AFTER TOUCH™

THE OFFICIAL PUBLICATION OF THE YAMAHA USERS GROUP

DX7 II Centennial

DECEMBER 1987

YAMAHA®

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AFTERTOUCH

December 1987

Volume 3, Number 12
Issue #27

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AFTERTOUCH is published monthly. Third class postage paid at Long Prairie, MN and additional points of entry. **SUBSCRIPTIONS:** Free. Address subscription correspondence to AFTERTOUCH, P.O. Box 7938, Northridge, CA 91327-7938. **POSTMASTER:** Send form 3579 to P.O. Box 7938, Northridge, CA 91327-7938.

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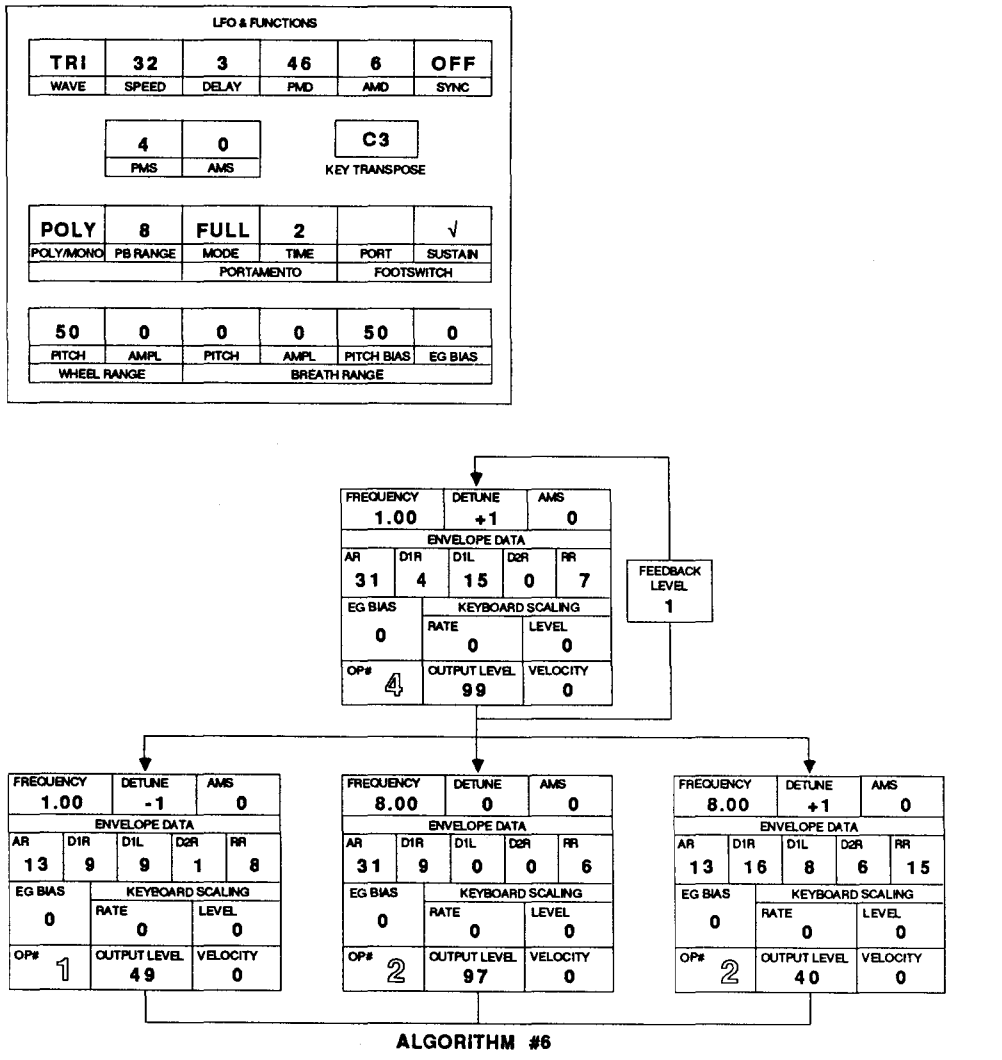
DX100

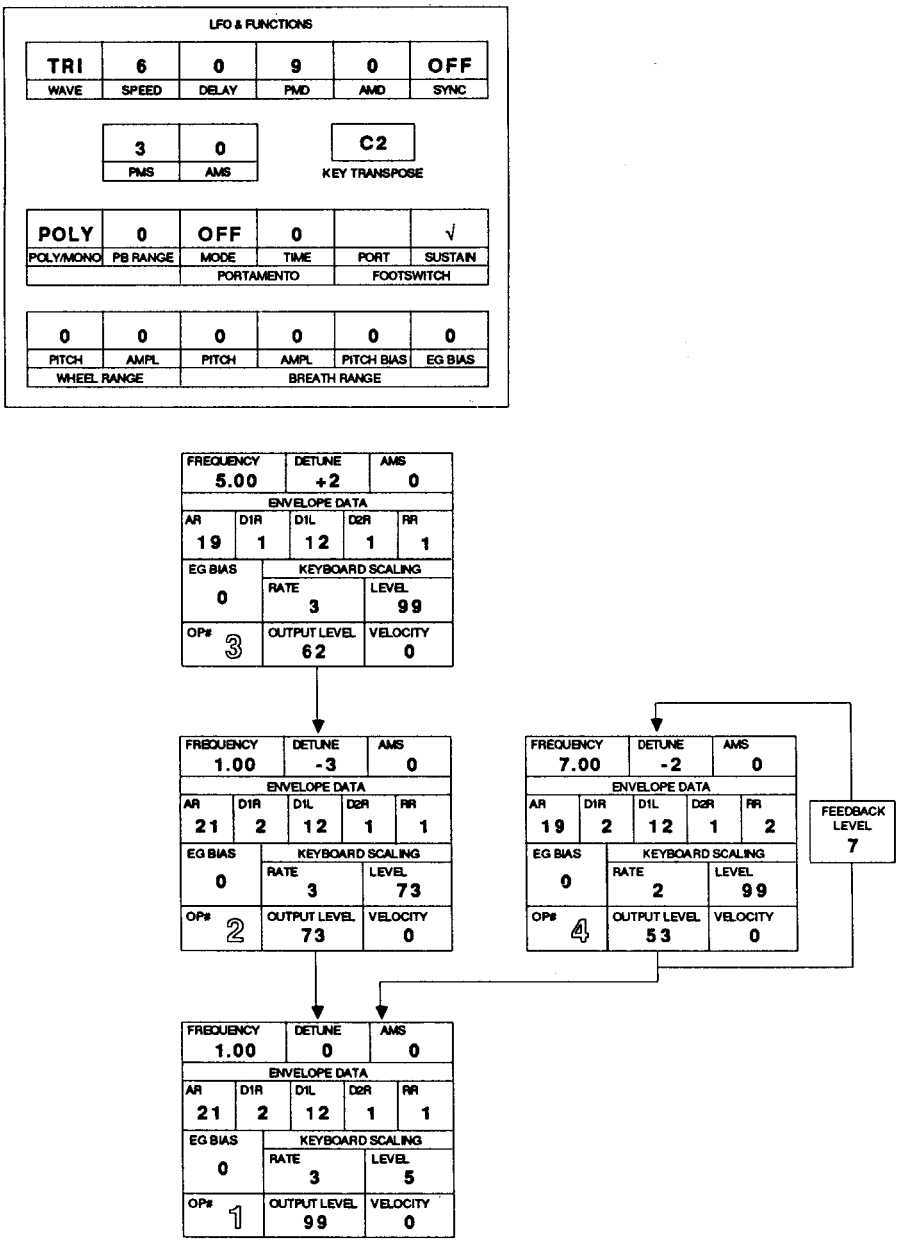
Euro Twang. A New DX100 Voice By Therese Morin.

