




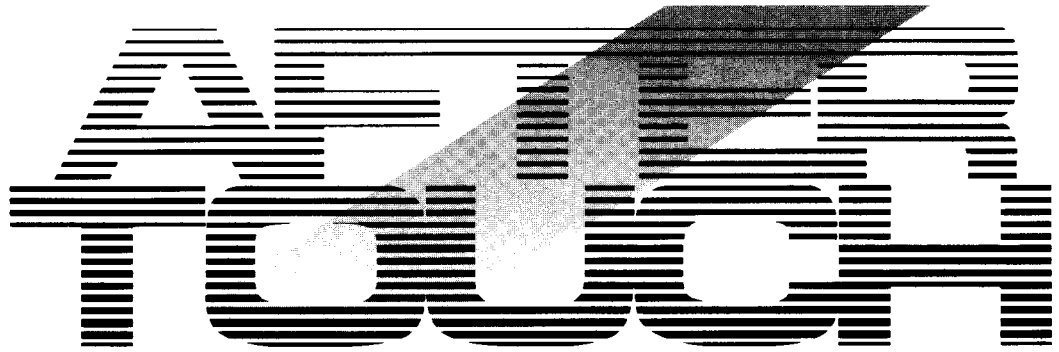
THE OFFICIAL PUBLICATION OF THE YAMAHA USERS GROUP

# DX11 FM Digital Synthesizer



FEBRUARY 1988

 YAMAHA®



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# RX5

## A New RX5 Voice Edit By Robert Cavallo.

**Notes:**

For different gated snare sounds, try adjusting the following: Pitch in the range between -650 and -200 cents, Decay 1 Rate in the range between 50 and 47, and Gate Time in the range between 0500 and 0275 milliseconds.

Voice Name: Gate Snare		Origin: Int-SD 2	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	-400 cent
03/1	Attack Rate	1 ~ 99	99
03/2	Decay 1 Rate	1 ~ 99	50
03/3	Decay 1 Level	1 ~ 60	53
03/4	Decay 2 Rate	1 ~ 99	80
03/5	Release Rate	1 ~ 99	no effect
03/6	Gate Time	100 ~ 6500	0500 ms
04/1	Bend Rate	-60 ~ 60	00
04/2	Bend Range	1 ~ 60	00
05	Inst Level	0 ~ 31	31
06	Sound Loop	OFF / ON	ON

# RX5

## A New RX5 Voice Edit By Lil Crawford.

**Notes:**

For shorter locust attacks, adjust the Attack Rate parameter to a higher value.

Voice Name: Locust		Origin: Int-Shaker	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	-2400 cent
03/1	Attack Rate	1 ~ 99	11
03/2	Decay 1 Rate	1 ~ 99	99
03/3	Decay 1 Level	1 ~ 60	59
03/4	Decay 2 Rate	1 ~ 99	82
03/5	Release Rate	1 ~ 99	60
03/6	Gate Time	100 ~ 6500	6500 ms
04/1	Bend Rate	-60 ~ 60	47
04/2	Bend Range	1 ~ 60	+34
05	Inst Level	0 ~ 31	27
06	Sound Loop	OFF / ON	ON

# RX5

A New RX5  
Voice Edit  
By Ken Como.

Voice Name: <b>Techno-Funk</b>		Origin: <b>Int-Rim 2</b>	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	-500 cent
03/1	Attack Rate	1 ~ 99	99
03/2	Decay 1 Rate	1 ~ 99	53
03/3	Decay 1 Level	1 ~ 60	47
03/4	Decay 2 Rate	1 ~ 99	59
03/5	Release Rate	1 ~ 99	60
03/6	Gate Time	100 ~ 6500	0450 ms
04/1	Bend Rate	-60 ~ 60	15
04/2	Bend Range	1 ~ 60	-24
05	Inst Level	0 ~ 31	31
06	Sound Loop	OFF / ON	ON

Notes:

*This voice edit works well as a synth percussion sound, or as a techno-funk bass drum sound.*

# RX5

A New RX5  
Voice Edit  
By Joe Chila.

Voice Name: <b>Boomin' Bass</b>		Origin: <b>Int-Tom 4</b>	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	-1600 cent
03/1	Attack Rate	1 ~ 99	99
03/2	Decay 1 Rate	1 ~ 99	65
03/3	Decay 1 Level	1 ~ 60	01
03/4	Decay 2 Rate	1 ~ 99	99
03/5	Release Rate	1 ~ 99	99
03/6	Gate Time	100 ~ 6500	6500 ms
04/1	Bend Rate	-60 ~ 60	00
04/2	Bend Range	1 ~ 60	00
05	Inst Level	0 ~ 31	30
06	Sound Loop	OFF / ON	ON

Notes:

*For an even more incredible sound, try this with a good digital reverb.*

# TX81Z

## ChorusCell. A New TX81Z Performance Setup By Scott Ragland.

name: ChorusCell		1: HarmoPad	5:
assign mode NORM		2: BoxCello	6:
micro tune select OCT.		3: BoxCello 2	7:
effect select OFF		4:	8:

inst. number	1	2	3	4	5	6	7	8
number of notes	3	3	2	0	0	0	0	0
voice number	B28	B19	I01	I01	I01	I01	I01	I01
receive ch.	1	1	1	4	5	6	7	8
key limit /L	C-2	C-2	C-2	C-2	C-2	C-2	C-2	C-2
key limit /H	G 8	G 8	G 8	G 8	G 8	G 8	G 8	G 8

detune	-2	+0	+3	+0	+0	+0	+0	+0
note shift	+0	+0	+0	+0	+0	+0	+0	+0
volume	99	99	99	99	99	99	99	99
out assign	LR	LR	LR	LR	LR	LR	LR	LR
lfo select	1	2	VIB	VIB	VIB	VIB	VIB	VIB
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

### Notes:

This TX81Z performance setup is based on three voice patches: "BoxCello 2" (a new voice), "BoxCello" (from the TX81Z's internal ROM bank B), and "HarmoPad" (from the TX81Z's internal ROM bank B).

"BoxCello 2" is exactly like the ROM voice "BoxCello," except for some changes in the envelope generator for Op #2.

This "ChorusCell" performance setup sounds good playing fourths or fifths, or as a melodic voice anywhere across the range. It can also be used for thick, powerful bass.

