AFTER TOUCH™

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RX7 Digital Rhythm Programmer

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4 AfterTouch Index
A complete listing of the contents of our first three years of publication: Issues 1 through 27–October 1985 through December 1987.

8 QX3
Part two of a two-part guide to creating music with the new QX3 digital sequence recorder. By Scott Plunkett.

11 RX7
A detailed introduction to Yamaha's newest digital rhythm programmer. By Gardy Weber.

17 AfterTouch Diary
The wedding gig versus my MIDI setup and MT44D multitrack cassette recorder. By Dave Cross.

18 Questions
Answers to questions from readers. By Tom Darter.

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AfterTouch Index

A Complete Listing Of The Contents Of Our First Three Years Of Publication (Issues 1 Through 27).

HERE IS THE FIRST AfterTouch index. It covers our first three years of publication: Issues 1 through 27–October 1985 through December 1987. Since the main purpose of this index is to help AfterTouch readers order back issues, we have organized it as a contents list for each issue.

Within each issue listing, the contents are presented in alphabetical order according to topic. Whenever possible, the contents have been listed in terms of the instrument (or instruments) involved. When new patch data is included, all voice names, performance setup names, and voice edit names are listed for each issue, under the heading of the instrument for which the patch was created.

One important note regarding three regular columns: From its inception, AfterTouch has featured a Questions column, a Letters column, and a Hot Tips column. However, prior to the July 1987 issue, two of these columns had a different name: "Letters" used to be called "Touch Response," and "Hot Tips" used to be called "Final Touch." In order to maintain consistency in the Index listings below, we have referred to both columns by their current names.

Issue #1 (October 1985)
cover: Milestones (DX7)

CX5M: New products
CX5M: Using the UDC01 data cartridge
D1500: MIDI implementation
DX7 Programming: Anatomy of two new voices
DX7, new voices:
  PICKGUITAR
  SLAPCONGAS
MIDI Basics: The 3 basic MIDI ports
Questions: DX7, KX88, RX series
QX1: Your first 30 minutes
TX7 & DX7: Using them together
Yamaha Product List

Issue #2 (November 1985)
cover: 7 System

Chowning, John: Interview, part 1
CX5M: YRM301 MIDI Recorder program
KX88/KX76: Using them in performance
MIDI Basics: The 16 channels
Questions: DX user groups, QX7
RX Series: MIDI keyboard control
7 System: DX7, QX7, RX21, TX7

Issue #3 (December 1985)
cover: CX5M New Products

Chowning, John: Interview, part 2
CP60M: MIDI implementation
CX5M: Converting DX7 voices
CX5M: New products
CX5M: YRM302 RX Editor program
DX7: Blank voicing charts
DX7, new voice:
  VICSRHODES
Hot Tips: QX1, RX11
MIDI Basics: The 4 basic modes
REV7: MIDI implementation

Issue #4 (January 1986)
cover: CX100

CX5M: YRM305 DX21 Voicing program
DX7 Programming: Anatomy of 5 new voices
DX7, new voices:
  ACOU GUIT
  BASPIANBRS
  SITAR VIII
  SYNPATHY
  WHIRLIEPNO
DX100: An introduction
Hot Tips: CX5M, KX88, QX1, QX7, TX816
Letters: Info on users groups
Questions: CX5M, DX7, DX21, KX5, RAM1, TX7

Issue #5 (February 1986)
cover: TeleWord Module

CX5M: Converting DX7 Voices
DX5M: TeleWord module
DX7 Programming: drawbar organ sounds
DX7, new voices:
  BASSTRVIBE
  ELEC GRAND
  FLUTEMRMBA
  PORTA-B
  SPACEMUSIC
Hot Tips: DX7, KX88, QX1, TX216, TX816
Questions: CX5M, DX7, QX1, RAM1, RX11
QX1: Manipulate MIDI control codes

Issue #6 (March 1986)
cover: YCAMS

DX7, new voices:
  GUITARDAMP
  SHRINGING
  SLAPRHODES
  WHATTHE...
Hot Tips: QX1, QX7, QX21, REV7, RX11
Questions: CX5M, DX7 workshops, RAM1

QX1: New features in version 6 software
RX21L: MIDI key assignments
Subotnick, Morton: Interview, part 1

Issue #7 (April 1986)
cover: MCS2
CX5M: TWE01 TeleWord Enhancer
DX7, new voices:
DX7 TALK-Y
FM-T. BASS
NEUTRNPLUK
PEDALSTEEL
Hot Tips: DX7, QX1, RX11, TX816
MCS2: Application guidelines
Subotnick, Morton: Interview, part 2

Issue #8 (May 1986)
cover: Voicing Software
CX5M: Save DX7 voices with the TWE01
CX5M: YRM304 DX7 Voicing II program
Disk Insert: data [*no longer available*]
DX7, new voices:
DEEPPURPLE
DX PIANO 2
HORROR
SKY SYNC
Letters: Info on users groups and more
Questions: CX5M, DX7, QX1, TWE01, TX216

Issue #9 (June 1986)
cover: MEP4/MJC8
Disk Insert: CX5M data and performances
DX7, new voices:
CIRRUS
LIGHTWAIT
LYRICWOW
SHORTHORNS
Letters: Info on users groups and more
MEP4: Application guidelines
MJC8: Application guidelines

Issue #10 (July 1986)
cover: FB-01
Disk Insert: FB-01 performances
DX7: Modulation wheel as a tone control
DX9, new voices:
Organ B3
21st Century Organ
Twinkle Piano
FB-01: An introduction
FB-01, new voices:
digilog
Flt&Blk
Hot Tips: MEP4, QX1, RX11, TX816
MEP4: Create diatonic counterpoint
MEP4, new setup:
Baroque G

Issue #11 (August 1986)
cover: Studio 100 System
CX5M: YRM506 FB-01 Editor program
DX7 Programming: Enhance RX11 sounds
DX7, new voices:
SOL-RXPLUS (use with RX11)
DX21/DX100: Blank voicing charts
DX21, new voices:
HOOTGLOCK
TIN SYNTH
DX100, new voices:
BELLA
BRIT RHODES
Hot Tips: CX5M
Studio 100 System: An introduction

Issue #12 (September 1986)
cover: RX Series
DX7, new voices:
ARCTICKEYS
LIV DNGSLY
TAJ MAHAL
FB-01: Macintosh voicing program
Hot Tips: CX5M, DX7, TWE01
RX Series: Application guidelines
Yamaha Product List

