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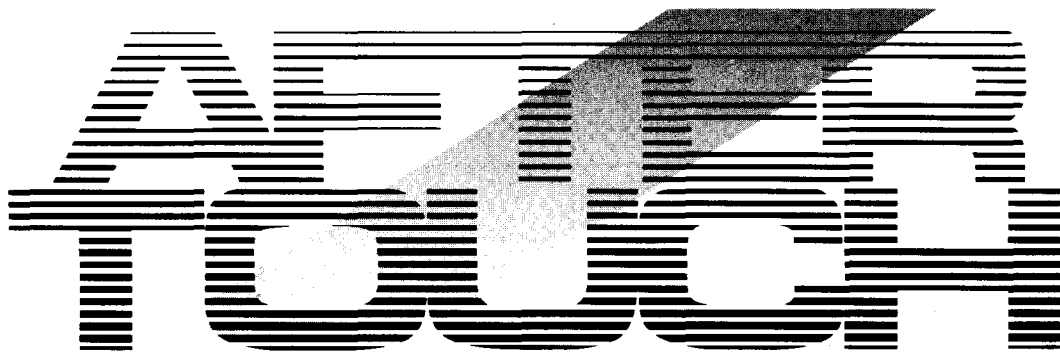
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RX5

A New RX5 Voice Edit By John M. Lehmkuhl.

Notes:

*Adjust the Bend Range down
even more for a more
European type of sound.*

Voice Name: Ultra Snare		Origin: Int-SD 2	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	+0400 cent
03/1	Attack Rate	1 ~ 99	84
03/2	Decay 1 Rate	1 ~ 99	99
03/3	Decay 1 Level	1 ~ 60	60
03/4	Decay 2 Rate	1 ~ 99	59
03/5	Release Rate	1 ~ 99	60
03/6	Gate Time	100 ~ 6500	6500 ms
04/1	Bend Rate	-60 ~ 60	21
04/2	Bend Range	1 ~ 60	-03
05	Inst Level	0 ~ 31	29
06	Sound Loop	OFF / ON	ON

RX5

A New RX5 Voice Edit By John M. Lehmkuhl.

Notes:

*This is close in sound to the
Roland TR-808 Hi Hats.
To get "ELhi-hat/open,"
copy the "ELhi-hat/closed"
voice to one of the Copy loca-
tions, use Key Assign Job 01
to assign the Copy to the key
above the "ELhi-hat/closed,"
and then use Key Assign Job
2/4 to change the Decay on
the Copy to "38,39
(-15)."*

Voice Name: ELhi-hat/closed		Origin: Crt-Cstnt	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	+2300 cent
03/1	Attack Rate	1 ~ 99	99
03/2	Decay 1 Rate	1 ~ 99	53
03/3	Decay 1 Level	1 ~ 60	01
03/4	Decay 2 Rate	1 ~ 99	54
03/5	Release Rate	1 ~ 99	60
03/6	Gate Time	100 ~ 6500	6500 ms
04/1	Bend Rate	-60 ~ 60	06
04/2	Bend Range	1 ~ 60	+60
05	Inst Level	0 ~ 31	29
06	Sound Loop	OFF / ON	ON

RX5

A New RX5
Voice Edit
By John M.
Lehmkuhl.

Notes:

*Adjust the Decay 1 Rate to
control the length of the Gate.*

Voice Name: Mega-Gated BD		Origin: Int-BD 2	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	-1150 cent
03/1	Attack Rate	1 ~ 99	95
03/2	Decay 1 Rate	1 ~ 99	15
03/3	Decay 1 Level	1 ~ 60	01
03/4	Decay 2 Rate	1 ~ 99	01
03/5	Release Rate	1 ~ 99	48
03/6	Gate Time	100 ~ 6500	0150 ms
04/1	Bend Rate	-60 ~ 60	31
04/2	Bend Range	1 ~ 60	+02
05	Inst Level	0 ~ 31	29
06	Sound Loop	OFF / ON	ON

RX5

A New RX5
Voice Edit
By John M.
Lehmkuhl.

Notes:

*Adjust the Decay 2 Rate to
change the length and pitch of
the "ZAP."*

Voice Name: Techno-ZAP		Origin: Crt-China	
JOB #	PARAMETER	RANGE	NEW VALUE
02	Pitch	-3600 ~ 2400	+2400 cent
03/1	Attack Rate	1 ~ 99	99
03/2	Decay 1 Rate	1 ~ 99	34
03/3	Decay 1 Level	1 ~ 60	59
03/4	Decay 2 Rate	1 ~ 99	44
03/5	Release Rate	1 ~ 99	60
03/6	Gate Time	100 ~ 6500	6500 ms
04/1	Bend Rate	-60 ~ 60	12
04/2	Bend Range	1 ~ 60	-39
05	Inst Level	0 ~ 31	29
06	Sound Loop	OFF / ON	ON

DX7

3 INSECTS. A New DX7 Voice By Tom Bajores.

Notes:

The lowest key gives insect 1 (drone), middle C gives insect 2 (chirp), and the highest key gives insect 3 (buzz).

If properly performed, this combination yields a convincing imitation of a summer night in the wilderness.

