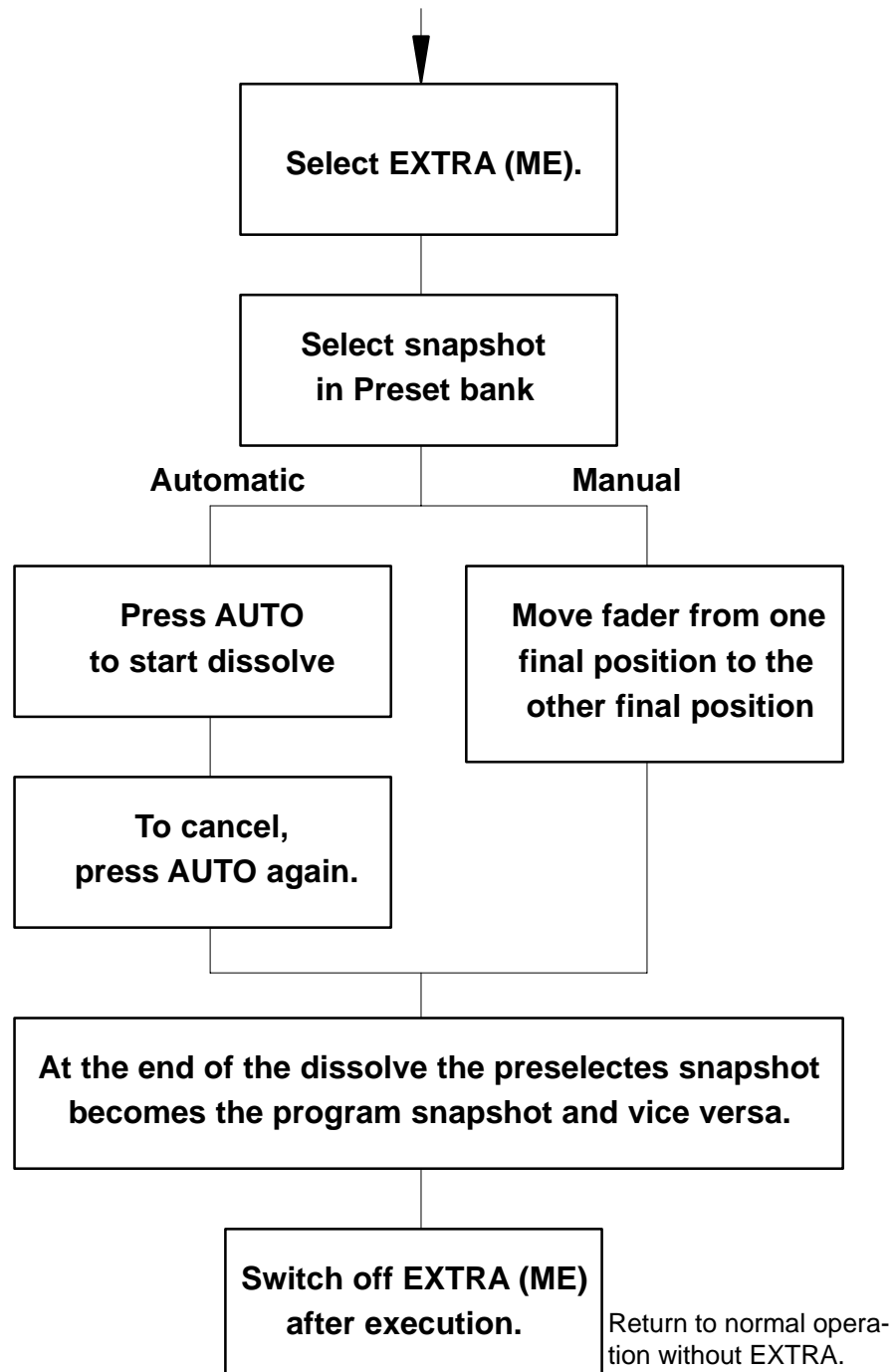
4.2.2.1 Recalling Snapshots



In this mode snapshots are treated as video sources. Thus Program selection (= Recall) and Preset selection + **Cut** produce the same result. The recalled snapshot is indicated in the Program bank.

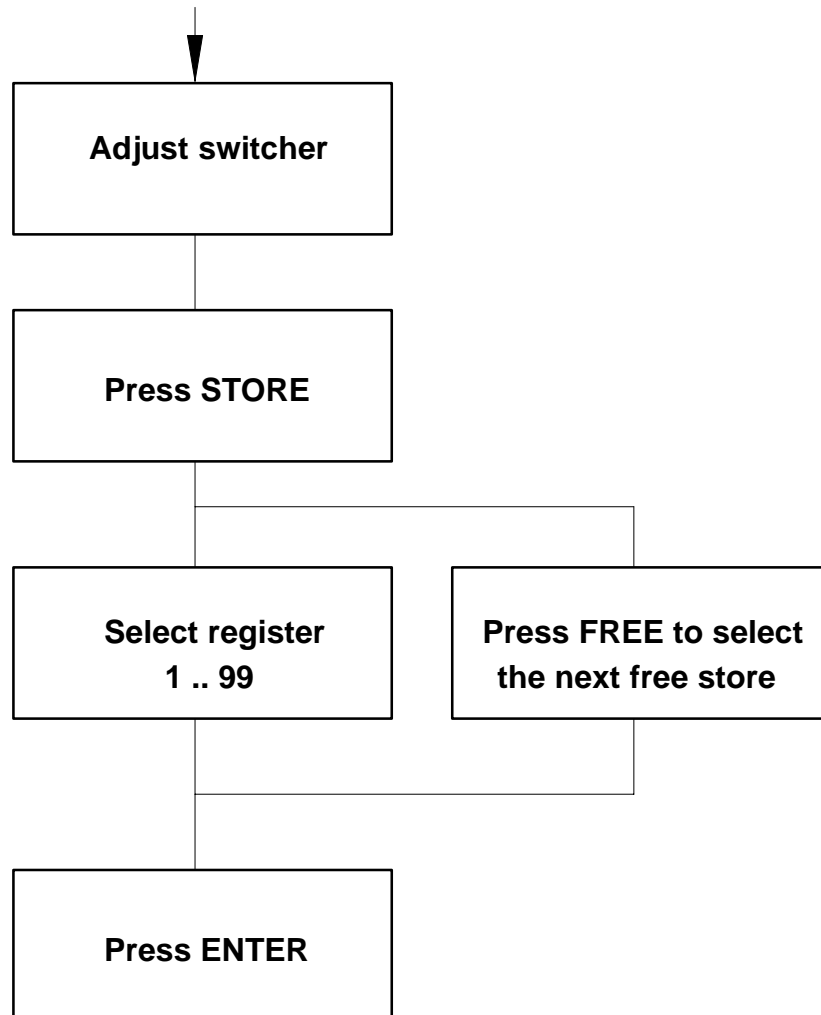
## 4.2.2.2 Dissolve

In addition to recalling, (automatic and manual) dissolves are possible. The Auto Transition Time corresponds to the duration of the automatic dissolve. The flip-flop principle permits a dissolve to be executed between snapshots. The manual dissolve with the fader permits coupling analogue settings such as color hue, key clip level, border width, wipe position etc. with the fader.

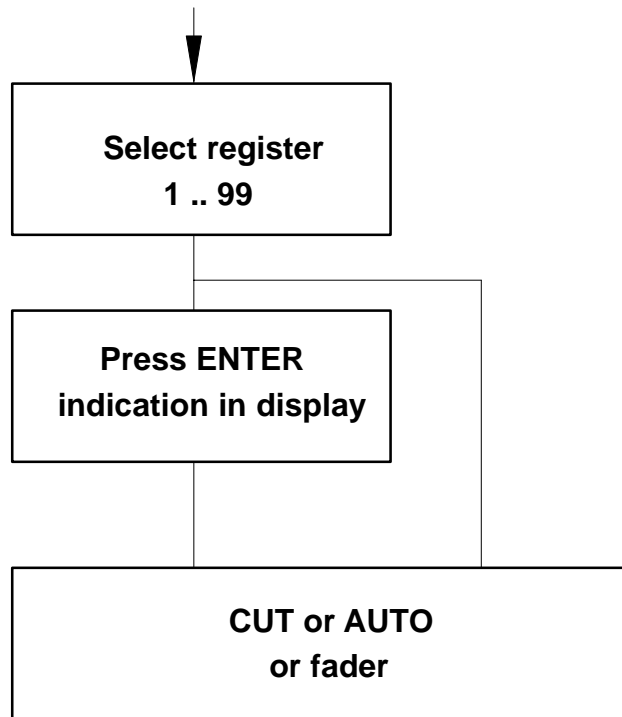


4.2.3 USING THE KEYS IN THE EXTRA PANEL (DD20 / DD30 only)

4.2.3.1 Storing Snapshots



4.2.3.2 Recalling Snapshots

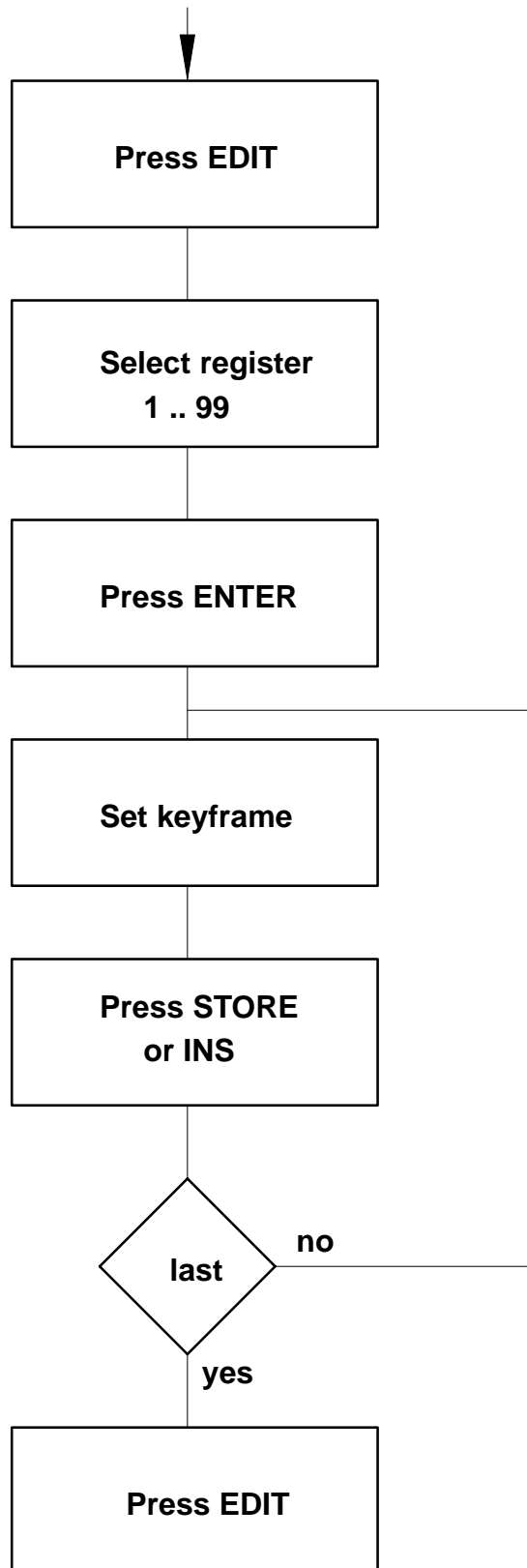




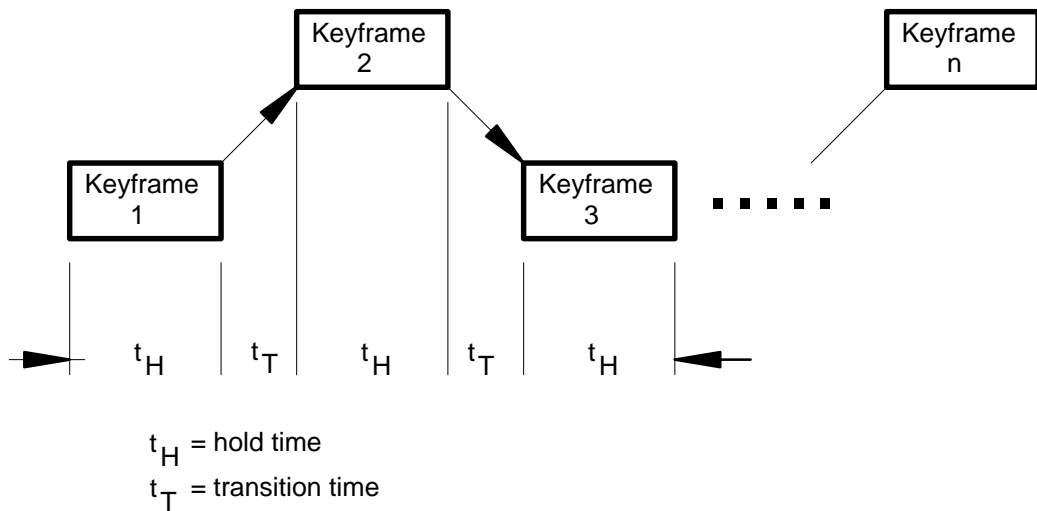


### 4.3 BASIC FUNCTIONS *EDIT, RECORD, AND PLAY*

#### 4.3.1 CREATING A TIMELINE WITH EDIT



The timeline is stored as a chain of keyframes with associated dissolves between the keyframes.



If you press **Store** or **Ins**, any  $t_H$  is set at 0 frames.  $t_T$  is entered together with the corresponding keyframe. The duration of the timeline is the sum of all transition times  $t_T$ .

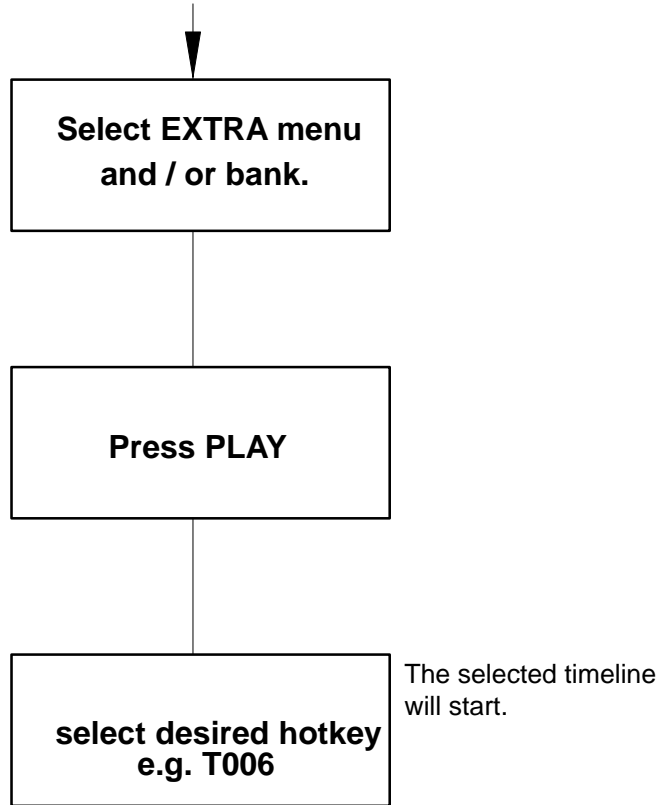
The number of keyframes in a timeline is only limited by the storage capacity of the respective switcher computer and the number of mixing levels and storable functions.

With the *DD30* about 30 complete keyframes may be stored in one timeline. (*DD20*: about 39; *DD10*: about 54, and *DD5* about 59). If only the keyframes of one mixing level (ME1, ME2 or PP) are to be stored, the number of possible keyframes rises to 72.

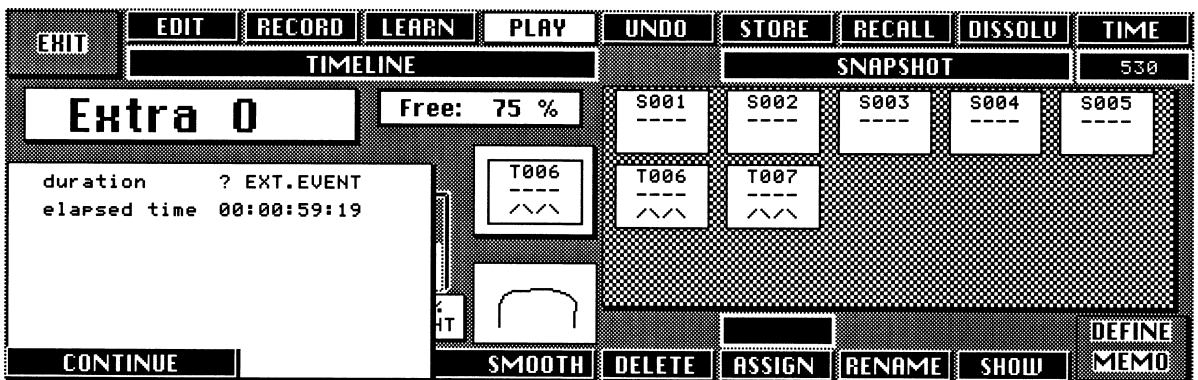
The operator can edit a timeline in order to produce more sophisticated effects. For further information please refer to section **EXTRA Editor**.

4.3.2 PLAYING A TIMELINE IN MENU

In order to play a timeline in real time, proceed as follows:



While a timeline is played, the menu display is as follows:



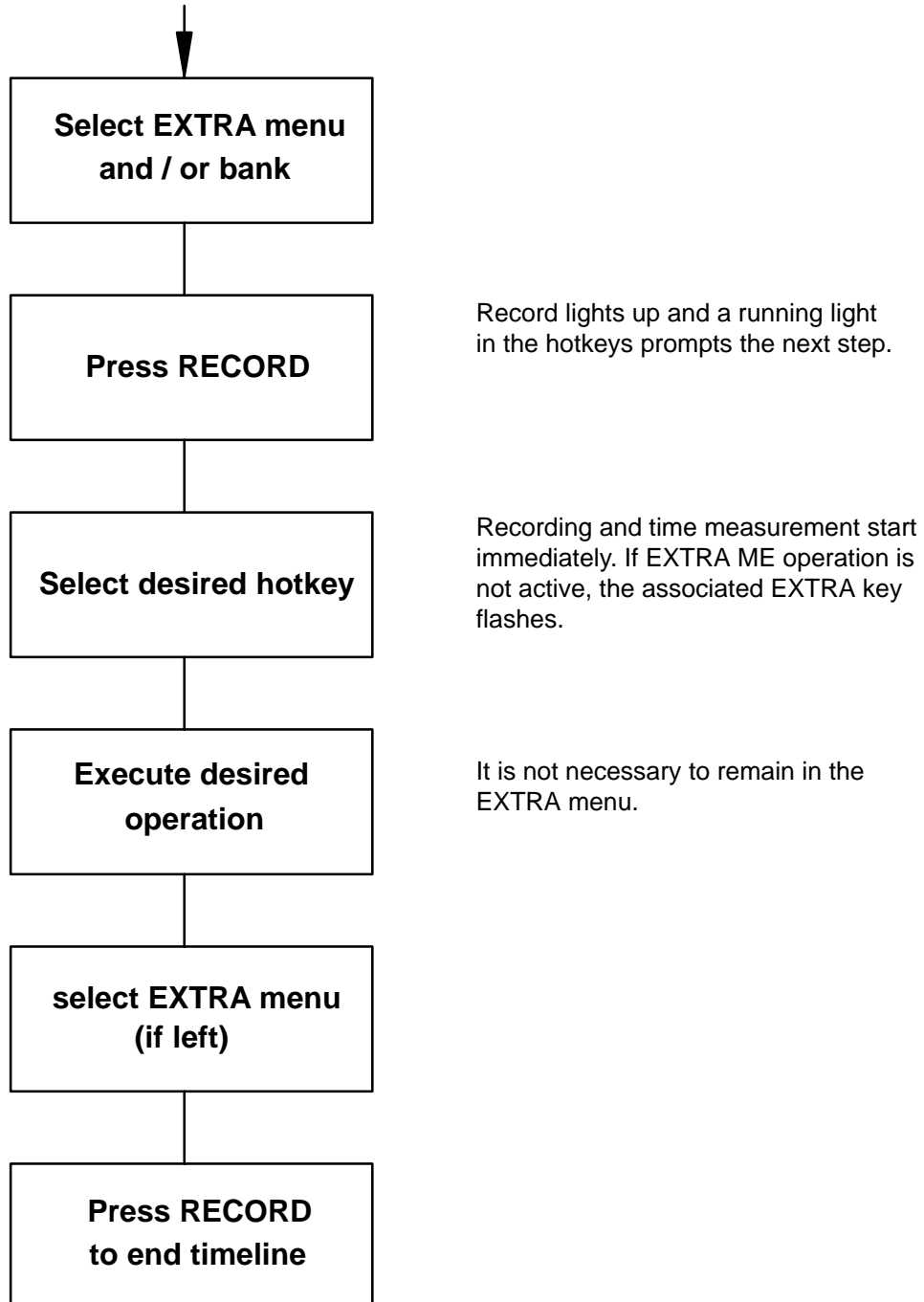
"Duration" indicates the total time of the timeline. "Elapsed time" indicates the time that has already been played. If you press **Play** again, you can cancel the playing procedure.

