

Part 3:

Editing Examples

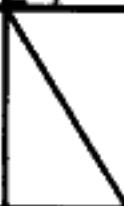

Part 3: Editing Examples

In Part 2, we demonstrated how different voice parameters affect individual aspects of an overall sound. In this section of the book, we'll show you how to "put it all together" by using voice and effects parameters to create musically useful sounds and effects with your VZ.

If you'd like to know more about creating musical sounds and effects with any synthesizers, be sure to check out our book, **Synthesis With Style**.

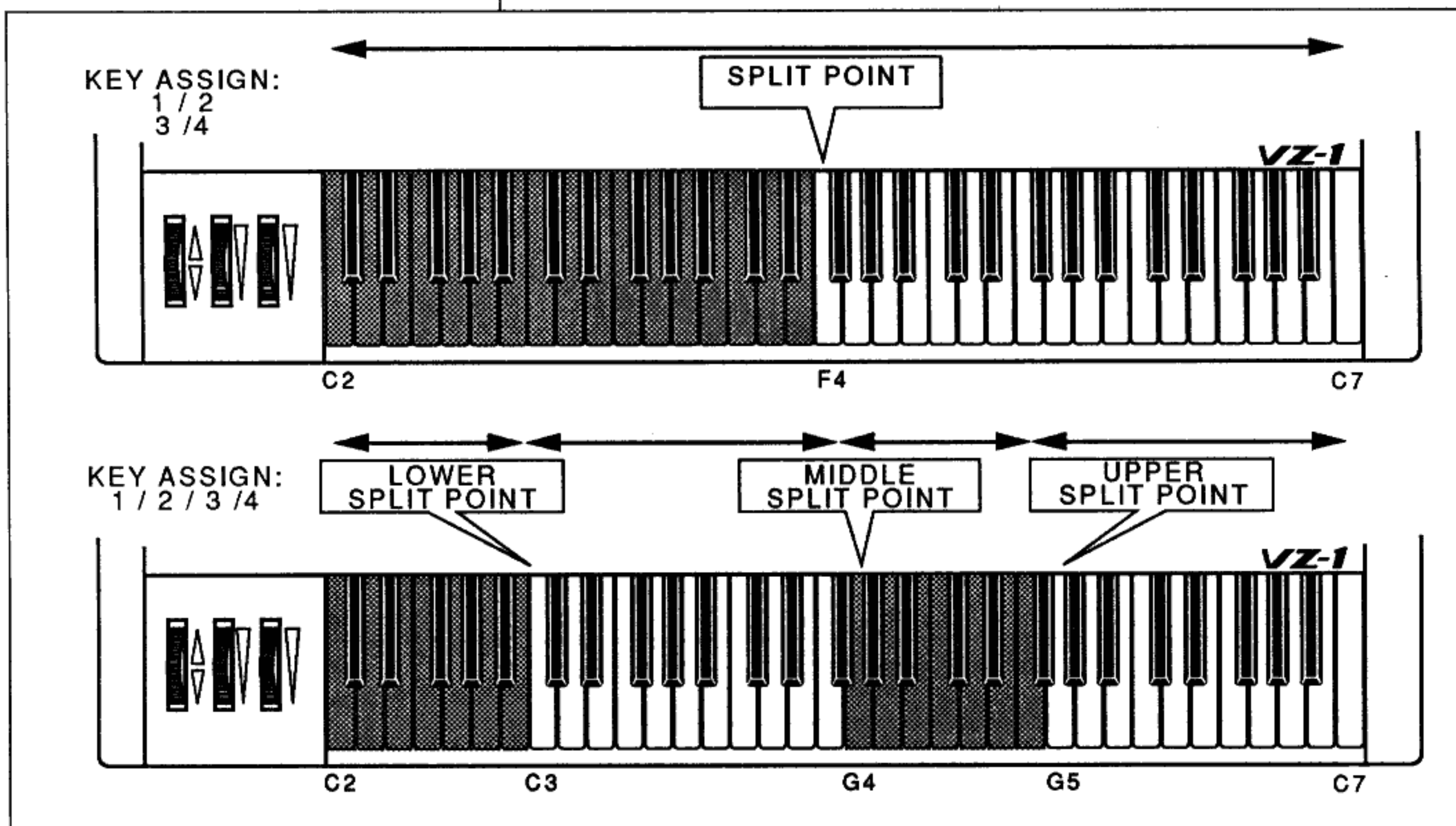
Combination Mode Key Assignments

There are several key assign configurations available in the combination mode (eight on the VZ-1 and VZ-10M and nine on the VZ-8M). With these different configurations, you can set up a number of multi-voice splits and layers. The polyphony and output assignment of each voice varies depending on the particular configuration. The following chart shows the details for each configuration.

PLAY MODE	AUDIO ASSIGNMENT		POLYPHONY					
NORMAL	LINE OUT 1	LINE OUT 2	VZ-1		VZ-8M			
NORMAL VOICE	1	1	16		8			
COMBINATION	LINE OUT 1	LINE OUT 2	VZ-1		VZ-8M			
1+2	1	2	8	8	4	4		
3+4	3	4	8	8	4	4		
1+2+3+4	1+2	3+4	4	4	2	2		
1/3	1	3	8	8	4	4		
1/3+4	1	3+4	8	8	4	4		
1+2/3	1+2	3	4	4	2	2		
1+2/3+4	1+2	3+4	4	4	2	2		
1/2/3/4	1/2	3/4	4/4	4/4	2/2	2/2		
1+2+3+4+5+6+7+8	1+2+3+4	5+6+7+8			1	1		
MULTI CHANNEL	LINE OUT 1	LINE OUT 2	VZ-1		VZ-8M			
AREA 1	1	—	8		8			
AREA 2	2	—						
AREA 3	3	—						
AREA 4	4	—						
AREA 5	—	5		8				
AREA 6	—	6						
AREA 7	—	7						
AREA 8	—	8						

Combination Mode Split Key Assignments

These configurations allow you to split a keyboard, guitar, or wind controller, into two or four zones, each with a different voice. The following example shows how to set up a four zone split for keyboard, guitar, or wind controller.



How to set up a split keyboard

COMBINATION MODE

KEY ASSIGN 1 / 2 / 3 / 4

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)											
1	NO.	D-3	2	NO.	C-6	3	NO.	B-1	4	NO.	H-1
	NAME	FRETLESS BASS		NAME	WARM ORGAN		NAME	R/B BRASS		NAME	VZ VIBES

EFFECT MENU

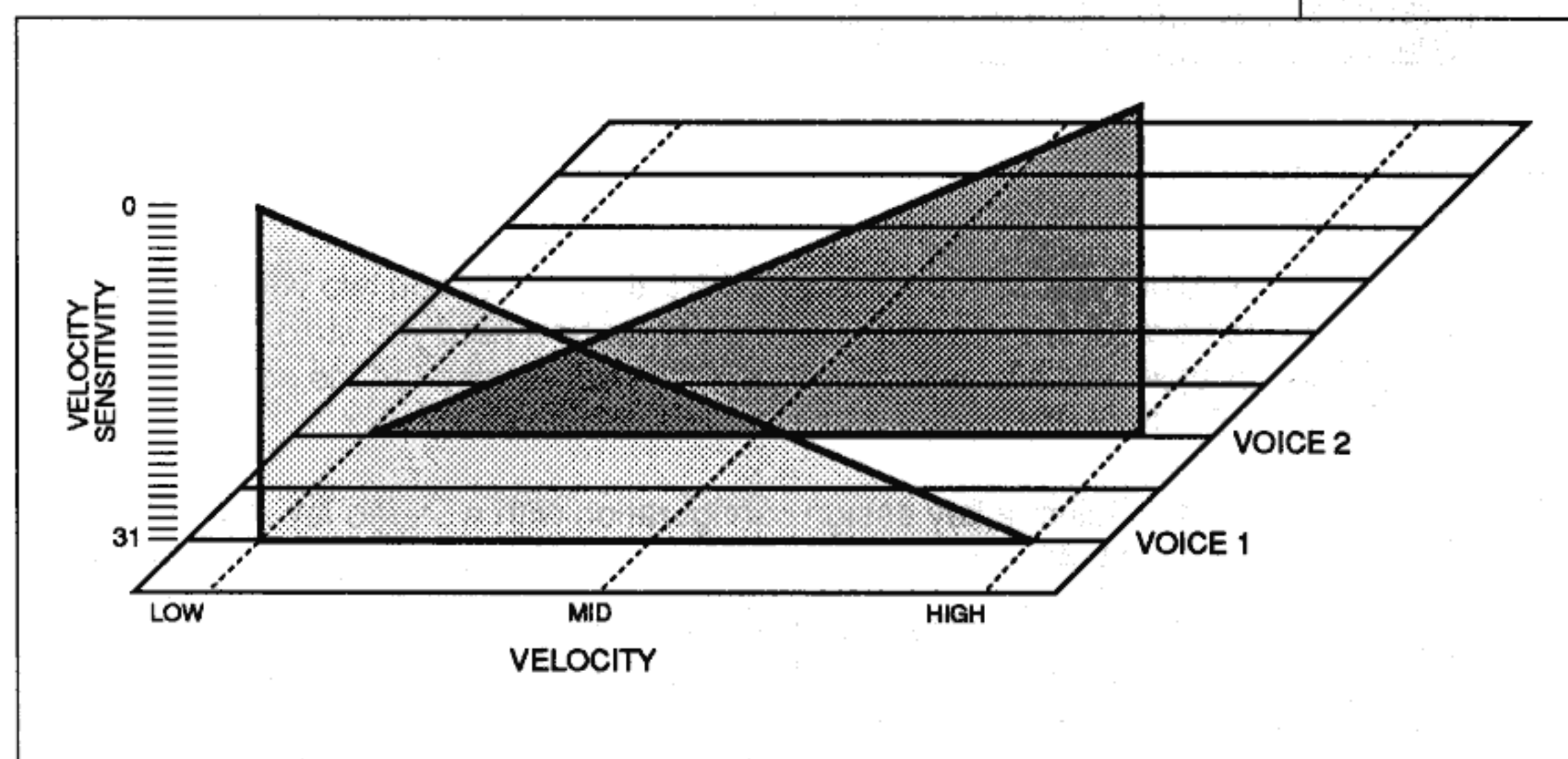
SPLIT POINT	
LOWER SP	C3
MIDDLE SP	G4
UPPER SP	G5

1. Select "the 1/2/3/4" key assign configuration.
2. Assign a different voice to each split as shown.
3. Set the SPLIT POINT ranges as shown.
4. Play notes and chords throughout the range of your instrument. With the voices and settings shown here you will hear bass below C3, organ between C3 and G4, brass between G4 and G5, and vibes above G5.
5. Experiment with different voice assignments and different split point ranges.

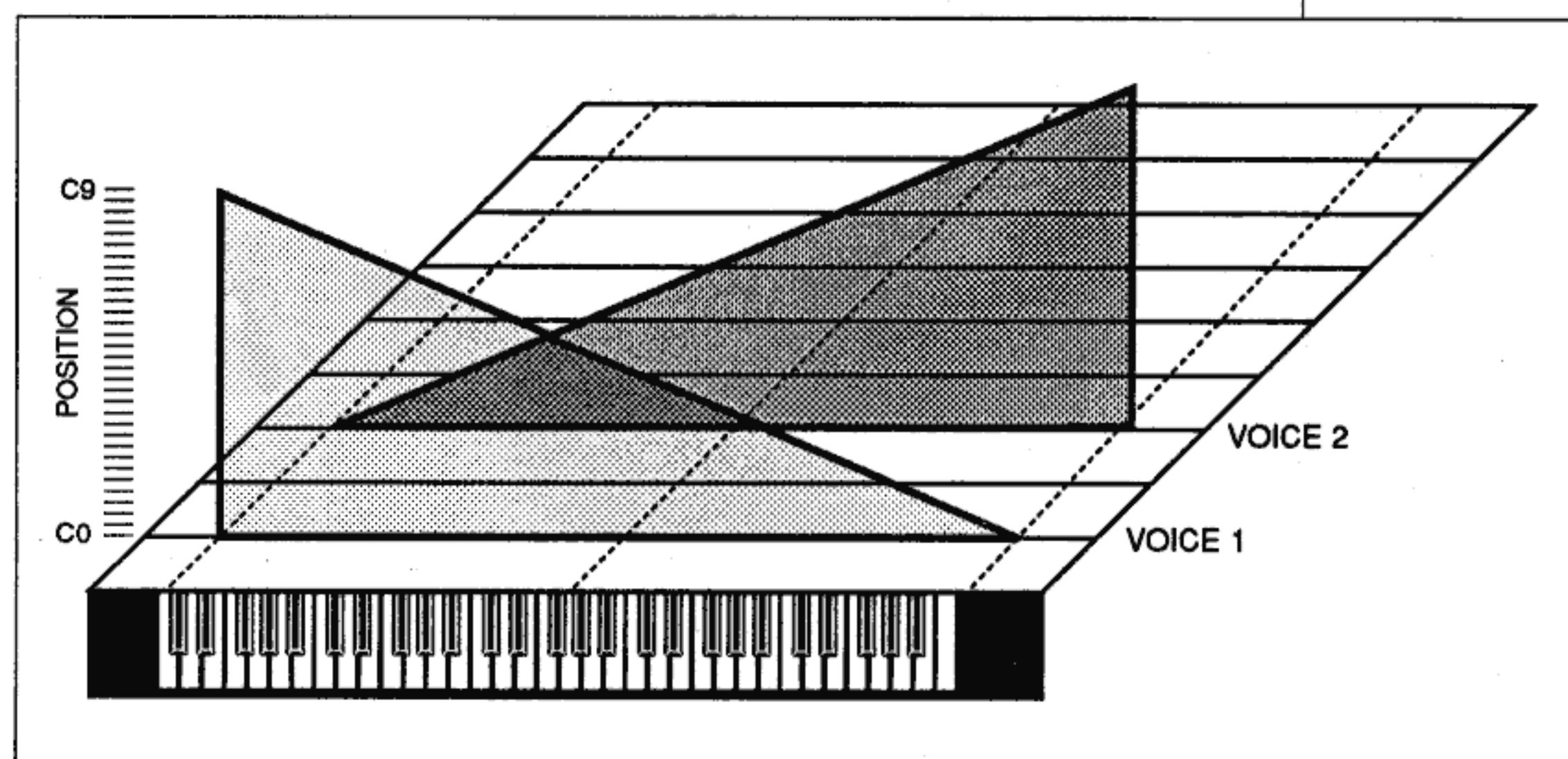
Combination Mode Layered Key Assignments

These configurations allow you to play two, four, or eight different voices from a single key. Within a layered configuration you can set up either a positional or velocity cross-fade. In a velocity cross-fade, the relative loudness of the layered voices is determined by velocity. One side of the layer gets louder as velocity increases, the other side gets louder as velocity decreases. In a positional cross-fade, the relative loudness of the layered voices is determined by the note played. The following examples demonstrate how to set up both types of cross-fades in the combination mode.

Velocity Cross-Fade



Positional Cross-Fade



How to Set Up a Velocity Cross-Fade

COMBINATION MODE

KEY ASSIGN

1+2

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)

1	NO.	ANY VELOCITY	2	NO.	ANY VELOCITY
	NAME	SENSITIVE VOICE		NAME	SENSITIVE VOICE

VOICE PARAMETER MENU

VEL LEVEL: VOICE 1 & 2								
	M1	M2	M3	M4	M5	M6	M7	M8
SENS	20	20	20	20	20	20	20	20
CURVE	3	3	3	3	3	3	3	3

EFFECT MENU

VEL INVERSE		
	1	2
INVERSE	ON	OFF

A velocity cross-fade changes the balance between two voices according to how quickly you push down a key (or how hard you strike a guitar string or blow into a breath controller.) A velocity cross-fade is set up using the VEL INVERSE function:

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Assign a different velocity-sensitive voice to each side of the layer. Select voices that have already been programmed to produce velocity dynamics (see *Customizing Velocity Curves and Sensitivities*), or add velocity dynamics to any voice using the values shown as a guide.
3. Set the VEL INVERSE function for one of the voices to "on" for the voice you want to be loudest at the lowest velocities.

How to Set Up a Positional Cross-Fade

COMBINATION MODE				KEY ASSIGN 1+2	
VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	D-3	2	NO.	C-1
	NAME	FRETLESS BASS		NAME	VZ TRUMPET
EFFECT MENU					
POS X FADE					
EFFECT		ON			
POS (FROM)		C2			
POS (TO)		C7			

A positional cross-fade sets the balance between sounds according to where you play on your controller. In this example, the lowest notes will have a bass sound, and the highest notes will have a trumpet sound. Notes played in the middle of the controller range will be a mixture of both sounds.

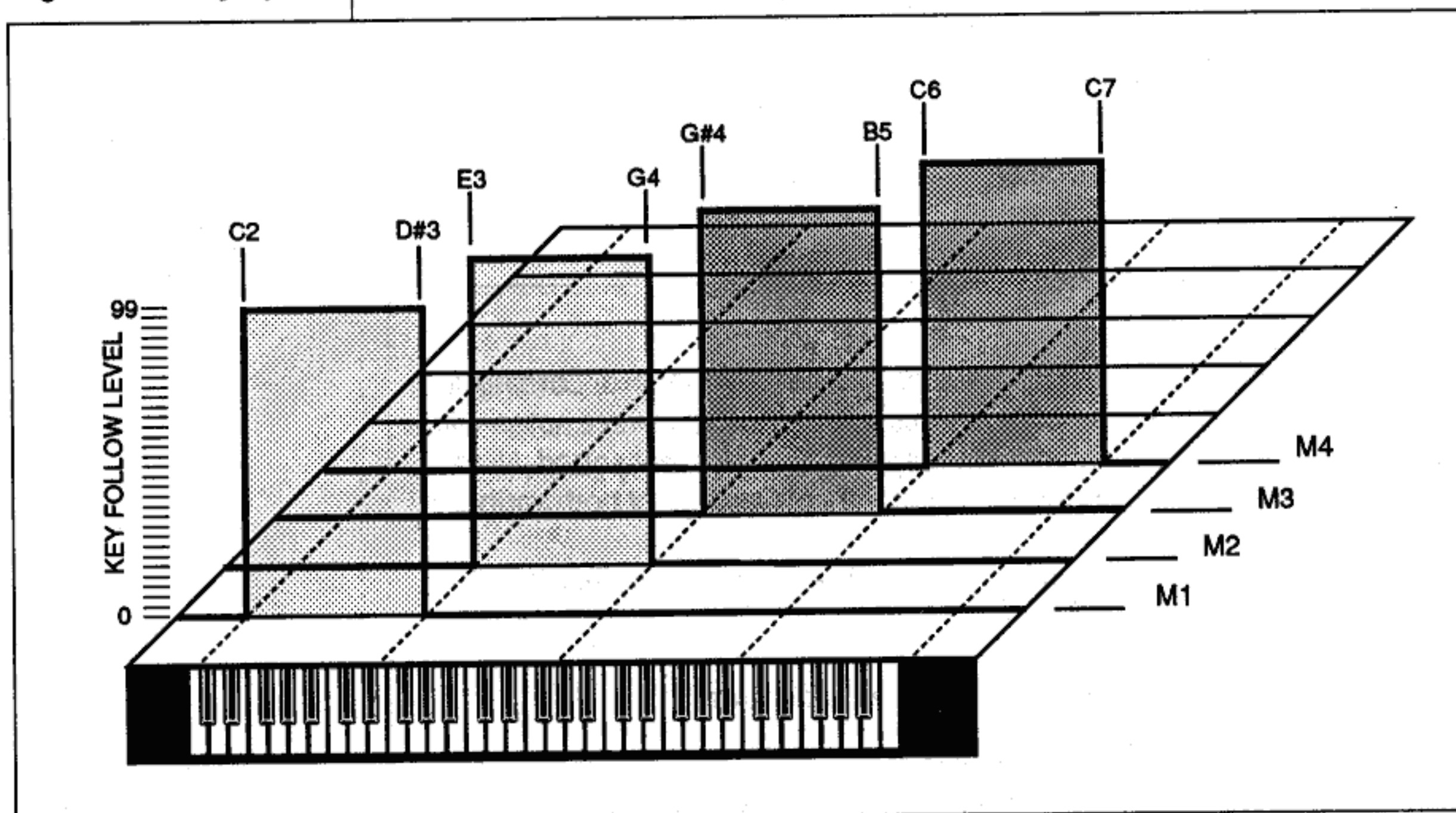
1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Assign a different voice to each layer as shown.
3. Set the X-FADE function to "on".
4. Set the "POS" values to the lowest and highest note of your keyboard, guitar, or wind controller (or to the lowest and highest note in the melody you want to cross-fade). The values shown here are for the VZ-1 keyboard.