SINE	13	0	0	99	ON	0
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

R1	R2	R3	R4	C3
99	99	99	99	
L1	L2	L3	L4	KEY TRANSPOSE
50	50	50	50	ON
PITCH ENVELOPE				OSC. SYNC

POLY	2	0	OFF	OFF	0
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
PITCH BEND			PORTAMENTO		

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	0	OFF	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	0	OFF	OFF	OFF

FREQUENCY	DETUNE	AMS		
27.16Hz	0	1		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	47	99	99	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	0	
R	-L	R	0	
	A-1			
OP#	OUTPUT LEVEL	VELOCITY		
2	90	0		

FREQUENCY	DETUNE	AMS		
229.1Hz	0	1		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	99	99	99	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	0	
R	-L	R	0	
	A-1			
OP#	OUTPUT LEVEL	VELOCITY		
4	99	0		

FREQUENCY	DETUNE	AMS		
97.72Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	80	99	99	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	0	
R	-L	R	0	
	A-1			
OP#	OUTPUT LEVEL	VELOCITY		
6	85	0		

FREQUENCY	DETUNE	AMS		
2138Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	47	99	99	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	0	
R	-L	R	99	
	C1			
OP#	OUTPUT LEVEL	VELOCITY		
1	87	0		

FREQUENCY	DETUNE	AMS		
9333Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	99	99	99	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	99	
R	-L	R	99	
	C6			
OP#	OUTPUT LEVEL	VELOCITY		
3	65	0		

FREQUENCY	DETUNE	AMS		
4074Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
49	80	99	99	0
L1	L2	L3	L4	
99	0	0	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	L	99	
R	-L	R	99	
	C3			
OP#	OUTPUT LEVEL	VELOCITY		
5	99	0		

ALGORITHM #5

DX7

MOVING-KEYS. A New DX7 Voice By Kent Sparling.

SINE	44	0	4	35	OFF	1
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

R1	R2	R3	R4
45	99	99	99
L1	L2	L3	L4
47	50	50	50

PITCH ENVELOPE

C3

KEY TRANSPOSE

OFF

OSC. SYNC

POLY	2	0	OFF	OFF	0
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
	PITCH BEND		PORTAMENTO		

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	99	OFF	ON	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	0	OFF	OFF	OFF

FREQUENCY	DETUNE	AMS		
10.00Hz	-7	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
64	99	99	74	2
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L 0	
R	-L		R 0	
OP#	OUTPUT LEVEL	VELOCITY		
2	56	0		

FREQUENCY	DETUNE	AMS		
1.00	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
99	99	99	32	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L 0	
R	-L		R 0	
OP#	OUTPUT LEVEL	VELOCITY		
4	78	0		

FREQUENCY	DETUNE	AMS		
2.455Hz	+5	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
91	99	47	47	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L 0	
R	-E		R 99	
OP#	OUTPUT LEVEL	VELOCITY		
6	83	7		

FREQUENCY	DETUNE	AMS		
1.00	-7	2		
ENVELOPE DATA				
R1	R2	R3	R4	RS
55	99	99	58	2
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	G3	L 0	
R	-L		R 99	
OP#	OUTPUT LEVEL	VELOCITY		
1	99	0		

FREQUENCY	DETUNE	AMS		
1.318Hz	0	1		
ENVELOPE DATA				
R1	R2	R3	R4	RS
90	99	99	41	0
L1	L2	L3	L4	
99	99	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L 0	
R	-L		R 0	
OP#	OUTPUT LEVEL	VELOCITY		
3	99	0		

FREQUENCY	DETUNE	AMS		
1.00	+7	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
96	76	80	47	1
L1	L2	L3	L4	
99	0	99	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	G3	L 3	
R	-L		R 0	
OP#	OUTPUT LEVEL	VELOCITY		
5	99	0		

ALGORITHM #6

Notes:

This sound is nonimitative, with qualities of horn, organ, and strings. It makes a good pad for chord sketches, and has a nice animation of its own.

Change the speed of "movement" by adjusting the Frequency Fine of Op. #3 and Op. #6. The Mod wheel controls volume for Ops. #1-2 and Ops. #3-4. Season to taste!

DX7

AIPON 2. A New DX7 Voice By David Levin.

TRI	32	0	0	0	ON	1
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

R1	R2	R3	R4
99	99	99	99
L1	L2	L3	L4
50	50	50	50

PITCH ENVELOPE

C2
KEY TRANSPOSE
ON
OSC. SYNC

FUNCTIONS					
POLY	2	0	OFF	OFF	0
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
	PITCH BEND		PORTAMENTO		

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	0	OFF	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	0	OFF	OFF	OFF

FREQUENCY	1.00	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	5
81	74	18	35		
L1	L2	L3	L4		
99	92	30	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	+L	C3	L	11	
R	-L		R	68	
OP#	OUTPUT LEVEL	VELOCITY			
3	70	2			

FREQUENCY	1.00	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	4
88	26	18	47		
L1	L2	L3	L4		
99	95	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	G3	L	0	
R	-L		R	30	
OP#	OUTPUT LEVEL	VELOCITY			
6	40	3			

FREQUENCY	1.00	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	4
80	68	0	30		
L1	L2	L3	L4		
99	94	30	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	+L	G4	L	6	
R	-L		R	54	
OP#	OUTPUT LEVEL	VELOCITY			
2	85	4			

FREQUENCY	1.00	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	1
83	19	27	50		
L1	L2	L3	L4		
99	90	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A#3	L	0	
R	-L		R	71	
OP#	OUTPUT LEVEL	VELOCITY			
5	83	4			

FREQUENCY	5.00	DETUNE	+1	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	3
83	18	16	48		
L1	L2	L3	L4		
99	90	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A#3	L	0	
R	-L		R	10	
OP#	OUTPUT LEVEL	VELOCITY			
1	99	4			

FREQUENCY	5.00	DETUNE	-1	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	3
88	28	27	55		
L1	L2	L3	L4		
99	90	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A-1	L	0	
R	-L		R	0	
OP#	OUTPUT LEVEL	VELOCITY			
4	98	3			

ALGORITHM #4

Notes:

This patch is based loosely on some of Bill Schottstaedt's work on complex modulating waves. While not a "piano," this patch has similar time-dependent changes that evoke a similar perception. This patch is subtle and best played in the middle octaves.