**NOTE** If a timeline is e.g. GPI controlled, DURATION is unknown.

### 4.3.3 RECORDING A TIMELINE IN MENU

In Record mode the operating actions are stored in real time in the order of their occurrence. No interpolation is made.

Proceed as follows:

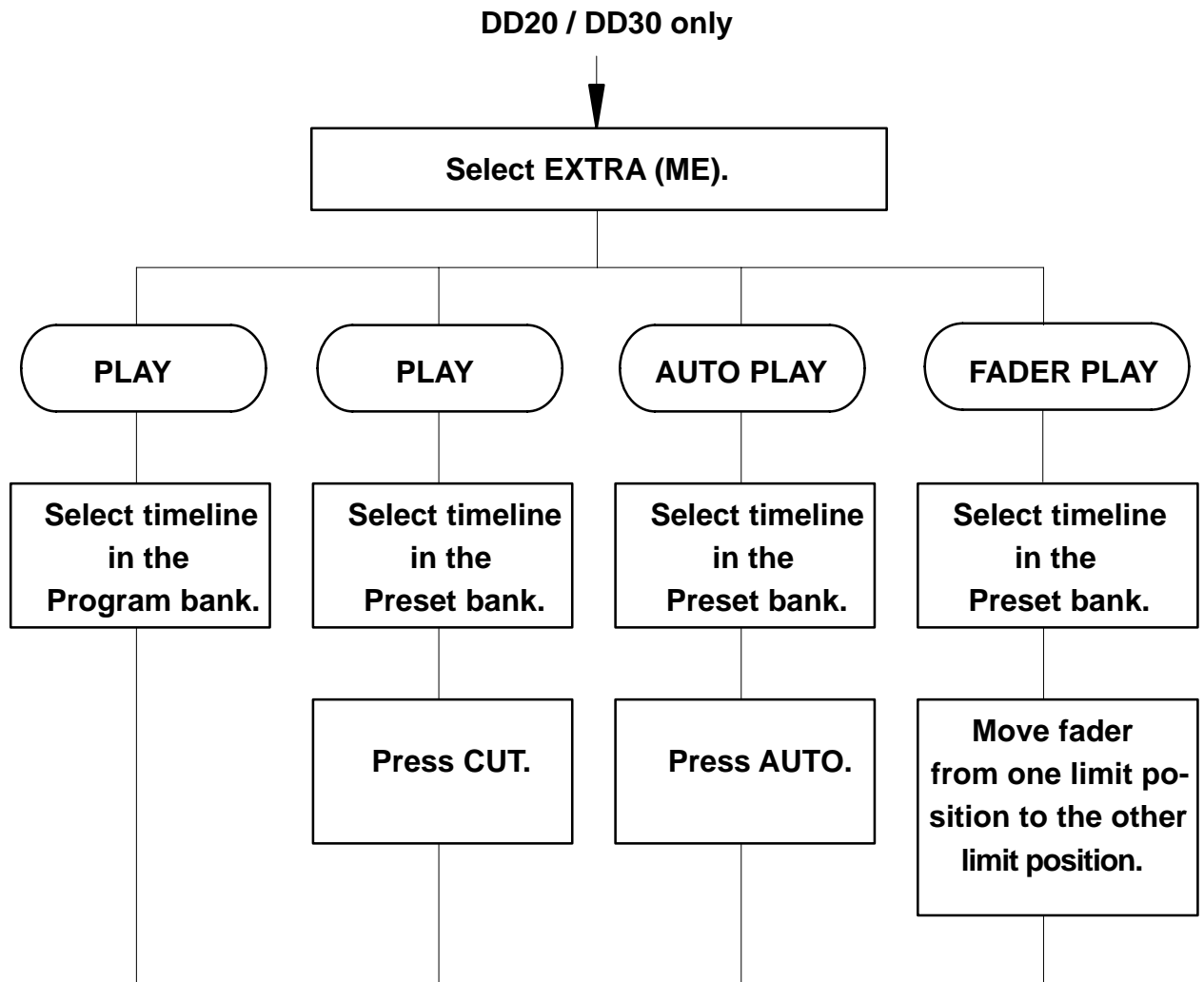


For recorded timelines, Edit, Auto Play, Fader Play and Trajectory cannot be used.

A timeline generated in RECORD mode cannot be edited.

#### 4.4 BASIC FUNCTIONS PLAY, AUTO PLAY AND FADER PLAY

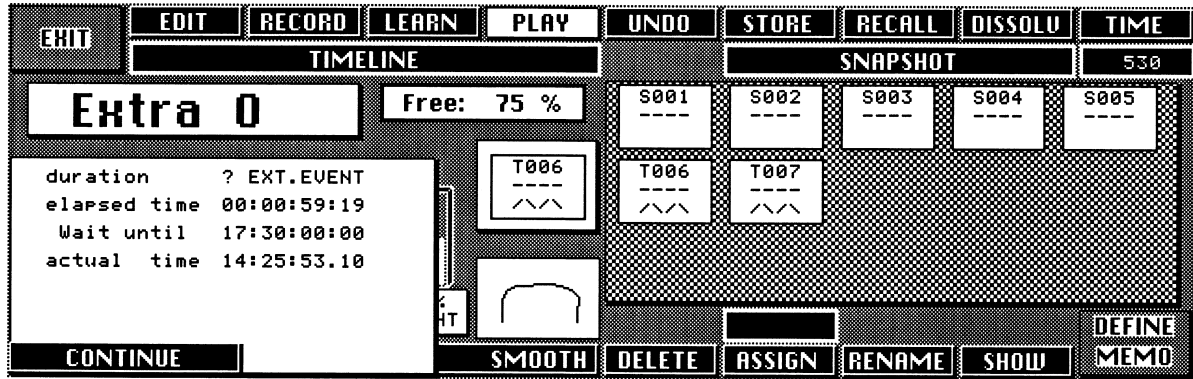
In addition to real-time Play, EXTRA ME operation also offers Auto Play (takes the Auto Transition Time as timeline duration) and Fader Play (playing the timeline with the fader). The fader path represents the timeline duration.



As long as the timeline is running, this is indicated in the Program and Preset banks.

**Comment:**

The EXTRA menu also shows the Play function.



In Auto Play the elapsed time runs faster (more slowly) if the Auto Transition Time is shorter (longer) than the original duration of the timeline. In Fader Play the elapsed time depends on the fader position and can even be reduced if the fader is moved back through the timeline.

## 4.5 OTHER FUNCTIONS IN THE EXTRA MENU

### 4.5.1 DELETE

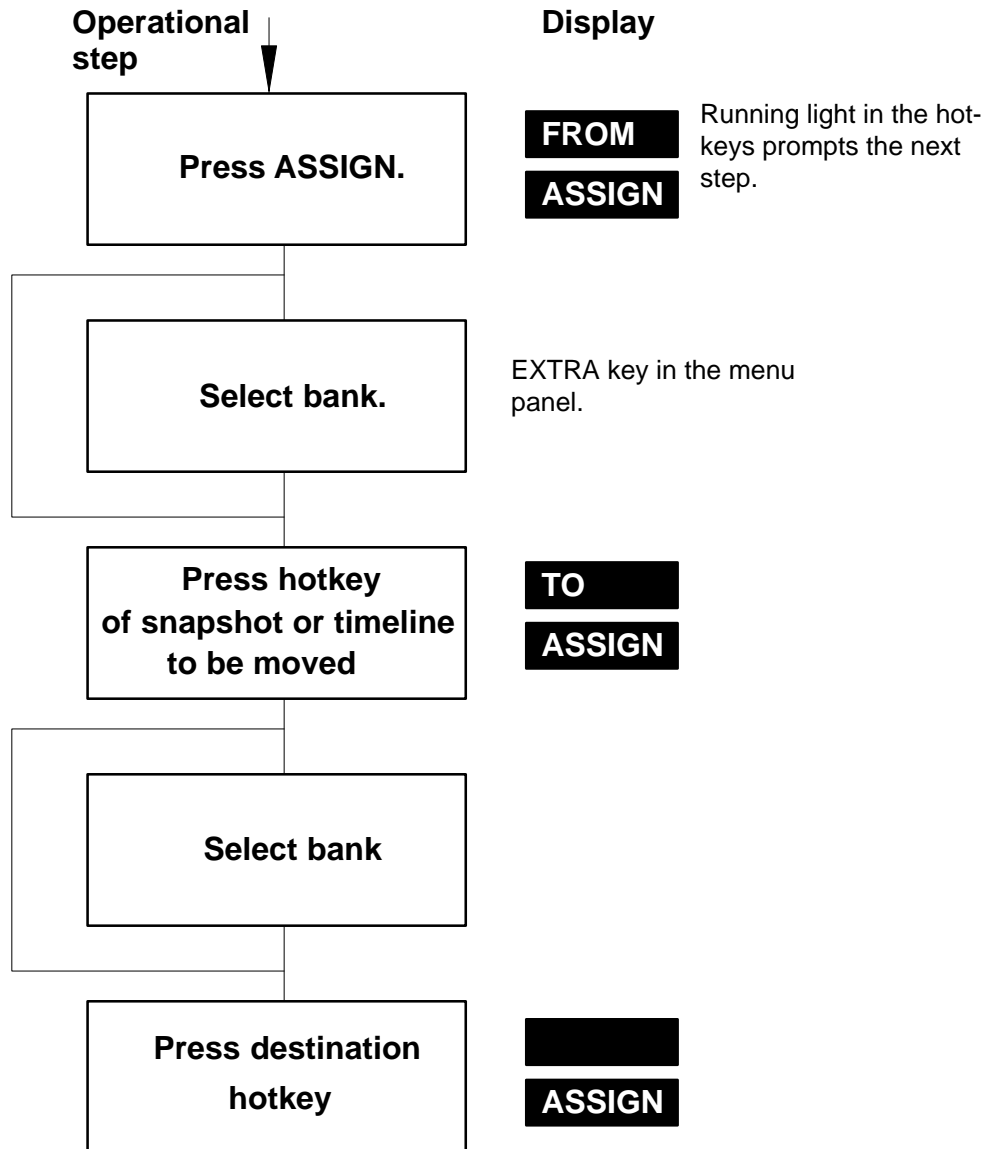
Press the associated function key to delete snapshots or timelines. A running light in the right wipe selection pad (hotkeys) prompts the selection of the snapshot or timeline to be deleted.

**Attention:**

The stored snapshot or timeline is deleted immediately!  
Snapshots or timelines can only be deleted by the user who created them, i.e. the currently logged-in USER must be the OWNER of the timeline or the snapshot (recall with **SHOW** and selection of the register).

4.5.2 ASSIGN

The Assign function permits the owner to change the positions of timelines or snapshots in the preselection field or even move them to other levels (banks).



This changes the assignment. If the TO position is already assigned, the respective snapshots/timelines exchange their positions.



### 4.5.3 RENAME (only available by the owner)

With the Rename function you can give snapshots and/or timelines a name of up to 8 characters or figures (DD20 / DD30 only). If you press the associated function key, a running light in the right wipe selection keypad prompts the entry of the desired storage location.

If you press the associated function key for the desired snapshot or timeline, a Rename window with a new key assignment appears in the menu. Enter the new name with the wipe selection keypad.

**OK**

The entered name is stored, the window is closed.

**RUBOUT**

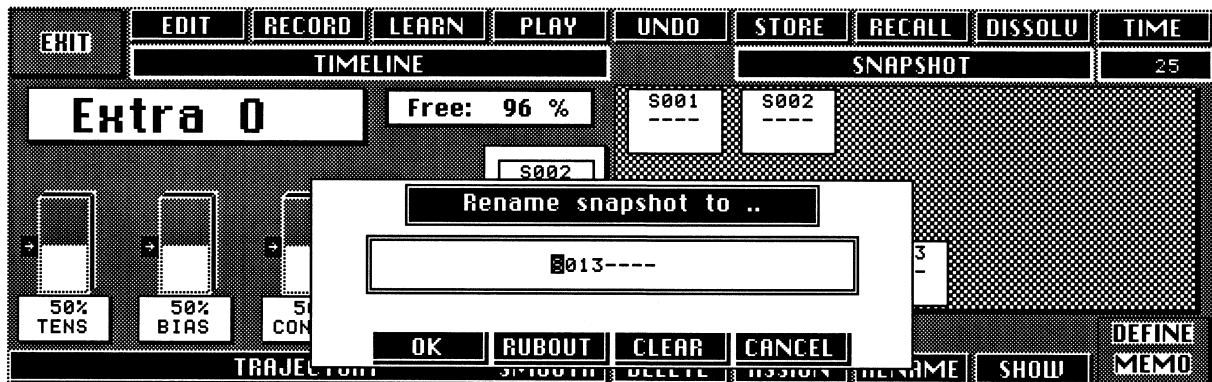
Press the associated function key to delete individual characters in the entry line. Löschen von Zeichen in der Eingabezeile.

**CLEAR**

Press the associated function key to clear the entire entry line.

**CANCEL**

Press the associated function key to cancel the Rename procedure and to close the window.



**4.5.4 DEFINE MEMO**

This menu indicates which switcher functions are stored in snapshots and time-lines. For this purpose, a symbolic representation of the switcher appears in the menu.

<b>ME1</b>		Press the associated function key to mark (highlight) functional areas that are taken into account for storing the EXTRA snapshots or timelines.
<b>ME2</b>	(DD20 / DD30 only)	
<b>PP+DSK</b>	(DD20 / DD30 only)	
<b>OTHER</b>		
<b>ALL</b>		
<b>→</b>	<b>←</b>	Cursor movement
<b>↑</b>	<b>↓</b>	
<b>TOGGLE</b>		Press the associated function key to enable or disable the functional unit marked with the cursor.
<b>EXIT</b>		Press the associated function key to return to the higher order EXTRA menu.
<b>Recall BGD HPT disable</b>		Press the associated function key to prohibit RECALL of BGD crosspoints (in both ME and Layer mode!).
<b>ME1</b>	<b>ME2</b>	
<b>PP</b>		

In this example, ME2+COLOR 2 are stored by EXTRA of ME2. The above example does not include access to COLOR 2 so that COLOR 2 is unaffected if a snapshot is called that was stored with this DEFINE MEMO.

**Example:****DD20 / DD30**

The following functions are stored with a snapshot in EXTRA operation or are excluded from the storage procedure. The functions are grouped according to the units in the DEFINE MEMO menu or according to the functional units of the switcher.

MATRIX	TRANS I	WIPE1	KEY+MASK1	COLOR1
		WIPE2	KEY+MASK2	COLOR2
MATRIX	TRANS I	WIPE1	KEY+MASK1	AUX-BUS
		WIPE2	KEY+MASK2	1 2 3 4
MATRIX	TRANS I	WIPE1	DSK+MASK1	EXT-DUE1
		WIPE2	DSK+MASK2	EXT-DUE2
				STORES

white:            enabled  
black:            disabled

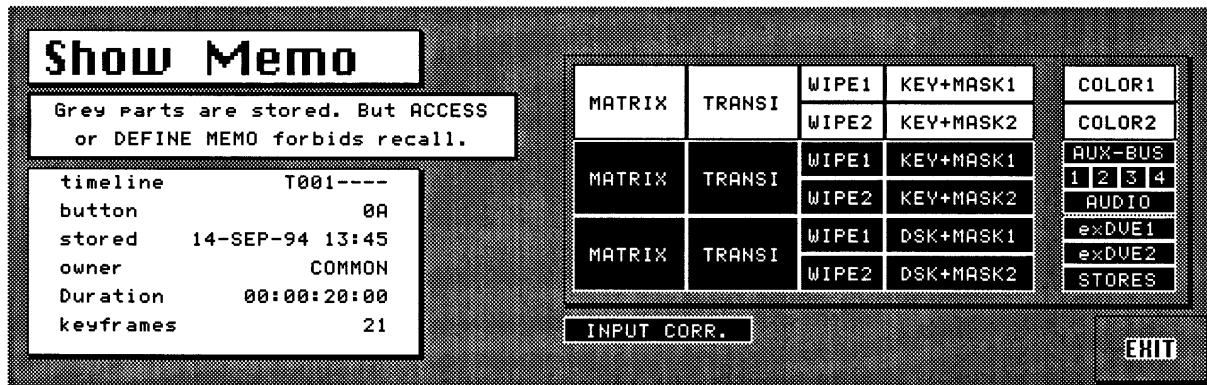
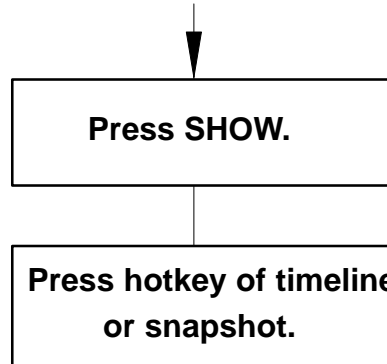
Unit	stored	not stored
MATRIX AUX BUS	Set matrix points	On Air information Non-Sync information 2nd-delegation keys
TRANSI	Automatic dissolve time AUTO LIMIT, LIMIT ON KEY CHANGE GPI ENABLE/ASSIGN NEXT TRANSITION TRANSITION MODE BLACK PRESET NORMAL/REV, REVERSE CURVE BACKGROUNDS, KEYS ADD-parameter	AUTO TRANSITION Fader-position Fader direction of movement ACTIVE AUTO PREVIEW TRANSITION PREVIEW EXTRA FADE TO BLACK TRANSFER MODE Status GPI OUTPUTS
PATT	Basic wipes SIZE H-/V-MULTI, O, X POS ON, Extended Position values RATIO ON, value STRECH ROT ON, mode, value MOD ON, LOCK, MULTI MOD SHAPE, value MOD, amplitude BORDER ON, WIDTH SOFTNESS ON, valve SYMMETRY, valve MATTE, WASH, HUE CHROMA, LUM, COMBINE	PATTERN PREVIEW USER PATTERN Digipot-delegation
KEY + MASK	Mode COUPLED / SEPARATE / IDENTICAL (KEY BUS – KEY BUS) KEY INVERS MASK ON BORDER, OUTLINE, SHADOW, OPACITY CLIP, SOFT HUE, SELECTIVITY BORDER OPACITY MATTE WASH, HUE, (Fill and Border) CHROM, LUM (Fill and Border) AKA-window position MASK INVERT FORCED FOREGROUND PAINT CURSOR ON MASK TYPE LEFT, RIGHT, TOP, BOTTOM SIZE,	Auto KEY PREVIEW LOGO Digipot-delegation  MASK PREVIEW PAINTED MASK SHAPE
COL 1, 2	WASH HUE, CHROMA, LUM 2 x	Digipot-delegation
AUX BUS 4, 5, 6 (DD20/ DD30 only)	Set matrix points from PVW, DVE (video + key), FxLoop-DVE1	On-Air, Non-Sync, 2nd, bus delegation

---

Unit	stored	not stored
AUX BUS 1...3	Set matrix points	On-Air, Non-Sync, 2nd, bus delegation
EXT DVE	Effect-no., actual position within effect	
STORES	Settings: Video store, Matte store, Mask store, Montage proc.	Video store of memorys

4.5.5 SHOW MEMO

This function shows the user which functions of the switcher are stored in the snapshot or the timeline. The menu also contains additional information.



