AFAN

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From The Editor

LOTS OF IMPORTANT INFORMATION to pass on this month, so let's get right to it.

Product Literature: All requests for specific product literature must go directly to Yamaha [Yamaha Music Corporation USA, P.O. Box 6600, Buena Park, CA 90622]. We at AfterTouch are happy to receive specific questions concerning the use of Yamaha professional music products, and we will answer as many of them as we can in the Questions column; however, requests for general product information must be sent directly to Yamaha.

Last Month's TX81Z Voices: In the March 1987 issue of AfterTouch, we inadvertently printed confusing Frequency data in both of the TX81Z voice patches. The biggest giveaways were the Frequency Coarse settings in the "MaleVoices" voice [AfterTouch, March 1987, page 17]: operators #3 and #4 were listed as "0" and "28" respectively–and, as all TX81Z owners know, both of these settings are impossible.

Well, the real problem is that we didn't explain the TX81Z data charts as well as we should have. The charts were created using the prototype of a new CAV (computer-assisted voicing) program for the TX81Z. In the prototype version we used, the numbers listed for both Frequency Coarse (ratio) and Frequency Fine (ratio) do not represent the actual settings–rather, they represent a value within a range of values for both parameters. There are 64 possible values for the Frequency Coarse parameter (from 0.50 to 25.95 if Frequency Fine is at its lowest setting), and the prototype CAV program simply numbered these from 0 to 63. There are either 8 or 16 possible Frequency Fine settings associated with the various Frequency Coarse settings, and the CAV program numbered these from 0 to 15. The actual Frequency settings for the two voices are as follows:

MaleVoices
- Op #1–1.50 (ratio)
- Op #2–1.49 (ratio)
- Op #3–0.75 (ratio)
- Op #4–9.06 (ratio)

Tpt&Woodwd
- Op #1–1.50 (ratio)
- Op #2–1.50 (ratio)
- Op #3–1.49 (ratio)
- Op #4–1.49 (ratio)

To get these Frequency settings, simply start from the lowest Frequency Coarse and Frequency Fine settings, and press the +1/INC button the number of times indicated by the numbers in the charts.

Our apologies for the confusion. The TX81Z patch charts in this month's issue show both the actual Frequency settings and the value range numbers.

AfterTouch/Yamaha Reader Survey: Once again, we want to thank the thousands of readers who participated in our first Reader Survey. Your response was astounding.

The Grand Prize winner is AfterTouch reader

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(By the way, if you received *this* issue in the mail, you are already on our permanent mailing list, so you don't need to send in another card.)

Also, don't limit yourself to just sending in your address: Let us know what you want to read, and what *you* have to offer (see page 19 for details). We look forward to your input.

To receive AFTER-TOUCH every month, absolutely free, just put your name and address on the enclosed card and mail it to us.

DX7

SONG BELLS. A New DX7 Voice By Bruno Choiniere.

TR1	35	0	0	0	ON	0
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

C3
KEY TRANSPOSE

ON
OSC. SYNC

POLY	0	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
1.00	+4	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
2	80	0

FREQUENCY	DETUNE	AMS
2.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
4	80	0

FREQUENCY	DETUNE	AMS
3.50	-4	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
6	78	0

0

FREQUENCY	DETUNE	AMS
0.50	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	0

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	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	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
92	28	99	28	0
L1	**L2**	**L3**	**L4**	
99	0	0	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

These DX7 voices can also be loaded into all the other Yamaha 6-operator FM digital synthesizers and tone generators, including the DX5, TX7, TX216, TX816, TF1, DX1, and DX7 II FD/D.

STEEL PANS. A New DX7 Voice By Edward Ritch.

TR1	60	0	10	0	OFF	2
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

R1	R2	R3	R4
98	98	75	60
L1	**L2**	**L3**	**L4**
50	51	50	50

PITCH ENVELOPE

C4
KEY TRANSPOSE

ON
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	55	ON	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	30	ON	OFF	OFF

FREQUENCY	DETUNE	AMS
0.87	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
60	31	17	30	3
L1	**L2**	**L3**	**L4**	
99	75	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	+L	D3	L	0
R	-L		R	15

OP#	OUTPUT LEVEL	VELOCITY
4	87	6

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
55	25	26	27	0
L1	**L2**	**L3**	**L4**	
98	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	C4	L	60
R	-L		R	24

OP#	OUTPUT LEVEL	VELOCITY
6	73	2

5

FREQUENCY	DETUNE	AMS
0.99	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
60	99	35	23	2
L1	**L2**	**L3**	**L4**	
99	99	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	D3	L	0
R	-L		R	20

OP#	OUTPUT LEVEL	VELOCITY
2	65	1

FREQUENCY	DETUNE	AMS
0.68	-3	0

ENVELOPE DATA

R1	R2	R3	R4	RS
50	48	26	23	3
L1	**L2**	**L3**	**L4**	
99	72	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
3	62	0

FREQUENCY	DETUNE	AMS
0.50	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
46	48	26	19	1
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	C4	L	60
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
5	80	3

FREQUENCY	DETUNE	AMS
0.50	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
55	30	98	38	3
L1	**L2**	**L3**	**L4**	
99	0	0	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	7