3

DX7

ANOLG
BELL. A New
DX7 Voice By
David Forbus.

SAW D	35	0	0	0	OFF	6	
WAVE	SPEED	DELAY	PWD	AMD	SYNC	PMS	
R1	99	R2	99	R3	99	R4	99
L1	50	L2	50	L3	50	L4	50
PITCH ENVELOPE							
						C4	
						KEY TRANSPOSE	
						OFF	
						OSC. SYNC	

POLY	2	0	OFF	OFF	0
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
PITCH BEND			PORTAMENTO		
(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS	
MOD WHEEL	0	OFF	OFF	OFF	
FOOT CONTROL	0	OFF	OFF	OFF	
BREATH CONTROL	0	OFF	OFF	OFF	
AFTERTOUCH	0	OFF	OFF	OFF	

FREQUENCY	0.50	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	98	R2	12	R3	71
R4	28	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
2	78	0			

FREQUENCY	0.50	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	99	R2	12	R3	71
R4	28	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
4	75	0			

FREQUENCY	0.50	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	98	R2	12	R3	71
R4	28	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
6	78	0			

FREQUENCY	1.000Hz	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	95	R2	33	R3	71
R4	25	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
1	99	0			

FREQUENCY	10.00Hz	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	95	R2	33	R3	71
R4	25	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
3	99	0			

FREQUENCY	1.023Hz	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	95	R2	33	R3	71
R4	25	RS	2		
L1	99	L2	0	L3	32
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT	DEPTH			
L	-L	A-1	L	0	
R	-L	R		0	
OP#	OUTPUT LEVEL	VELOCITY			
5	99	0			

ALGORITHM #5

Notes:

This bell patch has a different texture than those most associated with digital synths. It is good for music in the style of Tangerine Dream's "Rubicon" era.

RX120

An Introduction To
Yamaha's
Newest Digital
Rhythm Programmer. By
Tom Darter.



RX120 digital rhythm programmer.

YAMAHA'S NEW RX120 digital rhythm programmer takes a different approach to the creation of electronic drum and percussion parts. It is designed for musicians who want an inexpensive drum machine that comes complete with a large repertoire of *preset* patterns, covering a wide range of musical styles. Instead of requiring the musician to create each stylistic pattern before beginning the creation of a song structure, the RX120 provides a wide variety of preset patterns, which can be combined into a number of programmable song structures.

As with all electronic musical devices designed for a specific purpose, the RX120 embodies a number of carefully chosen tradeoffs: On the one hand, it is not possible to program basic rhythm patterns into the unit; on the other hand, it is not necessary to spend time programming basic rhythm patterns into the unit—this basic work has already been done.

In other words, the RX120 provides songwriter/musicians with a large repertoire of preset rhythmic patterns, which can be used to create a wide variety of *programmable* song structures.

Voices And Patterns

The RX120 comes equipped with a full complement of 38 sampled percussive sounds, including acoustic and electronic drum sounds, percussion instruments, sound effects, and two

FM percussion voices. (For a complete list of these voices, see the accompanying MIDI note number diagram.)

The unit contains 40 *preset* patterns in permanent (ROM) memory, as follows:

- ROCK 1
- ROCK 2
- ROCK 3
- ROCK 4
- ROCK 5
- POP 1
- POP 2
- POP 3
- ROCKN'ROLL
- FUNK
- 16BEAT 1
- 16BEAT 2
- 16BEAT 3
- 16BEAT 4
- 16BEAT 5
- DISCO 1
- DISCO 2
- SHUFFLE 1
- SHUFFLE 2
- SHUFFLE 3
- REGGAE
- SAMBA
- SALSA
- MERENGUE

MAMBO
 CHA CHA
 RHUMBA
 BEGUINE
 TANGO
 BOSSANOVA
 WALTZ 1
 WALTZ 2
 JAZZ WALTZ
 MARCH
 COUNTRY
 TWIST
 SWING
 SLOW JAZZ
 MEDIUM JAZZ
 BALLAD

This list doesn't tell the complete story, though: Each one of these preset patterns features three basic variations, plus two fill-ins, one break, one intro, and one ending, for a total of eight ways to play each preset. Given all of these options, the unit actually contains a total of 320 preset patterns.

Since patterns are not programmable, the unit's front panel does not have instrument keys; instead, it has *pattern* keys. There is a front-panel key for each one of the forty basic patterns, plus other keys to call up each one of the various pattern options.

Songs And MIDI

In addition to the 40 preset patterns in memory, the RX120 also contains 20 memory locations to program and store your songs. Each song memory can be up to 500 bars long, and can therefore contain 500 different patterns designations.

The unit also has full MIDI implementation. As with other Yamaha digital rhythm programmers, the RX120's sampled percussion voices can be played from a MIDI keyboard. Each of the 38 sounds is assigned its own MIDI note number (see the accompanying diagram). If your MIDI keyboard is velocity sensitive, the RX120's sounds will respond to changes in velocity with changes in volume.