The following information can be seen from the menu:

Left window:

- Type of selected storage location with name (timeline or snapshot)
- Key address (number of bank with letter on key)
- Date and time of storingOwner (user who stored)
- Owner (user who stored)
- Total running time of timelines
- Number of keyframes of timelines

In this example it is the timeline T001 which can be selected by pressing "J". The timeline was stored by COMMON at 13.45 h on 14 Sept. 1994.

## 4.6 EXTRA EDITOR

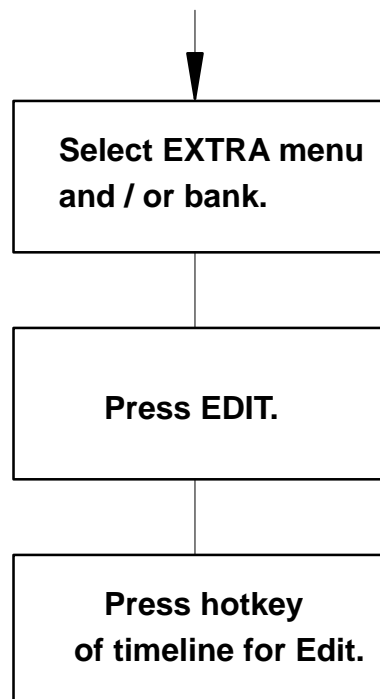
### 4.6.1 MODIFYING A TIMELINE CREATED WITH EDIT IN THE EXTRA PANEL

**Note:** *The menus shown in this section are only examples. In practical operation different values may appear in the display.*

With the Edit function you can

- modify timelines
- create new timelines.

Edit is selected as follows:



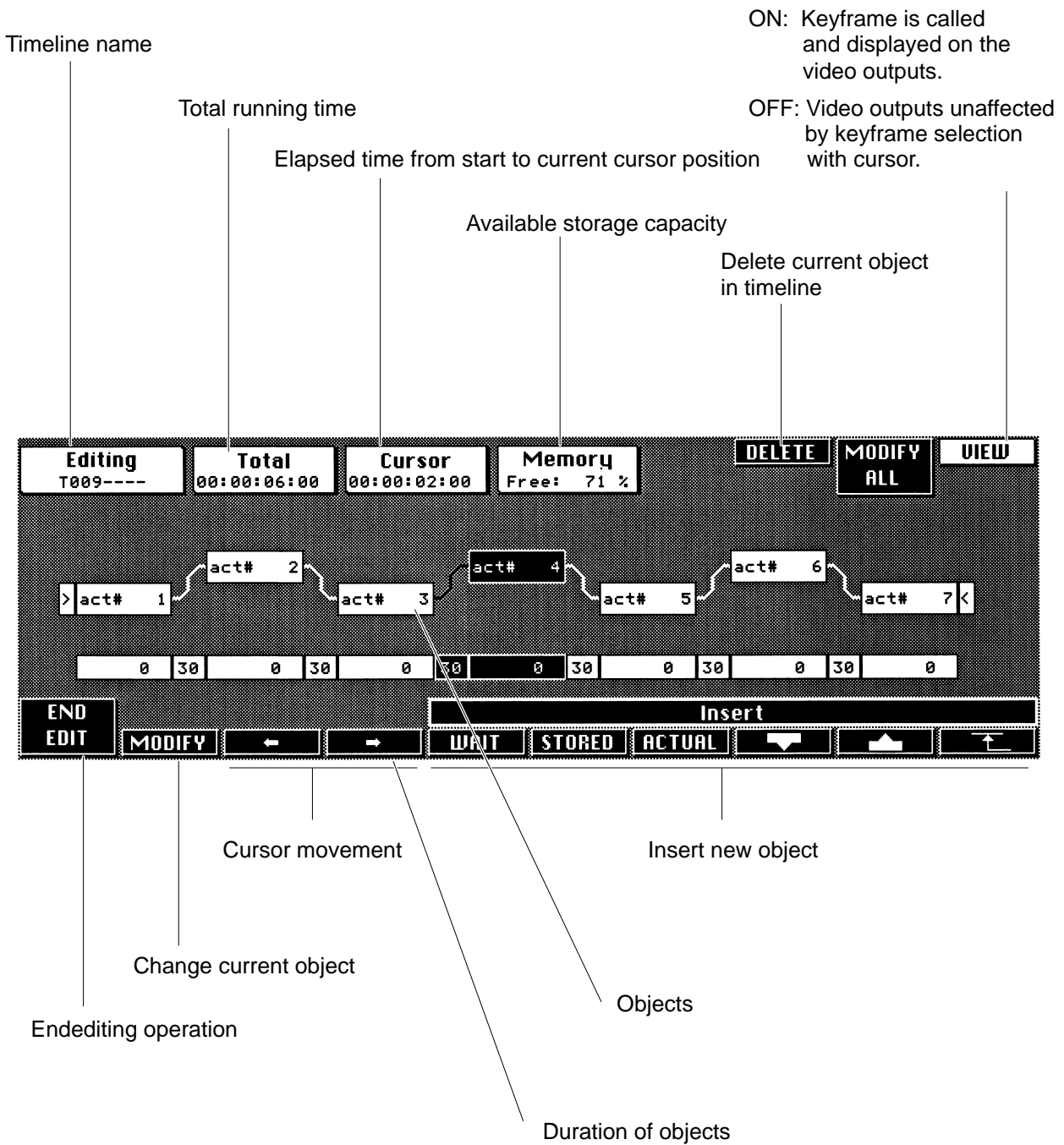
Let us assume, a timeline T009 was created with Learn. This timeline is to include 7 keyframes and the dissolve time is to be 30 frames for each keyframe. The associated EDIT menu is shown on the next page (the cursor was moved to keyframe 4).

In Edit operation, the individual keyframes are identified as "act#" (=actual snapshot).

In the example, the following operations are to be executed:

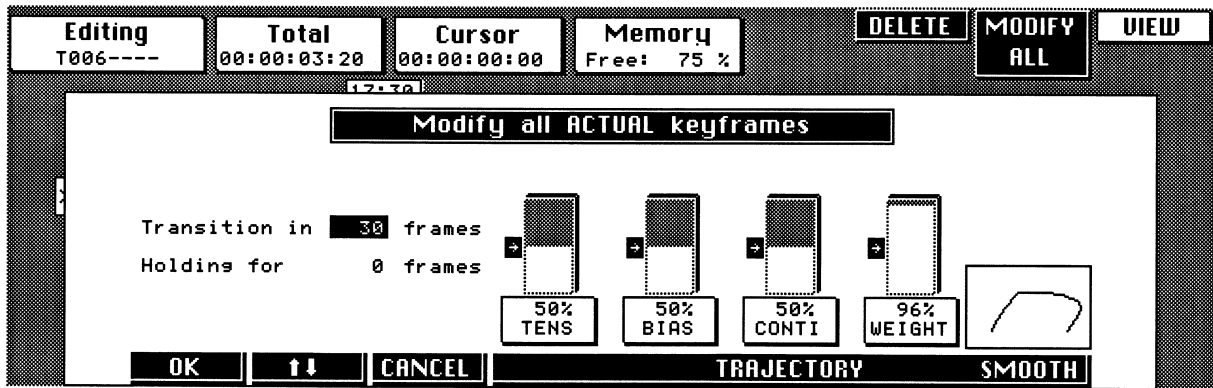
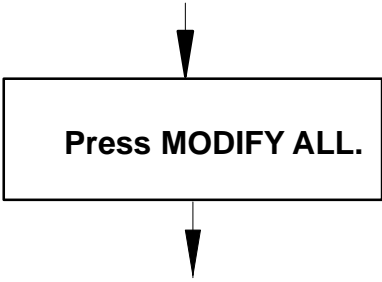
1. The contents of act#4 is to be changed.
2. A trigger event "Wait for GPI 1" is to be inserted.
3. The GP output GPO 1 is to be triggered.
4. One keyframe is to be deleted.
5. A loop is to be inserted.

A more detailed description will be found on the following pages.





### Changing contents and duration of act#4

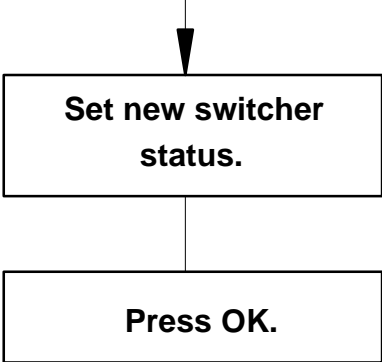


OK    ↑↓    CANCEL    TRAJECTORY    SMOOTH

Cancel without changing    Please refer to selection "Trajectory".

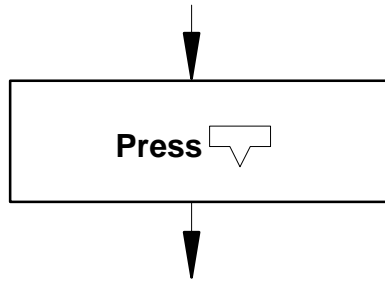
Cursor movement

Storing the modified keyframes (current switcher status and new times)



The new contents of act4 is no stored.  
The window in the menu is closed.

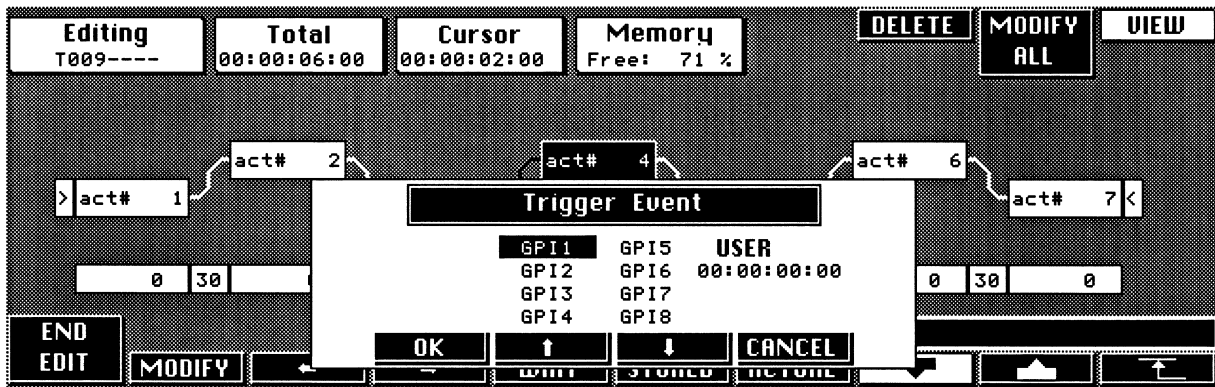
### Inserting a "Wait for GPI 1" before the object act#4



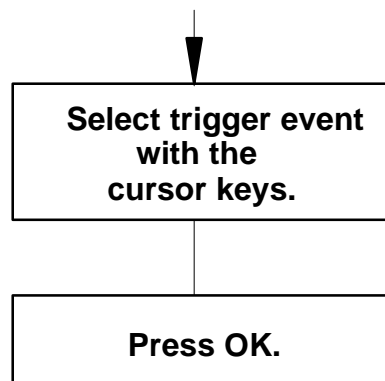
Insertion is always made **before** the cursor.

#### Comments:

USER is a special trigger event waiting for an operator action. 00:00:00:00 indicates the trigger time (real-time clock). After the selection, the trigger time is entered with the numeric keypad. In Play mode, the timeline waits until the real time has reached the trigger time and then continues.

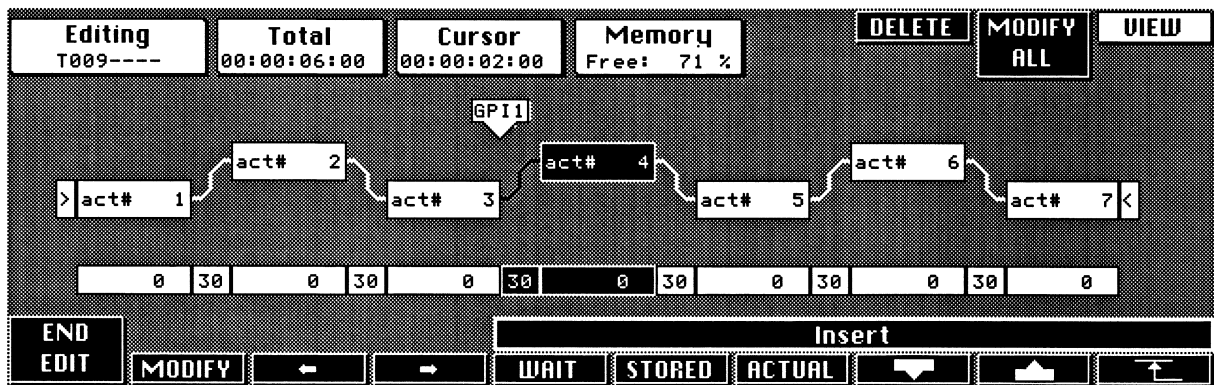


Selected trigger event is inserted before the current cursor position.



The new contents of act4 is stored. The Trigger Event window is closed.

The following figure shows a "Wait for GPI 1" inserted before act#4. The trigger event is indicated in the line above the keyframe.

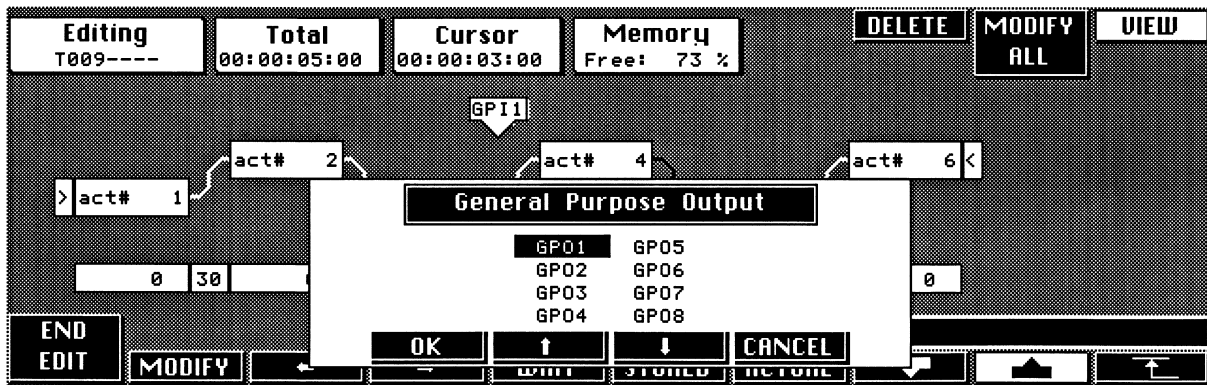
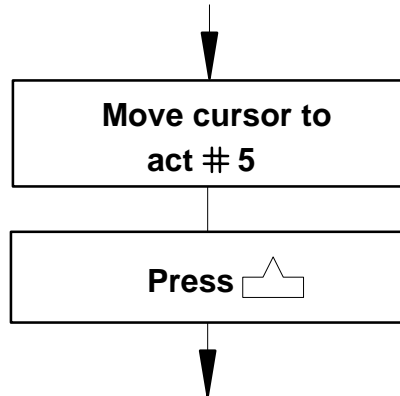


*Note:*

*(DD20 / DD30 only)*

*Timelines with trigger events cannot be played with AUTO or the fader. REVerse is not possible either.*

### Inserting a GPO 1 before object act#5

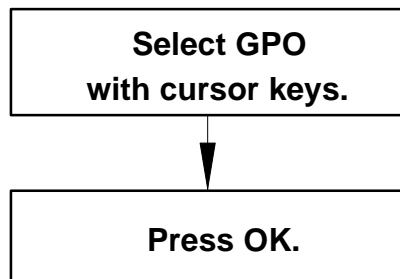


Cursor for the selection of the trigger event

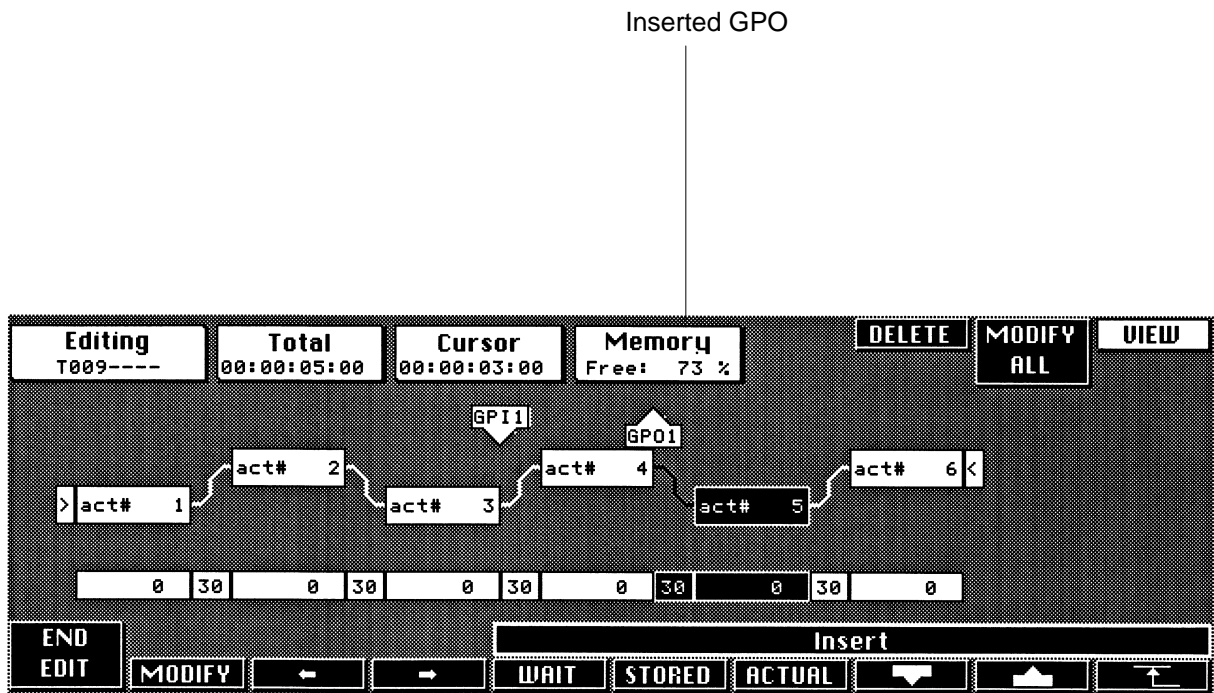
Insertion of trigger event.

Selected trigger event is inserted before the current cursor position

Cancellation

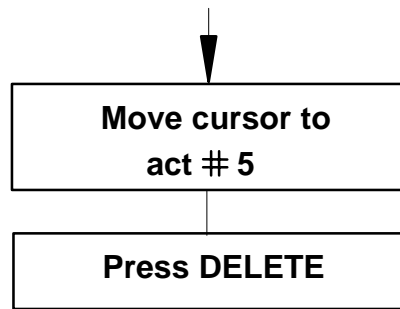


GPOs are indicated in a line above the keyframe. The following menu will now appear:



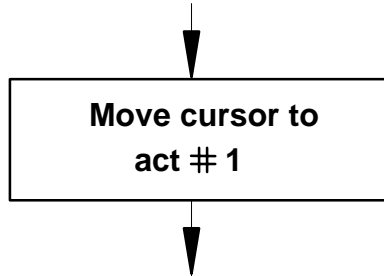
Inserted GPO

### Deleting object act#5

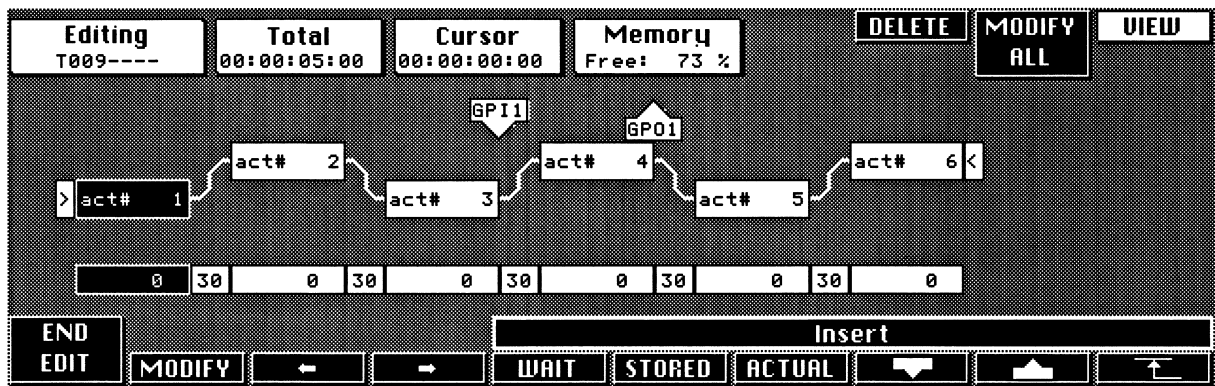


Object disappears, the numbering of the following objects is updated.

