

THE OFFICIAL PUBLICATION OF THE YAMAHA USERS GROUP

C1 Music Computer



JULY 1988

 **YAMAHA®**

Back Issues

Important Information For All AfterTouch Readers.

EVER SINCE THE PUBLICATION of the AfterTouch index in the January 1988 issue, requests from readers for back issues have jumped by an astounding number. This is especially surprising because requests for back issues have always been heavy and steady, from the moment we first announced their availability.

Unfortunately, this massive number of requests has depleted our stock of back issues: In the case of many of our earlier issues, the supply of back issues has been completely handed out, and the stock of most of the remaining issues is severely depleted.

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

However, due to the enormous demand for material from our earlier issues, Yamaha is con-

sidering various ways to continue to make this information available. Unfortunately, since *any* approach to reprinting this material will be quite costly, it will be impossible to continue offering the information from previous issues for free.

Yamaha will announce the results of its research into the AfterTouch back issue situation in the next few months—watch for it right here in the pages of AfterTouch.

In the meantime, please *do not* send us any more requests for back issues. There are *no more* magazines left with which to fulfill your requests.

If you have already sent in a back issue request but have not yet received your issues, you should assume that your order was impossible to fulfill. We are sorry for this inconvenience.

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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.

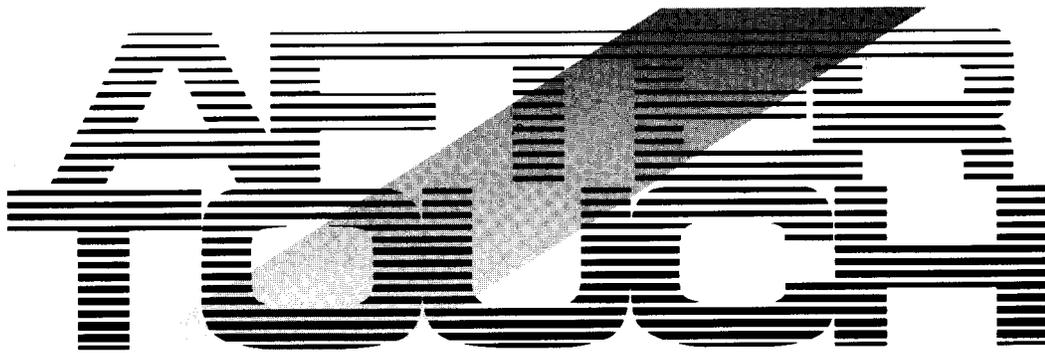
Have you developed a new approach to one of the Yamaha AfterTouch instruments, or have you discovered an important secret regarding their use? Put it on paper and send it to us. Don't worry about your writing style—just get the information down. If we decide to use your material as a full article in 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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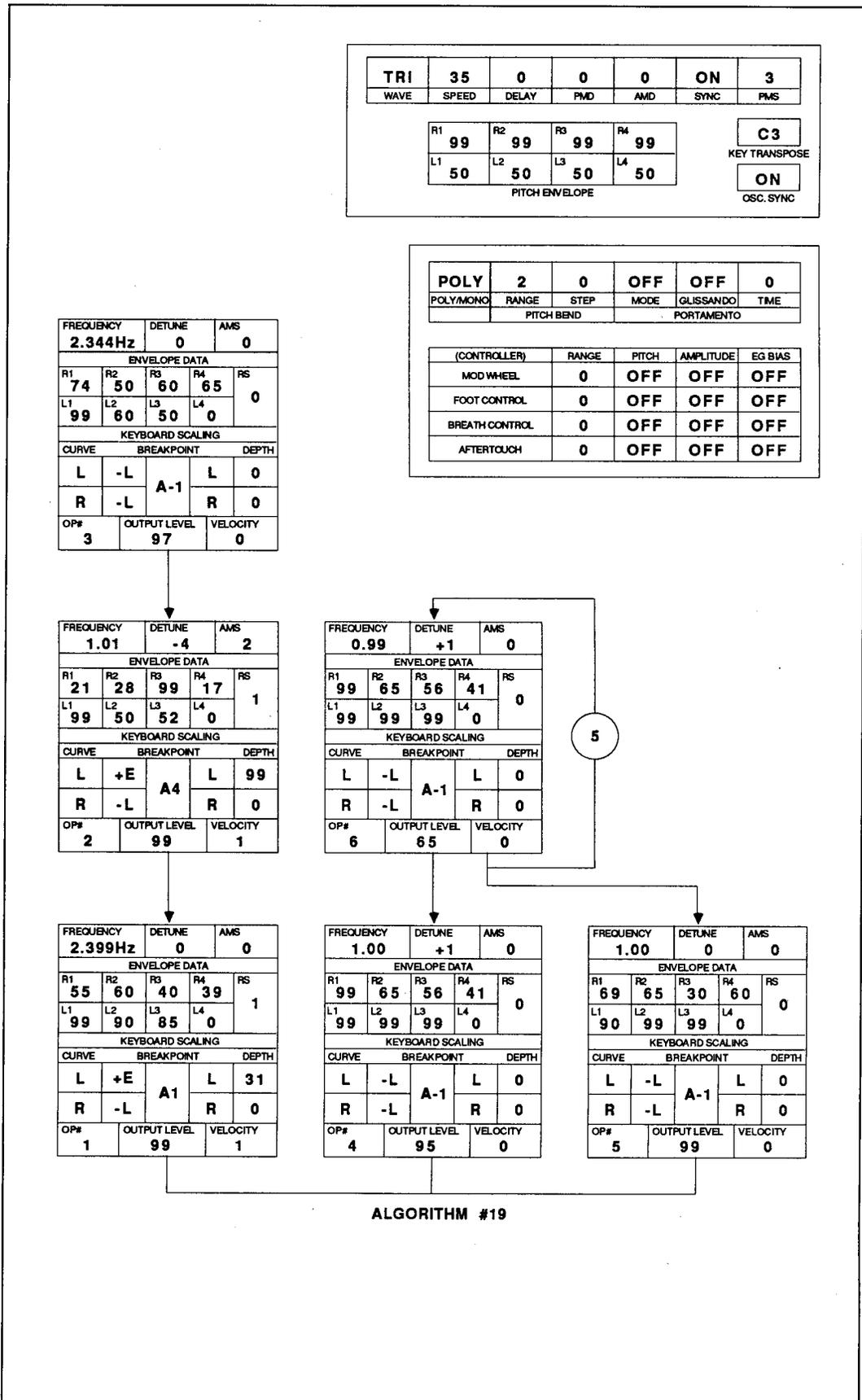
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DX7