Single Voice Key Assignments

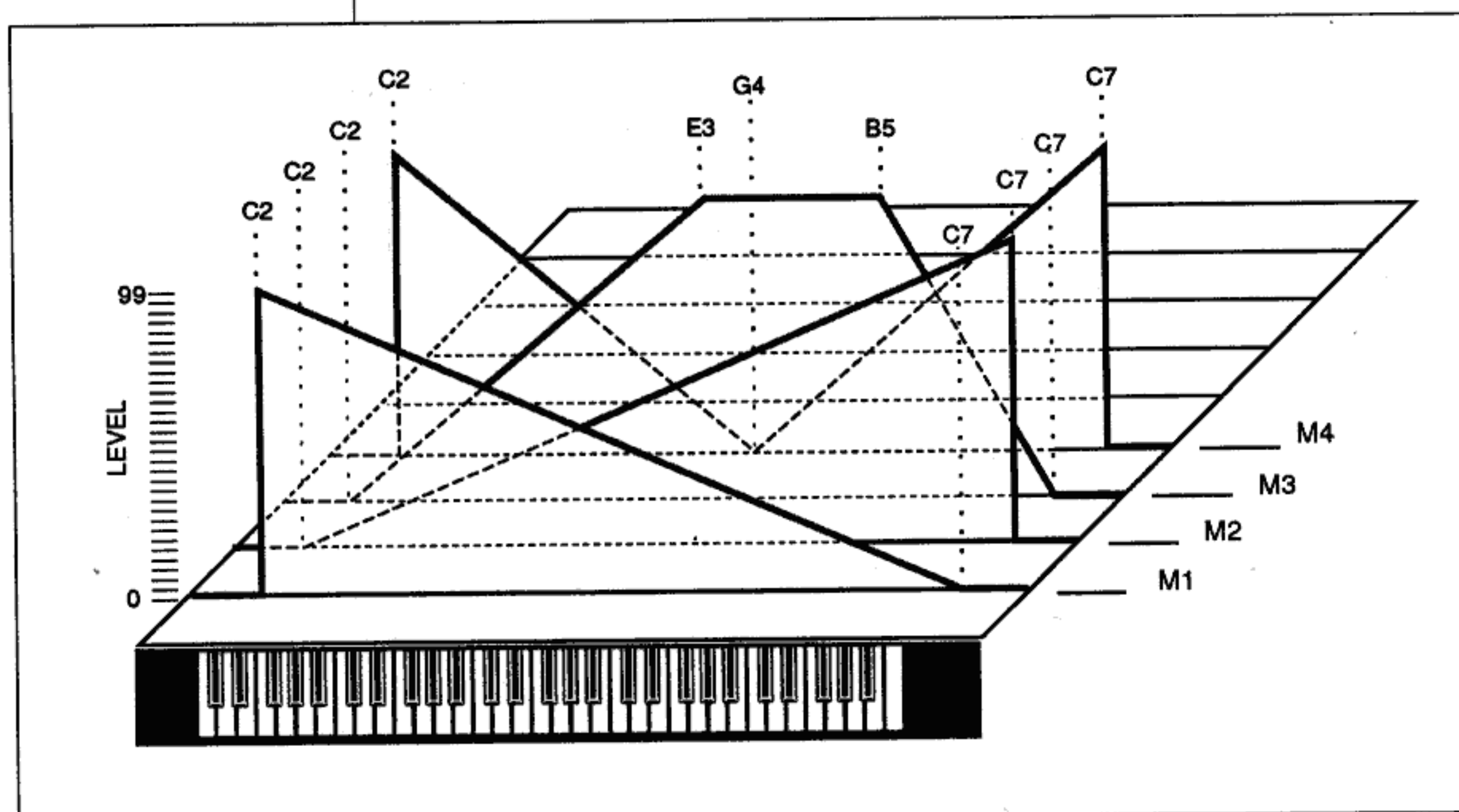
You can use the KF LEVEL parameter for to control the envelopes of iPD modules to create key splits within a single VZ voice. You can even set up positional cross-fades!

This is a very powerful feature for creating sounds for the PG-380's internal synthesizer, since it doesn't have the Combination mode.

Single Voice Key Split



Single Voice Positional Cross-Fade



Single Voice Key Splits and Cross-Fades**NORMAL MODE**

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	ON	ON	ON	ON	ON	ON

VOICE PARAMETER MENU

LINE							
INT LINE	M1 M2	M3 M4	M5 M6	M7 M8			
	MIX	RING	PHASE	PHASE			

WAVEFORM							
M1	M2	M3	M4	M5	M6	M7	M8
SINE	SINE	SAW5	SINE	SINE	SINE	SAW2	SINE

DETUNE						
	FIX	HARMONIC	POLARITY	OCT	NOTE	FINE
M1	OFF	1	+	1	7	0
M2	OFF	4	-	2	0	0
M3	OFF	4	-	2	0	0
M4	OFF	1	-	1	0	0
M5	OFF	8	-	3	0	0
M6	OFF	1	-	1	0	0
M7	OFF	16	-	4	0	0
M8	OFF	1	-	1	0	0

KF LEVEL							
M1 M2	POINT	1	2	3	4	-	-
	KEY	C2	C4	C#4	C9	-	-
M3 M4	LEVEL	99	99	0	0	-	-
	POINT	1	2	3	4	5	6
M5 M6	KEY	C2	C4	C#4	C5	C6	C9
	LEVEL	0	0	99	99	32	0
M7 M8	POINT	1	2	3	4	5	6
	KEY	C2	C5	C#5	C6	C#6	C9
	LEVEL	0	0	32	99	0	0
	POINT	1	2	3	4	-	-
	KEY	C2	C6	C#6	C9	-	-
	LEVEL	0	0	99	99	-	-

This experiment demonstrates the basics of setting up key splits and positional cross-fades between modules and lines in a single voice.

1. Make a copy of "INIT VOICE" to use for this experiment.
2. Set the DETUNE and KF LEVEL parameters as shown. This will produce a voice that switches between Line 1 and Line 4, and cross-fades between Line 3 and Line 4.

Adding Portamento To VZ Sounds

Portamento is a smooth pitch glide from note to note. VZ synthesizers offer several portamento features. Here are some things to keep in mind:

- Each voice assigned in the combination mode can have different portamento settings.
- The PORTM TIME parameter determines how quickly the pitch slides between notes.
- The PORTM MODE parameter gives you two options for how the pitch slides. In the TIME CONST mode, the time it takes to slide between any two notes is always the same, no matter how far apart the two notes may be. In the RATE CONST mode, the time it takes to slide between notes increases with the distance between the notes.
- The SOLO parameter puts the VZ in a monophonic mode (no more than one note will sound at the same time). In this mode, portamento effects can be turned on and off with your playing style. When the SOLO parameter is set to "On", portamento will only be heard when you play *legato* (depress a new key before releasing the previous key). When you play *staccato* (release the key before depressing the next key) no portamento will be heard.
- You can create some interesting portamento effects in the combination mode by assigning different portamento parameters to each voice in a layered combination.

The following example will give you a quick tour of the different portamento features on the VZ.

NORMAL MODE

EFFECT MENU

PORTAMENTO / SOLO				
	1	2	3	4
PORTM ON / OFF	ON	—	—	—
PORTM TIME	85	—	—	—
PORTM MODE	0	—	—	—
SOLO	OFF	—	—	—

1. Select any voice.
2. Enter the PORTM/SOLO parameter and set the values as shown.
3. Play C2, release it, and play C5. Hold down C5 until the pitch stops rising. Note the time it takes for the pitch to slide three octaves.
4. Repeat the previous step, but this time play C3 instead of C5. Note that it takes the same amount of time for the pitch to slide one octave as it did to slide three octaves. This demonstrates the TIME CONST mode. The time it takes to slide between any two notes is the same, regardless of the interval played.
5. Set the portamento mode to "1" (RATE CONST) and repeat steps 3 and 4.
6. You will hear that it takes more time for the pitch to slide three octaves than it does to slide one octave. This demonstrates the RATE CONST mode. The rate of the slide is constant, regardless of the interval played. This means that it takes longer to slide between large intervals than between small ones.

Adding Vibrato To VZ Sounds

NORMAL MODE

(TRY THIS WITH D3: JAZZ GUITAR)

VOICE PARAMETER MENU

VIBRATO				
WAVE	DEPTH	RATE	DELAY	MULTI
TRIANGLE	10	65	20	OFF

WHEN THIS IS GREATER
THAN 0, THE VIBRATO
EFFECT WILL BE HEARD
ALL OF THE TIME

ANY VZ CONTROLLER
CAN BE USED TO CONTROL
VIBRATO DEPTH OR RATE

EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	ON	-	-	-
VIB RATE	ON	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

Here is a simple to procedure to follow when you want to add vibrato to a preset that has none, or to edit existing vibrato settings.

1. Start with any voice.
2. Enter the VIBRATO parameter.
3. Set the VIBRATO wave to "TRIANGLE".
4. For vibrato that is "on" all the time, set the VIBRATO depth value between "10" and "99". Otherwise, set this value to "0" and set a controller for vibrato depth. (See *Vibrato Rate and Depth*.)
5. Set the speed of the vibrato effect with the VIBRATO rate value. Higher numbers produce faster vibrato. You can also control the rate of the vibrato with a controller. (See *Vibrato Rate and Depth*.)
6. To create a delayed vibrato effect set the VIBRATO delay value to a number greater than "0". The higher the number, the longer the delay before the vibrato fades in.

When you're ready to save the sound, remember that the effects menu settings for vibrato depth, and vibrato rate aren't saved with the voice parameters. If you want to save the effects settings, first save the voice in the normal mode, then save the entire normal mode work area by saving to an operation memory.

Adding Loudness Tremolo to VZ Sounds

NORMAL MODE

(TRY THIS WITH A7: HEAVY CLAVI)

VOICE PARAMETER MENU

TREMOLO				
WAVE	DEPTH	RATE	DELAY	MULTI
TRIANGLE	40	70	0	OFF

WHEN THIS IS GREATER
THAN 0, THE TREMOLO
EFFECT WILL BE HEARD
ALL OF THE TIME

ANY VZ CONTROLLER
CAN BE USED TO CONTROL
TREMOLO DEPTH OR RATE

AMP SENS							
M1	M2	M3	M4	M5	M6	M7	M8
0	0	0	7	0	0	0	7

LOUDNESS MODULES

EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	ON	-	-	-
TREM RATE	ON	-	-	-
A ENV BIAS	OFF	-	-	-

One way to add some life to preset voices is to add a little (or a lot) of tremolo. VZ tremolo can be used to create more effects than "normal" tremolo. We'll show you how to use it to create echoes and stereo auto panning too. Here is a basic procedure to add tremolo to any VZ voice.

1. Find the loudness modules in the sound. (See *Finding Your Way Around a VZ Sound*.)
2. Set the AMP SENS value for the loudness modules to "7".
3. Set the TREMOLO wave to "TRIANGLE".
4. For tremolo that is "on" all the time, set the TREMOLO depth value between "10" and "99". Otherwise, set this value to "0" and set a controller for tremolo depth.
5. Set the speed of the tremolo effect with the TREMOLO rate value. Higher numbers produce faster tremolo. You can also control the rate of the tremolo with a controller.
6. To create a delayed tremolo effect set the TREMOLO delay value to a number greater than "0". The higher the number, the longer the delay before the tremolo fades in.

When you're ready to save the sound, remember that the effects menu settings for tremolo depth, and tremolo rate aren't saved with the voice parameters. If you want to save the effects settings, first save the voice in the normal mode, then save the entire normal mode work area by saving to an operation memory.

Adding Timbre Tremolo (Wah Wah) to VZ Sounds

NORMAL MODE

(TRY THIS WITH A7: HEAVY CLAVI)

VOICE PARAMETER MENU

TREMLO				
WAVE	DEPTH	RATE	DELAY	MULTI
TRIANGLE	40	70	0	OFF

WHEN THIS IS GREATER THAN 0, THE TREMOLO EFFECT WILL BE HEARD ALL OF THE TIME

ANY VZ CONTROLLER CAN BE USED TO CONTROL TREMOLO DEPTH OR RATE

AMP SENS							
M1	M2	M3	M4	M5	M6	M7	M8
7	7	7	0	7	7	7	0

TIMBRE MODULES

EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	ON	-	-	-
TREM RATE	ON	-	-	-
A ENV BIAS	OFF	-	-	-

Wah wah is a smooth timbre sweep. You can create an automatic wah wah effect in voices that use phase modulation to create timbre changes. The technique is nearly identical to the one used to create loudness tremolo. The only difference is that you control the timbre modules instead of loudness modules. Here's how:

1. Find the timbre modules in the sound. (See *Finding Your Way Around a VZ Sound*.)
2. Set the AMP SENS value for the timbre modules to "7".
3. Set the TREMOLO wave to "TRIANGLE".
4. For wah wah that is "on" all the time, set the TREMOLO depth value between "10" and "99". Otherwise, set this value to "0" and set a controller for tremolo depth. The foot pedal and after touch are good choices for wah wah.
5. Set the speed of the wah wah effect with the TREMOLO rate value. Higher numbers produce faster wah wah. You can also control the rate of the wah with a controller.
6. To create a delayed wah wah effect set the TREMOLO delay value to a number greater than "0". The higher the number, the longer the delay before the wah wah fades in.

When you're ready to save the sound, remember that the effects menu settings for tremolo depth and tremolo rate aren't saved with the voice parameters. If you want to save the effects settings, first save the voice in the normal mode, then save the entire normal mode work area by saving to an operation memory.

Adding Controller Effects to VZ Sounds

VZ synthesizers can be controlled by five different controllers: after touch, mod wheel, def ctrl, and foot vr. For each controller you can select the depth and polarity of control, as well as choose from a menu of seven destination parameters. The destination parameters are: vibrato depth, vibrato rate, pitch, portamento time, tremolo depth, tremolo rate, and amplitude envelope bias.

- Each of the destination parameters is associated with a specific voice parameter menu, so any changes made by a controller will be in addition to those already programmed into a voice.
- The overall response to tremolo and amplitude envelope bias control is determined by the value of the AMP SENSITIVITY voice parameter. You can set a different value for each module in a voice. This allows you to choose which modules will respond to controller changes, as well as the range of each module's response. (See pages 82,83.)
- In the combination mode, there is a separate set of controller menus for each voice in the combination. This makes it possible, for example, to control two voices in different ways from the same controller.
- In the multi channel mode, there is a separate set of controller menus for each MIDI area. This makes it possible to control each voice only with controllers assigned to its area's MIDI channel.

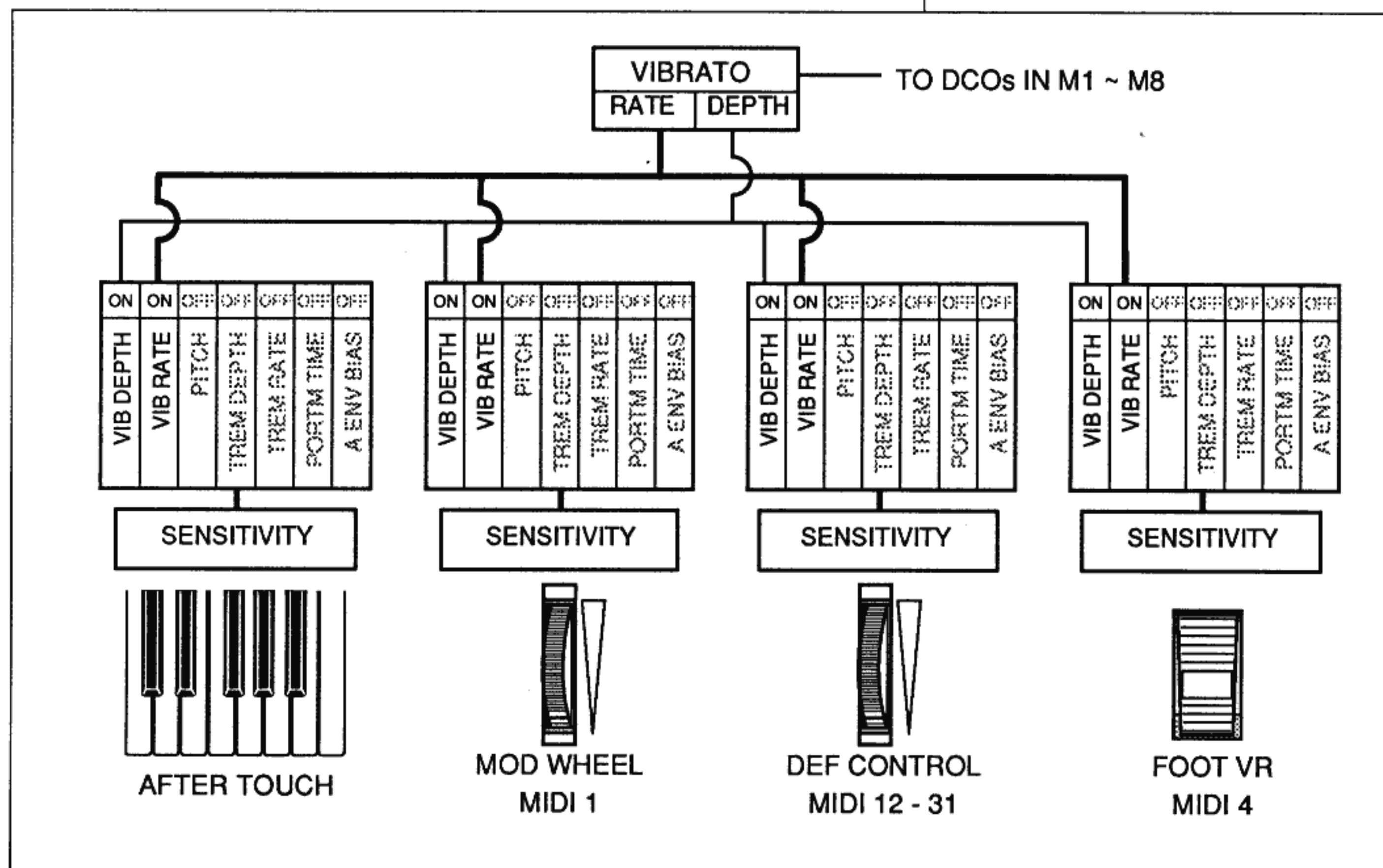
Since each of the controller menus offers the same destinations, the types of effects you can create with each controller are exactly the same. The only difference is the type of controller used to bring the effect in and out while you are playing. Here are some guidelines to keep in mind:

- After touch allows you to add controller effects while keeping both hands on the keyboard, or while you are sustaining a note with breath pressure.
- Both after touch and the VZ-1's def wheel 1 are "return to zero" controllers. Whatever effect they are producing will stop when the keys, wheel, or breath pressure, is released.
- Other controllers, like the mod wheel, def control, and foot VR, are "set and forget" controllers. Whatever effect they are producing will remain constant until you move them again.

The following examples demonstrate how to connect different controllers to the various destinations.

Vibrato Rate and Depth

You can control both the rate and depth of vibrato effects for a voice independently, or from the same controller.



Controlling Vibrato Rate and Depth

EFFECT MENU

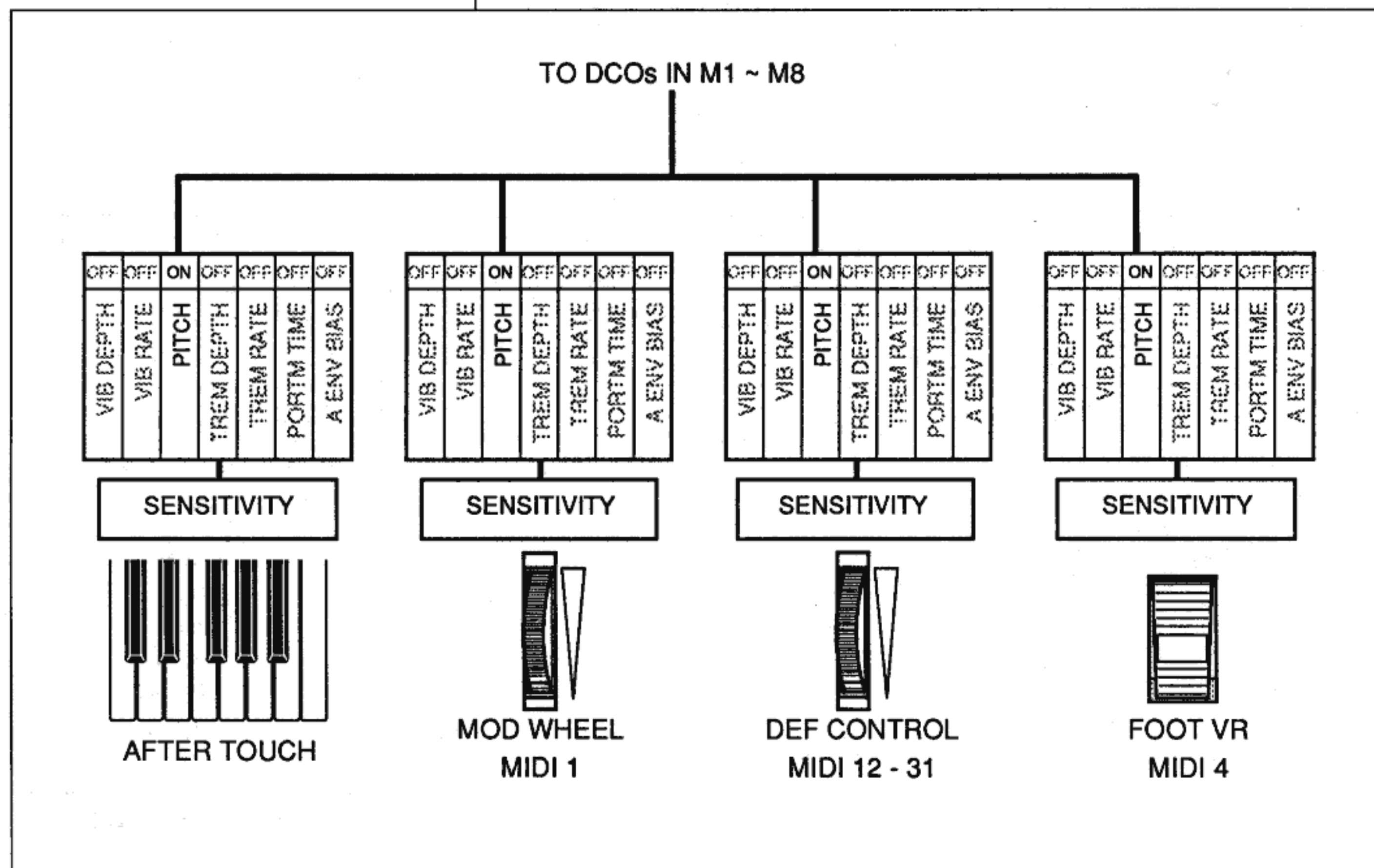
WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	ON	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	ON	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

EACH CONTROLLER CAN PRODUCE DIFFERENT EFFECTS ON FOUR VOICES AT ONCE IN THE COMBINATION MODE

Pitch

You can use any controller to slide the pitch of a voice as much as one octave up or down. Positive sensitivity values will move the pitch up; negative sensitivity values will move the pitch down. In the Combination mode, you can use this to slide each voice to a different interval above or below its normal tuning to create chords.