And, even though the RX120 cannot record patterns played on it via an external MIDI keyboard, these velocity-sensitive keyboard performances can be stored into an external MIDI sequencer. Then, the RX120 can be "played" by the sequencer, recreating the patterns initially played using the external MIDI keyboard.

In other words, the RX120 can be used as an inexpensive MIDI percussion tone generator.

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The Yamaha RX120 digital rhythm programmer weighs just 3.25 pounds. It is available now at authorized Yamaha music dealers for a suggested retail price of \$350.00. For more information, write to: Yamaha Music Corporation USA, Digital Musical Instruments Division, P.O. Box 6600, Buena Park, CA 90622-6600.

This chart shows the MIDI note numbers assigned to the RX 120's percussion voices.

Instrument	Note	Number
Bass Drum 1	A1	45
Bass Drum 2	G#1	44
Snare Drum 1	E2	52
Snare Drum 2	C#2	49
Snare Drum 3	B1	47
Rim Shot 1	D#2	51
Rim Shot 2	A#1	46
Tom 1	F2	53
Tom 2	D2	50
Tom 3	C2	48
Electric Tom 1	G1	43
Electric Tom 2	F#1	42
Electric Tom 3	F1	41
High-hat Open	B2	59
High-hat Closed	A2	57
High-hat Pedal	A#2	58
Ride 1 (cup)	D3	62
Ride 2 (edge)	D#3	63
Crash	C3	60
China	C#3	61
Cowbell	G2	55
Claps	F#2	54
Timbale High	A#3	70
Timbale Low	A3	69
Tambourine	B3	71
Conga High Mute	F#3	66
Conga High Open	F3	65
Conga Low	E3	64
Bongo High	G#3	68
Bongo Low	G3	67
Agogo High	D#4	75
Agogo Low	D4	74
Whistle	F#4	78
Shaker	G#2	56
Cuica High	F4	77
Cuica Low	E4	76
FM Percussion 1	A#4	82
FM Percussion 2	B4	83

TX16W

A Detailed Guide To Using The Yamaha TX16W Sampler, Part 1. By Scott Plunkett.

LEARNING A NEW PIECE of music is basically a two-step process: First, you play through to get the general picture, and then you begin to explore the subtleties. The process of learning a new musical instrument, such as the Yamaha TX16W sampler, is very similar. While you're finding your way around, it's easy to overlook some of the small details that make using the instrument a little bit easier. After you've mastered the basic system, though, it's worth digging a little deeper to find those "subtle" features—the ones that didn't quite get your attention while you were taking your first samples.

This two-part clinic is a collection of tips and techniques for those of you who are getting familiar with the Yamaha TX16W and are ready to explore some of its unique features. The procedures in this article have been collected from TX16W users to help you get the most music out of your sampler with the least effort.

For those of you who aren't acquainted with the TX16W, check out the introduction article in the November 1987 issue of *AfterTouch*, and then read the tips in the following article to get an idea of the unit's capabilities. Even though this clinic is mainly for users who are already familiar with the TX16W, there are brief introductions to each section that will give you a better idea of what features you'll find and how they work.

Memory Statistics

One of the biggest concerns with any sampler is the amount of memory available. The TX16W comes with a generous 1.5 megabytes (Mb) of memory, which can be expanded to 6 Mb with the addition of extra memory cards. With the standard 1.5 Mb of memory, you can sample up to 21 seconds of sound at the 33k sampling rate; with 6 Mb you can sample nearly 2 minutes at the 33k rate.

As a convenience, memory in the TX16W is shown in the more manageable form of number of blocks instead of number of bytes. Internal and disk memory is allocated as follows:

INTERNAL MEMORY

Empty RAM = 12340 blocks (in a standard 1.5 Mb unit). This is the amount of memory available when nothing but the system is loaded.

Filter table file = 976 blocks. The 16 filter tables are loaded with the system disk. You can de-

lete any or all of them from your system disk to make room for samples. Remember, though, that deleting filter tables will limit your ability to use filters, so until you're sure you know what you're doing, don't try this. Available RAM = 11364 blocks (in a standard 1.5 Mb unit). After the system and filter table files are loaded, this is the amount of memory that you have available for samples.

SINGLE DISK

New disk = 7582 blocks. This is the amount of room available on a newly formatted disk.

Maximum internal memory to single disk = about 8300 blocks. Even though you can expand the memory of the TX16W, you can't change how much information a disk contains. This means that more than one disk will be needed to save everything in the internal memory. If you want to put all of your work on a single disk, you'll have to limit the amount of memory you use to about 8300 blocks. There are a couple of reasons that this number works instead of 7582 blocks. The first is that the filter tables aren't saved to disk, so 976 blocks that are used in the internal memory don't take up disk space. The second reason is that performance, voice and timbre, filter, and system files all take up room on disks, but apparently don't take up room in internal memory because they are initially loaded with the system and therefore aren't included when you check available RAM.

Voice & Timbre on disk = 96 blocks; Performance on disk = 53 blocks; Filter on disk = 21 blocks; System on disk = 21 blocks. Each time you save one of these files to disk, it takes up the indicated amount of disk space.

Checking Available RAM

Any time you want to know how much internal memory you have left, hold down ENTER and press the "—" (minus) button. The TX16W display will show you the number of blocks used and the number of blocks still available. This is your most important ally in avoiding the "Wave Memory Full!" message and making intelligent decisions about the number of samples you can take. Since it works in almost every one of the TX16W's operating modes, check often, especially when you're

sampling or working in the wave edit buffer.

