OPCODE

Editor: Oberheim Matrix-6/6R/1000

TECH PUB

This document discusses how to edit patches with *Galaxy Plus Editors* using the Editor module for:

- Oberheim Matrix-6/6R
- Oberheim Matrix-1000

This document describes only features specific to the Matrix-6/1000 Editor. See your Galaxy manual to learn:

- how to install the Editor module
- how to use common editing features (such as graphic envelopes, pop-up menus, and numerics)
- about the various menu items

This document assumes you're familiar with Galaxy Plus Editors and with basic computer operations. If you're not, you should take time to study those manuals before using this Editor. You should also be familiar with the Matrix-6/1000 Librarian module. Read Galaxy's online Help if you need assistance.

This document does not attempt to teach Matrix-6 or Matrix-1000 programming. It does, however, briefly explain each of the synthesizer's parameters. Matrix-1000 owners will find this to be a valuable asset, since the various editing parameters are not discussed in the Matrix-1000 manual. Often, the effect of one parameter depends on the setting of other parameters. If you alter a parameter and don't hear any change in sound, it's probably because the edited parameter is ineffectual due to the setting of some other parameter.

TABLE OF CONTENTS

CH 1: EDITING MATRIX-6/1000 SINGLE PATCHES

☆ *IMPORTANT: The Matrix-1000 must contain ROM version 1.10 or higher if it's to be used with the Matrix-6/1000 Editor module. When you turn on the Matrix-1000, the version number flashes quickly on the LED display. Call your local Oberheim dealer to get a ROM upgrade, if needed.*

To open a Single Patch Edit Window:

① In a Matrix-6/1000 Single Patch Bank Window, click the patch you wish to edit, then click the **Edit** button.

Galaxy opens a Single Patch Edit Window.

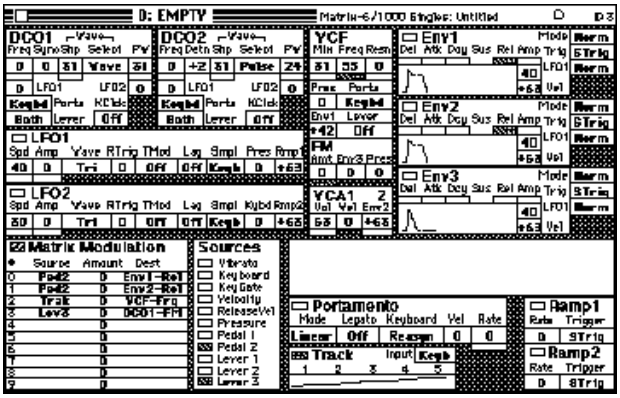


Figure 1: Typical Single Patch Edit Window

The Editor screen is arranged into numerous groups of parameters, which we will call blocks (as shown in Figure 2).

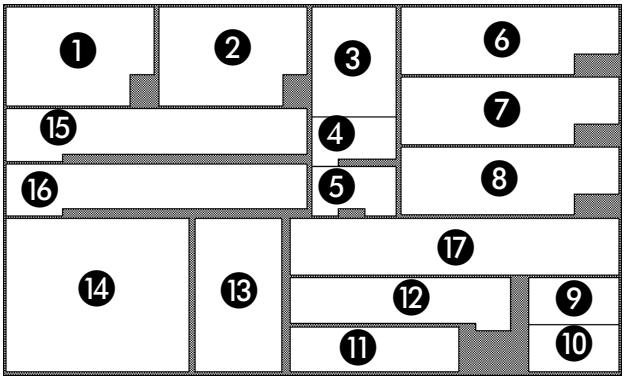


Figure 2: Parameter Blocks

As you can see in Figure 2, the Single Patch Edit Window has numerous parameter blocks:

1. DCO 1
2. DCO 2
3. VCF
4. FM
5. VCA
6. Env 1
7. Env 2
8. Env 3
9. Ramp 1
10. Ramp 2
11. Tracking Generator
12. Portamento
13. Sources
14. Matrix Modulation
15. LFO 1
16. LFO 2
17. Graphics/Scroll Bar

The following sections discuss each parameter block in detail.

DCO PARAMETERS

DCO stands for Digitally Controlled Oscillator. Each Matrix-6/1000 patch contains two DCOs.

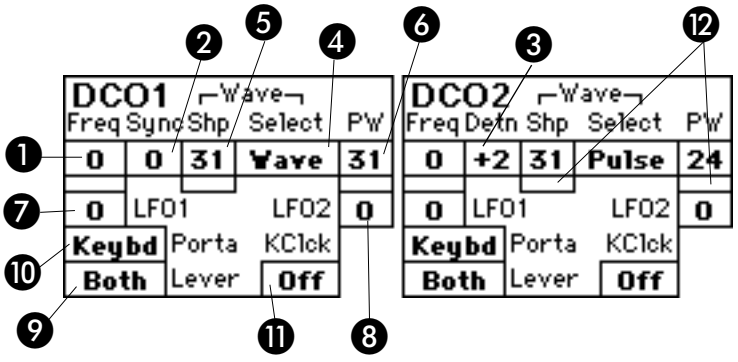


Figure 3: DCO Parameter Anatomy

As you can see in Figure 3, there are numerous DCO parameters. These are:

❶ **Frequency** controls the pitch of each DCO. The range is from 0 to +63, with each step representing on semi-tone.

❷ **Sync**, in DCO 1, slaves the waveform of DCO 1 to DCO 2. "0" is off. "1" is soft sync. "2" is medium sync, and "3" is hard sync.

❸ **Detune**, in DCO 2, adjusts its pitch slightly for a richer, thicker sound. The range is -31 to +31 (+/- 1/4 Tone). Negative values tune the oscillator flat. Positive values tune it sharp.

❹ **Wave Select** sets each DCO's wave type. The wave choices are Off, Pulse, Wave, or Both. DCO 2 adds a Noise waveform. "Wave" can be adjusted to be a triangle wave, a sawtooth wave, or anywhere in between. The "Both" wave outputs a Pulse and a Wave simultaneously.

❺ **Wave Shape** controls the shape of the waveform if "Wave" is selected in Wave Select. The range is from 0 to +63 where 0 produces a sawtooth and 63 produces a triangle. Values between the extremes produce a mix of the two waves.

❻ **Pulse Width** sets the width of the pulse output if a "Pulse" wave is being output. Values range from 0 to +63 where 0 is a very narrow pulse and +63 is a very wide pulse. A value of +31 will produce a square wave.

❼ **LFO 1** can be set to modulate each DCO's frequency. Values range from -63 to +63 with 0 indicating no modulation and +63 indicating full modulation. Negative values invert the LFO's waveform.

❽ **LFO 2** can be set to modulate each DCO's pulse width. It's use is similar to LFO1.

❾ **Levers** controls how typical controllers will affect the DCOs. "Off" will disable the levers. "Bend" permits Lever 1 (the pitch-bend controller) to control the pitch of the DCO. "Vib" permits Lever 2 (the mod wheel) to modulate the DCO. Its parameters are set in the Matrix-6/1000's Master setup. "Both" activates both pitch-bend and modulation wheels (Levers 1 and 2).