Issue #13 (October 1986)
cover: KX786
CX5M: YRM504 Music Macro program
DX7, new voice:
PLUKD CLAV
DX100, new voices:
NOIZE
SUPER BASS
Hot Tips: CX5M, QX7, QX21, REV7
KX88/KX76: Application guidelines
TX816 Programming: Anatomy of a new patch
TX816, new 8-slot patch:
Rhodes1 & Rhodes2
LiveStr1 & LiveStr2
BloHorns1 & BloHorns2
SuprBas1 & SuperBas2

Issue #14 (November 1986)
cover: MIDI Accessories
CX5M: YRM303 MIDI Macro & Monitor program

Continued on page 6

AfterTouch Index *Continued*

DX7 Programming: Expanding percussion patches
DX7, new voices:
  FLUTE KLIK
  NOW-YOU
  WEIRD SCIN
MEP4, new setups:
  DRMDOUBLE
  SOFTECHO
  XfltrYexp
  MIDI Accessories: YMC10, YME8, YMM2
Questions: DX7, DX9, DX100, QX1, RX11

Issue #15 (December 1986)
cover: QX5
Controllers: Application guidelines
QX5: A detailed introduction
SPX90: Create automatic harmonization
Studio 100 System: How to create demos
YCAMS Diary: An adventure in academia

Issue #16 (January 1987)
cover: DX7 II FD
DX7 II FD/D: A detailed introduction
DX7, new voices:
  B3 Var2 LL
  EEYOWOO
MDF1: Application guidelines
Yamaha New Products

Issue #17 (February 1987)
cover: TX81Z
DX7, new voices:
  DOUG17SYNT
  EUROPA
  FAIRLIGHT
  REVHARMONY
DX100, new voices:
  SUPER SYNTH
  THIK THNG
QX5: Application guidelines, part 1
TX81Z: A detailed introduction

Issue #18 (March 1987)
cover: RX5
DX9, new voices:
  ANALOG STRINGS 1
  ENTRANCE
  MIX ECHO
  STARLIGHT SPARKS
DX100: Educational booklet info
QX5: Application guidelines, part 2
RX5: A detailed introduction
TX81Z, new performance setups:
  Brs'n'Wind
  Dark Voice

Issue #19 (April 1987)
cover: CX5M II/128
CX5M II/128: An introduction
DX7, new voices:
  MR MOOG FC
  SHIMMER
  SONG BELLS
  STEEL PANS
RX5: Application guidelines
TX81Z, new performance setups:
  BassnDyno
  BigSlap
  BigWash
  MoloElPnos

Issue #20 (May 1987)
cover: DX7s
DX7, new voices:
  CHIME M1A
  POLY-BLIND
  3 BOTTLES
DX7s: An introduction
FM: Summer session info
RX17: A detailed introduction
TX81Z: IBM voicing program
TX81Z: Macintosh voicing program

Issue #21 (June 1987)
cover: TX802
Disk Insert: WX7 performances
DX7 II: Micro Tuning possibilities
DX7, new voices:
  CATHEDRAL
  RICKNGRETCH
  SOFT STEEL
  STEP ORGAN
RX5, new voice edits:
  Meteorite
  RX5 Gated Snare
  SonarReflection
  TrainThruTunnel
TX802: A detailed introduction

Issue #22 (July 1987)
cover: Return Of The Reader
DX7, new voices:
  FLAPYBASS2
  4FASTREPS
  PIANO 1B

TOMTHOUSAN
DX9 Diary: The night my DX9 fell off the stage
Hot Tips: CX5M, DX21, FB-01, KX88, REV7, RX5
Questions: CP-35, MDF1, MEP4, QX1
RX5, new voice edits:
Abbey Road Tom
Fast Forward
Lion's Roar
Perc.Orch.Hit
Synth Fiddle
U-F-O

Issue #23 (August 1987)
cover: QX3/MSS1
DX9, new voices:
FULL LEAD PIPES
FUNK SYNTH PIANO
DX100, new voices:
COSMOS
Great 88
Harmallets
Hot Tips: CX5M, DX7 II, FB-01, SPX90
MEP4: Live applications guidelines
MEP4, new setup:
StringsUp
MSS1: An introduction
Questions: DX7, MIDI, TX81Z
QX3: An introduction

Issue #24 (September 1987)
cover: WX7
DX7 II: Changing voice numbers in Performances
DX21 Programming: drawbar organ sounds
DX100, new voices:
Bacon
BASH!
DXLollipop
FingrBrass
Hot Tips: FB-01, RX11, SPX90
Questions: Corrections, DX7/DX9, DX21
RX5: Planning techniques
TX81Z, new performance setups:
Flauter
Panner
WX7: An introduction

Issue #25 (October 1987)
cover: pf85
CX5M: Ear training program.
DX7, new voices:
HIGH SYNTH
HORN SWEEP
KALIMBA
TEMPLEBELL
TUBA BROMP
Electronic Percussion: New products
Hot Tips: RX11, YMC10, YMM2
pf85: An introduction
Questions: DX100, RX17, RX21, TX81Z, TX816
RX5: New ROM voice cartridges
RX5, new voice edits:
Glass Snare
Gun Drum
Rim Snare
Sub Dive Horn
Warble

Issue #26 (November 1987)
cover: TX16W
DX7, new voices:
DOUG22PICK
SAXOPHONE
Hot Tips: CX5M, DX7 II, FB-01, QX7, QX21
QX5 & RX5: Humanize your drum parts
RX5, new voice edits:
Disco Laser
HummingBass
Punchy Bass
Wind Snare
TX16W: An introduction
TX802: Application guidelines, part 1

Issue #27 (December 1987)
cover: DX7 II Centennial
DX7 Centennial: An introduction, & DX7 history
DX7 II/DX7: Copy voices from the new to the old
DX100, new voices:
ConcertPno
DesertWind
Euro Twang
Hebby
Hot Tips: CX5M, DX7 II, QX21
Questions: CX5M, DX7 II, KX5, KX88, manuals
QX3: Application guidelines, part 1
RX5, new voice edits:
Drop Bass
Volcano
TX802: Application guidelines, part 2

QX3

A Guide To Creating Music With The QX3 Digital Sequencer Recorder, Part 2. By Scott Plunkett.

LAST MONTH, IN PART 1 OF THIS article, we began our detailed look at Yamaha's newest digital sequence recorder, the QX3. This month, in Part 2, we will conclude our guide to the QX3 by looking at some of the unit's extensive Edit mode features and time-saving utility functions.

