The Mix System

Index 5-1
About This Section 5-5
G Series 5-5
   Notes for E Series Users 5-6
   Notes for G Series Users 5-7
Ultimation 5-8
Ultimation/G Series Compatibility 5-9

The G Series Mix system (blue pages)

Getting Started 5-11
   Setting Up a New Mix 5-11
   Starting a New Mix 5-13
   Mix Review 5-15
   Level Match 5-15
   Autotakeover 5-17
   Preview 5-18
   Immediate Pickup 5-19
Storing Mixes 5-20
Naming Mixes 5-20
Cancelling Mixes 5-21
Additional Facilities 5-22
   Creating a New Mix using Locate Commands 5-22
   Naming and Listing 5-22
   The Asterisk * Key 5-23
   Timed Joins 5-23
   Timed Join Rehearsal 5-24
Update Mixes 5-25
   Creating an Update Mix 5-25
   The Mix Options Box in an Update Mix 5-26
   Fader Status at the Start of an Update Mix 5-28
   Rollback in an Update Mix 5-30
   The Revise Philosophy 5-30
   Insert Mixing 5-32
   The Asterisk * key in an Update Mix 5-34
   Storing an Update Mix 5-34
Mix Options in an Update Mix 5-35
Update Absolute 5-35
Revise Cuts 5-35
Play Cuts Only 5-36
Autotakeover 5-36
Preview 5-37
Immediate Pickup 5-37
An Example using the Mix Options Box 5-37

The Ultimation Mix System (grey pages)

Ultimation Reference Guide 5-40
Getting Started 5-41
Setting Up a New Mix 5-41
Starting a New Mix 5-43
Mix Review 5-44
Snap On/Off 5-45
Autotakeover 5-47
Preview 5-48
Storing Mixes 5-50
Naming Mixes 5-50
Cancelling Mixes 5-51
Additional Facilities 5-52
Creating a New Mix using Locate Commands 5-52
Naming and Listing 5-52
The Asterisk * Key 5-53
Timed Joins 5-53
Timed Join Rehearsal 5-54
Immediate Pickup (IP) 5-54
Update Mixes 5-56
Creating an Update Mix 5-56
The Mix Options Box in an Update Mix 5-58
Fader Status at the start of an Update Mix 5-60
Rollback in an Update Mix 5-62
Insert Mixing 5-63
Storing an Update Mix 5-65
Mix Options in an Update Mix 5-66
Update Absolute (UA) 5-66
Revise Cuts (RC) 5-66
Play Cuts Only (UA + RC) 5-67
Autotakeover (AT) 5-67
Preview (PV) 5-68
Immediate Pickup (IP) 5-68
An Example using the Mix Options Box 5-68

5-II
The Mix System

The Asterisk * key in an Update Mix 5-69

Hardware Groups 5-69

Mixing with Motors Off 5-72
- New Mixes 5-72
- Update Mixes 5-74

Further Features and Options (white pages)

Mix Options and the Setup Menu 5-75

Locate Commands in an Update Mix 5-76

The Master Fader in an Update Mix 5-77

The Fader Status Master key (FSM) 5-77
- As a Fader Status Master 5-77
- As a Master Fader Status Switch 5-77
- As a Control for the Fader Status Lock Facility 5-77

Fader Status Stores 5-78
- 'Locking' Statuses 5-78
- FROM and TO 5-79
- COPY and SETUP 5-79

Safe Set 5-80

Track Copy/Swap 5-81

Joining of Mixes 5-83
- Butt Joins 5-83
- Insert Joins 5-85
- Time Shift Joins 5-85

Changing Mix Start and End Times 5-86

Deleting Mixes 5-86

Reel Full - no room for the Mix 5-87

Help 5-87

Automated Drop-ins While Mixing 5-88

Software Control Groups 5-89
- Slave Types 5-89
- Setting up a Group 5-90
- Indication of Slave Type 5-91
- Group Merge 5-92
- Status Only Groups 5-94
- Saving and Restoring Groups 5-94
- Group Information and Console Layout 5-95
- Operational Applications 5-96

LED Reference Table for Fader Statuses 5-99
## INDEX

In order to help you find the topic description that is relevant to the type of mix system you are using, page references are shown with a G suffix for G Series (the blue pages of this section) and an U suffix for Ultimation (the grey pages). Where no suffix is shown, that topic relates to both systems, and will be found in the first or last part of this section (white pages). Command Keys are shown in **BOLD**. Entries in **Chicago** refer to screen messages.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>About This Section</td>
<td>5-5</td>
</tr>
<tr>
<td>Absolute Status</td>
<td>5-12G, 5-42U</td>
</tr>
<tr>
<td>Alt LED</td>
<td>5-45U</td>
</tr>
<tr>
<td>Asterisk * Key in an Update Mix</td>
<td>5-34G, 5-69U</td>
</tr>
<tr>
<td>Asterisk * Key, in a New Mix</td>
<td>5-23G, 5-53U</td>
</tr>
<tr>
<td>Automated Drop-ins While Mixing</td>
<td>5-88</td>
</tr>
<tr>
<td>Autotakeover (AT)</td>
<td>5-17G, 5-36G, 5-47U, 5-67U</td>
</tr>
<tr>
<td>Bargraphs</td>
<td>5-13G, 5-43U, 5-75</td>
</tr>
<tr>
<td>Butt Joins</td>
<td>5-83</td>
</tr>
<tr>
<td>Cancelling Mixes</td>
<td>5-21G, 5-51U</td>
</tr>
<tr>
<td>Changing Mix Names</td>
<td>5-20G, 5-51U</td>
</tr>
<tr>
<td>Changing Mix Start and End Times</td>
<td>5-86</td>
</tr>
<tr>
<td>Compatibility, G Series/Ultimation</td>
<td>5-9</td>
</tr>
<tr>
<td>Converting Mixes to G2.12</td>
<td>5-9</td>
</tr>
<tr>
<td>COPY and SETUP for fader status stores</td>
<td>5-79</td>
</tr>
<tr>
<td>Copying Mix Channels</td>
<td>5-81</td>
</tr>
<tr>
<td>Cuts</td>
<td>5-30G, 5-62U</td>
</tr>
<tr>
<td>Cuts, Write and Read Status</td>
<td>5-35G, 5-66U</td>
</tr>
<tr>
<td>Deleting Mixes</td>
<td>5-86</td>
</tr>
<tr>
<td>Drop-ins While Mixing, Automated</td>
<td>5-88</td>
</tr>
<tr>
<td>E Series Users, Notes for</td>
<td>5-6</td>
</tr>
<tr>
<td>E Series/G Series/Ultimation Compatibility</td>
<td>5-9</td>
</tr>
<tr>
<td>Ending Mixes</td>
<td>5-20G, 5-34G, 5-50U, 5-65U</td>
</tr>
<tr>
<td>Fader Status Lock Facility</td>
<td>5-77</td>
</tr>
<tr>
<td>Fader Status Master key (FSM)</td>
<td>5-77</td>
</tr>
<tr>
<td>Fader Status Stores</td>
<td>5-78</td>
</tr>
<tr>
<td>Fader Status at the Start of a New Mix</td>
<td>5-12G, 5-42U</td>
</tr>
<tr>
<td>Fader Status at the Start of an Update Mix</td>
<td>5-28G, 5-60U</td>
</tr>
<tr>
<td>Fader Status, Storing</td>
<td>5-78</td>
</tr>
<tr>
<td>FROM and TO for fader status stores</td>
<td>5-79</td>
</tr>
</tbody>
</table>

G Series - the System 5-5
G Series Users, Notes for 5-7, 5-33G, 5-64U
G Series/Ultimation Compatibility 5-9
Getting Started 5-11G, 5-41U
GROUP SET 5-90
GROUPING ON 5-94
Groups - Hardware 5-69U
Groups - Software Control 5-89

Help 5-87

Immediate Pickup (IP) 5-19G, 5-37G, 5-54U, 5-68U
Insert Joins 5-85
Insert Mixing 5-32G, 5-63U

Joining of Mixes, Off-line 5-83

LARGE/SMALL Key 5-13G, 5-43U
LED Reference Table for Fader Statuses 5-99
Level Match 5-15G, 5-73U, 5-75
Listing Mixes 5-20G, 5-50U
Lists, viewing while mixing 5-22G, 5-52U
Locate Commands in an Update Mix 5-76
Locking Statuses 5-78

Master Fader in an Update Mix 5-77
MIX ENABLED 5-11G, 5-41U
Mix Names, Changing 5-20G, 5-51U
MIX ON/OFF Key 5-11G, 5-41U
Mix Options and the Setup Menu 5-75
Mix Options Box, an example using the 5-37G, 5-68U
Mix Options Box in a New Mix 5-17G, 5-47U
Mix Options Box in an Update Mix 5-26G, 5-35G, 5-58U, 5-66U
MIX REVIEW 5-15G, 5-30G, 5-44U, 5-62U
MIX RUNNING 5-13G, 5-43U
Mix Start and End Times, Changing 5-86
Mixing with Motors Off 5-72U
Motors ON/OFF 5-44U

Naming Mixes 5-20G, 5-50U
Naming and Listing while Mixing 5-22G, 5-52U
New Mixes 5-11G, 5-41U, 5-72U
New Mixes, Creating with Locate Commands 5-22G, 5-52U
No room in directory 5-20G, 5-50U
The Mix System

Play Cuts Only (UA + RC)  5-36G, 5-67U
PRESET Key  5-90
Press END to save mix  5-76
Preview (PV)  5-18G, 5-37G, 5-48U, 5-68U
PREVIEW ON/OFF  5-18G, 5-49U

Read Cuts Status  5-35 G, 5-66U
Reel full, Unsaved mix in memory  5-87
Revise Cuts (RC)  5-35G, 5-66U
REVISE Key  5-30G, 5-74U
Renaming Mixes  5-20G, 5-51U
Revise Philosophy  5-30G
Rollback in a New Mix  5-15G, 5-44U
Rollback in an Update Mix  5-30G, 5-62U

Safe Set  5-80
Setup Menu - Mix Options  5-75
Snap On/Off  5-45U
Software Group Merge  5-92
Software Groups  5-89
Software Groups and Console Layout  5-95
Software Groups, Operational Applications  5-96
Software Groups, Saving and Restoring  5-94
Software Groups, Setting up  5-90
Software Groups, Slave Type Indication  5-91
Software Groups, Slave Types  5-89
Software Groups, Status Only  5-94
Status Lock Facility  5-77
Storing Fader Status  5-78
Storing Mixes - General  5-20G, 5-50U
Storing an Update Mix  5-34G, 5-65U
Swapping Mix Channels  5-81

Time Shift Joins  5-85
Timed Join Rehearsal  5-24G, 5-54U
Timed Joins  5-23G, 5-53U
Track Copy/Swap  5-81
Trim Status  5-29G, 5-60U
Ultimation - the System 5-8
Ultimation Reference Guide 5-40
Ultimation/G Series Compatibility 5-9
Update Absolute (UA) 5-35G, 5-66U
Update Mixes 5-25G, 5-56U, 5-74U
Update Status Locked 5-78

Write Cuts Status 5-35 G, 5-66U

You may adjust status now 5-12G, 5-42U
About This Section

This section of the G Series Computer Operator's Manual is designed to cover the operation of both Ultimation and G Series mix systems. As you will see below, the two systems are operationally very similar.

In order to make it easier for you to find the relevant information, the section is divided into four parts - two of which are colour coded. Whether you have Ultimation or G Series, you should read through the first and last (white) parts of this section. If you are using G Series, read the blue pages and then move on to the last part. If you are using Ultimation, skip the blue pages and read the grey pages plus the last part of this section. Sounds simple, doesn't it?

Of course, if you anticipate using both types of mix system in the future, you may wish to read through this entire section.

If you are already familiar with G Series software, check out the recent improvements listed on Page 5-7, and then use the Contents/Index to find further details of particular features. If you are moving from G Series to Ultimation, do likewise, having first looked at the Ultimation Reference Guide on Page 5-40.

Finally, if this is your first time with SSL automation, please do not be put off by the length of this section on the mix system. Just take a little time to read through the initial pages of the relevant parts as described above, and you will soon have a feel for the basic operations. From there on, build up your knowledge by using the additional facilities as you need them - the Index at the front of this section will be a useful aid in this.

G Series

The G Series Studio Computer provides comprehensive dynamic fader and cut automation in addition to complete tape machine and project data management. The system is designed specifically for use with any console from the SSL range. Channels and main outputs are equipped with voltage controlled amplifiers controlled either directly from their faders or from the stored mix data or from both. Fader moves and cuts are first stored in memory and then as a permanent store on either Data Cartridge or 8" floppy disk. These moves and cuts are stored in conjunction with timecode information from the master tape machine so that a mix will be accurately recreated and can be edited to produce the final desired mix.
The mix data is stored under Titles with all other associated information on 20Mb Data Cartridges, offering a very large storage capacity. The G series computer provides much greater speed than the previous E Series system, demonstrated by its ability to access mix data accurately as the tape is spooled in fast wind.

Notes for E Series Users

The G Series mix system is a much refined and extended version of E Series. So much so that it may be best to take a fresh look at the system to see its advantages and refer to your previous experience with E Series when necessary.

The capacity of the G Series Data Cartridge is equivalent to 80 E Series Reel disks (8" floppy disk). The Data Cartridge must be divided into blocks called REELS which are treated like Reel disks but these blocks may be created in 7 sizes ranging from the smallest (1/4 Mb), 80 REELS to one single enormous REEL. Your choice of size of REEL will depend on previous experience with floppy REELS (1/4 Mb). See LABEL command in Section 3 of this manual.

Previous E Series mix data can be used with G Series but the reverse is not possible.

New Facilities

- Selective Rollback  Individual faders or groups of faders being replayed in Mix Review may be dropped in to the selected write mode. Other faders and cuts written to the current mix will be replayed.

- Instant Fader Status Selection  Access to different fader statuses and combinations of statuses is provided continuously while mixing and in Mix Review. The master fader status may now be controlled as flexibly as a channel’s fader status.

- Fader Status Stores  Fader statuses may be set and memorised to be recalled for further mixing.
• Comprehensive Preview Functions
  Fader levels and cuts may be previewed at any point in a mix and the monitor level toggled between the new and existing level. Preview may be used to selectively JOIN faders in a mix.

• Increased Speed For Off-line Joins
  Off-line joining of mixes has been extended to incorporate selected fader joins and time shift joins all under one type of command. Off-line joins are accomplished in a fraction of the time taken using E Series.

• Transference of Mixes
  Mixes can be copied from one Title to any other when stored on Data Cartridge or Reel disk and then easily time-shifted.

Notes for G Series Users

The latest version of G Series software (G3.0) contains significant improvements and new features. These are:

• Insert Mixing - allows moves to be inserted into a New Mix without destroying subsequent moves.

• Level Match and Autotakeover are now available in a New Mix.

• On coming out of an active write status in an Update Mix, provision is made for the system to return to Replay of the last pass (Insert Mixing), or the Input Mix.

• Immediate Pickup now available whenever a channel is in Replay.

• New ‘Safe Replay’ status

• ‘Locking’ status feature allows fader status to be ‘locked’ at the point of rollback

• Update mixes default to starting in Replay not Trim.

• Free grouping across faders - allows up to 15 software control groups to be created.

• Unique grouping system allows separate or collective grouping of fader and cut information, inverted cut grouping and ‘follow status’ slaves.
Multiple slave types - control groups can contain slave faders of different types.

Monitor groups - grouping information is applied to the monitors only, so group information can be easily be removed from slaves.

Group Merge - monitor group information can be written into the mix, allowing group information to be edited on a per slave basis.

Group setup information is automatically stored and recalled with the mix.

Ultimation™

Ultimation is the world’s first dual path automation system which combines the positional feedback of moving faders with the fine control of VCAs. Ultimation software builds on the most recent developments in G Series Studio Computer software, so the transition to Ultimation by users who are familiar with G Series, should pose no problems at all.

The Ultimation System

Ultimation is designed specifically for use with any SL4000, SL6000 and SL8000 Series console which is fitted with a G Series Computer, and provides the same complete tape machine and project data management as standard G Series systems.

However, by incorporating unique dual signal path circuit technology, available only to SSL users, a combination of VCA based automation and advanced moving fader operation is possible. One of the problems inherent with all other moving fader systems is the inability to trim a previous move in real time without resorting to complex subgrouping software. We have overcome this problem by fitting a VCA element as well as providing an analogue path through the motorised P&G fader wiper. The system switches between these two audio paths depending on the operational needs of the engineer. In the moving fader mode, the audio passes only through the fader wiper. If the engineer wishes to perform an SSL style Trim, as described later, the system automatically switches the audio through the VCA, allowing faders to be trimmed in the normal way. If required, the fader motors can be turned off altogether and the system operated as a standard G Series VCA based system. The potential thus provided makes Ultimation undoubtedly the most flexible automation system available today.
Fader moves and cuts are first stored (as in G Series) in memory and then as a permanent store on either Data Cartridge or 8" floppy disk. These moves and cuts are stored in conjunction with timecode information from the master tape machine so that a mix will be accurately recreated and can be edited to produce the final desired result. Mix data is stored under Titles with all other associated information on the Data Cartridge or floppy disk.

Please note that on consoles fitted with Ultimation, the Master Fader is not motorised.