OPERATOR	op1	op2	op3	op4	
on/off	ON	ON	ON	ON	
out level	99	58	81	72	
freq. type	RTO	RTO	RTO	RTO	
fix range	255	255	255	255	
freq. coarse	8	8	22	4	
freq. fine	0	0	0	0	
detune	+0	-3	+3	+3	
-1-	2.00	-2-	7.00	-4-	1.00

ENVELOPE				
attack rate	11	12	17	28
decay 1 rate	10	18	16	4
decay 1 level	15	13	9	14
decay 2 rate	0	1	0	0
release rate	5	4	11	6
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS				
rate	2	0	0	0
level	5	21	12	15
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	1	1	2	0

voice name: BoxCello 2	
algorithm no. 3	
feedback 6	

LFO			
waveform		sync	OFF
speed	29	delay	6
amp mod depth	0	sens	0
pitch mod depth	15	sens	5

FUNCTION			
mode	POLY	mid C =	C 2
portamento	FULL	rev rate	5
porta time	0	pb range	4
vol	99	pitch	0
pitch	0	amp	0
amp	0	eg bias	0
pitch	50	p bias	+0
amp	0		

# TX81Z

**CymlsVoice.**  
**A New TX81Z**  
**Performance**  
**Setup By Chris**  
**Chen.**

name: CymlsVoice		1 : Male Voice    5 :							
assign mode NORM		2 : Synballs    6 :							
micro tune select OCT.		3 :                7 :							
effect select OFF		4 :                8 :							
inst. number	1	2	3	4	5	6	7	8	
number of notes	4	4	0	0	0	0	0	0	
voice number	I01	D31	I01	I01	I01	I01	I01	I01	
receive ch.	1	1	3	4	5	6	7	8	
key limit /L	C-2	C-2	C-2	C-2	C-2	C-2	C-2	C-2	
key limit /H	G 8	G 8	G 8	G 8	G 8	G 8	G 8	G 8	
detune	+2	-2	+0	+0	+0	+0	+0	+0	
note shift	+0	+0	+0	+0	+0	+0	+0	+0	
volume	59	99	99	99	99	99	99	99	
out assign	LR	R	LR	LR	LR	LR	LR	LR	
lfo select	1	2	VIB	VIB	VIB	VIB	VIB	VIB	
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

<b>OPERATOR</b>	op1	op2	op3	op4			
on/off	ON	ON	ON	ON			
out level	95	60	59	50			
freq. type	RTO	RTO	RTO	RTO			
fix range	255	255	255	255			
freq. coarse	13	16	0	63			
freq. fine	0	0	0	15			
detune	+0	-3	+3	+0			
-1-	4.00	-2-	5.00	-3-	0.50	-4-	27.57

<b>ENVELOPE</b>				
attack rate	14	11	15	31
decay 1 rate	0	2	2	0
decay 1 level	15	15	15	15
decay 2 rate	1	3	4	0
release rate	6	1	1	4
eg shift	OFF	OFF	OFF	OFF

<b>SCALING/SENS</b>				
rate	0	0	0	0
level	8	13	35	44
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	3	0	0	0

voice name: Male Voice
algorithm no. 4
feedback 1

<b>LFO</b>		
waveform		sync ON
speed	10	delay 7
amp mod depth	1	sens 0
pitch mod depth	5	sens 6

<b>FUNCTION</b>		
mode	POLY	mid C = C 2
portamento	FULL	rev rate 0
porta time	0	pb range 5
vol	99	pitch 0
pitch 0		amp 0
amp 0		eg bias 0
pitch 3		p bias +0
amp 0		

Notes:

This TX81Z performance setup is based on two voice patches: "Male Voice" (a new voice) and "Synballs" (from the TX81Z's internal ROM bank D).

# TX81Z

WineGlass.  
A New TX81Z  
Voice By Craig  
Anderton.

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	91	52	99	53
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	8	25	8	36
freq. fine	0	0	0	0
detune	-3	+3	+3	-3
-1-	-2-	-3-	-4-	
2.00	8.00	2.00	12.00	

ENVELOPE	op1	op2	op3	op4
attack rate	3	8	8	3
decay 1 rate	1	7	9	5
decay 1 level	12	12	12	0
decay 2 rate	0	1	0	5
release rate	4	4	4	4
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	3	1	3	1
level	50	64	50	64
ams on/off	ON	ON	ON	OFF
sens eg bias	0	0	0	0
key vel	2	1	4	1

voice name: WineGlass\*

algorithm no. 5  
feedback 0

LFO  
 waveform sync OFF  
 speed 8 delay 0  
 amp mod depth 34 sens 3  
 pitch mod depth 8 sens 3

FUNCTION  
 mode POLY mid C = C 3  
 portamento FULL rev rate 5  
 porta time 0 pb range 4  
 vol 99 pitch 0  
 pitch 0 amp 0  
 amp 0 eg bias 96  
 pitch 50 p bias +0  
 amp 0

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	99	84	75
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	22	22	10	31
freq. fine	0	0	8	8
detune	+2	-2	+2	-2
-1-	-2-	-3-	-4-	
7.00	7.00	3.50	10.50	

ENVELOPE	op1	op2	op3	op4
attack rate	14	19	31	31
decay 1 rate	15	11	9	10
decay 1 level	13	10	10	11
decay 2 rate	12	12	12	11
release rate	7	7	6	6
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	0	0	1	0
level	0	0	0	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	0	2	2	2

voice name: ParisDream

algorithm no. 7  
feedback 7

LFO  
 waveform sync OFF  
 speed 26 delay 0  
 amp mod depth 0 sens 0  
 pitch mod depth 5 sens 4

FUNCTION  
 mode POLY mid C = C 2  
 portamento FULL rev rate 0  
 porta time 0 pb range 1  
 vol 99 pitch 0  
 pitch 0 amp 0  
 amp 0 eg bias 0  
 pitch 50 p bias +0  
 amp 0



# TX81Z

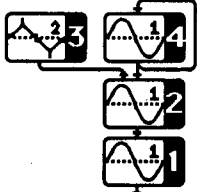
ParisDream,  
PetalPiano, and  
Bass Beast.  
Three New  
TX81Z Voices  
By Dan Van  
Oss.