Notes:

This sound is most effective when used as a lead voice in the mid and upper registers. The slow release time makes for nice arpeggio runs.



ConcertPno. A New DX100 Voice By James S. Taffae.



ALGORITHM #3

Notes:

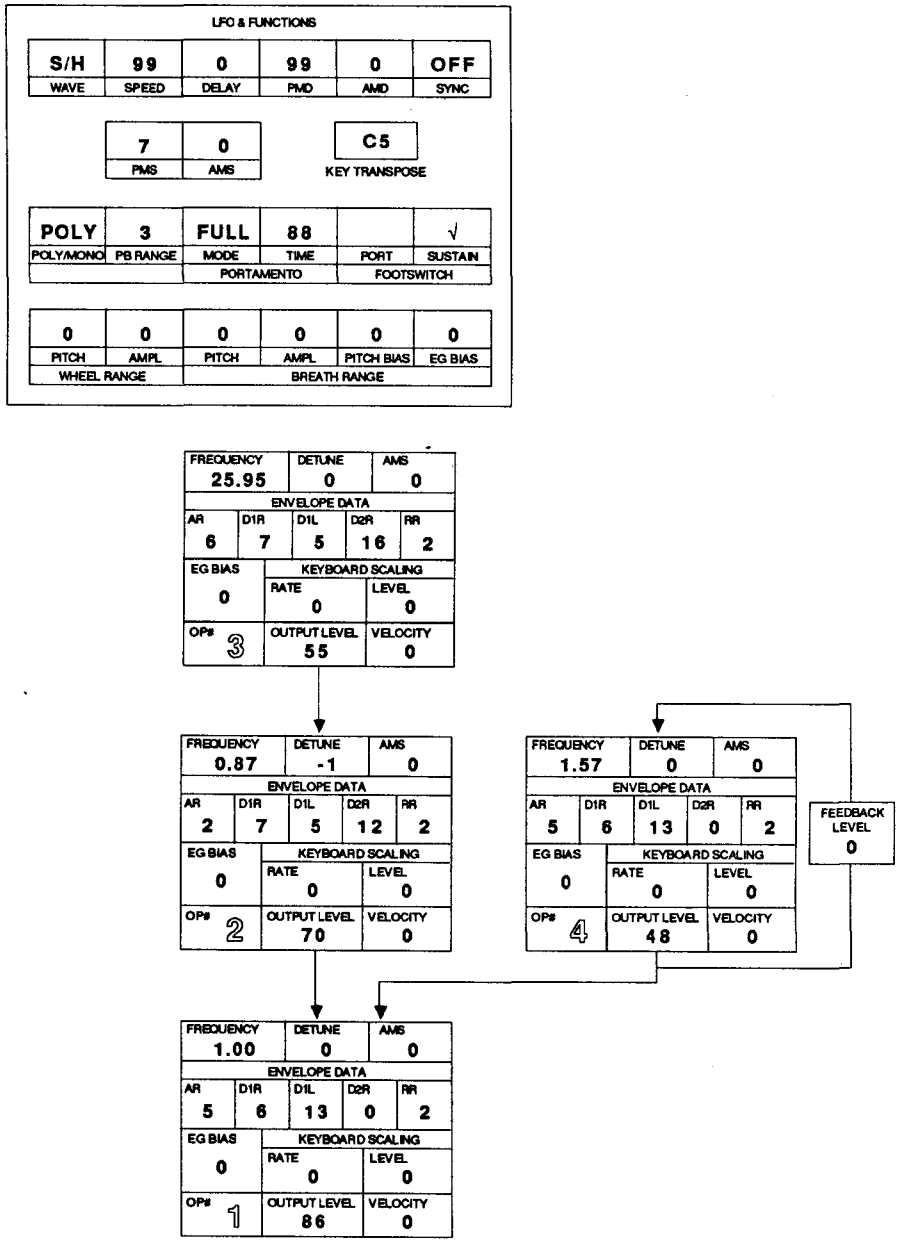
When people come back stage after concerts and ask me how I got that great piano sound, I'm very proud to tell them "It's my DX100."

DX100

DesertWind. A New DX100 Voice By Eric Sassaman.