Similarly, if you want to find out if a file will fit on a disk, you can use the Unused Disk Memory job (Utility, job 4, press YES/ + 1 twice) to look at the amount of space left on a disk. The unused disk memory will be shown in the display.

Initializing Waves To Open Memory

The TX16W has a special wave edit buffer where new samples reside and where sample editing takes place. You normally load the wave edit buffer with samples from internal wave memory when you're ready to edit them. The advantage of this system is that you can recover from a bad edit by instantly reloading the stored wave from internal memory instead of having to wait for a lengthy reload from disk.

Working with the wave edit buffer is fairly straightforward, but there are two points you should keep in mind:

- 1) The wave edit buffer and the internal wave memory share from the same available RAM. This means that any wave that's stored in internal wave memory and is also in the edit buffer takes up double the amount of RAM.
- 2) The wave edit buffer should be treated as a single entity. Even though you can edit up to 16 waves in the buffer, you can't individually delete them.

If you don't keep the first rule in mind, you'll soon find yourself facing the dreaded "Wave Memory Full!" message when you try to store a new sample. This usually happens when you've already stored a few samples and have a few more samples in the wave edit buffer (although this can happen with just a couple of very long samples). You can make room in wave memory by using the Initialize function (Utility, job 5) to delete waves, but any attempt to initialize individual waves in the edit buffer will wind up destroying the sample you want to store, since all the waves will be deleted together (remember rule 2, above). You could initialize the entire wave edit buffer and sample again, but you can usually save yourself this trouble by following these steps:

- 1) Save the waves in internal memory to disk (Utility, job 3).

- 2) Initialize any or all of the internal waves (Utility, job 5).

- 3) Store the waves in the wave edit buffer to internal wave memory (Utility, job 1).

- 4) Initialize the wave edit buffer (Utility, job 5).

- 5) Load the original waves back to the internal wave memory from the disk (Utility, job 2).

You'll probably never have to deal with this procedure if you check your available memory often (using the procedure outlined above). But, even if you forget to check the memory, you can avoid problems by making sure you initialize the wave edit buffer when you're through editing your samples.

Backing Up The System Disk

When the TX16W is turned on, you must first load the system disk before you can load sounds. The system disk contains the basic operating instructions for the TX16W, along with the filter tables. Since it's critical that you have an operating system disk, it's a good idea to make a copy immediately, so that you can put away your original for safe keeping. Even though you're making an exact duplicate of the system disk, the procedure for backing it up is slightly different from the usual disk copy:

- 1) Copy the system disk using the Disk Copy command (Utility, job 6). It will appear that a full disk copy is taking place, but only the filter tables will end up on the destination disk.

- 2) Use the Save System Program job (Utility, job 4, press YES/ + 1 once) to put the system that's currently in the TX16W onto your new system disk. When the system is finished saving to disk, you can use this as your new system disk.

Before you put away your original system disk, make sure that your new copy works. Turn off the TX16W, turn it back on and insert the new system disk. The system and filter tables should load as normal.

Disk Formatting Shortcuts

Before you can use a new 3.5" disk, you need to format it for use in the TX16W. When you first go to the Format job (Utility, job 4) and press the YES/ + 1 button to begin formatting,

the display will ask you to insert the system disk. Once the TX16W gets the formatting routine off the system disk, it will then ask you to insert the blank disk. As it turns out, any formatted TX16W disk can fill in for the system disk in this process, so you can save yourself some disk swapping with the following procedure:

- 1) Leave a previously formatted disk in the TX16W's disk drive when you go to the Format job (Utility, job 4). If you have a disk of samples in the drive, make sure that the memory protect tab is up (this is a good habit to get into with all of your sample disks), so that there's no danger of accidentally ruining your samples.
- 2) Move the cursor to Go and press the Yes/ + 1 button to start the formatting procedure. The TX16W will skip asking for the system disk and will ask you to insert a blank disk instead.

You can use another disk formatting shortcut if you want to format more than one disk. When you're done formatting your first disk, the display flashes "END," which may lead you to believe that you have to start the whole formatting procedure over in order to format another disk. All you really need to do is take out your newly formatted disk and insert another blank disk. When you press YES/ + 1 again, the TX16W will format the new disk. You can repeat this procedure for as many new disks as you like.

Changing Individual Files In A Setup

When you save a setup, the entire contents of the TX16W (except the system and filter tables) are saved to disk. This is a convenient way to save and load all your work, and lets you avoid the problem of separately loading performances, voices and timbres, waves, and filters. The only disadvantage is that it takes much longer to save and load a setup (since all of the file types are involved) than it does to save or load just one of the file types.

Sooner or later you'll probably run into this scenario: You'll load a setup, make a small

change to a performance, and want to save the new performance file to disk so that it loads with the setup. The obvious way to do it is to save the entire setup again. This wastes time, though, because the TX16W has to rewrite the entire disk, when only a single parameter may have been changed. If you decide to make another change later, you'll have to save the setup again. Before you get caught up in an endless "save setup, change parameter, save setup" routine, try the following method to just insert your new file into the existing setup.

- 1) Make sure you store your newly edited performance (Utility, job 1).
- 2) Go to the Disk Load display (Utility, job 2) and check the number and name of the setup that you want to contain your new performance. Look at the name closely and remember exactly how it's spelled and where the letters are placed.
- 3) Go to the Disk Save display (Utility, job 3) and scroll to the Save Performance job. Enter the same number and name that you saw in the Disk Load display. Move the cursor to Go and press YES/ + 1 to put your new file on disk. Remember, this will replace the performance file that was previously in the setup, so make sure that you're happy with your changes.

