

ULTIMATION

Service Manual

Section 6

Operator's Manual

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Introduction

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.

Ultimation/G Series Compatibility

Because of differences in fader law and mix resolution between Ultimation systems and current G Series systems, mixes are not *directly* compatible between the two systems. If you load a current G Series (G2.12) mix, the system will respond with the message: "Loading G Series mix.....", and the mix will be converted into Ultimation format. Any mix created or updated with Ultimation will always be saved as an Ultimation mix. If you wish to make a mix compatible with the current G Series program, use the command **REVISE MIX (Name) TO G EX**. This will create a new mix which will be stored in the current G2.12 format. Remember to give the converted mix a suitable name when requested, so you can easily identify it later.

About This Manual

This manual assumes that you are reasonably familiar with G Series software; if not, we suggest you read the first four sections of the G Series Computer Operator's Manual in order to feel conversant with fundamental aspects of the system.

If you are an experienced G Series user, you should soon only need to use this manual for reference. To make life easier, over the page you will find a quick guide to the new Ultimation commands etc., along with page references for further reading.

Either way, we feel sure that you will find Ultimation easy and instinctive to use - so let's get started!

Ultimation Reference Guide

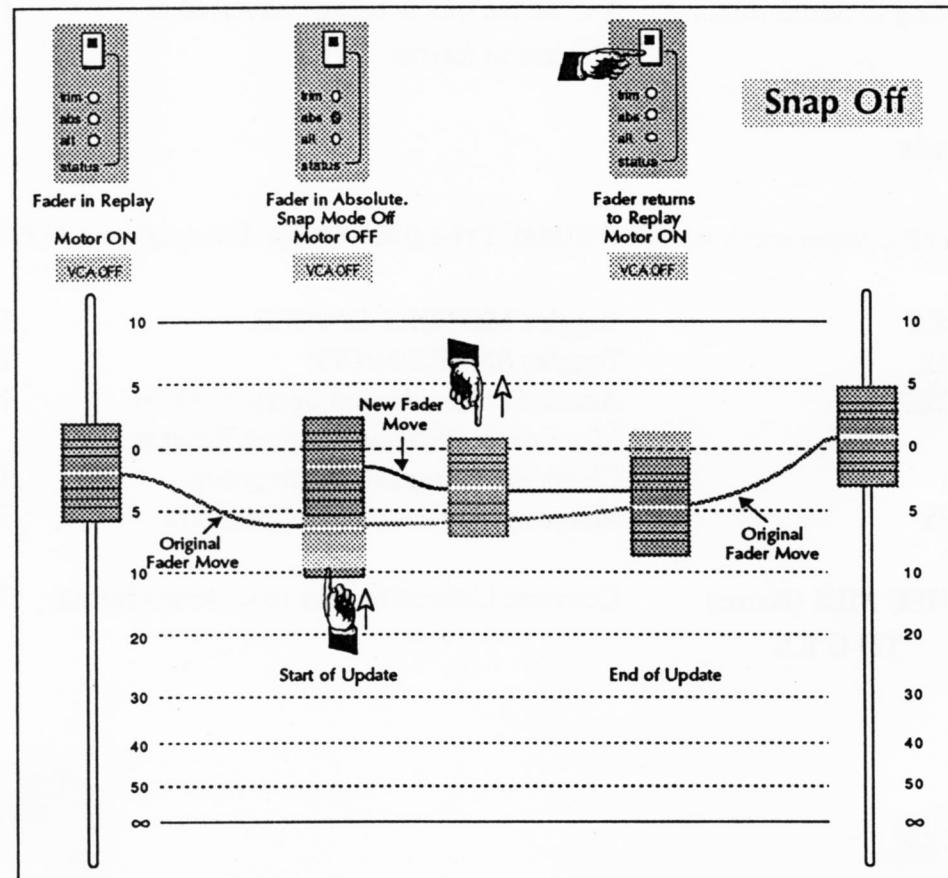
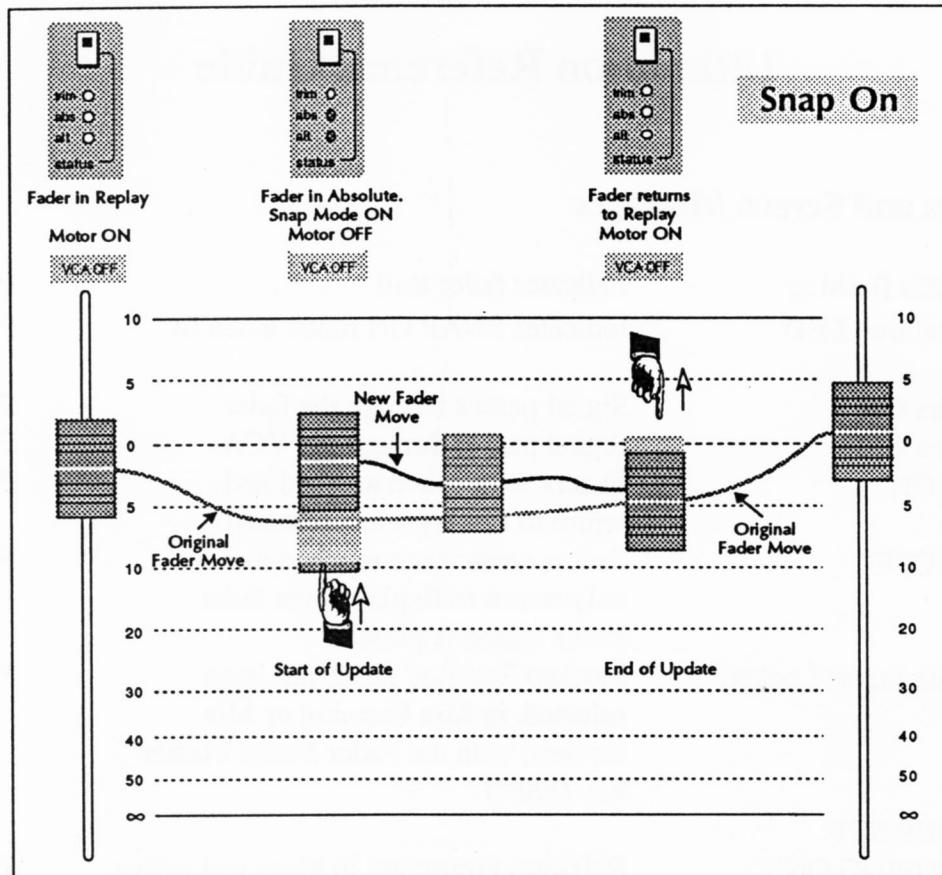
Indicators and Screen Messages