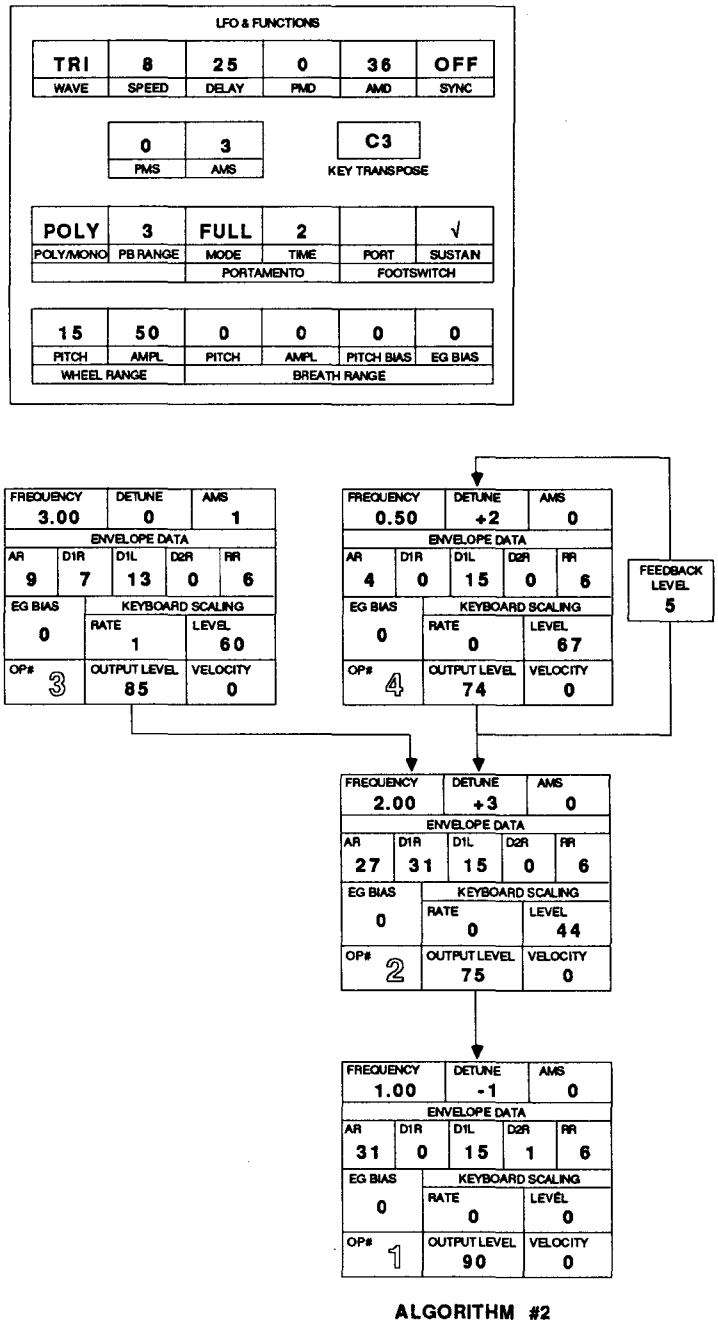
Notes:

Use the pitch wheel for best effect. (This sound comes complete with drafty windows and sand skimming along the desert!)



ALGORITHM #3

Hebby. A New DX100 Voice By Eric Sassaman.



ALGORITHM #2

Notes:

Try adding the Modulation Wheel for an even stronger effect.

These DX100 voices can also be loaded into the DX21, DX27, and DX27S 4-operator FM digital synthesizers, and into the new TX81Z 4-operator FM digital tone generator.

RX5

A New RX5 Voice Edit By Justin Guevara.

Notes:

This voice edit is a low, booming bass. It works even better when aided by a lot of bass boost on an equalizer.

Voice Name: **Drop Bass**		Origin: **Crt-Timpn**	
JOB #	**PARAMETER**	**RANGE**	**NEW VALUE**
02	**Pitch**	-3600 ~ 2400	**-1000 cent**
03/1	**Attack Rate**	1 ~ 99	**90**
03/2	**Decay 1 Rate**	1 ~ 99	**01**
03/3	**Decay 1 Level**	1 ~ 60	**01**
03/4	**Decay 2 Rate**	1 ~ 99	**01**
03/5	**Release Rate**	1 ~ 99	**45**
03/6	**Gate Time**	100 ~ 6500	**0200 ms**
04/1	**Bend Rate**	-60 ~ 60	**60**
04/2	**Bend Range**	1 ~ 60	**-40**
05	**Inst Level**	0 ~ 31	**29**
06	**Sound Loop**	OFF / ON	**ON**

RX5

A New RX5 Voice Edit By Justin Guevara.

Notes:

This voice edit is a low, long-lasting rumbling noise. It works well when played loud with boosted bass on an equalier.

Voice Name: **Volcano**		Origin: **Int-Tom 4**	
JOB #	**PARAMETER**	**RANGE**	**NEW VALUE**
02	**Pitch**	-3600 ~ 2400	**-3600 cent**
03/1	**Attack Rate**	1 ~ 99	**60**
03/2	**Decay 1 Rate**	1 ~ 99	**01**
03/3	**Decay 1 Level**	1 ~ 60	**01**
03/4	**Decay 2 Rate**	1 ~ 99	**01**
03/5	**Release Rate**	1 ~ 99	**66**
03/6	**Gate Time**	100 ~ 6500	**6500 ms**
04/1	**Bend Rate**	-60 ~ 60	**10**
04/2	**Bend Range**	1 ~ 60	**-38**
05	**Inst Level**	0 ~ 31	**28**
06	**Sound Loop**	OFF / ON	**ON**

DX7/DX7 II

How To Copy Voices From The DX7 II To The Original DX7. By Tim Root.

MOST DATA TRANSFER applications are likely to be from an earlier Yamaha model to a later one, such as from the original DX7 to the DX7 II FD/D (if only because of the improved sound quality to be had in such an "upgrade"). It is conceivable, however, that it would be necessary to duplicate a voice in the other direction, especially in a situation where two later models are not available. The procedure is simple, but a few important considerations should be borne in mind if this is done:

- Only single voices will copy from the DX7 II to the original DX7, since the latter does not have the Performance Mode capabilities of combining two voices into a dual or split Performance.
- In all cases, voices from the DX7 II will be "compressed" in the original DX7, simply because of the narrower range of programming parameters. However, if the copy is very close to the original, a little work on the voice in the DX7 may bring it extremely close for your needs.
- In some cases, and these depend on the algorithm and the various parameter values of the original voice, the copy may not even resemble the original, and therefore will not be in any condition for adjustment in the DX7. You will need to determine what kind of distortion is taking place in the copy in order to decide if the voice can be corrected.

If you understand the potential problems and still want to try, read on. Start by connecting the MIDI OUT port on the DX7 II to the MIDI IN port of the DX7. Then, do the following:

1) On the DX7: Turn the Memory Protect OFF.
2) On the DX7: Press the FUNCTION button; then press button #8 to access the "MIDI CH" display. Make sure that the MIDI receive channel is set to channel 1.
3) On the DX7: Press button #8 again; the display should read as follows: "SYS INFO UNAVAIL."
4) On the DX7: Press the +1/YES button. The display should now read as follows: "SYS INFO AVAIL." At this point, the DX7 is ready to receive data.
5) On the DX7: Call up the voice into the Play/Edit buffer.
6) On the DX7 II: Press the EDIT button; then press the MIDI I button (button #31) until you access the "Channel messages" display. Make sure that the MIDI transmit channel (the "Trns ch" parameter) is set to channel 1.
7) On the DX7 II: Press the MIDI 2 button (button #32) until you reach the "MIDI out" display. Position the cursor next to the "Edit buf" parameter. At this point, the bottom line of the display should read as follows: "Transmit edit buffer data?"
8) On the DX7 II: Press the +1/YES button. The display will ask, "Are you sure?" Press the +1/YES button again to transmit the data.
9) On the DX7: Watch the LCD to see that the voice data has been received.
10) On the DX7: Rename the voice if you desire, then store it in either an internal or a cartridge memory location.