❿ **Keyboard/Portamento** allows you to set the way the DCO responds to incoming note information. "Porta" will put the DCO into portamento mode, resulting in a smooth glide, rather than an abrupt shift between notes. Portamento values are set in the Portamento block. "Keybd" turns portamento off and allows normal control of pitch from a keyboard of MIDI controller. "Off", on DCO 2 only, turns off keyboard tracking. When "Off" is selected, DCO 2 will play a single pitch across the entire keyboard.

⓫ **Key Click** adds a percussive click or punch to the beginning of a sound. It can be set to either "on" of "off".

⓬ **Modulation Destination** boxes will be explained in the Matrix Modulation section, later.

VCF, FM, AND VCA PARAMETERS

Let's look at the VCF, FM, and VCA parameter blocks.

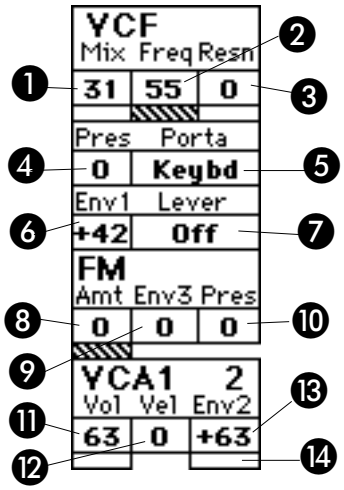


Figure 4: VCF, FM, and VCA Parameter Anatomy

As you can see in Figure 4, there are numerous VCF,FM, and VCA parameters. These are discussed in the following sections.

VCF PARAMETERS

❶ **Mix** controls the balance between the volumes of DCO 1 and DCO 2. The range is between 0 and +63 with 0 representing DCO 2 only, and +63 indicating DCO 1 only. A value of +31 will make the outputs of both DCOs equal.

❷ **Frequency** controls the cutoff of the low pass filter. This influences the tone by limiting the amount of upper harmonics. The range is 0 to +127. Lower values tend to sound "dull". Higher values are "bright".

❸ **Resonance** emphasizes the harmonic closest to the filter's cutoff frequency. Values range from 0 to +63 with 0 indicating no resonance. A resonance value of +63 will cause the filter to self-oscillate.

❹ **Pres** allows you to control the filter frequency by varying the amount of aftertouch used on your master controller. Range is from -63 to +63 with 0 indicating that pressure has no effect on filter frequency. Positive values will increase the filter frequency as pressure is applied. Negative values will decrease the VCF frequency as pressure is applied.

❺ **Keyboard/Portamento** works similarly to the Keyboard/Portamento function in the DCOs, except that instead of controlling pitch, this setting controls the filter frequency.

❻ **Env 1** controls the VCF frequency by modulating it with envelope #1. The filter frequency will change over time as specified by the settings in the envelope #1 block. The greater the value, the more the filter is affected by the envelope.

❼ **Lever** control on/off.

FM Parameters

❽ **Amount** controls the depth of DCO 1's modulation of the VCF. Range is from 0 to +63 with 0 indicating no modulation and +63 indicating full modulation.

❾ **Env 3** controls the amount of FM by envelope #3. FM amount can change over time as specified by the settings in the envelope #3 block. The greater the value, the more that FM amount is affected by the envelope.

❿ **Pres** allows the FM amount to be varied by keyboard pressure (aftertouch). Values range from -63 to +63 with 0 indicating no pressure modulation. Positive values cause FM amount to increase with an increase in pressure. Negative values cause FM amount to decrease with an increase in pressure.

VCA Parameters

⓫ **Volume** controls the output of VCA 1. It can be set from 0 to +63 with 0 indicating no output.

⓬ **Velocity** allows keyboard velocity to determine the output level of the VCA. Values range from -63 to +63 with 0 indicating no velocity affect. Positive values increase VCA output as velocity increases. Negative values decrease VCA output as velocity increases.

⓭ **Env 2** controls VCA 2. It's range is from -63 to +63 with 0 indicating that the envelope has no affect on VCA 2 (which means that no sound comes from the Matrix-6/1000). Positive values increase the volume as set by envelope #2. Negative values invert the effects of envelope #2.

⓮ **Modulation Destination** boxes will be explained in the Matrix Modulation section, later.

ENVELOPE PARAMETERS

The following envelope parameters can be edited.

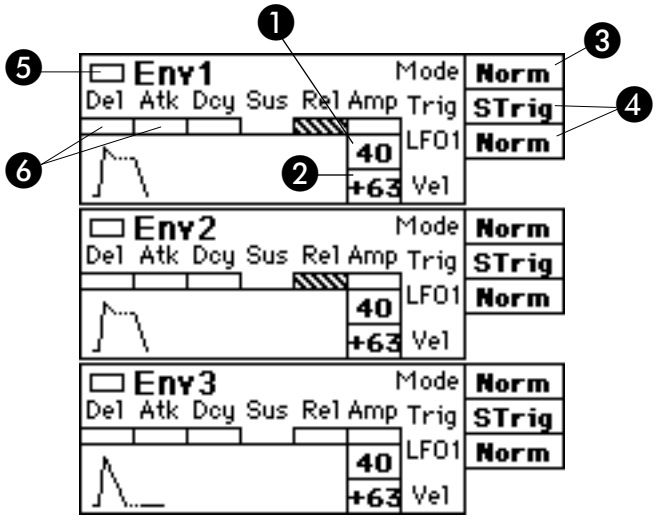


Figure 5: Envelope Parameter Anatomy

As you can see in Figure 5, there are numerous envelope parameters. These are:

1. **Amplitude** determines how much the envelope will have an affect on its destination.
2. **Velocity** determines how much amplitude is determined by keyboard velocity. Values range from -63 to +63 with 0 indicating that velocity has no affect on envelope amplitude. Positive values mean that increased velocity results in increased amplitude. Negative values decrease amplitude as velocity increases.
3. **Mode** determines how an envelope will complete its cycle. “Norm” means that a key must be held down in order for an envelope to complete its full cycle. “DADR” ignores the sustain setting and has the same affect as if you released the key the instant that the decay stage finishes. “Free” causes the envelope to complete its entire cycle whether the keys are held down or not.
4. **Trig** determines the envelope triggering mode. “STrig” means that the envelope is activated only if it is not already playing. Single triggering requires that the Matrix-6/1000 be in unison mode. “MTrig” will trigger the envelope any time that a new key is depressed. “SReset” is similar to single triggering, except that the envelope is reset each time a new note is played. “MReset” is similar to multiple triggering, except that the envelope is reset each time a new note is played. External triggers can be also be used and are received at Pedal 2. Their operation modes are similar, but their names start with an “X”.