Regional Edit

If all a MIDI sequencer could do was to record and play back like a tape recorder, it would be a fairly useful device. But what makes a sequencer a truly invaluable asset is its editing capabilities. The QX3 shines in this department, with an extensive array of regional editing and single event editing commands.

Regional editing commands are used for making changes on a track over the length of the entire track or a specific region. On most sequencers, you will find regional editing jobs like quantize, track mix, and transpose. The QX3 will do all of these jobs, as well as some other, more exotic (but equally useful) regional editing commands.

One of the hazards of quantizing a group of tracks is that the music begins to sound stiff. Human beings never play things perfectly in time and if they did, no one would probably like it. The subtle pushing and pulling between players in a group is what gives a song "feel." The QX3 has a handy editing feature called Clock Move, that will help you put some feel back into a quantized track. Clock Move is a feature that the QX3 has borrowed from its older brothers, the QX1 and QX5; it lets you advance or delay an entire track or a portion of it. So, if your bass part seems a little nervous compared to the drums, you can move it back by a few clocks and make it feel more relaxed. This feature is also great for curing MIDI lag problems. It would be wonderful if the response time (the time between when an instrument receives a MIDI Note On command and when it actually plays the note, for instance) of every MIDI instrument was identical. Unfortunately, it doesn't work that way. The only cure, if you are having noticeable lag problems while playing a sequence, is to clock move the appropriate part to compensate for the difference in response time. This will put the instrument back in sync with the other instruments.

Another QX3 edit command that can be used for adjusting the feel of a part is the Spot Extract command. This unique command lets you extract the same part of each measure in a specified region and place it on another track. Sound a little confusing? Let's say you want to Clock Move only the events on the fourth beat of the drum track. You could take beat 4 from every measure in the drum track and place it on a separate track with the Spot Extract command. You could then clock move the new track and give the fourth beat a somewhat different feel.

A common problem when you're working with drum machines is that the note assignments for the drums are different depending on which drum machine you're using. If you record your drum part using one drum machine and want to use another drum machine when you go to the studio to record, you could have a real problem. The QX3's Note Shift command is the best way to get around this one. You can individually change notes in a track to different note assignments. If you're feeling ambitious, you can make a copy of the original drum track and use Note Shift to reassign all of the notes in the new track to work with the new drum machine. You can then have both drum machines play simultaneously (assuming you brought your original drum machine with you to the studio), and choose the drums from each machine that you like best. You may find that you can create a "new" snare sound by combining the snares from both drum machines as they play together. If they aren't hitting at exactly the same time, clock move one of the tracks to put them in sync.

The QX3 includes a chain mode for chaining together a number of songs or parts to create a longer song. You could work on just the verse, then work on the chorus and chain the entire song together in the chain mode. The only drawback is that you can't do any recording in the chain mode. So, if you want to do a blazing solo over the entire length of the song, you're out of luck. Fortunately, the QX3 has an edit job that lets you solve this problem. The File Include job enables you to insert a filed from disk at any location in the current sequence while you are still in song mode (the normal operation mode). For instance, to do your blazing solo, you would first load your 16 bar verse sequence and use File Include to insert the chorus sequence at bar 17. You could keep using File Include at this point to create the entire song. When you're done, find an empty track, record

QX3 digital sequence recorder.

your solo, and save the entire masterpiece to disk.

Step Edit

Regional editing is perfect when you need to take changes over a large area, but it doesn't help if you need to change just one note. Step editing is necessary for this kind of job, and the QX3 takes a simple yet comprehensive approach to it.

As soon as the EDIT key is pressed, you enter the Step Edit mode. By moving the dial, the events of the currently selected track are played and displayed individually. You can use the dial to move forward or backward through the track until you find the event you want to edit. The display shows you all of the relevant information for that particular event. For instance, if you are looking at a note event, the display shows you the following.

Start Time: This is when the note starts playing. The start time is given in measures, beats, and clocks (there are 96 of these per quarter note.

MIDI Note Name and Number: This shows you which note you are editing. You will see something like "C2 048" for this parameter. The "C2" stands for a C note played in the second octave. The "048" is the MIDI note number for a C2 note.

Step Time: The step time is the time until the next note plays, given as a musical duration and number of clocks. If the next note occurs an eighth note later, the display will show "/8 0048" as the step time. This is the only note parameter that cannot be edited. It is included to let you know how long it is until the next note starts, which could affect changes you make on the gate time of the current note.

Gate Time: The gate time is the length of time the note is played, indicated in clocks. If you wanted a note to play longer, for instance, you would lengthen the gate time.

Velocity: The velocity of the note is shown as a musical dynamic marking (ppp-fff), and as a MIDI velocity number. Since this parameter usually (but not always) controls the volume and timbre of a note, you can bring out melodies or suppress loud notes by changing the velocity.

This same display is used for inserting new notes into an existing recording and for step recording. When you press the insert button (INS) you are ready to begin recording. You choose the note start time, press a note length key on the QX3 front panel, set a dynamic level if you like, and play a note on your MIDI keyboard. As soon as you release the note, it is

Continued on page 10

added to the sequence.

If you need odd subdivisions of the beat, the QX3 has a handy key that helps you enter them. The -N- key, another feature borrowed from the QX1, allows you to take any note value and subdivide it as many times as you like. For instance, if you want to play 7 over 4, you press the whole note key (this is equal to 4 quarter notes or beats), press the -N- key, and enter the number 7. This divides the whole note 7 times. Now, when you play notes on your MIDI keyboard, they will automatically be entered into the QX3 with the correct length. If you decide that you want to double the speed of the part (7 over 2), you can just press the -N- key again and press the number 2, which divides the current length in half. The values entered on the -N- key can be cumulative, so you can easily create almost any subdivision you need.

While you are wandering about in the Step Edit mode, you can go to the beginning of a track and give it a 16 letter name. You will really appreciate this feature if you have ever been in the unenviable position of loading an old sequence and spending the first ½ hour trying to figure out which part is on which track.

MDR Mode

Besides performing its normal sequencer duties, the QX3 can function as a MIDI Data Recorder. This mode is meant specifically for recording System Exclusive data from MIDI devices. If you have never dealt with System Exclusive information before, it is primarily used for saving and loading the memory contents of synthesizers. This means that all of the sounds in the synthesizer are sent over MIDI in the form of a special MIDI message that can be recorded by the QX3 and sent back to the synthesizer at a later date. So, for any sequence, you can save all of the sounds from your various synthesizers to the QX3 and send them back to your synthesizers before you play the sequence. This guarantees that all the right sounds will be loaded and ready to play.