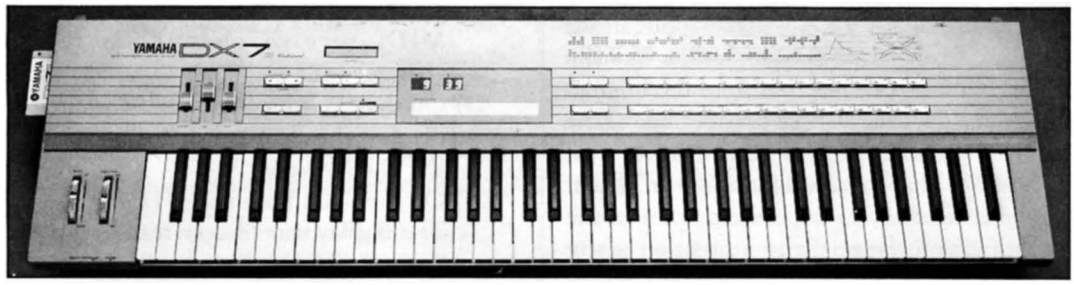
Once you have finished the voice transfer, you will probably want to turn the DX7's Memory Protect ON, and return the system parameter to "SYS INFO UNAVAIL."

Some of the standard DX7 II voices that transfer remarkably well are "Violins," "RubbaRoad," "StrumHarp," "Celeste," and "PickGuitar."

DX7 II FD digital FM synthesizer.

DX7 II Centennial

Introducing A Limited Edition DX7 II, Created To Celebrate Yamaha's 100th Anniversary. Also, A Look At The History Of The DX7.



1987 MARKS THE 100th anniversary of Yamaha. In order to commemorate this milestone in proper fashion, Yamaha has created a very special, limited edition version of the popular DX7 II FD synthesizer. The new instrument, dubbed the "DX7 II Centennial," is designed to be a visual and musical celebration of Yamaha's 100th year in the industry.

As you can see from the photo on the cover, the DX7 II Centennial has unusual cosmetics: The instrument is housed in a silver colored casing, and all of the wheels, buttons, and sliders are gold colored. Also, instead of the 5-octave, C-to-C keyboard that is standard to the rest of the DX7 line, the Centennial features a full 76-note keyboard (with an E-to-G range, the same as the KX76 MIDI keyboard controller). Finally, the keys of the Centennial have been specially treated: Fluorescent paint has been mixed in with the plastic of the keys, so that the entire keyboard glows in the dark!

Underneath all of these special additions, the DX7 II Centennial contains the full features of the DX7 II FD, including fractional scaling, microtuning, a 3.5" micro-floppy disk drive, and much more. The suggested retail price of the Centennial is $3995.00.

History

Since the DX7 II represents not only the 100th anniversary of Yamaha but also the culmination of the DX7 line of synthesizers, it is appropriate at this time to reflect a little on the history of the DX7.

The research that would eventually lead to the DX7 began at Stanford, where John Chowning began exploring the concepts of digital FM synthesis in the late '60s. In 1975, the results of his studies into FM synthesis were licensed to Yamaha. (For more on John Chowning, see the two-part interview that ran in the November 1985 and December 1985 issues of AfterTouch).

The first commercial result of Yamaha's license was the GS1, which was introduced in 1980. The GS1 was a 4-operator, 1-algorithm FM digital synthesizer that featured stereo layering; it was not directly programmable, and was housed in a wooden, piano-like case. Later in the same year, the GS2 was introduced. Although the GS2 was monophonic (and therefore had no layering capability), it was designed to be much more portable than its predecessor.

Both the GS1 and GS2 garnered favorable notice in the music industry, but neither instrument sold in large numbers, mostly because of the prohibitive price of the technology at that time (the GS1's list price was $16,000.00). Therefore, everyone—including Yamaha—was caught by surprise at the response that greeted the introduction of the original DX7.

The DX7 first appeared in the fall of 1983. It was a 6-operator, 32-algorithm, fully-programmable FM digital synthesizer; as such, it represented a quantum leap beyond the technology that had been introduced in the GS1 and GS2. Also, it was much more affordable: The list price of the original DX7 was $1995.00. Not only did the DX7 garner favorable notice in the music industry, it also sold in unprecedented numbers. The original DX7 remains the single most successful synthesizer in the history of electronic music.

In December of 1986, after a reign of more than three years, Yamaha unveiled its replacements for the DX7. Both the DX7 II FD and the DX7 D were introduced in Tokyo, Japan, at Yamaha's annual "X Days" festival. These same instruments were introduced in the United States in January of 1987. As AfterTouch readers know, the DX7 II family (which now also includes the DX7s) offers a number of improvements on the original DX7, while at the same time maintaining full compatibility with the earlier instrument.

And now, to celebrate its 100th anniversary, Yamaha presents the specially-packaged DX7 II Centennial—the latest offering in the synthesizer dynasty begun by the DX7.

TX802

Using The TX802 As Part Of Your MIDI Setup, Part 2. By Michael A. Huisman.

THIS ARTICLE IS the second part of a two-part discussion of Yamaha's newest multi-timbral FM tone generator, the TX802, and how it can best be used in a MIDI setup. (Part one appeared in the November 1987 issue of AfterTouch.) In this installment, we are going to use the TX802 in several different systems. These applications are only suggestions of ways to use the TX802, but they will give you a chance to explore some of the possibilities of the TX802 in a number of different settings.

System 1: Using the TX802 as a drum/percussion sound source

Today's drummers and percussionists definitely have entered the electronic age. Elaborate triggering systems are in use everywhere, from the small dance club to the large concert stadium, from the small demo studio to the 48-track monolith. Once the acoustic sound is converted to an electrical pulse, several methods have been used to trigger sound sources. Some stay in the pulse (control voltage) arena, while others convert this pulse into MIDI note on/off information. Both of Yamaha's electronic percussion devices, the PMC1 percussion-to-MIDI controller and the PTX8 percussion tone generator, work in the digital MIDI arena.

Typically, electronic drummers and percussionists have been using samplers as their choice for sound sources. This is understandable, since samplers offer a great deal of accuracy and detail in their sounds (which are, after all, digital recordings of actual acoustic sounds). When carefully programmed, a sampled sound can be played over a range of velocities, from very soft to very loud. Sounds like a perfect fit, right?