You can use the same technique for replacing any of the file types in a setup—performance, voice and timbre, filter, system. The important thing to remember is that you have to use the exact same number and name for your new file as the setup file.

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This is the end of the first part of the TX16W clinic. Next month you'll learn a technique for creating new voices and timbres quickly, a way to create convincing ensemble sounds using voice layering, and a method of crossfading that uses the filters and velocity curves to add dynamic expression to performances. Meanwhile, have fun trying out the things you've learned this month.

QX5/FB-01

THE MACRO FEATURE of the QX5 digital sequence recorder is one of its most powerful tools. I have discovered a number of uses for the macro memories in the QX5; for one thing, they can be used to increase the flexibility of the FB-01 digital tone module in live performance situations. However, before describing these applications, I will start by explaining some of the basic functions of the QX5's macros.

Inserting Macros

I read through the QX5 owners manual two times looking for specific instructions on how to insert macros into recorded tracks (as illustrated but not fully explained on page 3 of the manual), and never did find them. I eventually figured out how to do it, and thought I'd share it with my fellow readers.

The Event Edit function is used, and the call for a particular macro is inserted into Track #1. Enter the Event Edit mode by pressing the SHIFT and TEMPO keys, and locate the measure where you want the macro to begin using the F3 (<) and F4 (>) keys. Find the exact beat (if at all possible); otherwise, choose one close to it, and then enter the "Change" mode by pressing the F1 (Job) key. It doesn't matter if the event listed is a note, a measure, or whatever.

The cursor should now be blinking on the "M" of the first line; once again, use the F3 (<) and F4 (>) keys to set this to the exact beat on which you want the macro to begin. Once that is done, press the F2 (cursor) key once to move the cursor to the second line. Use the F3/F4 keys to scroll through the 10 event names until you locate "MACRO." Then press the F2 key once more, and use the F3/F4 keys to choose the specific macro number.

To execute the insertion, press the SHIFT and STOP/CONTINUE keys. One note of warning here: Pressing the SHIFT and START keys will erase whatever event you started from to create the macro call. To avoid such mistakes, you may want to label the RECORD, STOP, and START buttons with their respective Edit mode functions: REC = Delete; STOP = Insert; and START = Replace.

QX5 Macros And The FB-01

One use of the QX5 macro call feature

described above that I find very useful is to send System Exclusive messages to an FB-01, which allows an unlimited number of Configurations to be stored and recalled. (The FB-01 itself can store only 16, which may be used up very quickly.) Changing the Configuration in the middle of a song can be a lot more dramatic than changing only the voices with Program Change messages.

To record an FB-01 Configuration on the QX5, you need to run a MIDI cable from the FB-01's MIDI OUT port to the QX5's MIDI IN port. Once you have come up with a Configuration you want to save, press the FB-01 SYSTEM SETUP button until the display reads: "#x Dump xxxxxx." Use the -1/+1 buttons to select: "#x Dump CONFIG." Press the SYSTEM SETUP button again, so that the display reads: "#x sure? CONFIG."

At this point, set up the QX5 for REALTIME Recording, making sure that Track #1 is clear and ON. (The display should show "*" instead of "_" for Track #1) Press the START button to begin the countdown, and, after the recording begins, press the +1/YES button on the FB-01 to begin the data dump. Once the FB-01's display reads: "Dump/completed!", press the STOP/CONTINUE button on the QX5 to cease recording.

To verify that the dump was recorded, and to edit its timing, press the SHIFT and TEMPO buttons on the QX5 to enter the Event Edit mode. You should find one or more events labelled: "EXCL 001 240(F0)." You will want the System Exclusive message to start at the top of the track, so first calculate the number of "clocks" you must move it back so that the first message reads: "M-0001-01-00/96." Then use the Clock Move job to move the track back this number of clocks.

To do this, enter the Track Edit mode by pressing SHIFT and TRACK. Press the F1 (Job) key until the display reads: "8>CLOCK MOV ... " Use the F3 (<) key to enter a *negative* number, which is the number of clocks you determined in the previous paragraph. Press the START key to execute the clock move.

Track #1 should now contain an FB-01 Configuration dump, starting at the top of the track. You may want to re-enter the Event Edit mode to confirm this: The final test is to play back Track #1, along with another track that contains music data. Before doing this, change the FB-01 setup to a different Configuration. As

**Using QX5
Macros To
Expand The
Versatility Of
The FB-01. By
Steve Ahola.**

QX5/FB-01 *Continued*

soon as the FB-01 receives the data dump, the Configuration should change to the one you just recorded on the QX5.

Perhaps it should be mentioned here that the FB-01 will receive and respond to data dumps in any of its normal Play modes—there is no special “MIDI Data Receive” mode for the FB-01. If the dump “works,” you can now exchange Track #1 with a blank macro, to be called forth at any point in the song (as explained in the first section of this article).

(At this point, I ought to mention the absolute necessity of keeping an up-to-date log of the contents of the QX5 track and macro memory locations. I use a small spiral-bound notebook and include the date and time of all entries.)