In the MDR mode, you can save up to 480 kilobytes of System Exclusive information at a time. You can either save one large 480 kilobyte message, or put up to 99 separate System Exclusive messages into memory. The QX3 shows you how many "blocks" (different System Exclusive messages) are in memory at the same time. This is really helpful if you're using an instrument like the DX7 II that has separate System Exclusive messages for Voice data, Performance data, Fractional Scaling data, and Microtuning data. You could send a combination of these messages separately to the QX3, and automatically load them back to the DX7 II as one big file.

Extras

In addition to the features we've looked at so far, the QX3 includes a number of "extra" features—those unique features that defy categorization. Even though these are not your normal, generic sequencer features, some of them could wind up being the features you use most often.

QX1 Data In/Out. The biggest problem with replacing a piece of gear (like a sequencer) with something new is that incompatibilities between the two can cause you to lose access to all of your previous work. To make matters worse, even similar products from the same manufacturer can be incompatible. To avoid this problem, the QX3 includes a job for sending and receiving QX1 data. If you have been using a QX1 and have built up a large body of work, you can send these files to the QX3 and they will automatically be converted to QX3 files. There is also a job to convert "E-seq" files from the CX5M and electone series organs into the QX3 format.

Time Display. If you have to fit a piece of music into a specific time frame, the time display job lets you know how you're doing. The QX3 will calculate the amount of time it takes to play any specified part of the song at the current tempo. Once the time has been calculated, you can use the dial to change the tempo and the QX3 will update the time display so that you can find the necessary tempo.

* * * *

When you're looking for a sequencer, the most important thing is to find one that's powerful and flexible enough to let you realize your musical ideas. It's equally important, though, that you find one that isn't so complicated that it slows down your work or forces you to spend weeks with your nose buried in a manual. The QX3 balances power and complexity in a way that makes it a great sequencer for both MIDI newcomers and MIDI professionals.

RX7

A Detailed Introduction To Yamaha's Newest Digital Rhythm Programmer. By Gardy Weber.

SHERLOCK HOLMES HAS A YOUNGER brother in a recent film. As the renowned sleuth is regarded for his exploits, so does the younger kin desire to be known. In this manner, the acclaim of the RX5 digital rhythm programmer is precedence for the introduction of its younger brother–the RX7. Viewing the lofty history of the RX family, the new "Holmes" will carefully endeavor to approach the reputation of his famous brother. One would expect such performance from a rhythm programmer in the RX lineage.

Songwriters, composers, musicians, engineers, and programmers–all have put the RX5 through its paces in demanding situations. Through this application, the RX5 has proven itself. In quality of sound, versatility of functions, and reliable performance, the RX5 is a veritable Sherlock. By this measure, the younger brother will be scrutinized. When it comes to state-of-the-art, one does not rest on the laurels of the past. There are expectations, questions. What features does the RX7 have? How does it perform? In what ways will the RX7 advance the RX series? To find the answers, read on.

Front & Rear Panels

As one might expect of a younger brother, the RX7 is more diminuitive in size than the RX5, but only in one dimension–the depth of the front panel. The instrument keys and function buttons are almost identical to those of the RX5. On the upper left of the front panel are four slide controls. These adjust output volume, click volume, tempo, and data entry values. To the right of the sliders, the panel houses mode indicator lights and the LCD readout window. It's all very much in the style of the RX5–everything is quite tidy and straightforward.

Looking more at the front panel, we encounter a major difference. Unlike the 12-channel output of the RX5, the RX7 has audio output only through stereo jacks. Consequently, the RX7 does not sport 12 slide controls on its front panel for adjusting the channel output levels. While this may seem constricting at first, reserve judgement at this point. The RX7 is now without unique resources. In fact, the innovative features of the new rhythm programmer mandate stereo outputs.

On the rear panel, the RX7 has stereo output, headphone, click, and footswitch jacks. MIDI interface and cassette ports are accessed via DIN connectors. Completing the back panel, we see the RAM4 Cartridge port. While the RX5 has the capacity for both RAM4 and data ROM cartridges, the RX7 has facility for only the RAM4 cartridge.

On first impression, the new rhythm programmer is familiar in layout while more compact in appearance. It is agreeable to the eye, but the hands and ears must be the final judges. Let's proceed to power up, and do some close listening and hands-on work. The next step is to preview the sounds.

Voice Sources

The RX7 holds 100 voice samples in permanent memory. This is a very impressive voice library. All of the sounds exhibit high quality recording. The expansive choice of drum sounds, ranging from "killer" Bonham bass drums to Latin timbales, will excite the ears of players in many styles. The voice set includes nine diverse bass drum sounds, eleven snare and rim sounds, seventeen toms, and four hi-hat voices; these will entice any drummer. A full array of percussion voices complement these drum-set samples. In addition, the RX7 includes bass, guitar, DX7, and human-voice sounds, making it possible to program imaginative accompaniments to pattern and song ideas. All the voice samples are indexed to voice numbers, for easy reference. The accompanying chart gives a complete voice and voice number listing.

There are two rows of instrument keys; each row holds 12 keys, for a total of 24. Without undo machinations, each of the 100 internal voices may be assigned to any one of the 24 instrument keys. This feature is extremely valuable when writing sequences and searching for applicable voices. In Key Assign mode Job #01, it is possible to page through the entire list of voices, allowing rapid and convenient selection. As mentioned above, the sampled sounds are diverse enough for many styles of music. If this begins to pique your interest, prepare for unexpected excitement.

Voice Edit Mode

While the older brother, the RX5, set new standards for rhythm programmers, the RX7 introduces new abilities of its own. In its Voice

Edit functions, the RX7 reveals its most significant innovations. The younger brother may be something of an upstart.