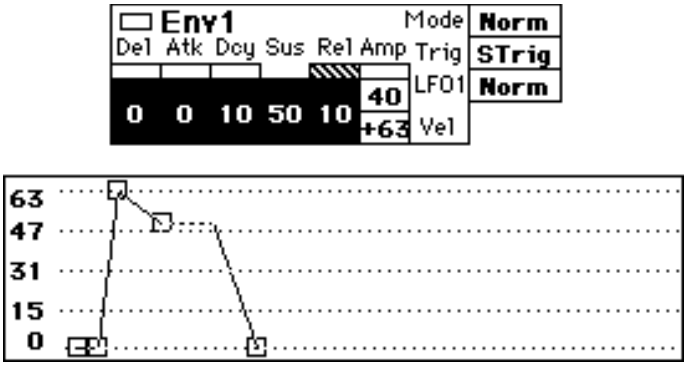
❺ **Modulation Source** boxes will be explained in the Matrix Modulation section, later.

❻ **Modulation Destination** boxes will be explained in the Matrix Modulation section, later.

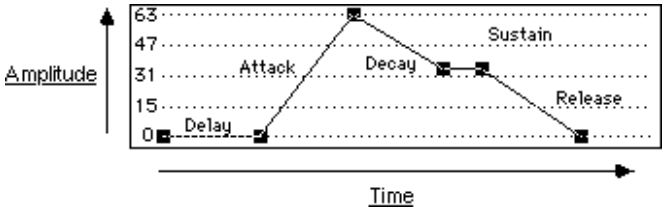
MINIATURE GRAPHIC ENVELOPES

Miniature graphic envelopes give an overview of the current envelope shape.

To open an envelope's graphic editing window, click the miniature graphic envelope. A graphic window will open in the Graphics/ Scroll bar section. The miniature envelope display is replaced by individual Delay, Attack, Decay, Sustain, and Release numericals. Envelope editing techniques are discussed in the Galaxy manual.



Amplitude is represented on the vertical, or "y" axis. Time is represented on the horizontal, or "x" axis.



There are five stages to the Matrix-6/1000 envelope:

- **Delay**. Delay time is the time between the initial strike of a key and the onset of attack. The Delay point may only be moved horizontally, since it is always at zero amplitude.
- **Attack**. Attack is the time it takes for a sound to reach its full output, after the Delay period. Since the Attack time represents full output, it stays vertically at 63, and may only be moved horizontally.

- **Decay**. After reaching full output, a sound then 'decays' to its Sustain level. Decay time is the time it takes for a sound to decrease to a sustain level. The decay point moves horizontally along the Sustain level.
- **Sustain**. The Sustain level is the output level while a key is held down. Sustain is the only point that can be moved vertically, since it is a function of amplitude.
- **Release**. Release time is the time it takes for the output volume to drop from the Sustain level to 0 amplitude. The Release point may only be moved horizontally.

RAMP GENERATOR PARAMETERS

Ramp Generators can be thought of as the attack portions of envelopes. Note that the Ramps are hard wired to LFOs 1 and 2 since they are very useful for gradually increasing or decreasing the amount of these effects. They can also be used as a modulation source for other destinations.

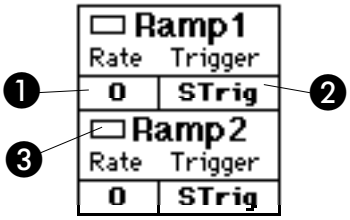


Figure 6: Ramp Generator Parameter Anatomy

As you can see in Figure 6, there are numerous Ramp Generator parameters. These are:

1. **Rate** controls the amount of time it takes for the ramp to completer its cycle. Values range between 0 and +63 with 0 being no time, and +63 being maximum time.
2. **Trigger** controls the ramp's triggering functions. "STrig"and "MTrig" are similar to those functions within the envelope blocks. "EXTrig" is similar to the envelope's "XTrig" mode. "GatedX" causes the ramp to recognize external triggers only when keys are being played.
3. **Modulation Source** boxes will be explained in the Matrix Modulation section, later.

TRACKING GENERATOR PARAMETERS

The Tracking Generator is one of the Matrix-6/1000's most unusual and useful features.

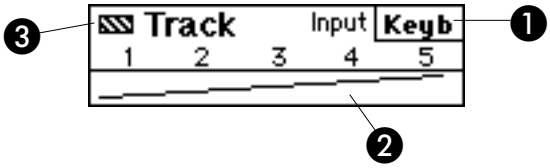


Figure 7: Tracking Generator Parameter Anatomy

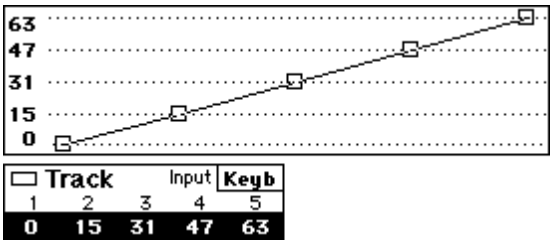
As you can see in Figure 7, there are numerous Tracking Generator parameters. These are:

1. **Input** determines the source that the tracking generator will modify. Any of 20 different inputs can be used and modified by the tracking generator.
2. **Miniature Graphic Tracking Generator** is described below.
3. **Modulation Source** boxes will be explained in the Matrix Modulation section, later.

MINIATURE GRAPHIC TRACKING GENERATOR

The Miniature graphic Tracking Generator gives an overview of the current tracking generator shape.

To open a graphic editing window, click within the miniature graphic display. An editable window will open in the Graphics/Scroll bar section. The miniature Tracking Generator display is replaced by individual track point numericals. Track Generator editing is very similar to envelope editing.



☆ *NOTE: The Tracking Generator must be patched to another parameter before its affect can be heard.*

PORTAMENTO PARAMETERS

Portamento can be used to smooth transitions between notes.

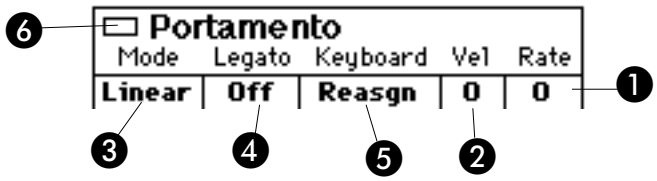


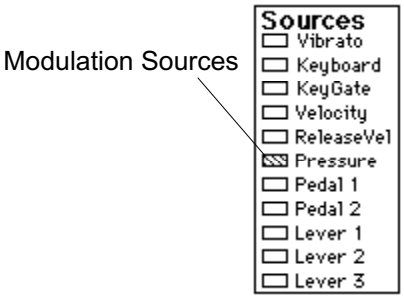
Figure 8: Portamento Parameter Anatomy

As you can see in Figure 8, there are numerous Portamento parameters. These are:

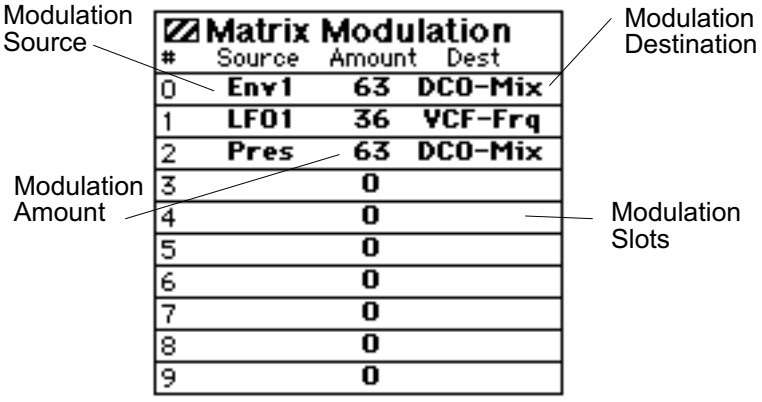
1. **Rate** controls the transition speed. Values range from 0 to +63 with 0 indicating the fastest speed and +63, the slowest.
2. **Velocity** allows you to change the portamento rate depending on velocity. Values are -63 to +63 with 0 being no affect. Positive values slow the rate with increased velocity. Negative values speed the rate with increased velocity.
3. **Mode** gives you a choice of three response modes. “Linear” provides an even glide between notes. Gliding between notes two octaves apart takes exactly twice as long as gliding between notes one octave apart. “Const” causes the portamento rate to be recalculated to provide a constant glide time between notes. Gliding between two octaves takes the same amount of time as gliding between notes one octave apart. “Expo” provides an exponential transition between intervals. Expo starts with a fast rate and slows down as the note is approached.
4. **Legato** causes portamento to be active only when notes are played in a legato fashion (playing a new note before the first note is released). This mode requires the Matrix-6/1000 to be in Unison mode.
5. **Keyboard** controls the assignment scheme for playing the Matrix-6/1000’s voices. “Rotate” loops through all six voices sequentially. “Reasgn” is similar to rotate, except that voices are assigned to particular notes. If a note is struck repeatedly, it will trigger the same voice, while other notes will rotate through other voices. “Unison” causes all six voices to play with one note. Consequently, the Matrix-6/1000 becomes a monophonic synthesizer with 6 voices (12 oscillators) assigned to one note. “Rearob” is similar to reassign mode. The difference is that Reassign Rob mode will, if six voices are sounding and a seventh note is pressed, steal a voice from one of the six so that the seventh note will sound. Reassign mode will not allow the seventh note to sound if six are already sounding.
6. **Modulation Source** and **Modulation Destination** boxes will be described in the Matrix Modulation section, later.

SOURCES

The Sources block contains all MIDI and keyboard controllable functions. Any of these functions can be used as a modulation source. Active sources will have their boxes filled with a diagonal pattern.



MATRIX MODULATION™



To see a list of possible modulation sources, click the Matrix Modulation Source value within one of the 10 modulation slots and scroll through the possible sources with the Scroll Bar.

To see a list of possible modulation destinations, click the Matrix Modulation Destination value within one of the 10 modulation slots and scroll through the possible destinations with the Scroll Bar.

Click the Matrix Modulation Amount value to produce a Scroll Bar for inputting amounts between -63 and +63. Negative amounts are used for 'inverse' modulations.

The Sources and Destinations can be changed at any time by clicking in the slot, under the appropriate box, and using either the Up and Down Arrow, or the Scroll Bar. To get rid of a modulation, set both Source and Destination values to None.

USING PATCH CORDS

One of this Editor's most useful features involves using Patch Cords to define Matrix Modulations.

Patch Cords are an editing feature unique to the Matrix-6/1000 Editor module. In the Matrix-6/1000 Editor module we display modulation routings by using a graphic "Patch Cord". Patch Cords were often used with old modular synthesizers (such as the Arp 2600) to connect various modules. This "patching" is now done via software. Patch Cords illustrate the connections between the Source and Destination of any given Matrix Modulation. They appear whenever an individual modulation slot is selected.

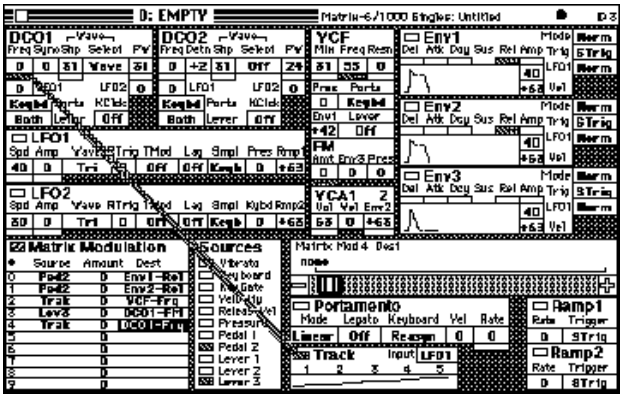
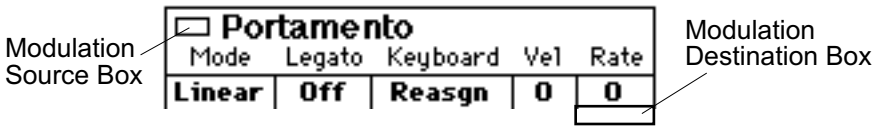


Figure 9: Using A Patch Cord

All boxes preceding a parameter name are Modulation Source boxes. All boxes below a parameter name are Modulation Destination boxes. In the example above, the Tracking Generator is the source and DCO 1 Frequency is the destination.



Clicking on a Source or Destination box will automatically select a new Modulation Slot and highlight the box with diagonal, moving stripes. The selected parameter's name will appear in the modulation slot. Moving the cursor will draw the cord to any Source or Destination (depending on which you selected first). Clicking on the second box will "plug in" the Patch Cord. You can't connect a Source to a Source or a Destination to a Destination. If you wish to change the Destination, simply click the Destination box again (to unplug the cord), draw it to another destination, and plug it in there.

The Scroll Bar will convert to control the Modulation Amount automatically.

LFO PARAMETERS

An LFO (Low Frequency Oscillator) applies periodic variations in pitch and/or amplitude depending on the destination to which it is assigned. The Matrix-6/1000 features two fully independent LFOs.

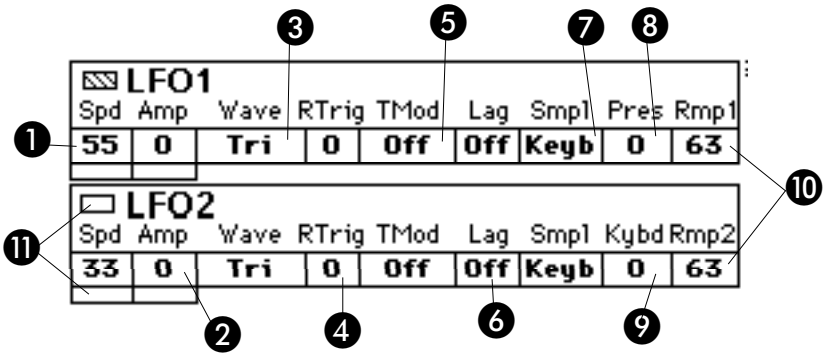


Figure 10: LFO Parameter Anatomy

LFO 1 is hardwired to the frequency of both DCOs. LFO 2 is hard-wired to the Pulse Width of each DCO. Any other uses may be achieved through use of Patch Cords and Matrix Modulation.