all LEDs flashing	Indicates fader stall	Page 9
alt (yellow) LED	Indicates SNAP ON mode when lit	Page 7
'Motors ON'	Signal passes through the fader	Page 9
'Motors OFF'	Signal passes through the VCA	Page 9
'Snap ON'	Faders write when touched and return to Replay when released	Page 7
'Snap OFF'	Faders write when touched and only return to Replay when fader status button is pressed	Page 7
'Update Status Locked'	'Locked Statuses' mode has been selected, in Mix Running or Mix Review, with the Fader Status Master key (FSM)	Page 12
'GROUP SET'		
'GROUPING ON'	Software groups are in place and active	Page 17
'Loading G Series mix.....'	A G Series mix is being converted to Ultimation format	Page 4

Commands

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

MO EX	Toggles MOTORS ON/OFF	Page 9
SO EX	Toggles SNAP ON/OFF	Page 7
PRESET	Accesses/clears Group Setup menu in Mix Enabled/Ready/Running/Review	Page 17
RUB	Clears the current software group	Page 17
COPY	Merges group data into current mix	Page 18
REVISE MIX (Name) TO G EX	Converts Ultimation mix to G Series format	Page 4



Mixing

Getting Started

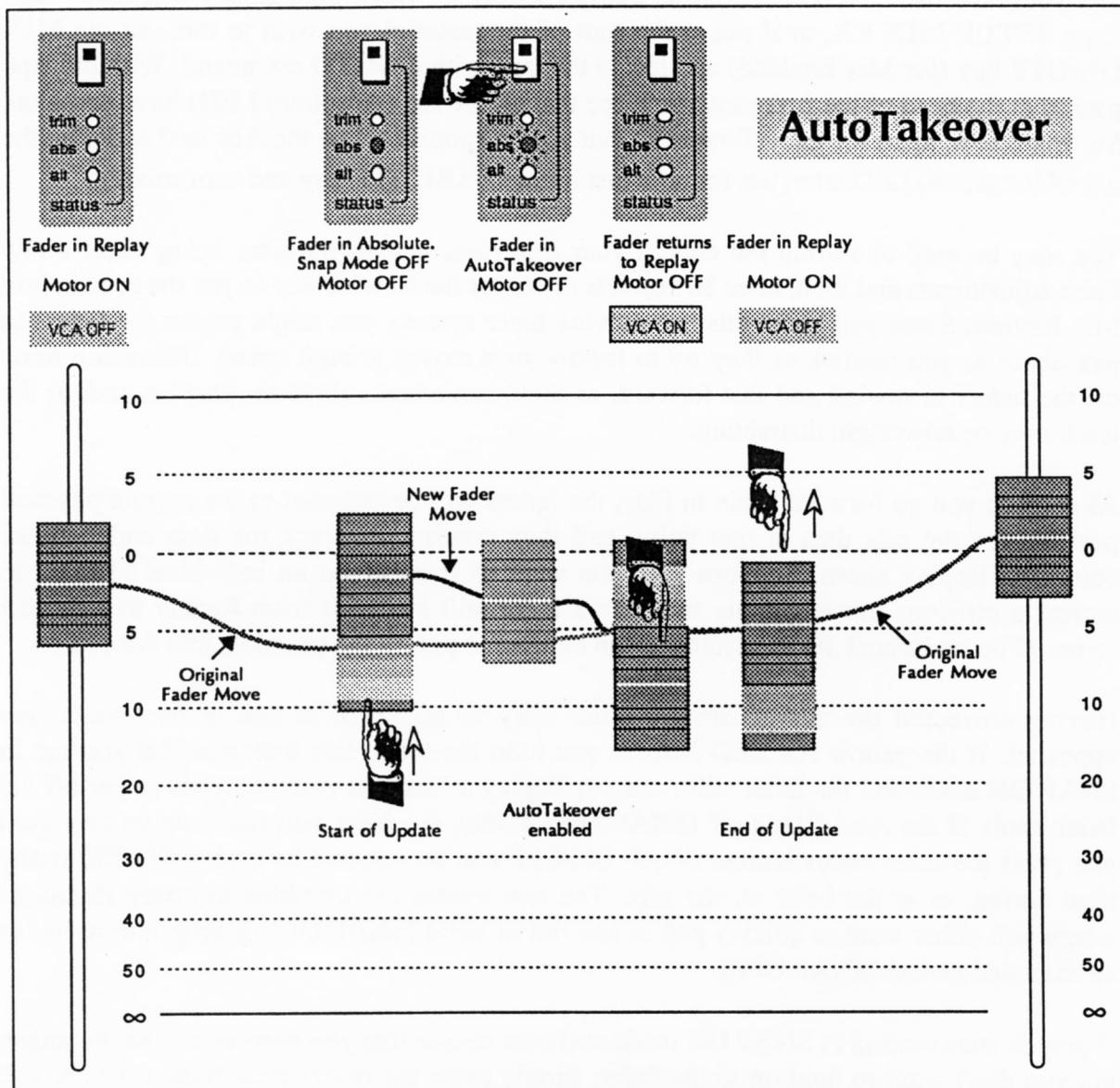
We'll assume that you're ready to mix, with a tape lined up at the start. (We'll also assume that you have named a TITLE on the current REEL in which your mixes will be stored.) Type **SETUP MIX EX**, or if not at the start of the material you wish to mix, hit the **MIX ON/OFF** key (for Mix Enabled) and locate the tape with a **GOTO** command. With the tape parked at the head of the first pass you'll see that all the red (Absolute) LEDs have come on. So what's new, apart for the yellow LED that you've spotted below the Abs led? More on the alt (Alternative) LED later, but for now just hit the **EXECUTE** key and start mixing.