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	59	87	67
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	0	0	0	4
freq. fine	0	0	0	0
detune	+2	-2	-3	+2
-1-	-2-	-3-	-4-	
0.50	0.50	0.50	1.00	


ENVELOPE	op1	op2	op3	op4
attack rate	19	19	29	29
decay 1 rate	5	6	8	8
decay 1 level	3	10	10	9
decay 2 rate	7	7	7	7
release rate	6	6	6	6
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	1	1	0	0
level	0	0	0	87
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	2	0	0	7

voice name: PetalPiano

algorithm no. 2 

feedback 0

LFO	op1	op2	op3	op4
waveform		sync	OFF	
speed	28	delay	8	
amp mod depth	0	sens	0	
pitch mod depth	4	sens	3	

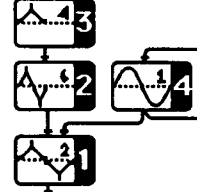
FUNCTION	op1	op2	op3	op4
mode	POLY	mid C =	C 4	
portamento	FULL	rev rate	6	
porta time	0	pb range	2	
vol	99	pitch	0	
pitch	0	amp	0	
amp	0	eg bias	0	
pitch	50	p bias	+0	
amp	0			

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	97	74	90	99
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	0	8	13	0
freq. fine	0	0	0	0
detune	-2	-1	+3	+1
-1-	-2-	-3-	-4-	
0.50	2.00	4.00	0.50	


ENVELOPE	op1	op2	op3	op4
attack rate	16	11	3	9
decay 1 rate	5	5	8	9
decay 1 level	13	15	8	10
decay 2 rate	3	4	3	3
release rate	6	3	5	5
eg shift	OFF	48	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	0	0	1	0
level	0	0	56	34
ams on/off	OFF	OFF	ON	OFF
sens eg bias	0	0	0	0
key vel	0	2	2	2

voice name: Bass Beast

algorithm no. 3 

feedback 4

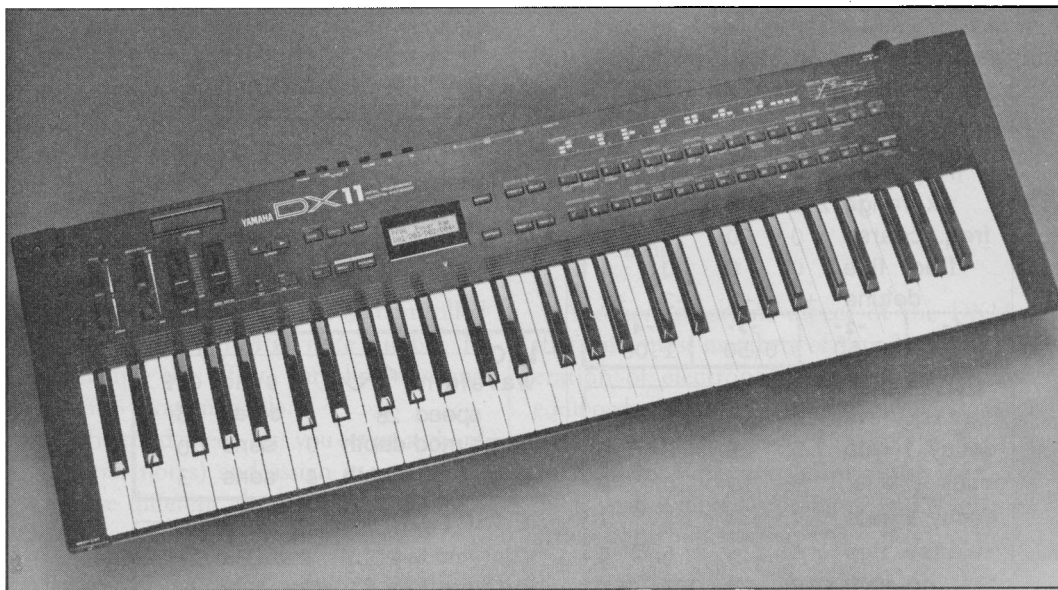
LFO	op1	op2	op3	op4
waveform		sync	ON	
speed	28	delay	6	
amp mod depth	6	sens	3	
pitch mod depth	4	sens	4	

FUNCTION	op1	op2	op3	op4
mode	POLY	mid C =	C 3	
portamento	FULL	rev rate	0	
porta time	0	pb range	2	
vol	99	pitch	0	
pitch	0	amp	0	
amp	0	eg bias	0	
pitch	50	p bias	+0	
amp	0			

These TX81Z  
voices and per-  
formances can  
also be loaded  
into the new  
DX11 FM digi-  
tal synthesizer.

# DX11

An Introduction To  
Yamaha's New  
Multi-Timbral  
FM Digital Syn-  
thesizer. By  
Tom Darter.



DX11 FM digital synthesizer.

**T**HE DX11 IS Yamaha's first fully multi-timbral keyboard synthesizer. It combines all of the features of the popular TX81Z FM digital tone generator with a 61-note, velocity-sensitive, aftertouch-equipped keyboard. Also, like most Yamaha keyboard synthesizers, the DX11 has both a Pitch Bend wheel and a Modulation wheel, plus jacks that allow connection of a Breath Controller, a Foot Controller, a Footswitch, and a volume pedal.

## The DX11 And The TX81Z

The basic layout of both instruments is the same. Like the TX81Z, the DX11 has a 4-operator, 8-algorithm FM voice architecture. In addition, the TX81Z and DX11 are the only Yamaha FM digital synthesizers that have waveforms other than sine waves. Both give you a choice of eight different waveforms, offering a greater richness of timbre than ever before available in a 4-operator unit. (See the accompanying diagram.)

Since the DX11 has a full set of front panel controls, all editing and utility features are much easier to access than they are on the rack-mount TX81Z. In addition, the DX11 offers new parameters, new editing features, and expanded memory options. (For more information on the basic layout of the TX81Z, see the February 1987 issue of *AfterTouch*.)

## New Features

The DX11 offers one major new voice feature

and one major new editing feature as additions to the basic architecture made popular by the TX81Z.

The **Pitch Envelope Generator** lets you change the overall pitch of the sound over time. There are settings for three Rates and three (pitch) Levels. Although not as complex, this pitch envelope generator is patterned after those featured on the DX7 and DX7 II.

The **Quick Edit** section allows you to make overall adjustments in the sound of a voice. There are four basic parameters:

- Attack
- Release
- Volume
- Brilliance

*Attack* and *Release* adjust the Attack Rate, Decay 1 Rate, and Release rate of all operators equally. *Volume* adjusts the Output Level of all carriers. *Brilliance* adjusts the Output Level and Decay 1 Rate of all modulators.