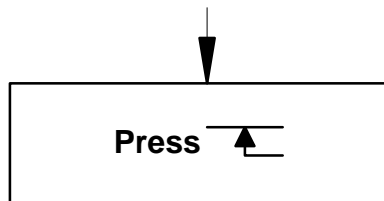
### Inserting a loop



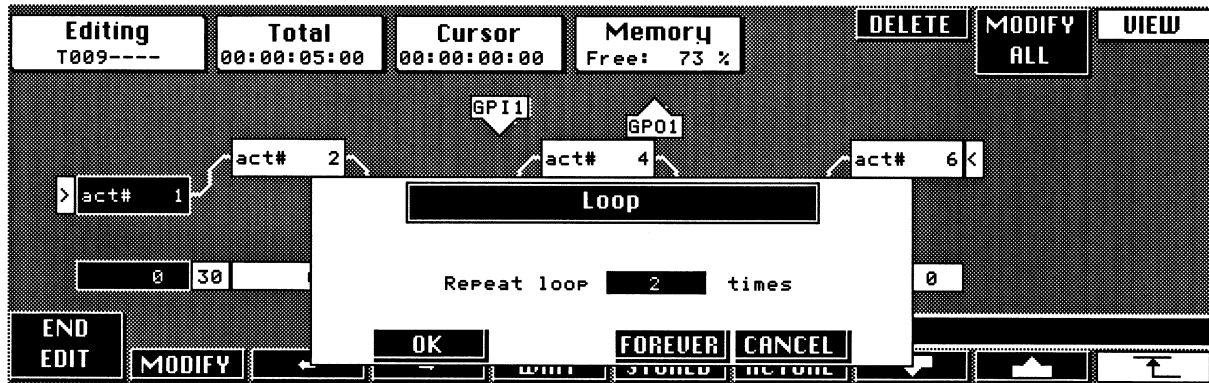
The loop should be returned to the start of the timeline. Any other position may also be selected.



Start-of-loop



The loop counter (Repeat Count) is entered with the numeric keypad. The entry for the loop counter may be 1 ... 9. If you wish an endless loop, select FOREVER (or 0).



Insertion of a loop

Endless loop

Cancellation

Press OK.

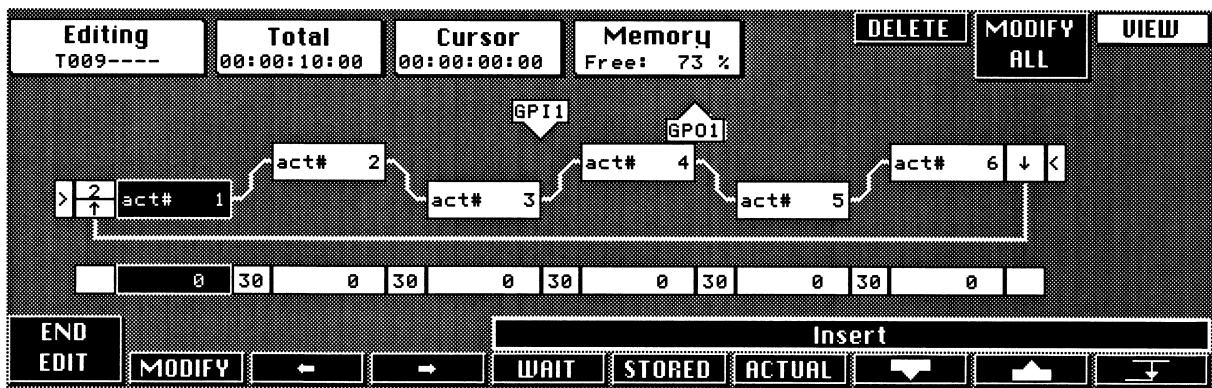


The start-of-loop (two) is inserted. The end-of-loop will automatically be added **at the end** of the timeline

**Comment:** Loops cannot be nested.

**Attention!** If the cursor is moved to the end of the loop < , the time elapsed so far is indicated when moving back.

For a loop, the start of the loop must be selected first (i.e. the point to which it will return). Only then can the end be selected or modified. Please refer also to the descriptions on the following pages.

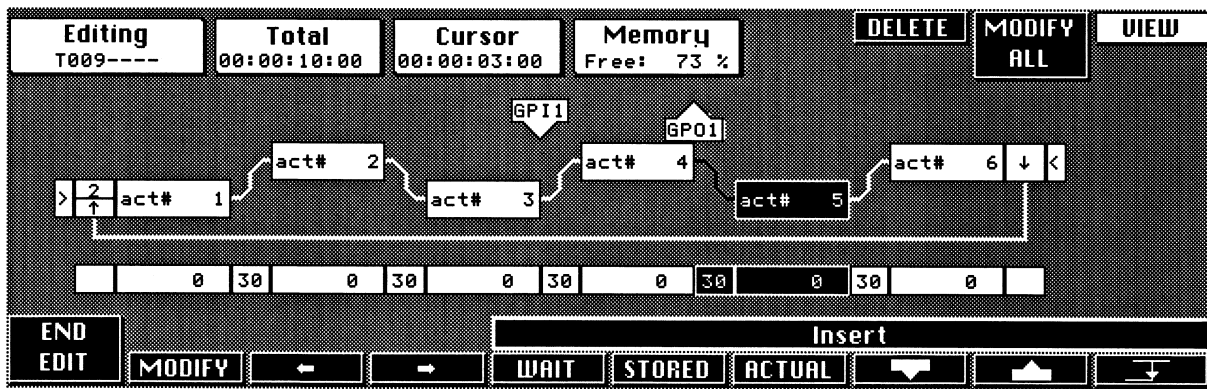


As loops cannot be nested,  
 ↖ appears outside the loop to mark the start-of-loop  
 ↘ appears inside a loop to mark the end-of-loop.

*Note:*  
 (DD20 / DD30 onlay)  
 Timelines with loops cannot be played in REVerse. With FOREVER, playing with AUTO and the fader is no longer possible, either.

### Setting end-of-loop before object act#5

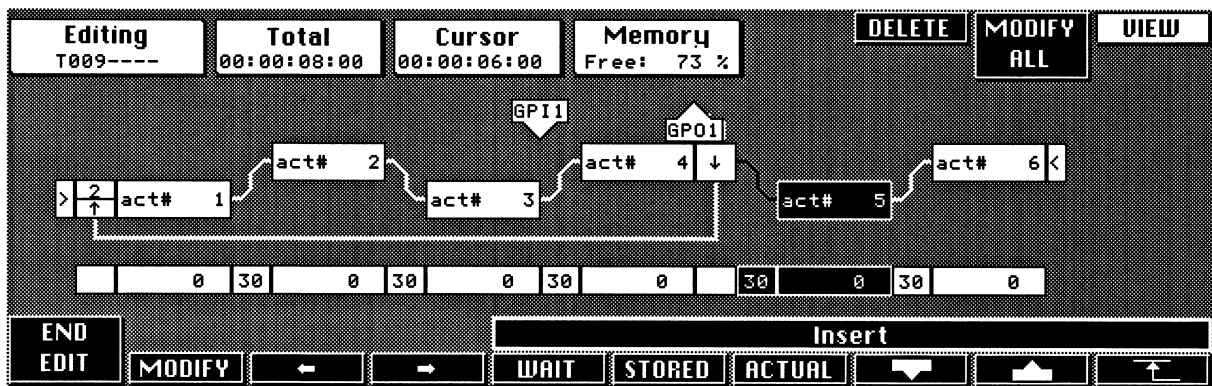
↓  
Move cursor to  
act # 5



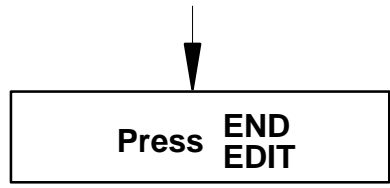
End-of-loop

↓  
Press

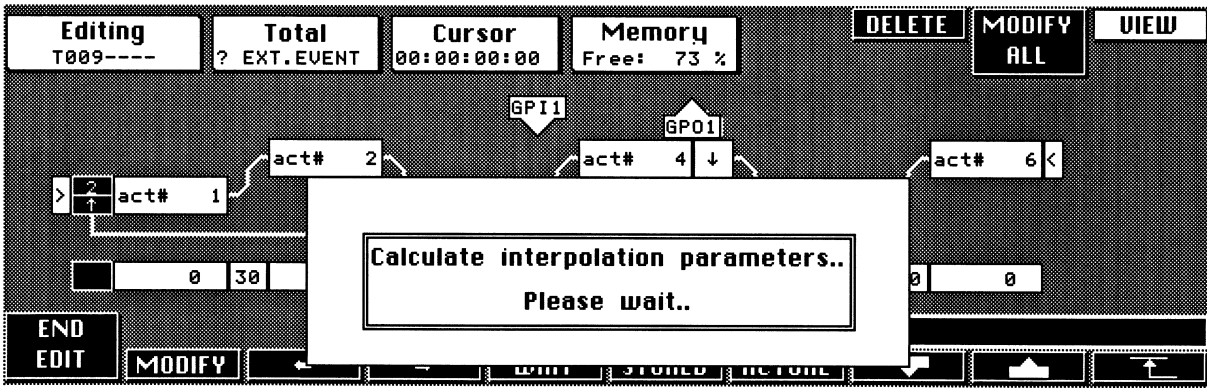
The end-of-loop is now before object act#5.



### Ending timeline editing



During the calculation of the interpolation parameters, the display indicates the following message:



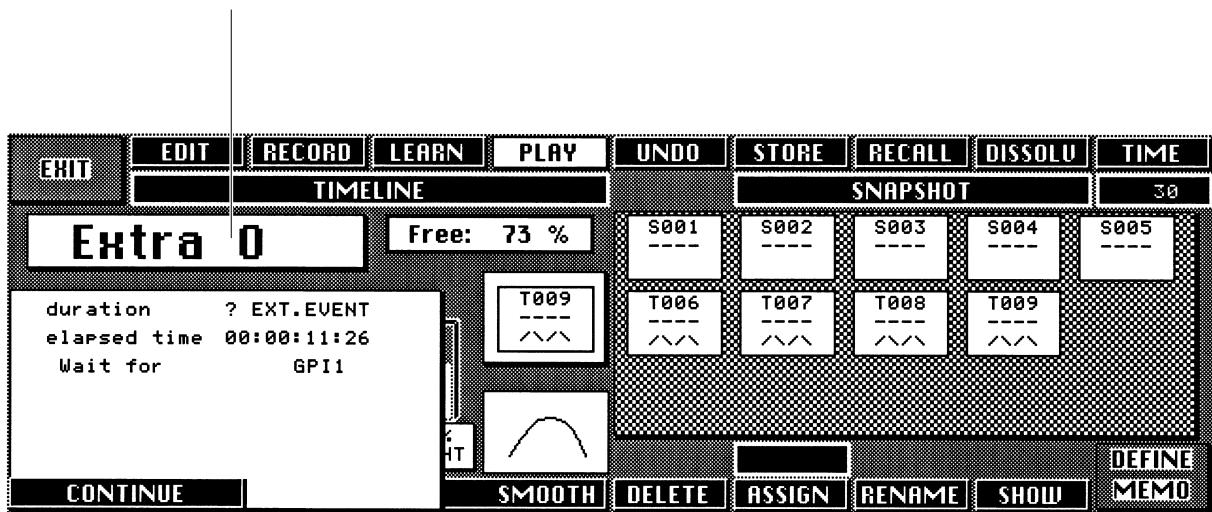
Ends editing

Subsequently the original EXTRA menu appears again.

While the newly created timeline is played, the display shows the following information:

When "Wait for GPI1" is reached, the sequence is interrupted and the switcher waits for the GPI1 input pulse.

The total running time is unknown on account of the "Wait for GPI" event.



Continuation of playing without waiting for GPI 1.

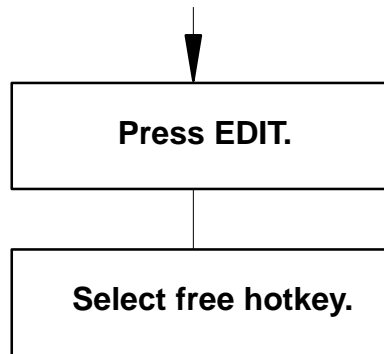


### 4.6.2 CREATING A NEW TIMELINE IN MENU

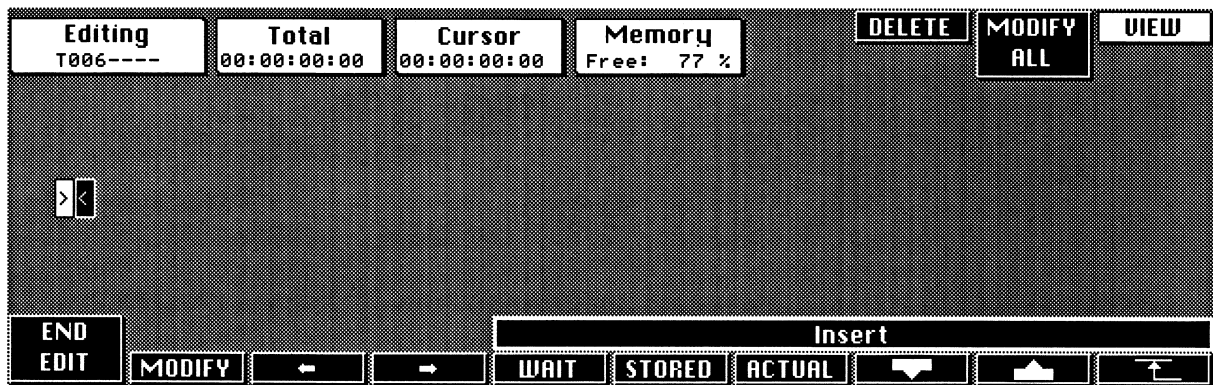
The following example shows how a new timeline (T006) is created.

This timeline contains

- previously stored snapshots
- a previously created timeline
- trigger time, trigger event.



The display shows the new timeline.

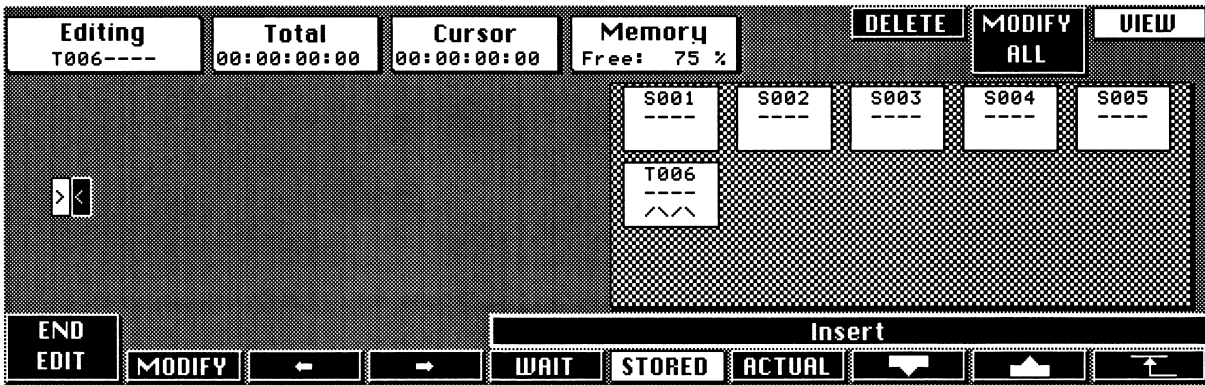


End editing

### Inserting a previously stored snapshot

▼  
**Press STORED.**

The selection field with the titled hotkeys is displayed in the menu. If the desired hotkey is not in this bank, you can select a different bank by pressing "Bank" in the EXTRA panel.



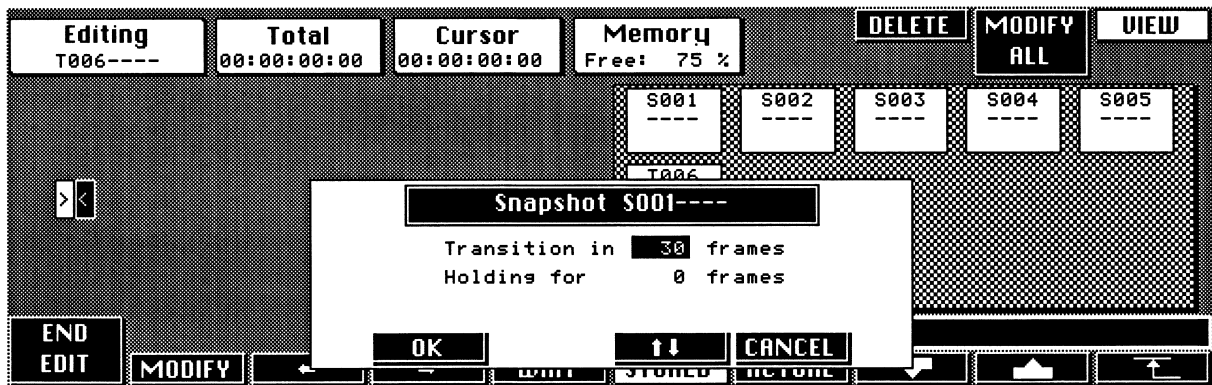
Insertion of a previously stored snapshot or timeline.



Press hotkey  
of the  
desired snapshot.

In this example, snapshot "S001".

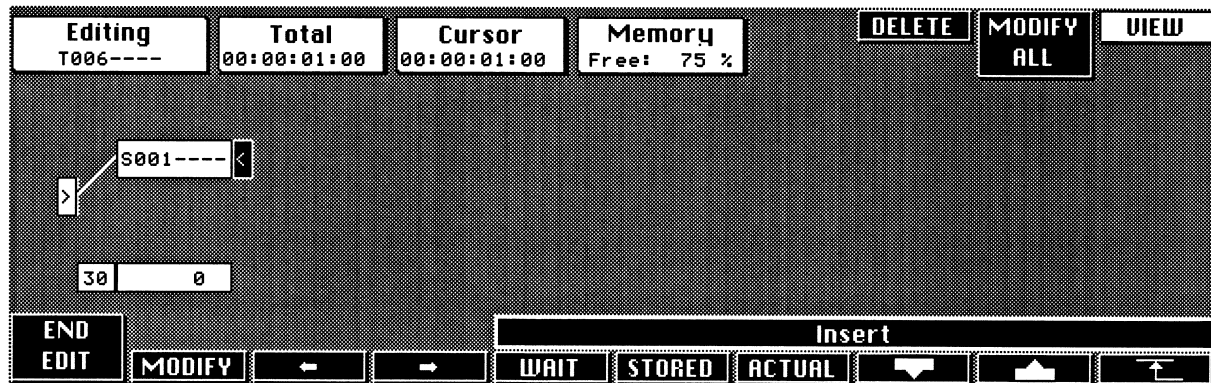
A new window appears and prompts the entry of the transition and the hold time.  
To facilitate operation, default values for transition duration (25 or 30 frames) and hold time (0 frames) are offered. Any value between 0 ... 9999 frames can be entered.



In this example a transition time of 30 frames is entered.