As you can see in Figure 10, there are numerous LFO Parameters. These are:

1. **Speed** controls the speed of each LFO. Values range from 0 (slowest) to +63 (fastest).
2. **Amplitude** determines the intensity of LFO modulation. Values range from 0 (no LFO output) to +63 (full LFO output).
3. **Waveform** allows you to select the LFO's waveform. Triangle, Upsawtooth, Down Sawtooth, Square, Random, Noise, and Sample can all be used. When Sample is selected, the LFO samples another modulation source and uses that as its waveform. Speed controls the frequency of the sampling and the "Smpl" field selects the source.
4. **Retrigger Point** allows you to set a starting point anywhere within the waveform. Values range from 0 (LFO triggers at beginning of waveform) to +63 (LFO triggers at the waveform's halfway point).
5. **Trigger Mode** is similar to the trigger functions discussed in the envelope parameters section.
6. **Lag** causes sharp transitions in an LFO's waveform to be smoothed. It takes its input from the portamento section. Lag is especially noticeable with square waves.
7. **Sample**, as discussed in the Waveform description, sets the modulation source which is sampled when "Smpl" is selected in the Waveform field.

❽ **Pressure** causes LFO 1's speed to be modulated by keyboard pressure (aftertouch). Values range from -63 to +63 with 0 indicating no pressure affect on speed. Positive values cause speed to increase as pressure increases. Negative values cause speed to decrease as pressure increases.

❾ **Keyboard** causes LFO 2's speed to change depending on keyboard tracking. Values range from -63 to +63 with 0 indicating no keyboard affect on LFO speed. Positive values cause the LFO's speed to increase when higher notes are played. Negative values cause the LFO's speed to decrease when higher notes are played.

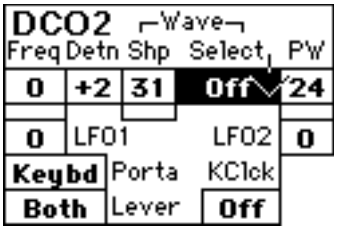
❿ **Ramp 1** and **Ramp 2** allow LFO amplitude to be controlled by Ramp Generators. Ramp 1 is hardwired to LFO 1. Ramp 2 is hardwired to LFO 2. This is useful for setting a gradual increase in LFO amount over time. Values range from -63 to +63 with 0 indicating no affect. Positive values increase amplitude and Negative values decrease amplitude.

⓫ **Modulation Source** and **Modulation Destination** boxes are described in the Matrix Modulation section.

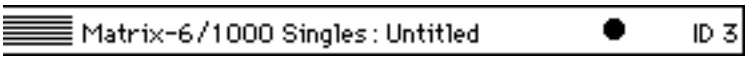
SIMPLE TUTORIAL

In this section, we'll perform some basic patch editing to design an odd, but simple "alien" synth sound. Numerous patch editing techniques can be used. If you're not familiar with Opcode editor controls, see the "Generic Editor Controls" section of "Working with Editors" in the Galaxy manual.

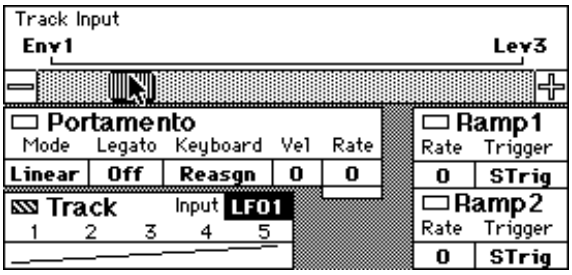
① Click DCO 2 Wave Select and drag the mouse downward to turn off DCO 2.



Note that the dot in the upper right corner of the patch editing window has become solid. This indicates that the patch now differs from the saved version.

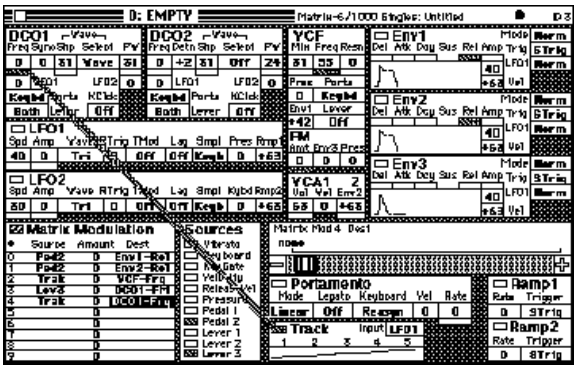


② Click the input box of the Tracking Generator, then drag the Scroll Bar to the left to select LFO 1.

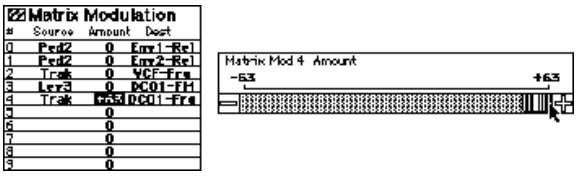


③ Click the Modulation Source box in the Tracking Generator and drag a Patch Cord to the Modulation Destination box below DCO 1 Freq.

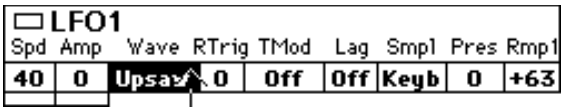
This will establish a new modulation routing, which will appear in the Matrix Modulation list in the lower left corner.



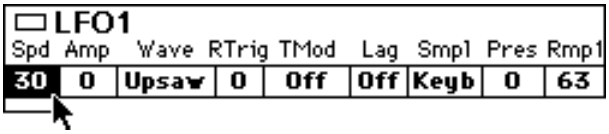
④ Click the new Matrix Modulation Amount numerical, and use the Scroll Bar to increase its value to +63.



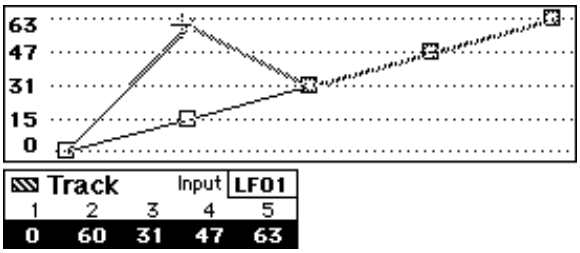
⑤ Click LFO 1 Wave and drag the mouse upward to select “Upsaw”.



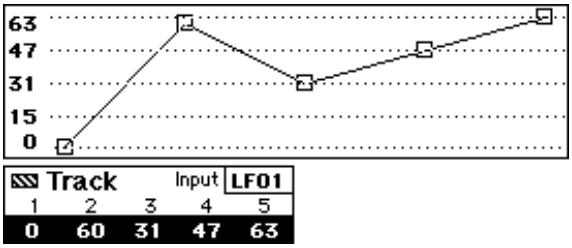
⑥ Click LFO 1 Spd, type 30, and hit Enter.