If you are an experienced G Series user, you should soon only need to use this section for reference. To make life easier, at the start of the grey pages you will find a quick guide to Ultimation commands, along with page references for further reading.

**Ultimation/G Series Compatibility**

Ultimation mixes can be freely transferred to systems using G Series software version G3.0 or higher, and vice versa. However, because of differences in fader law and mix resolution, mixes are not directly compatible between Ultimation systems and systems using G Series software version G2.12.

If you load a G2.12 G Series or an E Series mix, the system will respond with the message: **Loading G Series mix......**, and the mix will be automatically converted into the new Ultimation/G3.0 format.

Any mix created or updated with Ultimation/G3.0 will always be saved in the new format. If you wish to make an Ultimation/G3.0 mix compatible with the G2.12 program, you must use the command REVISE MIX (Name) TO G EX. This will create a new mix which will be stored in G2.12 format.

Remember to give the converted mix a suitable name when requested, so you can easily identify it later. Please bear this in mind if you are working on a project that will transfer to a G2.12 facility; G2.12 cannot read an unconverted Ultimation/G3.0 mix.

**Ultimation users should now turn to the grey pages**
Getting Started

The G Series mix system operates in two basic modes:

New Mixes - where a completely original mix is created from scratch. Fader status is normally Absolute.

Update Mixes - where a mix already created (the reference mix) is edited to form a revised version. The active write fader status may be Trim or Absolute.

Setting Up a New Mix

Assuming sufficient information has been supplied to the computer, you can start mixing. It is important to name a TITLE first and probably some CUES as the basic monitor mix is adjusted. You may already have some hardware groups in place. Software Groups (see Page 5-89) can further extend the grouping possibilities.

There are two ways to initiate a New Mix. If the tape is already located at the correct point to start, type:

SETUP MIX EX

This will enable the mix system and prepare it for a New Mix. The screen will show the information in Figure 1 overleaf.

If the tape needs to be located first, press the MIX ON/OFF button located in the set of computer status keys adjacent to the keyboard. This will enable/disable the mix system, as indicated on the screen by MIX ENABLED in the Status box.

Now type any locate command. In this instance, type:

GOTO TITLE EX

The tape will locate to the Title start point plus preroll and, once again, the information in Figure 1 will be displayed.
** new mix **

You may adjust status now. Press EXECUTE to continue

AT
PU
IP

<table>
<thead>
<tr>
<th>client:</th>
<th>AARDOARK ASSOCIATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>reel:</td>
<td>COLIN BATEMAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>title</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOREVER CHANGING</td>
<td>12:29:21.01</td>
<td>12:37:13.05</td>
</tr>
</tbody>
</table>

Figure 1

At this stage, we should explain the various messages displayed. Starting with the Status box (top right hand corner) the system is prompting that it is READY and raring to go. MIX ENABLED is displayed underneath.

To the immediate left of the Status box is the Mix Options box, displaying the fader status ‘controls’ that may be called up to select different fader statuses. These will be fully explained a bit later. The Command box (top left hand corner) is displaying computer prompts.

** new mix ** indicates that this is a New Mix, making no reference to any other. You may adjust status now refers to the status of the console faders. A red LED is illuminated on the faders, indicating that they are in ABSOLUTE status i.e. ready to write new mix information into memory.

Individual faders may be toggled using their fader status button (above the status LEDs) between ABSOLUTE and MANUAL. Manual has no LED display and makes the fader operate as a monitor fader only, i.e. no information will be written to memory.
The status of all faders may be toggled at this point using the Fader Status Master (FSM) key situated with the computer status buttons below the numeric keypad on G Series consoles or above the keyboard on E Series consoles. Use this button in conjunction with individual fader status buttons to achieve the desired fader statuses. The FSM key, as discussed later, has a variety of functions.

Many other functions and options in mixing are accessed or disabled using the toggle principle. If they are implemented by using the QWERTY keys, then the REPEAT key effectively becomes the toggle switch.

Starting a New Mix

Press the EXECUTE key to start the mix. (Do not press the transport PLAY key at this point.) This will start the cogs in the processor whizzing around and put the tape machine(s) into Play.

Now the mix has started and, after a short preroll time, fader moves and cuts with their associated timecode positions will be written to memory. The message MIX ENABLED becomes MIX RUNNING.

Once in a mix, whether it be a New Mix as now, or a later Update Mix, this is always the current mix until it is either stored or cancelled. The tape transport keys and locate commands may now be used. (Note however, that commands such as GOTO/PLAY MIX etc. will not be accepted until at least one mix has been stored).

If the bargraph display of fader levels is enabled, the fader level moves will be monitored on the screen as shown in Figure 2 overleaf. The LARGE/SMALL key usefully toggles the bargraph display with any list information called up.
Viewing list pages by using the ↑↓←→ cursor keys will be useful here. The bargraph display can be turned on or off by typing:

** BA EX **

With the bargraph display turned off, the LARGE/SMALL key toggles current list information with a large timecode display (and the synchroniser display if fitted).

By now you may have pressed STOP to try the above. Press the transport PLAY button to carry on mixing.
Mix Review

At a convenient point, wind the tape back either using the transport key or a locate command. The MIX RUNNING message becomes MIX REVIEW. Should you pass the start of the mix, MIX REVIEW reverts to MIX ENABLED, indicating that there is no mix to review at this point. Note the bargraph display and cut lamps in rewind, indicating any information in memory. Now play the mix so far and the faders and cuts will be in REPLAY status having no effect on the mix being reviewed. At the point from which the tape was wound back, the faders will drop back to Absolute and mixing can continue.

However, in a real situation, you will not have written all the fader information you would have liked to in this mix, or you want to correct some, using selective rollback. Wind back the tape, play back the mix in MIX REVIEW and on any channel that needs writing or correcting, press the fader status button by that fader at the point you wish to take over.

The red LED will come on and the fader will drop in to Absolute. Subsequent information for that fader will be rewritten to memory while other faders will be faithfully replaying the previously written information. Selective rollback can be performed with as many faders at the same time as desired.

In MIX REVIEW, with nothing selected in the Mix Options box, all faders will drop in to write new levels if the JOIN key is pressed.

Level Match

The G Series mix system is VCA based and does not have motorised faders to track written information. Accordingly, when playing back mix information, the actual fader position will probably not match the written mix level. Using the rollback features described above, it may be necessary to match the physical level of the fader to the level stored in the mix memory, to prevent any undesired level jumps when dropping in to the mix. For example, during this mix continual moves have been made on a fader. At some point, while in MIX REVIEW, these moves need to be corrected but the fader position does not match the mix level in memory. It is probably best, but not necessary, to stop the tape at this stage as you may be chasing a moving target.
Press the MIX key. The prompt LEVEL MATCH will appear in the Status box (see below) and the faders are disconnected from the mix system. For any fader or faders that need to be matched and prepared to write, press their associated Fader Status buttons if 'Local Fader Level Match' is selected in the Setup Menu. (Page 5-20)

The LEDs will illuminate showing whether they are matched or not (as with Total Recall, if you have covered that section). The same principle applies in that both LEDs are on solid when the fader is matched. Assuming you are sitting in front of the console, if the green LED is flashing move the fader away, if the red LED flashes, move it towards you. If both LEDs flash, the cut button is in the wrong position.

If all faders are required to be level matched, while in Local Fader Level Match press the FSM key. This will immediately switch all faders, including the Master Fader, to Level Match and faders are matched as described above. For SL4000/6000/8000 Series Consoles, the Master Fader can be matched using the display around the screen LEVEL MATCH prompt. A small bar will appear between LEVEL and MATCH in either a high or low position if the Master Fader is not matched. Adjust the Master Fader to clear the bar (see Figure 3).

Having matched the faders as required, press the MIX key again to disable Level Match. Drop the faders that need to be corrected in to Absolute write status at the correct level by pressing their fader status buttons and continue mixing.

If you only wish to correct a short section of the mix, press the fader status button as soon as you have finished and the channel(s) will drop back to REPLAY. If you are beyond the point where you originally rolled back from, the channel(s) will return to REPLAY at the last written fader level or the last written cut state.
Now suppose that, having made a correction, you wish to make a further adjustment to that section. Roll back again and drop the channel into Absolute at the right spot. When you press the button to return to Replay, you will find that you return to replay of your last pass. We call this ‘Insert Mixing’. This feature is further described under Update Mixes (Page 5-32).

**Autotakeover**

The simple method of ‘dropping out’ (by pressing the fader status button) described above is fine if you are dropping out in a gap in the information on that track. There may, however, be many situations where, having corrected a fader move, you want to get back to the previous pass level without a level jump. This facility is provided in the form of Autotakeover, one of the controls in the Mix Options Box.

The Mix Options can be selected at any time by either typing the first letter of the option name i.e. A, P etc. or by simply using the 1, 2, 3, 4 or 5 keys according to the choice i.e. 3 = AT (Autotakeover), 4 = PV (Preview) etc. Note that 1 and 2 relate to two further options - UA (Update Absolute) and RC (Revise Cuts) which are only available in an Update Mix (see Page 5-35).

If an SSL Synchroniser System is fitted, you will need to type AT for Autotakeover (or simply press 3 in the usual way). This is to avoid confusion with the synchroniser command AM EX - see Section 7 for further details.

Autotakeover allows faders writing the current mix levels to be moved back to the level of the previous pass, and to be disconnected at that point. The previous mix will then be played back until the fader is switched from REPLAY back to ABSOLUTE.

Select the option, before you make the correcting move, by pressing 3 or A. Make the change and then press the fader status button. The fader will still be in ABSOLUTE but either the red or green LEDs will flash to indicate the direction in which to move the fader to match the previous mix level. For a flashing green LED move the fader away, and move it towards you if the red LED is flashing. This may be done as quickly as required. When the fader is at the level of the previous pass, it will be disconnected and drop in to REPLAY. Repeat the dose as necessary.
Preview

Another mix option, that you may find useful in a New Mix, is Preview (PV). Select it by pressing 4 or P.

Once in a mix, Preview can be used to audition level changes and cuts and then selectively write them. With Preview selected, pressing a fader status button will switch the fader to PREVIEW ABSOLUTE i.e. the monitor level of the fader. This is indicated by the red LED flashing. The written level of the fader to the mix remains as it was when switched, and the fader may now be moved and monitored to set a new level.

If required, the audition level and the written level may be compared by toggling the FSM key, and the screen will display PREVIEW ON/PREVIEW OFF. All faders currently in Preview will be toggled with the FSM key. Having set the audition level, and with the tape running, press the fader status button and the fader will switch to ABSOLUTE write status immediately, as indicated by the solid red LED. If a number of faders need to be switched at the same time, press the JOIN key.

Preview in Mix Review

Faders switched to Preview in MIX RUNNING will stay in Preview when the tape is wound back. When creating a mix, by passing through it several times and building it up fader by fader, Preview may be used in the MIX REVIEW stage.

As before, with PV selected, pressing fader status buttons will switch those faders to Preview and Preview On/Off may be toggled with the FSM key. Individual buttons will then switch the faders to Absolute with the tape running. To switch them simultaneously press the JOIN key. In this case only faders in Preview will join to the mix. All other faders will stay in Replay, thus their written information will remain intact.

The combination of PV and AT can be extremely powerful where any change in level across mix edits is undesirable. Also, combining Preview and JOIN is especially useful in Timed Joins as described on Page 5-23.
Immediate Pickup

This control is selected/deselected within a mix by pressing 5 or I. It is typically only used in a New Mix in the MIX REVIEW stage where the tape has been rolled back to replay the current mix so far. Faders will normally be in Replay (no LEDs) unless they have been specifically switched to Preview. With Immediate Pickup selected, moving a fader or operating a cut button will immediately switch the channel to the next status determined by the current Mix Options box selection. Channels already set to Preview will switch to their write status.

In a New Mix, roll back the tape, select Immediate Pickup and play the tape. If PV is not selected, moving a fader or pressing a cut button will immediately drop the fader into Absolute write status and new levels and cuts will be written to the current mix from this point. With PV and IP selected, changing faders or cuts in MIX REVIEW will switch them to Preview Absolute to audition new mix levels which can then be written by pressing individual fader status buttons or the JOIN key.

Care should be taken with Immediate Pickup, particularly when cycling to build up the current mix. With IP selected any fader will change to the next status when moved. If this is an active status, current mix information will be overwritten until you get the fader(s) back to Replay, so accidental moves could be annoying.
Storing Mixes

Using the methods described above, a mix can be built up section by section, fader by fader, working purely in memory until the end of the Title. Cycle commands, possibly CYCLE TITLE, will be of assistance in making the system perform these mundane operations.

It is therefore quite feasible, with the additional facilities to be described shortly, to create a final mix from stage one, with no reference to previously stored mixes. However, given the minimal risk factor of any memory based system and the possibility of a power shutdown, long periods of mixing could be lost irretrievably.

A permanent store of mix data so far can be made simply by pressing the END key. Not only does this prevent the possible problem above but it creates a base mix which can be used as a reference and updated with more options available.

When you press the END key, the tape (if moving) will stop and the prompt Name of mix? will be displayed on the screen. A description may now be typed in using the QWERTY keyboard, then press the EXECUTE key. If the EXECUTE key is pressed with no name typed in, the mix will be assigned a number by the system as it is stored. System assigned numbers are always followed by an asterisk. To prevent possible confusion, it is therefore best not to use an asterisk when typing in a numbered identification.

The mix is now stored under its Title on the current Reel, either on the Data Cartridge or Reel disk, and a Mix List appears (see Figure 4). You'll notice that the system automatically gives you a readout of the remaining storage space on the Reel. With the mix list on the screen, the ↓ cursor key displays an alternative page for extremely long mix names and the ↑ cursor turns to a page showing the size and time/date when those mixes were stored. From now on, LIST MIX EX will present the mix list!

Naming Mixes

The directory in a Title for name identification of mixes is a finite size, regardless of the REEL storage available for actual mix data. It would be wise to consider this when naming, as the bigger the mix name the fewer the number of identifications may be stored with mix data. For example, if all the mixes stored with a Title are named with just two characters, 66 mixes may be stored. If mixes are named with ten characters each then 43 mixes may be stored. Further mixes may be stored should NO ROOM IN DIRECTORY be prompted. Refer to Page 4-5 then type END EX as described on Page 5-87.
Mix names may be changed at any time by entering:

```
MIX Name NAME New Name EX
```

To change mix start and end times, refer to Page 5-86

```
3988 sectors left: 2% of reel used.
```

```
<table>
<thead>
<tr>
<th>mix</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cuts</td>
<td>23:59:29</td>
<td>0:10</td>
</tr>
</tbody>
</table>
```

Figure 4

Cancelling Mixes

When creating a mix, it is always the current mix until it is stored, cancelled or the power is turned off. An attempt at a mix may be stopped at any point by pressing the CANCEL key.

As soon as the mix has started, pressing CANCEL once presents the screen display **You want to cancel?** but the mix continues. This is to prevent a potential disaster if the cancel function is being used mistakenly to clear a screen display or reset a command line. Pressing the CANCEL key again ensures that the attempt is cancelled. Pressing any other key apart from Y clears CANCEL.

Pause for a Digestion of Information Break (DIB).
Additional Facilities

So far, the intention of this Mix System Section has been to explain the fundamental operational theory. There are many options which can be used in New Mixes (and their updates) which are now described.

Creating a New Mix using Locate Commands

The PLAY and CYCLE Commands below (as long as the mix system is enabled) will equally start a New Mix:

PLAY TITLE EX
CYCLE TITLE EX
PLAY CUE EX
CYCLE FROM TIME TO TIME EX

Having issued a cycle command for a New, Update or section of a Mix, it is likely that the cycle will be interrupted to wind back and correct a move or stopped, just for a break. Typing:

PLAY CYCLE EX

will continue the cycle from the current position.

Naming and Listing

While mixing, Total Recall is not available. However, all lists of information may be displayed, calling up Cue points, Events, Sync marks, Notes etc, to help in the mix.

Additional Cues, Events, Sync presets, Sync marks and Tracks may be named or adjusted while mixing but the LIST (Information) Page cannot be changed during a Mix. Automated drop-ins may be performed in conjunction with the mix in a variety of ways and are described towards the end of this section. (Page 5-88)
The Asterisk * Key

This key is used while mixing to cycle through a display of information at the
top left of the screen.

In a New Mix pressing this key will cycle:

**new mix**
Memory space available
FSM mode
Master Fader status

Timed Joins

While in a mix in MIX REVIEW, the JOIN key is interpreted by the system as a
command to drop in to MIX RUNNING from MIX REVIEW. A known JOIN
point can be executed by using the

AT (TIME) JOIN EX

command in MIX REVIEW, where TIME is a timecode value or Cue within the
bounds of the current mix being created. Having rolled back, the JOIN point
may be nudged nearer using the command:

AT TIME - time JOIN EX

If a JOIN point is specified using the HERE EX command, having rolled back, the command:

AT JOIN EX

will perform the JOIN at the HERE point specified.

The command:

- JOIN EX

will automatically spool back the tape from its current position by the value of
the - key plus preroll and JOIN at the - time.
Timed Join Rehearsal

Audition the fader levels and cuts in Preview then wind the tape back.

Using the commands shown above but omitting JOIN, will automatically switch the selected faders from PREVIEW OFF to PREVIEW ON at the specified time, thus rehearsing the changes.

These changes can be repeatedly rehearsed using the +/- keys to adjust time.