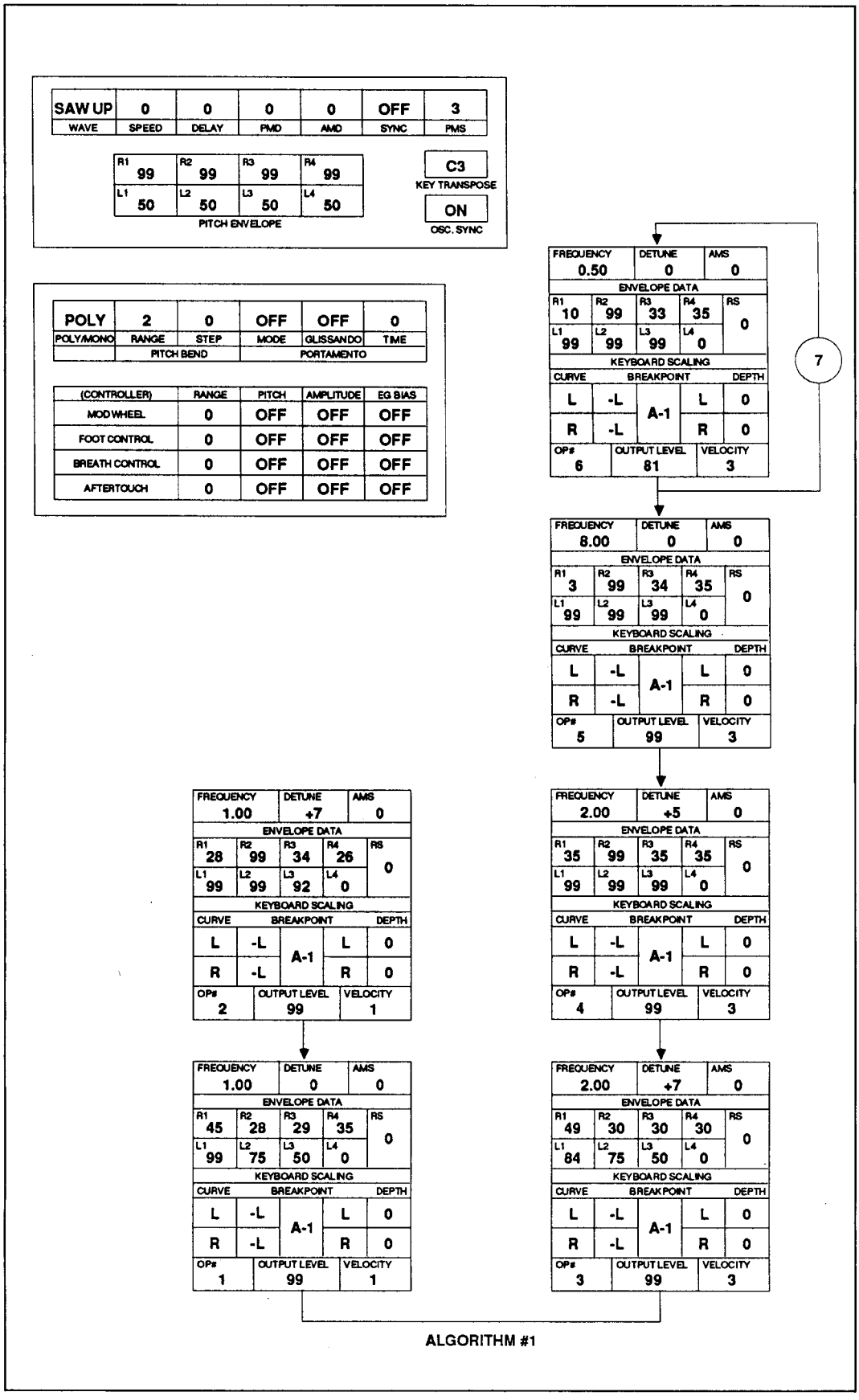
ALGORITHM #16

Notes:

Use this patch as a starting point for your own steel drum creations. It was created by editing the factory timpani patch.

Play this voice with vibrant dynamics–hit it hard, just as you would a real pan, for loudness and brightness.

SHIMMER. A New DX7 Voice By Paul Huang.



MR MOOG FC. A New DX7 Voice By Bob Lewin.

WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS
SINE	38	32	0	0	OFF	6

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

PITCH ENVELOPE

KEY TRANSPOSE: C2

OSC. SYNC: ON

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	25	ON	OFF	ON
FOOT CONTROL	99	OFF	OFF	ON
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	20	ON	OFF	OFF

FREQUENCY	DETUNE	AMS
1.00	+7	2

ENVELOPE DATA

R1	R2	R3	R4	RS
67	13	60	56	0
L1	**L2**	**L3**	**L4**	
98	80	85	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
6	95	0

FREQUENCY	DETUNE	AMS
1.00	+5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
56	13	60	54	0
L1	**L2**	**L3**	**L4**	
98	80	80	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
5	62	0

FREQUENCY	DETUNE	AMS
1.00	-2	1

ENVELOPE DATA

R1	R2	R3	R4	RS
63	46	60	58	0
L1	**L2**	**L3**	**L4**	
98	95	95	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
2	88	1

7

FREQUENCY	DETUNE	AMS
1.00	+3	0

ENVELOPE DATA

R1	R2	R3	R4	RS
63	13	60	48	0
L1	**L2**	**L3**	**L4**	
98	80	85	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
4	84	1

FREQUENCY	DETUNE	AMS
1.000 Hz	-7	0

ENVELOPE DATA

R1	R2	R3	R4	RS
82	70	20	43	0
L1	**L2**	**L3**	**L4**	
99	97	95	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	1

FREQUENCY	DETUNE	AMS
1.230 Hz	+7	0

ENVELOPE DATA

R1	R2	R3	R4	RS
71	70	20	43	0
L1	**L2**	**L3**	**L4**	
99	92	84	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
3	99	1

ALGORITHM #2

Notes:

This sound is intended for lead synthesizer work. It is scaled very simply, but the tone changes dramatically with the slightest movement of the Foot Controller. Aftertouch adds another dimension of expressive control.

If desired, Portamento can be added, to approximate yet another important lead synthesizer effect.

TX81Z

BassnDyno. A New TX81Z Performance Setup By Michael A. Huisman.