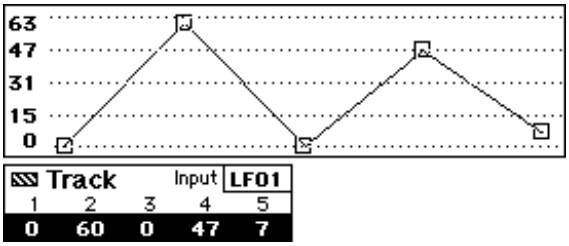
⑦ Access the Tracking Generator graph by clicking its miniature graphic window. Drag the second handle up to a value of 60.



⑧ Release the mouse.



⑨ Modify the other tracking generator stages as shown below.



Feel free to continue editing this patch. Experiment with different editing techniques, and get a feel for the patch window. Using the Matrix-6/1000 Editing module should be fairly intuitive with a little practice.

CH 2: EDITING MATRIX-6/6R SPLITS

The Matrix-6 has the ability to play two different sounds at once, even if the keyboard controller sends MIDI data on only one channel. This is done by dividing the voices into sections called Zones. The combination of two zones is called a Split. You can edit all the parameters of a 'split combination'.

☆ *NOTE: The Matrix-1000 does not have Split capability, so Matrix-1000 owners can skip this discussion.*

To open a Split Editing Window:

① In a Matrix-6/1000 Split Patch Bank Window, click the Split you wish to edit, then click the **Edit** button.

Galaxy opens a Split Edit Window.

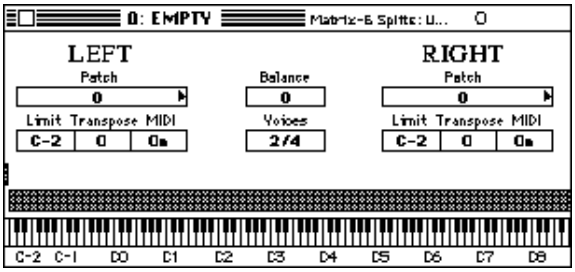


Figure 11: Typical Split Edit Window

AUDITIONING SPLITS

To audition your splits as you edit them, keep in mind that the Matrix-6/6R can only play both parts of a split when it is receiving notes on two separate, adjacent MIDI channels. For example, if Basic Chan is set to 1, the left Zone will respond to Channel 1 while the right zone will respond to Channel 2. This creates some problems if your controller keyboard will only send on one MIDI channel at a time. There are two ways to deal with this when auditioning sounds:

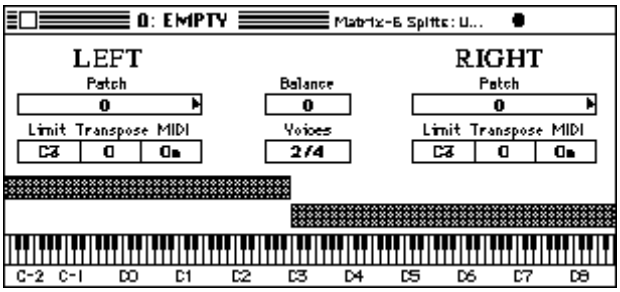
- Set the Matrix-6 to "Omni Mode On" in the Master Editor.
- Set MouseKeys to send on two adjacent channels—the Basic Channel, and the Basic Channel plus one. Set the channels by clicking on the channel numbers on the left side of the MouseKeys window.

THE MATRIX-6/6R SPLIT EDITING WINDOW

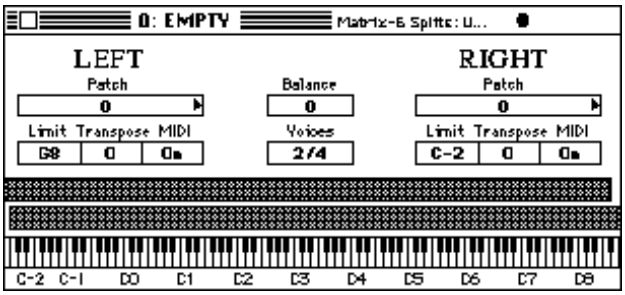
There is a left zone and a right zone. Each zone can be assigned a patch, a note limit, an transpose value, and MIDI enable. Also, you can set the balance between the two sounds and the number of voices assigned to each zone.

Limit sets the the range of each zone. The left zone plays from C-2 up to the note specified in the Limit numerical. The right zone plays from the note specified in its Limit numerical up to G8.

The zones can form a perfect keyboard split as shown below...



...or they can overlap.



Patch determines the sound that is assigned to each zone. Choose one of the 100 available patches from the pop-up menu. If the Split bank is part of a bundle, you can choose the patch by name as well as number. See Bundles — Selecting Patches by Name (pg. 19).

Transpose allows you to set a transposition for each zone. Values range from -36 to +24 with each step representing a semitone. A value of 0 equals no transposition.

MIDI enables each zone to transmit and receive MIDI data. If you are using a Matrix-6R, these values must be set to “On” in order play the split patch.

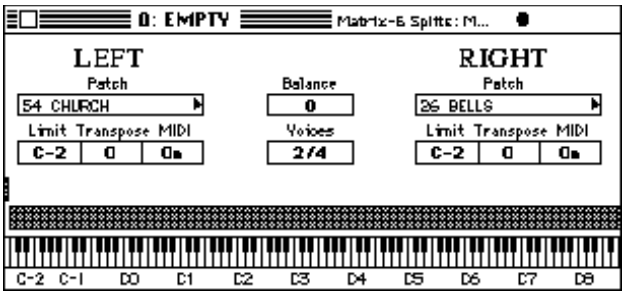
Balance controls the relative mix between the left zone and the right zone. The value ranges from -31 to +31 with 0 indicating no change in relative volumes. Negative values increase the volume of the Left zone relative to the Right zone. Positive values have the opposite affect.

Voices allow you to set the voice assignment for each zone. "2/4" assigns voices 1 and 2 to the Left zone, and voices 3-6 to the Right zone. "4/2", "6/0", and "0/6" assign voices to each zone as you would expect.

BUNDLES — SELECTING PATCHES BY NAME

If you're using a stand-alone, unbundled Split bank that does not contain attached patches, you must select each Zone's patch by its number.

If, however, the Split bank is bundled with a Program bank, you will see patch names in the Split Editing window. You can choose the patches by name, rather than by number. The Split Editing window will look something like this:



Notice the names of the single patches are displayed. This is a big help for remembering which sounds are being referenced in the split. When you click on the Left or Right patch name, a pop-up menu appears showing the names of all the patches in the bundled single bank.

In the pop-up menu, the currently selected is highlighted. Select one of the other patches by moving the mouse over its name, thus high-lighting it, then releasing the mouse. The name of the selected patch will appear in the split window. If you wish to use the patch that was originally selected, simply move the mouse out of the pop-up menu completely and it will return to the original selection.

After selecting a new patch, the patch number will change to the proper patch location.

If the edited Split has attached patches (the split was copied out of a bundled split bank), you will not be able to change its patches. Clicking on the Left or Right patch name, or on the patch numericals will do nothing.

CH 3: EDITING THE MATRIX-6/6R MASTER PATCH

The Matrix-6/6R Master Patch Editor contains all the Matrix-6/6R's global controls. All the parameters in the Master Patch Editor are explained in detail in the Matrix-6 and Matrix-6R Manuals.