Example command lines read:

\[ \text{AT CUE (or TIME) EX} \]
\[ \text{AT EX} \]
\[ \text{AT CUE + time EX} \]
\[ \text{AT CUE - time EX} \]

(- EX will not apply as a rehearse command)

When the fader levels/cuts are successfully rehearsed, repeat the command incorporating JOIN.

General Note

Many mix options already described and more to follow, have been incorporated in the G Series mix system to accommodate a wide range of applications in the field. Having read through the options so far, you may find some are not relevant to your particular needs. In which case, don’t worry about them now but remember that they are there for the future, if necessary.

萼 Phew!

DIB
Update Mixes

Once there is a mix list, any of the mixes can be called up and edited on line. Update Mixes are formed by the computer making a copy of the stored mix, placing it in memory to become the reference mix and allowing it to be modified as the tape plays. Thus the stored mix is always kept, unless it is deliberately deleted.

(Note for E Series users. All Update Mixes using G Series software are Play Join mixes automatically e.g. GOTO MIX = GOTO JOIN MIX)

Whenever a portion of an existing mix is updated and stored, the resultant mix is at least as long as the reference mix being updated. Any information from the reference mix not played or updated will be automatically combined. The mix times may however be edited off-line, as described later.

Creating an Update Mix

As with New Mixes, the SETUP MIX commands automatically enable the mix system.

\[ \text{SETUP MIX HERE EX} \]

will enable the mix system and prepare it for an update of the mix listed as current.

\[ \text{SETUP MIX Name EX} \quad \text{As above but for the named mix.} \]

As long as the mix system is enabled (using the MIX ON/OFF key) an Update Mix can be started using the following commands. The mix name may be omitted if it is indicated as current in the mix list.

\[ \text{GOTO MIX (Name) EX} \]

\[ \text{GOTO MIX (Name) AT TIME (+/- time)} \]

(Where TIME is any specified timecode value. This value may be adjusted in the same command using the +/- keys as above).

All information from the mix will be placed as a reference in memory, regardless of AT or FROM times. These are just used as convenient locate points to start updating a mix. All of the reference mix will be automatically incorporated in the stored update. The tape will locate to the requested starting point plus preroll, and stop while the system awaits instructions (Figure 5).
If the following is entered:

```
PLAY MIX (Name) EX
```

the tape will locate to the start of the mix plus preroll and play into the Update Mix straight away. If the tape transport keys are not used, the tape will stop at the end point of the mix being updated, but the mix may be continued by simply pressing the transport PLAY key.

```
PLAY FROM MIX (Name) EX
```

repeats the above but the tape will not automatically stop.

```
CYCLE MIX (Name) EX
```

cycles the Update Mix over the time period of the stored mix being updated. As soon as any tape transport controls are used, manual control is resumed.

Having issued a CYCLE MIX command however, it is likely that rollback will be used to listen to or correct the mix. To continue the cycle, when satisfied, type:

```
PLAY CYCLE EX
```

The tape will play and when the mix has been updated to the cycle end time, the cycle will be restarted.

```
PLAY MIX (Name) FROM TIME (+/- time)
```

plays the mix straight away from the specified time plus preroll and information from the reference mix being updated will be added to the resultant mix as before.

### The Mix Options Box in an Update Mix

Back to basics. Set up an Update Mix with GOTO MIX EX. The Mix Options box will now display the full list of fader status controls (see Figure 5). These options, either singly or combined, control the selection of fader statuses as required. Three of the controls have already been described but we provide the following summary to complete the picture.

1. **UA = Update Absolute** Update Mixes.
   This allows faders in an update mix to be switched to Absolute.
2. **RC = Revise Cuts**
   Update Mixes.
   This provides extra facilities in an update mix for editing cuts.

3. **AT = AutoTakeover**
   New Mixes and Update mixes.
   This allows faders in an active write mode to be faded back to Replay of the reference mix.

4. **PV = Preview**
   New Mixes and Update mixes.
   This allows fader changes to be rehearsed on monitor before being selectively written to the mix.

5. **IP = Immediate Pickup**
   New Mixes and Update Mixes.
   Operating a cut button or moving a fader when a channel is in Replay, immediately switches the fader from Replay into the fader status determined by the above controls.
The options can be selected/deselected at any point in a mix in two ways, whichever is the most convenient:

Either use the 1, 2, 3, 4, 5 keys as shown in the list above to select any of the options and a marker will on the screen display will confirm selection. So:

1 selects/deselects Update Absolute
2 selects/deselects Revise Cuts
....and so on.

or type the first letter of the control name. So:

U selects/deselects Update Absolute
R selects/deselects Revise Cuts
A selects/deselects Autotakeover (AT for Sync System users)
P selects/deselects Preview
I selects/deselects Immediate Pickup

In either case pressing 0 (zero) will clear down selected controls to those setup as standard in the Setup Menu - see below.

Mix options can be selected as defaults in the Mix page of the Setup Menu. See Page 5-75 for further details.

Fader Status at the Start of an Update Mix

After an update GOTO or SETUP MIX command has been issued, the tape will locate if necessary and the system will advise the following (see Figure 5):

It is ready to mix - ‘READY’
The name of the mix being updated - ‘Updating ......’
‘You may adjust (fader) status now’
Press EXECUTE to start the mix

Note that if you have been using Software Groups in the New Mix, you may also see a GROUPING ON message or the Group set page may be displayed. (See Software Control Groups Page 5-89 for further details).

The standard status for all faders (except the Master Fader) at the start of an Update Mix is REPLAY. In other words, the reference mix data will play back until you decide to update with a write status. However, any faders previously set to Manual in a New Mix will remain in Manual. If required, any such channels may be switched to Absolute by pressing the fader status button; they have to switch to Absolute as there is no information to update. The Master Fader will be in TRIM status (see below) at the start of an Update Mix. Its status can be switched, if necessary, by using the FSM key (see Page 5-77).
At this stage, it is possible to set up a default selection of fader status(es) for use in further Update Mixes. For example, you may wish to start Update Mixes from now on with all channels in Trim or Safe. This can be achieved by using the COPY function (see Page 5-79). SAFE SET is described on Page 5-80.

Assuming that no status controls are selected in the Mix Options box, faders may be individually cycled through REPLAY (no LEDs), TRIM (solid green LED), ABSOLUTE (solid red LED) and so on. At this point, the FSM key will cycle all faders. Use this in conjunction with individual buttons to set the console as required.

The simplest way to update channels in a previous mix is to work in TRIM with no status controls selected. If you have not encountered the concept of Trim before, simply imagine the fader as a control which can trim the stored mix level up or down by any amount within the range of the VCA. For example, if you move a fader in TRIM up by 2dB (and then leave it at that position), all your previous mix moves will play back, but 2dB higher. Of course, once you have moved the fader up, it can still be varied in level. Remember though that you are always writing a trimmed version of the the stored mix (i.e. the one you are just about to play back).

At the head of a mix, TRIM faders are disconnected and have no effect on the mix data about to be played. They may be moved to a convenient reference point, somewhere around -10 on the scale, before the mix starts, which will then give you a visual indication of how much you have trimmed a fader up or down from its original position.

Press the EXECUTE key to carry on.

After the mix preroll time, individual fader buttons will toggle TRIM, REPLAY, TRIM (unless any of the Mix Options have been selected (see Page 26). Moves may be made on faders to update previous levels. Cuts may be added, lengthened or shortened. All update information is being written to memory at the moment. The previous mix has been copied there by the computer as a reference, to allow its modification.

As the mix is playing in MIX RUNNING, any faders in TRIM may be moved to edit the information in memory. Subsequently pressing the fader status button switches the fader back to REPLAY of the reference mix (but see Insert Mixing, Page 5-32). While in REPLAY the fader is disconnected and may be moved to any convenient position. Further edits may be made by switching the fader back to TRIM with its status button. Any changes in the fader position while in REPLAY will be ignored when TRIM is reselected in MIX RUNNING.
Also, with faders in TRIM, additional cuts may be written onto those replayed from the reference mix. If a replayed cut is too short or too long, wait for the cut to happen and press the cut button to match. Then press and release the cut button to edit the end of the cut. Further replayed cuts are unaffected.

If you wish to write information on a channel or channels completely from scratch, you should use ABSOLUTE from the start of the mix. Absolute faders in an Update Mix behave exactly as in a New Mix but may be returned to REPLAY of the reference mix (or the last pass - see Insert Mixing Page 5-32) at any time by pressing their individual fader status buttons. Note, however, that if having returned to Replay during the mix, you wish to reselect Absolute, you will need to select Update by Absolute - see Page 5-35. Remember that the default write status during an update mix is TRIM.

It is quite common to use the first (New) mix in order to write cuts, with the faders set to an arbitrary monitor mix. If this is the case, you will use your first Update Mix to start getting the faders to an optimum balance. The best fader status for this would be ABSOLUTE, but this of course would neatly eliminate your cuts. To overcome this, you need to be in a status known as PLAY CUTS ONLY. Turn to Page 5-36 for details.

Rollback in an Update Mix

Once a mix is started, the tape machine can be controlled by both the transport keys and autolocate commands. In this way the tape may be spooled forwards to pick up the reference mix later on or spooled back and played to review the current mix so far. When the tape is wound back the message changes from M1H RUNNING to M1H REVIEW (or M1H ENABLED) as with a New Mix. When the tape is played in MIX REVIEW, the faders are disconnected and current mix information is played back. When the tape crosses the point at which it was spooled back, all faders that were in TRIM will REVISE back to TRIM again automatically; faders that were set to REPLAY before Rollback will stay in REPLAY; faders that were set to ABSOLUTE before Rollback will switch back to ABSOLUTE.

The Revise Philosophy

REVISE is an instruction to the computer to switch faders from REPLAY in MIX REVIEW back to their write status. REVISE only differs from JOIN (Page 5-23) with regard to TRIM faders, including those in READ/WRITE CUTS (see Page 5-35). Any mismatch of fader position with current mix levels will be ignored when TRIM faders are revised from REPLAY back to TRIM, as the fader null is recalculated at this point.
Pressing the REVISE key in MIX REVIEW will switch all faders back to their active write status; TRIM faders will become active without any level jumps. Thus, TRIM faders may be moved freely to any convenient position while in REPLAY.

Pressing the JOIN key will switch all faders as before, but with a set level change for TRIM faders if so desired. The degree of level change will be determined by any relative fader movement made (in MIX REVIEW) from the last level written before you rolled back.

The AT (TIME) REVISE command is used in the same way as the AT (TIME) JOIN commands described under New Mixes (Page 5-23). When the tape is spooled back and played, all faders or only those specifically set to Preview, will switch to their active write mode at the specified time. Trim or Preview Trim faders will revise to the current mix levels regardless of their physical position. Cuts or previewed cuts will, however, be written at the specified time.

Individual faders may be switched from REPLAY back to TRIM by pressing their status buttons. Whether this is a JOIN or REVISE switch in MIX REVIEW, depends on the setting of an option found on the Mix Page of the Setup Menu, ‘Selected trim faders will JOIN in MIX REVIEW - Yes/No’. The choice is yours (see also Page 5-76).

Out of rollback, in MIX RUNNING, where TRIM faders are switched individually from REPLAY to TRIM, they will always REVISE regardless of the Setup Menu option decision.

We suggest you read this Rollback section again. If you are still not happy, the following examples may help.

**With the option set to No.** An attempt at updating a fader has not been entirely successful. Wind back the tape and pickup the mix for that fader simply by pressing its status button. Be reassured that there will be a seamless transition back to Trim, regardless of any changes in the fader position. New Trim information can be written on selected faders while other faders will replay their existing information from the current mix.

**With the option set to Yes.** While in a mix a track needs to be trimmed from a specific cue point as the tape is playing. The amount of adjustment can only be judged by playing the tape past the cue point and then setting the level. This achieved, wind back the tape into MIX REVIEW and at the cue point switch the fader to TRIM with its status button. The written fader level will leap to the new set level and mixing can continue.

🌟 DIB
Insert Mixing

When a fader is updated in Trim, it uses a reference mix as the source for the moves that are being trimmed. For example, the command GOTO MIX X loads Mix X as the reference mix to be trimmed.

With previous (G2.12) software, regardless of the number of times the system is rolled back and channels are switched in and out of Trim, when they are switched to Replay after a correction, channels always return to Replay of the reference mix. This was designed so that in the case of multiple rollback, you always return to a 'safe house' - the last mix you stored.

Normally, once a certain amount of moves are right, the mix is saved to disk using the END command. Issuing a subsequent GOTO MIX command will set up the good moves saved to disk as the new reference mix.

Now let's examine an alternative mix effect obtainable with the current software (G3.0+). Mix X has been loaded as the reference mix. A first Update pass is made with the vocal channel in TRIM, and the vocal raised by a couple of dB to fight with the ever increasing rhythm track (see Figure 6).

![Figure 6](image)

Having reduced the level of an offending guitar, it is now decided to level out the vocal at Move A. The tape is rolled back and the fader dropped into ABSOLUTE via Level Match. The move is levelled and the fader switched back to REPLAY - this time replay of the first trimmed update pass, not the reference mix (see Figure 7). This is known as 'Insert Mixing' as also described for New Mixes on Page 5-17.
Whether you return to the last pass or the reference mix is set in a menu option in the Mix Setup menu (see Page 5-75). Note that the option only affects Update Mixes. New Mixes are always Insert Mixes. With the option set to Yes, the system always returns to replaying the last pass as described above. With the option set to No, the system always returns to replaying the level and fader moves of the mix that is being updated from disk.

Notes for Users of Previous G Series Software

In order to provide the Insert Mix facility, the G2.12 Mix Compare Buffer is now used as an Insert Mix Buffer. This means that On-Line Mix Comparisons and On-Line Joins are no longer available.

Trimming Faders Written at Zero

In previous versions of G Series software, an operational oddity existed as follows. Imagine you are trying to use a location door slam. A suitable pass may be written as follows: Fader fully closed right up to the time when the door slams, fader opened and kept open until the sound dies away, then closed again. On a second pass you may decide that you need to raise the level of the door slam. You do this by going into Trim and pushing the fader up.

Suddenly, you notice that you are hearing the background noise that you have been trying to shut out, prior to the door slam. This is because the fully closed fader has been ‘trimmed’ open by raising the level for the door slam.
To overcome this, the software now always treats the bottom of the fader as \(-\infty\), that is no amount of trim will increase the written level. In order to trim up from this special level, it is necessary to bring the fader fully down to the bottom of its travel before putting it into Trim. Although this may sound an operational nuisance, remember that a fader written at such a low level would probably have required two trim moves to bring it up to a normal level anyway. Another effect caused by this change is that it is now always possible to fade out completely on a Trim fader, no matter where it was nulled.

The Asterisk * Key in an Update Mix

The * key is used for calling up information in a mix. For an Update Mix, pressing the * key cycles the following screen display at the top of the command box:

- The name of the mix being updated
- The mix memory space remaining
- The FSM mode
- The Master Fader status
- The current Mix Options box selection

Storing an Update Mix

So, as with a New Mix, an Update Mix can be cycled through section by section if necessary and updated fader by fader until a satisfactory edit of the reference mix is achieved.

Press the END key and follow the instructions as before to permanently store the updated mix. The Mix List page will be displayed to list the mix names given so far.

Note that if you press END before you have reached the end of the reference mix, the newly stored update mix will still be as long as the reference mix. The system always assumes that, even if you are only updating a part of the reference mix, you still wish to keep those parts of the reference mix that you did not update in this latest attempt.

Furthermore, regardless of whether you have Insert Mixing (Page 5-32) selected or not, as soon as you press END the system takes the mix levels from that point on from the reference mix. The only exception to this is when you have rolled back, made a correction, and then pressed END before reaching the rollback point. In this case, the system will keep your current mix moves up to the rollback point and then switch to the reference mix for the stored update.
Mix Options in an Update Mix

In an Update Mix, the Mix Options box allows individual or grouped (see Software Groups Page 5-89) faders to be switched between several statuses at any point, as the situation requires.

Update Absolute (UA)

This is toggled by pressing 1 or U. With this control selected, faders may be immediately switched to ABSOLUTE in an Update Mix. If fader information from a stored mix needs to be re-written from scratch for a section of that mix, then use this option.

Once the control is selected, Update by Absolute will be displayed. If you need to carry on in ABSOLUTE from the current mix level, use the Level Match facility (Page 5-15). When the fader is at the correct position (Preview may also be used in conjunction with UA), press the fader status button and write the new information in ABSOLUTE (indicated by the red LED). To revert back to replay of the reference mix, deselect Preview if necessary, press the fader status button again and the fader will drop into REPLAY. Repeat this process as required. To revert back to TRIM, deselect UA and press the fader status button again.

Revise Cuts (RC)

This is toggled by pressing 2 or R, and is designed to edit cuts further than is possible with the normal TRIM status. If a channel is switched using this control, its fader status is always TRIM and the Setup Menu option discussed on Page 5-31 will apply in MIX REVIEW. However, the cut information may be separately toggled between writing absolute cuts (WRITE CUTS) and cut replay (READ CUTS).