Notes:

This TX81Z performance setup is based on three new voice patches: "Jaco Bass2," "JazzWalker," and "ChorusMeEP."

name: BassnDyno

assign mode	NORM
micro tune select	OCT.
effect select	DELAY

1: Jaco Bass2			5:					
2: JazzWalker			6:					
3: ChorusMeEP			7:					
4:			8:					

inst. number	1	2	3	4	5	6	7	8
number of notes	1	1	6	0	0	0	0	0
voice number	I32	I31	I30	I01	I01	I01	I01	I01
receive ch.	1	1	1	1	1	1	1	1
key limit /L	C-2	C-2	C# 3	C-2	C-2	C-2	C-2	C-2
key limit /H	C 3	C 3	G 8	G 8	G 8	G 8	G 8	G 8
detune	+3	-3	+0	+7	+7	+7	+7	+7
note shift	+12	+12	+0	+0	+0	+0	+0	+0
volume	99	99	99	90	90	90	90	90
out assign	L	R	LR	LR	LR	LR	LR	LR
lfo select	1	1	VIB	1	1	1	1	1
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

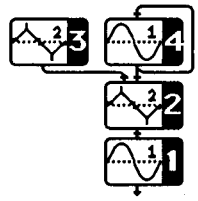
OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	80	81	70
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	0	0	0	8
freq. fine	0	0	0	0
detune	+0	+3	-3	+0

-1-	-2-	-3-	-4-
0.50	0.50	0.50	2.00

voice name: Jaco Bass2

algorithm no. 2
feedback 1



ENVELOPES

attack rate	15	15	18	31
decay 1 rate	8	10	11	6
decay 1 level	11	12	11	2
decay 2 rate	0	0	15	5
release rate	8	8	8	8
eg shift	OFF	OFF	OFF	OFF

LFO

waveform		sync	OFF
speed	25	delay	8
amp mod depth	0	sens	OFF
pitch mod depth	6	sens	4

SCALING/SENS

rate	0	1	1	0
level	0	0	0	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	1	0	1	1

FUNCTION

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

TX81Z

OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	74	65	70
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	0	4	8
freq. fine	0	0	0	0
detune	+0	−3	+3	+3

-1-	-2-	-3-	-4-
1.00	0.50	1.00	2.00

ENVELOPES

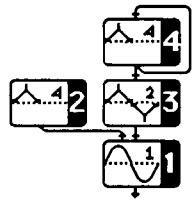
	op1	op2	op3	op4
attack rate	31	31	31	29
decay 1 rate	9	1	17	10
decay 1 level	9	0	13	4
decay 2 rate	0	0	6	0
release rate	9	8	8	8
eg shift	OFF	12	12	24

SCALING/SENS

	op1	op2	op3	op4
rate	0	2	3	3
level	0	0	27	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	1	0	7	3

voice name: JazzWalker

algorithm no. 4
feedback 7



LFO

waveform		sync	OFF
speed	28	delay	0
amp mod depth	0	sens	OFF
pitch mod depth	0	sens	5

FUNCTION

mode	POLY	mid C =	C 2
portamento	FULL	rev rate	0
porta time	0	pb range	4
vol	99	pitch	0
pitch	0	amp	0
amp	0	eg bias	0
pitch	75	p bias	+0
amp	0		

OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	85	83	83
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	0	4	42
freq. fine	0	0	0	0
detune	+3	−3	−3	+3

-1-	-2-	-3-	-4-
1.00	0.50	1.00	14.00

ENVELOPES

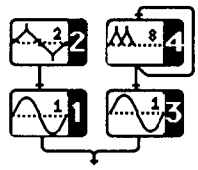
	op1	op2	op3	op4
attack rate	28	31	31	30
decay 1 rate	4	0	18	14
decay 1 level	10	10	13	9
decay 2 rate	0	0	6	15
release rate	7	7	8	14
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS

	op1	op2	op3	op4
rate	2	1	0	1
level	0	48	0	0
ams on/off	OFF	ON	OFF	OFF
sens eg bias	0	0	0	0
key vel	2	3	3	3

voice name: ChorusMeEP

algorithm no. 5
feedback 6



LFO

waveform		sync	OFF
speed	20	delay	0
amp mod depth	2	sens	48
pitch mod depth	1	sens	2

FUNCTION

mode	POLY	mid C =	C 3
portamento	FULL	rev rate	7
porta time	0	pb range	2
vol	99	pitch	50
pitch	0	amp	0
amp	0	eg bias	0
pitch	50	p bias	+0
amp	0		

CX5M II/128

An Introduction To Yamaha's New Music Computer. By Tom Darter.

YAMAHA'S NEW CX5M II/128 music computer offers a number of significant improvements over the original CX5M, while at the same time maintaining the goal of its predecessor—it provides a very affordable introduction to the world of computer-assisted music making. Even though the CX5M II represents a major advance in computing power, it maintains complete compatibility with all programs created for the original CX5M. And, at the same time, it is (of course) compatible with all programs created for MSX-based computers.

Memory Expansion

Perhaps the most significant change in the new music computer is its increased RAM memory. The original CX5M had only 32K bytes of internal RAM, which meant that it was impossible to work with the MSX Disk Operating System (MSX-DOS), which requires an internal RAM of at least 64K bytes. The new CX5M II/128 has 128K bytes of internal RAM, so it has more than enough memory to deal with the standard MSX-DOS operational and programming routines. MSX-DOS opens up a whole new world of disk-based software for MSX computers—a world that can now be explored with the CX5M II/128 music computer (when equipped with the optional FD03 3.5" disk drive).

Two KS10 powered monitor speakers can be used as an inexpensive sound system for the stereo outputs of the SFG II digital FM synthesizer built-in to the CX5M II/128.