You may be used to sorting out cuts in your first pass, but for the time being make a few fader adjustments and then, after 30 seconds or so, hit the Rewind key to put the system into Mix Review. Since you know this is a moving fader system, you might expect the faders to jerk about as you rewind, as they try to follow your moves at high speed. Ultimation turns off the faders in rewind and fast forward, as their movements serve no purpose and, at the least, may be downright distracting.

As soon as you go forward again in Play, the faders will be adjusted to the correct physical position for the mix data at that point, and then continue to track the data under motor control in Replay status. Suppose you now want to 'drop in' on an individual channel to correct a previous move. Simply touching a fader will switch it from Replay to Absolute status. (The traditional **JOIN** command can be used to put *all* the channels into Absolute.)

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

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.



If you are familiar with G2.12 software, you will be pleased to discover that you can now drop in and out of Absolute in a New Mix, and leave moves further down the line intact. After starting to write new fader moves, you may use Autotakeover to return the fader smoothly to its previous level after a re-write (see opposite). Select AT by typing AU or 3, and press the fader status button at the end of your move. The green and red LEDs will, as usual, indicate the direction you need to move the fader to match the previous mix level. As soon as you pass the 'null point' the fader drops into Replay, playing back via the VCA. When you let go of the fader, it will automatically return to track the mix under motor control.