## Memory

The internal memory of the DX11 hold 128 voices in permanent ROM (Read-only memory), plus space for another 32 user-programmable voices in RAM (random-access memory). To expand your voice library quickly, you can also load voices from a TX81Z, DX21, DX27, or DX100 into the DX11. Since voices from the DX21 family use only sine waves, you can load them into the DX11 and experiment

with different waveforms to enrich the basic sounds.

In addition, the DX11 has a cartridge port (unlike the TX81Z), which houses a Yamaha RAM4 cartridge. This gives you access to an additional 64 voices and 64 performance memories.

### Effects

Like the TX81Z, the DX11 offers three sets of effects: Delay, Pan, and Chord. These are all edited in the Single Utility mode.

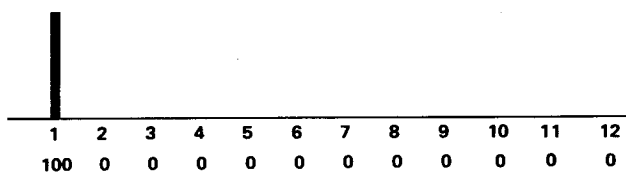
For the *Delay* effect, the delay time, feedback

*Continued on page 12*

*This chart shows the harmonic content for each of the DX11's eight available waveforms. The amplitude (volume) of each harmonic partial is given as a percentage of the fundamental.*

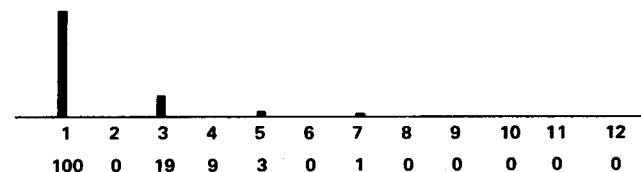
#### W1

Sine wave. Only fundamental.



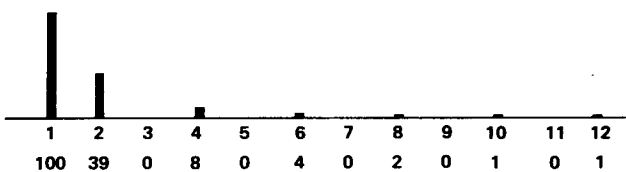
#### W2

Odd partials somewhat like a square wave



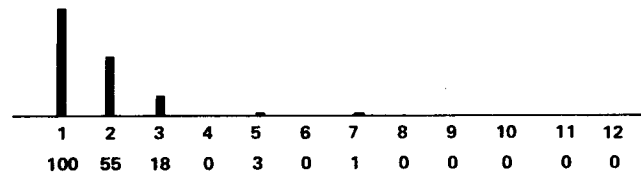
#### W3

Even partials.



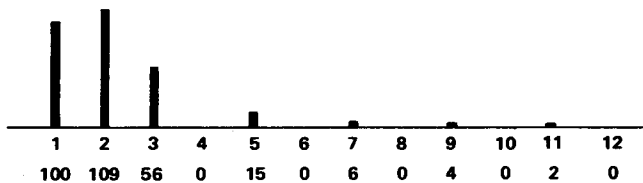
#### W4

Partial 2, 3, 5, 7, .....



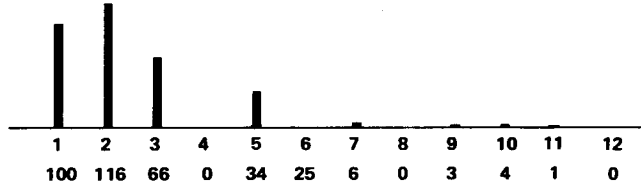
#### W5

Partial 2, 3, 5, 7, 9 .... (stronger partials than W4)  
Second partial is stronger than fundamental.



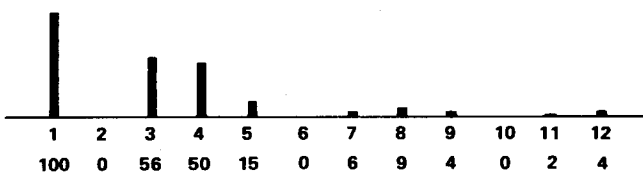
#### W6

Partial 2, 3, 5, 6, 7, 9, 10, 11, ... (no 4, 8, ....)  
Second partial is stronger than fundamental.



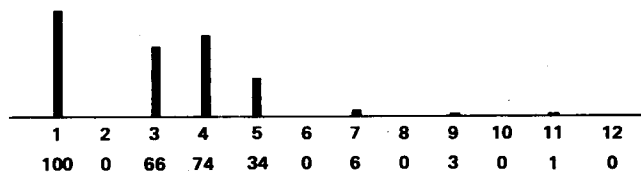
#### W7

Partial 3, 4, 5, 7, 8, 9, ... (no 2, 6, 10, ....)



#### W8

Partial 3, 4, 5, 7, 8, 11, ... (no 2, 6, 8, 10 ....)



# DX11 *Continued*

amount, effect level, and pitch shift amount are all programmable. Although this effect sounds like a digital delay, it actually creates the delay effect by retriggering the voice at a lower velocity. This creates an extremely clean-sounding delay. The pitch shift feature can be set in semitone increments, so that the voice will be transposed every time it is echoed.

The *Pan* effect moves the voice between output I and output II. Panning can be controlled by the LFO, velocity, or MIDI note number. To further enhance the effect, pan direction and depth are also programmable.

*Chord*, the third effect, lets you set up a chord (of up to four notes) and assign it to a single note. Twelve different chords can be defined, one for each note in the chromatic scale.

The DX11 has memory to store four settings for each of these three effects, for a total of twelve possibilities. Each performance memory can use one of these effect memories. The Delay and Chord effects only operate on the first instrument in a performance.

## Microtuning

Another important aspect of the DX11 is that, like most members of Yamaha's new generation of electronic instruments, it comes equipped with both preset and programmable microtuning data.

On many electronic instruments, only standard equal-tempered tuning is available. Most acoustic instruments don't have this limitation.