Increased Music Program Power

The expanded memory of the new CX5M also increases the power and flexibility of a number of Yamaha music programs first created for the original CX5M.

The YRM301 MIDI Recorder Program cartridge is one of many that benefits from the CX5M II/128's increased memory. If you boot up this program on the original CX5M, the free byte indicator will tell you that you have 20,959 bytes to work with. Using the new CX5M II/128 (with a disk drive connected), the free byte indicator will tell you that you have resources totaling 114,751 bytes.

The YRM501 Music Composer II Program cartridge is another that has much more capacity when used with the new CX5M II/128. If you boot this program on the original CX5M, you will be told that you have 8,359 steps left to work with. Using the new CX5M II music computer (with a disk drive connected), you will find that you have 16,370 available steps.

Increased Word Processing Power

In addition to its increased usefulness as a music computer, the new CX5M II/128 also provides more flexibility as a word processor (when used in conjunction with the TWE01 Word Processor/Teleword Enhancer Program cartridge). The original CX5M only offered 40-column resolution (40 characters per line on the monitor), but the new CX5M II/128 can be set to 80-column resolution (80 characters per line on the monitor).

Internal Synthesizer

The most unique feature of the original CX5M is of course offered as part of the new unit. The CX5M II/128 comes equipped with a built-in FM digital synthesizer tone module. Now called the SFG II in the new computer owners manual, this built-in synthesizer is the same as the SFG05 tone module—offered last year as an upgrade to the CX5M's first FM digital tone module (the SFG01).

The SFG II is an eight-voice, 4-operator FM digital tone module that is fully programmable. To assist you in programming the SFG II, the CX5M II/128 is shipped with the YRM502 FM Voicing Program II. Housed in a new "small

cartridge" package, this program is the first created to fit in the CX5M II/128's "small cartridge" port (included in the front portion of the unit).

In order to take full advantage of the musical capabilities of the SFG tone module, it is necessary to connect either a Music Keyboard peripheral (YK01, YK10, or YK20) or a MIDI keyboard to the CX5M. The Music Keyboard peripherals have their own connection terminal, while MIDI keyboards can be connected via the MIDI terminals associated with the SFG II tone module.

Cartridge Ports

The most obvious physical change in the new CX5M is the inclusion of two cartridge ports on the unit's top panel. The extra port makes memory management much easier: it can be used either to connect an FD03 disk drive or to house a UDC01 data cartridge.

In addition to these two cartridge ports, the CX5M II/128 also has a third, smaller cartridge port located in the front portion of the unit. At present, this port should be used to connect the included FM Voicing Program II (equivalent to the YRM502 FM Voicing Program II) to the computer. In the future, other program cartridges in this smaller format will become available.

Increased Interface Options

The new CX5M II/128 has many new connection terminals, which make it much easier to hook the unit up to various peripherals. For example, the composite video/audio output can now be connected using standard RCA connectors (which means that the old VC02 cable is no longer needed).

FD03 3.5" disk drive.

In addition, the CX5M II now has a dedicated RF output connector, which means that you can connect the unit directly to your television set (without needing to use the RF02 connector cable). A channel select switch allows you to choose between channel 3 and channel 4 when connecting to a standard TV set. There is also a dedicated RGB output (for direct connection to an RGB monitor).

The new CX5M also has a monitor-select switch that allows you to choose either "color" or "black-and-white." The black-and-white setting can be useful for increasing the clarity of displays on sub-standard video monitors.

All standard connections from the original CX5M are of course retained in the new unit: There is a port that allows direct connection of a PN101 printer, and the cassette interface is also retained (so that cassettes can be used as a storage medium). The SFG II tone module (which fits into the CX5M's slide slot) is equipped with both audio and MIDI terminals.

This table lists the internal voices of the music computer's built-in SFG II digital FM synthesizer.

01	BRASS 1	13	EORGAN 2	25	CLAV	37	RM. BRAS
02	BRASS 2	14	PORGAN 1	26	HARPSIC	38	RM. FLUT
03	TRUMPET	15	PORGAN 2	27	BELLS	39	RM. GUIT
04	STRING 1	16	FLUTE	28	HARP	40	RM. HORN
05	STRING 2	17	PICCOLO	29	SMADSYN	41	R1. BASS
06	EPIANO 1	18	OBOE	30	HARMONI	42	R2. BASS
07	EPIANO 2	19	CLARINET	31	STEELDR	43	SNAREDR
08	EPIANO 3	20	GLOCKEN	32	TIMPANI	44	RD CYMB
09	GUITAR	21	VIBRPHN	33	LO STG 1	45	PERC 1
10	EBASS 1	22	XYLOPHN	34	HORN LO	46	PERC 2
11	EBASS 2	23	KOTO	35	WHISTLE	47	CSM
12	EORGAN 1	24	ZITHER	36	STORM	48	

RX5

A Drummer Looks At A Digital Rhythm Programmer, And Offers New Musical Insights. By Gardy Weber.

RX5 digital rhythm programmer.

TO PLAY THE SNARE DRUM, an aspiring virtuoso spends years in avid practice. At the beginning, as when one learns to walk, the movements are awkward, difficult, and unfamiliar. However, the efforts are soon rewarded. As one learns and masters the fundamentals, the urge to find and accomplish the next step grows. From the grip of the sticks to the movement of the wrists, a player hones his ability. The student works through the 26 Basic Rudiments, the core for the development of his technique. As musical growth takes place, these early steps can preage the skills of an Elvin Jones or a Tony Williams. Teachers and books, listening and practice; these are the sources and tools of the learning experience.

What place, then, does the Electronic Age have in the world of a drummer? Is this a new field of knowledge, a new incentive to learn the art of drumming? Or is the "Drum Machine" a tool for non-drummers, a professional replacement for the drummer, or a technician's idea of drumming?