Once the control is selected, Revise Cuts will be displayed. The start status of this toggle is always WRITE CUTS. Therefore, in MIX RUNNING, where cuts from the reference mix need rewriting, pressing the fader status button switches to WRITE CUTS first (both LEDs on solid). At this point new cut information can be written by operating the cut button for that section if required. Pressing the fader status button again switches to READ CUTS (solid green, flashing red LED) and cut information will be replayed until the fader status button is pressed again to return to WRITE CUTS. Selected faders will remain in this toggle until Revise Cuts is deselected.

In this way, unwanted cuts or selected parts of a pre-written cut may be removed by selecting WRITE CUTS with the cut button up (off).
Play Cuts Only (UA + RC)

This is enabled when Update Absolute and Revise Cuts are selected at the same time.

When channels are switched using this option, fader and cut information are separated. Faders will be in ABSOLUTE. Cuts, with regard to the mix, will be in REPLAY but the additional facility to switch them on monitor is provided.

Select the control by pressing 1 and 2 or U and R. Play Cuts Only will be displayed on the screen. Pressing fader status buttons will switch those faders to Play Cuts Only (solid red, flashing green LED).

New fader information may now be written to the current mix while cuts are replayed, unaffected, from the reference mix. However, the cut buttons and VCA group solo buttons may be used purely for monitoring purposes.

Should it be necessary to actually rewrite a cut, you have two options. First, on the Mix page of the Setup menu (see Page 5-75) you will find the entry: ‘Edit Cuts in Play Cuts Only Yes/No’. If you set the option to Yes, cuts will be in TRIM in Play Cuts Only and can be edited in the usual way.

Bearing in mind that the Setup menu can not be accessed during a mix, you may need to use the following alternative to edit a cut. Deselect Revise Cuts and press the fader status button to select ABSOLUTE. (Other selected faders will remain in Play Cuts Only, of course). Write the new cut, reselect Revise Cuts and press the fader status button again. The fader will switch back to Play Cuts Only. Play Cuts Only on all faders can be used to update a New Mix where only cuts (to clean up tracks etc.) were of interest.

Autotakeover (AT)

This wonderful feature has been fully described under New Mixes (Page 5-17) and can just as easily be used in an Update Mix with faders in Trim or Absolute. Autotakeover can equally be used with Play Cuts Only, where selected faders have been switched to Absolute, but not in Revise Cuts!
Preview (PV)

Preview is fully described under New Mixes (Page 5-18) and its use in Update Mixes is the same but extended to cover Preview Trim, Preview Play Cuts Only, Preview Revise Cuts as well as Preview Absolute. Simply select Preview plus the required control and switch channels using the fader status buttons. PREVIEW ON/OFF may be toggled with the FSM key. Selective Joins and rehearsals are the same as described under Preview for New Mixes (Page 5-18).

AT (TIME) REVISE

This command is used in the same way as AT(TIME)JOIN commands described under New Mixes (Page 5-23). When the tape is spooled back and played, all faders or only those specifically set to Preview, will switch to their active write mode at the specified time. Trim or Preview Trim faders will revise to the current mix levels regardless of their physical position. Cuts or previewed cuts will, however, be written at the specified time.

Immediate Pickup (IP)

This has also been described previously (Page 5-19). IP is available whenever a channel or channels are in Replay, except after Autotakeover. With IP selected, moving a fader or operating a cut button immediately switches the channel to the next fader status as determined by the current Mix Options selection. With no other option selected, this will be from REPLAY to TRIM.

If Preview is selected the channel will be switched to PREVIEW TRIM to audition a level which may then be switched to TRIM by pressing the fader status button.

An Example using the Mix Options Box

An Update Mix is being created and it is noted that repairs need to be made to a channel for a section of the mix. The cut information is OK but the fader needs rewriting from scratch i.e in ABSOLUTE. Wind back the tape before the section and select all controls. Play the tape. Move the fader and Preview Play Cuts Only will be selected, to audition the new fader level. Toggle PREVIEW ON/OFF with the FSM key if required. Having set the level, press the fader status button and the channel will drop in to Play Cuts Only where cuts from the reference mix will be played back unaffected but the fader will be ABSOLUTE.
Rewrite the necessary fader information and when this is nearly complete press the fader status button again. Autotakeover will be enabled, allowing the fader to be smoothly faded back to replay of the reference mix and the repair work is done.

Press 0 (zero) to clear down all control selection to the Setup Menu standard and carry on mixing.

General Note

From the previous information it will be seen that mixing with G Series is a very interactive combination of the channels with their fader status buttons and the keyboard. Given the additional features of Software Control Groups (Page 5-89) and the 20 assignable function keys on the G Series keyboard, this combination allows a variety of tricky operational requirements to be simply achieved.

On Page 5-99, you will find a reference table for all the status LED displays. By now you may be a little confused by some of the more unusual ones.

For further information on advanced mix facilities and Software Groups, G Series users should now turn to Page 5-75 (the white pages)
Ultimation

The following (grey) pages cover the operation of Ultimation mix systems. We will assume that you have read the first few pages of this Mix System section (Pages 5-5 to 5-9), in particular the paragraphs on Ultimation/G Series compatibility.

As mentioned earlier, experienced G Series users will be able to transfer to Ultimation without any problem at all. Over the page you will find a reference table of the additional commands and screen messages in Ultimation software. If you need further information on any of the topics shown here, simply turn to the listed page number.
Ultimation Reference Guide

Indicators and Screen Messages

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>All LEDs flashing</td>
<td>Indicates fader stall</td>
<td>5-44</td>
</tr>
<tr>
<td>Alt (yellow) LED</td>
<td>Indicates SNAP ON mode when lit</td>
<td>5-45</td>
</tr>
<tr>
<td>Motors On</td>
<td>Signal passes through the fader</td>
<td>5-44</td>
</tr>
<tr>
<td>Motors Off</td>
<td>Signal passes through the VCA</td>
<td>5-44</td>
</tr>
<tr>
<td>Snap On</td>
<td>Faders write when touched and return to Replay when released</td>
<td>5-45</td>
</tr>
<tr>
<td>Snap Off</td>
<td>Faders write when touched and only return to Replay when fader status button is pressed</td>
<td>5-46</td>
</tr>
</tbody>
</table>

(Snap ON/Off are only available in Motors On)

Update status locked | 'Locked Statuses' mode has been selected, in Mix Running or Mix Review, with the Fader Status Master key (FSM) | 5-78 |

GROUP SET | Software groups are in place and active | 5-89 |

GROUPING ON | \( \text{Loading 6 Series mix...} \) A G Series mix is being converted to Ultimation format | 5-9 |

Commands

**Bold type** indicates command keys, **NORMAL TYPE QWERTY keys. EX signifies the EXECUTE key.**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO EX</td>
<td>Toggles MOTORS ON/OFF</td>
<td>5-45</td>
</tr>
<tr>
<td>SO EX</td>
<td>Toggles SNAP ON/OFF</td>
<td>5-46</td>
</tr>
<tr>
<td>. (period)</td>
<td>Displays Motors On/Off state</td>
<td>5-44</td>
</tr>
<tr>
<td>PRESET</td>
<td>Accesses/clears Group Setup menu in Mix Enabled/Ready/Running/Review</td>
<td>5-90</td>
</tr>
<tr>
<td>RUB</td>
<td>Clears the current software group in Group Set mode only</td>
<td>5-92</td>
</tr>
<tr>
<td>COPY</td>
<td>Merges group data into current mix in Group Set mode only</td>
<td>5-92</td>
</tr>
<tr>
<td>REVISE MIX (Name) TO G EX</td>
<td>Converts Ultimation mix to G 2.12 format</td>
<td>5-9</td>
</tr>
</tbody>
</table>
Getting Started

As with E or standard G Series systems, the Ultimation mix system operates in two basic modes:

New Mixes, where a completely original mix is created from scratch. Fader status is normally Absolute.

Update Mixes, where a mix already created is edited to form a revised version. Normal fader status can be Absolute or Trim.

Assuming sufficient information has been supplied to the computer, you can start mixing. It is important to name a TITLE first and probably some CUES as the basic monitor mix is adjusted. You may already have some hardware groups in place. Software Groups (see Page 5-89) can further extend the grouping possibilities.

Setting Up a New Mix

There are two ways to initiate a New Mix. If the tape is already located at the correct point to start, type:

    SETUP MIX EX

This will enable the mix system and prepare it for a New Mix. The screen will show the information in Figure 8.

If the tape needs to be located first, press the MIX ON/OFF button located in the set of computer status keys adjacent to the keyboard. This will enable/disable the mix system, as indicated on the screen by MIX ENABLED in the Status box.

Now type any locate command. In this instance, type:

    GOTO TITLE EX

The tape will locate to the Title start point plus preroll, and the information in Figure 8 will once again be presented.

At this stage, it would be worthwhile to explain the various messages displayed. Starting with the Status box (top right hand corner) the system is prompting that it is READY and raring to go. MIX ENABLED is displayed underneath.
**new mix**

You may adjust status now. Press EXECUTE to continue.

<table>
<thead>
<tr>
<th>client: AARDVARK ASSOCIATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>reel: COLIN BATEMAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>title</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOREVER CHANGING</strong></td>
<td>12:29:21.01</td>
<td>12:37:13.05</td>
</tr>
</tbody>
</table>

To the immediate left of the Status box is the Mix Options box, displaying the fader status 'controls' that may be called up to select different fader statuses. These will be fully explained a bit later. The Command box (top left hand corner) is displaying computer prompts.

**new mix** indicates that this is a New Mix, making no reference to any other. You may adjust status now refers to the status of the console faders. A red LED is illuminated on the faders, indicating that they are in ABSOLUTE status i.e. ready to write new mix information into memory.

Individual faders may be toggled using their fader status button (above the status LEDs) between ABSOLUTE and MANUAL. Manual has no LED display and makes the fader operate as a monitor fader only, i.e. no information will be written to memory. The function of the yellow 'alt' LED will be described later.

The status of all faders may be toggled at this point using the Fader Status Master (FSM) button situated with the computer status buttons on the keyboard. Use this button in conjunction with individual fader status buttons to achieve the desired fader statuses. The FSM key, as discussed later, has a variety of functions.
Many other functions and options in mixing are accessed or disabled using the toggle principle. If they are implemented by using the QWERTY keys, then the REPEAT key effectively becomes the toggle switch.

Starting a New Mix

Press the EXECUTE key to start the mix. (Do not press the transport PLAY key at this point.) This will start the cogs in the processor whizzing around and put the tape machine into Play.

Now the mix has started and, after the preroll time, fader moves and cuts with their associated timecode positions will be written to memory. The message MIX ENABLED becomes MIX RUNNING. Once in a mix, whether it be a New Mix as now, or a later Update Mix, this is always the current mix until it is either stored or cancelled. The tape transport keys and locate commands may now be used. (Note however, that commands such as GOTO/PLAY MIX etc. will not be accepted until at least one mix has been stored).

If the bargraph display of fader levels is enabled, the fader level moves in memory will be monitored on the screen as shown in Figure 9. The LARGE/SMALL key usefully toggles the bargraph display with any list information called up.

\[ \begin{array}{c}
**\text{new mix}\ ** \\
\text{AT} \\
\text{PU} \\
\text{IP} \\
\text{MIX RUNNING}
\end{array} \]

\[ \begin{array}{c}
1111111111122222 \\
123456789012345678901234 \\
2222223333ABCDEFGH \\
56789012 \\
UUUUUUUUUU M \\
12345678 F
\end{array} \]

Figure 9
Viewing list pages by using the ↑↓←→ cursor keys will be useful here. The bargraph display can be turned on or off by typing BA EX.

With the bargraph display turned off, the LARGE/SMALL key toggles current list information with a large timecode display (and the synchroniser display if fitted).

By now you may have pressed STOP to try the above. Press the transport PLAY button to carry on mixing.

Mix Review

At a convenient point, wind the tape back either using the transport key or a locate command. The MIX RUNNING message becomes MIX REVIEW. Should you pass the start of the mix, MIX REVIEW reverts to MIX ENABLED, indicating that there is no mix to review at this point. Note that the bargraph display (if on) and the cut lamps, indicate any information in memory as you rewind. The faders, however, are not motor driven in rewind (or to be accurate, at any wind speed greater than 2 x play speed) as their movements serve no purpose at this stage and, at the least, may be distracting. As soon as the machine stops or switches through Stop to Play, the faders will immediately adjust themselves to the correct physical position for the mix data at that point, ready to track the data under motor control.

Note that, if for some reason a fader motor stalls (maybe someone left a cup of coffee in the way), all the LEDs will flash until the cause of the stall is removed.

Now play back the mix so far. The faders and cuts are now in REPLAY status (no LEDs). If you let the tape play far enough, then at the point from which the tape was wound back, the faders will drop back to ABSOLUTE and mixing can continue.

If in your first pass you simply wish to get rough levels from scratch, and then roll back to write those levels from the start of the mix, the faders will of course reset themselves to their original start positions as soon as you move forward after the rollback. Try this and you’ll suddenly find the concept of moving faders rather frustrating. Ultimation has a simple way around this problem. Having set your rough levels, and before you roll back, type MO EX to turn the fader motors off. Now when you move forwards again, the faders will remain in the last position you left them. If you press the JOIN key, before you hit the Play key, all channels will switch to ABSOLUTE, and you can then write the rough levels from the start of the mix.

Note that in Motors Off mode, the channel signal will be passing via the VCA and the fader’s touch sensitive knob will be inactive. The motors can be turned on again at any time by repeating the MO EX command. The current state of MOTORS ON/OFF can be displayed by pressing the . (period) key...
Assuming that you have written your basic levels for a reasonable time into the mix, you may want to correct/improve some of those levels. Rewind the tape again and, at a suitable spot, touch a fader at the point you wish to take over. That fader will drop automatically out of REPLAY and back to ABSOLUTE. Subsequent information for that fader will be rewritten to memory while the other faders replay information from the previous pass. Obviously, as many faders as you like, or have fingers for, can be switched to ABSOLUTE in this way.

**Snap On/Off**

Having corrected the move, ‘dropping out’ may be achieved in one or two ways. If the yellow Alt LED is lit as you hold the fader, this indicates that you are in SNAP ON mode (see Figure 10) and the fader will return to REPLAY as soon as you take your finger off the fader knob.

![Figure 10](image-url)
If the Alt LED is off (SNAP OFF mode - see Figure 11), the fader will continue writing until you press the fader status button. SNAP ON/OFF can be selected by typing SO EX at any time during, or at the head of, the mix. The two modes are provided to cover situations where you either want to quickly pop in and out of write (SNAP ON) or drop into write for an extended period (SNAP OFF).

Note that SNAP ON is only available with MOTORS ON. SNAP OFF (with MOTORS ON) is the default setting on computer boot up.

If you do start writing in SNAP ON mode and then decide that you need to extend the move, but you don't want to hold on to the fader, simply press the fader status button, which will lock you into ABSOLUTE until you press it again. Note that faders can also be initially switched into ABSOLUTE by pressing the fader status button. This may be useful if you are a bit nervous, and don't want to run the risk of writing a small change in level as you touch the fader.

![Figure 11](image-url)
When making corrections in a New Mix as described above, it is possible that you may switch to REPLAY past the rollback point. In this case, channels will return to REPLAY at the last written fader level or the last written cut state.

Now suppose that, having made a correction, you wish to make a further adjustment to that section. Roll back again and drop the channel into Absolute at the right spot. When you return to Replay, you will find that you return to replay of your last pass. We call this ‘Insert Mixing’. This feature is further described under Update Mixes (Page 5-63).

**Autotakeover**

The method of ‘dropping out’ described above is fine if you are dropping out in a gap in the information on that track. There may, however, be many situations where, having corrected a fader move, you want to get back to the previous pass level without a level jump. This facility is provided in the form of Autotakeover, one of the controls in the Mix Options Box.

The Mix Options can be selected at any time by either typing the first letter of the option name i.e. A, P etc. or by simply using the 1, 2, 3, 4 or 5 keys according to the choice i.e. 3 = AT (Autotakeover), 4 = PV (Preview) etc. Note that 1 and 2 relate to two further options - UA (Update Absolute) and RC (Revise Cuts) which are only available in an Update Mix (see Page 5-66).

Autotakeover (see Figure 12) allows faders writing the current mix levels to be moved back to the level of the previous pass, and to be disconnected at that point. The previous mix levels and cuts will then be played back until the fader is switched from REPLAY back to ABSOLUTE.

Select the option, before you make the correcting move, by typing A or 3 (note that SSL Synchroniser System users will need to type AT). Make the change and then press the fader status button. The fader will still be in ABSOLUTE but either the red or green LEDs will flash to indicate the direction in which to move the fader to match the previous mix level. For a flashing green LED move the fader away, and move it towards you if the red LED is flashing. This may be done as quickly as required. When the fader is at the level of the previous pass, it will be disconnected and drop in to REPLAY. At this point, the audio is playing back via the VCA. When you let go of the fader, it will automatically return to track the mix under motor control. Repeat the dose as necessary.

The above description assumes that you are in SNAP OFF. If the system is currently in SNAP ON, you will need to press the fader status button twice to select the Autotakeover nulling mode. (The first press ‘locks’ the fader into Absolute - see SNAP ON Page 5-45)
Preview

Another mix option, that you may find useful in a New Mix, is Preview (PV). Select it by typing 4 or P.