*This chart shows the 128 preset voices supplied with the DX11 in its ROM memory.*

BANK A		BANK B		BANK C		BANK D	
1	Syn.Str 1	1	DX7 EP	1	Strings 1	1	Bass Drum 1
2	Syn.Str 2	2	Old Rose	2	Strings 2	2	Bass Drum 2
3	Sy.Brass 1	3	E.Piano 1	3	Ensemble 1	3	Snare 1
4	Sy.Brass 2	4	E.Piano 2	4	Ensemble 2	4	Snare 2
5	Sy.Brass 3	5	Grand PF	5	Violin 1	5	Tom 1
6	Sy.Brass 4	6	Upright	6	Violin 2	6	Tom 2
7	Sy.Ensem. 1	7	Flamenco	7	Cello 1	7	Tom 3
8	Sy.Ensem. 2	8	A.Guitar	8	Cello 2	8	Tom 4
9	Sy.Ensem. 3	9	F.Guitar	9	Brass 1	9	"Hi!" Hat!
10	Sy.Ensem. 4	10	Banjo	10	Brass 2	10	Cow Bell
11	Sy.Ensem. 5	11	E.Guitar	11	Trumpet 1	11	Agogo Bell
12	Sy.Perc. 1	12	Mute Gtr	12	Trumpet 2	12	Wood Block
13	Sy.Perc. 2	13	Harp 1	13	Trombone	13	Castanet
14	Sy.Perc. 3	14	Harp 2	14	Horn	14	SyBon
15	Sy.Perc. 4	15	Harpsichrd	15	Tuba	15	BoConga
16	Sy.Bass 1	16	Clavi	16	Sax 1	16	Tom-Pany
17	Sy.Bass 2	17	Koto	17	Sax 2	17	SynGameran
18	Sy.Bass 3	18	Syamisen	18	Wood Wind	18	Mouse-Tom
19	Sy.Bass 4	19	Marimba	19	Clarinet 1	19	Carnivall
20	Sy.Bass 5	20	Xylophone	20	Clarinet 2	20	"Air" imba
21	Sy.Organ 1	21	Vibe.	21	Oboe	21	SplashClav
22	Sy.Organ 2	22	Glocken	22	Flute 1	22	BamboBlock
23	Sy.Solo 1	23	Tube Bell	23	Flute.2	23	Terror!
24	Sy.Solo 2	24	Toy Piano	24	Recorder	24	Wind Voice
25	Sy.Solo 3	25	Pizz. 1	25	Harmonica	25	GuiRoach::
26	Sy.Solo 4	26	Pizz. 2	26	E.Organ 1	26	Space BUG?
27	Sy.Voice 1	27	E.Bass 1	27	E.Organ 2	27	Passing By
28	Sy.Voice 2	28	E.Bass 2	28	E.Organ 3	28	Earthquake
29	Sy.Decay 1	29	E.Bass 3	29	E.Organ 4	29	TAP TAP<<<
30	Sy.Decay 2	30	Wood Bass	30	P.Organ 1	30	Space Gong
31	Sy.Sitar	31	Bell	31	P.Organ 2	31	RADIATION?
32	Sy.AfrTch	32	Steel Drum	32	Accordion	32	White Blow

For instance, when string players perform as a section, they often deviate from strict equal-tempered tuning. You can use the preset microtuning scales to imitate these tuning effects, or use the programmable memory locations to experiment with new tuning possibilities.

The list price of the DX11 is \$995.00. Since it combines the full multi-timbral capabilities of the TX81Z with the expressive control of a velocity-sensitive keyboard, it offers a powerful package that should be attractive to a wide range of electronic musicians.

*This chart outlines the contents of the 32 Performances supplied in the DX11's memory when it is shipped from the factory. Before storing your own performances, you may want to save this data in an available storage medium, since it is not part of the instrument's ROM memory.*

### Factory-set Performance Data

When the DX11 is shipped, the performance memories contain the following data.

1.	BRASS NO1!	A03 Sy.Brass 1 doubled.
2.	Tight BASS	A16 synth bass doubled, B28 electric bass doubled.
3.	Glocken	Glocken with pitch shift delay effect, rising in perfect 4ths.
4.	Analog Str	Press down on the keyboard to move the stereo image.
5.	Hit 1 Key!	A four-note chord for each note, in two banks---one using the chord effect, and the other using note shift.
6.	Power Rap	Noisy drums arranged across the keyboard.
7.	EP/Flute	Electric piano (6-notes) and flute (2-notes), split at G3.
8.	Wind Band	This uses alternate assign mode. Various wind instruments alternate.
9.	PROGRESSIV	Horn and synth strings (octave down)
10.	Syn Lead	Single voice layered for solos. Uses short delay effect.
11.	LyricSplit	Classic guitar and oboe split at G3.
12.	Church	Two pipe organs layered.
13.	Rotary Str	Strings with pan effect.
14.	Sax Solo	Two types of sax, two of each layered on each key. 2-note polyphonic.
15.	Floating?	Pan effect. Nice for sequencer arpeggios.
16.	Brastrings	Brass and strings.
17.	Rich Str	Smooth strings.
18.	Orchestra	"Orchestra hit" with brass, strings and timpani. Single-note only.
19.	FolkGuitar	Dual acoustic guitars.
20.	Synth BASS	Two types of synth bass, four of each on every note. Single-note only.
21.	Latin Perc	Various latin percussion arranged over the keyboard.
22.	Rich Horns	Stacked and detuned horns.
23.	Magic Slam	Delay effect. Bass drum on C2, snare on G4. Try the aftertouch.
24.	Tension	Chord effect, with high-tension chord.
25.	Honky Tonk	Alternate assign to mistune alternate notes.
26.	B(R)ASS	Brass or Bass?
27.	"Fantasy"	Synth strings with white noise as you raise the modulation wheel.
28.	Power Solo	Short delay effect. 2-note polyphonic.
29.	HeavyBrass	Stacked voices for depth.
30.	Blues Time	C1-F2 has normally tuned bass. White keys G2-C6 play the blues scale. Black keys above F2 play a jazzy chord C,F,G.
31.	Brass Band	Trumpet and trombone.
32.	I'm ZOMBI	Sound effects and percussion arranged across the keyboard.

# Hot Tips

**Reader Tips  
For The RX11,  
REV7, FB-01,  
SPX90, MEP4,  
And More.**

*REV7 digital reverberator.*



## **Enhancing Synthesizer Sounds With The REV7**

**By Mark Hannah**

As many of you know by now, the Yamaha REV7 digital reverberator has an almost endless number of possibilities for use. Here are a few of the tricks I use.