Having taken a lengthy hiatus from the music world, my feeling about electronic instruments had long been one of extreme distaste. A drummer through many years of practice and work, my first reaction to drum machines was to dismiss and ignore them, somewhat vehemently. Several years of musical hibernation changed my approach and altered the initial abhorrence. I was open to new musical experiences.

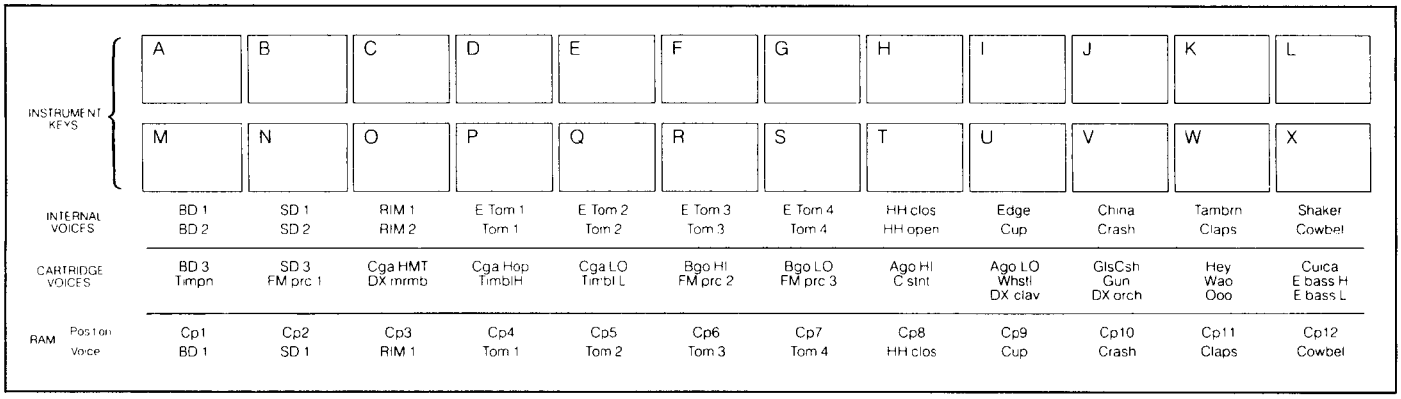
Enter the RX5 Digital Rhythm Programmer– the name itself is a much more inviting introduction than that provided by the earlier "drum machine" moniker. The quality of the RX5's sounds and the ability to manipulate those sounds–these capabilities immediately attracted my attention. After having audience to a demonstration of the RX5, curiosity took over and I was ready to sit down and explore this new electronic world.

With the RX5 and its owners manual, one can grasp the operation of the instrument without undue difficulty. As you proceed through this article, you may need to refresh your memory of the instrument's basic operation by referring to the manual.

The intent here is to further the use and comprehension of the instrument, and then to make music. In what follows, you will find a number of suggestions for ways of manipulating sound on the RX5 that originate from the sensibility of a drummer.

Real Time Write

The fundamental operational system of most drum machines almost always involves a composing/recording scheme called Real Time Write. The RX5 offers an impressive amount of flexibility within this function. The list below shows all of the functions that are directly accessible while composing in the Real Time Write Mode.



This chart shows the factory preset output channel assignments for all 64 voices available on the RX5.

One can enter and exit any of these functions, changing the parameters they control, without stopping the Real Time Write function. While you are using one of these functions, the "Write" portion of Real Time Write is disabled, but you can still listen to the Pattern as it repeats, and compare your new parameter settings to those already recorded. As soon as you are satisfied with a new setting, you can begin to record again in Real Time Write, simply by pressing the Real Time Write button.

Here is a list of all operational parameters available for alteration within the Real Time Write mode:

CLICK
- On/Off
- Volume
- Sounding Subdivision

QUANTIZE
- On/Off
- Note Value

SWING
- On/Off
- Off-Beat Delay Percentage

TEMPO
- Metronome Setting (slider or numeric)

REVERSE
- On/Off

DAMP
- On/Off

CLEAR
- Erase (single notes)

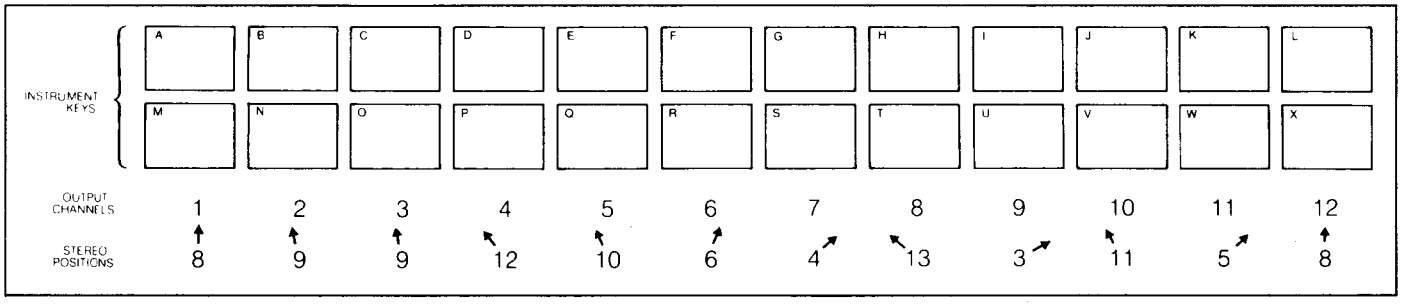
KEY ASSIGN
- Voice Assign
- Parameter Assign
- Multi Voice
- Multi Step
- Accent Levels
- Output Channel Assign
- Save Key Data
- Load Key Data
- Copy Voice

As you can see, all of the Jobs in Key Assign mode are available during Real Time Write. This feature is very useful, especially since it gives you the ability to preview voices and voice changes before actually recording them into rhythm patterns. The following examples illustrate this capability.