Once in a mix, Preview can be used to audition level changes and cuts and then selectively write them. With Preview selected, touching a fader or pressing a fader status button will switch the fader to PREVIEW ABSOLUTE i.e. the monitor level of the fader. This is indicated by the red LED flashing. The written level of the fader to the mix remains as it was when switched, and the fader may now be moved and monitored to set a new level.
If required, the audition level and the written level may be compared by toggling the FSM key, and the screen will display PREVIEW ON/PREVIEW OFF. All faders currently in Preview will be toggled with the FSM key. Having set the audition level, and with the tape running, press the fader status button and the fader will switch to ABSOLUTE write status immediately, as indicated by the solid red LED. If a number of faders need to be switched at the same time, press the JOIN key.

**Preview in Mix Review**

Faders switched to Preview in MIX RUNNING will stay in Preview when the tape is wound back. When creating a mix, by passing through it several times and building it up fader by fader, Preview may be used in the MIX REVIEW stage.

This can be extremely useful where you have rolled back, dropped the fader into ABSOLUTE and then, after a series of adjustments, found a new level that you want to keep for that whole section. When you roll back again, as soon as you move forward the fader will of course switch to REPLAY and and you lose you preset level - just what you don't want! If you select the fader to Preview however, before you roll back, it will stay where you left it when the machine goes into play. Now simply press the fader status button at the point you want to write the new level from, and the fader will switch to ABSOLUTE. With the system set to Preview Off you will also be able to hear the previous level on that channel before the 'drop-in'.

An alternative, if not rather less sophisticated, method of coping with the above situation is to turn the fader motors off with the MO EX command just before you roll back. Your previous pass levels will still play back via the VCAs. Hit the REPEAT key as soon as you’ve switched the fader to ABSOLUTE to bring the motors back on.

If required, several faders may be selected to Preview in MIX REVIEW. To switch them all simultaneously to ABSOLUTE, press the JOIN key. In this case only faders in Preview will 'join' to the mix. All other faders will stay in REPLAY, thus their written information will remain intact.

The combination of PV and AT can be extremely powerful where any change in level across mix edits is undesirable. Also, combining Preview and JOIN is especially useful in Timed Joins as described on Page 5-53.
Using the methods described above, a mix can be built up section by section, fader by fader, working purely in memory until the end of the Title. Cycle commands, possibly CYCLE TITLE, will be of assistance in making the system perform these mundane operations.

It is therefore quite feasible, with the additional facilities to be described shortly, to create a final mix from stage one, with no reference to previously stored mixes. However, given the minimal risk factor of any memory based system and the possibility of a power shutdown, long periods of mixing could be lost irretrievably.

A permanent store of mix data so far can be made simply by pressing the END key (see below). Not only does this prevent the possible problem above but it creates a base mix which can be used as a reference and updated with more options available.

Storing Mixes

When the current mix in memory has been created as a final version, or at a convenient point to take advantage of the extra options available in Update Mixes, it should be stored.

Press the END key, the tape will stop and the prompt Name of mix? will be displayed on the screen. A description may now be typed in using the QWERTY keyboard, followed by the EXECUTE key. If the EXECUTE key is pressed with no name typed in, the mix will be assigned a number by the system as it is stored. System assigned numbers are always followed by an asterisk. To prevent possible confusion, it is therefore best not to use an asterisk when typing in a numbered identification.

The mix is now stored under its Title on the current Reel, either on the Data Cartridge or Reel disk, and a Mix List appears (see Figure 13). You'll notice that the system automatically gives you a readout of the remaining storage space on the Reel. With the mix list on the screen, the ↓ cursor key displays an alternative page for extremely long mix names and the ↑ cursor turns to a page showing the size and time/date when those mixes were stored. From now on, LIST MIX EX will present the mix list!

Naming Mixes

The directory in a Title for name identification of mixes is a finite size, regardless of the REEL storage available for actual mix data. It would be wise to consider this when naming, as the bigger the mix name the fewer the number of identifications may be stored with mix data. For example, if all the mixes stored with a Title are named with just two characters, 66 mixes may be stored.
If mixes are named with ten characters each then 43 mixes may be stored. Further mixes may be stored should NO ROOM IN DIRECTORY be prompted. Refer to Page 4-5 then type END EX as described on Page 5-87.

Mix names may be changed at any time by entering: MIX Name NAME New Name EX. To change mix start and end times, refer to Page 5-86.

3988 sectors left:
2% of reel used.

MIX ENABLED

<table>
<thead>
<tr>
<th>title</th>
<th>GROOLETTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>mix</td>
<td>from</td>
</tr>
<tr>
<td>-</td>
<td>23:59:29</td>
</tr>
</tbody>
</table>

Figure 13

Cancelling Mixes

When creating a mix, it is always the current mix until it is stored, cancelled or the power is turned off. An attempt at a mix may be stopped at any point by pressing the CANCEL key.

As soon as the mix has started, pressing CANCEL once presents the screen display You want to cancel?, but the mix continues. This is to prevent a potential disaster if the cancel function is being used mistakenly to clear a screen display or reset a command line. Pressing the CANCEL key again ensures that the attempt is cancelled. Pressing any other key apart from Y clears CANCEL.

Pause for a Digestion of Information Break (DIB).
Additional Facilities

So far, the intention of this Mix System Section has been to explain the fundamental operational theory. There are many options which can be used in New Mixes (and their updates) which are now described.

Creating a New Mix using Locate Commands

The PLAY and CYCLE Commands below (as long as the mix system is enabled) will equally start a New Mix:

```
PLAY TITLE EX
CYCLE TITLE EX
PLAY CUE EX
CYCLE FROM TIME TO TIME EX
```

Having issued a cycle command for a New, Update or section of a Mix, it is likely that the cycle will be interrupted to wind back and correct a move or stopped just for a break. Typing:

```
PLAY CYCLE EX
```

will continue the cycle from the current position.

Naming and Listing

While mixing, Total Recall is not available. However, all lists of information may be displayed, calling up Cue points, Events, Sync marks, Notes etc, to help in the mix.

Additional Cues, Events, Sync presets, Sync marks and Tracks may be named or adjusted while mixing but the LIST (Information) Page cannot be changed during a Mix. Automated drop-ins may be performed in conjunction with the mix in a variety of ways and are described later (Page 5-88).
The Asterisk * Key

This key is used while mixing to cycle through a display of information at the top left of the screen.

In a New Mix pressing this key will cycle:

**new mix**
Memory space available
FSM mode
Master Fader status

Timed Joins

While in a mix in MIX REVIEW, the JOIN key is interpreted by the system as a command to drop in to MIX RUNNING from MIX REVIEW. A known JOIN point can be executed by using the

AT (TIME) JOIN EX

custom in MIX REVIEW, where TIME is a timecode value or Cue within the bounds of the current mix being created. Having rolled back, the JOIN point may be nudged nearer using the command:

AT TIME - time JOIN EX

If a JOIN point is specified using the HERE EX command, having rolled back, the command:

AT JOIN EX

will perform the JOIN at the HERE point specified.

The command:

- JOIN EX

will automatically spool back the tape from its current position by the value of the - key plus preroll and JOIN at the - time.
Timed Join Rehearsal

Audition the fader levels and cuts in Preview then wind the tape back.

Using the commands shown above but omitting JOIN, will automatically switch the selected faders from PREVIEW OFF to PREVIEW ON at the specified time, thus rehearsing the changes.

These changes can be repeatedly rehearsed using the +/- keys to adjust time.

Example command lines read:

\[
\text{AT CUE (or TIME) EX}
\]
\[
\text{AT EX}
\]
\[
\text{AT CUE + time EX}
\]
\[
\text{AT CUE - time EX}
\]

(- EX will not apply as a rehearse command)

When the fader levels/cuts are successfully rehearsed, repeat the command incorporating JOIN.

Immediate Pickup (IP)

This mix option control is selected/deselected within a mix by typing 5 or 1. It is typically only used in a New Mix in the MIX REVIEW stage where the tape has been rolled back to replay the current mix so far. Faders will normally be in Replay (no LEDs) unless they have been specifically switched to Preview. With Immediate Pickup selected, operating a cut button will immediately switch the channel to the next status determined by the current Mix Options box selection. Channels already set to Preview will switch to their write status.

In MOTORS OFF, the Immediate Pickup function can also be triggered by touching a fader. The touch-sensitive knob will be inactive but the system reacts to the slightest fader movement, thus providing an easy way to start writing on a channel (see Mixing with Motors Off, Page 5-72).
With MOTORS ON in a New Mix, roll back the tape, select Immediate Pickup and play the tape. If PV is not selected, pressing a cut button will immediately drop the channel into Absolute write status and new levels and cuts will be written to the current mix from this point. With PV and IP selected, changing cuts in MIX REVIEW will switch channels to Preview Absolute to audition new mix levels which can then be written by pressing individual fader status buttons or the JOIN key.

With fader motors off, all of the above still applies, with the function additionally being available from fader movement.

Phew!

DIB

General Note

Many mix options already described and more to follow, have been incorporated in the Ultimation mix system to accommodate a wide range of applications in the field. After reading through all the options, you may find some are not relevant to your particular needs. In which case, don’t worry about them now but remember that they are there for the future if necessary.
Update Mixes

Once there is a mix list, any of the mixes can be called up and edited on line. Update Mixes are formed by the computer making a copy of the stored mix, placing it in memory to become the reference mix and allowing it to be modified as the tape plays. Thus the stored mix is always kept, unless it is deliberately deleted.

(Note for E Series users. All Update Mixes using G Series software are Play Join mixes automatically e.g. GOTO MIX = GOTO JOIN MIX)

Whenever a portion of an existing mix is updated and stored, the resultant mix is at least as long as the reference mix being updated. Any information from the reference mix not played or updated will be automatically combined. The mix times may however be edited off-line, as described later.

Creating an Update Mix

As with New Mixes, the SETUP MIX commands automatically enable the mix system.

SETUP MIX HERE EX

will enable the mix system and prepare it for an update of the mix listed as current.

SETUP MIX Name EX  As above but for the named mix.

As long as the mix system is enabled (using the MIX ON/OFF key) an Update Mix can be started using the following commands. The mix name may be omitted if it is indicated as current in the mix list.

GOTO MIX (Name) EX

GOTO MIX (Name) AT TIME (+/- time)

(Where TIME is any specified timecode value. This value may be adjusted in the same command using the +/- keys as above).

All information from the mix will be placed as a reference in memory, regardless of AT or FROM times. These are just used as convenient locate points to start updating a mix. All of the reference mix will be automatically incorporated in the stored update. The tape will locate to the requested starting point plus preroll, and stop while the system awaits instructions.
If the following is entered:

PLAY MIX (Name) EX

the tape will locate to the start of the mix plus preroll and play into the Update Mix straight away. If the tape transport keys are not used, the tape will stop at the end point of the mix being updated, but the mix may be continued by simply pressing the transport PLAY key.

PLAY FROM MIX (Name) EX
repeats the above but the tape will not automatically stop.

CYCLE MIX (Name) EX
cycles the Update Mix over the time period of the stored mix being updated. As soon as any tape transport controls are used, manual control is resumed.

Having issued a CYCLE MIX command however, it is likely that rollback will be used to listen to or correct the mix. To continue the cycle, when satisfied, type:

PLAY CYCLE EX
The tape will play and when the mix has been updated to the cycle end time, the cycle will be restarted.

PLAY MIX (Name) FROM TIME (+/- time)
plays the mix straight away from the specified time plus preroll and information from the reference mix being updated will be added to the resultant mix as before.
The Mix Options Box in an Update Mix

Back to basics. Set up an Update Mix with GOTO MIX EX. The Mix Options box will now display the full list of fader status controls (see Figure 14). These options, either singly or combined, control the selection of fader statuses as required. Three of the controls have already been described but we provide the following summary to complete the picture.

1. **UA = Update Absolute**
   Update Mixes.
   This allows faders in an update mix to be switched to Absolute.

2. **RC = Revise Cuts**
   Update Mixes.
   This provides extra facilities in an update mix for editing cuts.

3. **AT = AutoTakeover**
   New Mixes and Update Mixes.
   This allows faders in an active write mode to be faded back to Replay of the reference mix.

4. **PV = Preview**
   New Mixes and Update Mixes.
   This allows fader changes to be rehearsed on monitor before being selectively written to the mix.

5. **IP = Immediate Pickup**
   New Mixes and Update Mixes.
   Operating a cut button (or moving a fader in Motors Off only), when a channel is in Replay, immediately switches the fader from Replay into the fader status determined by the above controls.
You may adjust status now. Press EXECUTE to continue

```
<table>
<thead>
<tr>
<th>mix</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUTS</td>
<td>23:59:29</td>
<td>1:03</td>
</tr>
</tbody>
</table>
```

Figure 14

The options can be selected/deselected at any point in a mix in two ways, whichever is the most convenient:

Either use the 1, 2, 3, 4, 5 keys as shown in the list above to select any of the options and a marker will on the screen display will confirm selection. So:

- 1 selects/deselects Update Absolute
- 2 selects/deselects Revise Cuts
  ...and so on.

or type the first letter of the control name. So:

- U selects/deselects Update Absolute
- R selects/deselects Revise Cuts
- A selects/deselects Autotakeover (AT for Sync System users)
- P selects/deselects Preview
- I selects/deselects Immediate Pickup

In either case pressing 0 (zero) will clear down selected controls to those setup as standard in the Setup Menu - see below.

Mix options can be selected as defaults in the Mix page of the Setup Menu. See Page 5-75 for further details.
Fader Status at the Start of an Update Mix

After an update GOTO or SETUP MIX command has been issued, the tape will locate if necessary and the system will advise the following (see Figure 14):

- It is ready to mix - ‘READY’
- The name of the mix being updated - ‘Updating .....’
- ‘You may adjust (fader) status now’
- Press EXECUTE to start the mix

Note that if you have been using Software Groups in the New Mix, you may also see a GROUPING ON message or the Group set page may be displayed. (See Page 5-94 for further details).

The standard status for all faders (except the Master Fader) at the start of an Update Mix is REPLAY. In other words, the reference mix data will play back until you decide to update with a write status. However, any faders previously set to Manual in a New Mix will remain in Manual. If required, any such channels may be switched to Absolute by pressing the fader status button; they have to switch to Absolute as there is no information to update. The Master Fader will be in TRIM status (see below) at the start of an Update Mix. Its status can be switched, if necessary, by using the FSM key (see Page 5-77).

At this stage, it is possible to set up a default selection of fader status(es) for use in further Update Mixes. For example, you may wish to start Update Mixes from now on with all channels in Trim or Safe. This can be achieved by using the COPY function (see Page 5-79). SAFE SET is described on Page 5-80.

Assuming that no status controls are selected in the Mix Options box, faders may be individually cycled through REPLAY (no LEDs), TRIM (solid green LED), ABSOLUTE (solid red LED) and so on. At this point the FSM key, if assigned as a status master, will cycle all faders. Use this in conjunction with individual buttons to set the console as required.

Once an Update Mix has started, the default write status, selected either by touching the fader or by pressing the fader status buttons, will be TRIM, unless UA - Update Absolute (Page 5-66) or any other relevant mix control has been selected. SNAP ON/OFF (Page 5-45) equally applies in an Update Mix.

When faders are in TRIM, audio automatically passes through the channel VCA so trimmed moves can be achieved without resorting to the black magic associated with some moving fader systems. If you have not encountered the concept of Trim before, simply imagine the fader as a control which can trim the stored mix level up or down by any amount within the range of the VCA. For example, if you move a fader in TRIM up by 2dB (and then leave it at that position), all your previous mix moves will play back, but 2dB higher. Of course, once you have moved the fader up, it can still be varied in level.
Remember though that you are always writing a trimmed version of the stored mix level (i.e. the one you are about to play back). On returning from TRIM to REPLAY, the audio is automatically re-directed via the fader which then continues to track the mix (see below).

Faders selected to TRIM at the head of a mix are disconnected i.e. have no effect on the mix data about to be played and may be moved to a convenient reference point before the mix starts, somewhere around -10 on the scale.

Press the EXECUTE key to carry on.
After the mix preroll time, touching a fader in REPLAY will switch it to TRIM; individual fader buttons will toggle REPLAY, TRIM, REPLAY. Moves may be made on faders to update previous levels or cuts may be added, lengthened or shortened. All update information is being written to memory at the moment. The previous mix has been copied there by the computer as a reference, to allow its modification.

When a channel is in TRIM status, additional cuts may be written onto those replayed from the reference mix. If a replayed cut is too short or too long, wait for the cut to happen and press the cut button to match. Then press and release the cut button to edit the end of the cut. Further replayed cuts are unaffected. Additional treatments for cuts are available with RC - Revise Cuts (see Page 5-66).

If you wish to write information on a channel or channels completely from scratch, you should use ABSOLUTE from the start of the mix. Absolute faders in an Update Mix behave exactly as in a New Mix but may be returned to REPLAY of the reference mix (or the last pass - see Insert Mixing Page 5-63) at any time by using the methods described under Snap On/Off - Page 5-45. Note, however, that if having returned to Replay during the mix, you wish to reselect Absolute, you will need to select Update Absolute - see Page 5-66. Remember that the default write status during an update mix is TRIM.

It is quite common to use the first (New) mix in order to write cuts, with the faders set to an arbitrary monitor mix. If this is the case, you will use your first Update Mix to start getting the faders to an optimum balance. The best fader status for this would be ABSOLUTE, but this of course would neatly eliminate your cuts. To overcome this, you need to be in a status known as PLAY CUTS ONLY. Turn to Page 5-67 for details.

