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MAY 1988

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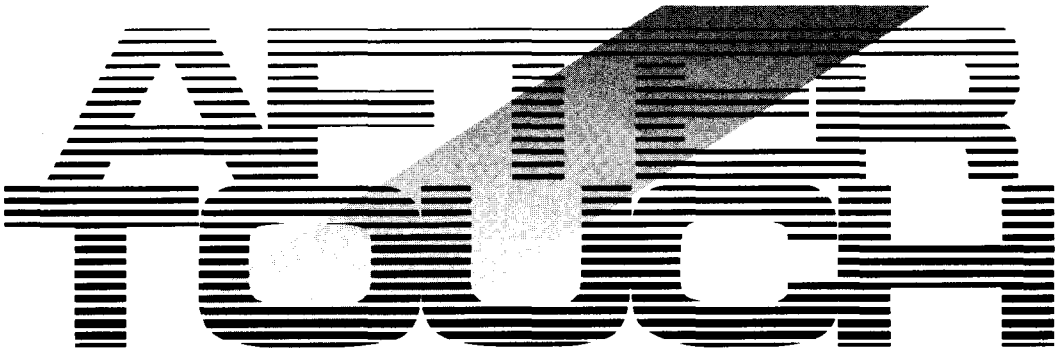

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RX5

A New RX5 Voice Edit By Mark Styles.

Voice Name: **Rap Kick**		Origin: **Int-BD 2**	
JOB #	**PARAMETER**	**RANGE**	**NEW VALUE**
02	**Pitch**	-3600 ~ 2400	**-800 cent**
03/1	**Attack Rate**	1 ~ 99	**99**
03/2	**Decay 1 Rate**	1 ~ 99	**27**
03/3	**Decay 1 Level**	1 ~ 60	**49**
03/4	**Decay 2 Rate**	1 ~ 99	**50**
03/5	**Release Rate**	1 ~ 99	**63**
03/6	**Gate Time**	100 ~ 6500	**0100 ms**
04/1	**Bend Rate**	-60 ~ 60	**00**
04/2	**Bend Range**	1 ~ 60	**00**
05	**Inst Level**	0 ~ 31	**28**
06	**Sound Loop**	OFF / ON	**ON**

RX5

A New RX5 Voice Edit By Mark Styles.

Voice Name: **HVY Gated Claps** Origin: **Int-Claps**			
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	**38**
03/3	**Decay 1 Level**	1 ~ 60	**58**
03/4	**Decay 2 Rate**	1 ~ 99	**58**
03/5	**Release Rate**	1 ~ 99	**49**
03/6	**Gate Time**	100 ~ 6500	**6500 ms**
04/1	**Bend Rate**	-60 ~ 60	**01**
04/2	**Bend Range**	1 ~ 60	**-42**
05	**Inst Level**	0 ~ 31	**27**
06	**Sound Loop**	OFF / ON	**ON**

RX5

Voice Name: **Simmons Tom**		Origin: **Crt-CgaLO**	
JOB #	**PARAMETER**	**RANGE**	**NEW VALUE**
02	**Pitch**	-3600 ~ 2400	**+700 cent**
03/1	**Attack Rate**	1 ~ 99	**99**
03/2	**Decay 1 Rate**	1 ~ 99	**47**
03/3	**Decay 1 Level**	1 ~ 60	**40**
03/4	**Decay 2 Rate**	1 ~ 99	**04**
03/5	**Release Rate**	1 ~ 99	**50**
03/6	**Gate Time**	100 ~ 6500	**1300 ms**
04/1	**Bend Rate**	-60 ~ 60	**07**
04/2	**Bend Range**	1 ~ 60	**-24**
05	**Inst Level**	0 ~ 31	**25**
06	**Sound Loop**	OFF / ON	**ON**

A New RX5 Voice Edit By Jon Byrnes.

Notes:

To create an entire set of Simmons Toms, type in this voice edit, and then play the range of pitches you desire using a MIDI keyboard.

RX5

Voice Name: **Drumplosion**		Origin: **Crt-SD 3**	
JOB #	**PARAMETER**	**RANGE**	**NEW VALUE**
02	**Pitch**	-3600 ~ 2400	**-2500 cent**
03/1	**Attack Rate**	1 ~ 99	**99**
03/2	**Decay 1 Rate**	1 ~ 99	**40**
03/3	**Decay 1 Level**	1 ~ 60	**58**
03/4	**Decay 2 Rate**	1 ~ 99	**61**
03/5	**Release Rate**	1 ~ 99	**60**
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	**27**
06	**Sound Loop**	OFF / ON	**ON**

A New RX5 Voice Edit By Keith Sternberg.