Example 1. Working in Real Time Write mode, you decide to use a different snare drum voice. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #01 (Voice Assign).
3) Press Instrument Key B.

Continued



This chart shows the stereo position assigned to each of the RX5's 12 output channels.

4) Scan the snare voices available using the −1/NO and +1/YES buttons; preview the snare voices as you scan by tapping Instrument Key B.
5) Once you find the voice you want to use, press the REAL TIME WRITE button.
6) You are now recording in Real Time Write mode again, and can continue to compose using the new snare voice.

Example 2. The snare drum voice you have picked is still not quite what you want. You can alter the voice with the Parameter Assign function. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #02 (Parameter Assign).
3) Press instrument Key B.
4) Change Pitch, Level, Attack, and Decay parameters, following the procedures outlined in the owners manual.
5) Preview the voice changes while altering the parameters by tapping instrument Key B.
6) Once you have altered the sound of the snare voice to your satisfaction, press the REAL TIME WRITE button.
7) You are now recording in Real Time Write mode again, and can continue to compose using the altered snare voice.

Cymbals

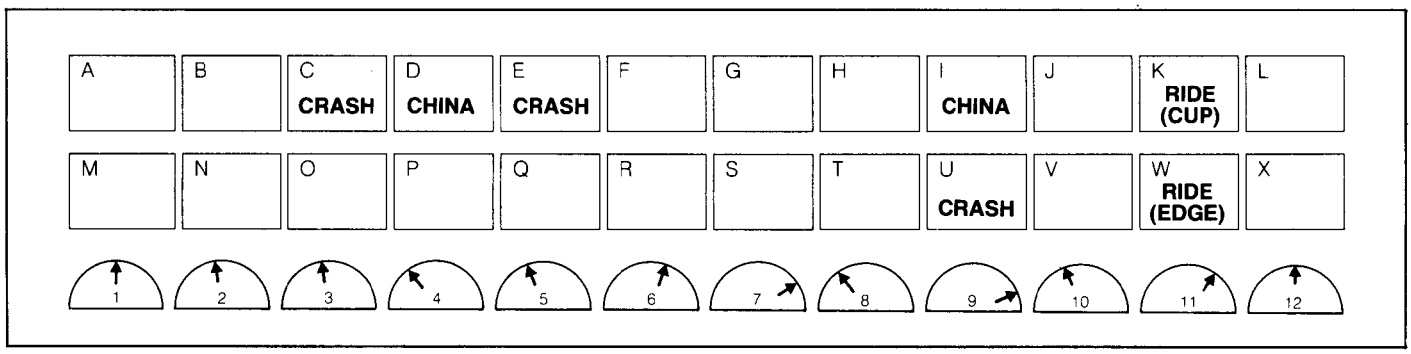
Cymbals produce particularly complex sounds, which have been most difficult to reproduce with authentic qualities. But, with recent technological advances, the RX5 has managed to capture excellent cymbal voices. Drummers no longer have to cringe when it comes time to program the "brass plates."

The distinctive sound and arrangement of a drum kit cymbal setup can also be reproduced using the RX5. It is possible to position the various cymbals of a drum set by placing them in the stereo field. By assigning voices to various output channels, they can be arranged "around" the set. The following step-by-step example illustrates one way to go about this process. It is an invitation to your own invention. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #09 (Copy Voice)
3) Copy Int-Cup to location Cp 1.
4) Copy Int-Edge to location Cp2.
5) Copy Int-China to locations Cp3 and Cp4.
6) Copy Int-Crash to locations Cp5, Cp6, and Cp7.
7) Select Job #06 (Output Channel Assign)
8) Assign Cp1 to channel 11.
9) Assign Cp2 to channel 11.
10) Assign Cp3 to channel 04.
11) Assign Cp4 to channel 09.
12) Assign Cp5 to channel 03.
13) Assign Cp6 to channel 05.
14) Assign Cp7 to channel 09.
15) Select Job #01 (Voice Assign).
16) Assign Cp1 to Key K.
17) Assign Cp2 to Key W.
18) Assign Cp3 to Key D.
19) Assign Cp4 to Key I.
20) Assign Cp5 to Key C.
21) Assign Cp6 to Key E.
22) Assign Cp7 to Key U.

With these assignments, we have created a full cymbal arrangement in the stereo field. The cymbals are set up as they might be in an acoustic situation. (See the accompanying diagram.)

From this point, we can proceed to create a specific color for each cymbal in the "kit." The choice of cymbal tone colors is a trademark of each drummer. Listening to some of your favorite players will show you how each uses cymbal type and tone to build their characteristic



This chart shows the instrument key and stereo layout of the cymbal setup created using the steps outlined in the article.

sound.

Through the altering of voice parameters, various cymbal voices on the RX5 can be varied to meet your musical requirements. The examples below show one attempt at creating some of these individual cymbal sounds. Starting from the cymbal setup we have just created, follow these steps (to avoid confusion, initialize all Key Assign parameters before you begin Voice Editing):