Well, almost. The drawback with samplers is that, with all the dynamic control that can be programmed into them, they rarely have the ability to change tonally over the various velocity ranges. What I am saying is that a harder strike of a sound is just louder than a softer strike of the same sound—the two do not differ at all in terms of harmonic content. If you have the opportunity, grab a stick and hit a drum head softly, then harder. You will notice that not only does the volume of the sound change, but also that there are many more harmonics in the sound when the drum is played hard. Most acoustic drummers that have added electronics to their drum rigs complain that, when they strike a drum pad, it's "just not like a real drum, man." Hardware designs of the actual pads aside, the other problem has been that the tone sources were just incapable of reproducing the true dynamic and timbral range of a drum over all velocity ranges.

Well, Yamaha has spent a great deal of research and development time into using FM synthesis as a percussion tone source. The results have been very encouraging, and those who are using FM in their drum rigs have been free in their praise of the efforts. FM can be very accurate in its recreation of real acoustic sounds through synthesis, and also offers more velocity responsiveness than any other method of sound creation/recreation available today. Simply stated, drummers have found out what keyboardists have known since the introduction of the DX7 four years ago, that FM is the most dynamic form of synthesis available.

Okay, so we've made the case for FM as the sound source for drummers and percussionists everywhere. What should I use and how should I use it? The TX802 FM digital tone generator may be the instrument best suited for this particular application. It is multi-timbral eight ways, which is necessary for the component voicing schemes that are used in the synthesis of drum sounds. It is rack-mountable and extremely road-worthy, plus it has individual outputs on its rear panel. 6-operator FM percussion voices that can be loaded into the TX802 are available in the form of Demosoft (demonstration software), which can be purchased or ordered at your local authorized Yamaha retailer.

At this point, all one would need is a percussion-to-MIDI converter to use with the TX802. Any trigger-to-MIDI or pad-to-MIDI converter should work well. If you try this application with a non-Yamaha MIDI converter, a little tweaking of the sensitivity controls might be necessary, as the demosoft voices were created using Yamaha's MIDI converters as the triggering devices.

System 2: Playing the TX802 with a guitar-to-MIDI converter

One of the beauties of the emergence of rack-mountable tone modules is that synthesis that was previously available only to keyboardists may now be used by anyone who has the ability to generate MIDI data. In the previous example, we made a case for drummers and

percussionists to use the TX802 for FM synthesis in their rigs. Well, the same case can be made for MIDI guitar players.

The TX802 has a number of features that lend itself towards use by a MIDI guitar player. Among the most important are the following:

- the TX802 is multi-timbral eight ways
- FM is the most dynamically responsive method of synthesis that is available
- the MIDI controller implementation of the TX802 lets the TX802 adapt very easily to the MIDI guitar controlling devices currently on the market, and this should be true for future products as well
- each voice may be placed in mono (single trigger) mode for better articulation of wind instrument sounds

Multi-timbral tone sources for MIDI guitars

It never ceases to amaze me how a guitar player with one "axe," a couple of digital effects, a good amplifier, and a volume pedal can get so many tonal colors and variations from such a portable rig, especially one that can be worn over the shoulder.

An open A string has a different color than an A played on the low E string at the fifth fret, and an open E string sounds different than an E played on the B string at the fifth fret. Most of the time, however, the knowledge that a guitar player has about voicing and tonal colors gets lost in the translation to MIDI. Why? The MIDI specification does not make a distinction between what string an E note is played on. The calculations made by the converter are all related to pitch.

Some newer MIDI guitar controllers get around this by transmitting each string of the guitar on a different MIDI channel:

string	MIDI channel
1	1
2	2
3	3
4	4
5	5
6	6

This effectively isolates pitch as a function of what string it is played on, making it possible to transmit the difference between an open E on the first string and an E played on the B string at the fifth fret. Now that a guitar player's technique can be translated more effectively via MIDI, the responsibility of translating that performance into music that sounds as if it were played by a guitar player rests with the tone source.

The TX802 can have up to eight instruments active at one time. Since a guitar has only six strings, we will concern ourselves only with six of these voices at once. You could, however, double up two voices on two of the strings if you wanted.

Choose a voice in the TX802 which lends itself to guitar playing. Edit and store six different versions of this sound to the internal RAM memory of the TX802. The edits can be slight or extreme in nature, depending on the voice you choose.

For starters, I would suggest editing ROM voice B9 (GuitarBox) by varying slightly the fixed frequency in operator #1 and changing slightly the output level of operator #6. Store each of the edited versions to an internal voice location. GuitarBox is a picked acoustic guitar type of sound. Operator #1 effects the "size" of the guitar sound box, while operator #6 controls the amount of string buzz. Changing the frequency of operator #6 for each of the six edits will also create a useful effect, as this changes the pitch of the string buzz and finger squeak.

Now, create a Performance with these six different voices, each on a different MIDI channel, match the channels to the channels being transmitted by the MIDI controller, and voila–there is now a slight difference between the sound of an open E on the first string and the sound of an E played on the B string at the fifth fret. Now the way a chord is voiced on each string has the same kind of significance that it has on a real guitar.

Stereo Imaging in a MIDI guitar setup

Guitar players long have had the ability to create stereo guitar sounds through the use of two amplifiers and different effects (perhaps with different equalization settings on each amp to further enhance the stereo effects). By themselves, however, guitars are not stereo instruments.

By using the ALTERNATE KEY ASSIGN mode of the TX802 and placing the output of each alternately assigned instrument to a different output (using mixed outputs I and II), we can cause each new note to appear alternately

at output I or output II. Now if we combine the outputs of the TX802 and the audio output of the guitar, we end up with a great sound that has stereo movement based on which strings are being played.

To hear an example of this, play the output of the guitar together with the stock TX802 Performance memory called "Analog Spread" (Internal Performance 49 of the factory supplied Performances).

System 3: Using multiple TX802s

Two TX802s may be used as expanders for each other. In other words, two TX802s may be used together so that that total polyphony is 32 notes instead of 16. This is accomplished through the clever use of MIDI note numbers. Ther are 128 MIDI note numbers, 64 of which are odd numbers and 64 of which are even numbers. You can set one TX802 to receive just the odd-numbered MIDI note numbers, and set the other to receive just the even-numbered MIDI note numbers.

To try this out, follow these steps on the TX802:

1) Press SYSTEM SETUP once
2) Press PARAMETER SELECT button 1 repeatedly until the display reads as follows:

   Midi message receive switch
   Note on/off all

3) Press the + 1/YES button once to change "all" to "odd."