☆ *NOTE: The Matrix-1000 has its own Master Patch Editor, so Matrix-1000 owner's may skip this chapter.*

To open a Matrix-6/6R Master Edit Window:

① In a Matrix-6 Master Patch Bank Window, click the Master patch you wish to edit, then click the **Edit** button.

Galaxy opens a Master Patch Edit Window.

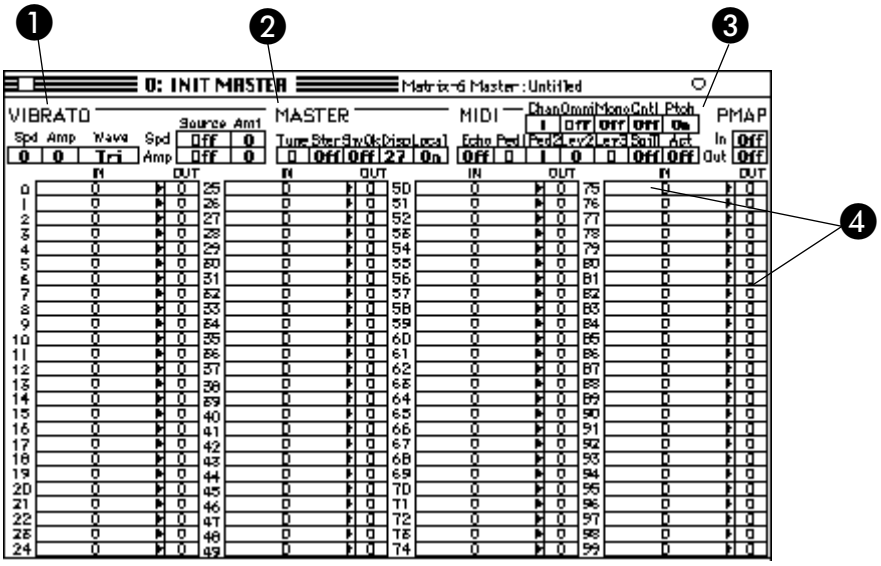


Figure 12: Typical Matrix-6 Master Patch Edit Window

As you can see in Figure 12, the Matrix-6/6R Master Edit Window contains four distinct parameter blocks. These are:

❶ Vibrato Parameters
❷ Master Parameters
❸ MIDI Parameters
❹ Patch Map Parameters.

The following sections discuss each parameter block. Refer to your Matrix-6/6R manual for more information.

VIBRATO PARAMETERS

The block in the upper left-hand corner contains the Master Vibrato controls. You can set a Master Vibrato Speed, Amplitude, and Waveform. Also, you can set a modulation Source to control the Amount of both vibrato speed and amplitude.

MASTER PARAMETERS

The Master block is to the right of the Vibrato block. Tune controls the overall tuning of the Matrix-6/6R. Stereo determines the status of the two output jacks. Switch Quick activates the Matrix-6/6R's "SQUICK" feature. Display sets the brightness of the Matrix-6/6R display. Local turns MIDI Local Control "on" or "off".

MIDI PARAMETERS

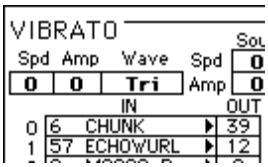
To the right of the Master block is the MIDI block. Here, you set the Matrix-6/6R's basic MIDI Channel, whether or not it is in Omni mode, and whether Mono mode is active or not. Controllers allows you to enable or disable MIDI controllers. Patch enables or disables the transmission and reception of patch changes. MIDI Echo can be toggled as can Spillover and Active Sensing. Pedals and Levers can be assigned to specific MIDI controller numbers.

PATCH MAP PARAMETERS

The largest block is dedicated to Patch Map editing. This feature of the Matrix-6/6R is much easier to use when you can see patch mapping laid out on the screen. Patch Map Input and Patch Map Output (Echo) are enabled within this block. Note that Patch Map Output may not be available on some ROM versions of the Matrix-6.

The Patch Map's IN column determines which Matrix-6/6R patch will sound when receiving the patch number to its left. Patches can be selected from a pop-up menu. If the Matrix-6/6R Master bank is bundled with a Single Bank, then the patch name will be displayed (see "Bundles—Selecting Patches by Name" in the previous chapter for more explanation). Patch Map In must be enabled for this to work.

Set an output patch number in the OUT column. When the Matrix-6/6R receives the patch number to the far left, it will send a patch change of the specified OUT number to its MIDI Out port. Patch Map Out must be enabled for this to work.



For example, when the Matrix-6/6R illustrated above receives patch number 0, it will play internal patch #6 (CHUNK) and send patch change #39 to its MIDI Out port. Similarly, when it receives patch #1, it plays internal patch #57 (ECHOWURL) and sends patch change #12 to its MIDI Out port.

CH 4: EDITING THE MATRIX-1000 MASTER PATCH

The Matrix-1000 Master Patch Editor contains all the Matrix-1000's global controls. All parameters in the Master Editor are explained in the Matrix-1000 manual.

☆ *NOTE: This chapter refers only to the Matrix-1000. Matrix-6/6R owners may skip this chapter.*

To open a Matrix-1000 Master Edit Window:

① In a Matrix-1000 Master Bank Window, click the Master patch you wish to edit, then click the **Edit** button.

Galaxy opens a Master Patch Edit Window.

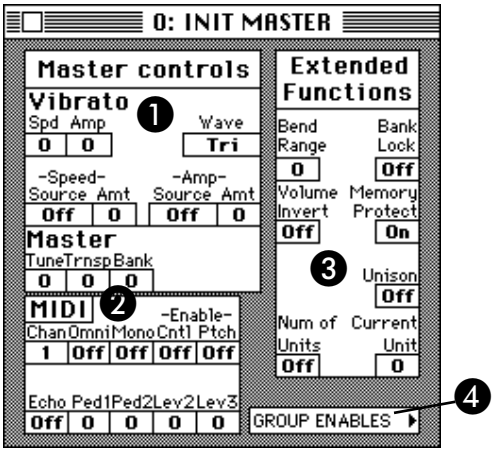


Figure 13: Typical Master Patch Edit Window

As you can see in Figure 13, the Matrix-1000 Master Edit Window contains four distinct parameter blocks:

1. Master Controls
2. MIDI
3. Extended Functions
4. Group Enables

The following sections discuss each parameter block. See your Matrix-1000 manual if you need more information.

MASTER CONTROLS

The Master Controls block contains the Matrix-1000's global Vibrato section. You can set a Master Vibrato Speed, Amplitude, and Waveform. Also, you can set a modulation Source to control the Amount of both the vibrato's speed and amplitude.

The Master Controls block also contains a Tune numerical for fine-tuning the overall pitch of the Matrix-1000. The range is -31 to +31 (approximately ±1/4 tone). The Transpose numerical sets a transpose level from -24 to +24, with 0 indicating no transposition. Each step represents one semi-tone. The Bank numerical sets the current Matrix-1000 bank, even if the Matrix-1000's Bank Lock feature is on.