1) Press the EDIT VOICE button.
2) Select Job #01 (Select Voice For Edit).
3) Press Key C (Cp5-Crash).
4) Select Job #02 (Pitch Edit).
5) Enter pitch value +0600.
6) Select Job #03 (Envelope Edit).
7) Enter Attack value 99, Decay 1 Rate value 45, Decay 1 Level value 60, Decay 2 Rate value 37, Release Rate value 99, and Gate Time value 6500.
8) Select Job #04 (Bend Rate/Range)
9) Enter Bend Rate value 00, and Bend Range value 00.
10) Select Job #07 (Store Voice).
11) Press the +1/YES button twice.
12) Select Job #01 (Select Voice For Edit).
13) Press Key D (Cp3-China).
14) Select Job #02 (Pitch Edit).
15) Enter pitch value −0300.
16) Select Job #03 (Envelope Edit).
17) Enter Attack value 99, Decay 1 Rate value 35, Decay 1 Level value 58, Decay 2 Rate value 43, Release Rate value 01, and Gate Time value 6500.
18) Select Job #04 (Bend Rate/Range).
19) Enter Bend Rate value 30, and Bend Range value 01.
20) Select Job #07 (Store Voice).
21) Press the +1/YES button twice.
22) Select Job #01 (Select Voice For Edit).
23) Press Key U (Cp7-Crash).
24) Select Job #02 (Pitch Edit).
25) Enter pitch value −0500.
26) Select Job #03 (Envelope Edit).
27) Enter Attack value 99, Decay 1 Rate value 41, Decay 1 Level value 60, Decay 2 Rate value 50, Release Rate value 60, and Gate Time value 6500.
28) Select Job #04 (Bend Rate/Range).
29) Enter Bend Rate value 00, and Bend Range value 00.
30) Select Job #07 (Store Voice).
31) Press the +1/YES button twice.

Snare Drum—Sustained Sounds

The Long Roll. It is a snare drum technique that takes years of practice to perfect. As difficult as it is to perform on the snare drum, the Long Roll presents a special challenge for drum machine programmers.

The characteristics of the sound stem from the technique used to perform it on an acoustic drum. If you strike a snare drum head, the stick rebounds of its own momentum, and then strikes the head again in decreasing levels. The Roll technique uses this rebound effect to produce multiple strikes per stroke, as a drummer alternates hand to hand. The bounce strikes are, by the laws of physics, progressively weaker in relation to the initial strike. This makes the bounce strike aurally different from the initial strike, and makes the overall effect difficult to reproduce on a drum machine. Most attempts sound like a machine gun roll.

After trying to create this effect by entering each note without suitable success, it was decided to take another approach: to create a sound that would mimic short grace-note effects. The two attempts offered below may give some direction for the development of drum roll voices.

Example 1. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #01 (Voice Assign).
3) Assign Int-SD2 to Key B.
4) Press the EDIT VOICE button.
5) Select Job #01 (Select Voice For Edit).
6) Press Key B.
7) Select Job #02 (Pitch Edit).
8) Enter Pitch value −0200.
9) Select Job #03 (Envelope Edit).
10) Enter Attack value 49, Decay 1 Rate value 43, Decay 1 Level value 60, Decay 2 Rate value 63, Release Rate value 01, and Gate Time value 6500.
11) Select Job #04 (Bend Rate/Range).
12) Enter Bend Rate value 01, and Bend Range value 01.
13) Select Job #07 (Store Voice).
14) Press the +1/YES button twice.

Example 2. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #01 (Voice Assign).
3) Assign Int-SD3 to Key N.

Continued on page 19

TX81Z

MoloElPnos. A New TX81Z Performance Setup By Scott Plunkett.

Notes:

This TX81Z performance setup is based on two voice patches: "RatRhodes" (a new voice) and "Reed Piano" (from the TX81Z's internal ROM bank A).

name: MoloElPnos		1: Reed Piano	5:
		2: RatRhodes	6:
assign mode	NORM	3:	7:
micro tune select	7 7	4:	8:
effect select	PAN		

inst. number	1	2	3	4	5	6	7	8
number of notes	3	5	0	0	0	0	0	0
voice number	A16	I09	I01	I01	I01	I01	I01	I01
receive ch.	1	1	1	1	1	1	1	1
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	+1	+0	+0	+0	+0	+0	+0
note shift	+0	+0	+0	+0	+0	+0	+0	+0
volume	87	99	0	0	0	0	0	0
out assign	L	LR	LR	LR	LR	LR	LR	LR
lfo select	1	2	1	1	1	1	1	1
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	87	89	99	99
freq. type	RTO	FIX	RTO	RTO
fix range	255	4K	255	16K
freq. coarse	15	44	0	0
freq. fine	8	8	0	0
detune	-3	+0	+0	+3

-1-	-2-	-3-	-4-
5.49	2944H	0.50	0.50

ENVELOPES

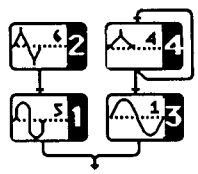
	op1	op2	op3	op4
attack rate	31	31	31	31
decay 1 rate	21	24	25	9
decay 1 level	13	12	15	10
decay 2 rate	10	2	4	8
release rate	5	6	5	8
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS

	op1	op2	op3	op4
rate	2	1	2	0
level	7	0	4	43
ams on/off	OFF	OFF	ON	ON
sens eg bias	0	0	0	0
key vel	7	1	6	7

voice name: RatRhodes

algorithm no. 5
feedback 0



LFO

waveform		sync	OFF
speed	20	delay	22
amp mod depth	12	sens	24
pitch mod depth	7	sens	4

FUNCTION

mode	POLY	mid C =	C 3
portamento	FULL	rev rate	0
porta time	0	pb range	2
vol	99	pitch	47
pitch	0	amp	39
amp	0	eg bias	0
pitch	50	p bias	+0
amp	51		

TX81Z

BigWash. A New TX81Z Performance Setup By Scott Plunkett.

name: BigWash

assign mode NORM
micro tune select OCT. 0
effect select DELAY

1: SqncrBass	5:
2: BigWash	6:
3:	7:
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	C10	I28	I01	I01	I01	I01	I01	I01
receive ch.	1	1	1	1	1	1	1	1
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	+12	+0	+0	+0	+0	+0	+0	+0
volume	99	96	0	0	0	0	0	0
out assign	LR	LR	LR	LR	LR	LR	LR	LR
lfo select	1	1	1	1	1	1	1	1
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	92	82	84
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	13	19	36	19
freq. fine	0	0	0	0
detune	+0	+1	-2	-3

