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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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YOU CAN RECEIVE AFTERTOUCH for an entire year, absolutely free, just by asking. If you are not already on our mailing list and would like to be, fill out the attached postcard. Be sure to sign the card (a postal regulation); it lets us know that you really want to receive AfterTouch.

After you have filled in the relevant information, put a stamp on the postcard and mail it to us. When we receive the card, we'll put you on our permanent mailing list, and you will receive twelve issues of AfterTouch absolutely free! There is absolutely no obligation, and no other strings are attached.

(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.
SONG BELLS. A New DX7 Voice By Bruno Choiniere.

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.

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.

ALGORITHM #1
MR MOOG
FC. A New
DX7 Voice By
Bob Lewin.

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 expres­
sive control.
If desired, Portamento can be
added, to approximate yet
another important lead syn­
thesizer effect.
**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."

<table>
<thead>
<tr>
<th>name: BassnDyno</th>
<th>1: Jaco Bass2</th>
<th>2: JazzWalker</th>
<th>3: ChorusMeEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>assign mode</td>
<td>NORM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>micro tune</td>
<td>OCT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>effect select</td>
<td>DELAY</td>
<td></td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>inst. number</th>
<th>1 2 3 4 5 6 7 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of notes</td>
<td>1 1 6 0 0 0 0 0</td>
</tr>
<tr>
<td>voice number</td>
<td>I32 I31 I30 I01 I01 I01 I01 I01</td>
</tr>
<tr>
<td>receive ch.</td>
<td>1 1 1 1 1 1 1 1</td>
</tr>
<tr>
<td>key limit /L</td>
<td>C-2 C-2 C-2 C-2</td>
</tr>
<tr>
<td>key limit /H</td>
<td>C 3 C 3 G 8 G 8 G 8 G 8 G 8</td>
</tr>
</tbody>
</table>

| detune | +3   | -3   | +0   | +7   | +7   | +7   | +7   | +7   |
| note shift | +12  | +12  | +0   | +0   | +0   | +0   | +0   | +0   |
| out assign | L  R  LR LR LR LR LR LR |
| lfo select | 1 1 VIB 1 1 1 1 1 1 |
| micro tune | OFF OFF OFF OFF OFF OFF OFF OFF |

**OPERATOR**

<table>
<thead>
<tr>
<th>op1</th>
<th>op2</th>
<th>op3</th>
<th>op4</th>
</tr>
</thead>
<tbody>
<tr>
<td>on/off</td>
<td>ON ON ON ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>out level</td>
<td>99 80 81 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freq. type</td>
<td>RTO RTO RTO RTO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fix range</td>
<td>255 255 255 255</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freq. coarse</td>
<td>0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freq. fine</td>
<td>0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>detune</td>
<td>+0 +3 -3 +0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pitch</td>
<td>0.50 0.50 0.50 2.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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 |

**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 |

<table>
<thead>
<tr>
<th>voice name: Jaco Bass2</th>
</tr>
</thead>
<tbody>
<tr>
<td>algorithm no. 2 feedback 1</td>
</tr>
<tr>
<td>waveform</td>
</tr>
<tr>
<td>speed</td>
</tr>
<tr>
<td>amp mod depth</td>
</tr>
<tr>
<td>pitch mod depth</td>
</tr>
</tbody>
</table>

**FUNCTION**

<table>
<thead>
<tr>
<th>mode</th>
<th>POLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>mid C =</td>
<td>C 2</td>
</tr>
<tr>
<td>portamento</td>
<td>FULL</td>
</tr>
<tr>
<td>rev rate</td>
<td>0</td>
</tr>
<tr>
<td>porta time</td>
<td>0</td>
</tr>
<tr>
<td>pb range</td>
<td>2</td>
</tr>
<tr>
<td>vol</td>
<td>99</td>
</tr>
<tr>
<td>pitch</td>
<td>50</td>
</tr>
<tr>
<td>amp</td>
<td>0</td>
</tr>
<tr>
<td>eg bias</td>
<td>0</td>
</tr>
<tr>
<td>pitch</td>
<td>50</td>
</tr>
<tr>
<td>p bias</td>
<td>+0</td>
</tr>
<tr>
<td>amp</td>
<td>0</td>
</tr>
</tbody>
</table>
### OPERATOR