Entering Voice edit mode, a programmer can choose any voice to edit, whether or not it is assigned to an instrument key. The adjustable parameters in this mode include (among others) these familiar elements:

- Pitch
- Decay
- Bend (Rate and Range)
- Level

As you will observe, the RX7 does not have the extensive Envelope Edit capabilities of the RX5. In that capacity, the older brother is master. Although the envelope sound shaping of the RX5 is not available here, other unique features of the RX7 begin to captivate one's attention. The RX7 sets off in its own direction of sound manipulation. It is in the realm of the following Voice Edit parameters that the RX shows its true forte:

Pan Position. The first of these is Voice Edit Job #06–Pan. For each voice, pan position is addressed directly. The pan of an instrument sound can be programmed in a stereo field of 15 positions. Far left is indicated by 1, center is indicated by 8, and far right is indicated by 15. Each of the 100 internal voices can be placed in the stereo field by assigning a pan position. Since it is one of the functions in Voice Edit, Pan is part of voice data. With this capability, a programmer has immediate feedback to the aural changes in stereo positioning. It is also possible to assign a Pan position value to a specific instrument key via the Key Assign mode.

Poly. A new parameter for each voice is a feature entitled Poly, which is accessed through Voice Edit Job #11. Its function is to set the simultaneous polyphonic output of an individual voice, in a range from 1 to 8. The advantage of this feature is its effect during rapid repetitive striking of a single instrument key. The standard operation of the RX series of instruments allows for one sounding of a voice for each strike of a key pad. Consecutive strikes damp the output of each preceding hit. For many voices and performance techniques, such as drum rolls, this dampening leads to unnatural aural effects. Because of the abrupt cutoff of each strike, the sound of these percussive techniques is very machine-like on most drum units. With the Poly function, rolls and similar rhythm figures can now be programmed to sound much closer to the way they would sound if played on an acoustic drum. This advance will relieve many percussive techniques from the machine-staccato syndrome. Somebody is listening to the drummers.

LFO (Frequency, AMD, PMD). For the first time, the RX series incorporates low frequency oscillators. This opens up a new area of modulation effects for the programming of voices in the RX7. Under this Voice Edit function, (Job #10), three LFO parameters are adjustable: The Frequency value determines the speed of the LFO effects; changes in AMD (Amplitude Modulation Depth) determine the intensity of amplitude changes; and adjusting the range of the PMD (Pitch Modulation Depth) determines the intensity of "vibrato" effects.

Effect. Within the Voice Edit group, but almost deserving a category of its own, the Effect section (Job #12) is the major new focus of the RX7. It is through the possibilities of this function that the RX7 can challenge the RX5. Little brother is out to make his own reputation. The following parameters are adjustable under the Effect section:

- Simul
- Delay
- Pitch
- Level
- Pan

One could characterize the Effect function as a combination digital delay and pitch shifter. When applied to rhythm programming, this function is music to a drummer's ears.

With the "Simul" parameter setting, a sound is set to speak 2, 3, or 4 times. These repeats are activated with one strike of an instrument key. Until other parameters are adjusted, the repeats are simultaneous; However, the second, third, and fourth soundings can be delayed by adjusting the Delay time value. Consequently, one hears a voice repeated at a specific time interval, with just one strike of an instrument key. Rolls, multiple strokes, double-bass drums: all of these techniques become realistic (and beyond) with these Effect functions.

The user can control much than the delay time interval of the repeats however: The pitch, level, and pan position of *each* repeat is adjustable. For example, a sound can bounce back and forth between left and right channels, re-

Continued on page 14

Number	Voice Name	MIDI Note	Pan				
00	BD 1	A 1	8	51	PickBas	B −2	8
01	BD 2	G# 1	8	52	SynBass	A# −2	1
02	DB 3	D# 1	8	53	D.GtrS	A −2	8
03	J.BD 1	D 1	8	54	D.Gtr5	G# −2	8
04	F.BD 1	C# 1	8	55	GtrCutD	G −2	8
05	H.BD 1	C 1	8	56	GtrCutU	F# −2	8
06	H.BD 2	B 0	8	57	DXorch	F −2	8
07	P.BD 1	A# 0	8	58	DXmrmb	E −2	8
08	P.BD 2	A 0	8	59	DXclav	D# −2	8
09	SD 1	E 2	8	60	Brass	D −2	8
10	SD 2	C# 2	8	61	Claps	F# 2	8
11	SD 3	G# 0	8	62	Timpani	E 4	8
12	PicolSD	G 0	8	63	Cowbell	G 2	8
13	H.SD 1	F# 0	8	64	Tambrn	A# 2	8
14	H.SD 2	F 0	8	65	Shaker	G# 2	8
15	H.SD 3	E 0	8	66	Conga HM	F# 3	8
16	P.SD 1	D# 0	8	67	Conga HO	F 3	8
17	P.SD 2	D 0	8	68	Conga LO	E 3	8
18	P.SD 3	C# 0	8	69	Bongo HI	G# 3	8
19	Rim 1	D# 2	8	70	Bongo LO	G 3	8
20	Rim 2	A# 1	8	71	Timbl H	A# 3	8
21	Tom 1	F 2	4	72	Timbl L	A 3	8
22	Tom 2	D 2	6	73	Agogo HI	D# 4	8
23	Tom 3	C 2	10	74	Agogo LO	D 4	8
24	Tom 4	B 1	13	75	Cuica	F 4	8
25	F.Tom 1	C 0	5	76	Castnet	G 4	8
26	F.Tom 2	B −1	7	77	Whistle	F# 4	8
27	F.Tom 3	A# −1	11	78	Claves	C# 4	8
28	H.Tom 1	A −1	4	79	BellTre	G# 4	8
29	H.Tom 2	G# −1	6	80	VibraSl	A 4	8
30	H.Tom 3	G −1	10	81	Steel Dr	A# 4	4
31	H.Tom 4	F# −1	13	82	GlsCsh	B 4	8
32	P.Tom 1	F −1	6	83	Gun	C5	8
33	P.Tom 2	E −1	10	84	DoorSlm	C# 5	8
34	E.Tom 1	G 1	4	85	Camera	D 5	8
35	E.Tom 2	F# 1	6	86	Punch	D# 5	8
36	E.Tom 3	F 1	10	87	Car Door	E 5	8
37	E.Tom 4	E 1	12	88	Ha!	F 5	8
38	FMprc 1	F 6	8	89	Bon	F# 5	8
39	FMprc 2	F# 6	8	90	Hey!	G 5	8
40	FMprc 3	G 6	8	91	Uh!	G# 5	8
41	HHclose	A 2	3	92	'Ow!	A 5	8
42	HHopen	B 2	3	93	Get Funk	A# 5	8
43	HH1/4op	D# −1	15	94	Rvs BD	B 5	8
44	HHpedal	D −1	3	95	Rvs SD	C 6	8
45	Cup	D 3	14	96	Rvs Edge	C# 6	8
46	Edge	D# 3	15	97	Rvs Crsh	D 6	8
47	Crash	C 3	2	98	Rvs Tom	D# 6	8
48	China	C# 3	4	99	Rvs ETom	E 6	8
49	EBass H	C# −1	8				
50	EBass L	C −1	8				

This chart lists the 100 internal voices contained in the RX7. Each voice is identified by both voice number and voice name. In addition, each voice's factory preset MIDI note number and pan position is shown. Remember that both MIDI note number and pan position can be programmed by the user for each voice.

cede in volume, or rise in pitch. This relates nicely to bounce strokes as played on acoustic drums.