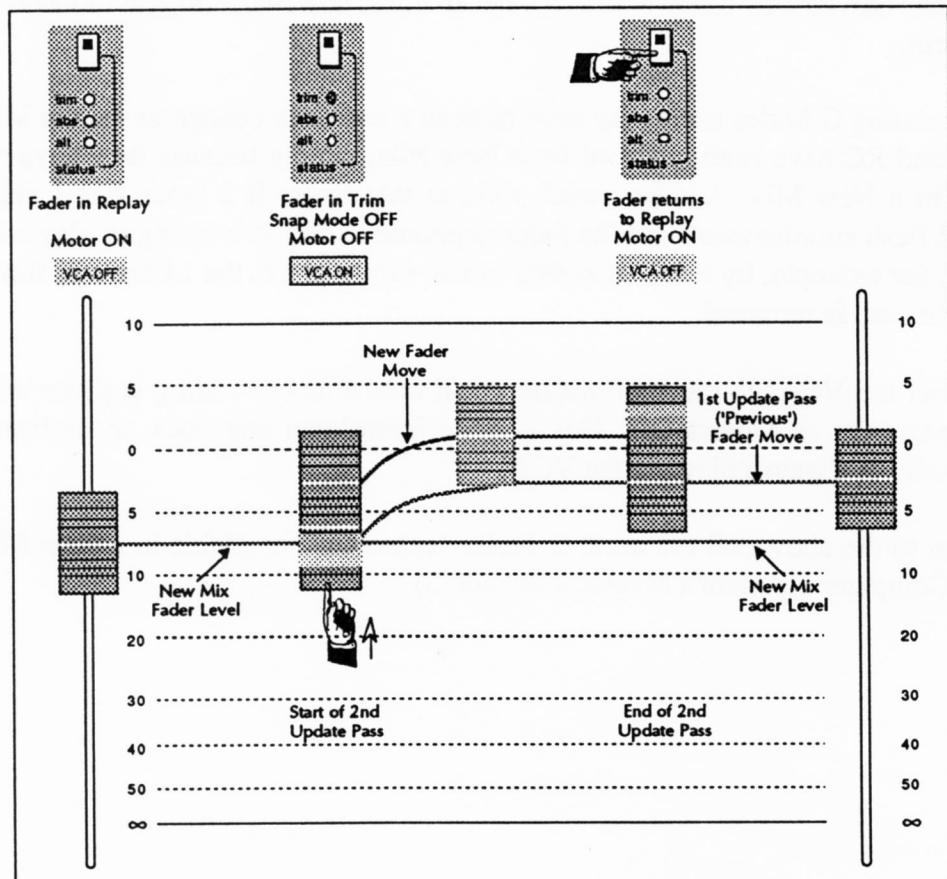
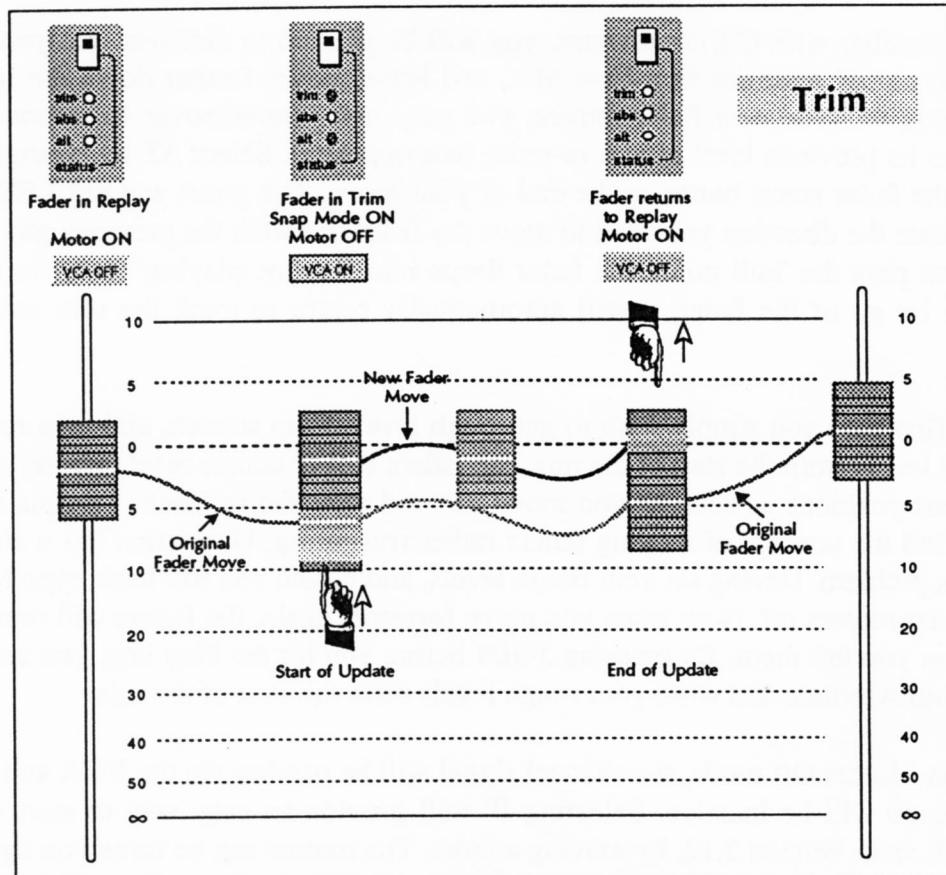
If in your first pass you simply wish to get rough levels from scratch, and then roll back to write those levels from the start of the mix, the faders will of course reset themselves to their original start positions as soon as you move forward after the rollback. Try this and you'll suddenly find the 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. By pressing JOIN before you hit the Play key, you can drop all channels into Absolute and write your 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 touch sensitive knob will be inactive. Selecting IP will provide an easy way to start writing in Motors Off, as in Version 2.12, by moving a fader. The motors can be turned on again at any time by repeating the MO EX command. In Motors On, the Immediate Pickup function ignores fader movements (think about it!), but IP does, however, still react to a change in the state of a cut.

By now, existing G Series users may have noticed a cosmetic change to the the Mix Options Box. UA and RC have been removed for a New Mix, simply because they have never been available in a New Mix. Another small point at this stage, if a fader motor stalls, all the LEDs will flash simultaneously. If the fader is jammed while it is trying to play back a move in Replay, for example, by a cup of coffee in the wrong place, the LEDs will flash until the cause of the stall is removed.

If you select the VCAs to meters function you'll notice that a reading is given whether you are in Motors On or Motors Off. This is quite intentional and does *not* indicate that the channel audio is always going via the VCA!

In addition to the above, all the usual G Series features are available in a New Mix (see the G Series Computer Operator's Manual - Section 5).