ANGEL VOX.
A New DX7
Voice
By J.H.
Elizondo.

Notes:

This is a new age sound; it's also useful for calm leads and background swells.



DX7

SLEDGE FLT.
A New DX7
Voice By Brian
Silverman.

SINE	32	23	8	13	OFF	3
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

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

PITCH ENVELOPE

C2
KEY TRANSPOSE
OFF
OSC. SYNC

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	50	ON	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	50	OFF	ON	OFF

FREQUENCY	4.59	DETUNE	+4	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	
99	59	25	60	3	
L1	L2	L3	L4		
99	49	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	+E	C3		L	99
R	-E			R	15
OP#	OUTPUT LEVEL	VELOCITY			
6	99	2			

FREQUENCY	7.70	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	
99	72	25	60	3	
L1	L2	L3	L4		
99	49	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	+E	A2		L	99
R	-E			R	10
OP#	OUTPUT LEVEL	VELOCITY			
5	99	4			

FREQUENCY	2.00	DETUNE	+4	AMS	2
ENVELOPE DATA					
R1	R2	R3	R4	RS	
99	97	70	28	4	
L1	L2	L3	L4		
99	97	90	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A-1		L	0
R	-L			R	0
OP#	OUTPUT LEVEL	VELOCITY			
2	74	2			

FREQUENCY	4.00	DETUNE	+4	AMS	1
ENVELOPE DATA					
R1	R2	R3	R4	RS	
53	38	75	36	0	
L1	L2	L3	L4		
88	44	24	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A-1		L	0
R	-L			R	0
OP#	OUTPUT LEVEL	VELOCITY			
3	78	4			

FREQUENCY	955.0Hz	DETUNE	0	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	
99	56	25	60	3	
L1	L2	L3	L4		
99	36	0	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	+E	A3		L	8
R	-E			R	10
OP#	OUTPUT LEVEL	VELOCITY			
4	89	3			

7

FREQUENCY	1.00	DETUNE	-2	AMS	0
ENVELOPE DATA					
R1	R2	R3	R4	RS	
61	67	70	47	0	
L1	L2	L3	L4		
93	89	98	0		
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A-1		L	0
R	-L			R	0
OP#	OUTPUT LEVEL	VELOCITY			
1	99	2			

ALGORITHM #18

These DX7 voices can also be loaded into all the other Yamaha 6-operator FM digital synthesizers and tone generators, including the DX5, TX7, TX216, TX816, TF1, DX1, DX7s, TX802, and DX7 II FD/D.