Controlling Pitch

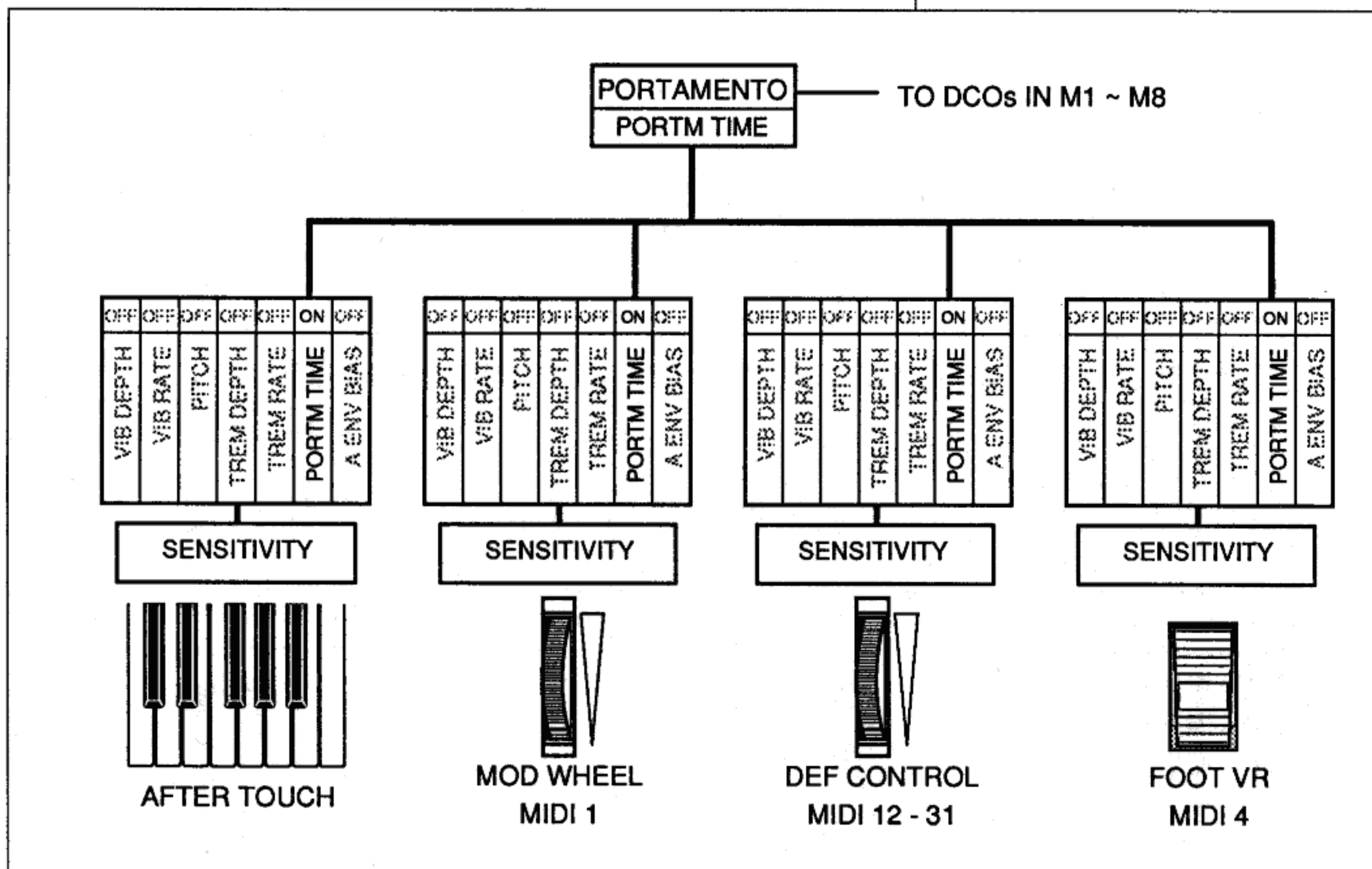
EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	ON	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

EACH CONTROLLER CAN PRODUCE DIFFERENT
EFFECTS ON FOUR VOICES AT ONCE IN
THE COMBINATION MODE

P-time

You can use any controller to alter the portamento rate.



Controlling Portamento Time

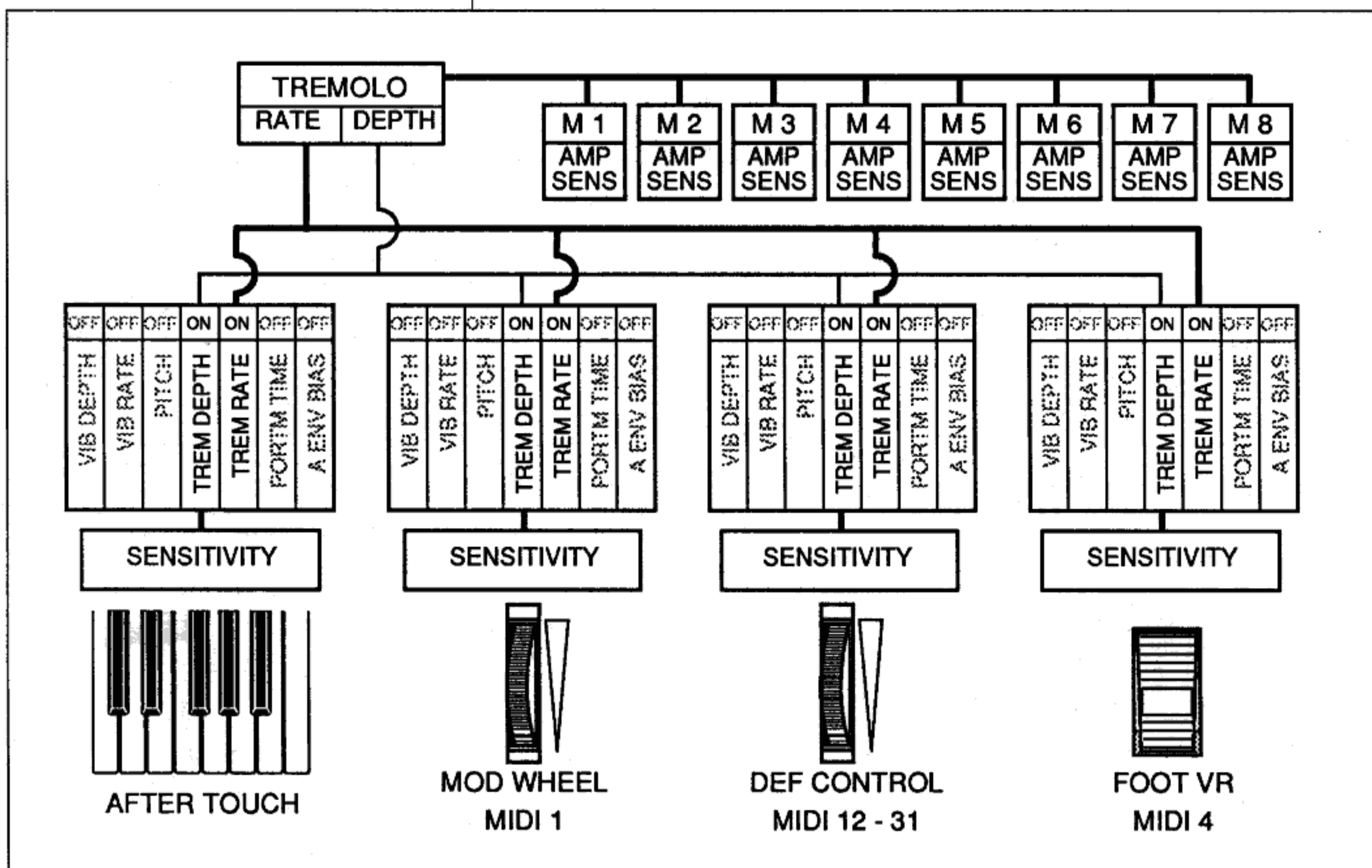
EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	ON	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

EACH CONTROLLER CAN PRODUCE DIFFERENT
EFFECTS ON FOUR VOICES AT ONCE IN
THE COMBINATION MODE

Tremolo Rate and Depth

You can control both the rate and depth of tremolo effects for a voice independently, or from the same controller. Remember, only modules with AMP SENS values set to a value greater than zero will respond to controllers assigned to tremolo depth. (See *Tremolo*.)



Controlling Tremolo Rate and Depth

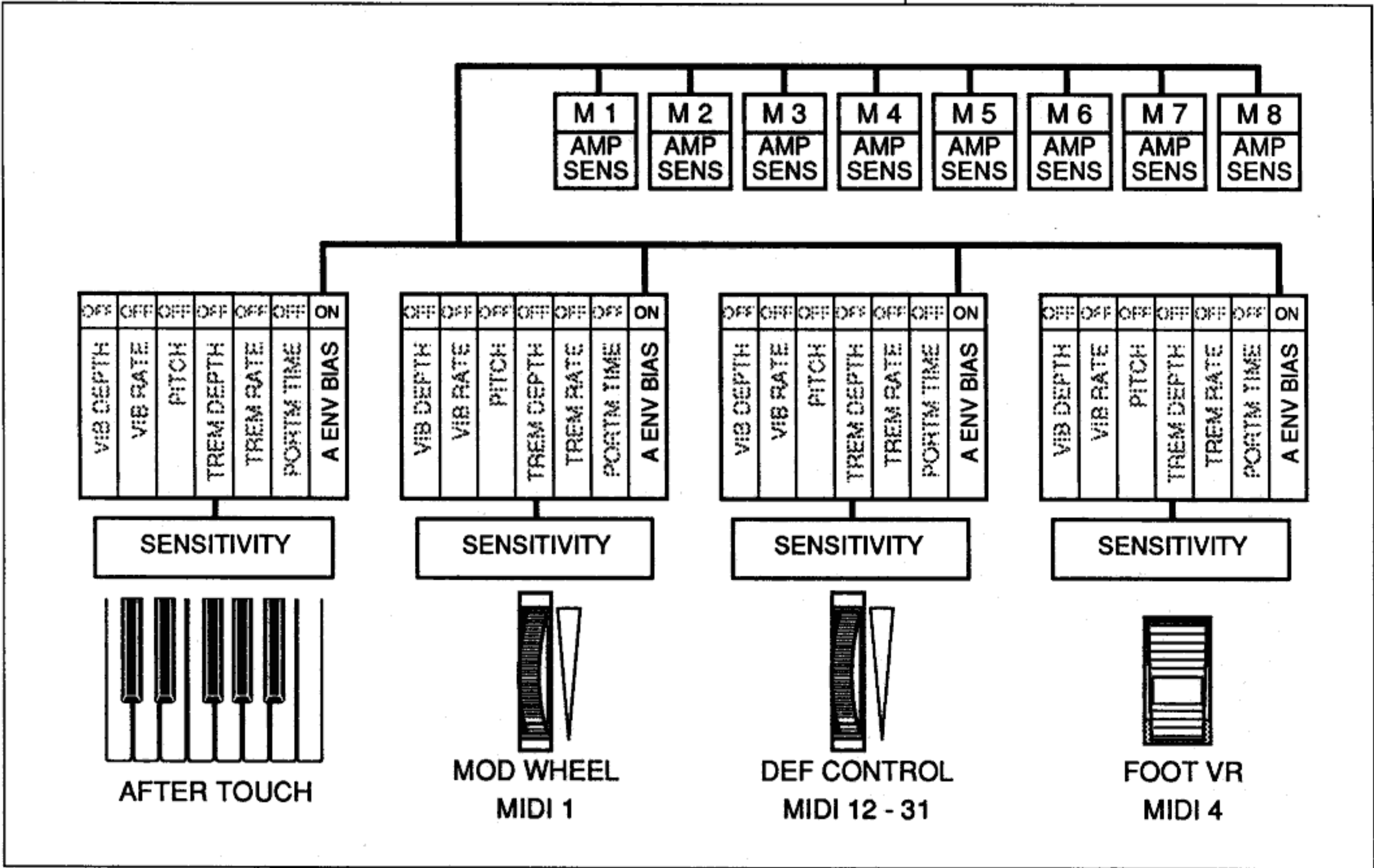
EFFECT MENU

WHEEL OR ANY CONTROLLER					WHEEL OR ANY CONTROLLER				
	1	2	3	4		1	2	3	4
SENSITIVITY	99	-	-	-	SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-	VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-	VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-	PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-	PORTM TIME	OFF	-	-	-
TREM DEPTH	ON	-	-	-	TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-	TREM RATE	ON	-	-	-
A ENV BIAS	OFF	-	-	-	A ENV BIAS	OFF	-	-	-

EACH CONTROLLER CAN PRODUCE DIFFERENT
EFFECTS ON FOUR VOICES AT ONCE IN
THE COMBINATION MODE

Amp Bias

You can control the output level of any module in a voice that has an AMP SENS value of greater than zero. Controlling the amp bias of loudness modules will produce loudness changes. Controlling the amp bias of timbre modules will produce timbre changes.



Controlling Amp Bias

(A ENV BIAS WILL ONLY EFFECT MODULES WITH
AMP SENS SETTINGS GREATER THAN 0)

EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	ON	-	-	-

EACH CONTROLLER CAN PRODUCE DIFFERENT
EFFECTS ON FOUR VOICES AT ONCE IN
THE COMBINATION MODE

Velocity Effects

Velocity (in synthesizer and MIDI terminology) is a measure of how quickly you strike a note on a MIDI keyboard, how hard you pick a string on a MIDI guitar, or how much breath you use at the start of a note on a MIDI wind controller. However you exert it, velocity is one of the most expressive devices available to a performer. VZ synthesizers have velocity-related features, making them among the most expressive of MIDI performance instruments. Here are the basic velocity effects that you can create with VZ synthesizers