Update Mixes

The default starting status in an Ultimation Update Mix is Replay. In other words, the previous mix data will play back until you decide to update with a write status. The choice of status is up to you. Pressing the Fader Status Master key or individual fader status buttons at the head of the mix will cycle through the usual Trim, Abs, Replay statuses.

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 or any other relevant Mix Option(s) has been selected. You may, however, soon find that your favourite way of working uses UA in an Update Mix, with Motors On. Moving fader systems tend to encourage the use of Absolute simply because you always know the true fader level.

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. On returning to Replay, the audio is automatically re-directed via the fader which then continues to track the mix (see left above).

In cases where you want to drop into Absolute from Trim at the correct level to avoid level jumps, select LEVEL MATCH. If any of the faders are not in the right position, as soon as you enter Level Match (press the fader status buttons if Local Level Match is selected) the fader motors will automatically drive the faders to the matched position. What could be simpler!

The intuitive nature of Ultimation tends to increase the use of rollback and you may roll back, dropping in and out, over a particular part of the mix many times. When you switch from a write status to Replay in an Update Mix, you will return to the *previous pass* level at that point, not the *input mix* (i.e. the previously stored mix you are now updating). This is a change from previous software versions (see left below). The same principle applies in a New Mix but of course here there is effectively no input mix.)

Think of it just like drop-ins on a multitrack. Find a suitable spot, punch in hoping for a better performance (from you this time!) and then punch out before the section you know is fine. The process continues until the mix is tuned to perfection. If at any time you feel the movement of previously written faders is distracting, just type MO EX to turn the motors off. They can always be turned on again with another MO EX for your final layback pass.

Cuts

Ultimation provides quarter-frame accuracy for write/read cut operations. Along with the familiar Trim Cuts possibilities and Revise Cuts statuses, playing the cuts couldn't be easier.

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, effecting only the monitor level and leaving the written mix information intact. Ultimation now provides two forms of SAFE.

Having enabled Safe Set, by pressing 'S' 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 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 'S'. 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 stored following the normal rules associated with the **FROM** and **TO** or **COPY** and **SETUP** commands. (See the G Series Computer Operator's Manual for further details.)

'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 update in the status that it was in when the system rolled back, regardless of any changes made to the Mix Options. 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 status selection that had been made before.

The locked status feature can be used with the status grouping facility (see Page 19) 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. Now this can be achieved simply by pressing the **FSM** key.

Hardware Groups

Motors On mode also applies both in and out of a mix to the eight Group faders in the centre of the console. 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 10dBs 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 in 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, fading out the group containing it. In a normal moving fader system you would 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 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 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.

Software Control Groups

Ultimation's Software Control Groups dramatically increase the console's grouping capability by allowing free grouping from any fader to any other fader on the console. In other words, *any* channel fader can be used to control *any other* channel faders.

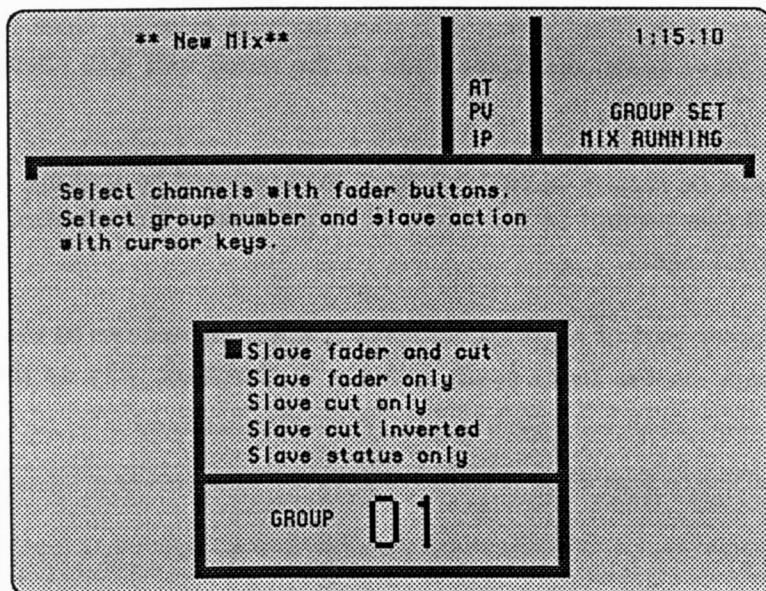
Up to fifteen separate groups can be set up, with any number of faders in each group. Note that it is not possible to have Master or Slave faders of one group as part of another group. Each Slave fader in a group can be one of five types. This type controls the action of the Slave in response to a change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

Although the group information acts only on playback, it is possible to write group information into the mix data using the Group Merge command. 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.