These delay/repeats can also be used as a writing technique. Each time a voice key is hit, the effects programmed to that voice are activated. Successive strikes do not damp the programmed effects of previous strikes. By playing the delay/repeat effect against itself, a writer can create overlapping rhythms, multiple sounding of voices, or odd-to-even note groupings. Much of this is possible without tedious note-by-note entry. Ideas can be realized much more easily in composing a pattern. Serendipity joins the imagination. A warning from one who has experimented with this function: The RX7 may require an optional seatbelt.

Upon hearing the Effect section of the RX7, you will understand the need for a seat restraint. These capabilities allow the unit to come much closer to the way a drummer plays the acoustic instrument. It removes some of the mechanical limits to one's ideas.

Two operational points on the Effect section: A separate button switches this function on and off, and an Effect LED indicates when the function is enabled. This applies to all voices. However, effects for voices that are programmed into patterns remain part of pattern memory. There is a function in Pattern Edit mode that makes it possible to turn effects on or off on a note-by-note basis, should one so choose.

Composing & Editing Sequences

Patterns. Polyphonically, the RX7 is capable of 16-note polyphony; therefore, one can program up to 16 sounds at once in pattern writing. This is not to be confused with the Poly function in Voice Edit mode: That function is part of voice data, and does not conflict with the number of parts in pattern writing.

There are two possible methods for composing patterns: Real Time Write and Step Time Write. Real Time Write allows the composer to hear the parts as they are added, layer by layer. In Step Time Write, the composers create a pattern note by note.

A metronome click accompanies all Real Time Write situations. Tempo is adjustable by the Tempo slider or the +1/YES −1/NO buttons. The Click can be set to sound at a wide range of note intervals, ranging from half note to thirty-second note. The Quantize note function may be utilized to ensure rhythmic accuracy, or it can be disengaged to allow for more subtlety of rhythmic feel.

To facilitate Pattern writing, a Clear function is available at a front panel button. It is possible to clear a single note, a single voice, or the entire Pattern. If one desires to clear *all* Patterns, Utility Job #05 will carry out such a command. Patterns can also be copied to other memory locations, or a Pattern can be appended to another Pattern. These functions are accessed through the Copy function button.

Two levels of accent are provided on the RX7, via the Accent 1 and Accent 2 keys to the left of the function buttons on the front panel. To program an accent level into a pattern, a composer must depress and hold an accent key while tapping the appropriate instrument key.

The pattern memory has locations for 100 sequences. Each sequence is a maximum of 99 measures. The remaining memory space can be monitoried using Utility Job #01, which gives a readout of the remaining memory as a percentage figure.

Pattern Edit. Once the pattern has been completed, it may be reviewed and altered by entering Pattern edit mode. In this mode, the RX7 steps through a sequence note by note. While stepping forward, the notes will sound as each occurs in the Pattern. It is possible to step through the notes of all voices, or the notes of a single instrument. The LCD display will read out the bar number, clock number, voice, parameter, and parameter value. (Pattern Edit values are always relative to Voice Edit values.) The following parameters are available in Pattern Edit mode:

- Pitch
- Decay
- Level
- Pan
- Effect (on/off)

Any adjustment made here affects individual notes only. The alterations do not affect the corresponding Voice Edit data.

One other helpful function is found under Utility Job #04: Voice Change. After programming a Pattern, one might want to try different voice combinations. Through the Voice Change utility, a different voice can be substituted for a voice already programmed into a pattern.

Songs. A total of 20 songs can be entered

into the RX7's song memory. Each song may consist of a maximum of 999 parts. Before putting a song together, it is wise to set an initial tempo using the Init Tempo job. This will act as a reference tempo for later changes. At this point, it might also be wise to decide on Markers in the song structure. The markers are location points which the digital programmer will recognize and instantly locate. For reference during critique, review, or overdubbing, the song markers will save time and temper. Markers are entered as parts of a song.

Having a complete layout, then, for a #1 Hit, pattern and markers are programmed as parts to the song. To alter the construction after entry, Insert and Delete functions allow appropriate part changes. Repeat commands are easier to input as part Inserts, after a complete song has been outlined. Tempo changes and Volume changes are also easier to Insert after the main structure of the song has been entered. For both the tempo and volume functions, rate and direction values are determined when programming these commands. Through the use of the Insert function, Repeats, Tempo changes, and Volume changes become parts of a song.

Chain. The chain mode gives the capacity to assemble songs in a preset order. A maximum of three chains can be constructed, each consisting of up to 90 songs. Uses of this mode seem best suited to live performance or recording.

Key Assign

The capabilities of the Key Assign mode relate primarily to pattern composing and key setup data. During Real Time Write, entry to the Key Assign mode maintains the playback portion of the Write function. The pattern will continue to cycle, but no data will be recorded. In this situation, all Jobs under Key Assign mode will still execute. The principle value here lies in the ability to preview voice and voice parameter changes. Using Voice Assign and Parameter Assign, a programmer can listen to adjustments prior to recording them into a pattern. Note that, in Parameter Assign, pitch, level, pan, and decay are adjustable. Alterations of these values are relative to Voice Edit settings. Parameter Assign will affect a voice only at the selected instrument key. To re-enter Real Time Write, simply press the Real Time function button again.

To fully exploit a single voice, the Multi-Voice and Multi-Step functions can be used together to create special key setup on the upper row of 12 instrument keys. Multi-Voice designates a single voice to the entire group of upper row keys; then, with Multi-Step, each of four parameters–pitch, level, pan, and decay–can be offset, in equal steps over the range of the 12 instrument keys. A step value is prescribed for each parameter. The Step function applies these values, in graduated steps, from Key A to Key L. In this fashion, a special setup is created for a single voice. An example would be a chromatic scale across the upper row of keys. Multi-Voice and Multi-Step are perhaps more appropriate for pitched instruments, such as marimba or steel drum.