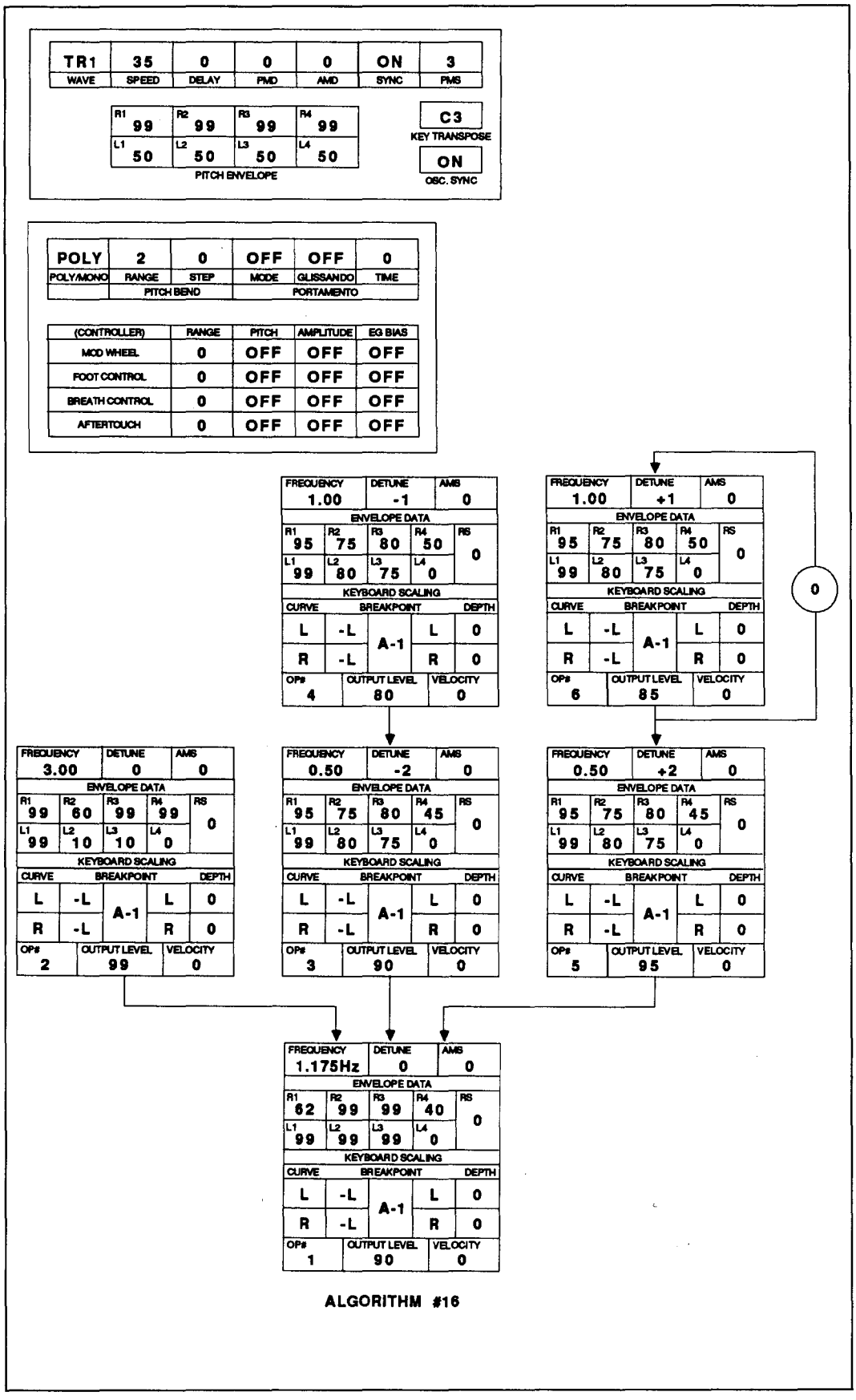
DX7

ANTI-GBM2. A New DX7 Voice By David Levin.

Notes:

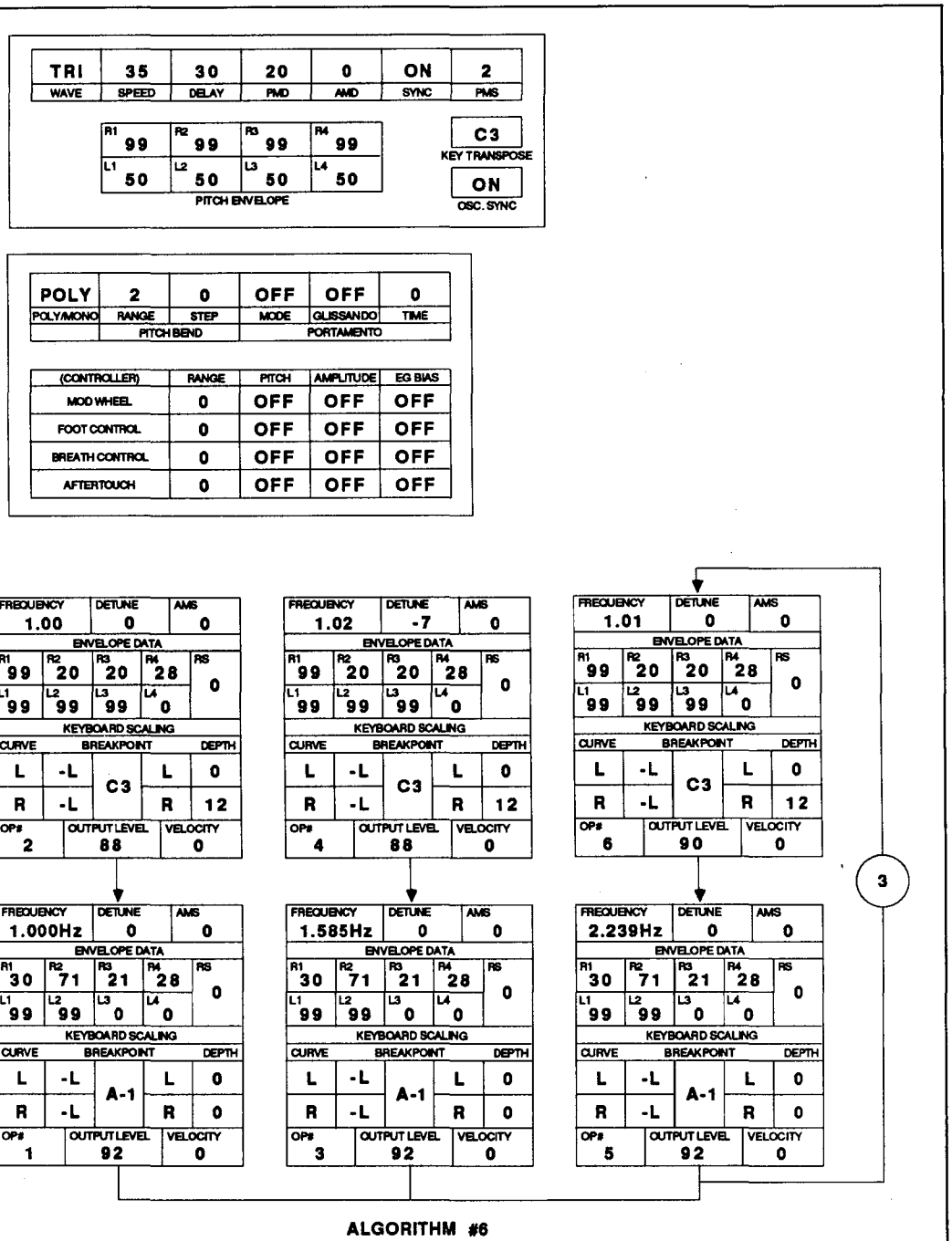
A complex beat (frequency) pattern is set up among the modulators to produce interesting and unusual temporal changes in timbre when a note is sustained.