Press OK.

The snapshot has now been inserted in the new timeline.



**Note:**

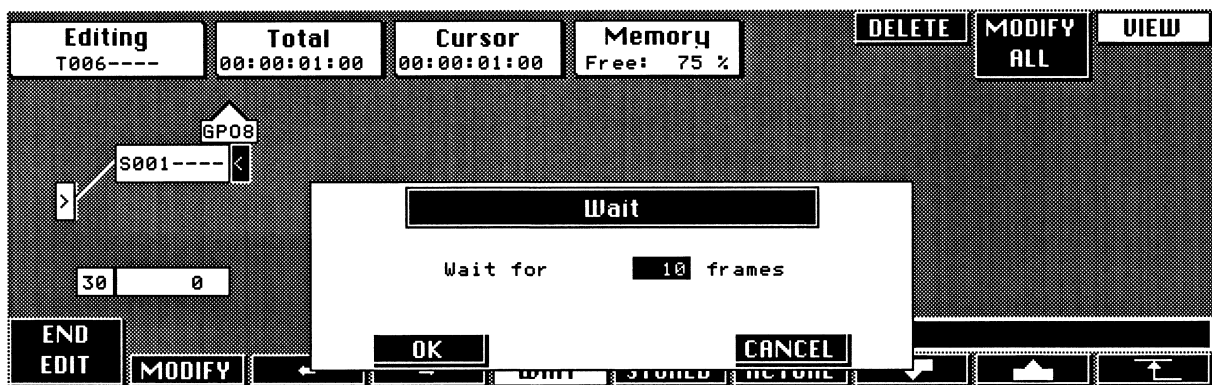
*Timelines with "stored" snapshots cannot be played in REVerse (DD20 / DD30 only).*

### Inserting a waiting time WAIT (especially in combination with DVE rise)

In the meantime GPO 8 has been inserted.  
After this GPO, a waiting time is to be inserted.

↓  
**Press WAIT.**

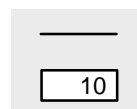
The WAIT window appears and prompts the entry of a waiting time. The numeric keypad can be used to enter waiting times between 0 .... 9999 frames.



Insertion of a waiting time (enter time with the numeric keypad).

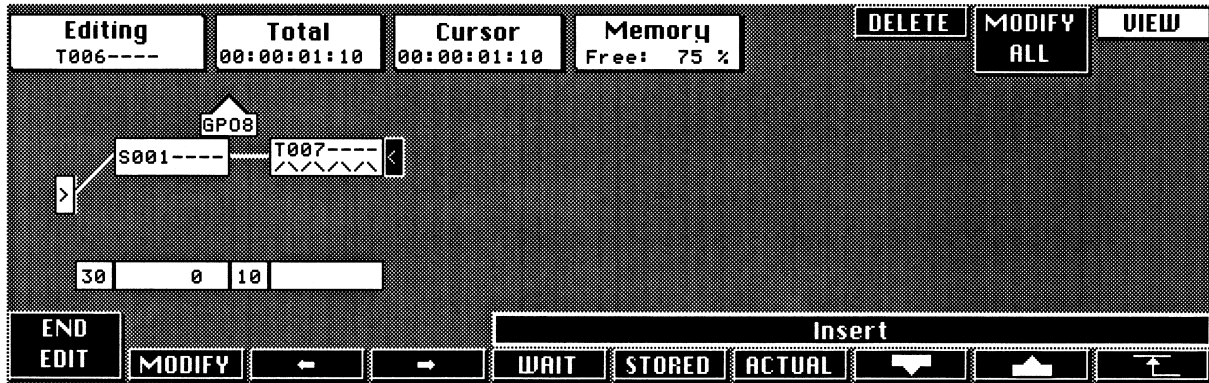
↓  
**Press OK.**

The symbol



appears in the timeline.

In the meantime, a previously stored timeline has been inserted after the waiting time. This was executed in the same way as with the insertion of the snapshot. It is not necessary to enter transition and hold time.



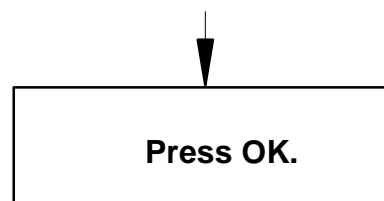
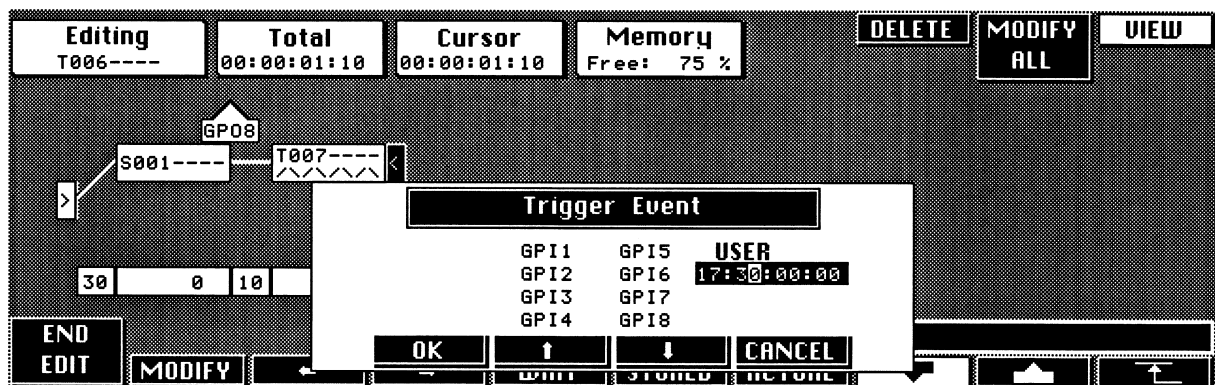
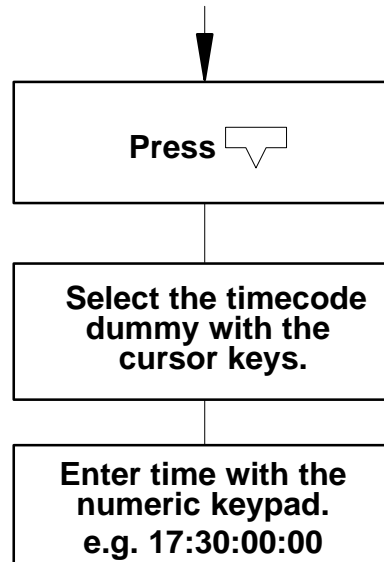
**Note:**

*Timelines with "stored" snapshots cannot be played in REVerse.*

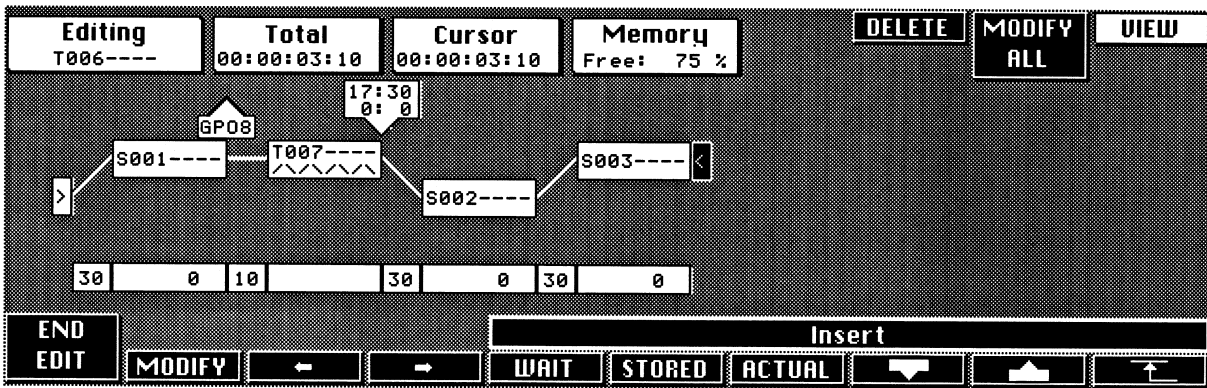
## Inserting a trigger time

(In the meantime a timeline recall for T007 has been programmed)

Now the trigger time is to be set.



The trigger time has now been inserted. In addition two further snapshots S002 and S003 have been inserted afterwards. The last has a hold time of 10 frames.

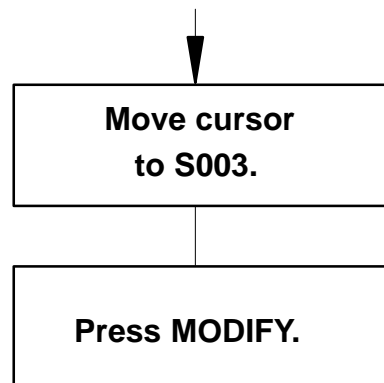


**Note:**

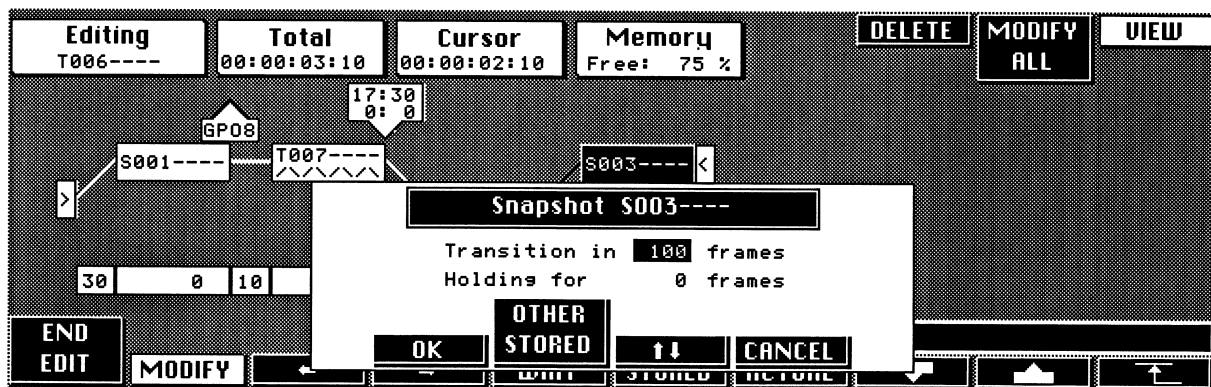
If an object to be inserted is stored in a different bank, press the **Bank** key in the EXTRA control panel to switch to this bank.

**Attention!** The values indicated in the Total and the Cursor field do not include the duration of the inserted timeline T007.

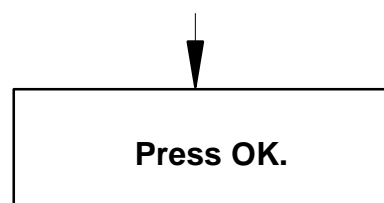
## Changing snapshots, modifying the times of "S003" (transition time 100 and hold time 0)



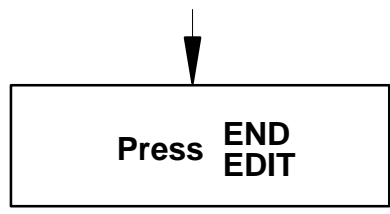
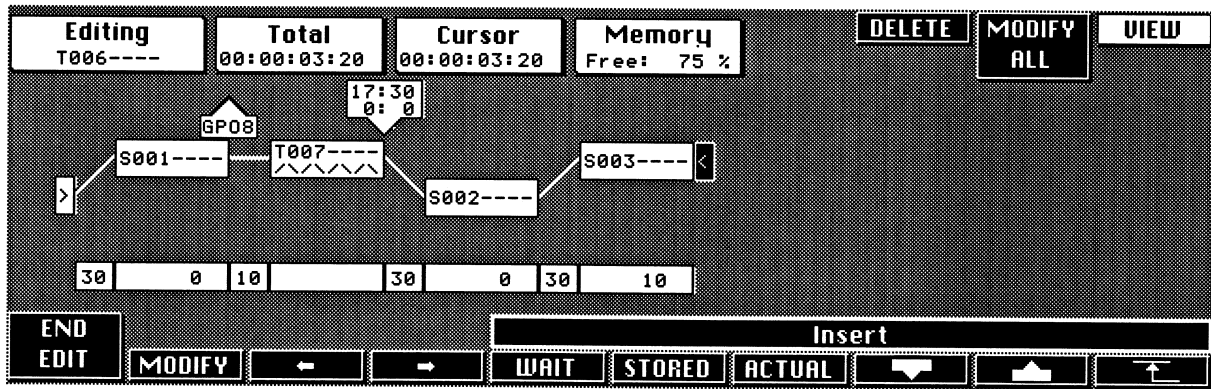
The display shows a window where the time values can be modified with the numeric keypad.



Selected snapshot  
can be replaced by  
another one.

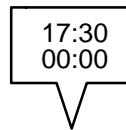


After the modification, the following timeline is indicated in the display.

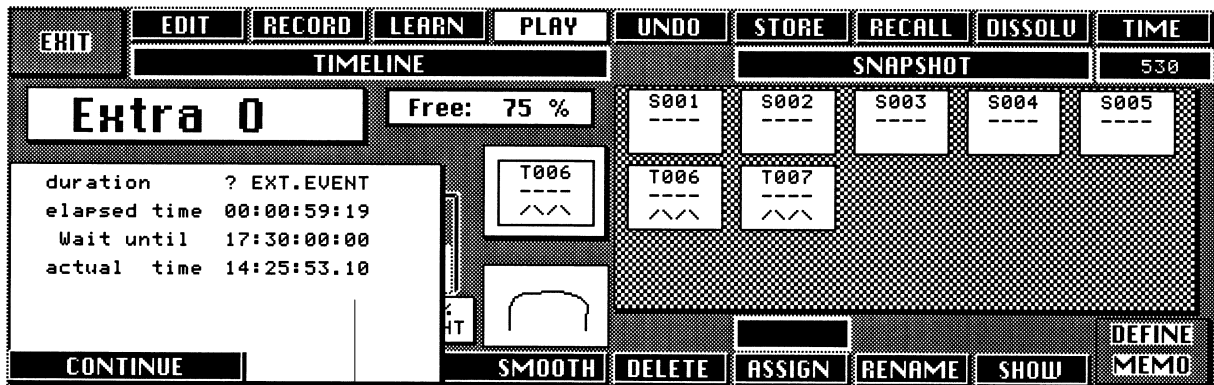




When the stored timeline is played, EXTRA waits for the trigger time.



While the timeline is played, the display shows the following information:



Time of the internal RTC module on the E-Box controller.

Press CONTINUE to continue playing without reaching the trigger time.

## 4.6.3 OVERVIEW OF EDIT FUNCTIONS



Cursor movement

The current cursor position is marked black.

The symbol under the cursor marks the current object.

**CHANGE**

Serves to select a window which depends on the current object. Most of these windows are identical to the Insert windows.

These windows were shown in the previous examples.

**INSERT**

**WAIT**

**STORED**

Insertion is always made before the cursor position

- Waiting time in frames (0 ... 9999)
- Previously stored snapshot with given transition time  $t_T$  and given hold time  $t_H$ . The transition is always linear.
- Previously created timeline

**Comment:**

These snapshots and timelines may be modified separately. However, they may not be deleted or re-assigned in the EXTRA menu.

**ACTUAL**

- Inserts the current switcher status as keyframe act#, together with transition and hold times.  
The transition will be influenced by the Trajectory settings.



- Trigger event



- GPO



- Start-of-loop and end-of-loop



**DELETE**

Serves to delete the current object or the current keyframe. (only available by the owner)

**VIEW**

If View is OFF, the timeline can be edited without changing the switcher status.

If View is ON, the respective snapshots (keyframes) are called, when the cursor is moved.

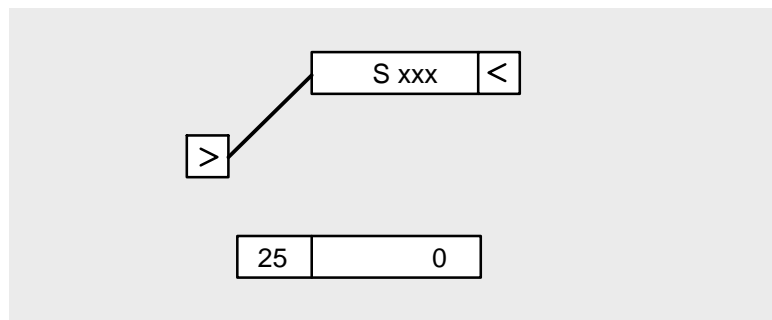
Thus the video monitors show the stored status.


## 4.6.4 OVERVIEW OF ALL GRAPHIC SYMBOLS

	Start and end of a timeline
	Dissolve (s-curve), i.e. a transition between keyframes in xx frames.
	Dissolve (smooth)
	Snapshot, creates Insert Stored under the name ABC and the hold time of xx frames.
	Snapshot, created with ACTUAL and with a hold time of xx frames.
	Event symbol for GPI, time (xx:xx:xx:xx) and User. The timeline waits for the respective event.
	Event symbol for switching the GPO outputs.
	Start-of-loop, loop counter with n repetitions. (n = "-" means "forever")
	End-of-loop
	Playing a timeline, created with INSERT STORED
	Waiting time of xx frames

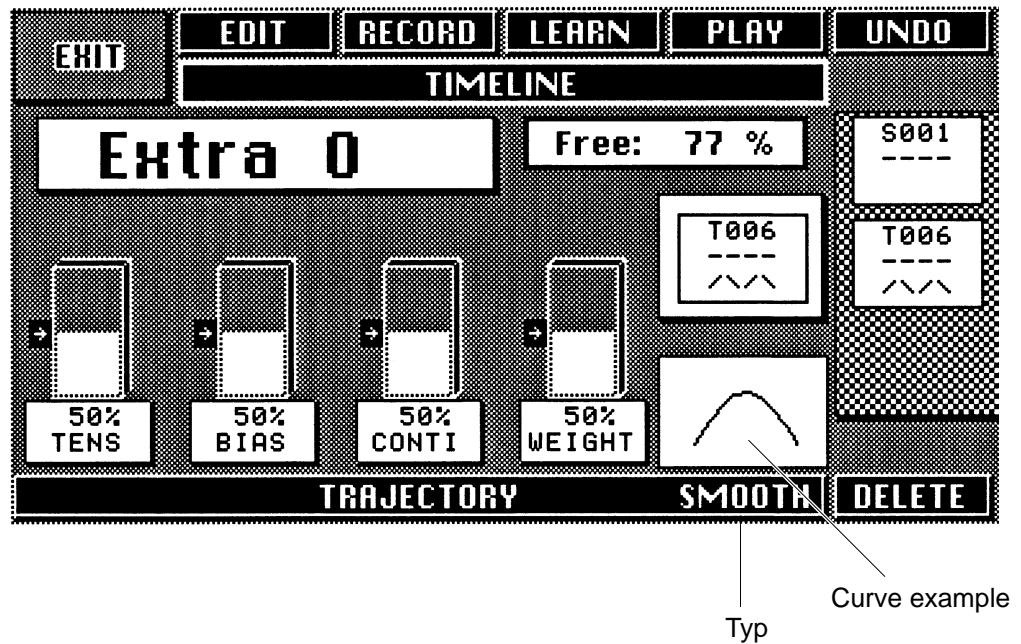
### 4.6.5 NOTES AND COMMENTS

1. "Actual" and "Stored" snapshots should **not** be mixed in one timeline, although this is possible.
2. With View ON you can convert a "Stored" snapshot to an "Actual" snapshot.
  - Insert the stored snapshot.
  - Move cursor to this snapshot.
  - Press **Insert Actual**.
  - Delete stored snapshot.
3. If a given keyframe is needed as single snapshot, proceed as follows:
  - Edit timeline with this keyframe (View ON).
  - Move cursor to this keyframe.
  - Leave editor by pressing **End Edit**.
  - Store a snapshot with **Store**.
4. Sometimes it is useful to execute a transition to a snapshot (transition duration together with the snapshot on one key). This can be done very easily by creating a timeline with Edit which only contains one stored snapshot.