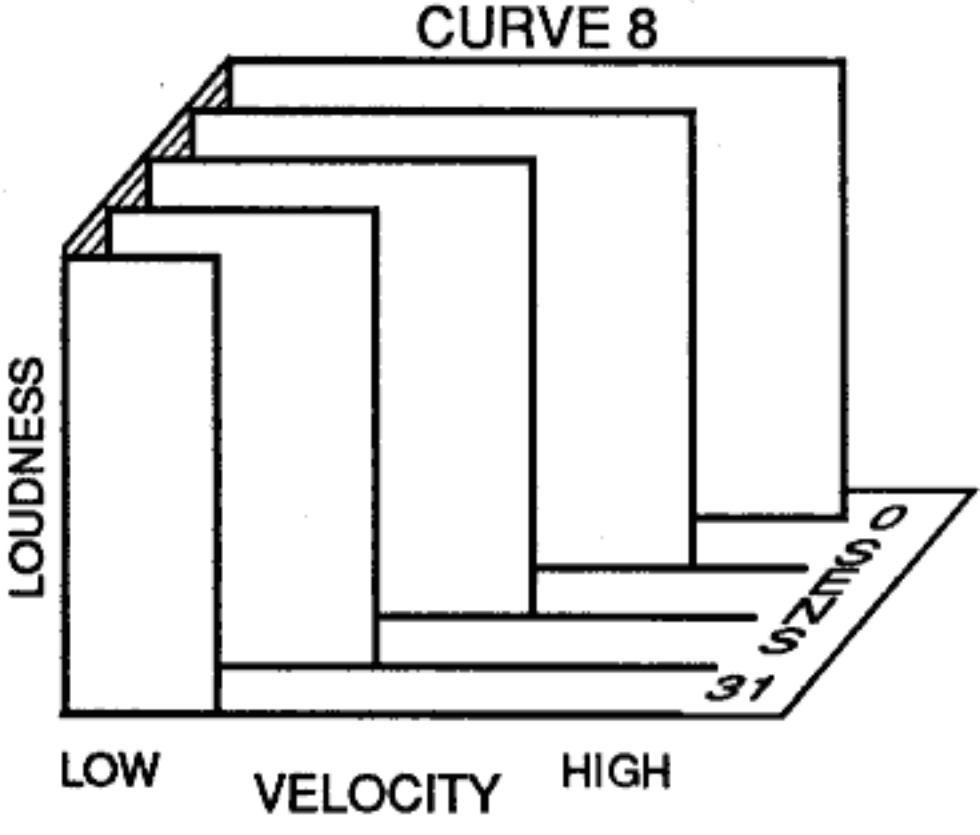
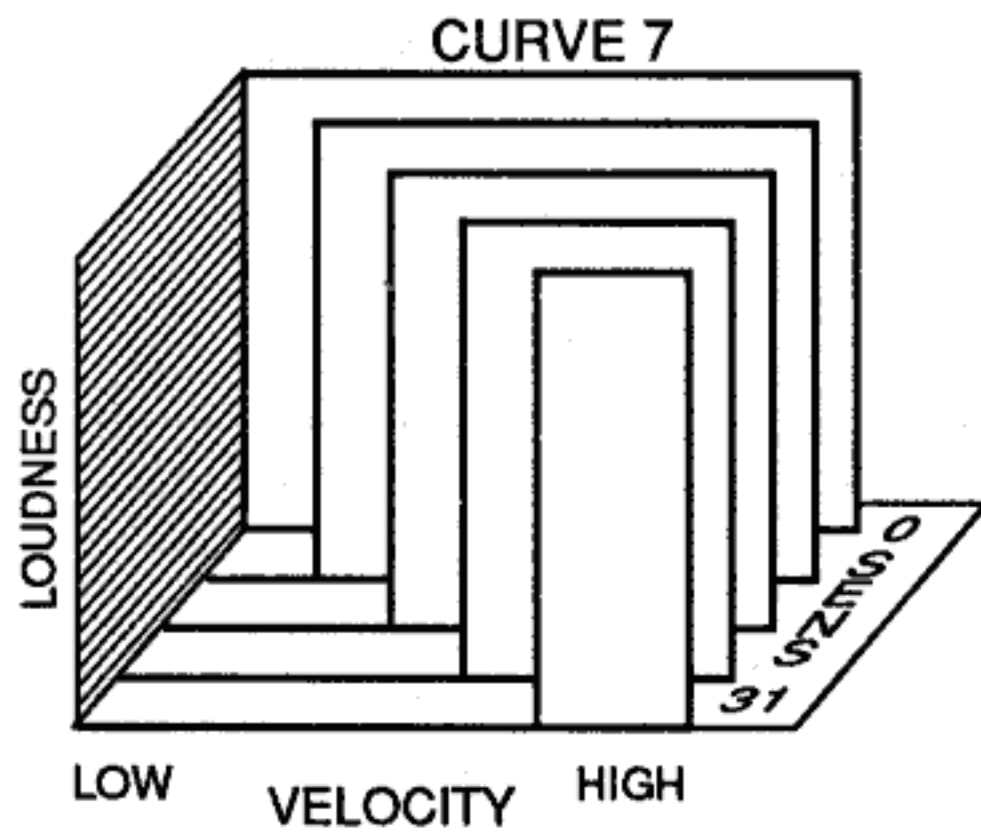
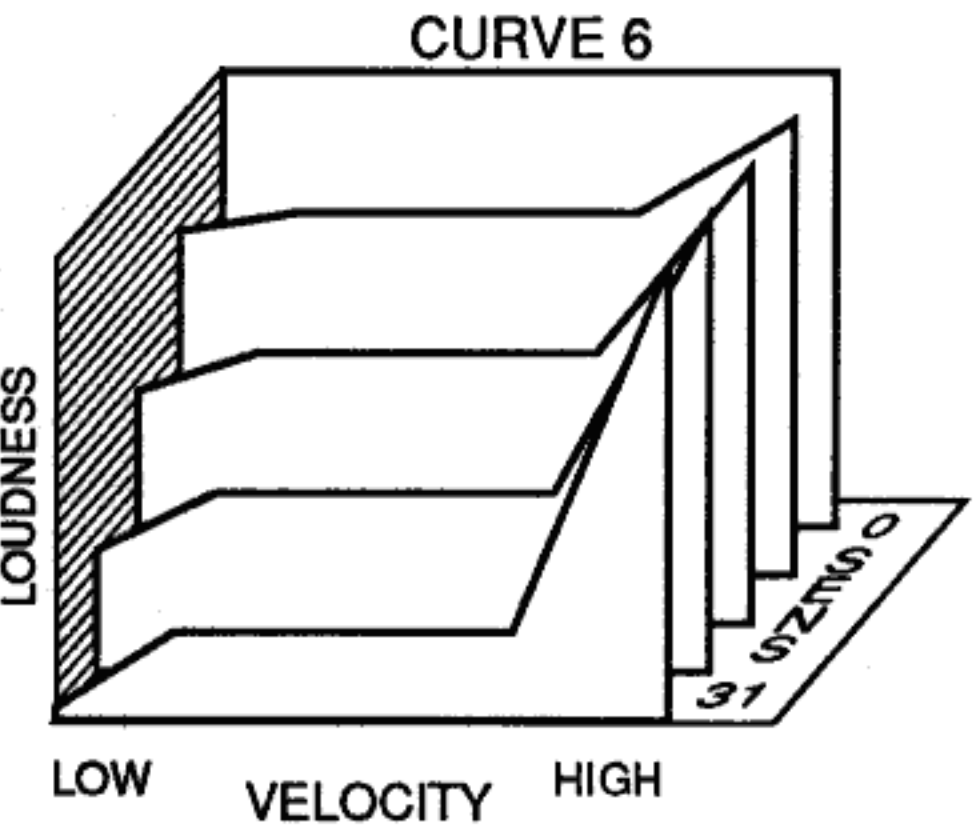
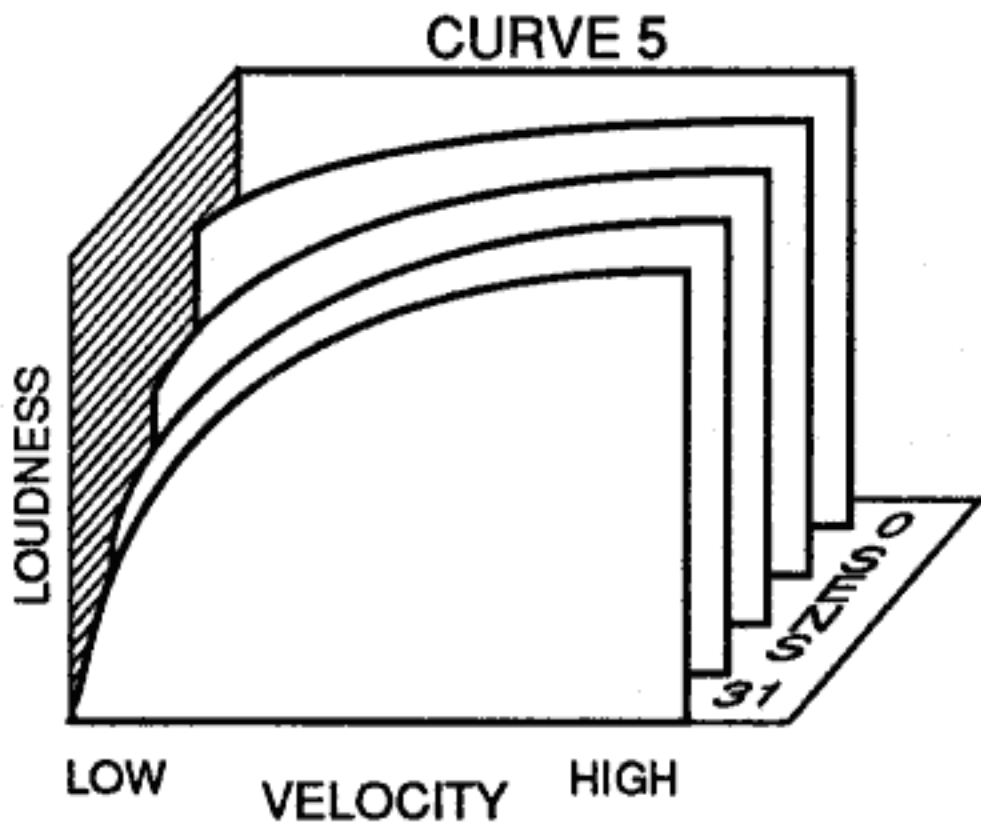
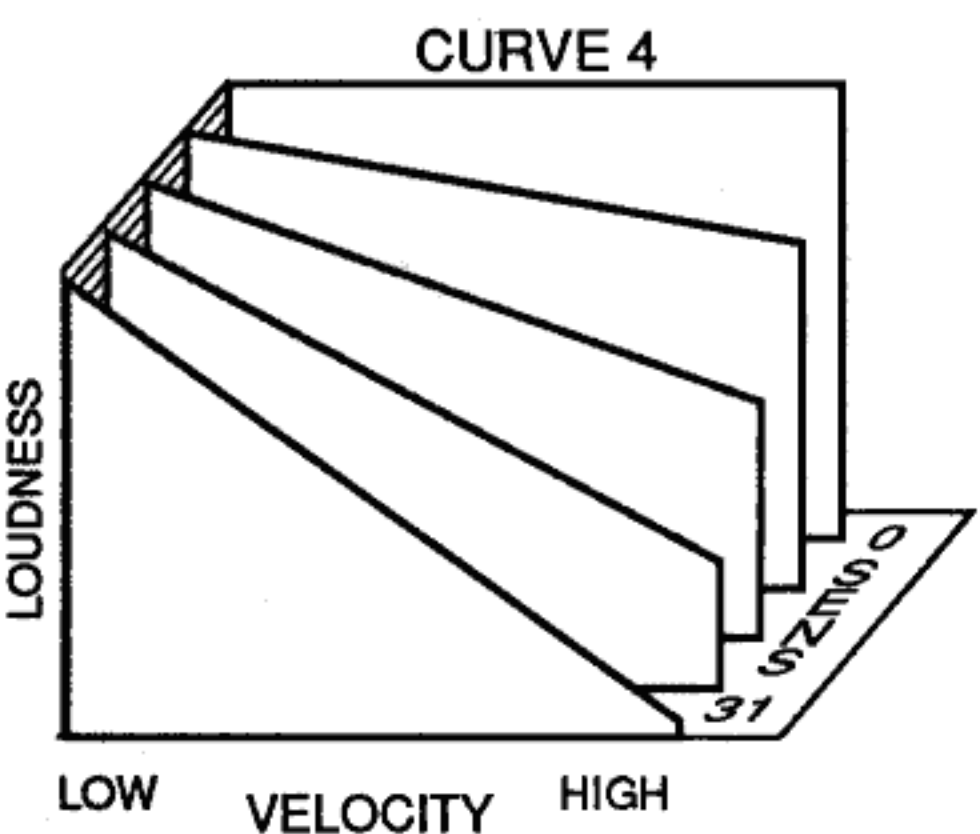
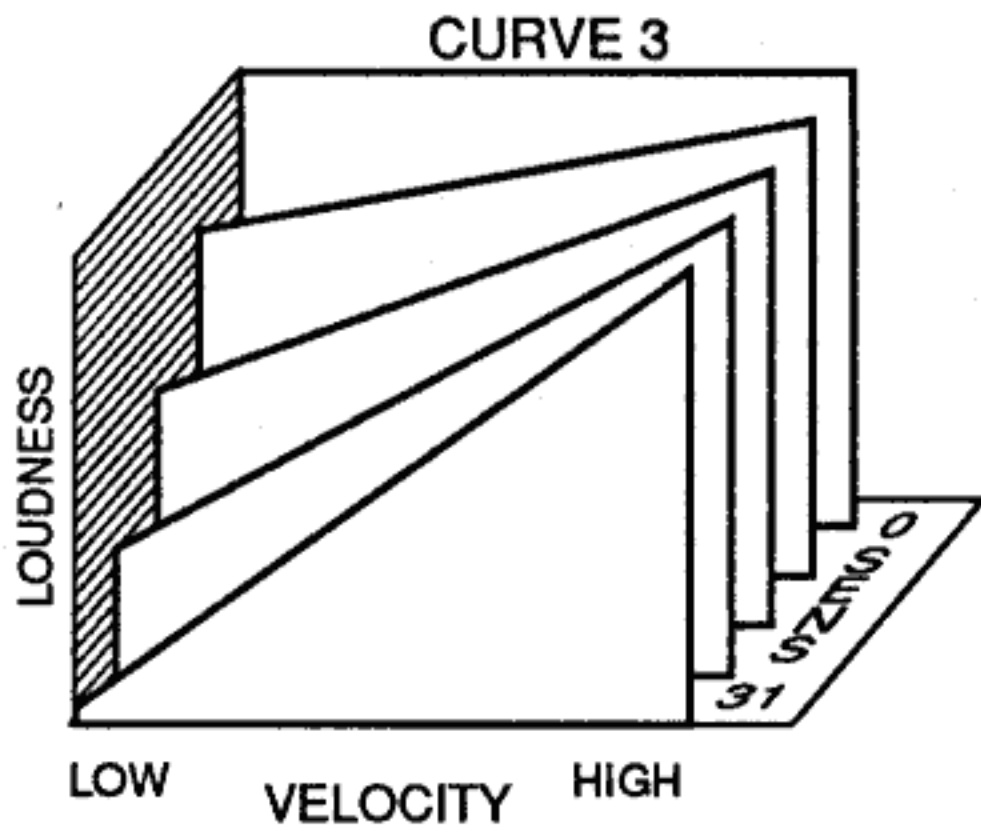
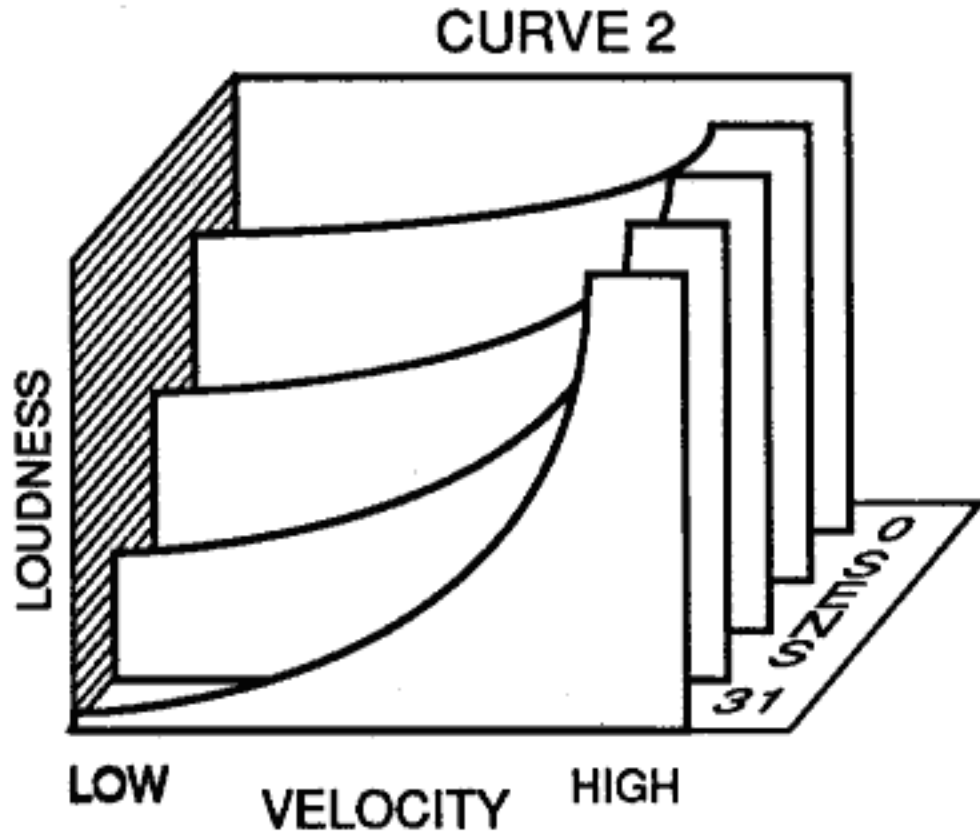
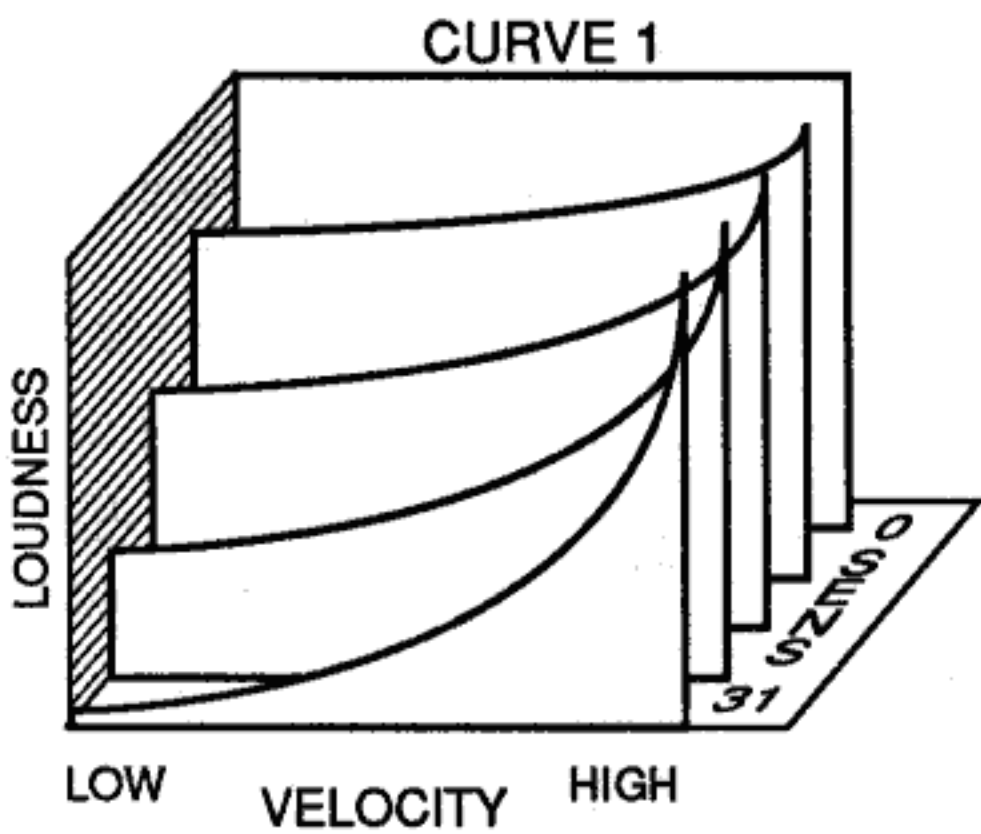
- **Velocity dynamics:** Playing with different velocities changes the loudness or timbre of a sound. (It is possible to customize the VZ's response to velocity dynamics.)
- **Velocity switching:** Playing with different velocities switches between totally different sounds.
- **Velocity cross-fades:** Playing with different velocities changes the relative balance between two totally different sounds.
- **Velocity controlled envelopes:** Playing with different velocities scales the rates and levels of amplitude and pitch envelopes of a sound.

Note: It is also possible to combine these basic velocity effects with techniques that are based on module levels, like envelope pan, chords from single voices, and envelope-based echo and reverb to produce even more velocity controlled effects.

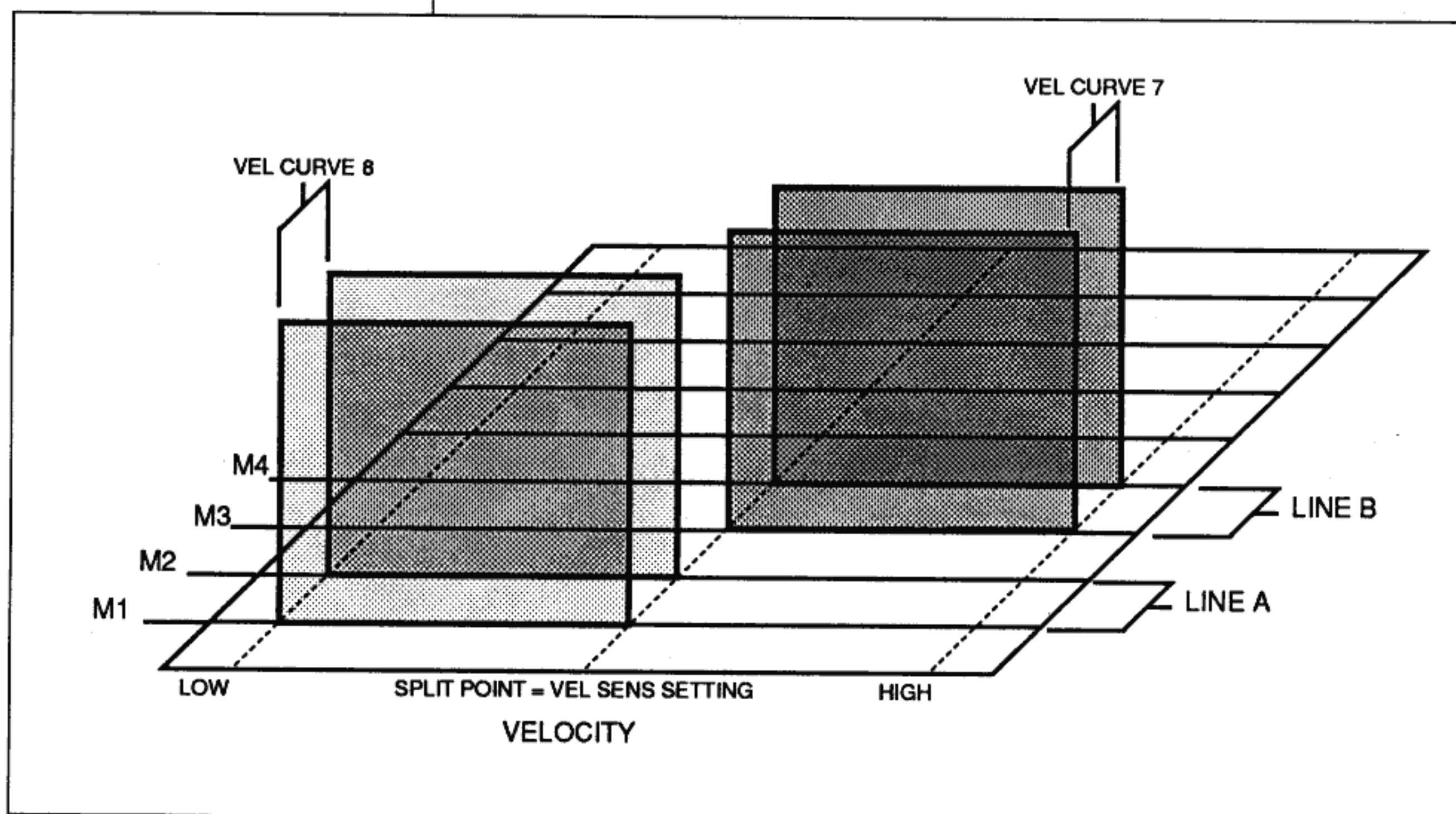
About Velocity Curves and Sensitivity

VZ synthesizers offer a variety of curves for their velocity functions. Each curve responds differently to velocity changes. The different curves make it possible to produce switching and cross-fade effects. They also allow you to customize the response of any velocity effect to match your own playing style. You can, for example, change a preset sound to be more or less sensitive to your dynamics. Keep the following guidelines in mind:

- The sensitivity value determines the overall range of dynamics. The higher this value, the greater the change between minimum and maximum dynamics.
- The curve value determines how velocity changes will be scaled. The illustration on the following page shows the scaling for each of the curves.
- There are eight sets of VEL LEVEL parameters — one for each iPD module in a voice. As you adjust VEL LEVEL parameters, listen only to the affected module(s). This will allow you to hear your adjustments clearly.