<table>
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<th>voice name: JazzWalker</th>
</tr>
</thead>
<tbody>
<tr>
<td>algorithm no. 4</td>
</tr>
<tr>
<td>feedback 7</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

### LFO

<table>
<thead>
<tr>
<th>waveform (\rightarrow) sync OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>speed 28 delay 0</td>
</tr>
<tr>
<td>amp mod depth 0 sens OFF</td>
</tr>
<tr>
<td>pitch mod depth 0 sens 5</td>
</tr>
<tr>
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### FUNCTION

<table>
<thead>
<tr>
<th>mode POLY mid C = C 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>portamento FULL rev rate 7</td>
</tr>
<tr>
<td>port time 0 pb range 4</td>
</tr>
<tr>
<td>vol 99 pitch 0 amp 0</td>
</tr>
<tr>
<td>pitch 0 amp 0 eg bias 0</td>
</tr>
<tr>
<td>pitch 75 p bias +0 amp 0</td>
</tr>
</tbody>
</table>

### SCALING/SENS

<table>
<thead>
<tr>
<th>pitch 50 amp 12</th>
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</thead>
<tbody>
<tr>
<td>key vel 1</td>
</tr>
<tr>
<td>sens 0</td>
</tr>
<tr>
<td>ams 0</td>
</tr>
<tr>
<td>vol 99</td>
</tr>
<tr>
<td>pitch 0</td>
</tr>
<tr>
<td>amp 0</td>
</tr>
<tr>
<td>eg bias 0</td>
</tr>
<tr>
<td>pitch 75</td>
</tr>
<tr>
<td>p bias +0</td>
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<tr>
<td>amp 0</td>
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### OPERATOR

<table>
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<th>voice name: ChorusMeEP</th>
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<tbody>
<tr>
<td>algorithm no. 5</td>
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<tr>
<td>feedback 6</td>
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### LFO

<table>
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<tr>
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<tbody>
<tr>
<td>speed 20 delay 0</td>
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<tr>
<td>amp mod depth 2 sens 48</td>
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<tr>
<td>pitch mod depth 1 sens 2</td>
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<tr>
<td></td>
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### FUNCTION

<table>
<thead>
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<th>mode POLY mid C = C 3</th>
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</thead>
<tbody>
<tr>
<td>portamento FULL rev rate 7</td>
</tr>
<tr>
<td>port time 0 pb range 2</td>
</tr>
<tr>
<td>vol 99 pitch 50 amp 0</td>
</tr>
<tr>
<td>pitch 0 amp 0 eg bias 0</td>
</tr>
<tr>
<td>pitch 50 p bias +0 amp 0</td>
</tr>
</tbody>
</table>

### SCALING/SENS

<table>
<thead>
<tr>
<th>pitch 0 amp 12</th>
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</thead>
<tbody>
<tr>
<td>key vel 2</td>
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<tr>
<td>sens 0</td>
</tr>
<tr>
<td>ams 0</td>
</tr>
<tr>
<td>vol 99</td>
</tr>
<tr>
<td>pitch 0</td>
</tr>
<tr>
<td>amp 0</td>
</tr>
<tr>
<td>eg bias 0</td>
</tr>
<tr>
<td>pitch 75</td>
</tr>
<tr>
<td>p bias +0</td>
</tr>
<tr>
<td>amp 0</td>
</tr>
</tbody>
</table>
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—providing 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).

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).

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.