If you don't already have a digital synthesizer, you can get an analog synthesizer to sound like one by processing it through the REV7. For example, to get that funky, popping bass sound, try the following: First choose a good bass sound on the analog synth. Next, set the REV7 on preset #22 (Snare), and set the front panel controls as follows:

Mix Control	50%–75%	(according to taste)
EQ	ON	
EQ LOW Freq	100	(2 o'clock)
EQ LOW Level	-6	(10 o'clock)
EQ MID Freq	1000	(center)
EQ MID Level	+6	(2 o'clock)
EQ HIGH Freq	6000	(center)
EQ HIGH Level	+6	(2 o'clock)

With the REV7 set this way, the analog bass patch has a whole new sound.

Another trick for use with the REV7 and a synthesizer involves getting a realistic guitar sound from a keyboard. Set your synth on a bright brass voice, and adjust the decay of the synth voice to match the decay of an electric guitar. (It also helps to run the sound from the synth through a distortion pedal and a compressor.) For a real fat rhythm sound, set the REV7 to preset #24 (Reverse Gated Reverb); set the EQ as desired, and set the Mix at 50%. Another good choice is preset #5 (Early Reflections 1). You will find that, with preset #24, playing octaves for rhythm works best, while preset #5 works well with chords as well as octaves.

## **Creating A "Quiet" Level For RX Series Rhythm Units, Plus Other RX Tips**

**By Gints Klimanis**

The sounds on the RX11, RX15, and RX21 drum machines have both an Instrument Level and an Accent Level. Most users set the instrument levels of the sounds at the optimum volume levels, and only use the accent function to make the sounds louder.

Although the user cannot change the Accent function to reduce volume, he or she can simulate this effect in a roundabout fashion. The desired "quiet" volume should be the basic Instrument Level, and the Accent Level should equal the "optimum" level.

To optimize your RX machine, adjust the relative instrument volume levels by ear until your kit sounds good, but make sure that at least one instrument volume level is at its maximum value to get a good signal-to-noise ratio. Write down these values. Find the desired "quiet" level by decreasing each Instrument Level. Then, use the Accent Level to adjust the accent value for each instrument until the numerical sum of the decreased Instrument Level and the Accent Level equals the original optimum level. Optimum levels are played with the Accent switch down, and quiet levels are played without the Accent switch. The settings will vary with the application, but the difference between them should be noticeable.

For many applications, the closed hi-hat quiet and accent levels at 01 are a little louder than I would like. Since I only have the facilities to use one mix output, I further decrease the closed hi-hat level by panning most of it into the unused mix output. The level decrease to the last position before full pan is significantly greater than the change between the other pan positions. At this pan value, the closed hi-hat has a very usable and easily adjustable instrument level range.

Precise level adjustment over a usable limited range is more useful than coarse level adjustment over an unused maximum range. Every instrument should have its range reduced if its accented level never need the provided maximum level.

A different application for the Accent function is changing the relative levels for the sounds in performance. For example, one song may require a quiet bass drum and a prominent

snare, while the next may need a pounding bass drum with the same sound, plus the same snare. This bass drum level change could be done automatically by setting the appropriate quiet level for the first song, and programming an accented bass drum for the entire second song. This method saves the second RX11 bass drum pad for a different sound and yet another level. If the same pattern is used in several songs and if memory permits, it would be worthwhile to copy the pattern with the accented instruments into another location.

When using the RX11 Heavy Snare for your main snare, a repeated snare fill may be enhanced by assigning the Medium Snare sound to the other SD pad and alternating between the two sounds. At the proper quiet and accent levels, this two-snare combination will not sound like a machine gun, because the minor differences between the Heavy and Medium snares will simulate a drummer's alternating stick fills.

An easy method to modify RX11 claps, snares, and so on is to quickly retrigger the sound several times. First, record the part. Set Quantize on OFF, and carefully overdub several times, trying to hit the original dub right on unless you are going for a specific groove shift. Chances are excellent that you will not be perfect, and well-placed retriggers will sound better. A shift from quiet to accent and vice-versa is interesting for moderate to extended retriggers with large quiet/accent level differences and at various quantize values. In addition, experiment with layering different sounds.

If a few retriggered strikes are bad, stay in Real Time Record (with Quantize OFF), and erase only the incorrect ones by pressing and holding Clear and pressing and holding that instrument pad just before the hit. Release the held instrument immediately afterward, or the rest of the part for that instrument will be erased as well.

Although not mentioned in the manual, RX drum machines can be programmed to perform nested repeats. Nested repeats reduce redundant programming. For example, enter Song Edit mode and enter these pattern numbers:

Part	Pattern
000	00
001	01
002	02



RX11 digital rhythm programmer.

Now, after Part 002, program a Loop repeat (Loop1) as follows:

Repeat to	# of Times
001	3

When you have done so, the display will show the song part and pattern that is to begin the repeat. Now, after Part 002, program another Loop repeat (Loop2) as follows:

Repeat to	# of Times
000	3

Advance the song by two steps to verify that the Loop2 repeat has been placed after the Loop1 repeat. It is intuitive to program the Loop2 repeat and "insert" (not Insert) the Loop1 repeat, but the RX will not yield the correct order when programmed in this way.

To automate your Song tempo changes, place a very short blank measure at the end of each song with the appropriate tempo change. To prevent any accidents, keep the tempo slider either all the way down or all the way up, and set the initial tempo using the increment/decrement switches.

A quick way to "rewind" to the beginning of a song in Song Edit mode is to hit the Edit switch twice.

When an RX11 receives MIDI clock data from a Roland TR909, the RX11 automatically switches to the MIDI clock sync. There is no need to set this option manually. The RX11

*Continued on page 16*

# Hot Tips *Continued*

responds to its Local Start Stop commands only when there is no MIDI clock data at its MIDI input.

. . . .

## **Camber Chimes and Impossible Glissandos Using The RX17 And The FB-01**

**By Martin Willett**

I once needed to replicate the sound of camber chimes (the percussion instrument made up of many hanging rods, often played in a rapid glissando, ascending or descending in pitch), but found that when either miking the real thing or trying to run a finger up the keyboard, I could never be precise enough.

Here's a way to obtain a nice, bright glissando chime sound and be able to keep control over its exact length and tempo, using the RX17 and the FB-01:

First, in "dual" configuration mode on the FB-01, set voice #1 as 3/20 (Glocken) and voice #2 as 6/36 (Glockn2); set the octave at +1 for both instruments, and set the pan and detune as desired.