Single Voice Velocity Switch



NORMAL MODE

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	OFF	ON	OFF	OFF	OFF	OFF	OFF

VOICE PARAMETER MENU

LINE							
INT LINE	M1	M2	M3	M4	M5	M6	M7 M8
	MIX		RING		-		-

WAVEFORM							
M1	M2	M3	M4	M5	M6	M7	M8
SAW 1	-	SINE	-	-	-	-	-

DETUNE						
	FIX	HARMONIC	POLARITY	OCT	NOTE	FINE
M1	OFF	1	+	0	7	0
M3	OFF	1	-	0	0	0

VEL LEVEL		
	M1	M3
SENS	10	10
CURVE	7	8

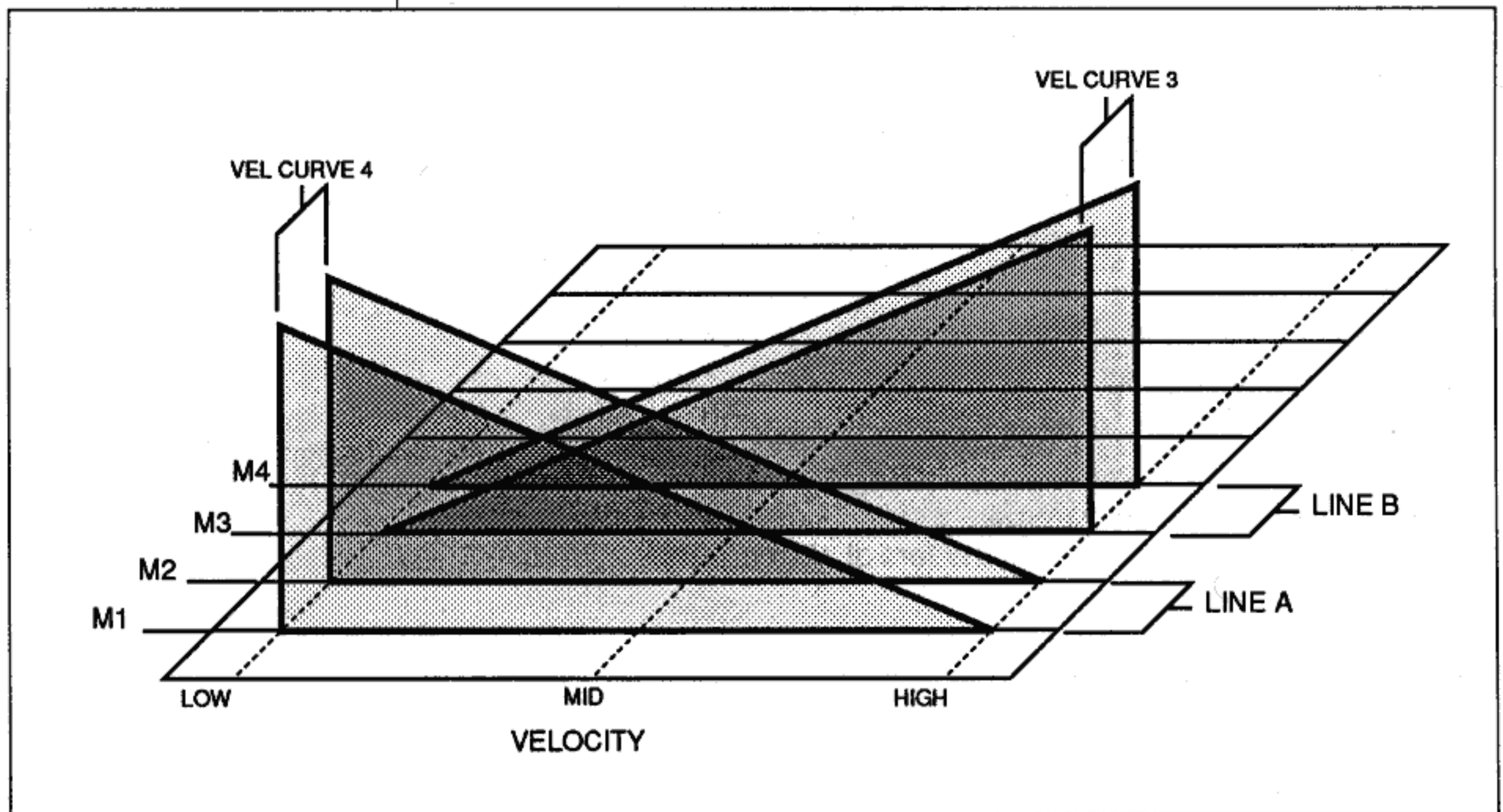
Curves 7 and 8 can be used to switch modules on or off with velocity. When using these curves, the sensitivity value becomes a “threshold” value. Velocities above the threshold will turn a module on (curve 7) or off (curve 8). You can easily set up voices that velocity switch between two or more sets of modules. Here’s how to set up a simple single voice switch:

1. Make copy of “INIT VOICE” to use for this experiment.
2. Turn M1 and M3 on, using the module On/Off buttons.
3. Set the DETUNE and VEL LEVEL parameters as shown. This will produce a voice that switches between M1 (higher velocities) and M3 (lower velocities).
4. Experiment with different sensitivity values to find one that fits your touch. To create a switch, the value must be the same for both M1 and M3.

You can apply this technique to any single voice that consists of two sounds. Set the VEL LEVEL parameters of all modules that make up one sound to the M1 values; set the parameters of all modules that make up the other sound to the M3 parameters.

Note: Velocity switching allows you to add or subtract up to eight modules to or from a single voice. This means that *any effect* based on the levels of modules can be switched on and off with velocity.

Single Voice Velocity Cross-Fades



NORMAL MODE

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	OFF	ON	OFF	OFF	OFF	OFF	OFF

VOICE PARAMETER MENU

LINE							
INT LINE	M1	M2	M3	M4	M5	M6	M7 M8
	MIX		RING		-		-

WAVEFORM							
M1	M2	M3	M4	M5	M6	M7	M8
SAW 1	-	SINE	-	-	-	-	-

DETUNE						
	FIX	HARMONIC	POLARITY	OCT	NOTE	FINE
M1	OFF	1	+	0	7	0
M3	OFF	1	-	0	0	0

VEL LEVEL		
	M1	M3
SENS	31	31
CURVE	3	4

Curves 3 and 4 can be used to set up a velocity cross-fade between pairs of modules in a single voice. Setting up a single voice cross-fade is very similar to setting up a velocity switch:

1. Make copy of "INIT VOICE" to use for this experiment.
2. Turn on M1 and M3 on, using the module On/Off buttons.
3. Set the DETUNE and VEL LEVEL parameters as shown. This will produce a voice that cross-fades between M1 (higher velocities) and M3 (lower velocities).
4. Experiment with different sensitivity values to find one that fits your touch.

NORMAL MODE

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	OFF	ON	OFF	OFF	OFF	OFF

VOICE PARAMETER MENU

LINE							
	M1	M2	M3	M4	M5	M6	M7 M8
INT LINE	MIX		PHASE	-	-	-	-
EXT PHASE	ON		-	-	-	-	-

WAVEFORM							
M1	M2	M3	M4	M5	M6	M7	M8
SAW3	SAW3	SINE	-	-	-	-	-

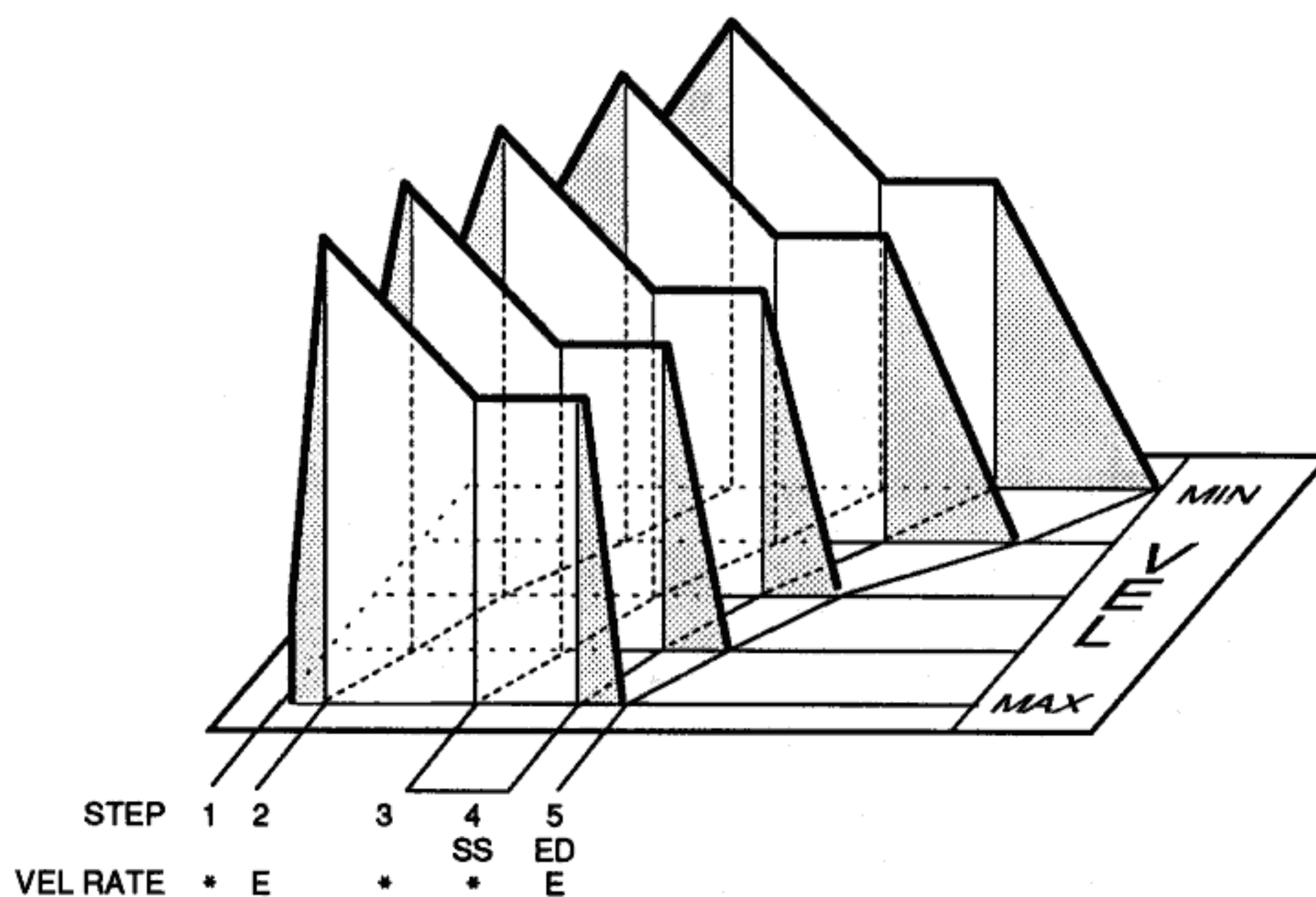
DETUNE						
	FIX	HARMONIC	POLARITY	OCT	NOTE	FINE
M1	OFF	2	+	1	7	0
M3	OFF	4	-	2	2	0

VEL LEVEL		
	M1	M3
SENS	31	31
CURVE	4	3

Velocity cross-fades allow you to alter the balance of pairs of modules. This means that *any effect* based on the relative levels of modules can be controlled with velocity. Here's an example of how to set up a cross-fade between two modules used as external phase modulators.

1. Make copy of "INIT VOICE" to use for this experiment.
2. Turn on M1, M2 and M3 on, using the module On/Off buttons.
3. Set the LINE, DETUNE and VEL LEVEL parameters as shown. This will produce a cross-fade between M2 (higher velocities) and M1 (lower velocities). These two modules are controlling the *timbre* of line B via external phase modulation.
4. Play notes and chords with different velocities. You will hear M2 controlling timbre at high velocities, and M1 controlling timbre at low velocities. At moderate velocities you will hear a mixture of M1 and M2 controlling timbre.

Velocity Control of Envelope Rates



The VEL RATE function allows you to control the rates of either the pitch or amplitude envelopes of a voice. The settings of this function are global — all modules in the voice are affected. You can, however, choose to control only the pitch EG, only the amplitude EG, or both. For each envelope, you can select the steps that will change rate with velocity. Keep the following guidelines in mind when you use the VEL RATE function.

- Rates controlled by this function will always become quicker than rates programmed in the original envelope settings.
- Adjust the envelope rate settings to produce the slowest changes you want to hear.
- After setting up the envelopes, adjust the VEL RATE sensitivity to produce the quickest changes you want to hear when playing with maximum velocity.

Here are three experiments to demonstrate some of the effects you can produce with the VEL RATE function.

Velocity Controlled Attack and Release

NORMAL MODE

(TRY THIS WITH VOICE B-8: SLOPHASESTR)

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	OFF	ON	OFF	OFF	OFF	OFF

VOICE PARAMETER MENU

VEL RATE :AMP ENV								
STEP	1	2	3	4	5	6	7	8
M1 E/*	E	*	*	E	-	-	-	-
M2 E/*	E	*	*	E	-	-	-	-
M3 E/*	E	*	E	-	-	-	-	-
M4 E/*	E	*	E	-	-	-	-	-
M5 E/*	E	*	*	E	-	-	-	-
M6 E/*	E	*	*	E	-	-	-	-
M7 E/*	E	*	E	-	-	-	-	-
M8 E/*	E	*	*	E	-	-	-	-

VEL RATE	
SENS	15
CURVE	1

Here's an example of how to edit a voice so that its attack and release rates are velocity controlled.

1. Select a voice with a fairly slow attack and release. For example, use B-8 "SLOPHASESTR" (Card 2: VZ-1 / VZ-10M, Preset 2: VZ-8M).
2. Enter VEL RATE and enable and adjust the first and last steps of each envelope as shown.
3. Set the sensitivity and curve values as shown.
4. Play notes and chords with different velocities. The quicker you strike the keys, the quicker the attack and release of the voice.
5. Play and listen to this voice with different curve and sensitivity settings.

Velocity Controlled Echoes

NORMAL MODE

(TRY THIS WITH VOICE A-7: HEAVY CLAVI)

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	OFF	ON	ON	ON	OFF	ON

VOICE PARAMETER MENU

AMP ENV: M4								
STEP	1	2	3	4	5	6	7	8
RATE	99	30	99	30	99	30	99	30
LEVEL	99	0	99	0	99	0	99	0
SS/ED	-	-	-	-	-	-	-	ED
E/*	*	E	*	E	*	E	*	E

VEL RATE	
SENS	20
CURVE	1

AMP ENV: M8								
STEP	1	2	3	4	5	6	7	8
RATE	99	30	99	30	99	30	99	30
LEVEL	99	0	99	0	99	0	99	0
SS/ED	-	-	-	-	-	-	-	ED
E/*	*	E	*	E	*	E	*	E

This example adds velocity control to the amp envelope echo effect demonstrated in *Echo Effects*. The repeat rate of the echoes in this voice will change with velocity. Slow velocities will produce slow repeat rates; fast velocities will produce fast repeat rates.

1. Select any voice and find the loudness modules.
2. Reset the DCA envelope for one of the loudness modules to produce repeated attacks and decays. Use the settings shown here as a guideline.
3. Use the COPY function to copy the envelope settings to the other loudness modules in the voice.
4. Enter VEL RATE and enable and adjust the decay steps of each envelope as shown.
5. Set the sensitivity and curve values as shown.
6. Play notes and chords with different velocities. The quicker you strike the keys, the quicker the echo repeat rate.
7. Play and listen to this voice with different curve and sensitivity settings.

Velocity Controlled Pitch Bend**NORMAL MODE**

(TRY THIS WITH VOICE A-7: HEAVY CLAVI)

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	OFF	ON	ON	ON	OFF	ON

VOICE PARAMETER MENU

PITCH ENV								
STEP	1	2	3	4	5	6	7	8
RATE	15	50	-	-	-	-	-	-
LEVEL	-8	0	-	-	-	-	-	-
SS/ED	SS	ED	-	-	-	-	-	-
E*	E	*	-	-	-	-	-	-

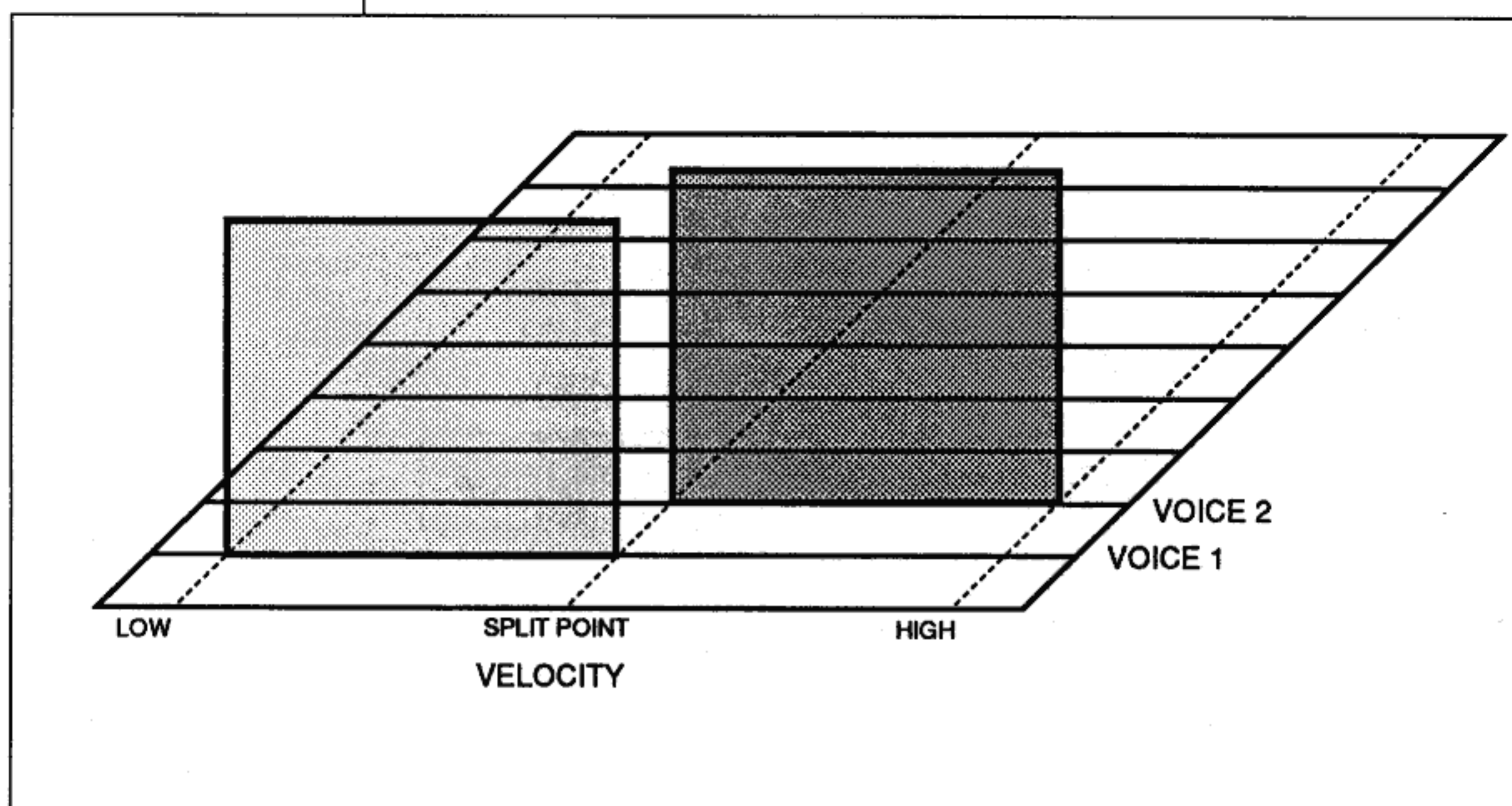
P ENV DEPTH	
DEPTH	NARROW
RANGE	63

VEL RATE	
SENS	14
CURVE	8

In the previous two examples we used velocity to scale the rates of envelopes. You can also use velocity to switch between rates. In this example we use the pitch envelope to create a guitar-like pitch bend. We use VEL RATE to switch between a very slow and a very quick bend.

1. Select "DISTORTAR", or any other guitar-like voice.
2. Enter PITCH ENV and set the values as shown.
3. Enter VEL RATE and set the values as shown.
4. Play notes and chords with different velocities. On notes with very quick velocities, you will hear a slow pitch bend. On notes with moderate and slow velocities you will hear no pitch bend at all.
5. Play and listen to this voice with different curve and sensitivity settings.

Combination Mode Velocity Switch



COMBINATION MODE

KEY ASSIGN

1+2

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	H1	2	NO.	B-2
	NAME	VZ VIBES		NAME	BRASSECTION

EFFECT MENU

VEL SPLIT		
RANGE (FROM)	0	63
RANGE (TO)	64	127

A velocity switch changes voices according to how quickly you push down a key (or how hard you strike a guitar string, or blow into a breath controller.) A velocity switch is set up using the VEL SPLIT function:

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Assign a different voice to each layer.
3. Set the VEL SPLIT range for each voice in the layer as shown.
4. Play notes and chords with different velocities. Lower velocities will play voice 1; higher velocities will play voice 2.
5. Experiment with different ranges for each voice. Use ranges that don't overlap to switch between voices. Use overlapping ranges to add additional voices with velocity.