Operational Details

In the material above, I omitted a few details to make the instructions easier to follow. On the FB-01, using the SYSTEM SETUP button, scroll through the various functions to check the status of “Combine” and “System ch#.” In most cases, you will want “Combine” to be toggled ON for both transmitting and receiving data dumps, as this will load voice function settings such as Pitchbend Range with the Configuration. “System ch#” must match the setting on the QX5; it is customary to set this number to “1” on all of your MIDI equipment with this feature, since each unit will respond *only* to System Exclusive messages addressed to a code unique to that particular model. One exception to that rule would be if you had two FB-01s that you wanted to control independently, in which case you would assign separate System channel numbers to each of them.

Another note on the FB-01: Until you are comfortable using the techniques described in this article, it would probably be a good idea to store your new Configuration temporarily on the FB-01 itself, in one of its 16 user-defined memory locations, before beginning the QX5 procedure outlined earlier. To do this, press the SYSTEM SETUP button until the display reads: #xx Config/stor xx,” and enter a number using the data entry buttons. The display will then read: “xx sure? xx.” Pushing the +1/YES button will execute the storage operation. I would recommend using one particular location, like #16, for temporary Configuration storage, until the QX5 has recorded the data

dump successfully. By doing so, you won’t accidentally lose your new Configuration or erase an old Configuration you wanted to save.

It should also be noted that the Configuration dump calls forth specific memory locations, not the actual voices themselves. What this means is that, if the voices you have selected are in the user-defined Banks #1 and #2 and you later change the contents of these banks, the Configuration dump will call forth the new voices stored in the locations you originally saved. For that reason, it is recommended that you use this technique to store voices from the permanent ROM Banks #3–7. (The material below discusses the possibility of saving Voice Banks on macros; if that is done, you can select voices in Banks #1 and #2 with no problem.)

When recording the data dump onto the QX5, the tempo should be set to the approximate tempo range of the song that will use the FB-01 data dump. Data recorded at mm=40 may overload the FB-01 buffer if it is played back at mm=300; in the opposite case, the Configuration change may not be smooth. If necessary, you could adjust the number of “clocks” between each event so that the dump will work properly. (One example: with mm=40, the messages are 7 clocks apart; with mm=300, the interval is 68 clocks.)

The length of the total data dump also determines its proper placement within the song. The dump should be executed a few clocks *before* the beat the FB-01 is to begin using the new Configuration. If this is not done, the FB-01 may be shifting gears, so to speak, when the QX5 transmits a Note On message, and that note (or notes) may be delayed or skipped altogether. You may need to experiment to find the optimum placement, so it doesn’t chop off the previous note either. If necessary, you could thin out any affected parts immediately before the Configuration change.

Another factor to be considered on playback is the routing of the MIDI cables. My MIDI setup includes an RX21, which does not echo back System Exclusive messages, so I had to rearrange the MIDI chain: the QX5 MIDI OUT goes directly to the FB-01 MIDI IN port, with the FB-01 MIDI THRU port passing the MIDI signal on to the RX21. You may want to connect a spare MIDI cable to the FB-01 MIDI OUT port, and plug that into the QX5 MIDI

IN port as needed for recording FB-01 data dumps.

Musical Applications

In practice, the execution of the techniques described in this article is a lot less complicated than these technical instructions have made it seem. This section will discuss the general applications of these techniques.

Switching Configurations in the middle of a song can be a very powerful tool. Not only can you switch voices (as possible using Program Change messages), but you can switch from an eight-instrument mono setup to a one-instrument setup with 8-note polyphony, or to any combination in between. You can also switch stereo pan locations, keyboard splits, volume levels, or LFO settings, all by the insertion of a single Configuration macro. Using this method gets around many of the limitations of Program Change messages (i.e., new voices must be in the same voice bank on the FB-01, and Program Change messages will affect all instruments using the same MIDI channel, which can be a problem if you like to double up parts on the same channel, using your synthesizer or another tone generator to augment the FB-01 voices).

So far, I have only mentioned recording voice Configurations from the FB-01; you can also use these techniques to record voice bank setups. For each song or performance, you could load all of the voices you plan to use into voice Banks #1 and #2, in whatever order you want, and then record this data with the QX5, from where it can be stored on cassette for permanent storage (the FB-01 itself has no cassette storage feature). Customizing voice Banks #1 and #2 can be very helpful in live performances, as you can scroll quickly through the voices you want to use without having to change voice Banks (using either the -1/+1 buttons on your FB-01 or the Program Change buttons on your keyboard). Similarly, you can load and save all 16 Configuration memory setups using the QX5, both for permanent storage and for particular performances.

Some of these techniques and tips may be helpful even if your MIDI setup doesn't include an FB-01. If your synthesizer or tone generator has a MIDI bulk data dump feature, you can experiment with recording the dumps on your QX5, and then enter the Event Edit Search

mode to see if you "caught" anything. If you did, these techniques may help you expand the existing storage and recall capabilities of that unit.

One tip that is helpful in practically any QX5 setup is using macros for at least some of your Program Changes. For example, if you switch voices to a brass ensemble for a 12-bar chorus throughout a song, record (and edit as necessary) a 13-bar macro with a Program Change to the brass voice at the top, and another Program Change back to the original voice at the beginning of the 13th measure. Rather than having to insert, say, eight Program Changes into the song, you will have to insert only four macros. If you decide to switch the brass voice to a brighter one, you will have only one simple macro to edit, rather than four Program Changes to locate and edit in a very complex final track. You may decide instead to switch to a different voice for the final two bars of the chorus; once again, you have only one macro to edit.

The more traditional uses of the macro feature should perhaps be mentioned at this point. A particularly tricky riff can be step recorded, and then inserted into the appropriate places in the song. And if you haven't yet decided the verse/chorus structure of a song, you can copy the verse and the chorus to separate macros, which gives you complete freedom in arranging the song linearly.