Now play the TX802 from your controller. Only every other note will sound. If you have a second TX802, repeat the first two steps above; then, press the + 1/YES button twice to set the second TX802 to respond to "even" notes.

This feature can be very useful when more than 16 notes are needed–for example, with an arpeggiated piano sound using the sustain pedal.

Memory management tip

The TX802 has 128 voices in its internal memory. 64 of these voices are factory supplied ROM voices, and 64 more are supplied by the factory in user RAM memory. There are also 64 Performance memories in RAM. The TX802 can also accept data from a RAM4 cartridge, which can hold up to 64 additional voices and up to 64 additional Performance memories. When using a TX802 with a RAM4 data cartridge inserted in the cartridge port, this makes a whopping 192 voices and 128 Performances immediately available to the user. This should be more than enough memory to get through any musical situation, whether live or in the studio.

You can, however, make certain that you are using the user RAM memory in the best way possible. You only need to use a RAM voice location in one of two situations: 1) if the voice you are using is a completely custom voice; and 2) if the voice is a factory ROM voice, and the changes to the voice cannot be accomplished through Performance memory settings.

For example, if you really like the voice "BriteOrgan" (Bank A, Voice 51), but you need it transposed down one octave, you don't need to edit the voice transposition at the voice level; simply NOTE SHIFT the voice down 1 octave (a value of −12) in the Performance memory.

• • • •

In these TX802 applications articles, we have investigated just a few ideas on how to use the TX802 in a number of MIDI setups and situations. Certainly, as more time goes by, more and more uses for the TX802 will be discovered. With new controller devices constantly being developed, such as MIDI wind controllers like Yamaha's WX7, new voice-to-MIDI devices, new guitar-to-MIDI devices, mind-to-MIDI devices, and so on, the horizon is just starting to appear for rack-mount tone generators. This is true even if you happen to use the old standard controlling device, a keyboard with black and white keys. The TX802 offers a great deal of flexibility and a very high quality sound generator, which should give this musical instrument a prognosis for a long and healthy life in your MIDI setup.

QX3

A Guide To Creating Music With The QX3 Digital Sequence Recorder, Part 1. By Scott Plunkett.

AS MIDI SETUPS grow, as they inevitably do (they seem to have a mind of their own about these things), one of the most useful tools you can add is a high quality MIDI sequencer. A sequencer allows you to use your setup to write and arrange compositions, pre-produce songs at home so that you don't waste expensive studio time, and, if it has some clever editing tricks, even lets you overcome your playing limitations.

The Yamaha QX3 is exactly the kind of sequencer that makes life with MIDI much more productive. The QX3 is a 16-track MIDI recorder that not only includes all the basic sequencer features, but throws in some unique and sophisticated features of its own. In this and the next issue, we will take a close look at some of the QX3's powerful music-making abilities.

Cosmetics

One of the first things you'll notice about the QX3 is that there are lots of buttons on the front panel. This is in stark contrast to some of the sleek looking sequencers with a minimum of buttons. Unfortunately, the "no button" machines may look good, but they force you to do quite a bit more work to accomplish anything, because the limited amount of buttons are called on to serve so many functions. The QX3 strikes a good compromise by having dedicated keys for the most important functions (record, run, stop, individual track on/off, memory measure locate) and multi-function keys for parameters that aren't used quite as often (note-length keys, number keys, character keys, dynamic marking keys).

Two other features that make the QX3 easy to use are the large 40-character, 2-line LCD and the track status lights. Step editing a complicated sequence with a small LCD can become very unnerving as you slowly begin to realize that you've completely lost sight of the forest while wandering among the twigs. The larger LCD helps relieve this situation by presenting enough information so that you retain a better feel for where you are and what you're doing. The track status lights are also a great help. Depending on their color (green for play, red for record) and status (off, lit, flashing), these 16 lights can indicate which tracks have information on them, which tracks are currently enabled to play, which track is selected for editing, which tracks are selected for recording, and even warn you if you are about to record onto a previously recorded track.

Track Arrangement

The QX3 has 16 tracks for recording and playback. The information on each track is played back on a single MIDI channel. This is set up a little differently than some other sequencers you may have encountered. Many sequencers have a limited number of tracks, but each track can contain information for all 16 MIDI channels simultaneously. This method is a great way to stretch the versatility of a machine with a small number of tracks, but it can also be difficult to edit. For instance, let's say you want to edit the bass line playing on MIDI channel 4. First, you have to find the track that contains the bass line on MIDI channel 4. By turning the tracks on and off, you'll locate the bass line, but the chances are that it's intertwined with a bunch of other parts on different MIDI channels. If you decide to edit the bass line, you are forced to wade through all of the other parts on the track while you look for your bass, or you have to extract MIDI channel 4 information from the offending track and put it on an empty track (if there still is one) for editing. This is a tremendous amount of work for what should be a simple task.

To find and edit the same bass line on the QX3, you start playing the sequence and begin turning the tracks on and off with the track keys to locate the bass track. The track status lights always let you know which tracks are turned on and off. As soon as you locate the track that contains the bass line, you stop the sequence, press Edit, and press the desired track number. You can now edit the bass line without being distracted by any other parts. Since there are 16 tracks, you can still use all of the 16 MIDI channels if you need them, and have them individually accessible for editing. Another advantage of this system is that it gives you plenty of tracks to use as "scratch pads" to try out new ideas as you develop your sequence.

Setup

In the early days of MIDI, a sequencer pretty much recorded everything exactly as it appeared when it arrived at the sequencer MIDI IN. That seemed fairly reasonable, so it didn't take long

QX3 digital sequence recorder.

before everyone wished that they could do something more. Soon everyone wanted to be able to channelize (change MIDI channels) and filter out unnecessary information before it used up valuable sequencer memory.

The QX3 has a number of Setup parameters that determine what it will record and how the information will be recorded. One of the most important Setup parameters on any sequencer is the Echo Back feature. This lets the MIDI signal that appears at the MIDI IN be sent to the MIDI OUT and merged with the tracks that have already been recorded. If you're using a system with a controller keyboard and a rack of tone modules, this feature will save your life. You can run your controller keyboard into the QX3 and run the MIDI OUT of the QX3 to all of your tone modules. By turning Echo Back to Record (this means you will hear your part exactly as it will be recorded), you can play your new part while running the sequence and hear everything simultaneously.