Rollback in an Update Mix

Once a mix is started, the tape machine can be controlled by both the transport keys and autolocate commands. In this way the tape may be spooled forwards to pick up the reference mix later on or spooled back and played to review the current mix so far. When the tape is wound back the message changes from MIX RUNNING to MIX REVIEW (or MIX ENABLED) as with a New Mix. When the tape is played in MIX REVIEW, all faders return to REPLAY and the current mix information is played back. When the tape crosses the point at which it was spooled back, all faders that were in TRIM will return to TRIM again automatically, and can be used to make further trimming adjustments to the previous mix levels. Faders that were set to REPLAY before Rollback will stay in REPLAY; faders that were set to ABSOLUTE before Rollback will switch back to ABSOLUTE. Pressing the JOIN key in MIX REVIEW will switch all channels back to their active write status.
Insert Mixing

When a fader is updated in Trim, it uses a reference mix as the source for the moves that are being trimmed. For example, the command GOTO MIX X loads Mix X as the reference mix to be trimmed. If short sections of the mix are being corrected or updated, by simply pressing the fader status button or taking your finger off the fader(s) if in SNAP ON - see Page 5-45, channels can be returned to REPLAY.

With previous SSL mix systems, regardless of the number of times the system is rolled back and channels are switched in and out of Trim, when they are switched to Replay after a correction, channels always return to Replay of the reference mix. This was designed so that in the case of multiple rollback, you always return to a ‘safe house’ - the last mix you stored.

Normally, once a certain amount of moves are right, the mix is saved to disk using the END command. Issuing a subsequent GOTO MIX command will set up the good moves saved to disk as the new reference mix.

Now let’s examine an alternative mix effect obtainable with Ultimation. Mix X has been loaded as the reference mix. A first pass is made with the vocal channel in TRIM, and the vocal raised in level by a couple of dB to fight with the ever increasing rhythm track (see Figure 16).

![Figure 16](image-url)
Having reduced the level of an offending guitar, it is now decided to level out the vocal at Move A. The tape is rolled back and the fader dropped into ABSOLUTE via Level Match. The move is levelled and the fader switched back to REPLAY - this time replay of the first trimmed update pass, not the reference mix (see Figure 17). This is known as 'Insert Mixing'.

![Diagram showing the process of Insert Mixing](image)

Figure 17

Whether you return to the last pass or the reference mix is set in a menu option, 'Insert Mixing Yes/No', in the Mix Setup menu (see Page 5-75). Note that the option only affects Update Mixes. New Mixes are always Insert mixes. With the option set to Yes, the system always returns to replaying the last pass as described above. With the option set to No, the system always returns to replaying the level and fader moves of the mix that is being updated from disk.

Notes for Users of Previous G Series Software

In order to provide the Insert Mix facility, the G2.12 Mix Compare Buffer is now used as an Insert Mix Buffer. This means that On-Line Mix Comparisons and On-Line Joins are no longer available.

Trimming Faders Written at Zero

In previous versions of G Series software, an operational oddity existed as follows. Imagine you are trying to use a location door slam. A suitable pass may be written as follows: Fader fully closed right up to the time when the door slams, fader opened and kept open until the sound dies away, then closed again. On a second pass you may decide that you need to raise the level of the door slam. You do this by going into Trim and pushing the fader up.
Suddenly, you notice that you are hearing the background noise that you have been trying to shut out, prior to the door slam. This is because the fully closed fader has been 'trimmed' open by raising the level for the door slam.

To overcome this, the software now always treats the bottom of the fader as $-\infty$, that is no amount of trim will increase the written level. In order to trim up from this special level, it is necessary to bring the fader fully down to the bottom of its travel before putting it into Trim. Although this may sound an operational nuisance, remember that a fader written at such a low level would probably have required two trim moves to bring it up to a normal level anyway. Another effect caused by this change is that it is now always possible to fade out completely on a Trim fader, no matter where it was nulled.

**Storing an Update Mix**

So, as with a New Mix, an Update Mix can be cycled through section by section if necessary and updated fader by fader until a satisfactory edit of the reference mix is achieved.

Press the END key and follow the instructions as before to permanently store the updated mix. The Mix List page will be displayed to list the mix names given so far.

Note that if you press END before you have reached the end of the reference mix, the newly stored update mix will still be as long as the reference mix. The system always assumes that, even if you are only updating a part of the reference mix, you still wish to keep those parts of the reference mix that you did not update in this latest attempt.

Furthermore, regardless of whether you have Insert Mixing (Page 5-63) selected or not, as soon as you press END the system takes the mix levels from that point on from the reference mix. The only exception to this is when you have rolled back, made a correction, and then pressed END before reaching the rollback point. In this case, the system will keep your current mix moves up to the rollback point and then switch to the reference mix for the stored update.
Mix Options in an Update Mix

In an Update Mix, the Mix Options box allows individual or grouped (see Software Groups Page 5-89) faders to be switched between several statuses at any point, as the situation requires.

Update Absolute (UA)

This is toggled by typing 1 or U. With this control selected, faders may be immediately switched to ABSOLUTE during an Update Mix. If fader information from a stored mix needs to be re-written from scratch for a section of that mix, then use this option.

Once you select the control, Update by Absolute will be displayed. Now, as soon as you touch a fader or press the fader status button, that channel will drop in to ABSOLUTE (indicated by the red LED). To revert back to replay of the reference mix or previous pass (see Insert Mixing - Page 5-63), press the fader status button and the fader will drop into REPLAY. Repeat this process as required. The same principles of SNAP ON/OFF apply just as in a New Mix (Page 5-45). To revert back to the reference mix without a level change, select AT (Autotakeover - Page 5-47) at the same time you select UA. Preview (PV - Page 5-68) can also be used in combination with the above.

Having returned to REPLAY, TRIM may be selected/re-selected on any channel by deselecting UA (and PV if necessary) and touching a fader or pressing the fader status button.

Revise Cuts (RC)

This is toggled by typing 2 or R, and is designed to edit cuts further than is possible in TRIM status.

If a channel is switched using this control, its fader status is always REPLAY. The cut information, however, may be separately toggled between writing absolute cuts (WRITE CUTS) and cut replay (READ CUTS).

Once the control is selected, Revise Cuts will be displayed. The start status of this toggle is always WRITE CUTS. Therefore, in MIX RUNNING, where cuts from the reference mix need rewriting, pressing the fader status button switches to WRITE CUTS first (both LEDs on solid). At this point new cut information can be written by operating the cut button for that section if required. Pressing the fader status button again switches to READ CUTS (solid green, flashing red LED) and cut information will be replayed until the fader status button is pressed again to return to WRITE CUTS. Selected faders will remain in this toggle until Revise Cuts is deselected.
In this way, unwanted cuts or selected parts of a pre-written cut may be removed by selecting WRITE CUTS with the cut button up (off).

Play Cuts Only (UA + RC)

This is enabled when Update Absolute and Revise Cuts are selected at the same time.

When channels are switched using this option, fader and cut information are separated. Faders will be in ABSOLUTE. Cuts, with regard to the mix, will be in REPLAY but the additional facility to switch them on monitor is provided.

Select the control by typing 1 and 2 or U and R. Play Cuts Only will be displayed on the screen. Touching the faders or pressing fader status buttons will switch those faders to Play Cuts Only (solid red, flashing green LED).

New fader information may now be written to the current mix while cuts are replayed, unaffected, from the reference mix. However, the cut buttons and VCA group solo buttons may be used purely for monitoring purposes.

Should it be necessary to actually rewrite a cut, you have two options. First, on the Mix page of the Setup menu (see Page 5-75) you will find the entry: Edit Cuts in Play Cuts Only Yes/No. If you set the option to Yes, cuts will be in TRIM in Play Cuts Only and can be edited in the usual way.

Bearing in mind that the Setup menu can not be accessed during a mix, you may need to use the following alternative to edit a cut. Deselect Revise Cuts and press the fader status button to select ABSOLUTE. (Other selected faders will remain in Play Cuts Only, of course). Write the new cut, reselect Revise Cuts and press the fader status button again. The fader will switch back to Play Cuts Only. Play Cuts Only on all faders can be used to update a New Mix where only cuts (to clean up tracks etc.) were of interest.

Autotakeover (AT)

This wonderful feature has been fully described under New Mixes (Page 5-47) and can just as easily be used in an Update Mix with faders in Trim or in Absolute. Autotakeover can equally be used with Play Cuts Only, where selected faders have been switched to Absolute, but not in Revise Cuts!
Preview (PV)

Preview is fully described under New Mixes (Page 5-48) and its use in Update Mixes is the same but extended to cover Preview Trim, Preview Play Cuts Only, Preview Revise Cuts as well as Preview Absolute. Simply select Preview plus any other required control, and switch channels by touching the fader or by using the fader status buttons. PREVIEW ON/OFF may be toggled with the FSM key. Selective joins and rehearsals are the same as described under Preview for New Mixes (Page 5-48).

Immediate Pickup (IP)

This has also been described previously (Page 5-54). IP is available whenever a channel or channels are in Replay (except after Autotakeover). With IP selected, and in MOTORS ON, operating a cut button immediately switches the channel to the next fader status as determined by the rest of the status control selection. With no other control selected, this will be from REPLAY to TRIM; with UA selected, from REPLAY to ABSOLUTE. If Preview is selected the channel will be switched to Preview Trim or Preview Absolute to audition a level which may then be switched to the write status by pressing the fader status button.

In MOTORS OFF, the status switch may be triggered by fader movement - see Mixing with Motors Off (Page 5-72).

An Example using the Mix Options Box

An Update Mix is being made and it is noted that repairs need to be made to a channel for a section of the mix. The cut information is OK but the fader needs rewrting from scratch, i.e in ABSOLUTE. With MOTORS ON and SNAP OFF, wind back the tape before the section and select all controls except IP. Play the tape. Touch the fader and Preview Play Cuts Only will be selected, to audition the new fader level. Toggle PREVIEW ON/OFF with the FSM key if required. Having set the level, press the fader status button and the channel will drop in to Play Cuts Only where cuts from the reference mix will be played back unaffected but the fader will be ABSOLUTE.

Rewrite the necessary fader information and when this is nearly complete press the fader status button again. Autotakeover will be enabled, allowing the fader to be smoothly faded back to replay of the reference mix and the repair work is done.

Press 0 (zero) to clear down all control selection to the Setup Menu standard and carry on mixing.
The Asterisk * Key in an Update Mix

The * key is used for calling up information in a mix. For an Update Mix, pressing the * key cycles the following screen display at the top of the command box:

- The name of the mix being updated
- The mix memory space remaining
- The FSM mode
- The Master Fader status
- The current Mix Options box selection

General Note

From the previous information it will be seen that mixing with Ultimation is a very interactive combination of the channels with their fader status buttons and the keyboard. Given the additional features of Software Control Groups (Page 5-89) and the 20 assignable function keys on the G Series keyboard, this combination allows a variety of tricky operational requirements to be simply achieved.

On Page 5-99, you will find a reference table for all the status LED displays. By now you may be a little confused by some of the more unusual ones.

Hardware Groups

The software control groups available with Ultimation and G Series software are fully described on Pages 5-89 to 5-97. However, it would also be an idea to understand a bit about the behaviour of the eight hardware groups in the centre of the console - under motor control. This all gets a bit technical as it goes on, so don’t worry too much if you give up half way through!

MOTORS ON mode also applies both in and out of a mix to these eight group faders. The grouping adjustment is applied, on the computer return, to the voltage driving the position of the fader or the gain of the VCA. This means that any group moves are only written to the mix as moves on the group ‘master’ fader. Select channel faders to one of the groups and try the effect. In mixing, note that any grouped level changes will only be reflected in movement of the master on the mix bargraph display (but who needs bargraphs with moving faders?).
Now the technical bit..........

Any fader grouped to one of the group masters will be adjusted by the group master’s position. If the master is at the bottom of its travel (i.e. -∞ dB) it will not be possible to raise the level of the slave fader at all. This is because the group adjustment is in dB terms rather than positional terms.

This ensures that all faders in a group will fade right out, along with the group master, regardless of their starting positions. The faders in a group are adjusted from their nominal playback levels by the amount of displacement from the unity gain position of the group master. If the group master is lowered by 10dB then the playback position of the slave fader will be lowered by 10dB.

The gain structure of a channel fader is designed to give 10dB above unity gain for the top of the fader travel. The computer would normally expect this position as the highest fader position it is capable of playing back. Once the fader becomes part of a group, it is then subjected to adjustments from the group master. If the group master is at the unity gain position then of course the playback level will stay as it is. If, however, the master is lowered by 10dB, then the slave playback level will be lowered by 10dB also, moving the position of the fader downwards if the motor is turned on. There now appears to be another 10dB of gain in hand on the slave fader but as far as the computer is concerned the fader is still at its highest playback position. This has to be, otherwise when the group master is returned back to the unity gain position (no adjustment), the slave fader would not return to the top of its travel, which is where it should be.

So, if with the group master fader below the unity gain position, we wish to have a greater playback level from the fader, we need to generate a number from the fader that will take the fader higher than its normal maximum position, if no grouping effect was included.

Imagine a fader which extends up the channel strip with, for example, further positions of +20 and +30 on its scale. If the group master is below the unity gain setting then moving the slave to the top of its travel is effectively moving the fader into this imaginary region above the top of the fader. How far this imaginary region stretches above the normal end of the fader defines how low we can have the group master and still place the slave at the top of its travel.

In Ultimation we have chosen -20dB (just over half way down) as the sensible limit at which to have the group master positioned, while still being able to put the slave at the top, bearing in mind the need to fade out the slave fader completely should the master be moved to the bottom. If, with the group master set to -30dB and with Motors On, you try and move a slave to the top of its travel, it will leap down by 10dB - to the actual maximum level capable of being played back by the system.
With a normal moving fader system this effect can sometimes lead to problems, as it is possible to move the fader, by hand, to a higher position than the computer can drive it to when the move is replayed. This can be a problem, especially when laying direct back to tape and using the automation system as a backup should the pass need to be re-created later.

This problem does not exist with Ultimation because although it is possible to move the fader physically above its maximum level, the system detects this and routes the audio through the VCA, thereby limiting the move to the maximum that can be played back by the automation system.

Changing the slave position (within the boundaries described above) is simply a case of moving it to the new desired position. However, if you are touching the master of the group at the same time, the system expects you to be making a move in the group but with the effect of the master applied. This is because individual faders still have the group moves applied to them, even though they are themselves being updated. This is of course impossible with a normal moving fader system.

Imagine you wish to push an individual fader but, at the same time, fade out the group containing it. For example, you may wish to lift the guitar solo as the rest of the track fades. In a normal moving fader system you would effectively have to push the fader while trying to fade it at the same rate as the rest of the group.

With Ultimation, the channel audio is switched through the VCA whenever you update a slave fader while touching the master. This allows the group moves to continue to be applied even though the fader is being held. Whenever you touch the slave fader while updating/touching the master, the system takes the current slave position as a null point. The amount of change to the actual slave position in the group is the amount of movement of the slave fader about that null point. With the fader motors turned on, this means that the fader will move to the actual position that the VCA is currently playing back at, when you let go of the fader that you are currently updating.

### Grouped Faders and Level Match

Level Match (see Page 5-73) is a facility that allows the write position of the fader to be displayed against the current mix level. Once a fader is in a group with its motor on, its physical position is no longer bound to the level it is writing in the mix. Remember, as described above, that the group effect is not written to the mix for the slave faders.
If you enter Level Match on a hardware grouped fader, the LEDs will show you which way to move the fader to match to the mix level. Although moving the group master may move the slave fader, note that it doesn’t change the matched indication, as of course the level the fader is writing at has not been changed by moving the group master.

Should you not be able to match the level at the top of the fader’s travel, it’s because the actual write level is above the normal maximum. Moving the group master down, until the slave is off the top end stop, will allow the normal level matching to take place.

Phew!

**Mixing with Motors Off**

On occasions, it may be appropriate, or indeed desired, to work with the fader motors switched off. For example, experienced G Series operators may feel happier using the automation initially as a standard G Series, VCA-based, system. This is one of the advantages of Ultimation, reversion to a non-moving fader automation system is simply achieved.

At any time, the command MO EX will toggle the motors on or off. To disable the motors on a more permanent basis, an entry on the Session Page of the Engineer’s Setup Menu (see Section 11) allows the motors to be disabled from computer bootup until they are specifically enabled again. Note that the computer must be re-booted after a change in this option.

With motors disabled, the touch-sensitive fader knobs are inoperative, and the channel audio always passes via the channel VCA. If you have read this section in some detail, you will already know that the Ultimation system automatically routes the channel audio via the VCA when TRIM is selected or AUTOTAKEOVER is used. When the motors are disabled purposely by the operator, however, some specific things have to be borne in mind.

**New Mixes**

First of all, consider the creation of a New Mix. After some time, the tape is rolled back and played forward again. Without motors on in MIX REVIEW, the faders of course remain at the positions they were in at the point of rollback. If you want to drop in on the previous pass information, there is every chance that a fader will be in the wrong position to avoid a level change.
Level Match

An answer to this problem is provided by the Level Match facility. At the point where you need to set faders to the correct level before dropping them into write, press the MIX key. The LEVEL MATCH prompt will appear in the Status box and the faders are disconnected from the mix system.