The percussive attack of this patch can be reduced by lowering either the output level or the EG rate 1 of Op #2. The rate of timbre shift can be controlled by varying the detuning in Ops #3-6.



ALGORITHM #16

NEBULA. A New DX7 Voice By Tom Bajoras.



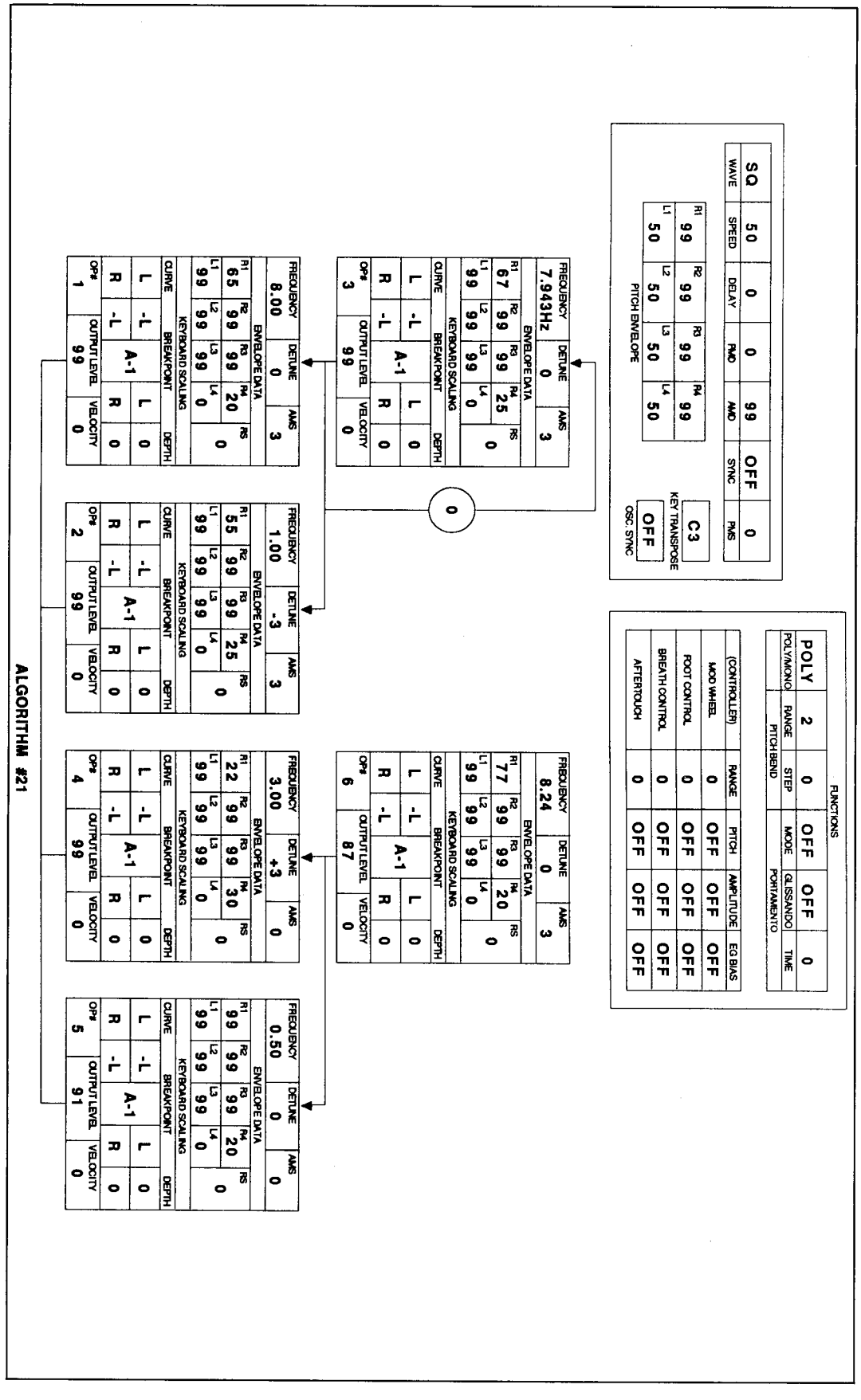
ALGORITHM #6

Notes:

This sound works best in the top three octaves of the keyboard. It is useful for Tomita-like string/space pads.

DX7

FRBDN PLNT. A New DX7 Voice By David Forbus.



Notes:

Forbidden Planet—yes folks, it's another one of those space noises; but, how many other sounds make use of algorithm #21?

WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS
TRI	35	50	0	0	ON	2

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	27	ON	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	0	OFF	OFF	OFF

FREQUENCY	DETUNE	AMS
1.00	+5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
60	95	70	0	1
L1	**L2**	**L3**	**L4**	
99	95	80	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A3	L	0
R	-L		R	50

OP#	OUTPUT LEVEL	VELOCITY
2	89	0

FREQUENCY	DETUNE	AMS
1.00	-5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
60	95	70	0	1
L1	**L2**	**L3**	**L4**	
99	95	80	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A3	L	0
R	-L		R	50

OP#	OUTPUT LEVEL	VELOCITY
4	69	0

FREQUENCY	DETUNE	AMS
1.00	+3	0

ENVELOPE DATA

R1	R2	R3	R4	RS
70	30	25	50	1
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
6	69	2

FREQUENCY	DETUNE	AMS
1.00	-5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
50	0	10	45	1
L1	**L2**	**L3**	**L4**	
99	90	99	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	C2	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	1

FREQUENCY	DETUNE	AMS
2.00	+5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
50	0	10	45	1
L1	**L2**	**L3**	**L4**	
99	90	99	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	C2	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
3	99	1

FREQUENCY	DETUNE	AMS
1.00	-3	0

ENVELOPE DATA

R1	R2	R3	R4	RS
70	30	25	50	1
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
5	99	0

7

ALGORITHM #6

COTTEN-KEYS. A New DX7 Voice By Ken Whitson.