Once Echo Back is turned on, you can do all of your recording preparation work at the QX3 and hear the results immediately. If you have a number of tone modules, you will probably wind up setting them to different MIDI receive channels so that they can play separate parts while you are writing or arranging a song. The QX3 lets you set a different output channel for each track. This means that once you set the appropriate output channel for each track, you can put the QX3 into record, play your controller keyboard, and hear the different tone modules just by pressing the appropriate track buttons. This "automatic" channelization saves you from having to do a lot of needless fumbling at the MIDI channel assign parameter on your controller keyboard.

As any experienced MIDI user will tell you, aftertouch, modulation wheel, and pitch bend may allow you to do some great stuff, but, because it creates such dense streams of MIDI information, it can also slow down MIDI transmission and use up most of your sequencer memory. Since this can be a problem, the QX3 has Receive Event filters that allow you to selectively filter out the kinds of data you don't want recorded. Velocity, continuous controller, pitch bend, program change, aftertouch, and system exclusive information can individually be filtered out. Remember, if you have Echo Back turned on, you will be able to hear the effect of these filters immediately, so you never have to worry about accidentally forgetting to record something that you need. If you find that you need to use the modulation wheel to add vibrato to a part, simply turn the continuous controller filter off and continue recording.

If you aren't sure what kind of message a particular controller is sending, you can use the MIDI monitor to check. The MIDI monitor on the QX3 constantly shows you what is appearing at the MIDI IN. For instance, if you move a

modulation wheel on your controller keyboard, the monitor shows controller number 1 (the modulation wheel code), its value (which corresponds to how far up the wheel has been moved), and which MIDI channel it is on.

Since you will probably have different Setup preferences for various recording situations, the QX3 lets you save your Setups to disk. It's actually a good practice to save the Setup for every song you record. This way you can always make sure that everything in the QX3 is set exactly the way it was when you were last working on the song.

Recording

To make sure that recording can be done efficiently in virtually any situation, the QX3 includes four record modes: Realtime Record, Just Punch Record, Measure Punch Record, and Auto Punch Record.

Realtime Record is your normal, generic record mode. You just press the Record and Run button, begin playing, and the QX3 records everything until you press Stop.

Just Punch Record operates in a manner similar to punching in on a tape recorder. You play the sequence back and as soon as you punch in, the previously recorded material is replaced by whatever new and (hopefully) brilliant part you decide to insert.

Measure Punch Record is like Just Punch Record, with one small exception: When you punch in, the QX3 will wait to actually begin recording until the downbeat of the following measure. Likewise, when you punch out, recording will continue until the beginning of the following measure. This is great in situations where you need to activate the punch and get both hands on the keyboard before the punch occurs.

If your punch in/out timing is really critical, you can have the QX3 punch for you by using the Auto Punch Record mode. You specify the punch-in and punch-out times, and the QX3 does the rest of the work.

One of the best things about the QX3's recording implementation is the ability to do multiple track recording. If each track is assigned a different MIDI receive channel, you can record on any or all of them at the same time. If you've ever had to transfer an entire song from one sequencer to another, one track at a time, you will really appreciate this feature. Also, it gives you the ability to record the MIDI performances of a group of people simultaneously, instead of having to layer each part one at a time.

Play

When you are ready to play back your sequences, you have the options of changing the tempo or moving to a new start measure with the front panel dial. The tempo LED, located beside the dial, flashes at the current tempo to give you a visual indication of your tempo. The tempo LED also shows the time signature by flashing red on the downbeats and green for the remaining beats in the measure. Since the QX3 allows you to record songs with multiple time signatures and tempos, this can be a big help in quickly locating specific parts for playback.

You will often find that you need to concentrate on a particular part of a song during the course of your work. With this in mind, the QX3 has three programmable memory location buttons. You can program location 1 to any measure, and by pressing the LOC1 button immediately jump to that measure. Locations 2 and 3 are used for playing between two assigned locations and can be looped for continuous play. If you need to work out a part, this will save you the hassle of continually having to "rewind" to the proper start measure. There is also a button labeled TOP that always returns you to the very beginning of the song.

When you play back or record a sequence, the QX3 can run on its internal clock or be synchronized to an external MIDI clock or tape FSK signal. If you are using your QX3 to record parts onto a multitrack tape recorder, or want to sync to another MIDI sequencer so that they will both play in time together (a small but useful thing), you can do it by using one of the external clock assignments. For those of you who have more sophisticated syncing needs, the QX3 responds to MIDI start, stop, continue, and song position messages. This means you can sync to SMPTE time code if you use a SMPTE-to-MIDI converter such as the Yamaha MSS1.

* * * *

In the next issue of AfterTouch, we will continue our look at the QX3, and will focus on its many Edit mode features and time-saving utility functions.

Hot Tips

Reader Tips For The QX21, CX5M, And More.

Automatic "Music" With The CX5M

By Bill Seath

One thing that has bothered me about the CX5M music computer is that, in order to make music with the SFG05 tone generator, you have to access it every time you turn the computer on with the "CALL MUSIC [return]" command.

Well, if you happen to own a disk drive, you do not have to do this. The following program, when saved on the disk under the name "AUTOEXEC.BAS," will boot up automatically when the computer is turned on. Here is the program:

```
10 REM PROGRAM TO ENABLE SFG05
20 REM ON SYSTEM START-UP
30 CALL MUSIC
40 END
```

• • • •

Increased Editing With The QX21

By Mac Burns

The QX21 is capable of deleting any specified measure on Track 1. If you don't wish to delete the whole measure, simply subdivide that measure. This is done with the Beat/Measure function (Job A-2). Follow these steps (the following example involves a measure of 4/4 time):

1) Isolate and Exchange (Job B-1) the measure you wish to edit to Track 2, and place the rest of the composition in the temporary buffer (Job D-1).
2) Select Beat/Measure (Job A-2), and change to "1" (1/8 meter).
3) Record eight blank measures (of 1/8) onto Track 1.
4) Track Down (Job B-3) the 8 blank measures to Track Two. The original one measure of 4/4 is now eight measures of 1/8.
5) Exchange (Job B-1) Track 2 to Track 1.
6) With Delete Measure (Job B-6), you are now able to isolate portions of the original measure in 1/8 increments. Delete the 1/8 segment you wish to get rid of.
7) Exchange (Job B-1) Track 1 to Track 2.
8) Record one blank measure (of 1/8) on Track 1.
9) Insert (Job B-5) the one blank measure in place of the 1/8 segment deleted in step 6 above.
10) Select Beat/Measure (Job A-2), and change back to "4" (4/4 meter).
11) Record one blank measure (of 4/4) on Track 1.
12) Track Down (Job B-3) the one blank measure to Track 2.