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.

Slave Fader and Cut	The Slave follows moves in the Master level and follows the Master cut.
Slave Fader Only	The Slave follows moves on the Master level only. Master cut has no effect.
Slave Cut Only	The Slave follows the Master cut only. The Master level has no effect.
Slave Cut Inverted	The Slave cut is inverted with respect to the Master cut. The Master level has no effect.
Slave Status Only	The Slave follows the fader status of the Master. Master cut and level have no effect.

Setting up a Group



The Group Setup menu (see above) is accessed by pushing 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 will allow you to setup the desired group number and the Slave type.

First push the status button of the fader that you wish to be the Master. The red LED will come on to show that it is the Master of the group. 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 change the current type using the cursor keys, then deselect and reselect the Slave.

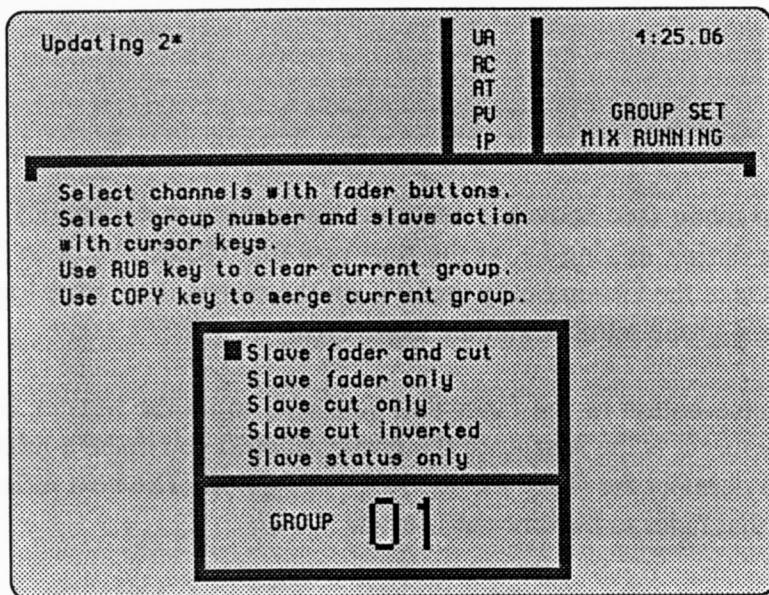
Once Slaves have been assigned to a Master, all Slaves must be cleared before the Master can be deselected. Alternatively, clearing a group can be simply carried out from the keyboard by making the group current and then pressing **RUB**. To exit from the Group Setup menu, press **PRESET** again.

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 setup will start flashing to show that the faders belong to another group and cannot be incorporated into this 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 pressed was on a Slave fader, the Slave Type in the menu will also change to that of the selected fader.

Clearing a group can be simply carried out from the keyboard by making the group current then pressing RUB (see prompt on the screen picture below). To exit from the Group Setup menu, press PRESET again.