Drum setups, or other related combinations of instruments, constitute another advantage to Key Assign. Personalized drum kits can be set up on the 24 instrument keys. Choose your bass, snare, and toms; add the percussive Effect voices or edited sound sources–each can be assigned to an instrument key, building a prearranged and pretuned set. The beauty is that you don't have to break this kit down and set it up every time you want to play it. Key Assign does it in one simple operation: It stores the key Setup data. Key Data Save will store the layout, making it available for later recall. Four user-created key setups can be stored in memory; the unit also has five more key setups in permanent memory.

The RX7 also includes an interesting new function in its key Assign group. Job #06, Footswitch Assign, leaves its application entirely to your imagination. The function of *any* front panel key is assignable to the footswitch. From triggering an instrument key to shifting parameters via the numeric buttons, any function can be connected to the optional footswitch. The Footswitch Assign may be particularly suited to live performance.

MIDI

In the few short years since its introduction, MIDI has become the universal language of electronic musical instruments. (An excellent source for a basic understanding of MIDI is a guide entitled *The MIDI Book*, available through your authorized Yamaha dealer.) The RX7 is well-versed in the MIDI language: it speaks with a state-of-the-art understanding. In this capacity, the RX7 stands as the equal to its

accomplished kin, the RX5. The younger RX7 has the standard ports for MIDI IN, OUT, and THRU. These small ports carry an enormous amount of information and functionality.

The RX7 will respond to and record velocity-sensitive MIDI signals; therefore, external keyboards can be used to "play" the RX7, complete with full velocity (volume) information. Although the RX7 does not have velocity-sensitive pads, the ability to capture the full range of velocity expression is possible via MIDI.

New to the RX series, the RX7 will receive MIDI pitch bend messages from external MIDI equipment. The voices of the RX7 will respond to pitch bend signals, and the range is controllable through a function on the new RX. Unfortunately, pitch bend data is *not* stored in sequence memory. At this point, the pitch bend function simply enhances the RX7 when it is used as a MIDI sound source.

To play RX7 voices from outboard MIDI equipment, each of the 16 MIDI channels can be turned on or off for the reception of MIDI signals. In addition, Pitch assignment or Voice assignment can be specified for each channel. On the RX7, individual MIDI channels can be selected for either voice or pitch assignment. On the RX5, this selection is a mutually exclusive, two-step operation. The RX7 carries out this assignment in one function. Move over, big brother.

When set to Pitch assignment, note numbers are received on a designated channel. The note numbers control the pitch of a selected RX7 voice. This voice will be spread across the keyboard of the controlling MIDI instrument. Pitch assignment is most useful for pitched instruments, such as marimba, steel drum, or guitar.

Voice assignment indicates that note numbers, received on a designated channel, will control the sounding of different RX7 voices. Each key of the external keyboard can control a different voice on the RX7. Although the RX7 comes supplied with preset MIDI-note assignments, these can be changed using MIDI Job #04. See the accompanying diagram for a list of the factory preset MIDI note number assignments.

Through its ability to transmit MIDI data, the new rhythm programmer can also function as a sequencer. MIDI Job #03 lets you specify a MIDI transmission channel for each voice. As in the reception of MIDI signals, it is the note number that triggers a corresponding voice. Thus, in playing a voice on the RX7, the corresponding note number is transmitted to an external instrument via MIDI, which will trigger a sound on that external sound source. In this manner, the RX7 can be used as a rudimentary sequencer for "playing" other instruments.

The transfer of data via MIDI is more advanced in the RX7 than on its older brother. There are now four types of bulk data for reception and transmission, as follows:

1) Sequence (Pattern, Song, Chain) & Voice Data
2) Pattern (single Pattern data)
3) Voice (single Voice data)
4) Setup Data (4 sets of Key data, MIDI note-number assigns, Pitch Bend ranges, and MIDI Transmit and Receive channel info)

In Bulk Request or Bulk Transmit, the type of data must be specified. Data transmission can be singular and specific, not just in bulk (as the name implies). This type of control represents a continuing sophistication of the MIDI functions. One important note: When requesting a Bulk transfer, remember that all corresponding data currently in the RX7 will be erased to make room for the new data.

* * * *

When a younger brother arrives on the scene, expectations are high. The RX7 comes in on the footsteps of its senior, the RX5. The latest RX is similar in appearance, yet not as extensively equipped with the features made familiar by the RX5, the major difference being the output mixing section and envelope edit of the RX5.

From that point on, however, the RX7 breaks away to carve its own path. With its extensive voice library and flexible voice allocation, the RX7 exerts a strong presence. Streamlined facilities for manipulating the voices provide rapid and more realistic recording of the user's ideas. But it is the Poly, Pan, LFO, and Effect functions that advance the RX series the most. Here the RX7 leaps ahead of its great predecessor. Most attention will be drawn to these important innovations. By this measure the RX7 will make its reputation, and be welcomed to the RX family of digital rhythm programmers.

The suggested list price of the RX7 is $895.00

AfterTouch Diary

The Wedding Gig Versus My MIDI Setup And MT44D Multitrack Cassette Recorder. By Dave Cross.

RECENTLY, I PUT TOGETHER SOME music for a friend's wedding. Using my full MIDI setup (QX1, TX216, TX81Z, DX7 II FD, RX5, MV802), I sequenced several songs, with the intention of dumping them onto a cassette for convenience. I was also planning to play acoustic guitar and sing along with the tape.

With the sequencing completed and a "studio" mix in hand, I decided to dump everything to 4-track using my MT44D multi-track cassette recorder. It sounded great through the MS10 monitors in the studio, but the wedding would be outside, and I wasn't sure if the mix would hold up under those conditions. Therefore, I did not mix down to 2-track stereo cassette, but left my work on 4-track, knowing that I would have more control over the mix once I set up outdoors.

After setting up at the rehearsal and going through my preliminary sound check, I put the tape in, hit PLAY, and wandered through the area where the guests would be. What follows is an account of what went through my mind as I listened to the first song (edited for younger readers, of course):

Track 1 (keys, string/flute) sounds fine. Nice intro.

Track 2 (drums) came in nicely. A little tweak on the volume slider, perhaps...

Tracks 3 and 4 (bass, strings/brass) were supposed to come in right here! Weren't they? I must have left the volume sliders at zero for both tracks.

Hmmmm? No, they seem to be set correctly ...

Maybe I missed a connection. No, they're all correct, too.