Echo Effects

VZ synthesizers offer several options for simulating echo effects:

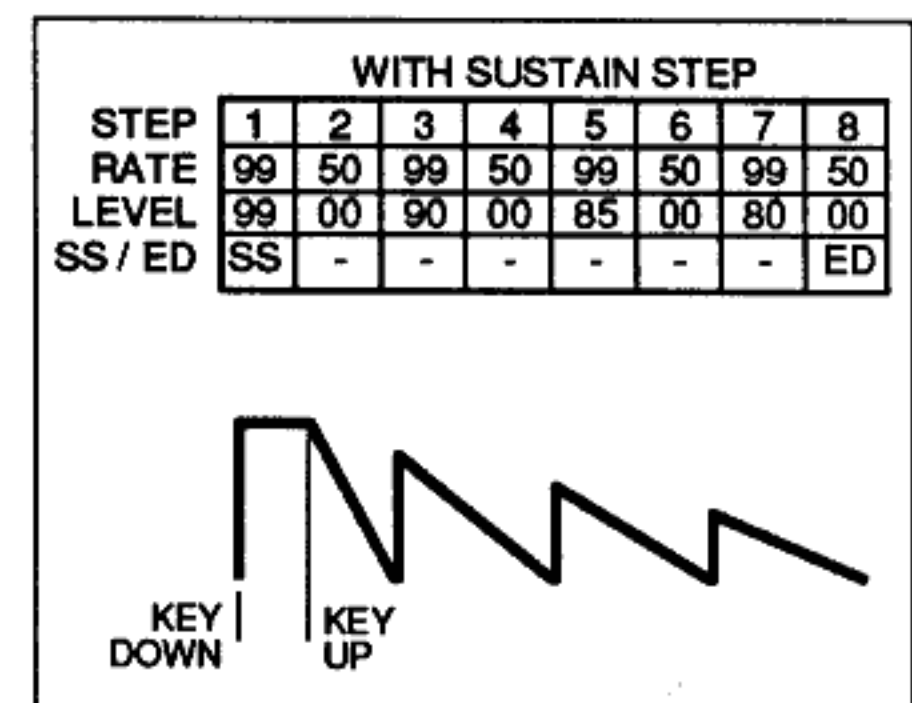
- The eight-step envelope generators can be programmed to create repeating attacks (echo).
- A "SAW DOWN" tremolo with multi "on" can create repeating echoes.
- The delay trigger function can be used to create slap echoes, and initial decay ambience effects.

AMP ENV-based Echo

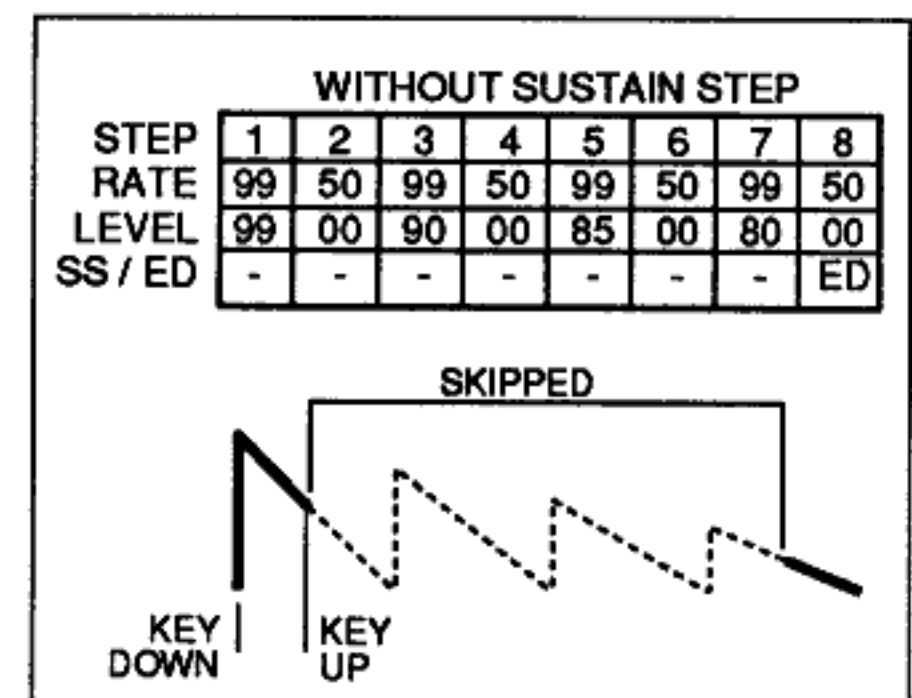
To create echo effects with the AMP ENV function, program the loudness envelopes of an iPD voice with shapes that have multiple attacks. (See illustration.) The placement of the sustain step, and the way you play notes can produce a number variations to amp envelope echo effects. Be sure to try the amp envelope experiment in Part 2.

Note: You can use the VEL RATE or KF RATE functions to control the echo decay rate, as well as the timing between echoes with velocity or key position.

1. Select any voice and find the loudness modules.
2. Reset the DCA envelope for one of the loudness modules to produce repeated attacks and decays. Use the settings shown here as a guideline.
3. Use the COPY function to copy the envelope settings to the other loudness modules in the voice.



**Multi-Attack Envelope
with Sustain**



**Multi-Attack Envelope
without Sustain**

NORMAL MODE

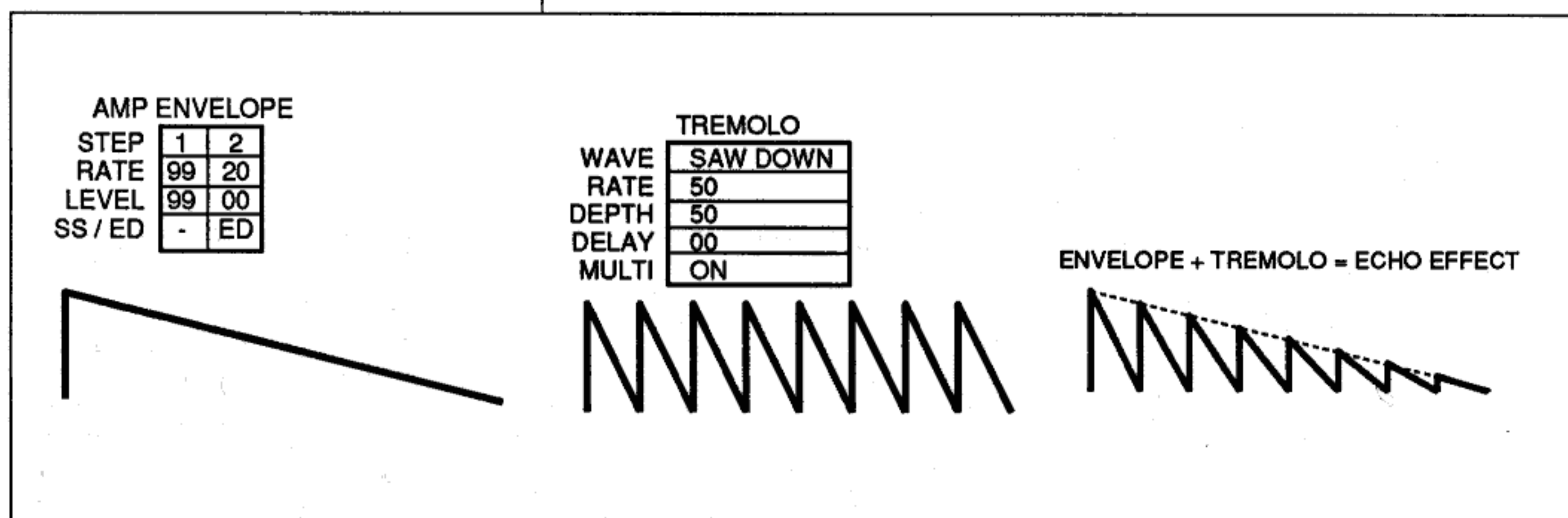
(TRY THIS WITH VOICE A-7: HEAVY CLAVI)

MODULE ON/OFF							
M1	M2	M3	M4	M5	M6	M7	M8
ON	ON	OFF	ON	ON	ON	OFF	ON

VOICE PARAMETER MENU

AMP ENV: M4								
STEP	1	2	3	4	5	6	7	8
RATE	99	30	99	30	99	30	99	30
LEVEL	99	0	90	0	80	0	70	0
SS/ED	-	-	-	-	-	-	-	ED

AMP ENV: M8								
STEP	1	2	3	4	5	6	7	8
RATE	99	30	99	30	99	30	99	30
LEVEL	99	0	90	0	80	0	70	0
SS/ED	-	-	-	-	-	-	-	ED

Tremolo-based echo

To create echo effects with the TREMOLO function, add "SAW DOWN" tremolo to all of the modules in any iPD voice, and set the multi value to "on". Be sure to experiment with the other tremolo parameters: depth, rate, and delay. (See *Tremolo*, page 54.) Here is a basic procedure to add tremolo-based echo to any VZ voice.

1. Select any voice.
2. Set the AMP SENS value for all modules to "7".
3. Set the TREMOLO wave to "SAW DOWN". This produces a "normal" echo effect. Use "SAW UP" to create "backwards" echo effects.
4. Set MULTI to "on".
5. For echo that is "on" all the time, set the TREMOLO depth value between "10" and "99". Otherwise, set this value to "0", and set a controller for TREMOLO depth. (See *Tremolo Rate and Depth*.)
6. Set the echo repeat rate with the TREMOLO rate value — higher numbers produce faster repeats. You can also control the rate of the echo with a controller.
7. To create a delayed echo effect set the TREMOLO delay value to a number greater than "0". The higher the number, the longer the delay before the echo fades in.
8. If the sound's envelopes have sustain segments, the sustain pedal will act as an "echo hold" switch.

When you're ready to save the sound, remember that the effects menu settings aren't saved with the voice parameters. If you want to save the effects settings, first save the voice in the normal mode, then save the entire normal mode work area by saving to an operation memory.

NORMAL MODE

(VZ-1 & VZ-10M USE A2: WARM PIANO)
 (VZ-8M USE A1: WARM PIANO)

VOICE PARAMETER MENU

TREMOLO				
WAVE	DEPTH	RATE	DELAY	MULTI
SAW DOWN	50	50	0	ON

AMP SENS							
M1	M2	M3	M4	M5	M6	M7	M8
7	7	7	7	7	7	7	7

EFFECT MENU

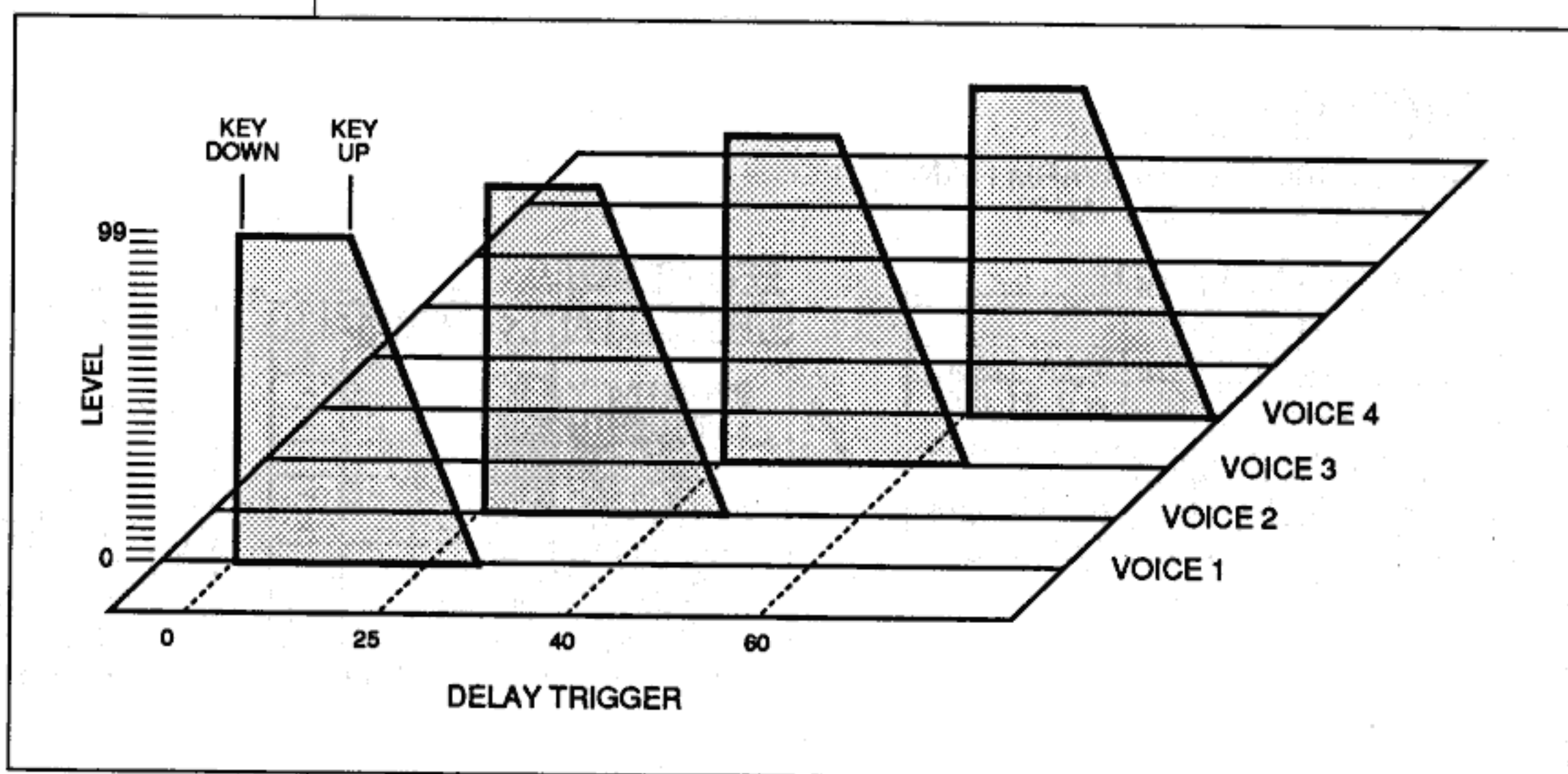
WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	ON	-	-	-
TREM RATE	OFF	-	-	-
A ENV BIAS	OFF	-	-	-

CONTROL OF ECHO LEVEL

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	OFF	-	-	-
TREM RATE	ON	-	-	-
A ENV BIAS	OFF	-	-	-

CONTROL OF ECHO RATE

Combination Delay Echo



You can add slap echoes and ambience effects by layering the same voice two or more times in the Combination mode, and using the DELAY TRIGGER function to delay the attack of each note. Longer delay times will produce slap echoes; shorter delay times will produce ambience (initial decay) effects.

Note: You can enhance ambience effects by using pitch function of the effects menu to add a slight detune to each layer.

1. Select a layered key assign configuration, like "1+2", "3+4", or "1+2+3+4".
2. Assign the same voice to each layer. This effect works well with any kind of voice. Be sure to try it with percussive sounds (piano, guitar, etc.) as well as sustaining sounds (strings, brass, etc.)
3. Set a DELAY TRIGGER value for all but one layer. Values between "1" and "20" will produce ambience effects; higher values will create echoes.
4. To simulate echo each repeat should be slightly softer in volume. Use the COMBI LEVEL function to lower the level of the delayed layers.

COMBINATION MODE

KEY ASSIGN
1+2+3+4

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)									
1	NO.	A-7	2	NO.	A-7	3	NO.	A-7	4
	NAME	HEAVY CLAVI		NAME	HEAVY CLAVI		NAME	HEAVY CLAVI	

EFFECT MENU

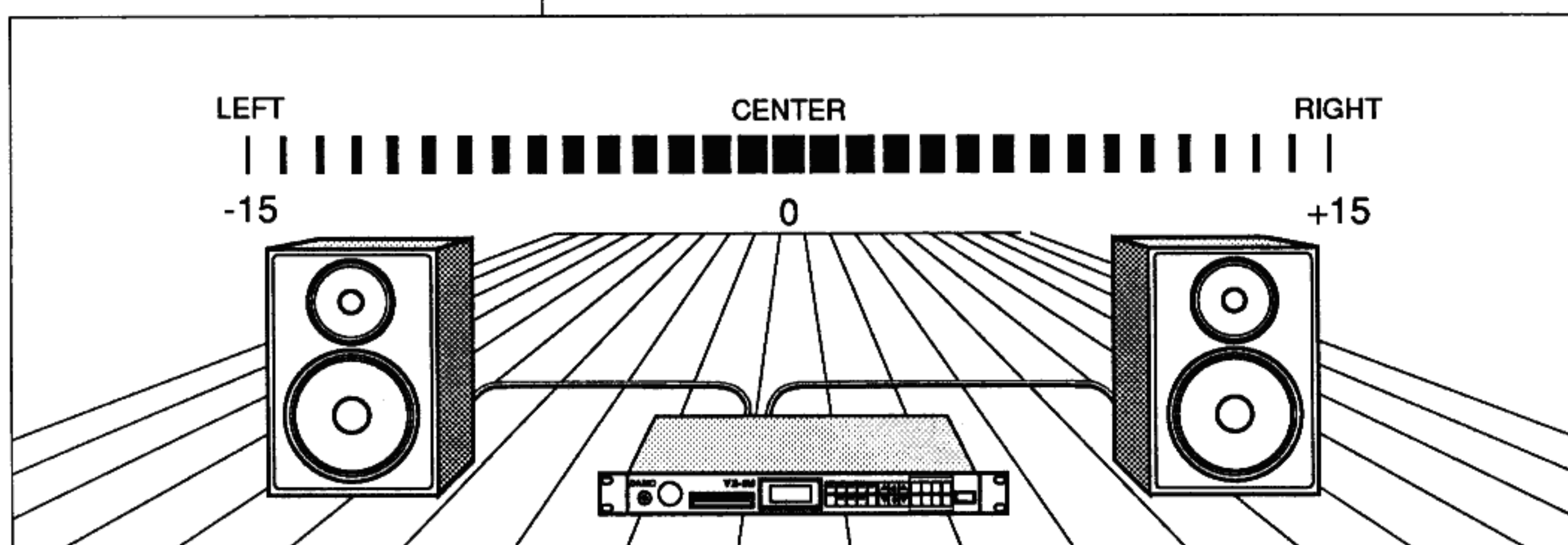
DELAY TRIG				
	1	2	3	4
DELAY	0	40	49	54

COMBI LEVEL				
	1	2	3	4
LEVEL	99	90	85	80

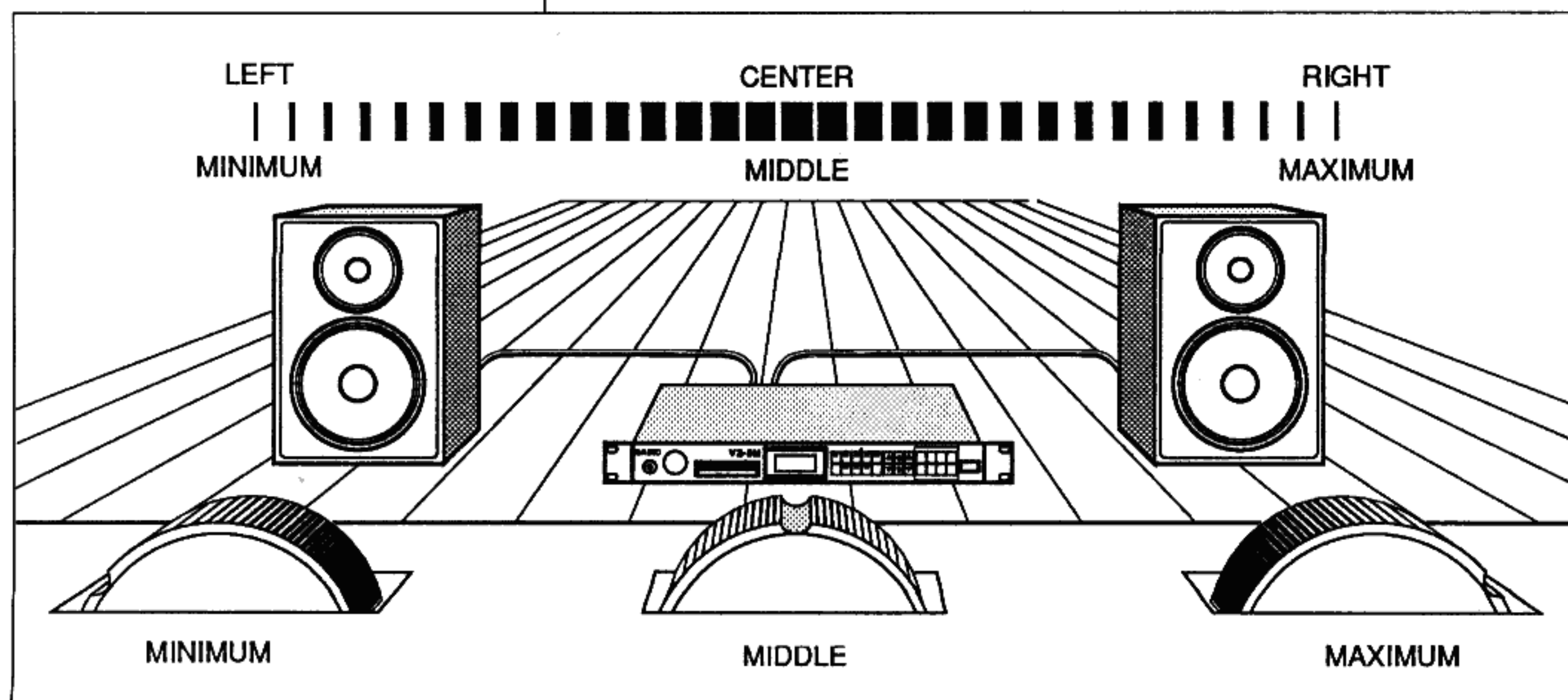
Stereo Effects

There are several ways to produce dramatic stereo effects with VZ synthesizers. The VZ-8M has a unique PAN function with three different stereo effects. It is also possible to create several other stereo effects by taking advantage of features of the combination mode. Combination mode stereo effects can be created on the VZ-1, VZ-10M, and VZ-8M. In order to hear stereo effects, each audio output must be connected to a separate channel of a stereo mixer. For example, connect output 1 to the left channel and output 2 to the right channel. (You can also hear stereo effects by listening to stereo headphones connected to the headphone jack.)