<table>
<thead>
<tr>
<th>01</th>
<th>BRASS 1</th>
<th>13</th>
<th>EORGAN 2</th>
<th>25</th>
<th>CLAV</th>
<th>37</th>
<th>RM. BRAS</th>
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</thead>
<tbody>
<tr>
<td>02</td>
<td>BRASS 2</td>
<td>14</td>
<td>PORGAN 1</td>
<td>26</td>
<td>HARPSC</td>
<td>38</td>
<td>RM. FLUT</td>
</tr>
<tr>
<td>03</td>
<td>TRUMPET</td>
<td>15</td>
<td>PORGAN 2</td>
<td>27</td>
<td>BELLS</td>
<td>39</td>
<td>RM. GUIT</td>
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<tr>
<td>04</td>
<td>STRING 1</td>
<td>16</td>
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<td>28</td>
<td>HARP</td>
<td>40</td>
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<tr>
<td>05</td>
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<td>SMADSYN</td>
<td>41</td>
<td>R1. BASS</td>
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<td>HARMONI</td>
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<td>R2. BASS</td>
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<td>STEELDR</td>
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<td>LO STG 1</td>
<td>45</td>
<td>PERC 1</td>
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<td>PERC 2</td>
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<td>EBASS 2</td>
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<td>KOTO</td>
<td>35</td>
<td>WHISTLE</td>
<td>47</td>
<td>CSM</td>
</tr>
<tr>
<td>12</td>
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<td>24</td>
<td>ZITHER</td>
<td>36</td>
<td>STORM</td>
<td>48</td>
<td></td>
</tr>
</tbody>
</table>

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

FD03 3.5" disk drive.
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.
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.

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...
sound.

Through the altering of voice parameters, various cymbal voices on the RXS 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 (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 (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 00, and Bend Range value 00.
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 (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 Key C (Crash).
5) Select Job #02 (Pitch Edit).
6) Enter pitch value -0200.
7) Select Job #03 (Envelope Edit).
8) 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.
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.

Example 2. Follow these steps:

1) Press the KEY ASSIGN button.
2) Select Job #01 (Voice Assign).
3) Assign Int-SD3 to Key N.
4) Press Key D (Crash).
5) Select Job #02 (Pitch Edit).
6) Enter pitch value -0200.
7) Select Job #03 (Envelope Edit).
8) 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.
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.

Continued on page 19
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).

### Table: TX81Z Performance Setup

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<th>2: RatRhodes</th>
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### Voice Name: RatRhodes

- Algorithm No. 5
- Feedback 0
- 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
- Amp 39
- Pitch 0
- Eg Bias 0
- Pitch 50
- P Bias +0
- Amp 51
**BigWash. A New TX81Z Performance Setup By Scott Plunkett.**

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| 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 13 13 13
- freq. fine 0 0 0 0
- detune +0 +1 -2 -3
- 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

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**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**

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**LFO**

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

**FUNCTION**

- mode POLY mid C = C 1
- portamento FULL rev rate 0
- porta time 0 pb range 2
- vol 99 pitch 30
- pitch 0 amp 0
- amp 0 eg bias 0
- pitch 40 p bias +0
- amp 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).
BigSlap. A New TX81Z Performance Setup By Scott Plunkett.

**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).

### TX81Z Performance Setup

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<td>on/off</td>
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<td>ON</td>
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<tr>
<td>out level</td>
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### ENVELOPES

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<td>9</td>
<td>15</td>
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<td>decay 1 level</td>
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<td>0</td>
<td>12</td>
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<td>decay 2 rate</td>
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<td>0</td>
<td>6</td>
<td>10</td>
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<tr>
<td>release rate</td>
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<td>8</td>
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<tr>
<td>eg shift</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
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</tbody>
</table>

### 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

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<td>amp mod depth</td>
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<td>sens</td>
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<td>pitch mod depth</td>
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### FUNCTION

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<tr>
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<td>amp</td>
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<td>p bias</td>
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<tr>
<td>amp</td>
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</tbody>
</table>
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.

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, the DX100, or any of the other members of the Yamaha FM digital synthesizer family? How about a program for the CX5M music computer or a great pattern for the RX11? 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 “FinalTouch” 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, “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!
From The Editor

Continued from page 3

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