The measure is now in 4/4 time, and is ready to be inserted back into the composition. Subdivide with other time signatures as needed.

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Editing DX7 II Voices To Make The Modulation Wheel A Tone Control

By David Bieling

I often edit the stock voices on the DX7 II so that I can use the Modulation Wheel as a tone control. This technique works well on sounds with lots of harmonics. Here are two examples, taken from the factory preset Internal Voices.

With a little editing, you can control the amount of "funkiness" in Internal Voice #6 (SuperBass) with the Mod Wheel. Also, with minor editing, a low Mod Wheel setting for Internal Voice #22 (ClaviStuff) produces an excellent mellow background sound, reminiscent of a Hammond-plus-Leslie effect. In addition, the two sounds can be combined into a Split Performance memory, so that the Mod Wheel can control both simultaneously.

Here are the edits (changes) needed for the SuperBass voice:

```
Mod Wheel EG Bias = 99
AMS Op #4         = 4
AMS Op #5         = 7
AMS Op #6         = 7
EG Rate 1 Op #1   = 81
```

Here are the edits (changes) needed for the ClaviStuff voice:

```
Mod Wheel EG Bias = 99
AMS Op #3         = 7
AMS Op #4         = 4
AMS Op #5         = 4
EG Rate 1 Op #1   = 79
```

Questions

Answers To Questions From Readers. By Tom Darter.

In July, I purchased a Yamaha DX27S for my son. We have lost the instruction manual. Would you please tell us how to get a duplicate copy of the manual?
The first thing to do is go to your Yamaha dealer and ask for another manual. They can order one for you. Tell them to request the manual from the Sales Division of Yamaha.

If this route proves unsuccessful, you can send your request for a replacement manual directly to Yamaha. Write to: Yamaha Music Corporation USA, DMI Sales, P.O. Box 6600, Buena Park, CA 90622.

I work with a KX88 MIDI keyboard controller. When I assign its CS1 to Controller Code Preset #38 (Master Tune), I can't get it to work with my DX7 II FD. What's the problem?
The problem is that the MIDI channel for System Exclusive reception on your DX7 II doesn't match that of the MIDI transmission channel of the KX88. On the DX7 II, the basic MIDI receive channels and the System Exclusive receive channels are programmed separately.

In order to set the basic MIDI receive channels, start by pressing the EDIT button. Then push button #31 (MIDI 1) until you see the "Channel Messages" display. Position the cursor next to "Rcv ch" (either "A" or "B"), and use the +1/−1 buttons or the data entry slider to set the MIDI channels for Voice A or Voice B.

To set the MIDI channel for System Exclusive reception, start once again by pressing the EDIT button. Then push button #32 (MIDI 2) until you see the "MIDI Device Number Receive Block" display. Position the cursor next to the "Device Number" parameter, and use the +1/−1 buttons or the data entry slider to set the MIDI channel for Sys-Ex reception.

Once you have set the "Device Number" on the DX7 II to match the MIDI transmission channel of your KX88, you should have no further problem.

Is there any chance that Yamaha will offer updates for the QX1 sequencer, so that it will be able to record System Exclusive data, to sync to an external clock when recording, and to perform punch-in/punch-out recording automatically? If not, is there any one else offering these updates?
Yamaha has no plans for further updates on the QX1. Earlier this year, there was one small update, which gave the QX1 the ability to store bulk Voice data from the DX7 II family of synthesizers. This new feature is offered on version 4.8 software. This will be Yamaha's final update on the QX1. Also, we have not heard of any other company that has found a way to upgrade the QX1 to include the features you request.

Does the DX7 II always receive System Exclusive data, or is there some way to turn Sys-Ex reception off?
Yes, it is possible to turn Sys-Ex reception off with the DX7 II. Start by pressing the EDIT button; then press button #32 (MIDI 2) until you see the "MIDI Device Number Receive Block" display. Position the cursor next to the "Device Number" parameter, and move the data entry slider up until the value under "Device Number" reads "off." This turns System Exclusive reception OFF.

I own a CX5M music computer system. I recently purchased a new DX7s synthesizer, and have two questions: 1) Is the YRM103 DX7 Voicing Program compatible with the new DX7s? 2) If the answer to question #1 is "No," will a new program become available that will enable me to create voices on the CX5M and then load them into my DX7s?
The YRM103 Voicing Program does have limited compatibility with the new DX7 II generation of synthesizers (DX7 II FD, DX7 II D, and DX7s). You can create voices using the YRM103 DX7 Program, and then load them into a DX7 II synthesizer via MIDI. Of course, these voices will not contain the new DX7 II voice paramaters, so the DX7 II unit will initialize those new parameters. Also, the DX7 II units will not automatically send their internal voices to the CX5M via MIDI when the computer is turned on.

Yamaha does plan to release the YRM306 DX7 II Voicing Program cartridge for the CX5M in the near future. It will be compatible with all of the DX7 II units, but will not be directly compatible with the original DX7.

I own a KX5 MIDI keyboard controller, DX7 II FD and DX21 synthesizers, and a couple of MIDI effects units. I want to be able to control my entire setup via MIDI from both the KX5 and the DX7 II.

When I use the DX7 II as the master, I feed

Continued on page 19

its MIDI OUT to the first unit, and connect to the other units using the standard MIDI THRU daisy-chain technique. When I use the KX5 as the master, I connect its MIDI OUT to the MIDI IN of the DX7 II, which means that it can control only the DX7 II. Is there any way to have either unit be the master for the entire system without making any manual MIDI cable changes?

Unfortunately, the answer is no. In the setup you describe, the MIDI OUT of the DX7 II must be used as the link to the rest of the system when the DX7 II is the master; however, the MIDI THRU of the DX7 II must be used as the link to the rest of the system when the KX5 is the master.

If the DX7 II had a MIDI Merge function, the data from the MIDI IN could be combined with the data from the unit at its MIDI OUT port, but the DX7 II does not have MIDI Merge capability. Therefore, the simplest way for you to accomplish your goal would involve making one manual MIDI patch change: To have the DX7 II control the system, send data from the MIDI OUT port of the DX7 II; and, to have the KX5 control the entire system, send data from the MIDI THRU port of the DX7 II.

You could also consider adding a simple MIDI patch bay unit such as the Yamaha YME8 MIDI Expander/Thru Box to your system. This would allow you to make the changes you need simply by moving a few switches, instead of repatching MIDI connections manually. (For more information on the YME8 and other Yamaha MIDI accessories, see the cover story in the November 1986 issue of AfterTouch.)

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.

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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. We'll do our best to print names, addresses, and phone numbers of all those who are interested in starting up regional users groups.

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