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, DX7s, TX802, and DX7 II FD/D.

PF2000

An Introduction To Yamaha's Newest Electronic Piano.

By Tom Darter.

PF2000 electronic piano.

FOR YEARS, YAMAHA'S LINE of electronic pianos has offered musicians a useful combination of good sound quality, portability, and realistic piano-like touch. Now, for the first time, Yamaha has created an electronic piano whose tone generation system is the same as that of the DX7 II line of FM digital synthesizers.

As a result, this electronic piano, the PF2000, opens up new vistas for electronic piano users, because it includes a cartridge port that is completely compatible with ROM and RAM cartridges created for use with the DX7 II digital FM synthesizer family and the TX802 FM digital tone generator. In other words, the new PF2000 offers much more than the great piano-like timbres of its predecessors–it offers access to the entire universe of FM digital timbres created for the DX7 II family of synthesizers.

Basic Layout

The PF2000 features a complete 88-note keyboard, with Yamaha's advanced AE "Action Effect" mechanism. Electronically, it contains two complete 16-note polyphonic tone generators–giving it full 16-note polyphony in Dual and Split modes (all of the instrument's 12 internal presets are Dual mode patches). In addition, the PF2000 features stereo speakers (driven by an internal 20W power amp) for stereo output, a two-track recorder (a sequencer to record performances from the PF2000 keyboard), versatile MIDI implementation, extensive controller functions, and much more.

In addition, the PF2000 offers an extensive set of front-panel controls and back-panel connections, for increased flexibility.

Front Panel Controls

The unit's front-panel controls include the following:

Master Volume Slider: This controls the volume of the PF2000's built-in speakers and the volume of the signal sent from the rear-panel Line Outputs.

Sound Controller Slider: When playing the 12 presets, this slider controls the tone color (as outlined below). When playing cartridge sounds, this slider functions as a CS2 (in the DX7 II universe).

Tempo Slider: This allows you to adjust the tempo of the built-in recorder over a range of 40-300 beats per minute.

Metronome Volume: This switch allows you to adjust the volume of the built-in metronome.

Track Select I, II: These switches allow you to set the condition of the two tracks in the

PF2000's built-in recorder.

Start: For use with the built-in recorder, this switch begins playback or recording. (When recording, there will first be a two-measure countdown.)

Stop/Continue: For use with the built-in recorder, press this switch to stop playback or recording, and press again to continue playback from where you stopped.

Repeat: For use with the built-in recorder: When Repeat is ON, tracks will play over and over. (Repeat will not function when recording.)

Voice Select Switches: In Preset Play mode, these ten switches select preset sound 1-10. In Cartridge Play mode, they are used to enter a two-digit number to select a voice or performance from a cartridge. In Function mode, they are used to select functions 1-0.

Dec/Inc Switches: In Preset Play mode, these switches select preset sounds 11 and 12. In Cartridge Play mode, they select the next (INC) or previous (DEC) performance or voice from a cartridge. In Function mode, they change data values.

Cartridge: This allows you to switch between Preset Play mode and Cartridge Play mode.

Variation: In Preset Play mode, press this switch to add a variation or effect to each of the 12 preset sounds. In Cartridge Play mode, press this switch to view either the performance name or the two voice names in the performance.

Function: Press this switch to move between Play mode and Function mode.

Back Panel Connections

The unit's front-panel connections and controls include the following:

Foot Switch and Sustain: The Foot Switch (FS) jack responds to Yamaha FC4 and FC5 footswitch controllers. The Sustain jack can also respond to these controllers, but requires a FC8 footswitch to take advantage of the PF2000's four-stage sustain feature.

Foot Controllers 1 & 2: You can connect continuous-type foot controllers to these two jacks to control the unit's sound, as defined in Function mode (see below).

Mono Out: This provides a mono output from the PF2000.

Line Input A/Mono B: An audio source can be connected here to be heard over the PF2000's speakers. You could also use these inputs to return a signal from a stereo reverb or effects units such as the REX-50 (connect the PF2000's Mono Out to the effect device's audio input). Using the Line Input will not affect the sound of the PF2000.

Output A, B: The PF2000 has its own built-in stereo sound system, but you can also use these jacks to connect the PF2000's output to your own external amp/speaker system.

MIDI: In line with current standards, the PF2000 is equipped with MIDI IN, MIDI OUT, and MIDI THRU ports, and features full MIDI implementation.

Cartirdge Port: This port allows use of the ROM cartridge included with the PF2000, or any ROM or RAM cartridge intended for the DX7 II series or the TX802.

Headphone Jacks: For private listening, a set of standard stereo headphones can be plugged into a headphone jack at the lower left of the front panel. Two headphone jacks are provided.

Speaker On/Off Switch: If desired, this switch allows you to turn off the PF2000's internal speakers. This can be useful when using the instrument with an external amp/speaker system.

Preset Play Mode

The simplest way to use the PF2000 is to play the 12 internal preset voices. Each voice is called up using one of the front panel controls.

Each of the 12 internal preset voices has a tone variation that can be engaged by pressing the Variation switch. In addition, the front-panel Sound Controller slider and a continuous-type foot controller (FC7) connected to the rear-panel FC1 or FC2 jacks can also modify the sound.