DX7

FANTASY 1
A New DX7
Voice By
Masami
Nagata.

TRI	35	32	15	0	ON	3
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS
R1	R2	R3	R4	C4		
99	99	99	99	KEY TRANSPOSE		
L1	L2	L3	L4	ON		
50	50	50	50	OSC. SYNC		
PITCH ENVELOPE						

POLY	1	0	OFF	OFF	0
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
PITCH BEND			PORTAMENTO		
(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS	
MOD WHEEL	0	OFF	OFF	OFF	
FOOT CONTROL	0	OFF	OFF	OFF	
BREATH CONTROL	0	OFF	OFF	OFF	
AFTERTOUCH	0	OFF	OFF	OFF	

FREQUENCY	DETUNE	AMS		
1.00	+3	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
57	38	99	32	0
L1	L2	L3	L4	
99	0	0	99	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	+L	C3	L	35
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
2	65	0		

FREQUENCY	DETUNE	AMS		
1.01	+2	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
57	38	99	32	0
L1	L2	L3	L4	
99	0	0	99	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	+L	C3	L	30
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
4	65	0		

FREQUENCY	DETUNE	AMS		
0.50	-3	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
57	38	99	32	0
L1	L2	L3	L4	
99	0	0	99	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	+L	C3	L	32
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
6	65	0		

FREQUENCY	DETUNE	AMS		
1.000Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
53	17	99	32	0
L1	L2	L3	L4	
99	0	0	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L	0
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
1	99	0		

FREQUENCY	DETUNE	AMS		
1.047Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
53	17	99	32	0
L1	L2	L3	L4	
99	0	0	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L	0
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
3	99	0		

FREQUENCY	DETUNE	AMS		
1.230Hz	0	0		
ENVELOPE DATA				
R1	R2	R3	R4	RS
53	17	99	32	0
L1	L2	L3	L4	
99	0	0	0	
KEYBOARD SCALING				
CURVE	BREAKPOINT	DEPTH		
L	-L	A-1	L	0
R	-L		R	0
OP#	OUTPUT LEVEL	VELOCITY		
5	99	0		

ALGORITHM #5

DX7

DIGTL- HORNS. A New DX7 Voice By Luther Baker.

TRI	41	0	0	0	ON	3
WAVE	SPEED	DELAY	FWD	AMD	SYNC	PMS

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

PITCH ENVELOPE

C2

KEY TRANSPOSE

OFF

OSC. SYNC

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	30	ON	OFF	OFF
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	0	OFF	OFF	OFF

FREQUENCY	0.99	DETUNE	-1	AMS	0
ENVELOPE DATA					
R1	57	R2	40	R3	18
R4	75	R5	1		
L1	99	L2	98	L3	82
L4	48				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A3	L	0	
R	-L		R	1	
OP#	OUTPUT LEVEL	VELOCITY			
2	82	0			

FREQUENCY	1.00	DETUNE	-5	AMS	0
ENVELOPE DATA					
R1	83	R2	99	R3	99
R4	79	R5	0		
L1	99	L2	99	L3	99
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	A-1	L	0	
R	-L		R	0	
OP#	OUTPUT LEVEL	VELOCITY			
1	99	0			

ALGORITHM #2

FREQUENCY	1.00	DETUNE	+3	AMS	0
ENVELOPE DATA					
R1	83	R2	99	R3	99
R4	73	R5	0		
L1	99	L2	99	L3	99
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	C3	L	0	
R	-L		R	1	
OP#	OUTPUT LEVEL	VELOCITY			
6	71	0			