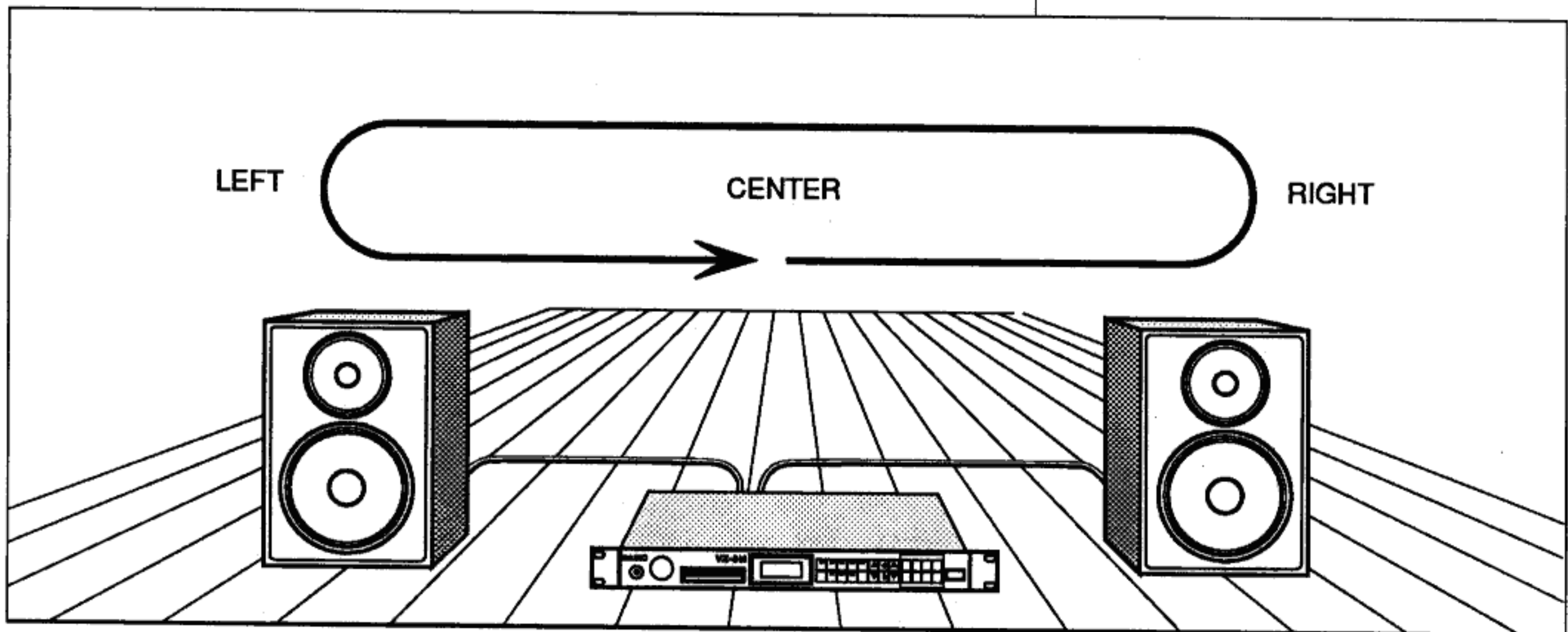
About VZ-8 M Pan Modes



Fix Mode Pan



Controller Mode Pan

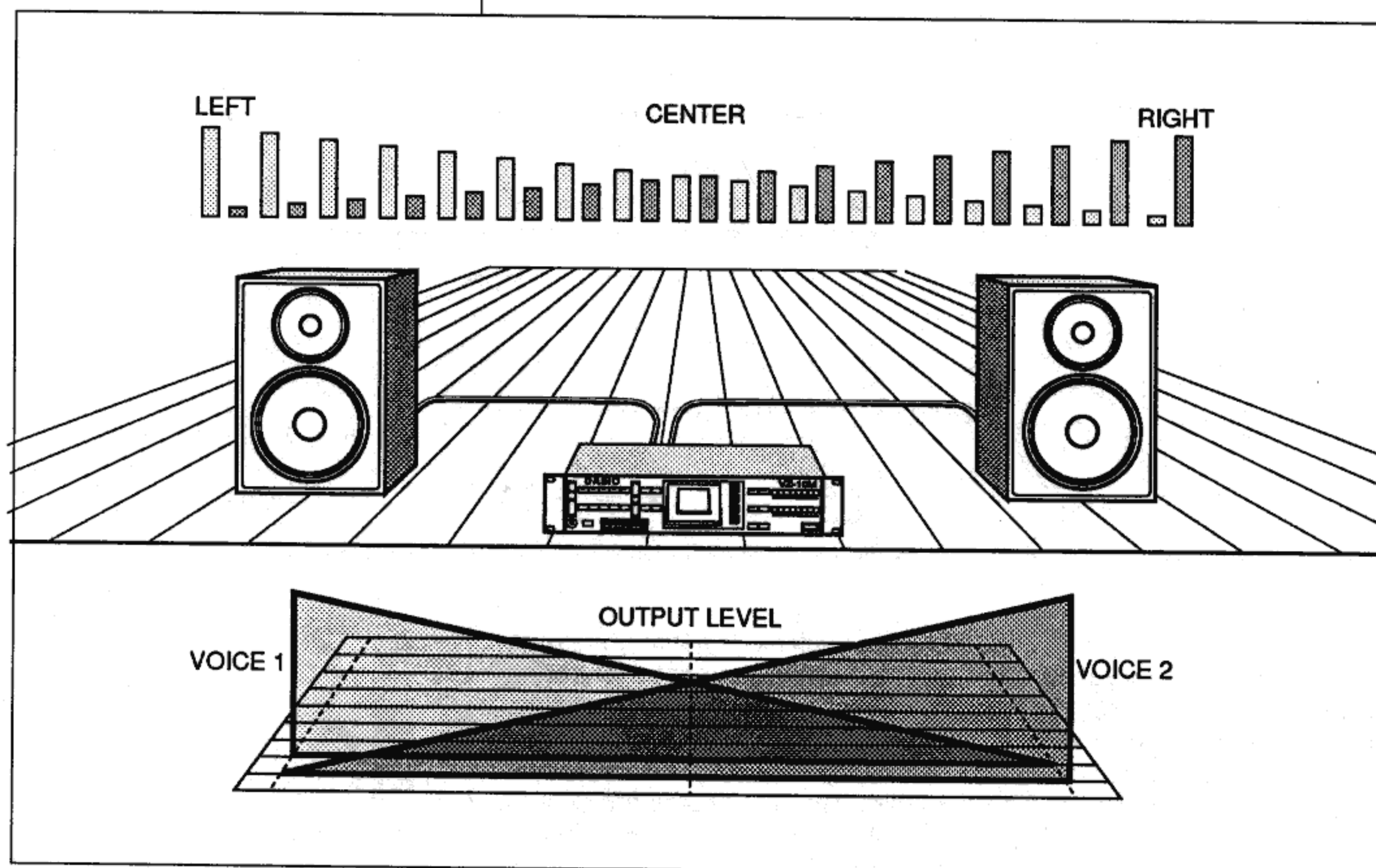


Auto Mode Pan

The PAN function has three distinct modes. Each mode allows you to pan (move between the left and right of the stereo mix) VZ sounds by controlling two "panpots." In the combination, multi channel, and guitar performance modes, panpot 1 pans sounds normally routed to output 1; panpot 2 pans sounds normally routed to output 2. In the normal mode, the sound is sent alternately to each panpot. The first, third, fifth (etc.) notes are sent to panpot 1, and the second, fourth, sixth (etc.) notes are sent to panpot 2. Here is a brief summary of the three modes.

- **Fix:** This mode is similar to a conventional, two-channel, stereo mixer. The output of each panpot can be independently panned to a fixed position anywhere between left (-15), center (0), and right (+15). Note: In the normal mode, set both panpots to the same value to move the sound to a fixed position in the stereo mix.
- **Control:** This mode allows you to independently pan the output of each panpot with a controller of your choice. You may control each panpot with the same controller, or you may use a different one for each. Six different panning ranges allow you to create a number of different panning motions.
- **Auto:** This mode allows you to independently pan the output of each panpot with an LFO. The speed and rate of the panning effect are variable, but apply equally to both panpots. You can also specify a controller to change the panning depth.

About Combination Mode Stereo Effects



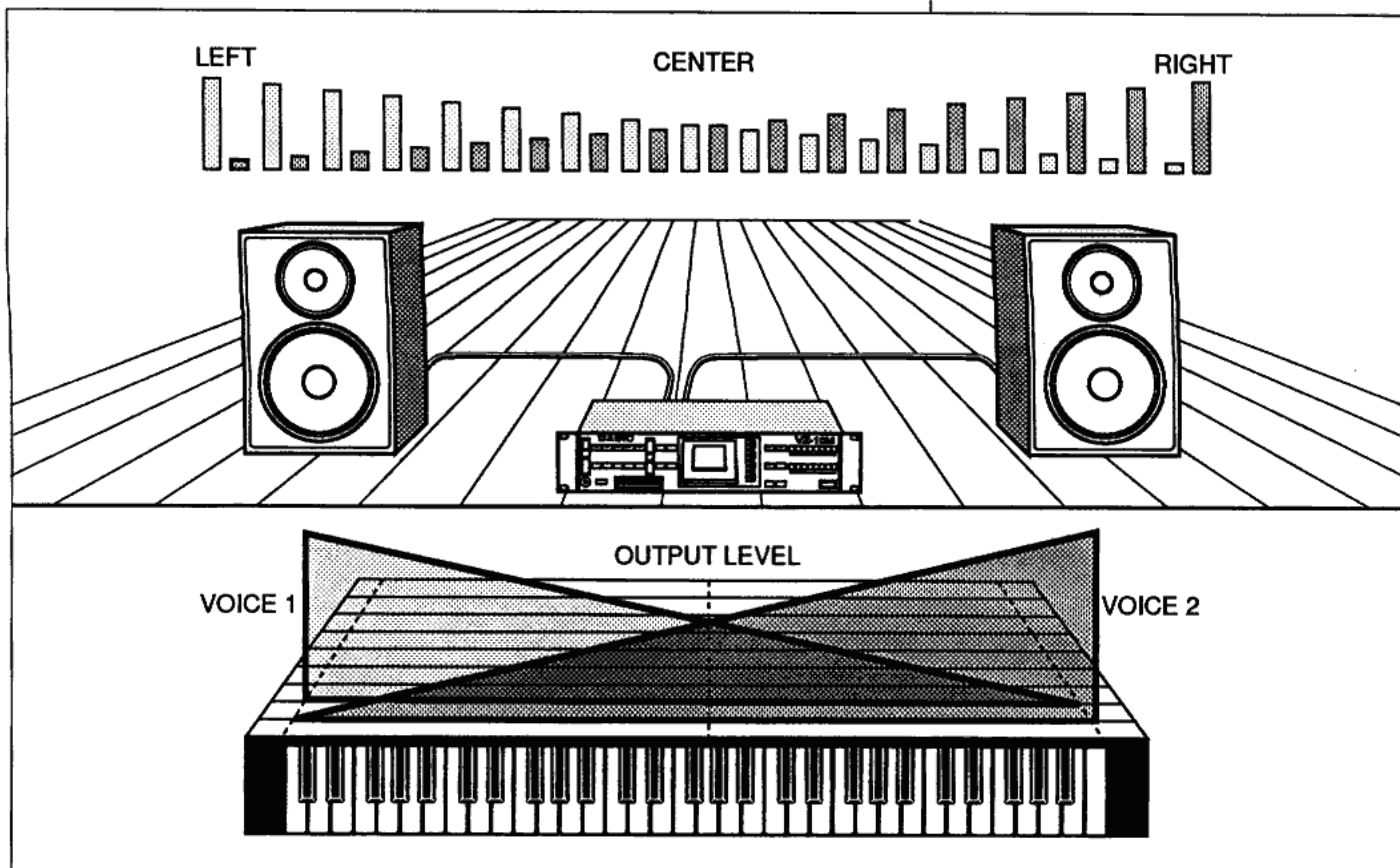
There are many stereo effects that can be created in the Combination mode. They are all variations of the following basic technique.

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Assign the same voice to each side of the layer.
3. Control the level of the two voices so that as one gets louder the other gets softer.

That's all there is to it. If both voices are the same level, the sound will be in the center of the stereo mix. If the left voice grows louder as the right voice grows softer, the sound will move towards the left side of the stereo mix. If the right voice grows louder as the left voice grows softer, the sound will move towards the right side of the stereo mix. There are several ways to control the levels of VZs in this manner. Each one produces a different type of panning effect.

Note: To get the best results with these effects on a VZ-8M: set the pan mode to "fix", set panpot 1 to "-15" and panpot 2 to "+15".

Positional Pan



COMBINATION MODE

KEY ASSIGN
1+2

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)			
1	NO.	C-1	2
	NAME	VZ TRUMPET	
2	NO.	C-1	3
	NAME	VZ TRUMPET	

ASSIGN THE SAME VOICE
TO BOTH SIDES OF THE LAYER

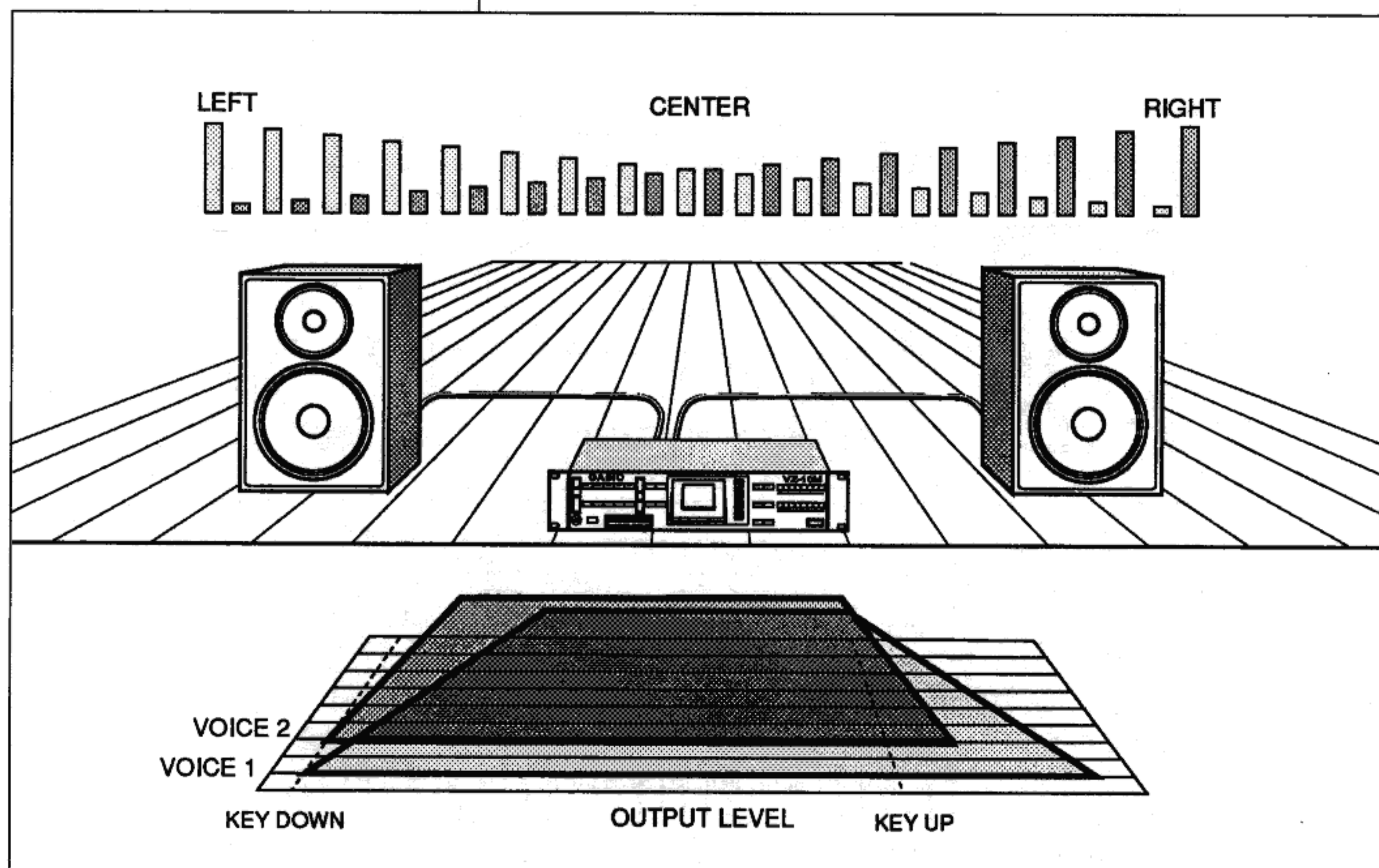
EFFECT MENU

POS X FADE	
EFFECT	ON
POS (FROM)	C2
POS (TO)	C7

A positional pan positions notes according to the locations you play on your controller. Lower notes will sound on the left, higher notes will sound on the right. A positional pan is set up using the X-FADE function:

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Assign the same voice to each side of the layer.
3. Set the X-FADE function to "on."
4. Set the "POS" values to the lowest and highest note of your keyboard, guitar, or wind controller (or to the lowest and highest note in the melody you want to pan).

Envelope Pan



An envelope pan moves the sound between left and right speakers according to AMP ENV rate settings. The pan effect is created by layering two versions of the same sound. Both versions are exactly the same, except that, for one sound, the envelope rates have all been made slightly quicker (or slower). When a note is played, one sound gets louder and softer slightly quicker than the other. This produces the panning effect. This is one of the trickier stereo effects to set up since there may be as many as sixteen sets of envelope parameters to adjust. However, we've found a short cut that works quite well, use the KF RATE function to scale the rates from the keyboard.

1. Select a voice with a fairly slow attack and release. For example, use B-8 "SLOPHASESTR" (Card 2: VZ-1/VZ-10M, Preset 2: VZ-8M). Save a copy of the voice.
2. Edit the KF RATE settings of the copied voice as shown .
3. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
4. Assign the original voice and its copy to each of the layers.