All of these possibilities are shown in the list below. After the name of each preset, there are four initials: **D**, **V**, **SC**, and **FC**. After the **D**, you will find a description of the preset sound; after the **V**, you will find a description of the variation available using the Variation switch;

after the **SC**, you will find a description of the preset sound modification assigned to the Sound Controller slider; and, after the **FC**, you will find a description of the preset sound modification assigned to the Foot Controller:

1: PIANO 1
D: solid grand piano
V: detuned honkey-tonk
SC: middle frequencies
FC: detune

2: PIANO 2
D: soft upright piano
V: harder and brighter
SC: brightness
FC: detune

3: PIANO 3
D: bright electric grand
V: rounder, with chorus
SC: tone
FC: detune

4: E PIANO 1
D: FM electric piano
V: automatic stereo pan
SC: brightness
FC: detune

5: E PIANO 2
D: muted electric piano
V: automatic stereo pan
SC: high overtones
FC: high overtones

6: E PIANO 3
D: spacious electric piano
V: more attack
SC: high overtones
FC: detune

7: E PIANO 4
D: bright electric piano
V: automatic stereo pan
SC: high overtones
FC: middle frequencies

8: HARPSI 1
D: large harpsichord
V: cut low frequencies
SC: decay rate
FC: decay rate

9: HARPSI 2
D: small harpsichord
V: chorus effect
SC: tone
FC: tone

10: VIBE
D: vibes–hard mallet
V: automatic stereo pan
SC: panning speed
FC: detune

11: CLAV
D: funky clavinet
V: brass-like attack
SC: high overtones
FC: middle frequencies

12: MARIMBA
D: standard marimba
V: feedback echo effect
SC: attack rate
FC: attack rate

The Variation, Sound Controller, and Foot Controller settings for these presets can be altered in Function mode, and the PF2000 will retain the current settings even when turned off. To recall the factory preset settings, turn the PF2000's power ON while pressing the Function button.

Cartridge Play Mode

In addition to its own 12 internal preset voices, the PF2000 can also use voice and performance data from cartridges created for the DX7 II family, plus voice data from cartridges created for the TX802 tone generator. With an ADP1 cartridge adaptor, it is also possible to use voices (only) created for the original DX7 (or DX5 or DX1) on the PF2000.

The PF2000 comes with a four-bank ROM cartridge, which offers a wider variety of voices and performances. Banks 1 and 2 contain voice and performance data (32 performances and 64 voices each); Bank 3 contains fractional scaling data; and Bank 4 contains demonstration data for the PF2000's built-in recorder.

The first two Banks in the PF2000's ROM cartridge contain the following performance data:

CARTRIDGE BANK 1
1. Reverb Brass
2. Double French Horns
3. CS80 Brass
4. Analog Brass
5. Synthe Brass
6. High Strings
7. Classical Strings
8. Full Electric Piano

9. Rubber Electric Piano
10. Floating E. Piano
11. Antique Harpsichord
12. Jazz Organ
13. Rotary Electro Organ
14. Pipe Organ
15. Antique Organ
16. Old School Harmonium
17. Organ Choir
18. Church Choir
19. Lady Vox
20. Maribumba
21. Metal Marimba
22. Jamaica Mallet Band
23. Celeste and Strings
24. Strings and Brass
25. Digital Orchestra
26. Gut Guitar
27. Space Chorus
28. Pizzi String Section
29. Wood Bass–Trumpet
30. BopBass–BrightClav
31. String Bass–Guitar
32. StringPad–Englishorn

CARTRIDGE BANK 2

1. Warm String Section
2. Orchestra Violins
3. Cello Quartet
4. Mallet Brass
5. Dual Trumpets
6. Double Horn Section
7. Synth Brass Ensemble
8. Acoustic Grand Piano
9. Honky Tonk Piano
10. Toy Music Box
11. FM Wire Strung Piano
12. Electric Grand Piano
13. Stereo Electric Piano
14. Grand Harpsichord
15. Dual Clavinette
16. Acoustic Pick Guitar
17. Stereo Vibraphone
18. Steel Can
19. Electric Rock Organ
20. Touch Jazz Organ
21. Floating Angel Choir
22. St. Elmos String Bell
23. Piano Bell Ensemble
24. Double Harp
25. Phasar Whasars
26. Tubular Bell Wah
27. Orchestra Wallop
28. ElecBass–ElecPiano
29. FatBass/HeavyMetal
30. Double Harp–Song Flute
31. Strings–ClariSolo
32. Strings–Trumpet

Function Mode

This mode allows you to make various performance-oriented settings for the PF2000, to suit your needs. First, press the Function switch, then press switches 1-0 to access various functions. Each switch accesses several functions–press each switch repeatedly to cycle through the various functions.

Here is an abbreviated list of operations available in the Function mode, listed according to the Function switch (1-0) involved:

F1. Tuning/Transpose: This allows access to the Master Tuning and Transpose functions for the instrument.

F2. Cartridge Memory/Touch curve: This allows the choice between Performances or Voices in Cartridge Play mode, and also allows the choice between three "touch curves" for keyboard response.

F3. Foot Switch: These settings determine the functions of the Foot Controllers and Foot Switches connected to the PF2000's back panel (only in Preset mode).

F4. Voice Functions: This allows you to set four functions independently for each of the unit's 12 internal preset sounds. The four preset voice functions are a sfollows: Micro Tuning, Output Level, Touch On/Off, and Program Change.

F5. Sequence Recorder: This button accesses six functions for the PF2000's built-in sequence recorder.

F6. Cartridge: This button accesses various cartridge memory functions.

F7. Bank Select: This button allows access to the multiple memory banks that are anticipated for future RAM and ROM cartridges.

F8. MIDI Reception: This button's functions determine how th PF2000 deals with incoming MIDI data.

F9. MIDI Transmission: This button's functions determine how the PF2000 transmits MIDI data.

F0. Send Program Change: This function allows you to transmit a three-digit Pro-

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TX16W

A Detailed Guide To Using The Yamaha TX16W Sampler, Part 2.

By Scott Plunkett.