5. The functions Fader Play (DD20 / DD30 only) and Auto Play have certain limitations
  - Fader Play and Auto Play do not work with timelines that contain trigger events (  ), endless loops (FOREVER) or stored timelines.
  - Fader Play reverse is ignored if the timeline contains stored snapshots and/or loops.

## 4.7 TRAJECTORY



With the trajectory types and the associated adjustment options, the user can change the course of movements between the keyframes of a timeline. This can be clearly seen when the timeline changes the wipe position. The trajectory settings are stored automatically when

- a keyframe is entered in Learn
- an actual keyframe is inserted or changed in Edit.

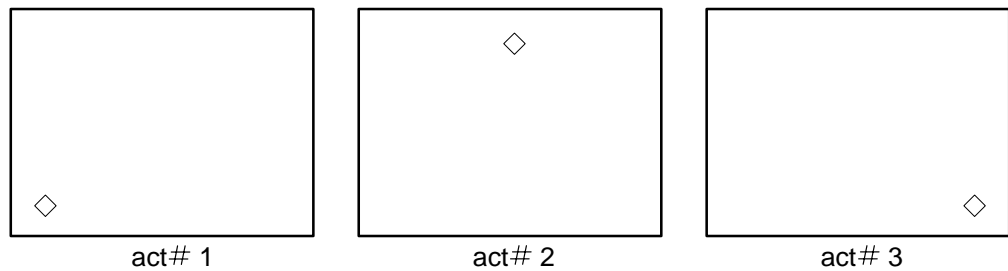
Each keyframe may have a different trajectory setting which describes the transition to the next keyframe.

The trajectory controls TENS, BIAS, CONTI, WEIGHT are adjusted with the digipots. The function keys below the respective bars can be used to set the value to "50%" which is indicated with an arrow. The different trajectory types are selected with the function key or with the mouse (DD10) below the indication. The following trajectory types are available:

- LINEAR** Produces a linear movement at constant speed between the keyframes and sudden changes in the direction of movement and in the speed of keyframe.
- S-CURV** Produces a straight-line course of movements. The speed starts at 0, rises to maximum and falls again to 0. The direction changes with the keyframes.
- SMOOTH** Produces a smooth even movement avoiding sudden changes in direction and speed. This makes the movement appear "natural". The controls TENS, BIAS, CONTI, WEIGHT are only effective for Smooth Trajectory.

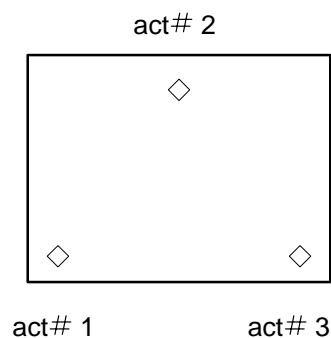
To describe how Smooth Trajectory mode works and how the user can modify it, the following example describes a timeline with 3 keyframes in which the wipe position e.g. of ME1 changes (the positions are shown below).

Wipe = small rhombus

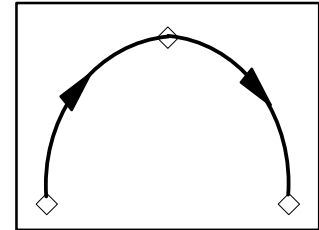
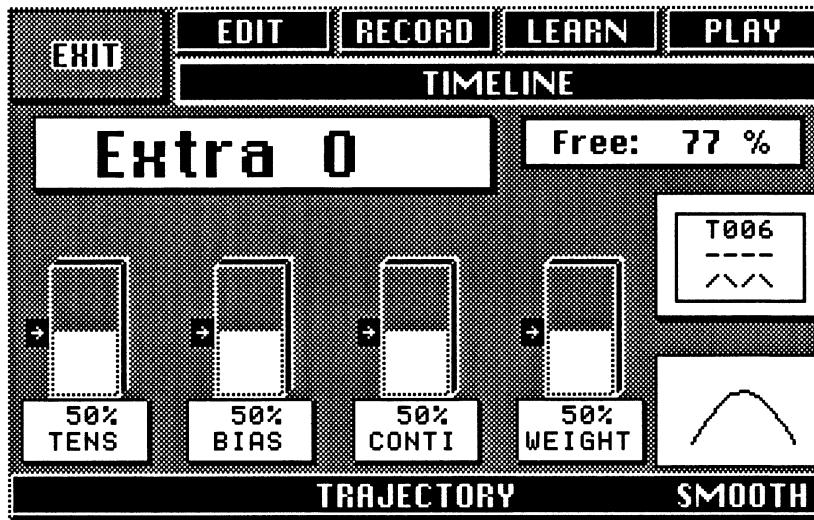


- Set ME1 so that the monitor shows the positioned wipe as displayed above in act#1.
- Select EXTRA menu.
- Verify that ME1 is enabled in DEFINE MEMO.
- Verify that TIME is not 0 (try 12 frames).
- Set all trajectory modifiers to normal.
- Set the trajectory type to SMOOTH.
- Press **Learn** and select a storage location (hotkey).
- Set ME1 so that it corresponds to the above act#1.
- Press STORE to enter the first keyframe.
- Set positioner so that it corresponds to the above act#2.
- Press STORE to enter the second keyframe.
- Set positioner so that it corresponds to the above act#3.
- Press STORE to enter the third keyframe.
- Press **Learn** to complete the storing of the timeline.
- Play the timeline.

In order to display the resulting trajectory, the three keyframes are combined in one picture. Use the STORE-function in the menu.



With normal setting (50%) of the trajectory modifiers TENS, BIAS, CONTI, and WEIGHT, the following course of movements results:



The following describes the influence of each control separately. For more creative timeline design you can experiment with the controls and/or combine them.

As the trajectory controls are not effective for the first and the last keyframe, this example only shows the modification of the values of the second keyframe (act#2).

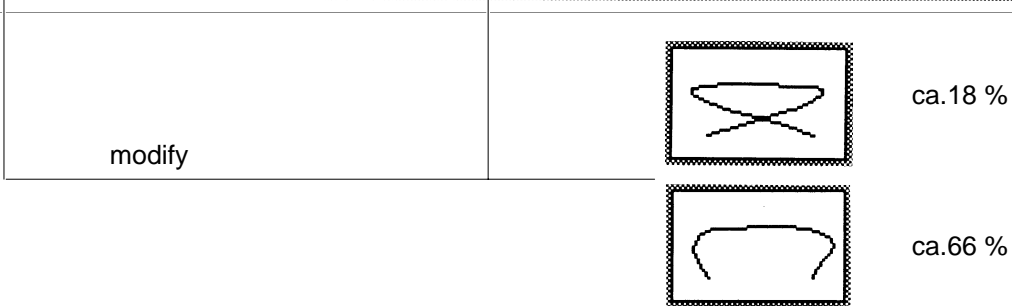
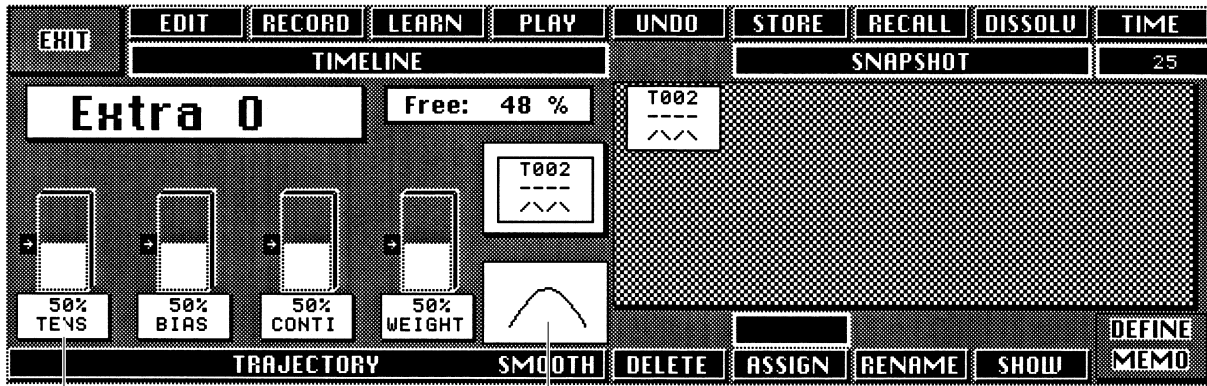
The procedure is as follows:

- Press **Edit** and select the hotkey of this timeline.
- Verify that View is enabled.
- Go to act#2 with the function key (act#2 is black).
- Press **Change** (a large window appears with the bars of the trajectory modifiers).
- Set all modifier to 50%.
- Set modifier of the respective example to the indicated value and press **OK** to enter the new value.
- Press **End Edit** to end editing.
- Press hotkey **PLAY** to play the result.

### 4.7.1 TENS (TENSION)

This control modifies the curvature of the trajectory. The curve may be pointed. A negative curvature results in a loop.

The other trajectory controls remain in "50%" position.

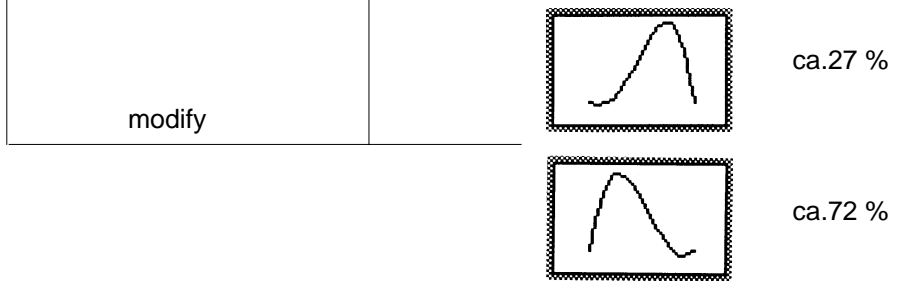
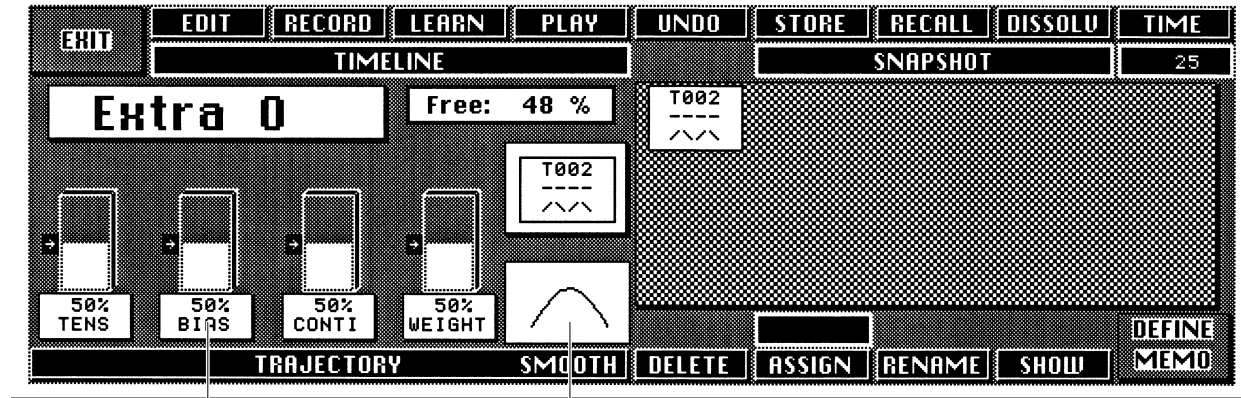




4.7.2 BIAS

This control influences the direction of the trajectory at the keyframe. The angle between entry and exit is 180°.

The other trajectory controls remain in "50%" position.

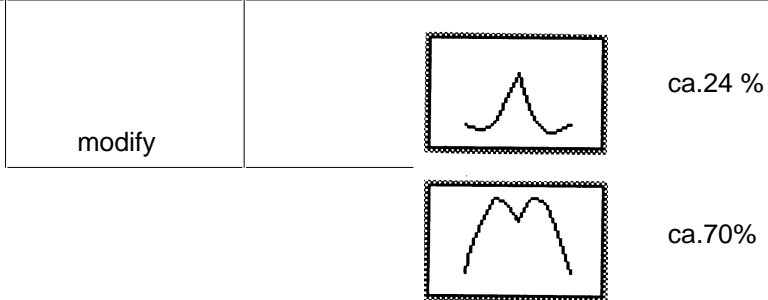
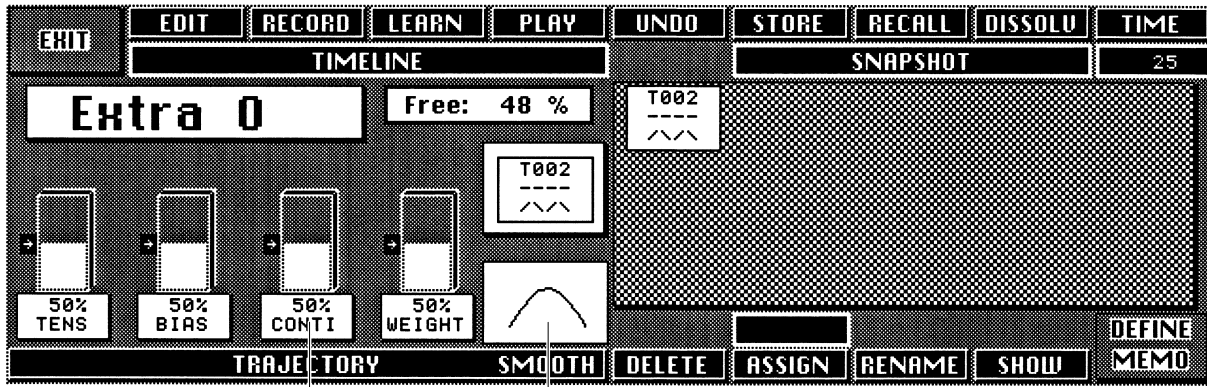


If the wipe pattern (rhombus) is to leave the image area (beyond the margin), **EXTEND POS** must be enabled in the corresponding wipe generator.

### 4.7.3 CONTInuity

This control serves to produce a kink at the keyframe. The angle between entry and exit is no longer 180°. The speed rises and produces a "hop" (jumping ball).

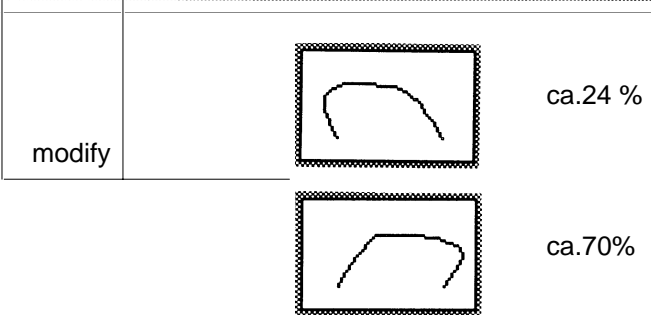
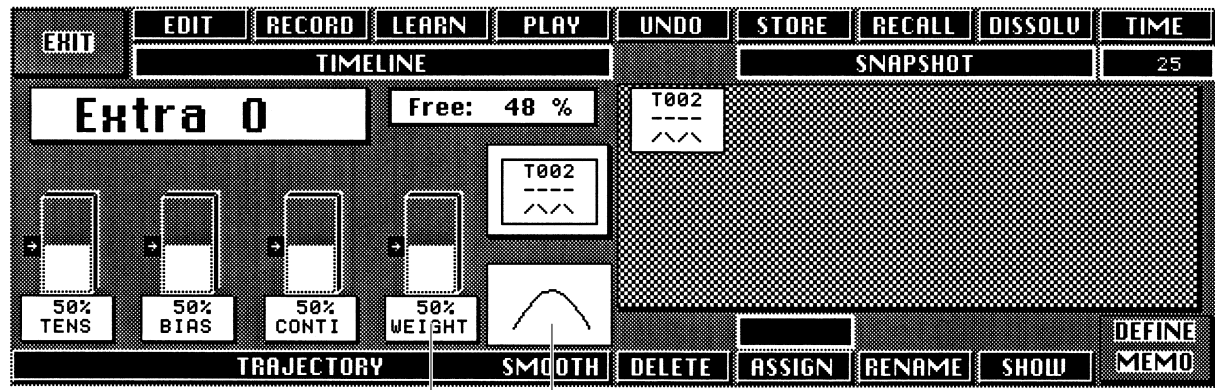
The other trajectory settings remain in "50%" position.



4.7.4 WEIGHT

This control serves to change the speed at the keyframe. The flow of the curve also changes.

The other trajectory settings remain in "50%" position.



Approx. 24% Slow movement before the key frame  
fast movement after the key frame

Approx. 70% Fast movement before the key frame  
slow movement after the key frame

**ATTENTION!**

A "jerk" may appear at the key frame.



## 4.8 ERROR MESSAGES

<b><i>"Not enough FREE space"</i></b>	<p>Cause: The EXTRA storage is too full to permit storing this (new) snapshot or timeline.</p> <p>Remedy: Delete snapshots or timelines that are no longer required and store again with <b>Store</b> or <b>Learn</b>.</p>
<b><i>"You are not the OWNER"</i></b>	<p>Cause: You have tried to delete, assign or rename a snapshot or a timeline, that was stored by another user. For safety reasons, this is not permitted.</p>
<b><i>"Contains deleted SNAPSHOT or timeline ignored"</i></b>	<p>Cause: A snapshot or timeline stored in this timeline has been deleted (or assigned) in the meantime. A snapshot or timeline selected on the Preset bank has been deleted in the meantime (DD20 / DD30 only).</p>
<b><i>"Snapshot replaced by timeline or vice versa. Ignored"</i></b>	<p>Cause: You have used a function that does not apply to the stored object, e.g. Play for a snapshot.</p>
<b><i>"NAME already exists"</i></b>	<p>Cause: You have tried to rename a snapshot or a timeline using a name that already exists (in a different bank).</p> <p>Remedy: Select a different name.</p>
<b><i>"Nested PLAY ignored"</i></b>	<p>Cause: The currently played timeline contains a timeline and this timeline in turn contains another timeline.</p>
<b><i>"Cannot INSERT timeline into itself"</i></b>	<p>Cause: You have tried to insert the timeline you are currently editing as Stored timeline. For safety reasons this is not permitted.</p>
<b><i>"More than 30 different analog values. Ignoring some of them."</i></b>	<p>Cause: You have changed an excessive number of analog values during this Learn or Edit procedure. The limit has been set to avoid jerky movements while a timeline is played.</p>
<b><i>"Ignored because nothing enabled in DEFINE MEMO."</i></b>	<p>Cause: You have tried to store (<b>Store</b> or <b>Learn</b>) or to record (<b>Record</b>) when no functions were enabled in DEFINE MEMO. This is ignored in order to avoid empty snapshots or timelines.</p> <p>Remedy: Change DEFINE MEMO.</p>

**"No EDIT during  
AUTO TRANSITION".**

Remedy:  
Select Edit after Auto Transition is completed.

**"No EDIT during  
AUTO TRANSITION or other  
EXTRA PLAY/DISSOLVE"**

Remedy:  
Select Edit after Auto Transition or EXTRA Play/Dissolve is completed.

**"Cannot change DEFINE  
MEMO during LEARN,  
RECORD or EDIT"**

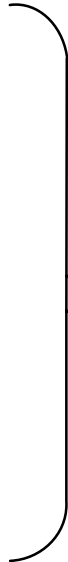
**"DISSOLVE TIME for first  
keyframe is always 0!"**

**"Ignored! No FADER play  
backwards"**

**"Ignored! No FADER play  
because ....."**

**"Ignored! No AUTO play  
because ....."**

**"Ignored! No EDIT because  
RECORDED"**



More possible error messages.  
(Fader play: DD20 / DD30 only)

## 4.9 EXTRA-VTR-PROTOKOLL

As of software version "I" a new port protocol is available. This protocol permits a real-time control of switcher timelines by an editing system. The switcher emulates a tape machine and presents timelines like a piece of recorded tape. Each position in the timeline has a specific time code assigned to it. For the connection to the editing system, a standard RS422 cable (1:1 assignment, pin-pin) is used. The connection at the switcher can be established directly at one of the three RS422 ports (port 1, 2 or 3). Please refer to the switcher installation manual.