Now press the appropriate fader status buttons if ‘Local Fader Level Match’ is selected in the Setup Menu. (Page 5-75). If Local Fader Level Match is set to NO, the console, by this time, may look like an erratic Christmas display, with all the fader LEDs on, some flashing, some steady.

The LEDs will illuminate to show whether the faders are matched or not (as with Total Recall, if you have covered that section). The same principle applies in that both LEDs are on solid when the fader is matched. Assuming you are sitting in front of the console, if the green LED is flashing move the fader away, if the red LED flashes, move it towards you. If both LEDs flash, the cut button is in the wrong position.

If you are in Local Fader Level Match, and you require all faders to be level matched, press the FSM key. This will immediately switch all faders, including the Master Fader, to Level Match and faders are matched as described above. For SL4000/6000/8000 Series Consoles, the Master Fader can be matched using the display around the screen LEVEL MATCH prompt. A small bar will appear between LEVEL and MATCH in either a high or low position if the Master Fader is not matched. Adjust the Master Fader to clear the bar.

Having matched the faders as required, press the MIX key again to disable Level Match. Drop the faders that need to be corrected into Absolute at the correct level by touching them or pressing their fader status buttons, and continue mixing.

Autotakeover (Page 5-47) can be used to drop back smoothly to the last pass level.

Immediate Pickup (IP)

Immediate Pickup has been described previously (Pages 5-54 & 5-68). With MOTORS OFF, channels may be selected to a write status from Replay in Mix Review, simply by moving the fader. Only the slightest movement is necessary for the system to switch the channel status, thereby replicating the feel of a touch-sensitive knob.
Update Mixes

The Revise Philosophy

REVISE is an instruction to the computer to switch faders from Replay in Mix Review back to their write status. REVISE only differs from JOIN (Page 5-53) with regard to Trim faders when working with MOTORS OFF. Any mismatch of fader position with current mix levels will be ignored when Trim faders are revised from Replay back to Trim, as the fader null is recalculated at this point.

(In MOTORS ON, there is no difference between JOIN and REVISE, as the fader will always be in the correct position at the moment you issue a JOIN or REVISE command.)

In MOTORS OFF, pressing the REVISE key in Mix Review will switch all faders back to their active write status; Trim faders will become active without any level jumps. Thus, Trim faders may be moved freely to any convenient position while in Replay.

Pressing the JOIN key will switch all faders as before, but with a set level change for Trim faders if so desired. The degree of level change will be determined by any relative fader movement made from the current mix level.

For further reading on this subject, turn to Page 5-30. The effect of Revise in Ultimation with Motors Off is the same as in G Series software.

Ultimation users should also read the following pages as they apply equally to Ultimation and G Series software.
Further Features and Options

The following pages apply equally to G Series and Ultimation Systems.

Note that page references shown with a G suffix relate to G Series (the blue pages of this section) and the U suffix relates to Ultimation (the grey pages).

Mix Options and the Setup Menu

Certain ways in which the mix system operates can be customised to your requirements. Out of a mix, type SETUP EX to access the Setup Menu and then press the MIX key.

- UA standard in mixing: Yes/No
- RC standard in mixing: Yes/No
- AT standard in mixing: Yes/No
- PV standard in mixing: Yes/No
- IP standard in mixing: Yes/No

These decide whether any combinations of the above status controls (1-5) are selected automatically at the head of a mix, to suit your chosen way of working.

- Bargraph display in Mix: Yes/No

Determines whether the mix bargraph display is enabled on computer startup. When mixing, toggle the display on/off by typing BA EX.

- Faders mute in mix preroll: Yes/No

Gives the option of monitoring the faders in the runup (preroll) to the mix or not.

- Local fader level match: Yes/No

When set to Yes, individual faders are set to Level Match when their fader status buttons are pressed. All faders set to Level Match with the FSM key in this situation. (see Level Match Page 5-15G & 5-72U)

When set to No, all faders are set to Level Match, straight away on selecting Level Match.
Selected trim faders JOIN in MIX REVIEW

When faders are selectively switched from REPLAY back to TRIM in MIX REVIEW, they will REVISE without level change. Faders will JOIN if this option is set to Yes and a level change is required. (see Page 5-31G)

Edit cuts in Play Cuts Only

With channels selected to Play Cuts Only (see Page 5-36G & 5-66U), faders will be in Absolute and cuts will normally be in Replay, with the additional facility to switch them on monitor. If this option is set to Yes, cuts will be in Trim and can be modified in the usual way.

Save mix warning time in minutes

An optional reminder that a set amount of time has passed while mixing. The keyboard will bleep and the message Press end to save mix will flash on the screen. If ignored, the message will disappear after 60 seconds but will be repeated if the mix is still not stored after the same length of time. Press the asterisk key to clear the display immediately. This option is disabled if set to 0 (minutes).

Insert Mixing in Update Mix

In Update Mixes only, this provides the facility of working with Insert Mixing or not (see Page 5-32G & 5-63U).

Locate Commands in an Update Mix

As you have probably discovered by now, the G Series Computer’s autolocate routines can be extremely useful when you need to rapidly move from one part of the mix to another. However, one common mistake which is worth pointing out, is when a locate command involving a mix other than the current one is issued. Imagine you are in the middle of an Update Mix, with the mix list displayed on screen. Things are not going too well and you decide to check out a previous mix. Without using CANCEL or END, you enter PLAY MIX Z. The machine locates, goes into play and what do you hear? Yes, you guessed it - the mix you’ve just been working on! Just remember that the system will not automatically cancel or store your current mix just because you want to listen to a different one.
The Master Fader in an Update Mix

At the start of an Update Mix, the Master Fader (unlike all other faders which default to REPLAY) will default to TRIM status. To switch the Master Fader status at any point in a New or Update Mix, the FSM key may be assigned as its status button (see below). The Master Fader can be switched through all the status options available in an Update Mix including Autotakeover. (Play Cuts only and Revise Cuts are more difficult). Equally it may be made Safe (see Page 5-80). Save your preferred Master Fader status by using the Copy function described on Page 5-79.

The Fader Status Master key (FSM)

As a Fader Status Master

This key has several functions. First of all, as you should be aware by now, at the head of a mix (READY) it acts as a master status switch for all faders.

For example, at the start of a New Mix, with no fader status controls selected in the Mix Options box, the FSM key will toggle faders between Absolute and Manual. Individual faders can be selected as required.

As a Master Fader Status Switch

Secondly, on SL4000/6000/8000 Series consoles, the FSM key can be specifically assigned to the Master Fader to control its status in the same way as a fader status button. To indicate this, MF will always be displayed on the screen to the right of the Status box. When specifically assigned to the Master Fader, the FSM key has no other function.

To assign the FSM key to this function at the start of a mix (READY) type MF. Select the required Master Fader status with the FSM key and its new status will be displayed at the top left of the screen. To switch back to the FSM key’s normal function (see above), type MF again or press the REPEAT key.

Once a mix has started, (MIX RUNNING or MIX REVIEW) you must type MF EX to toggle the ‘FSM as Master Fader status switch’ function.

As a Control for the Fader Status Lock Facility

The Fader Status Lock facility is only available in Update Mixes and is fully described overleaf.
Fader Status Stores

Any current fader status selection across the console may be memorised by the system. This saves having to re-make the selection every time a mix or an attempt at a mix is made. There are four ways to achieve this, depending on the degree of permanence required.

The first way is automatic, dictated by a basic rule in the system.

If an attempt at a mix is cancelled, fader statuses and controls selected at the start (MIX READY) of that attempt will be retained when another attempt of the mix is made. The system assumes that because this is the same attempt, the same basic conditions will be required but, of course, the statuses and mix option selection may still be modified.

If a mix is stored, then the status selection will be returned to normal at the start of the next mix. Status controls will clear down to the Setup Menu standard (see Page 5-75).

‘Locking’ Statuses

This new feature for Update Mixes allows a fader’s status to be ‘locked’ into the status it is in at the point of rollback. Sometimes it is desirable for a fader to carry on updating in the same status it was in when the system rolled back, regardless of any changes made to the Mix Options (UA, RC etc.). Furthermore, channels ‘locked’ in this way will retain their relevant fader status cycles in spite of any further Mix Option selections.

By pressing the FSM (Fader Status Master) key in Mix Running or Mix Review, the system will toggle in and out of ‘Update Status Locked’. In ‘Status Locked’ mode the letters UA and RC disappear from the Mix Options box to show that no faders can be put into new statuses at this time. Pressing the FSM key again removes the system from ‘Status Locked’ mode and restores UA and RC in the options box, together with any other status selection that had been made before.

Note that, if any channels are currently in a Preview status, the FSM key will toggle PREVIEW ON/OFF as usual (see Page 5-18G & 5-48U). Deselect channels from Preview to activate the Status Locked facility.

The locked status feature can be used with the Software Grouping status group facility (see Page 5-89) to set up groups of different statuses across the desk. This can be greatly beneficial in multiple-operator situations, where each operator may need to put all their faders into a specific type of update status.
FROM and TO

A status store may be made within a mix, taking a snapshot of fader statuses at any time. This can then be recalled at any point within that mix or future mixes, moving either forwards or backwards.

To store the current fader statuses type: FROM EX

To recall these statuses type: TO EX

The status store will remain intact until another FROM EX command is issued or the program is restarted.

This may be used, for example, in a Title with repeated sections such as verses, choruses etc. At the start of mixing the first section, if different statuses are selected, type FROM EX and carry on mixing, selecting further statuses as necessary. When the next section is reached, typing TO EX, will call up the stored status selection if required.

Or, while working in Mix Review, where only some faders are active, an attempt at updating selected faders needs to be redone. Before making another attempt, type FROM EX. Roll back, type TO EX, and the selected statuses will be restored (see also Locking Statuses Page 5-78).

Used in conjunction with the COPY facility (see below) this allows two fader status presets to be recalled for current and future mixes.

COPY and SETUP

An additional store of fader status and control selection can be made using the Copy function for Update Mixes. At the start (MIX READY) of an Update Mix, select controls in the Mix Options box and switch fader statuses as required, then press the COPY key. Fader status stored will be displayed. Now at the start of any further mix, fader statuses and controls will automatically start as the stored selection but may be modified if required.

For example, the normal status selection at the start of an Update Mix is an active one, TRIM. If the preferred starting status is non-active REPLAY or SAFE then at the start of the first Update Mix select all faders to REPLAY or SAFE using the FSM key. Then press COPY and this will be the starting status for further Update Mixes.
The COPY fader status store may be recalled as a preset within the current or future mixes by typing:

```
SETUP EX
```

as a 'return to base' command.

When out of a mix, the copied status and control store will be cleared by disabling the mix system with the MIX ON/OFF key. Re-enable to carry on mixing.

SETUP and TO are designed to restore only fader statuses within a mix. The current status control selection will remain unaffected. Faders stored with a Preview status will be reset to their active status unless Preview is currently selected.

Safe Set

At any point in a mix, faders may be made 'SAFE'. In previous versions of G Series software, this simply meant that these faders and their associated cuts were under manual control, affecting only the monitor level and leaving the written mix information intact. The software now provides two forms of SAFE.

Safe Set is enabled by typing SA at the beginning of a mix, or by typing SAFE EX during a mix. All the fader LEDs will go out and faders can then be selected to SAFE by pressing individual fader status buttons. The first press of a button will turn on the red LED to indicate the selection of SAFE MANUAL. This gives exactly the same 'safe' condition as described above, ie. you will hear the effect of any level changes and cuts.

A second press of the button will select SAFE REPLAY (green LED). When a channel is in SAFE REPLAY, any changes made to faders or cuts will not be heard on monitor, nor will they affect the current mix information. This obviously has advantages when you are mixing on a large console, surrounded by the artist(e)s, their friends and the rest of the world, who all seem hell bent on destroying the almost perfect mix that has taken you so long to achieve.

Having selected faders to SAFE, deselect Safe Set by hitting the REPEAT key or re-typing SAFE EX or SA. Once a channel is in Safe mode, it cannot be advanced to any other status until Safe Set mode is re-entered. SAFE MANUAL and SAFE REPLAY are true fader statuses and will be stored following the normal rules associated with the FROM and TO or COPY and SETUP commands (see Page 5-79)
Track Copy/Swap

Written information can be copied or exchanged between individual faders. This is an on-line operation, i.e. it is performed within a mix as it is being written. Setting up the copying or swapping of faders may only be performed at the start of an Update Mix.

At the start of a mix (MIX READY) press TRACK. The screen will either display TRACK COPY or TRACK SWAP, as at this point the FSM key will toggle the two modes. Which mode is displayed first depends on the last selection.

Track Copy

At the start of a mix press TRACK.

TRACK COPY will be displayed. Firstly press the fader status button (X) from which the written information is to be derived, then press the fader status button (Y) of its destination. The screen will display what is happening. If you wish to copy the same fader to others or different faders to other faders, repeat the process. When this is complete, press TRACK again to deselect TRACK COPY and press EXECUTE to continue the mix.

The reference mix for faders Y will have been copied from faders X. Both sets of faders may now be individually edited as the mix progresses. If a straight copy for all of the mix is required, press END to store the mix as soon as it has started.

Channel or Group fader information may be copied from a fader which does not exist on the present console. (The reference mix may have been created on a larger console for instance, or with extra VCA Group faders).

In this case, while in Track Copy mode, type in the X type faders as:

F  (Channel Fader number)  EX
M  (Master Fader number)  EX
V  (VCA Group Fader number)  EX
S  (Patchable VCA fader number)  EX
P  (Prog. Pan Pot/Joystick number)  EX
I  (IMO fader number)  EX  SL5000M consoles only
S  (Audio Sub Group number )  EX  SL5000M consoles only
Track Swap

At the start of a mix press TRACK. Press the FSM key if necessary. TRACK SWAP should be displayed.

Press individual fader status buttons to exchange between them written information from the reference mix, as required. Again, the screen will display what is happening. Press TRACK to deselect Track Swap mode and proceed as with Track Copy.

Track Swap maybe used in conjunction with the Total Recall channel swap facility.

In Track Copy/Swap mode, DELETE will clear the current selection.

Pressing SETUP will reset the previous copy/swap selection from a previous attempt at a mix.

DIB
Joining Mixes

Stored mixes can be combined in a variety of ways, either by section or by individual fader and cut information, to form a further composite mix. Either all or selected faders can be used from sections of the stored mixes and these sections may be time shifted as well.

Remember, command keys in brackets are not obligatory when typing in command lines.

Butt Joins

All or selected fader information from one mix is joined consecutively to fader information from another mix at a specified time. Type:

JOIN (MIX) A TO (MIX) B AT TIME EX.

The screen will immediately prompt instructions for selecting faders:

<table>
<thead>
<tr>
<th>3804 sectors left:</th>
<th>23:59:28.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>7% of reel used.</td>
<td></td>
</tr>
<tr>
<td># Join mix A to B at 2:04</td>
<td>MIX ENABLED</td>
</tr>
</tbody>
</table>

Press EXECUTE to join all channels

The red leds indicate the channels selected from mix A to be joined to mix B

Use the fader buttons to deselect individual channels not required or
Use the FSM key to deselect ALL channels and then use the fader buttons to select individual channels

Press M to select the master fader

Press EXECUTE to continue.....

Figure 18
If all faders are to be joined, just press the EXECUTE key which will effect the join after a few seconds. If only selected faders are to be joined, follow the screen instructions (see Figure 18) and use individual fader status buttons. Pressing M will toggle the Master Fader information. When the selection has been made, press the EXECUTE key. The join will take a few seconds and the computer will then request a name for the composite mix:

```
Name of mix?
```

Result will consist of

```
mix VOX 1 from 23:59:29.15 to 0:00.00
THEN mix CUTS AND mix VOX 1 to 0:09.00
THEN mix VOX 1 to 1:21.13
```

Joining . . . .

Figure 19

The resultant mix in this instance will consist of all information from mix B up until the specified time, then as much fader information as was selected from mix A will be substituted. This will be displayed on the screen until the composite mix has been stored with its name.

(Note that, in the above example, Mix A comes after Mix B in the composite mix. This may not be immediately obvious from the use of A and B as mix names.)
Insert Joins

Where all or selected fader information from one mix is to be inserted into a specified section of another mix. Type:

JOIN (MIX) A TO (MIX) B FROM TIME TO TIME EX

Once more, the screen will display the join instructions as shown in Figure 18. Select faders with their status buttons if required, press EXECUTE and name the mix to store it.

The result will consist of all fader information from mix B up to the FROM time, the selected combination of mix A and mix B until the TO time, then the rest of mix B.

Time Shift Joins

A section of a mix can be time shifted and inserted at a different point into either the same mix or another mix. Type:

JOIN (MIX) A FROM TIME TO TIME TO (MIX) A or B FROM TIME

Follow the screen instructions for selecting faders as before and continue to name and store the mix. The selected fader information from mix A as determined by the first FROM and TO times will be time shifted and inserted, starting at the second FROM time.
Changing Mix Start and End Times

When just a portion of a reference mix is used for an Update Mix, the stored result will automatically incorporate the rest of the reference mix playing time. In certain cases, for ease of timecode identification for example, the following command may be used to reduce the stored mix data to the relevant start and end times required:

```
REVISE MIX Name FROM new start TIME TO new end TIME EX
```

Name of mix ? will be requested, so, either enter a new name and delete the long mix if required, or enter the same name as the long mix and replace it when prompted.