LAST MONTH, IN THE FIRST installment of our TX16W clinic, you got a close look at some of the sampler's utility functions–primarily those functions that help you manage memory and deal with disks. Now that the practical stuff is out of the way, you can get back to musical matters. This month you'll be learning techniques to make your voices respond musically by taking advantage of the TX16W's unique voice and timbre parameters.

Speeding Up Voice And Timbre Creation

Normally, once you've created a voice consisting of your new samples, you'll want to use it as the basis for new voices. If, for instance, you have a nice multi-sample guitar voice, you'll probably want to try some versions of the voice with different filter settings, various tunings, or other EG settings. You could edit your existing voice and save it to a new location, but since the TX16W uses a fairly elaborate system of handling edit buffers and stored voices and timbres, it's better not to use this method. If you plan ahead a little, you can save yourself some potential confusion down the road and speed up the entire voice and timbre creating process.

For this example, let's say that you're using the multi-sample guitar voice mentioned above, and that it contains 10 samples. You've just created your voice by using voice number 1 as a starting point and assigned timbres 1-10 (which contain waves 1-10) to it. When you're ready to store your voices and timbres, follow these steps.

1) Store edit buffer voice 1 to internal voice memories 1-10 (Utility, job 1).
2) Store edit buffer timbres 1-10 to internal timbre memories 1-10, 11-20, 21-30, 31-40, and so on. Make sure you maintain the relative relationship of each timbre in the voice; for instance, store timbre 1 to timbre 11, timbre 2 to timbre 12, timbre 3 to timbre 13, and so on.
3) Save the voices and timbres to disk (Utility, job 3).
4) Load the voices and timbres to the edit buffers (Utility, job 2). When you're ready to create a new voice, select voice 2 (Perform Edit, job 1), and assign timbres 11-20 to slots 1-10 (Voice Edit, job 1).

Now you can make any changes you like to your new voice without affecting your original voice. Any time you want to create a new voice, follow the same procedure: Select the next available voice (for instance, voice 3) and assign a new set of timbres (21-30).

Creating Chorused Voices

It's fairly easy to get a friend to bring an instrument over and let you sample it. It's usually quite a bit more difficult to get a group of people (or an instrumental section) to make samples for you. If you have a disk of a solo instrument and you'd like to get an ensemble type of sound, you have a few tricks at your disposal.

The most obvious way to create an ensemble effect is to set up a performance that includes the same voice playing twice. This is a wonderfully effective technique for fattening up a voice in the world of FM and analog synthesis. Unfortunately, it isn't always quite as impressive in the sampling world. Often, when you stack the same sampled voice, you get a thin, unnatural flanged sound. Without getting overly technical about it, the flanging occurs because the exact same complex sound is being played with a slight timing offset. That is, even though it seems that stacked sounds play at exactly the same time, they usually trigger at slightly different times from one another, which can cause odd phase relationships between the two sounds.

With some samplers, you're pretty much stuck with this dilemma, but on the TX16W you can use the voice slot parameter to get around it. You've probably noticed that when you play down from the sample root key, the sample takes on a darker, slowed down quality. And, when you move up the keyboard, the opposite effect occurs. What you will be doing is creating a new voice and shifting the high and low key assignments of each slot down so that the samples play in a lower range than usual. This will create a darker version of your original voice. The resulting voice may not be stunning by itself, but it's great when you stack it with the original. Follow these steps:

1) Choose a new voice (Perform Edit, job 1).
2) Move the high and low key of each slot down a major third (Voice Edit, job 1). The best way to do this is to move the high key for the first slot down a major third by

TX16W digital wave filtering sampler.

playing your MIDI keyboard. Leave your finger positioned over the note a half step up. Go to the next slot, move the cursor next to "Lok" and change the low key assign by playing the keyboard. Continue as usual by moving the high key of the slot down a major third. Be sure you remember to change the low key for all but the first slot or you'll wind up with ranges of your keyboard that don't play anything at all.

3) Assign eight notes to the new voice and eight notes to the original voice (Perform Edit, job 1).
4) Use performance detune (Perform Edit, job 5) and different output assignments (Perform Edit, job 3) if you like, to add to the ensemble effect.

You should now have a performance that is much richer than your original voice. The basic theory at work here is that you've managed to change the relationship between the two voices in such a way that when you play a note, you almost never get the exact same version of a sample playing twice. Since the effect of playing different samples of the same instrument at the same time is similar to what happens in a real ensemble, voice stacking is much more effective when you move the slot ranges.

In this example, you moved the voice slot ranges down a major third to make a thicker, darker sound. This usually works best when you want to add extra body to an ensemble sound. If you want to generate a brighter version of a voice, just transpose the voice slot ranges up instead of down. The further up or down you move the slot ranges, the more dramatic the effect will be.

Crossfading Voices To Create Dynamics

So you've got that fantastic disk of your favorite piano (or trumpet or violin). When you listen to the individual samples, they sound great. Somehow, though, the whole thing begins to sound a little weird whenever you play it musically. If this has ever happened to you (and if it hasn't, it will), you've probably been a victim of the "no dynamic expression" problem that sometimes plagues samplers.

To get a better idea of this problem and why it occurs, think about what happens when you play a piano at different levels. It not only changes level when you play harder, it also changes tone. Generally, the harder you play, the brighter the piano sounds. When you take a piano sample, you usually wind up taking all the samples at one dynamic level and using the velocity curve settings to recreate the dynamics of a piano. While this does a wonderful job of taking care of the piano's volume changes, it can't compensate for the tone color differences that occur at different dynamic levels.

There are a couple of possible solutions to this problem. The most common one is to take multiple samples of the piano at, for instance, two dynamic levels and put all of them in the sampler. By crossfading betwen these two sets of samples you can recreate the dynamic response of your piano a little more convincingly. The drawback with this approach is that it requires a lot of memory. For those of you who've man-

aged to stuff your TX16W with 6 meg of memory, you shouldn't have much trouble working this out.