-1-	-2-	-3-	-4-
4.00	6.00	12.00	6.00

ENVELOPES

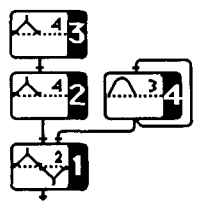
attack rate	31	31	31	31
decay 1 rate	16	25	5	0
decay 1 level	14	12	0	0
decay 2 rate	8	8	0	14
release rate	7	10	2	5
eg shift	OFF	24	12	OFF

SCALING/SENS

rate	1	1	2	2
level	0	0	94	24
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	4	3	4	2

voice name: BigWash

algorithm no. 3
feedback 0



LFO

waveform
speed 26
amp mod depth 0
pitch mod depth 3
sync OFF
delay 22
sens OFF
sens 5

FUNCTION

mode POLY
portamento FULL
porta time 0
vol 99
pitch 0
amp 0
pitch 40
amp 0
mid C = C 1
rev rate 0
pb range 2
pitch 30
amp 0
eg bias 0
p bias +0

Notes:

This TX81Z performance setup is based on two voice patches: "BigWash" (a new voice) and "Sqncr Bass" (from the TX81Z's internal ROM bank C).

TX81Z

BigSlap. A New TX81Z Performance Setup By Scott Plunkett.

name: BigSlap		1: SlapBass	5:
assign mode	NORM	2: ElecBass 1	6:
micro tune select	OCT. 0	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	I15	C09	I01	I01	I01	I01	I01	I01
receive ch.	1	1	1	1	1	1	1	1
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	-1	+1	+0	+0	+0	+0	+0	+0
note shift	+0	+0	+0	+0	+0	+0	+0	+0
volume	99	99	0	0	0	0	0	0
out assign	LR	LR	LR	LR	LR	LR	LR	LR
lfo select	1	2	OFF	OFF	OFF	OFF	OFF	OFF
micro tune	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Notes:

This TX81Z performance setup is based on two voice patches: "SlapBass" (A new voice) and "ElecBass 1" (from the TX81Z's internal ROM bank C).

OPERATOR

	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	72	75	90
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	0	28	24
freq. fine	0	0	0	0
detune	+0	-3	+3	+3
	-1-	-2-	-3-	-4-
	1.00	0.50	9.00	7.85

ENVELOPES

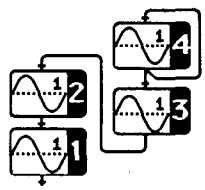
attack rate	31	31	31	31
decay 1 rate	9	1	9	15
decay 1 level	9	0	12	6
decay 2 rate	0	0	6	10
release rate	9	8	8	8
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS

rate	0	2	3	3
level	0	0	27	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	1	0	6	7

voice name: SlapBass

algorithm no. 1
feedback 0



LFO

waveform		sync	OFF
speed	28	delay	0
amp mod depth	0	sens	OFF
pitch mod depth	0	sens	5

FUNCTION

mode	POLY	mid C =	C 2
portamento	FING	rev rate	0
porta time	0	pb range	4
vol	99	pitch	60
pitch	0	amp	0
amp	0	eg bias	0
pitch	80	p bias	+0
amp	0		

RX5

Continued from page 15

4) Press the EDIT VOICE button.
5) Select Job #01 (Select Voice For Edit).
6) Press Key N.
7) Select Job #02 (Pitch Edit).
8) Enter Attack value 64, Decay 1 Rate value 36, Decay 1 Level value 58, Decay 2 Rate value 64, Release Rate value 60, and Gate Time value 6500.
9) Select Job #04 (Bend Rate/Range).
10) Enter Bend Rate value 00, and Bend Range value 00.
11) Select Job #07 (Store Voice).
12) Press the +1/YES button twice.

Damping Technique

Each output channel on the RX5 can sound only one voice at any given instant—each channel is monophonic. Since there are two keys per channel, the tapping of one key initiates the voice sound, while the tapping of the second key will stop the first voice sound and begin the second voice sound. This operating logic of the instrument can be used to produce damping techniques when applied to sustained sounds.

* * * *

The Electronic Age cannot be ignored, because of the many musical possibilities it offers. Also, drum machines are not the demise of the drummer. Rhythm programmers have introduced a new field of knowledge to be studied, and have introduced a new tool for the drummer's professional and artistic development.

As a reproducer of playing technique, rhythm units are still a bit cumbersome, but the quality of the sounds and the potential for altering these sounds offer exciting new areas of experimentation.

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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, "Touch Response." 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!

Write To:
AFTER-
TOUCH,
P.O. Box 2338,
Northridge, CA
91323-2338.

From The Editor

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Joel Balin, a musician who lives in Orlando, Florida. Although Joel has been an Ace Music and Yamaha customer for some time, he has not owned a full YCAM system (until now). He does some work with Disney in Florida, and plays with a Christian music group as well.

Joel's name was drawn from a pool of more than 4500 surveys returned before the deadline. Congratulations to Joel Balin, winner of the Grand Prize in the first AfterTouch/Yamaha Reader Survey.

By the way, those of you who used the Survey to send in requests for product literature, back issues, and AfterTouch subscriptions should know that you are due for some disappointment. All of the Survey responses were sent directly to an outside research service for tabulation, and this service was geared to deal only with the Survey responses. Other requests sent via the Reader Survey cannot be fulfilled directly, and should be resubmitted via the proper channels.

Also, the machines used by the Postal Service managed to chew up a number of the names and addresses on the Surveys we received. If you filled out a Survey but haven't received a T-shirt yet, let us know, and we'll make sure you receive one.

–TD