EXTENDED FUNCTIONS

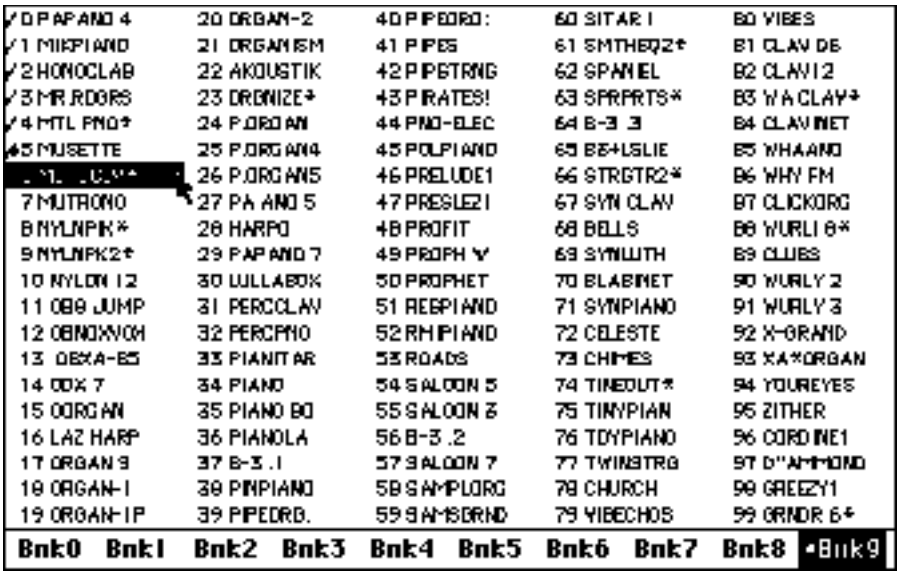
Extended functions are discussed in the Matrix-1000 manual. Briefly, Bend Range lets you set a pitch bend range up to two octaves. Bank Lock turns the Matrix-1000's bank lock feature on or off. Volume Invert does what it says; it makes the Matrix-1000 volume get softer with increases in MIDI Volume. This is useful for using the Matrix-1000 with MIDI guitar controllers or for cross fading volume with other synthesizers. Memory Protect can be turned "on" or "off" to protect the 200 internal RAM patches. Unison mode turns the entire Matrix-1000 into a 12 oscillator monophonic synthesizer.

The two bottom numericals relate to the Matrix-1000's Group mode. Number of Units corresponds to Units mode on the Matrix-1000's front panel. "Off" means that Group mode is disabled. Setting a value of 2 thru 6 enables Group mode and sets the number of Matrix-1000s in the group. Use Current Unit to set the group number of the current Matrix-1000. A number of "0" indicates that the current unit is the master, a "1" indicates the first slave, a "2" indicates the second slave, and so on.

GROUP ENABLES

Each Matrix-1000 patch (ROM as well as RAM) can be individually group enabled. Click the right-pointing arrow in the Group Enables block to open a pop-up menu of all 1000 patches. Select a patch bank along the bottom of the window, then while still holding the mouse-button, select a patch. Group enabled patches are indicated by a check to the left of their number. Patches that are not group enabled are un-checked.

In the following example, Bank 9, Patches 0-5 are each group enabled. Other patches in that bank are not group enabled.



Bank 0 and Bank 1 (the RAM banks) will display patch names only if each Matrix-6/1000 Single bank is included with the Matrix-1000 Master patch in a bundle.

For more information about Group mode, consult your Matrix-1000 owner's manual.

MASTER MIDI PARAMETERS

The Matrix-1000's front panel contains a single Channel mode. This mode corresponds to three numericals in the Matrix-1000 Master Editor. These numericals are Channel, Mono, and Omni. This arrangement adds additional flexibility to channel assignments not available from the Matrix-1000's front panel.

Channel sets the Basic MIDI Channel for the Matrix-1000. This numerical corresponds to the channel number that is set in Channel mode on the Matrix-1000's front panel.

Normally, the Matrix-1000 transmits on Channel 1 when in **Omni** mode. However, with this editor, you can turn Omni mode on, change the MIDI Channel, and the Matrix-1000 will transmit on any channel .

The editor also adds flexibility for Mono mode. Normally, you can only set the Basic channel to 1 through 9 when in **Mono** mode. With the editor, however, you can set it to 1 through 16. These channels are labelled G1-G9 and 10-16. When set to 10, the Matrix-1000 responds to notes and controllers on channels 10-15. When set to 12, the channel assignments wrap around, so the Matrix-1000 responds to notes and controllers on channels 12,13,14,15,16 and 1. Voice 1 responds to channel 12 and voice 6 responds to channel 1. When set to channels 13-16, a similar wrap around occurs.

☆ *NOTE: These extensions to the Matrix-1000's MIDI implementation should be considered 'undocumented features'. We cannot guarantee they will work in all situations. If you wish to use these extensions, experiment with them and satisfy yourself that they do in fact work as expected.*

Controller Enable allows the Matrix-1000 to recognize incoming MIDI controller messages. **Patch Enable** allows the Matrix-1000 to recognize incoming patch change messages. MIDI **Echo** can be toggled on and off, and an individual controller number can be assigned to each programmable Matrix-1000 controller: **Pedal 1**, **Pedal 2**, **Lever 2**, and **Lever 3**.

CH 5: MATRIX-6/1000 EDITOR MENUS

This chapter is an adjunct to the Editor Menus chapter in your Galaxy manual. That chapter describes those menu items that appear only in the Editor, and those items that behave differently depending on whether an Editor window is active, or a Librarian window is active. In this chapter, we will describe only those features which are unique to the Matrix-6/1000.

THE EDIT MENU

Read the following items to learn about the specific actions of Edit Menu commands.

- **Cut**: Cut has no function in the Matrix-6/1000 Editor module.
- **Copy**: Copying commands will be enabled if you have a an entire parameter block selected You can copy the block to the clipboard, to be pasted into different locations. You can copy an entire DCO, an LFO, an envelope, the VCF block, the FM block, the Portamento block, a Ramp, or the entire Matrix Modulation block. First select the block by clicking its name (the name DCO1, for example), and select **Edit>Copy**.

  The Pasting procedure is described in detail below.
- **Paste**: Paste will be enabled if you have copied a parameter or block of parameters to the clipboard.

  To paste the contents of the clipboard into a parameter block, first select the destination block by clicking the block's name. Then select Paste.

  You can only Paste into blocks which are of the same type as the block on the clipboard. For example, you can copy LFO1 then paste it into LFO2, but you cannot paste it into Env 2.

  You can undo the Paste operation by choosing **Edit>Undo**.

THE LOAD/SEND MENU

Read the following items to learn about Load/Send Menu commands specific to the Matrix-6/1000:

- **Matrix-1000**: See below.
- **Matrix-6**: If you're sending or receiving single patches, check the appropriate synthesizer. Check Matrix-1000 if you're communicating with a Matrix-1000. Check Matrix-6 if you're communicating with either a Matrix-6 or a Matrix-6R.