To do this, use the Measure Edit "Create" job to generate a skeleton track of perhaps 120 measures, and use the Event Edit mode to insert the intro, verse, chorus, bridge, and ending macros. This technique works well with the basic parts that don't change from verse to verse; you could overdub more creative parts onto other QX5 tracks to keep the sound from being too mechanical. I find this very helpful in coming up with separate short and long versions of the same song, without having to redo everything.

The most basic use of the macros doesn't involve the Event Edit insertion technique at all, but "merely" uses the macros as 32 additional memory storage locations, which by itself is a very powerful feature. Having worked with the QX21 for a year (with only 2 tracks capable of being stored on cassette), the 40 storage locations on the QX5 are very impressive.

The QX5 is a very powerful tool, which can be used to expand the versatility of the FB-01.

Hot Tips

Reader Tips For The FB-01, SPX90, And More.

Converting DX100-Style Patches For Use On the FB-01

By Jerry J. Miller

I find that I am able to convert patches for the DX100, DX27, and DX21 for use on my FB-01. I do this by changing the values to fit the FB-01 parameter value ranges. To do this I use a simple proportion. For example, if the output level on a DX100 operator is 80, the formula is as follows:

$$X \div 127 = 80 \div 99$$

(127 is the maximum output for the FB-01, and 99 is the maximum output for the DX100.) This works out to be:

$$(127 \times 80) \div 99 = X$$

Therefore, "X" is equal to 102.6, which rounds off to 103. 103 is the corresponding operator output level for the FB-01.

I use the same formula for the other parameters, substituting 31 or 15 for the 127 in the above formula (depending on the maximum FB-01 value), and also substituting for the 99 in the above formula (depending on the DX100 maximum value). This usually gets me into the ballpark for the sound of the patch. I then adjust the values slightly for the best sounds (especially the ADSR values).

I realize that this method doesn't recognize the different resolutions of the values within their total range on the two instruments, but it does give me a good starting point for using DX100-style voices on my FB-01.

* * *

SPX90 & RX Series Interaction

By Bill Thompson

One of my favorite programs on the SPX90 is Reverb & Gate (preset #20). Unlike the more often used Gated Reverb, it positions the gate ahead of the reverb processor in the signal path, thus allowing only those signals with sufficient amplitude to "open" the gate and receive the ambient treatment. In other words, by carefully adjusting the threshold level of the SPX and the instrument levels of the rhythm programmer (and your mixer's effects send level), you can

have the reverb only triggered by (for instance) the snare and toms, while allowing the hi-hat, shaker, and cowbell to remain "dry." In fact, setting the accent levels for each instrument with this in mind will prevent the unaccented level from getting the reverb, while accented beats introduce the effect. Two important notes:

1) Getting the kick (BD) level hot enough without engaging the ambience is frequently difficult, so I turn the levels of the other instruments to 0 and record the kick by itself onto one track of the MT2X (after printing a sync track using a YMC10), usually with a different SPX program (such as "Early Reflection"); then, I return the levels to their previous state, remove the kick from the drum mix, and reinstate the "Reverb & Gate" program.

2) When the SPX receives enough level to open the gate, thus providing input to the reverb, any and all sounds present on that clock pulse will get the treatment. In order to avoid getting the reverb on the hi-hat, for instance, use the RX's Clear button to erase any events that overlap with the snare. In general, I find that not having the hat and snare on the same beat, especially on 16th-note feels, lends realism to the programming; the same is often true of kick/snare overlap. One other thing to remember in this arrangement is that two instruments on one beat (say, rimshot and tom), while not having enough level individually to open the gate, can combine to produce sufficient level to kick it off. Bear in mind, even a drummer and a percussionist have only four hands between them. Especially with intense ambience, less is more. Happy tracks!

Here are some example settings for the SPX90, starting from the Reverb & Gate preset (#20):

Reverb Time: 2.0
High: 0.6
Delay: 22.0 ms
HPF: 80 Hz
LPF: Thru
Trg Level: 71
Hold: 484 ms
Release: 44 ms
MIDI Trg: OFF

The Trigger Level is the critical tweak. Adjust the Hold and Release for different tempos and note durations.

Back Issues

SINCE THE PUBLICATION of the AfterTouch index in the January 1988 issue, requests from readers for back issues have jumped by an astounding number. This is especially surprising because requests for back issues have been heavy and steady, from the moment we first announced their availability.

Unfortunately, this massive number of requests has depleted our stock of back issues: In the case of many of our earlier issues, the supply of back issues has been completely handed out, and the stock of most of the remaining issues is severely depleted.

This makes it impossible for us to continue to fulfill back issue requests: We simply can't mail out a back issue when we don't have any left to mail out.

However, due to the enormous demand for material from our earlier issues, Yamaha is con-

sidering various ways to continue to make this information available. Unfortunately, since *any* approach to reprinting this material will be quite costly, it will be impossible to continue offering the information from previous issues for free.

Yamaha will announce the results of its research into the AfterTouch back issue situation in the next few months—watch for it right here in the pages of AfterTouch.

In the meantime, please *do not* send us any more requests for back issues. There are *no more* magazines left with which to fulfill your requests.

If you have already sent in a request but have not yet received your issues, you should assume that your order was impossible to fulfill. We are sorry for this inconvenience.

**Important
Information
For All
AfterTouch
Readers.**

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.

AfterTouch is your publication. Let us hear from you!

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