When the timecode reference for mix data has changed, for example where the reference is now derived from the multitrack rather than from the video, it will be necessary to shift the mix data to the new timecode reference before it may be played and updated. There is satisfying poetry in the following command:

```
REVISE MIX Name FROM TIME TO TIME TO TIME EX
```

This will take all the mix data stored between the first FROM and TO times and shift it to start at the second TO time. Thus to shift the whole mix, the command will read:

```
REVISE MIX Name FROM MIX TO END MIX TO new start TIME EX
```

When Name of mix ? is requested, follow the same course as above.

Deleting Mixes

There may well be several generations of stored mixes before the final result is created, or mix information is stored which is no longer relevant. To trim down the mix list and make more reel storage space available, delete the redundant mixes by typing:

```
DELETE MIX X MIX Y MIX A etc EX
```

To start from scratch type DELETE ALL MIX EX. This command has a failsafe and the computer prompts to check you are sure.

Press Y for YES if sure, otherwise pressing any other key corresponds to NO.
Reel Full - no room for the Mix

If the current REEL has not enough storage area to accommodate a current mix in memory, having pressed END, the computer will prompt:

Reel full, Unsaved mix in memory

The mix will sit there as long as the program is running and no further attempts at mixing will oust it. This is time to re-organise the existing REEL storage by deleting redundant information or copying information (see Section 4) to another REEL to increase the current reel storage area.

If you can do without some unwanted material, typing DI EX after a few deletions will display the current storage available on the Reel.

Alternatively simply create a new REEL on either Data Cartridge and name a Title to house the mix.

After either solution type END EX. If the REEL storage area is still not big enough, the reel full prompt will be repeated. Either delete/copy more information again or create larger REELS on the ‘spare’ Data Cartridge with a LABEL command and name a Title. Then type END EX again. Hopefully the mix can be stored. If not, try again after creating even more space.

Wonderful isn’t it..

Help

This is an additional feature which may be useful when learning the system. An array of flashing LEDs by the fader status buttons is very pretty but slightly bewildering to a newcomer. STATUS HELP can be selected at any point in a mix to sort the problem (see also the LED reference table - Page 5-99). At the head of a mix (MIX READY) press the H key. While in a mix, type HELP EX. Having enabled HELP, the fader LEDs will be switched off, thankfully. An individual fader can be selected with its status button and its status will be displayed on the screen. Disable STATUS HELP (by pressing H or typing HELP EX) and the screen display will track the selected fader’s status as it is switched. To clear the selected fader’s HELP display, it must be deselected by re-enabling STATUS HELP.
Automated Drop-ins While Mixing

Special commands can usefully combine a drop-in and the JOIN/REVISE (see Page 5-23G & 5-53U) function during a mix in a variety of ways. If you enter:

\textbf{AT TIME DROP-IN JOIN EX}

the tape will locate and play from a point calculated by subtracting the drop-in runup time plus the standard preroll time from the specified time. At the end of the standard preroll (start of the drop-in runup) the mix will JOIN. The drop-in will occur as usual at the end of drop-in runup (the specified time).

\textbf{AT TIME JOIN DROP-IN EX}

is similar to the previous command but this time the mix will not JOIN until the drop-in time.

Use \textbf{AT JOIN DROP-IN EX} to repeat the previous command.

\textbf{- (time) DROP-IN JOIN EX}

The tape will locate and play from a point calculated by subtracting the - time, the drop-in runup time and the standard preroll time from the current time. At the end of the standard preroll (start of drop-in runup) the mix will JOIN. The drop-in will occur at the end of its runup (the time calculated by the - time).

\textbf{- time JOIN DROP-IN EX}

As the previous command, but this time the mix will not JOIN until the drop-in time.

Substitute REVISE for JOIN as necessary.

Got that?
Software Control Groups

Software Control Groups allow free grouping from any fader to any other fader on the console. In other words, any channel or group fader can be used to control any other channel faders.

Up to 15 separate groups can be set up, with any number of faders in each group. Note that it is not possible to have Master or Slave faders of one group as part of another group. Each Slave fader in a group can be one of five types. This type controls the action of the Slave in response to a change in the Master. Groups may contain Slaves of mixed types.

The Control Groups work primarily on the monitor side of the mix playback system. That is, you hear the effect of the grouping, but the information is not initially combined with the mix data. Group information is written into the mix by using the Group Merge command (see Page 5-92). The groups can then be dispensed with, and editing of the resultant group information can be carried out in exactly the same way as if the data had been written on the Slave faders themselves.

If you are an experienced G Series user, please note that the Software Grouping facility replaces the Group Set facility in software version G2.12. The same effect can be obtained with Status Only Groups (see below).

Slave Types

The Slave Type is determined by the behaviour of the Slave in response to changes on the Master fader. Note that the behaviour relates only to the Slave, not the group. Once a fader becomes part of a Slave Fader type group, its level is adjusted relative to the Master position about the 0dB mark on the fader scale, exactly in the same way as the hardware subgroups.

<table>
<thead>
<tr>
<th>Slave Fader and Cut</th>
<th>The Slave follows moves in the Master level and follows the Master cut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slave Fader Only</td>
<td>The Slave follows moves on the Master level only. Master cut has no effect.</td>
</tr>
<tr>
<td>Slave Cut Only</td>
<td>The Slave follows the Master cut only. The Master level has no effect.</td>
</tr>
<tr>
<td>Slave Cut Inverted</td>
<td>The Slave cut is inverted with respect to the Master cut. The Master level has no effect.</td>
</tr>
<tr>
<td>Slave Status Only</td>
<td>The Slave follows the fader status of the Master. Master cut and level have no effect.</td>
</tr>
</tbody>
</table>
Setting up a Group

** New Mix **

Select channels with fader buttons.
Select group number and slave action
with cursor keys.

- Slave fader and cut
- Slave fader only
- Slave cut only
- Slave cut inverted
- Slave status only

GROUP 01

Figure 20

The Group Setup menu (see above) is accessed with the PRESET key. This can be done at any time during mixing i.e. at the start of a mix (READY) or in MIX RUNNING/MIX REVIEW. Once the Group Setup menu is on the screen, the cursor keys allow you to set up the desired group number and Slave type.

First push the status button of the fader that you wish to be the Master. The red LED will come on to confirm your choice. Should you make a mistake, pressing the button again will deselect the fader and the LED will go off. The next fader button you then press will select that fader to become the Master.

Now press the fader status button of the first Slave. The green LED will come on to confirm that it is a Slave. To deselect a Slave, simply push the status button again. Note that the Slave will be of the Type currently selected on the menu. Should you wish it be of a different Type, simply deselect the Slave, change the current Type by using the ↑↓ cursor keys, then reselect the Slave. Slaves can only be deselected individually if they are of the current Type.

Once Slaves have been assigned to a Master, all Slaves must be cleared before the Master can be deselected.
You have now set up your first group. Using the ↔ cursor keys, move to another group number. The LEDs on the group you have just set up will start flashing to show that the faders belong to another group and cannot be incorporated into a new one. Solid LEDs always show the Slave and Master selections of the current group. Flashing LEDs show the Master(s) and Slaves of all the other existing groups.

Should you wish to change anything in the non-current group selections, you can either use the cursors keys to move to the desired group or simply press the status button on the fader that you are interested in. That group will then become current. Note that if the button you press is on a Slave fader, the Slave Type in the menu will also change to that of the selected fader.

**Indication of Slave Type**

There may be occasions when you become confused as to which Slave Type faders have been set.

With the Group Set menu on screen, make the group in question current by selecting it with the ↔ cursor keys. Slaves which are of the current Type, as shown by the cursor on the Type list, will display a solid green LED as normal. Slaves which are of a different Type will show a solid green LED plus a slow flashing red LED.

Now move through the Type list with the ↑↓ cursor keys to determine which faders are of which Slave Type. As a new Type is selected, any of the current group that are of that Type will show just the solid green LED.

Alternatively, you can proceed as follows. Pressing the status button on a channel that has both LEDs lit will cause the Slave Type of that channel to become the current Type, and the cursor will move in the menu to indicate the new Type. The flashing red LED on this channel will go out to show that the channel is now of the current Type. Pressing the button again will remove that Slave from the group. Remember that Slaves can only be deselected individually if they are of the current Type.
Clearing a group can be simply carried out from the keyboard by making the group current and then pressing RUB (see prompt on Figure 21 below). To exit from the Group Setup menu, press PRESET again.

Remember that once a fader becomes part of a group, its level is adjusted relative to the Master position about the 0dB mark on the fader scale.

Select channels with fader buttons.
Select group number and slave action with cursor keys.
Use RUB key to clear current group.
Use COPY key to merge current group.

- Slave fader and cut
- Slave fader only
- Slave cut only
- Slave cut inverted
- Slave status only

Figure 21

Group Merge

Group Merge allows the normally monitor-only group moves to be written into the mix data. Once this is done, the group is dissolved. If the group was not dissolved, the grouping information would ‘double up’ as the group monitor effect would appear on subsequently written mix moves.

To merge the group data, call up the Control Group menu with the PRESET key. Select the required group as usual with the cursor keys and then press the COPY key.
Writing the data from group 1
to the mix as individual channel data.
This group will then dissolve.
Do you really mean this? Y/N

Figure 22

The screen will now display the prompt shown above. Pressing the Y key will continue the process. N will return to you to the group menu. Once the group data has merged, you should always press END to store the result.

The group data is merged up to the latest timecode the software has seen in the current mix. This means that if you are at the end of the mix, moves will be merged all the way to the end. If you have been to the end of the mix but are now back at the beginning, the system will still merge to the end of the mix. If you have just started a mix and are say only 20 seconds in, moves will only be merged that far, as that is the latest (biggest) timecode the software has seen during that mix.

Note that once group data has been merged into a mix, it is of course permanently written to disk once you have pressed END. Also, if you wish to trim moves that you have created by merging, this must be carried out after an END.
Status Only Groups

Status Only groups have no affect on faders or cuts. They simply allow Slaves to be created that follow the status of the group Master. When the Master’s status changes, any Slave that was in the same status of the Master will change likewise.

This allows individual Slave faders to be updated without having to take them out the group. Once the Slave and Master statuses match again, the Slave will then continue to follow the Master.

Saving and Restoring Groups

Group Setup information, ie. which fader is slaved to which, is stored automatically as part of the mix information. Playing back a mix with stored group setup information will automatically set up the group to allow the correct playback of mix information. A GROUPING ON message will appear at the top right of the screen, to show that group information has been loaded back into the system and that groups are in place and active.

Since the software grouping assignments are stored along with the mix data, mixes can be replayed correctly without any additional information. This, however, may not always be desirable if, for example, you start off with no grouping at all, create a few mixes then introduce some grouping. Half way through this mix you decide to CANCEL and start again, updating the previous mix but this time, using the grouping. Loading the previous mix will causes its grouping (none) to be loaded into the system, in turn causing the grouping that you had set up halfway through your cancelled mix to disappear!

To prevent this, the system examines the grouping and either doesn’t overwrite it or displays the Group Set page at the head of the mix according to the rules below. If you wish to ignore the Group Set page simply hit EXECUTE and it will go away.
If no software groups exist:

**Condition**
- New Mix
- Update Mix with no groups saved
- Update Mix with groups saved

**Display**
- Nothing displayed
- Nothing displayed
- GROUPING ON message

If there are software groups set up:

**Condition**
- New Mix
- Update Mix with no groups saved
- Update Mix with groups saved

**Display**
- Group set page displayed at head of mix
- Group set page displayed at head of mix
- GROUPING ON message

Remember that if there is any software grouping set at all, the message GROUPING ON will appear in the top right hand box of the screen - that is except in Level Match, or Preview or if the moon is in conjunction with a sputnik.

**Group Information and Console Layout**

The group information is saved in such a way that grouped faders will return in the same physical place (where possible) on another console. This is done before any Track Copies or Track Swaps are set up (see Page 5-81). Should you Track Swap faders within a group, the group data will play back on the wrong faders.

If you have a group active, and you wish to Track Swap, the best approach is to merge the data into the mix using the Group Merge command. This will ensure that any grouped information plays back in the correct place.

Good practice for a finished project is to always merge all the group information in the final mix. This will obviate any problems in the future with Track Swap and Copy on dissimilar consoles.
Operational Applications

As the grouping system works from the playback data of the Master, it is very simple to add grouping onto something to see the effect, and then remove it if it is no good. For example, having written the cuts for one backing vocal track, that track can then be used as a Master for the rest of the backing vocals. By using a Slave Cuts Only type group, only the cuts would affect the other Slaves; any fader rides on the first vocal track would have no effect.

If the result of this is OK, just leave the group in place. If the effect is no good, dissolve the group and carry on. No mix information has been written, so there is nothing to delete or correct.

Note that it is not necessary to have grouping in place while fader moves are being written. Any existing moves can be later ‘mapped’ onto other faders.

Master and Slave Cuts

Any cut from the Master is applied to the Slave. If the Master is uncut, the Slave can be cut as normal (provided it is in a write status). It is not possible to uncut a Master cut that is applied to a Slave by using the Slave’s cut button. The way around this is to use Group Merge, then update the cut information on the Slave fader as normal.

Using Inverted Cuts

Slave Inverted Cuts have the opposite effect to that applied from the Master. Cut the Master and the Slave uncuts; uncut the Master and the Slave cuts.

For example, you might have a group that consists of four faders (say Channels 1 to 4) controlling two stereo FX returns. Fader 1 is the Master, Fader 2 is a Slave Cut type, Faders 3 and 4 are Inverted Cut types. Now cutting Fader 1 cuts Fader 2 and uncuts Faders 3 and 4. Uncutting Fader 1 uncuts Fader 2 and cuts Faders 3 and 4. In other words, you can switch between two stereo pairs with just one cut button.

How about compositing two tracks of vocals by using Inverted Cut Slaves and IP - Immediate Pickup. You are trying to chose the best parts from two different performances of the same vocal, laid down on two tracks. Assume you have Vocal A patched to Channel 8 and Vocal B on Channel 9. Set up a group with 8 as the Master and 9 as an Inverted Cut Slave.
Let's start with Channel 8 uncut. Set up a New Mix with IP selected and listen to
the first section on Channel 8. Now rollback before the section and cut Channel
8. Because IP is active, the cut will put the channel into write (Abs) and uncut
Channel 9. Now you can listen to the same section on Channel 9. Which is the
better vocal? If 9 was better just carry on to the next section and repeat the
process. If 8 was better, simply rollback again and uncut Channel 8. Channel 9
will automatically cut and you can play through onto the next section.

Suppose you uncut Channel 8 too late? No problem, simply rollback again and
press the status button at the right time. Because Channel 8's cut switch was up
(uncut) from your last attempt, the channel will go straight into uncut as soon as
the status button is pressed and, at the same (new) time, Channel 9 will
automatically cut. How about that? Two channels for the work of one.

There may be times when the vocal parts overlap and it is not possible to switch
between them cleanly. Clearly it is not possible to uncut the Slave channel while
the Master channel is cut. Using Group Merge at this time will write all the
moves on the Slave into the mix, as if you had actually written them on the
Slave channel's cut button. Now you can rollback and make any small
adjustments to the Slaves cuts, by using an update cut status (see Revise Cuts,
Page 5-35G & 5-66).

Phew!

DIB
Congratulations and welcome to Page 98
LED Reference Table for Fader Statuses

You may sometimes be a bit confused by the variety of different fader status LED indications. Hopefully, the table below will help.

<table>
<thead>
<tr>
<th>No LED</th>
<th>Manual/Replay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red LED, solid</td>
<td>Absolute</td>
</tr>
<tr>
<td>Red LED, slow flashing</td>
<td>Preview Absolute</td>
</tr>
<tr>
<td>Red LED, fast flashing</td>
<td>Direction indicators for Autotakeover and Level Match</td>
</tr>
<tr>
<td>Green LED, fast flashing</td>
<td>NEW MIX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No LED</th>
<th>Replay/Safe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green LED, solid</td>
<td>Trim</td>
</tr>
<tr>
<td>Red LED, solid</td>
<td>Absolute</td>
</tr>
<tr>
<td>Green LED, slow flashing</td>
<td>Preview Trim</td>
</tr>
<tr>
<td>Red LED, slow flashing</td>
<td>Preview Absolute</td>
</tr>
<tr>
<td>Red LED, fast flashing</td>
<td>Direction indicators for Autotakeover and Level Match</td>
</tr>
<tr>
<td>Green LED, fast flashing</td>
<td>UPDATE MIX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Green LED + red LED, solid</th>
<th>Read Cuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green LED solid + red LED flashing</td>
<td>Write Cuts</td>
</tr>
<tr>
<td>Red LED solid + green LED flashing</td>
<td>Play Cuts Only</td>
</tr>
</tbody>
</table>

Ultimation Only

<table>
<thead>
<tr>
<th>Yellow LED</th>
<th>Indicates Snap On mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>All LEDs lit</td>
<td>Fader stall</td>
</tr>
</tbody>
</table>

Preview of Read/Write Cuts and Play Cuts Only is indicated by the solid LED flashing. See also status HELP (Page 5-87).

In certain modes, such as Software Group Setup or Safe Set, LEDs will come on to indicate that the switch has been registered. This only indicates that selection. Furthermore, with Software Groups, the LEDs, in conjunction with the Group Setup menu, are used to indicate Slave Type (see Page 5-91)