Set MIDI receive on the FB-01, and MIDI transmit on the RX17 to the same channel, and bring down the audio output from the RX17 (we'll just be using the FB-01 audio). Now, write a pattern in Step Write mode by simply hitting the instrument buttons in order of pitch, ascending or descending as desired. (Remember, you'll have to hit each instrument key twice in Step Write mode; once to designate the instrument, and once to play it.) The May 1987 issue of *AfterTouch* lists the factory preset MIDI key number assignments. If you are using these key numbers, you'll have to toggle between "upper" and "lower" a few times.

Now that you have a steady pattern, you can use it as is, or use it with an accelerando pattern (or even increase the tempo manually on the fly) for a more realistic sound.

This technique, used with various FB-01 voices—especially in the keyboard bank—gives you the ability to perform "impossible" glissandos at breathtaking speed. And, if your basement or garage studio lacks crickets of its own, call up voices 7/31 (Huffsyn) and 7/48 (SinceWav) and up the tempo—instant insects!

At any rate, I've found it handy to retain one or two of these ascending or descending glissando patterns in the RX17's memory.

. . . .

## **Setting Up Brass Sounds With the DX7 and FB-01**

**By Michael Le**

I own a DX7 and an FB-01, and I have recently discovered a perfect way of stacking up a couple of brass patches from these two instruments to emulate the rich harmonic texture of a brass ensemble.

First, I use a patch called Lead Brass from side A of DX7 ROM cartridge 4 (Orchestral & Percussive Group). Next, I combine this patch with two additional brass patches from the FB-01: I call up the "single" configuration on the FB-01 and call up these patches with the following settings:

### **Instrument #1:**

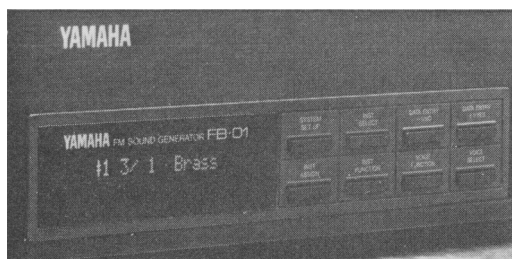
Voice Bank 5, #12: HardBr4  
Notes: 4  
MIDI channel: 1  
Out level: 105  
Octave: +2  
LFO: on  
Detune: 0

### **Instrument #2:**

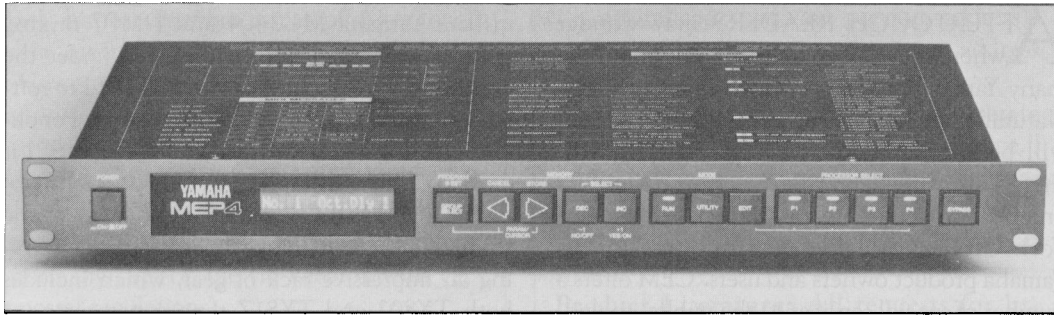
Voice Bank 5, #10: HardBr2  
Notes: 4  
MIDI channel: 1  
Out level: 97  
Octave: 0  
LFO: on  
Detune: 0

After I've entered the system settings above, I am able to play three different kinds of brass instruments simultaneously from my DX7 keyboard, and can always use the volume slider on the DX7 to control its volume and set the bal-

FB-01 FM digital tone module.







MEP4 MIDI event processor.

ance to suit my taste.

I hope you have as much fun with this patch as I do.

\* \* \* \*

### New Uses For The MEP4

By John Honig

I recently purchased a Yamaha MEP4, and I have found it to be very much like the joke about the closet space—once you have it, you can find more and more uses for it. I have a remote keyboard controller going into the MEP4's MIDI IN, and I have an analog synthesizer, a TX7, and a TX81Z connected to three of the MEP4's MIDI OUTs. On many tunes, I like to kick in one of the keyboards at a certain velocity level (a velocity switch). Generally, the way to do this is to limit the velocity parameter in the Data Modifier section of a Processor, to select the range of key velocities a given tone generator is to accept. For example, if I want a power brass section voice to come in only on strongly played notes, I would have the following commands in the Data Modifier portion of the Processor controlling that voice:

```
0: MSG: 9n.xx.yy
1: LIM: xx,50:D:7F
```

The problem with this setup is that any note with velocity greater than 50 will remain on (the dreaded MIDI stuck-note syndrome), because most manufacturers (Yamaha included) use a 9n.xx.00 (Note On with velocity 00) as a Note Off command instead of 8n.xx.yy. To get the note to turn off, I would have to use another processor, go into the Message Filter, and filter out everything except Note Off data. Since I would rather not dedicate an entire processor just to turn off occasional notes, I've found a

different way to create a velocity switch and use only one processor. I enter the following in the Data Modifier section of the relevant Processor:

```
0: MSG: 9n.xx.yy
1: OFS: yy,v = -50
```

By pure luck(?), it happens that a Note On with negative velocity is just as good as a Note Off, and this technique only uses one processor, freeing up another to do more interesting things like delays, adding harmonics, and so on. Like most good things in life, there is a slight catch here. If you use this technique for a voice, you find that hitting the keyboard at the velocity to which you are accustomed will not give you the results to which you are accustomed. One fix is to put in another line in the Data Modifier:

```
2: EXP: yy,R = 2 (or 4)
```

It then may be hard to tell the difference between the velocity you are now required to use and the velocity you normally use.

Another interesting feature about negative velocity allows you to make controlled duration echoes (or delays). Pick out a bell-like voice or any voice that has a decay independent of Note Off, and try setting up the Data Modifier as follows:

```
0: MSG: 9n.xx.yy
1: OFS: yy,V = -40
2: OFS: yy,V = 40
```

Since the processor assigns yy=00 (I think) to negative velocity data, Command 2 will give a Note On even when the key is struck with a velocity less than 40. Command 2 will also give a Note On command when the key is released. By varying the OFS parameters, you can adjust the relative balance between the primary note and the echo.