### Editor-Setup

The switcher identifies to the editing system as a tape machine of the "BVW-75P" type.  
In the editor setup the corresponding setting has to be made.

### Switcher-Setup

In the switcher setup (E-Box) the EXTRA-VTR protocol must be selected for the relevant port  
In case of DD20/30 switchers the remote control is enabled by the **VTR Enbl** key.



In case of DD5/10 switchers the remote control is released implicitly when the **Edit Enbl** key is pressed.

### Functioning

A remote control is only possible if a valid timeline is selected at the switcher which meets the following requirements:

The timeline must have a defined duration, i.e.

- it must not contain an endless loop,
- it must not contain a "wait for GPI".

The playing of timelines from the editor is subject to the same limitations as the manual playing with the fader (DD20 / DD30 only).

- Timelines containing external snapshots (generated with "insert stored") can only be played forward.
- Timelines containing loops can only be played forward.

As a consequence timelines which are exclusively created by "insert actual" commands should be preferred in connection with the VTR interface. If no timeline or an unsuitable timeline is selected, this is signalled to the editor as a tape unthread status. In Sony editors, for example, this status produces the indication TOUT (tape out).

If the switcher is not released ("EDIT Enbl" not active) this is signalled to the editor as a LOCAL state.

The start of a timeline always is 10 hours (timecode 10:00:00:00). In effect preroll this avoids possible problems caused by time code wrap around. All time codes between 00:00:00:00 and 10:00:00:00 position the timeline at the start.

At the end of the timeline the time code continues, yet the switcher status is unaffected by any positioning beyond the end.

The editor can control the timeline with the normal operator tape motion controls (e. g. B. Stop, Play, Shuttle, Jog, Cue etc.).

In NTSC systems the VTR emulation operates in Non-Drop-Frame mode.



## 5. APPLICATION NOTES

### 5.1 LOADING FLASH SOFTWARE FROM DD FLOPPY DISK DRIVE

The software permits loading updates (FLASH software) directly from the floppy disk drives of the switcher. This eliminates the need to connect a PC for the loading procedure. This mode is only possible if EPROM type **PR752A** (or higher) is installed in the switcher control panel and if EPROM type **PR695A** (or higher) is installed in the switcher E-box .

There are two ways of loading the FLASH software with the internal (DD20/DD30) or the external (DD5/DD10) floppy disk drive:

- **SELFLOAD** Selfloading procedure of a control panel with own floppy disk drive.
- **LOAD FOREIGN DEVICE** From a control panel that is in the application and has its own floppy disk drive, the software can be loaded into any device in the network (E-box or panel without disk drive).

#### ***Starting SELFLOAD***

In case of a control panel that (as a result of an EPROM change) is unable to return to the operating status, it is sufficient to insert a floppy with a control panel LOC file into the floppy disk drive and then trigger a reset (controller board). The loading procedure is started automatically.

If a control panel already is in the application, a reloading of the software can be started in the SETUP menu (EXTRA panel).

SETUP menu option

**LOAD SOFTWARE : >**

In the subloop the options

**LOAD MY PANEL** for "Selfload" and

**LOAD E-BOX MASTER**

**LOAD E-BOX SLAVE**

**LOAD OTHER PANEL** for "Load foreign devices"

can be selected.

If **LOAD MY PANEL** is confirmed, the selfloading procedure is started.

The selfloading procedure comprises a test and a loading procedure that are executed successively. In the test procedure (approx. 5 minutes) the data on the floppy disk are verified for safety purposes. This is signalled by a cyclical beep sound.

The loading procedure (approx. 5 minutes) is signalled by a cyclical long beep sound and the "running" of the controller status LEDs.

The loading procedure is completed when the control panel executes a RESTART.

### Starting **LOAD FOREIGN DEVICE**

If the control panel is already in the application, a foreign device loading procedure can be started in the SETUP menu (EXTRA panel).

*Note: It is assumed that only the device to receive the software is active in the Cheapernet. Switch off all devices that are not involved before the foreign device loading procedure is started and press the reset button on the control panel controller afterwards.*

Setup Menu option

**LOAD SOFTWARE: >**

In the subloop the following foreign devices can be selected:

**LOAD E-BOX MASTER**  
**LOAD E-BOX SLAVE**  
**LOAD OTHER PANEL**

If one of the submenu options is confirmed, the foreign loading procedure is started. As described above, the loading operating itself comprises a testing and a loading procedure that are executed successively. In this case both procedures are signalled with a rotating activity indication in the EXTRA display. The EXTRA display will also show any error messages.

The loading procedure is completed when the newly loaded device executes a RESTART. In the control panel the EXTRA display shows the submenu option executed last together with the indication **DONE**.

### **Floppy disk contents**

In line with the BTS designation conventions for LOC files, only files with the following names can be loaded in the switcher:

Control panel	<b>F*.LOC</b>
E-box master	<b>M*.LOC</b>
E-box slave	<b>S*.LOC</b>

All LOC files must be in the root directory of the floppy. In this operation only the first three LOC files on a floppy can be loaded.

## 5.2 INPUT ASSIGNMENTS (ON SMALL PANELS)

### Current assignment limitations (For Software versions up to Release "H"):

Depart from descriptions in the DD5 / DD10 Operations Manuals there is actually no "ASSIGN" menu button in the INSTALLATION \ IDENT menu of these panels. So, with these panels it wasn't possible to gain access to physical input numbers greater than the maximum count of D5 / DD10 E-Box inputs. This especially turns out as a drawback when a user operates a number of panels and one (or more) E-Box(es) in a Multi-Panel configuration. In case there is a desire for an access to inputs # 17-32 of a large E-Box this could not be accomplished on former Software releases. Since release "I" there is still no possibility to directly control the assignment for greater input numbers, but BTS will now supply users of network environments with an elegant solution to that problem. The solution is: **Copy of ASSIGN-files** from one panel to another. These Application Notes will show an example of how this is done and what restrictions will apply.

### 5.2.1 PREMISES

#### 5.2.1.1 STANDARD BUTTON ROW INDEXING

<i>Standard *) Key Index</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>DD 5</b>	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	Bgd	Blk	I 9	I 10	I 11	I 12	Vid			
<b>DD10</b>	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	I 11	I 12	Bgd	Blk	I 13	I 14	I 15	I 16
<b>DD20</b>	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	I 11	I 12	I 13	I 14	I 15	I 16	Bg1	Bg2
<b>DD30</b>	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	I 11	I 12	I 13	I 14	I 15	I 16	I 17	I 18

<i>Standard *) Key Index</i>	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
<b>DD 5</b>	Bgd	Blk																
<b>DD10</b>	Vid							Bgd	Blk									
<b>DD20</b>	Blk	I 17	I 18	I 19	I 20	I 21	I 22	I 23	I 24	I 25	I 26	I 27	I 28	I 29	I 30	I 31	I 32	Vid
<b>DD30</b>	I 19	I 20	I 21	I 22	I 23	I 24	Bg1	Bg2	Blk	I 25	I 26	I 27	I 28	I 29	I 30	I 31	I 32	

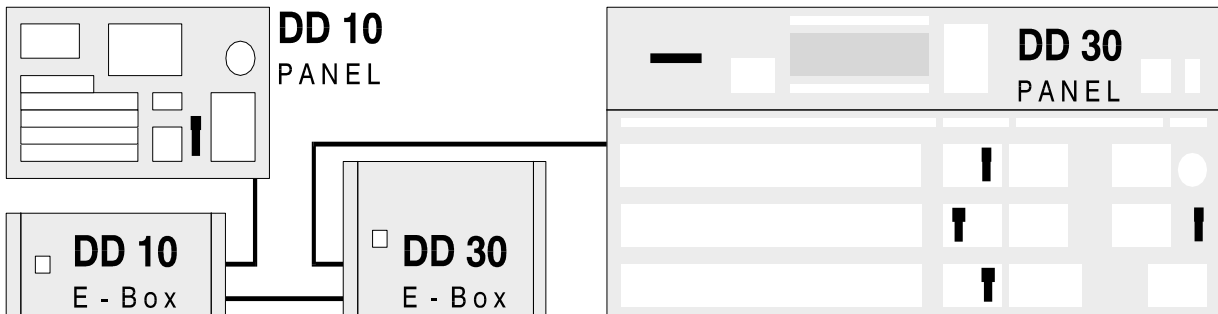
<i>Standard *) Key Index</i>	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
<b>DD 5</b>																		
<b>DD10</b>																		
<b>DD20</b>	Mp1	Mp2																
<b>DD30</b>									M1k	M2k		Vid	Mp1	Mp2		Bg1	Bg2	Blk

Bgd = Single Color Generator  
 Bg1/2 = Color Generator 1/2  
 Blk = Black  
 Vid = Video Store (MEM)  
 Mp1/2 = Montage Processor Channel 1/2  
 M1k, M2k = ME1-PVW/Key, ME2-PVW/Key  
 ...all other blank fields appear as blanked Mnemonics on the panel.

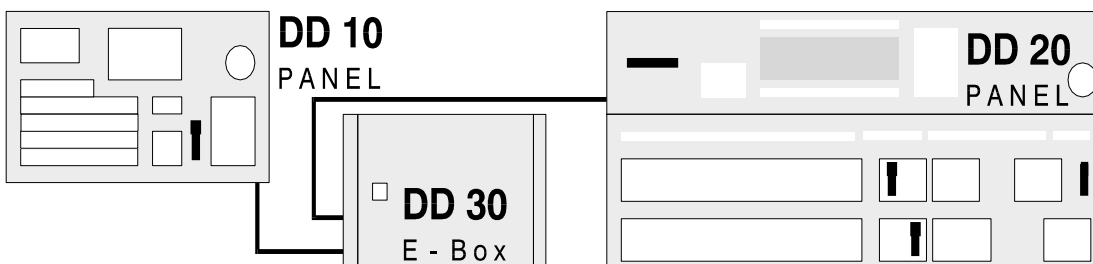
\*) With BLACK\_BUTT (in Setup Menu) being on the right side.

### 5.2.1.2 NETWORK EXAMPLES

#### Dual System Network



#### Dual Panel Network



### 5.2.1.3 APPLICATIONS

#### NETWORK FOR INDEPENDENT STUDIOS / EDIT SUITES:

Basics for this application will be big edit suites that many users have to time share. For example you could have setup a large editor, cameras, up to two DVEs, one or more CGs, Disk Recorders and a number of VTRs to the big unit to perform (pre-) productions. Supposed the small system is installed in another room with no live sources (cameras.....) connected, the editor can later move on to the small post production room to finalize the edit with the material that already is on tape. He can copy his disk stored "user input setup" from the DD30 to the DD10 panel to maintain the order of connected inputs and keep the big room free for live shots etc...

#### DUAL PANEL NETWORK FOR OB-VAN PRODUCTIONS:

Supposed you have live productions on the DD20 panel (with a DD30 E-Box) and want to do a small production with different cuts at the same time, you need to have access to all E-Box connected sources. For the user's convenience it is now possible to "download" a specific 32 input button assignment to the DD10 panel and have access to any 16 of all sources.

When using the DD10 panel for a small post production you have it is possible to access each of the DD30's-E-Box MEs, one at a time. The input settings then follow the assignments that were made for the MEs, provided this setup was copied from the DD20 panel to the DD10 panel.

#### 5.2.1.4 WHAT WILL BE COPIED ?

When copying Software structures represented by ASSIGN-Files from one panel to another it is always a transfer of setup information for all assignable modules of the biggest DD-family member (DD30).

No matter if the panel is small or large, the assignment of crosspoints will be executed as described in the tables of 5.2.1.1. by overwriting target button row index locations with data from the source setup.

For example:

- If you start the copying process with copying factory D10 assignments to a DD30 panel, Inputs 20 to 24, BGD1, BGD2 and all previous assignments for Inputs 26 to 32 will be blanked in the mnemonics of the DD30 panel.
- If you start it vice versa (DD30 panel → DD10 panel) BGD and BLACK on the DD10 panel will be overwritten with Input 13 and 14 and so on (...see appropriate rows for DD10 and DD30 in tables 5.2.1.1.).

#### Multi-System-Network

If your DD10 panel only has access to its own dedicated E-Box it is tied to settings that belong to ME1 of a copied external configuration.

*NOTE: To avoid confusion it is recommended that the source DD30 panel will have common **assignments** for **all** ME's or AUX rows (**INSTALL \ IDENT INPUT \ Assign All**). Otherwise it may happen that a special assignment setup that was only made in the DD30's PP or ME2 module will have no effect on the DD10 panel after copying!*

#### Multi-Panel-Network

If two (or more) panels are connected to one E-Box the user determines to which E-Box module he gains access. So a DD10 panel can have ACCESS to ME1, ME2 or PP of a DD30-Electronics box. Depending on the module selected (ME...), the assignments correspond to the appropriate ME. I. e. Assignments will change when the user gains access to another ME.

*NOTE: ME2 and PP factory settings for a DD10 panel are equal to the factory settings of a DD30 panel.*

#### 5.2.1.5 STATUS OF COUPLED KEY SIGNALS

If, for instance DD20/30's assignment has video on input 1 – 16 and correspondingly **coupled Key** signals on inputs 17 – 32, this configuration can directly be controlled by the factory assignment of a DD10 panel, connected to a DD20/30-E-Box.

**"Assignment copy" will not be necessary for this.**

Let's assume input 1 is a video fill signal and input 17 its corresponding, coupled Key. When this video (1) is selected on a DD10 panel you can use the Keyer in "COUPLE / SPLIT" mode and the appropriate E-Box coupled Key signal (17) will instantly be routed to the corresponding Key-source input.

### 5.2.1.6 RESET A PANEL ASSIGNMENT TO FACTORY SETUP

Once a setup of larger panels (DD20/30) is copied to a smaller (DD5/10) panel the old configuration is overwritten as you already know. Due to the missing "ASSIGN"-Button in the DD10 IDENT INPUT menu it seems not to be possible to get back to the old setting.

But the following workaround makes it happen directly from the panel:

**NOTE:** *Invoke the **SETUP menu** (in Number Block), step through to "**BLACK BUTT**" and change the location with the "EDIT" button. Pushing EDIT has to be done one time at least or two times if you want to have the BLACK BUTTON at its previous location.*

**Attention:** **Changing the location of "BLACK BUTT" resets to default settings, to accomplish the above mentioned functionality.**

### 5.2.2 COPY PANEL ASSIGNMENTS

It is always recommended to **LOGIN** as **COMMON** on the larger Panel provided with a display.

Only this way copied assignments will have effect after the file transfer to the targeted DD5/10's ACCESS [COMMON]-Directory. In the "FILE" menu only files that belong to the currently logged in user and shared files will show up.

**NOTE:** *For more detailed information on the "DISK \ FILE" menu refer to chapter 3.6 of DD's Operational Manuals.*

In practice there are two possibilities to copy files from one device to another.

- One is to **push a file** from a source to a target and the other is to
- **get a file** by pulling it from the source device.

These two methods are described in 5.2.2.1. and 5.2.2.2., with certain restrictions that apply to the push method.

#### 5.2.2.1 DD5 and DD10 without VGA(EGA)-Monitor *(push file)*

In this configuration it is **not** possible to change the **USER**. The default user is set to **COMMON**.

**Prepare the wished assignment on the large (DD20/30) panel.**

Take into account that the small panel's (DD5/10) button rows will be overwritten according to the Index table listed in 5.2.1.1.

**NOTE:** *BGD and BLACK function may be overwritten!*

Step to "STATUS \ DISK \ FILE" menu and **select TARGET PANEL** first.

This is done in the active window by moving the highlighted bar with a single up/downward arrow button and entering "SELECT".

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	D10-PAN	d10 pan	x		Fxxxx

Entry appears in upper window: **D10-PAN (d10 -pan) [COMMON]**

**Select ASSIGN [COMMON]** list entry for being the target.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	ASSIGN	[COMMON]			

Then **step to other Filebox** by use of the right or left ARROW button.

**Select SOURCE PANEL.** If the source panel is the one you are working on, you will find a "me" entry in the 2nd right column of the source filebox.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	D30-PAN	d30 pan	x	me	Fxxxx

Entry appears in upper window: **D30-PAN (d30 -pan) [COMMON]**

**Select ASSIGN [COMMON]** list entry of **source panel**.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	ASSIGN	[COMMON]			

**NOTE:** Before using the provided "COPY" button, observe the direction of the copy direction arrow below the "File"-Header to make sure in which way copy will be performed!

Push "**COPY**" and confirm upcoming message if everything is correct.

DD5 buttons (Index 1-20) will be assigned according to DD20/30's appropriate entries.

DD10 buttons (Index 1-28) will be assigned according to DD20/30's appropriate entries.

### 5.2.2.2 DD5 and DD10 with VGA(EGA)-Monitor *(get file)*

In this configuration it is possible to change the **USER**. If the setup should be valid for a specific user only, this user has to be logged in under his name. Target operations will only affect directories of this user. The default user is set to **COMMON**.

Prepare the wished assignment on the large (DD20/30) panel.

Take into account that the small panel's (DD5/10) button rows will be overwritten according to the Index table listed in 5.2.1.1.

*NOTE: BGD and BLACK function may be overwritten!*

Step to Monitor menu "STATUS \ DISK \ FILE" and **select TARGET PANEL**. This is indicated by a "me" in the second right column and will be the small panel plus the monitor you're working on.

The selection is done in the active window by moving the highlighted bar with a single up/downward arrow button and entering "SELECT".

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	D10-PAN	d10 pan	x	me	Fxxxx

Entry appears in upper window: **D10-PAN (d10 -pan) [COMMON]**

**Select ASSIGN [<USER>]** list entry for being the target panel.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	ASSIGN	[<USER>]			

Then **step to other Filebox** by use of the right or left ARROW button.



Select **SOURCE PANEL**, for instance a source DD20 or 30 panel.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	D30-PAN	d30 pan	x	me	Fxxxx

Entry appears in upper window: **D30-PAN (d30 -pan) [COMMON]**

Select **ASSIGN [COMMON]** list entry of **source panel**.

E.g.:

	NAME	DEVICETYPE	ADR		VERS
>	ASSIGN	[COMMON]			

**NOTE:** Before using the provided "COPY" button, observe the direction of the copy direction arrow below the "File"-Header to make sure in which way copy will be performed!

Push "COPY" and confirm upcoming message if everything is correct.

DD5 buttons (Index 1-20) will be assigned according to DD20/30's appropriate entries.

DD10 buttons (Index 1-28) will be assigned according to DD20/30's appropriate entries.

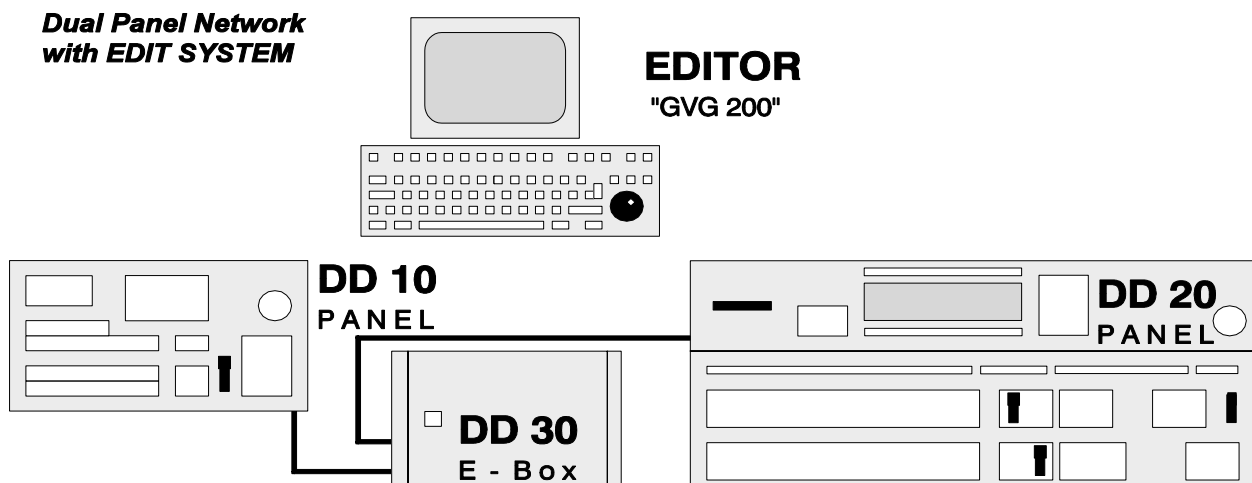


## 5.3 SIMULTANEOUS EDITOR- AND LIVE-USE

### 5.3.1 OPERATIONAL GOAL

A large Electronics-Box (DD 20/30) should be used for two tasks at the same time. E. g. on one hand it is wished to control a specific module of the E-Box by an Editor, performing a post production while on the other hand it is wished to run a live show via one shared E-Box.