If you aren't lucky enough to have a 6 meg (or even 3 meg) TX16W, there's another approach you can take. This method uses the TX16W's digital filters to imitate the effect of crossfading two sets of samples. Since acoustic instruments are normally darker when they are played softly, you can use the filters to create a dark version of a voice that plays on soft keyboard strikes, and then use the velocity curve to assign a second, brighter voice to fade in as you play harder.

There are two basic steps to this process: 1) Construct the filter that you want to use for soft strikes, and 2) Adjust the velocity curves to crossfade between the two voices.

Creating A Voice For Soft Keyboard Strikes

Construcing a filter for the soft strikes is faily simple. Since you want the voice that plays on soft strikes to be darker, you can use a lowpass filter to cut out the high harmonics. Follow these steps:

1) Choose a new voice (Perfom Edit, job 1) and assign unused timbres to it (Voice Edit, job 1).
2) Assign one of the "init filters" to all of the timbres in the voice (Voice Edit, job 3). You can use the same filter for all of the timbres, or, if you really want to go wild, try using a different filter for each timbre and optimizing each one for he keyboard range you're working on.
3) Use a low pass filter table (Filter Edit, job 1) to imitate the lower harmonic content of an acoustic instrument being played quietly. Filter tables 5 or 13 are good starting places. Change the dynamic and fixed range of the filter until you're happy with the sound.
4) Set the velocity bias sensitivity (Filter Edit, job 6) so that the filter brightens slightly as you play harder.

When you're finished setting the filter, adjust the velocity curves in the voice. What you're basically trying to accomplish is to make the soft strike voice gradually increase in volume when it's being played at low velocities.

At a certain point, though, you may want this voice to begin fading out to make room for the hard strike voice. Follow these steps:

1) Try setting the velocity curve (Voice Edit, job 5) to the following values for starters:

Bp1	L1	D1	Bp2	L2	D2
0	10	0	83	87	−5

Make any changes you like to compensate for your MIDI controller's velocity characteristics. Just try to make the volume changes as smooth as possible. Check the graphic display (press ENTER) for a visual representation of the curve.
2) Change the velocity curves for all of the timbres in the voice. Hold down ENTER and play your MIDI controller to change timbres.

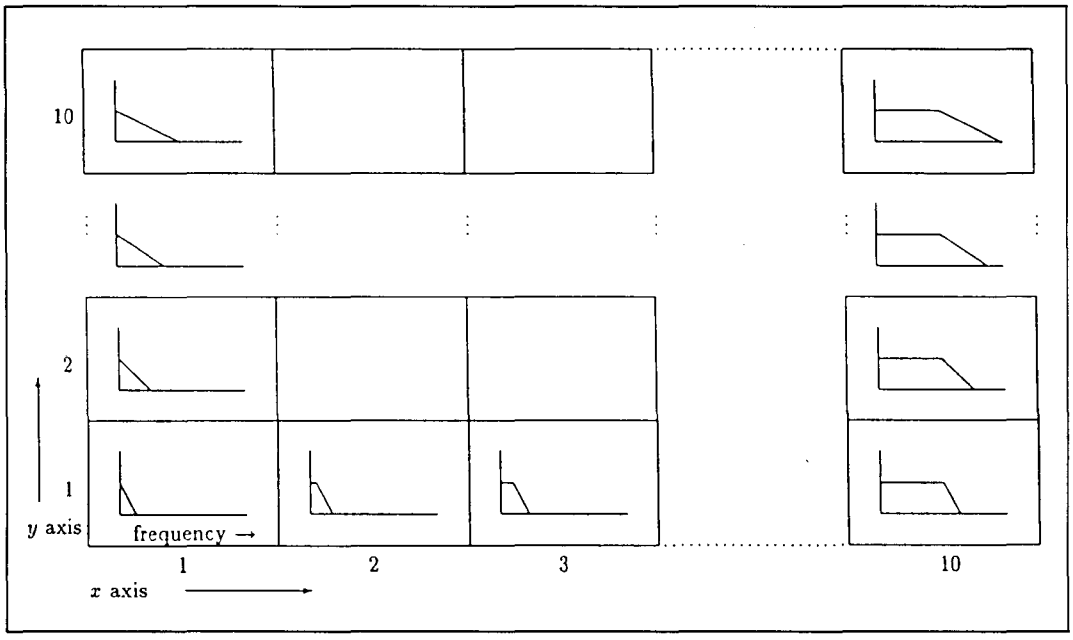
Creating A Voice For Hard Keyboard Strikes

As long as the original samples are bright enough, you can usually build your hard strike voice by making very few modifications to the original voice (if you need more brightness, though, you can always put the timbres in the hard strike voice through one of the TX16W's highpass filters to accentuate the high frequencies). Assuming your original voice is already bright enough, you only need to change the velocity curve settings to construct your new voice. Follow these steps:

1) Assign a second, unused voice to the performance (Perform Edit, job 1) and select new timbres for it (Voice Edit, job 1).
2. Go to the velocity curve display (Voice Edit, job 5) and select a timbre in the middle of the keyboard to start editing (hold ENTER and press a key on your MIDI controller).
3) You don't want this voice to play much at low velocities, but it should take over when you play hard. Try these settings to get started:

Bp1	L1	D1	Bp2	L2	D2
56	0	0	91	99	0

Play a key at gradually harder velocities to make sure the transition between the two voices sounds natural. Make any necessary changes to the velocity curves until you're satified.
4) Change the velocity curves for all of the timbres in the voice.



This diagram shows a TX16W Filter Table for a basic low-pass filter.

Once you've learned this voice crossfading technique, you can create all kinds of velocity-sensitive effects. Try crossfading between voices with different filter types, have voices change octaves as you play harder, and pan voices across the stereo field with velocity. Remember, the TX16W's velocity curve parameter is a powerful tool. If you need velocity related effects, look here first.