Could it be a short, or something wrong internally? Rats! Now I can't even mix down to 2-track. I'll have to set up tonight with the original sequence, and go straight to 2-track: There's a couple of hours shot in the ass, and I'll have to stay sober at the rehearsal dinner to boot! Or, I could haul all of the MIDI gear down tomorrow for the wedding (I'm not crazy about that option, either).

I sure hope that Lisa (the bride) appreciated that I'm doing this as a favor. Well, back to the matters at hand.

Let's see, all of the switches and sliders are in the right positions, and the connections are fine. Switching cables only proves that they are all fine as well. This makes about my tenth time through this check routine. What is wrong? Rats again! I'm running out of possible solutions. Looks like I'll be up late tonight after all.

Hmmmm? Let's take a look at the tape. Yes, the sensor foil is in place. It's on the correct side, and the tape seems fine.

Boy, it sure is bright today (which I notice because of the glare from the sensor foil).

WAIT A MINUTE! No, it couldn't be...

Let's see: Tape back in, close door, push Play: Tracks 1 + 2 are there, but no Tracks 3 + 4...

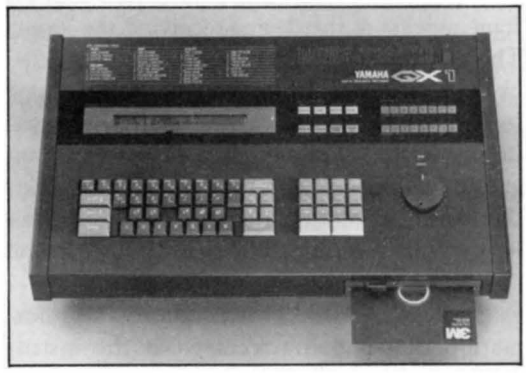
Cover cassette door with towel (and cross fingers): It's there! Tracks 3 + 4 are playing!

Uncover cassette door: Damn if it doesn't stop Tracks 3 + 4 again! Cover again, and they play!

Sigh... What an ordeal.

Hot dog! Now I can tip a few at the rehearsal dinner after all. I've earned it!

As you can see, I spent a very agonizing 20 minutes trying to trouble-shoot my problem. I'm still amazed that the reflection from the sensor flipped the switch in my mind that suggested I try the towel. If you're scratching your head, mumbling "I don't believe the fool," try it.



QX1 digital sequence recorder.

RX5 digital rhythm programmer.

Questions

Answers To Questions From Readers.

I have just purchased my first synthesizer, and I must admit that I'm a little confused by MIDI. I understand that MIDI allows various instruments to "talk" to each other, but I don't understand why my instrument has three MIDI jacks—IN, OUT, and THRU. If MIDI is a "conversation," aren't the IN and OUT jacks all that are needed?

Good question. Obviously, MIDI is a very important subject for all readers of AfterTouch. As a matter of fact, the first few issues of AfterTouch included a MIDI Basics column, the purpose of which was to answer just the kind of question you have just asked. To answer your question, here is a revised version of some material that appeared in our very first issue:

All MIDI-equipped instruments have MIDI Ports, those little five-pin DIN sockets that are usually found on the instrument's back panel. These sockets send and receive all MIDI messages from unit to unit. At present, there are only three basic kinds of MIDI ports: IN, OUT, and THRU. If you want to understand how your MIDI instruments are communicating with each other, it's important to know exactly what happens at each one of these ports.

The MIDI IN port accepts information from another MIDI device; this information controls some aspects of the device receiving the input. The exact kinds of control will be determined by the way you have set the two instruments up.

The MIDI OUT port sends MIDI information generated by the instrument, for reception at another device's MIDI IN port. Once again, the kinds of information transmitted via this port will be determined by the MIDI setup you have chosen for the two instruments.

The MIDI THRU port outputs MIDI information that is being received at the instrument's MIDI IN port. This allows information being generated by one instrument to control more than one other MIDI device. For example: MIDI information from instrument 1 is received by instrument 2 (at instrument 2's MIDI IN port); this same information is present at instrument 2's MIDI THRU port, where it can be routed to instrument 3.

Remember, MIDI information generated by a particular instrument will appear only at its MIDI OUT port; the MIDI THRU port of a particular instrument presents only the information received at that instrument's MIDI IN port.

Obviously, the way your instruments will communicate will depend on how you connect their various MIDI ports. Let's look at a few possibilities using the three instruments mentioned above. Assume that instrument 1's MIDI OUT is connected to instrument 2's MIDI IN; therefore, instrument 1 will be controlling instrument 2 on some level. Now, if instrument 3 is connected to instrument 2's MIDI THRU, it will also be controlled by the MIDI data from instrument 1. However, if instrument 3 is connected to instrument 2's MIDI OUT, it will only be controlled by MIDI information generated by instrument 2—the data coming from instrument 1 will not affect it at all.

Now, these are useful ways of operating, but there may be times when you want instrument 3 to be controlled by MIDI data coming from both instrument 1 and instrument 2. Manufacturers have considered this possibility as well, and many of them have installed a "MIDI echo" (or "MIDI merge") function in their instruments. When MIDI echo is engaged information sent to an instrument's MIDI IN port will

Continued on page 19

DX7 II FD digital FM synthesizer.

appear at that instrument's MIDI OUT port. If instrument 2 above had a MIDI echo function, then instrument 3 could receive MIDI data from both instrument 1 and instrument 2, through instrument 2's MIDI OUT (with the MIDI echo function engaged).

MIDI echo is, in essence, a merging of data from two separate sources. Some devices, like the KX88, offer this merge function as a permanent feature: Its MIDI OUT port always merges information generated by the KX88 with information send to the KX through its MIDI IN port.

I am currently using a DX7II. I would like to be able to turn the Performance features on and off using a controller. What are the control numbers I should use?

Since your question is not very specific, it is hard to focus on the particular effect or effects you have in mind. However, you should know that the Performance memory settings of the DX7 II are *always* active in Performance Play mode, and are *never* active in Voice Play mode. In other words, Performance settings are always active when the instrument is in Performance mode; conversely, they are never active when the instrument is in Voice mode.

You might be able to approximate the effect you want by programming a series of Performances for each set of voices you want to use: Each Performance file could therefore contain a number of different performance parameter possibilities for each combination of voices. If you have a DX7 II FD, each one of these special "multiple possibility" Performance sets could be saved to disk, from which they could be called up for use in live performance relatively quickly.

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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