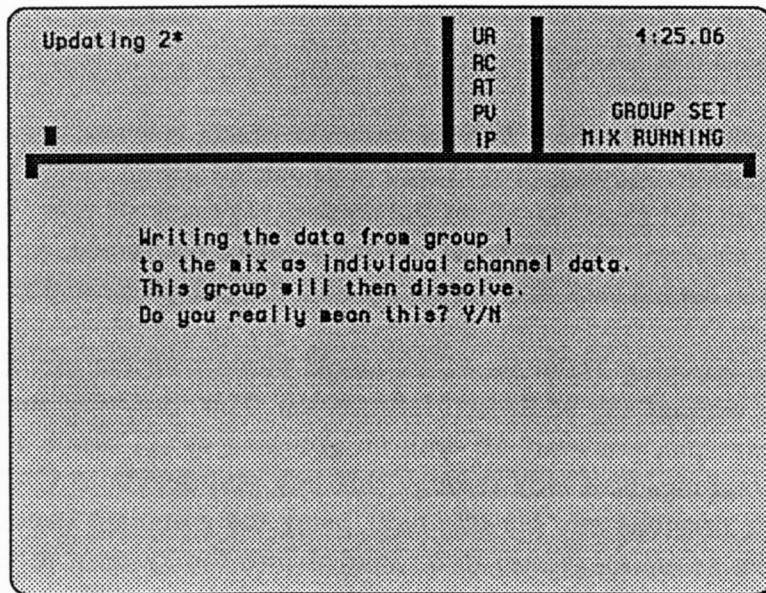
Once a fader becomes part of a group, its level is adjusted relative to the Master position about the 0dB mark on the fader scale, exactly in the same way as the existing VCA subgroups.



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 the 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.



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, 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, it 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, i.e. 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. The '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, mix 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 cause 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	Display
New Mix	Nothing displayed
Update Mix with no groups saved	Nothing displayed
Update Mix with groups saved	'GROUPING ON' message

If there are software groups set up:

Condition	Display
New Mix	Group set page displayed at head of mix
Update Mix with no groups saved	Group set page displayed at head of mix
Update Mix with groups saved	'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 Clapham Common tube station (English joke!).

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 the G Series Computer Operator's manual). 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 it, the best approach is to merge the data into the mix using the Group Merge option. This will ensure that any grouped information plays back in the correct point.

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 and will also allow the mix to be played back correctly with earlier software versions.

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 good, just leave the group in place. If the effect is no good, just 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 the 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)? We are trying to chose the best parts from two different performances of the same vocal, laid down on two tracks. Assume we 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 type 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 part 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 move 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 your favourite update cut status.

Appendix

The Machine Setup Menu

Changes to the Tape Machine Setup page, in the Maintenance Setup Menu, have been made in order to make the program cope more easily with multi-standard digital tape machines. This has been done by expanding the **Pulses per second** menu option and by using the **sample rate:**, as entered on the List Page, in conjunction with a new entry to the **Multi play speeds?** menu option.

The Multi play speeds menu option now accepts the following entries:

- | | |
|-------------|------------------------------------------------------------------------|
| NO | Tach rate is <i>not</i> adjusted for Speed as entered on the List Page |
| YES | Tach rate is adjusted for Speed as entered on the List Page |
| SAMP | Tach rate is adjusted for Sample Rate as entered on the List Page |

The standard tach rate is taken to be the number of pulses per sec at 48kHz sampling rate. If the Sample Rate on the List page is set to 44.1kHz, then the program will automatically adjust the tach pulse rate down by a factor of 44100/48000. With the Sample Rate set to any other value, or left blank, the program will make no change to the standard tach rate.

The Pulses per second at std play speed menu option now has the following possible entries:

Non integer tach rates up to one decimal place, e.g. **58.8** are now valid.

The word **FRAME** is now a valid tach rate. This is useful for Video and 'Virtual' machines which generate a tach rate fixed to the time code standard. The program will expect 25 pulses per second at a 25 frame standard and 30 pulses per second at a 30 frame standard. If a new time code standard is set up in the Session page of the Engineer's Setup Menu, the program will automatically update the number of pulses per second to be that of the new standard.

Synchroniser System Displays

For those of you who have the SSL Synchroniser Interface System, offsets on the **SYNC** page will now be shown in a 12 hour (max) format with negative offsets indicated by a negative sign. For example, a 1 frame negative offset previously shown as **23:59:59.24** (in EBU land) will now be displayed as **-00:00:00.01**

Error Messages

All error messages will now appear in lower case type, replacing the previous and rather confusing mixture of upper and lower case messages.

A new error message, **ADC card timed out**, has been introduced to show if the ADC converters have failed, take too long to convert or if one of the cards in a double I/O system has been removed. The message may occur in or out of a mix. If mixing, the error will cause the mix system to do an automatic END and **Name of mix?** will appear as usual.