### 5.3.2 NETWORK EXAMPLE



### 5.3.3 STANDARD SITUATION

In quite a number of installations a DD30 E-Box is used as a server with two panels connected to it. For instance in an OB-Van (Scanner) a DD20 Panel is used for the live production, occupying ME2 and POnly, while simultaneously ME1 is controlled either via a connected Edit System and an additional DD5 or DD10 panel (see figure of 5.3.1.2.).

Of course the Editor can currently only be connected to an appropriate E-Box serial port. The setup for this port has to be done according to the procedures described in the Operations und Installation Manuals.

In most applications the "GVG200o" port protocol emulation is the choice.

To get a processed signal at DD's PGM output and also to be able to use a DSK and the Fade-To-Black transition the Editor controlled ME1 is automatically selected as crosspoint on DD's Preset-Program Bus when no other precautions have been taken (ME2 by choice).

### 5.3.4 TECHNICAL BACKGROUND

When emulating a GVG200 on a regular basis, it is evident that editor control for quite a number of DD-specific operations is omitted since the original GVG switcher hardware is different.

As a standard application it is assumed that the DD-E-Box is running in a ONE-OPERATOR-ENVIRONMENT. When applying a GVG command for DSK or FTB

actions those hardware components residing in DD's PP-section are being used, with a background coming from ME1.

For a correct PGM output the ME1-Crosspoint must be set automatically!

With the restrictions that the editor will not be able to perform a DSK or FTB a possibility exists to avoid the automatic access to the ME crosspoint button on DD's PP row.

The before mentioned problem only occurs when the small and the large panel are operated under an identical user name since the access to certain E-Box modules is user specific!

Therefore the solution to this problem is as easy as elegant.

### 5.3.5 PROBLEM SOLUTION

The solution is: **Login the two panels under different USER names.**

*NOTE: The standard LOGIN name via DD5/10 panel without display is "COMMON".*

You can either **LOGIN** as **NEWXYZ1** on the larger Panel provided with a display and remain as **COMMON** on the smaller panel.

This is the only possible way when the DD5/10 panel has *no* VGA (EGA) monitor connected to it. The user name can be changed in the large panel's "ACCESS" menu according to the procedures listed in the Operations Manuals (see sections 3.4).

As another user you simple have to mark all the modules of the ME2 & PP section as "**EXCLUSIVE**". Then automatically the Live-Box has exclusive access to these parts only.

*NOTE: When INPUT ASSIGNMENT should be copied as described in section 5.2, **push a file** has to be performed.*

Or remain to be **LOGGED IN** as **COMMON** on the larger Panel and change the USER name to **NEWUVW1** on the monitor display.

If the DD5/10 panel has a VGA (EGA) monitor connected to it, the user name can be changed in the monitor "ACCESS" menu according to the procedures listed in the Operations Manuals (see sections 3.4).

As another user you simple have to mark all the modules of the ME1 section as "**EXCLUSIVE**".

Automatically the connected editor is restricted to access these parts only since the crosspoint button, the DSK and FTB belong to another user.

*NOTE: When INPUT ASSIGNMENT should be copied as described in section 5.2, **get a file** or **push a file** can be performed.*

## 5.4 DOWNSTREAM KEYING WITH DEDICATED FADER

### 5.4.1 APPLICATION

Sometimes it is wished not only to "cut" in a DSK or to do an "Auto-Transition". In many cases the operator wants to have manual control for the DSK-Transition. Since there is no dedicated Fader-Bar to accomplish this, there is no chance to achieve that goal on a DD5 or DD10 panel. But on the DD20 or DD30 panel the situation is different.

Here you have an "EXTRA"-Fader that could be programmed to do that task.

### 5.4.2 PROBLEM SOLUTION

The solution is: **Program a Timeline that consists of two Keyframes:**

Keyframe 1 with "DSK = off" and

Keyframe 2 with "DSK = on".

### 5.4.3 SET UP THE TIMELINE

Before such a timeline is stored it is recommended that the to be allocated memory space is reduced as far as possible and no other settings than Transition commands will get stored.

*NOTE: If, for instance, a complete ME-setup will be stored, then running such a timeline will overwrite the manually set PP-Crosspoints according to those that were selected during programming!  
If the DSK-Keyer parameters should remain the same all the time (i. e. always the same Station.  
Logo has to be cut in) then the appropriate DEFINE MEMO area (DSK+MASKi) has to be included when editing/storing a Timeline!*

Select "**PP**" in the DEFINE MEMO / RELOCATION area near the EXTRA number block on the panel.

Adjust the Keyer Parameters to your needs.

Step to the \ EXTRA \ DEFINE MEMO Display menu and select the "**TRANSI**" field in the upcoming configuration table. Use the arrow softbuttons to place the cursor on the appropriate field and then push "TOGGLE" to activate/deactivate it (activated = high-lighted). This will allow to store the TRANSITION parameters only.

If you also need to store the current settings of Keyer parameters then select the appropriate "**DSK+MASK1**" or "**DSK+MASK2**" sections additionally (see NOTE above).

**Program the Timeline:**

The fastest approach will be to do this via EXTRA-Number block

– Push "Edit" in Number block, type in two "Digits" for a free Register space and hit "Enter".

– Push "Store".

*NOTE: This stores the 1st Keyframe with DSKs being "off".*

– "Cut" the needed DSK "on" in the DSK module.

– Push "Store" again.

*NOTE: This stores the 2nd Keyframe with DSKs keyed "on".*

– Push "Edit" again to invoke interpolation calculation and complete the programming.

**5.4.4 RUN THE DSK-TIMELINE****Prepare and use the "EXTRA-DSK" Fader**

– Type the "two digit" Timeline number in the Number block and hit "Enter".

– Select "**FlipFlop**" control button in order to alternately key-in and -out the programmed DSK.

– Select "STATUS" Display menu and **activate** the "FADER-EXTRA" (→ highlighted).

*NOTE: Whenever the EXTRA Fader (or another one) shows no response, look at this point first and make sure that the appropriate fader is activated. In turn, whenever you don't need the EXTRA Fader, turn it off to avoid confusion when starting to run a currently selected timeline by touching the fader unintendedly.*

– Now you can run the DSK-Transition manually.

– or –

– Use the "Cut" and "Auto" buttons in the EXTRA section.

Of course the Auto-Trans-Time must then be preadjusted in the EXTRA section as well.

## 5.5 USE OF MASKING

### 5.5.1 APPLICATIONS

If **Chromakeying** (e. g. in front of a blue wall) should be omitted on foreground portions that include blue objects as well, there will be a need to hide these parts from Key processing.

Another application could be to wipe in/out characters from a Character Generator with a pattern that can not be created with the internal Pattern Generator (e. g. PaintModeMasking).

A further application would be to exclude a certain number of foreground objects that come from a playback tape (together with its Key signals). In case of "Rematting" already processed and tape recorded desaturated Chromakey scenes onto a new background there might be the need to "rub out" part of the Key signal.

It is also possible that a user thinks of Keying with a signal that is created by the Mask Generator only and to fill this shape with a DD-internal Matte Generator.

As you know best, there is plenty of applications where you have to use Mask Generators. This Application Note will show what you can do with the built in masks and how easy it can be done. It also gives some hints to avoid hardware related difficulties that could occur in specific operational modes.

### 5.5.2 OPERATION

*NOTE: PaintModeMasking Operations are not possible with DD5 Hardware.*

In principal it is only possible to mask signals that use the following Key-Types:

- ADD – Key
- LIN – Key
- LUM – Key
- CHROMAKEY (both types)

Of course the Mask Key can not be used to mask itself !

The Mask can be a **PATTERN**, a **BOX-MASK**, or the output of a **MASK-STORE**, whatever signal this is fed with.

In some cases it is possible that you can achieve a specific operation in different ways, e. g. with pushbutton strokes in different panel sections.

*NOTE: Using module pushbutton strokes is the fastest way of working, but using the better structured menus is more convenient for functions that aren't used too often.*

### 5.5.3 GENERAL SETUP

#### SET UP A BACKGROUND

and *do not* use the Transition module any further when you apply the following operations.

#### SELECT A KEYS

(e. g. **KEY 1**) in the ME you wish and adjust it.

*NOTE:* In this example **KEY 1** is chosen, but the actions will also be valid for **KEY 2**, **DSK 1** or **DSK 2** in the corresponding ME.

- Select the **KEY TYPE**
- Set **FILL** and **SOURCE** to "**Key Bus**".
- "**Cut**" the Key onto the background.

*NOTE:* If it is desired to paint something on screen adjust the **Fill-Color** in the autodelegated **MATTES** section after having pushed the "**Matte**" button in the **KEYERS-Key-Fill** section.

### 5.5.4 MASK OPERATIONS BY USE OF DISPLAY MENUES

With DD5/10's connected VGE/(EGA) monitor the display of **MASKS** and **STORES** menus automatically comes up on screen (autodelegation) when the xyzStore or Mask buttons have been pushed in the appropriate modules.

The reason for this is:

There is no **STORES** or **MASKS** menu selection button in the **INSTALLATION** menu.

#### SET UP A MASK WITH MASK PVW

For autodelegated Mask settings do the following:

- Once again **select the Keyer** that has to be masked. For instance, in the [Masks-Display menu]→ push the **KEY 1** button in the top row above **ME1**, **ME2** and **PP**.
- Switch **MASK PVW** "on" with the lower right **PVW** softbutton.
- Select the **MASK SOURCE** from up to 5 choices. Those are:

PATT1  
 PATT2 ...not in DD5!  
 STORE  
 BOX  
 BUS

*NOTE:* If you use a **PATTERN** make sure that this is not the one that will be used to wipe in/out the current Key signal. If you do not consider this, the result might be confusing when simultaneously using one generator for two purposes.  
 Another limitation is that you can only use those two pattern generators that are related to that ME where you create the mask.



**MaskBus** **[MASKS-Display menu]** Per ME only one b/w video signal can be selected as mask signal. Hold down the "**BUS**" softbutton while an input signal is selected from the AUX bar.

CLIP and GAIN for this mask bus are adjustable with the **TOP** (= Gain) and **BOTTOM** (=Clip) knobs of the MASKS-Box-Modifiers.

**Box** This is to create rectangular mask shapes.  
Please refer to the Operations Manual (DD5/10→section 2.10 or DD20/30→ section 2.11) for further information.

**Pattn 1/2** The masks that are generated with patterns can only have the shapes a Wipe Generator can produce with its modifiers.

If customized masks are needed they can be created with the help of the MASK STORE. Therefore select the MASK SOURCE to be the Mask store.

**Store** **[MASKS-Display menu]** → push **MaskStore** softbutton (lower center area).

This activates the MaskStore output to be the source for the Keyer mask. Now the store feeds the mask but it still has to be determined which source signal has to be fed to the MaskStore.

For the following example PATTERN 1 is used as a brush to paint a customized mask. Hence, this becomes the STORE SOURCE.

- Set up the **MaskStore**
- Push the **Stores** Menu selection button
- **[STORES-Display menu]**→ In the menu push the **Mask** button.

*NOTE: With more MEs (DD20/30) you have to verify that the autodelegation had put you into the correct ME.*

If you must change:

- Select the destination **ME** by stepping through with either repeatedly pushing on "ME" or "MASK".
- Select **PATT 1** (or **PATT 2**)

### **PAINT A MASK (not possible with DD5 !)**

**[STORES-Display menu]** → Switch **PaintMode "ON"**.

This activates a "paint cursor" in addition to the mask that is already previewed. At the same time the MaskStore immediately freezes.

**[STORES-Display menu]** → Push **Clear** to erase all contents

- Move the cursor to the place you want your object and hit **Paint**.

For **CONTINUOUS DRAWING** leave Paint active and move the cursor, when finished, deactivate **Paint**.

*NOTE: All mask placements will be recorded as long as Paint is active. Field-Flicker can occur when the paint brush is moved too fast. To overcome that problem switch to **Field** mode and by stepping through select either Field A or Field B to be displayed twice instead of a Frame mode. Of course this results in half a vertical resolution.*

To **DROP A SHAPE** immediately **turn off** the currently highlighted **Paint** button.

**NOTE:** *Only move the cursor when Paint is off and then push Paint to activate and immediately deactivate it to drop in a new object. This will then added the actual cursor to the current mask store contents.*

To **RUBOUT** specific MaskStore portions adjust your cursor and act in an appropriate manner to what you've done with Paint.

With **RUB** being "on" (**highlighted**) while drawing it is possible to continuously erase portions, while **RUB** "on/off" with no intermittent cursor movement only cuts a *hole* to the current mask.

### SHIFT A MASK

[STORES-Display menu] → Switch **SHIFT** "on" (**highlighted**).

- Move the whole mask with the autodelegated Trackball and finish shifting with

[STORES-Display menu] → Switch **SHIFT** "off" (**lowlighted**).

- Continue to paint or erase certain mask portions if necessary.

#### **Application:**

Imagine that an Operator created a very sophisticated mask that was perfectly adapted to a camera foreground to be used for Chromakey. Right before the live event someone bumps the camera and the mask needs to be shifted. No problem – Your DD can perform MaskShifting. Furthermore it is possible to resume painting or rubout actions on that shifted mask ! To only perform a shift instead of re-drawing a complete new mask will not only save quite a lot of time, it can be accomplished immediately.

#### **IMPORTANT NOTE:**

*The re-transfer of a shifted mask that is needed for continued painting or repeated shifting takes a little while (9 Fields). Under regular circumstances a user doesn't recognize a drawback. But when using **MaskShift** operations (or **Clear** as well !) **within programmed Timelines**, it is strongly recommended to provide extra Keyframes for only switching off the Shift mode or for Clear operations, without any other action. These additional Keyframes have to be put on **HOLD for at least 5 Frames!***

### ACTIVATE THE MASK IN THE DESTINATED ME

When all mask related settings have been finished in PVW mode the time may come when the dedicated Keyer has to be masked with it.

- Push the **Mask on** button in the appropriate KEYERS module. Otherwise the mask would have no effect on your keyed ME-Output.

### 5.5.5 MASK OPERATIONS WITH BUTTONS IN PANEL MODULES

#### SET UP A MASK WITH MASK PVW

For autodelegated Mask settings do the following:

- Once again **select the Keyer** that has to be masked. In the **[KEYERS module]** → push the **KEY 1** button.
- or –
- [MASKS module]** → push the corresponding ME1/ME2/DSK **"Prim"** or **"Sec"** button (DD30 panel only).
- Switch **MASK PVW** "on". In the **[MASKS-Display menu]** → use the **MASK PVW** softbutton  
– or – in the **[MASKS module]** → select Mask **PVW** button  
(not on DD20 panel).
- Select the **MASK SOURCE** from up to 5 choices. Those are:
  - Pattn1 (= Prim Wipe),
  - Pattn2 (= Sec Wipe), (not in DD5!)
  - Store (= MaskStore),
  - Box (= Box),
  - .... (= MaskBus), (with Display or on DD30 panel only).

**NOTE:** *If you use a PATTERN make sure that this is not the one that will be used to wipe in/out the current Key signal. If you do not consider this, the result might be confusing when simultaneously using one generator for two purposes. Another limitation is that you can only use those two pattern generators that are related to that ME where you create the mask.*

- MaskBus** **[MASKS-Display menu]** Per ME only one b/w video signal can be selected as mask signal. Hold down the **"BUS"** softbutton while an input signal is selected from the AUX bar.  
CLIP and GAIN for this mask bus are adjustable with the **TOP** (= Gain) and **BOTTOM** (=Clip) knobs of the MASKS-Box-Modifiers.
- Box** This is to create rectangular mask shapes.  
Please refer to the Operations Manual (DD5/10→2.10 or DD20/30→2.11) for further information.
- Pattn 1/2** The masks that are generated with patterns can only have the shapes a Wipe Generator can produce with its modifiers.  
If customized masks are needed they can be created with the help of the MASK STORE. Therefore select the MASK SOURCE to be the mask store.

**Store**

**[MASKS module]** → push **MaskStore** (Store) button

– or –

**[MASKS-Display menu]** → push **MaskStore** softbutton (lower center area).

This activates the MaskStore output to be the source for the Keyer mask. Now the store feeds the mask but it still has to be determined which source signal has to be fed to the MaskStore.

For the following example PATTERN 1 is used as a brush to paint a customized mask. Hence, this becomes the STORE SOURCE.

– Set up the **MaskStore** in the **[STORES module]**

(on a DD20 panel you can only refer to the STORES-Display-Menu !)

– Push the **MaskStore** button.

*NOTE: With more MEs (DD20/30) you have to verify that the autodelegation had put you into the correct ME.*

If you must change:

– Select an appropriate **ME button**.

*NOTE: Panel has markings with different colors.*

– Select **Pattn 1** or **Pattn 2** directly (DD30)

– or –

Hold down **Pattn** (DD5/10) while at the same time selecting **Wipe**, **Wipe 1** or **Wipe 2** respectively.

**PAINT A MASK (not possible with DD5 !)**

**[STORES module]** → Switch **PaintMode** "on".

This activates a "paint cursor" in addition to the mask that is already previewed. At the same time the MaskStore immediately goes to a freeze state.

**[STORES module]** → Push **Clear** to erase all contents

– Move the cursor to the place you want your object and hit **Paint**.

For **CONTINUOUS DRAWING** leave Paint active and move the cursor, when finished, deactivate **Paint**.

*NOTE: All mask placements will be recorded as long as Paint is active. Field-Flicker can occur when the paint brush is moved too fast. To overcome that problem switch to **Field** mode and by stepping through select either Field A or Field B to be displayed twice instead of a Frame mode. Of course this results in half a vertical resolution.*

To **DROP A SHAPE** immediately **turn off** the current **Paint** button.

*NOTE: Only move the cursor when Paint is off and then push Paint to activate and immediately deactivate it to drop in a new object. This will then added the actual cursor to the current mask store contents.*

To **RUBOUT** specific MaskStore portions adjust your cursor and act in an appropriate manner to what you've done with Paint. With **Rub** being "on" while drawing it is possible to continuously erase portions, while **Rub "on/off"** with no intermittent cursor movement only cuts a *hole* to the current mask.

### SHIFT A MASK

[STORES module] → Switch **MaskShift (Shift)"on"**.

– Move the whole mask with the autodelegated Trackball and finish shifting with

[STORES module] → Switch **MaskShift (Shift)"off"**.

– Continue to paint or erase certain mask portions if necessary.

#### **Application:**

Imagine that an Operator created a very sophisticated mask that was perfectly adapted to a camera foreground to be used for Chromakey.

Right before the live event someone bumps the camera and the mask needs to be shifted. No problem – your DD can perform MaskShifting.

Furthermore it is possible to resume painting or rubout actions on that shifted mask!

To only perform a shift instead of re-drawing a complete new mask will not only save quite a lot of time, it can be accomplished immediately.

#### **IMPORTANT NOTE:**

*The re-transfer of a shifted mask that is needed for continued painting or repeated shifting takes a little while (9 Fields). Under regular circumstances a user doesn't recognize a drawback. But when using **MaskShift** operations (or **Clear** as well!) **within programmed Timelines**, it is strongly recommended to provide extra Keyframes for only switching off the Shift mode or for Clear operations, without any other action. These additional Keyframes have to be put on **HOLD for at least 5 Frames !***

### ACTIVATE THE MASK IN THE DESTINATED ME

When all mask related settings have been finished in PVW mode the time may come when the dedicated Keyer has to be masked with it.

– Push the **Mask on** button in the appropriate KEYERS module.

Otherwise the mask would have no effect on your keyed ME-Output.









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