COMBINATION MODE

KEY ASSIGN

1+2

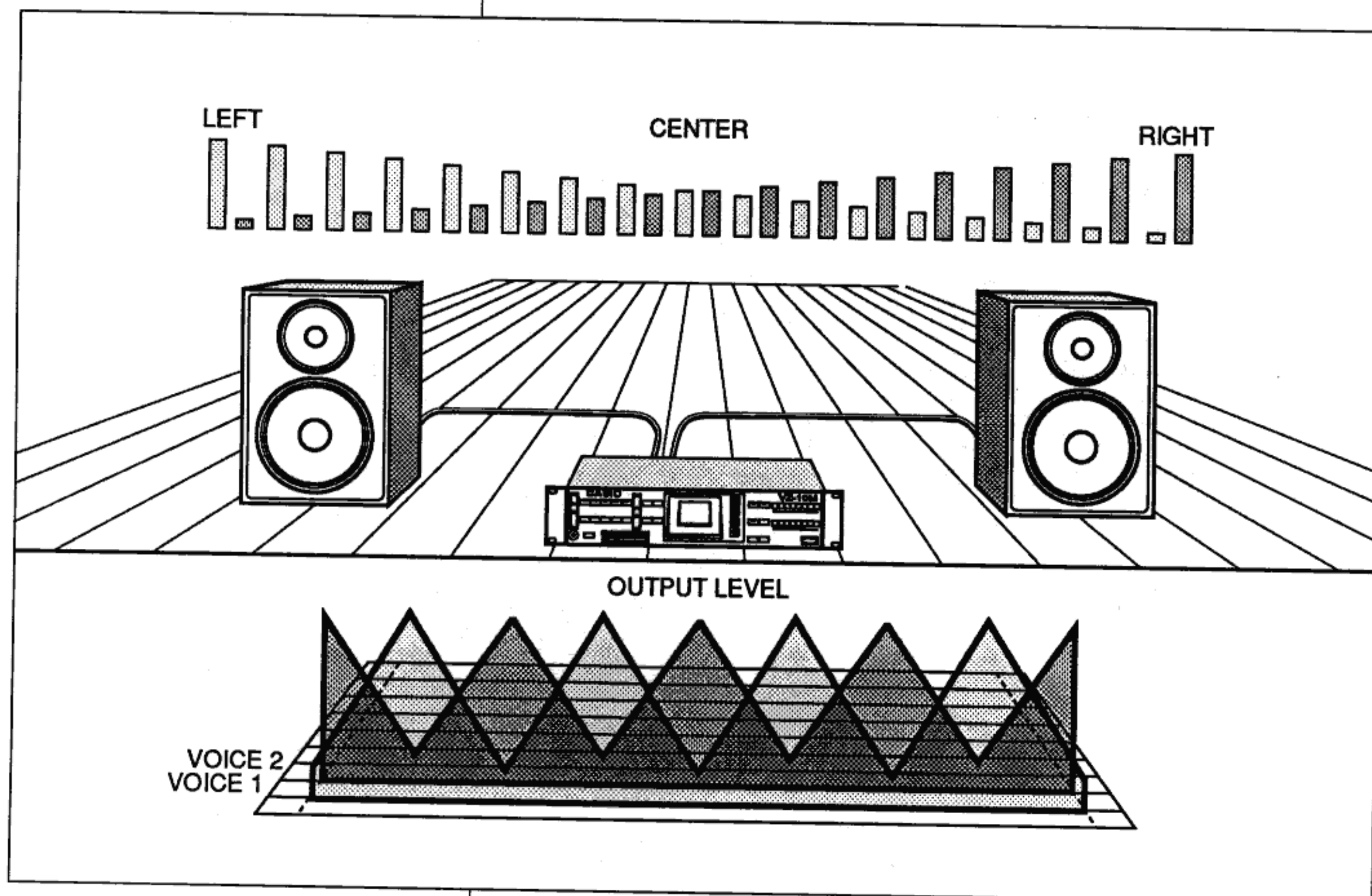
VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	B-8	2	NO.	B-7
	NAME	SLOPHASESTR		NAME	SLOPHASE COPY

SAVE A COPY OF VOICE 1
AND ASSIGN IT TO VOICE 2

EFFECT MENU

KF RATE								
POINT	1	2	-	-	-	-	-	-
KEY	C0	C9	-	-	-	-	-	-
LEVEL	10	10	-	-	-	-	-	-

Tremolo Auto Pan



A tremolo auto pan moves the sound automatically between left and right. A tremolo auto pan is set up by using the TREMOLO function:

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Select a voice that has already been programmed to produce a tremolo effect (see *Adding Tremolo To VZ Sounds*), and assign it to both sides of the layer.
3. Set the TREMOLO INV function for one of the voices to "on".
4. You can control the speed and depth of the auto pan with a controller. (See *Tremolo Rate and Depth*.)

COMBINATION MODE

KEY ASSIGN
1+2

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	A-7	2	NO.	A-7
	NAME	HEAVY CLAVI		NAME	HEAVY CLAVI

ASSIGN ANY VOICE WITH LOUDNESS TREMOLO TO BOTH SIDES OF THE LAYER

VOICE PARAMETER MENU

TREMOLO				
WAVE	DEPTH	RATE	DELAY	MULTI
TRIANGLE	40	70	0	OFF

AMP SENS							
M1	M2	M3	M4	M5	M6	M7	M8
0	0	0	7	0	0	0	7

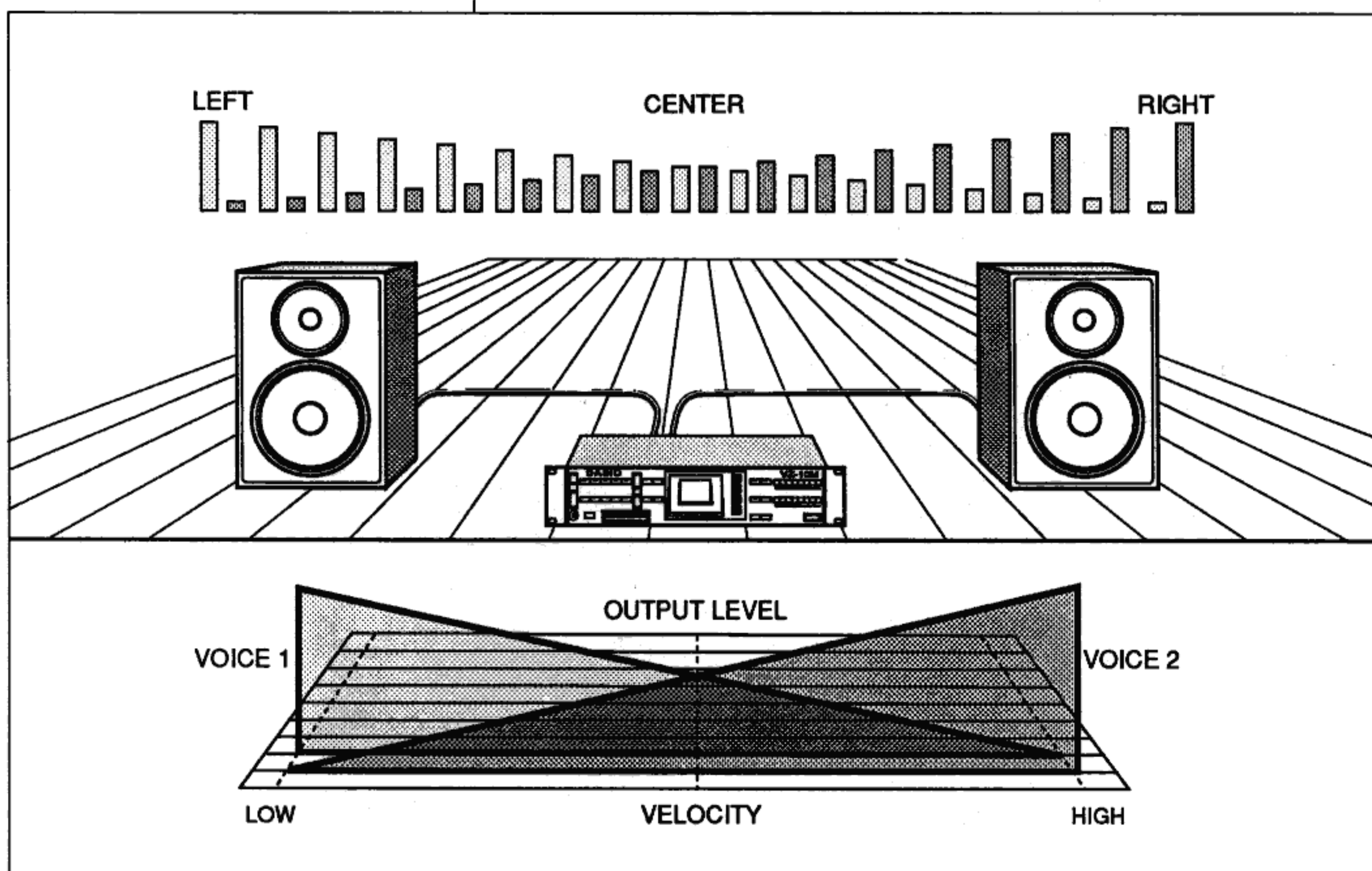
ANY VZ CONTROLLER CAN BE USED TO CONTROL TREMOLO PAN DEPTH OR RATE

EFFECT MENU

TREMOLO INV				
	1	2	3	4
INVERSE	ON	OFF	-	-

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	99	-	-	-
VIB DEPTH	OFF	-	-	-
VIB RATE	OFF	-	-	-
PITCH	OFF	-	-	-
PORTM TIME	OFF	-	-	-
TREM DEPTH	ON	-	-	-
TREM RATE	ON	-	-	-
A ENV BIAS	OFF	-	-	-

Velocity Pan



A velocity pan positions notes according to how quickly you push down a key (or how hard you strike a guitar string, or blow into a breath controller.) Lower velocity notes will sound on the left; higher velocity notes will sound on the right. A velocity pan is set up using the VEL INVERSE function:

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Select a voice that has been programmed to produce velocity dynamics (see *Customizing Velocity Curves and Sensitivities*), and assign it to both sides of the layer.
3. Set the VEL INVERSE function for one of the voices to "on".

COMBINATION MODE

KEY ASSIGN
1+2

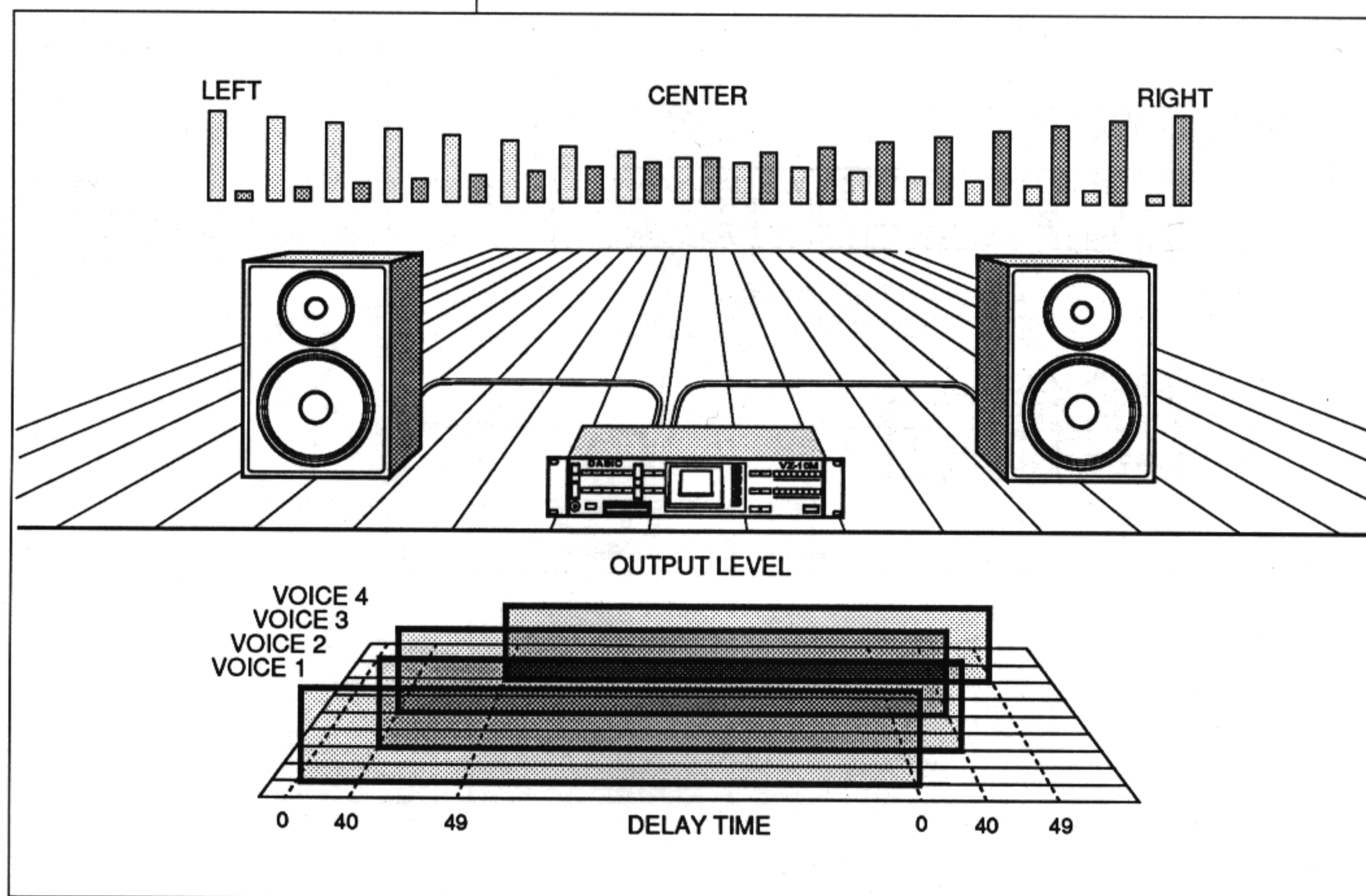
VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	D-1	2	NO.	D-1
	NAME	ACOUSTAR		NAME	ACOUSTAR

ASSIGN ANY VELOCITY SENSITIVE
VOICE TO BOTH SIDES OF THE LAYER

EFFECT MENU

VEL INV				
	1	2	3	4
INVERSE	ON	OFF	-	-

Delay Pan



The slap echo and ambience effects shown previously in *Combination Delay Echo* sound great in stereo. In order to hear them in stereo you must be sure to use both audio outputs.

1. Select the "1+2+3+4" key assignment configuration.
2. Assign the same voice to each of the four layers
3. Use the DELAY TRIGGER settings shown as guidelines to create the type of panning motion you want: bounce (left – right – left – right), centered (center – left – right), sweep right (left – center – right), or sweep left (right – center – left).
4. Set the COMBI LEVEL values so that the voices become progressively softer. Use the settings shown as a guide.

COMBINATION MODE**KEY ASSIGN**

1+2+3+4

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)

1	NO.	A-7	2	NO.	A-7	3	NO.	A-7	4	NO.	A-7
	NAME	HEAVY CLAVI		NAME	HEAVY CLAVI		NAME	HEAVY CLAVI		NAME	HEAVY CLAVI

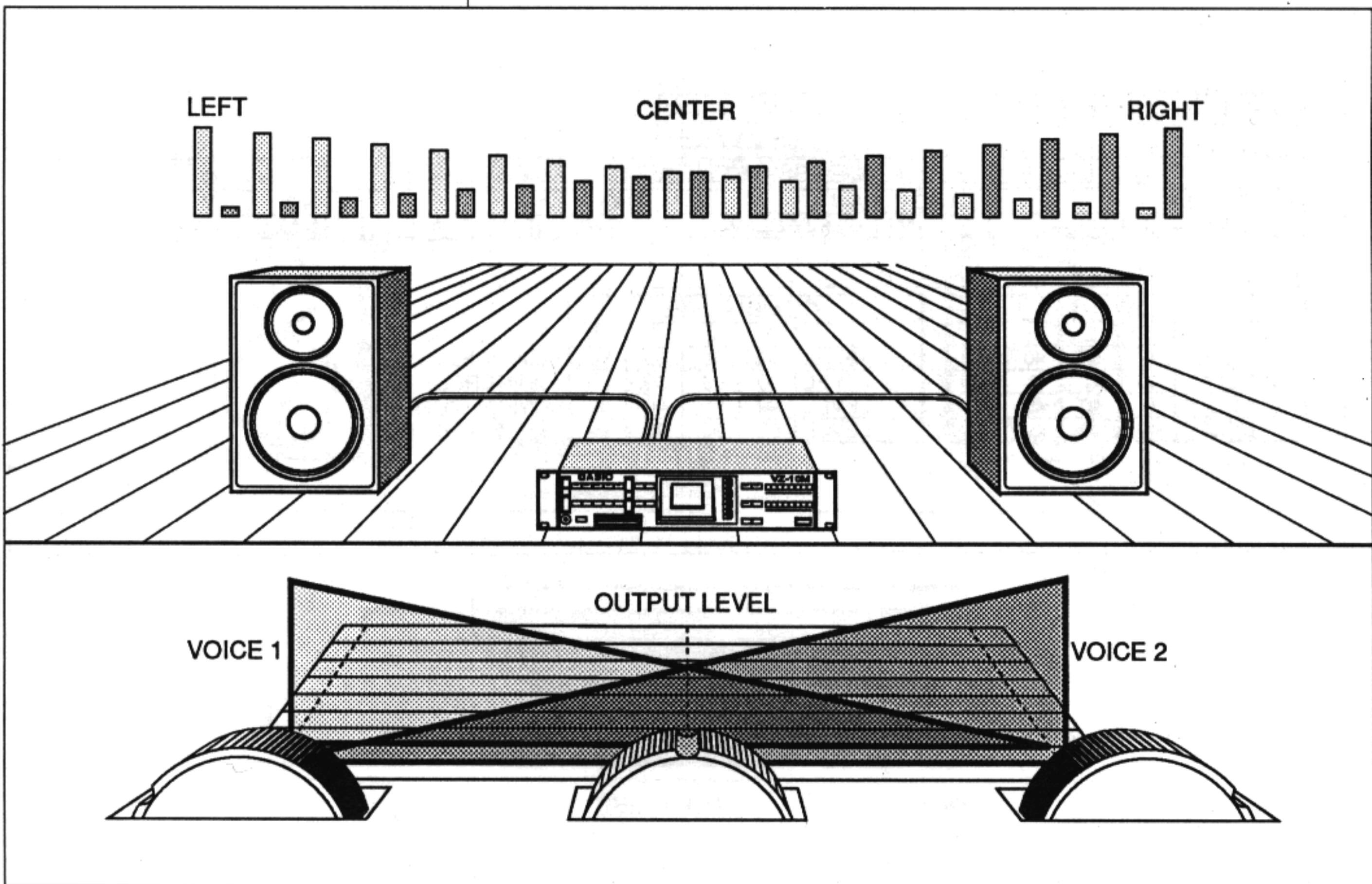
EFFECT MENU

DELAY TRIG				
	1	2	3	4
DELAY	0	49	40	54
DELAY	40	0	0	49
DELAY	0	40	40	49
DELAY	49	40	40	0

COMBI LEVEL				
	1	2	3	4
LEVEL	99	90	85	80
LEVEL	90	99	99	85
LEVEL	99	90	90	85
LEVEL	85	90	90	99

(BOUNCE)
(CENTERED)
(SWEEP RIGHT)
(SWEEP LEFT)

Controller Pan



A controller pan positions notes according to movements of a wheel, foot pedal, or other controller. Moving a controller towards its minimum position moves the sound to one side of the stereo mix, moving the controller to its maximum position moves the sound to the opposite side of the stereo mix. You can use any of the following controllers for pan effects in the combination mode: after touch, mod wheel (def wheel 1), def control (def wheel 2, or MIDI controllers 12-31), or foot vr (MIDI controller 4).

1. Select a key assign configuration with a stereo layer, like "1+2" or "3+4".
2. Select a voice that has been programmed to produce loudness change by controlling amp bias, and assign it to both sides of the layer.
3. Set the sensitivity of the desired controller to "+99" for one side of the layer; set it to "-99" for the other side.
4. Moving the controller will pan the voice as you play.

Note: Don't forget that after touch is a controller too. You can use it to pan sounds according to how hard you push the keys of a keyboard, or how hard you blow into a wind controller.

COMBINATION MODE

KEY ASSIGN
1+2

VOICE ASSIGNMENT (VZ-1, VZ-10M & VZ-8M)					
1	NO.	E-1	2	NO.	E-1
	NAME	SYNTH FLUTE		NAME	SYNTH FLUTE

ASSIGN ANY VOICE TO
BOTH SIDES OF THE LAYER

VOICE PARAMETER MENU

TREMOLO				
WAVE	DEPTH	RATE	DELAY	MULTI
-	0	-	-	-

TURN OFF ANY TREMOLO EFFECTS

AMP SENS							
M1	M2	M3	M4	M5	M6	M7	M8
7	7	7	7	7	7	7	7

EFFECT MENU

WHEEL OR ANY CONTROLLER				
	1	2	3	4
SENSITIVITY	+99	-99	-	-
VIB DEPTH	OFF	OFF	-	-
VIB RATE	OFF	OFF	-	-
PITCH	OFF	OFF	-	-
PORTM TIME	OFF	OFF	-	-
TREM DEPTH	OFF	OFF	-	-
TREM RATE	OFF	OFF	-	-
A ENV BIAS	ON	ON	-	-

CONTROL OF PAN POSITION

The Casio VZ synthesizers (as well as the PG guitar) are powerful sound creation devices. They are true synthesizers, offering a formidable toolbox with which to create your own soundscapes.

POWER PLAY VZ! is a guide to playing and programming Casio's VZ-1, VZ-10M and VZ-8M DIGITAL SYNTHESIZERS. This comprehensive resource book shows you how to create and modify sounds on your VZ and also understand and take advantage of the VZ's powerful MIDI features. Divided into three parts: Overview of VZ Instruments, Exploring iPD Synthesis, and Editing Examples—POWER PLAY VZ! presents all of this from the keyboard player's point of view, but also provides information of special interest to guitarists and wind players. Much of the information and many of the programming techniques presented in POWER PLAY VZ! have never before been available!

So, power up your VZ and get ready to PLAY!