Velocity Bias

Another unique TX16W feature that can add expression to your samples is the velocity bias parameter. This is essentially equivalent to controlling the velocity of a voice with a MIDI controller such as the modulation wheel, foot controller, aftertouch, or breath controller. So, if you like, you can do your crossfading with a controller in addition to using your keyboard.

As an example, you could take an average sax voice and make a performance that allows you to imitate a sax "growl" effect with a breath controller. Follow these steps:

1) Choose a new voice (Perform Edit, job 1) and assign unused timbres to it (Voice Edit, job 1).
2) Assign a lowpass filter (Voice Edit, job 3; Filter Edit, job 1) and set the individual LFOs in the voice to a very fast speed (Voice Edit, job 8).
3) Set the velocity curves in the voice so that only very high velocities will make them play (Voice Edit, job 5)
4) Turn the velocity bias sensitivity to 99 for the breath controller (Voice Edit, job E2).
5) Create a performance with your original sax voice assigned to eight notes and your new voice assigned to eight notes (Perform Edit, job 1).

Now, hook up your breath controller to your MIDI keyboard. When you play normally, you'll hear only your original sax voice. If you want to add "growl" for expression, blow into the breath controller.

* * * *

That's it for our TX16W clinic. Try the techniques you've learned over the past two issues and you'll get a good idea of the potential power of the TX16W. Remember, experimenting always pays off, especially when it leads to that unexpected great sound. Good Luck.

Hot Tips

Reader Tips For The DX7 II FD, CX5M, SPX90, And More.

Transferring Voices From File To File On A DX7 II FD Disk Without A RAM Cartridge

By Louie Munn

I recently discovered a way to transfer up to two voices at a time from one file to another on a DX7 II FD disk *without* the use of a RAM cartridge.

For clarity in the outline below, File 1 will be the file to which you want to move voices, and File 2 will be the file that contains the voices you want to move to File 1. Follow these steps:

1) Load File 1 into the DX's internal memory, and decide on locations for the voices to be added. Write these locations down.
2) Load File 2 into the DX's internal memory, put the instrument into Dual mode, and call up the two voices to be transferred.
3) Load File 1 linto the DX's internal memory again–the two voices from File 2 are residing in the DX's Play/Edit buffer.
4) Now store the two voices to the predetermined locations in File 1, and save the File back to disk.

If you want to move more than two voices from one file to another, simply repeat the process, moving two voices at a time, until you have accomplished your goal.

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CX5M Voice Modifications

By David A. Stevens

I have a CX5M music computer, and have developed modifications to nine of the unit's internal ROM voices. I find that I use these very often. The first two are programming voices, and the true effect of the modifications process only shows up in playback. The other seven can easily be played as an "m-play" voice, as they are being programmed. In each case, I have given the name of the new voice plus the number of the original ROM voice, followed by the parameter values that need to be altered:

Space Violins (#36):
poly (what's needed), wf 2, lf 120, sus 5, Ams 2, Pms 3, Amd 0, Pmd 0, tra 24, 2ou, FF, len 80.

Bass (#28):
poly (what's needed), tra-24, 1od, len 178, sus 5, FFF.

Phanta(s)m 1 (#12):
poly (what's needed), lf 204, Ams 2, Pms 4, Amd 10, Pmd 54, sus 6-8.

Phanta(s)m 2 (#15):
poly (what's needed), lf 202, Ams 2, Pms 2, Amd 12, Pmd 32, sus 6.

Bagpipe (#30):
poly (what's needed), lf 169, Ams 3, Pms 2, Amd 2, Pmd 92, sus 6.

Intergalactic Phi-Beta Stampede (#34):
poly (what's needed), wf 3, Ams 3, Pms 6, Amd 35, Pmd 98, tra-12, sus 5.

Bells (#32):
poly (what's needed), wf 1, lf 182, Ams 1, Pms 3, Amd 8, Pmd 47, tra 24, sus 6.

Martian Mandolin (#39):
poly (what's needed), wf 1, lf 120, Ams 1, Pms 3, Amd 4, Pmd 48, sus 8.

Midi-evil (#24):
poly (what's needed), lf 176, Ams 1, Pms 4, Amd 6, Pmd 20, sus 5.

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An SPX90 Program For Use With Rhythm Programmers

By Michael Trainor

I came up with a pretty interesting program for the SPX90 while working with it and an RX21 drum unit. Starting with the Pitch Change A (preset #21) program, make these adjustments:

Pitch: 0
Fine: 0
Delay: 18.0 ms
FB: 90%
Base Key: C3

With the program and a pattern similar to preset pattern #67 in the RX21 memory, an electronic keyboard-type sound can be created. By adjusting the Delay setting of the SPX90, the key that the RX21 will play in can be raised or lowered. For example, a Delay setting of 18.0 ms will give the key of A, a Delay setting of 20.1 ms will give the key of G, and a Delay setting of 22.6 ms will give the key of F.

Back Issues

Important Information For All AfterTouch Readers.

EVER 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 always 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.

Because of this situation, it is impossible for us to continue to fulfill back issue requests: We simply can't mail out back issues when we don't have any left to mail out.

However, due to the enormous demand for material from our earlier issues, Yamaha is considering 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 back issue request but have not yet received your issues, you should assume that your order was impossible to fulfill. We are sorry for this inconvenience.

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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PF2000

Continued from page 13

gram Change number (1-128) to an external MIDI unit without changing the PF2000's voice.

Recorder Mode

The PF2000 has a built-in MIDI recorder with a capacity of about 2600 notes, which can come in handy when your are practicing or working out compositional ideas. For example, you could record a difficult phrase slowly, and play it back up to speed to see how it sounds.

The Yamaha PF2000 electronic piano will be available soon at authorized Yamaha music dealers. Two accessories will also be offered: 1) The LG-PF2000 stand, which comes complete with both FS and Sustain footswitches; and 2) The CH-PF2000 matching seat. The stand will be offered as standard equipment. For more information, write to: Yamaha Music Corporation USA, Digital Musical Instruments Division, P.O. Box 6600, Buena Park, CA 90622-6600.