*Continued on page 19*

# FM Studies in NY

## Information On A New Educa- tional Resource Located In New York City.

**A**FTERTOUCHE READERS may wonder where they can go to learn more about the many Yamaha products covered in these pages. Naturally, the nearest authorized Yamaha dealer will be a good source for information. Now there's also the Center for Electronic Music, a unique non-profit organization based in New York City—a valuable new resource for all Yamaha product owners and users. CEM offers a number of special services to the public, including a wide variety of regularly scheduled seminars and workshops on a broad range of topics, from "Introduction to MIDI" right on up to "Digital FM Programming" and "Sampling and Samplers." What's more, you can stop by and simply work with any of the products in the facility on your own, for a nominal charge. The Center has an impressive collection of state-of-the-art synthesizer and MIDI equipment, including many Yamaha products.

Special one-day seminars in the programming and use of the Yamaha DX7 II FD/D, TX81Z, and WX7 MIDI wind controller are presented each month, and private instruction is also available. The Center also provides consultations—both on and off premises—for the user who isn't sure what to buy, or who needs assistance with his or her setup. In addition, a free manufacturer's clinic is also presented each month. Recently, Yamaha Product Specialist Phil Clendenon hosted an entertaining evening of music and demonstration of the latest Yamaha MIDI products before an appreciative audience.

CEM's enthusiastic and well-trained staff—all working professionals—are also constantly involved in a number of research projects. For example, they have recently completed a comprehensive survey of MIDI software for four major computers; this study is currently available as the "Compact Guide to MIDI Software" series of books, from AMSCO Publications.

In the large and comfortable classroom area, clients can work on their own or with staff assistance with any piece or pieces of equipment, one at a time or configured into a custom system. Preproduction services are also available—for instance, many CEM clients choose to create demo tapes with the complete Yamaha "home studio" workstation (consisting of a DX100 synthesizer, QX5 sequencer, RX17 drum machine, and MT2X 4-track cassette deck). The CEM facility also includes an impressive state-of-the-art 8-track recording studio, which

utilizes Yamaha MC2404 and DMP7 mixing boards, with the DMP7 automated under the control of a QX3 sequencer and DMP7 Pro software running on a Macintosh computer. For clients creating audio for video, a Yamaha MSS1 is used to allow complete synchronization of SMPTE and MIDI signals. At the heart of the studio is a KX88 MIDI keyboard controller driving an impressive rack of gear, which includes both TX802 and TX81Z tone generators.

The founder and director of CEM is Howard Massey, an educator, composer, producer/engineer, and author of numerous articles and books on the subject of music technology (including *The Complete DX7* and *The Complete DX7 II*). He explains, "the basic philosophy here is to try and make the technology accessible to the public at large. Our focus is education, and, since we're not a store, we can offer clients complete, objective, unbiased information about the state of the art and the best products out there. We like to think of ourselves as being a center for information—a place where anyone can stop in and learn about this complex and rapidly expanding field in a comfortable, creative environment."

He continues, "Yamaha has long been on the leading edge of music technology, and so it was very important to us to have their support. We're very glad that our clients have the opportunity to work with so many new Yamaha products, and to see for themselves just how well-designed and user-friendly these products really are. And, as the state of the art inevitably advances, we plan on keeping pace by continually featuring the newest and best instruments available."

What lies ahead for CEM? During the coming year, they plan on implementing three new programs: 1) an outreach to the disabled program that will provide access to equipment to disabled individuals in their homes and in hospitals; 2) an artist-in-residency program that will encourage outside artists to realize their artistic goals at the CEM facility; and 3) a scholarship program that will help to further the organization's educational activities. A regular lecture series is also planned, where guest speakers—experts in the field—will be invited to speak on various topics of interest.

For more information about CEM, write to the Center for Electronic Music, 432 Park Avenue South, New York, NY 10016; or call 212-686-1755.

# Hot Tips

Continued from page 17

## A Detune Flange Program For the SPX90

By P.J. Otto

I have discovered a way to create flange effects using the Pitch Change A program (#21) of the SPX90. The difference between this effect and regular flange is that the sweep will appear to rise or fall continuously, depending on how the FINE parameter is set. Also, the effect is retriggered by each new note. Start with Pitch Change A program, and set the values as follows:

PITCH: 0  
FINE: 1 to 4 or -1 to -4  
DELAY: 0.1  
F.B. GAIN: 25% to 50%  
BALANCE: 50%

## An Electric Drums Program For The SPX90

By P.J. Otto

With this patch, you can use a rhythm machine or even real drums to simulate the popular sound of synthesized drums. The patch uses the PITCH CHANGE A program (#21) to drop the pitch of a percussion sound quickly. Start with the Pitch Change A program, and enter the following values:

PITCH: -2  
FINE: 0  
DELAY: 40.0  
F.B. GAIN: 60%  
BALANCE: 100%

Changing the PITCH to +2 will reverse the direction of the effect.

**LET US HEAR FROM YOU!** We want AfterTouch to be an information network for all users of Yamaha professional musical products, so please join in. We're looking for many different kinds of material.

Have you created an incredible patch for the DX7 II, the DX100, or any of the other members of the Yamaha FM digital synthesizer family? How about a program for the CX5M II music computer or a great pattern or voice for the RX5? Send in your patches, programs, and patterns. If we use your material, we'll give you full credit plus \$25.00 for each item used.

Have you discovered a trick that increases the musical flexibility of one of the Yamaha AfterTouch products? Send it in to our "Hot Tips" column. If we use your hot tip, you'll receive full credit plus a check for \$25.00.

Have you developed a new approach to one of the Yamaha AfterTouch instruments, or have you discovered an important secret regarding their use? Put it on paper and send it to us. Don't worry about your writing style—just get the information down. If we decide to use your material as a full article in AfterTouch, we'll write it up, put your name on it, and send you a check for \$100.00. (An AfterTouch article always covers at least one magazine page—which translates to at least four double-spaced pages of typescript.)

By the way, we cannot assume liability for the safe return of unused ideas, patches, or manuscripts. We will only be able to return unused material if you enclose a self-addressed, stamped envelope with your submission.

If you just have a question regarding the use of Yamaha professional musical products, send it along too, and we'll do our best to answer it in the pages of AfterTouch. (We regret that we won't be able to answer questions through the mail, but we will use all of your questions to guide us in our choice of future topics.)

Finally, if you just want to get something off your chest, or if you'd like to establish direct contact with other Yamaha AfterTouch product users, send in something to our "Letters" column. We'll do our best to print names, addresses, and phone numbers of all those who are interested in starting up regional users groups.

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