FREQUENCY	1.00	DETUNE	-2	AMS	0
ENVELOPE DATA					
R1	83	R2	99	R3	99
R4	78	R5	0		
L1	99	L2	99	L3	99
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	C3	L	0	
R	-L		R	1	
OP#	OUTPUT LEVEL	VELOCITY			
5	83	0			

FREQUENCY	1.00	DETUNE	-4	AMS	0
ENVELOPE DATA					
R1	83	R2	99	R3	99
R4	83	R5	0		
L1	99	L2	99	L3	99
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	C3	L	0	
R	-L		R	1	
OP#	OUTPUT LEVEL	VELOCITY			
4	64	0			

FREQUENCY	1.00	DETUNE	+4	AMS	0
ENVELOPE DATA					
R1	40	R2	99	R3	99
R4	80	R5	0		
L1	99	L2	99	L3	99
L4	0				
KEYBOARD SCALING					
CURVE	BREAKPOINT		DEPTH		
L	-L	C3	L	0	
R	-L		R	1	
OP#	OUTPUT LEVEL	VELOCITY			
3	85	0			

Notes:

I was trying to get a horn sound other than the normal DX7 sound for brass. I wanted it to come out sounding like the horns on an Oberheim, but it came out being a horn sound that only a DX7 can produce.

TX81Z

Mid. Pipe and Slp.Sus.Syn. Two New TX81Z Voices By Eric O. Ogier.

Notes:

The presets on the TX81Z lack a middle pipe organ sound. I created this patch mainly for use on classical songs.

Notes:

Slapping the keys creates one sound, while holding the keys creates quite a different sound.

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	99	99	99	99
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	0	13	4	25
freq. fine	0	0	0	0
detune	-2	+3	+3	+3
-1-	-2-	-3-	-4-	
0.50	4.00	1.00	8.00	

ENVELOPE	op1	op2	op3	op4
attack rate	23	17	23	22
decay 1 rate	0	0	0	0
decay 1 level	15	15	15	15
decay 2 rate	0	0	0	0
release rate	10	10	10	10
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	0	0	0	0
level	0	0	0	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	0	0	0	0

voice name: Mid. Pipe

algorithm no. 8
feedback 0

LFO

waveform		sync	OFF
speed	30	delay	0
amp mod depth	0	sens	0
pitch mod depth	0	sens	4

FUNCTION

mode	POLY	mid C =	C 3
portamento	FULL	rev rate	5
porta time	0	pb range	4
vol	99	pitch	0
pitch	0	amp	0
amp	0	eg bias	0
pitch	30	p bias	+0
amp	10		

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	94	90	99	90
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	13	8	16
freq. fine	0	0	0	0
detune	-3	-3	+3	+3
-1-	-2-	-3-	-4-	
1.00	4.00	2.00	5.00	

ENVELOPE	op1	op2	op3	op4
attack rate	31	31	25	31
decay 1 rate	17	18	14	14
decay 1 level	15	15	11	14
decay 2 rate	0	9	5	14
release rate	5	9	8	6
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	2	1	1	2
level	0	0	0	0
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	0	0	0	0

voice name: SlpSus.Syn

algorithm no. 6
feedback 4

LFO

waveform		sync	ON
speed	45	delay	6
amp mod depth	43	sens	0
pitch mod depth	5	sens	6

FUNCTION

mode	POLY	mid C =	C 3
portamento	FULL	rev rate	3
porta time	0	pb range	2
vol	99	pitch	0
pitch	0	amp	0
amp	0	eg bias	0
pitch	10	p bias	+0
amp	0		

TX81Z

Steel Drum. A New TX81Z Voice By Will Brady.

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	89	75	89	63
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	4	13	36
freq. fine	0	0	0	2
detune	+3	+0	+3	+3
-1-	-2-	-3-	-4-	
1.00	1.00	4.00	12.12	

ENVELOPE	op1	op2	op3	op4
attack rate	22	16	24	14
decay 1 rate	4	6	11	15
decay 1 level	15	15	15	15
decay 2 rate	0	0	0	0
release rate	5	4	5	4
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	0	0	0	0
level	0	20	0	20
ams on/off	OFF	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	0	0	0	0

voice name: Steel Drum

algorithm no. 5

feedback 7

LFO	op1	op2	op3	op4
waveform		sync	OFF	
speed	35	delay	0	
amp mod depth	0	sens	0	
pitch mod depth	0	sens	6	

FUNCTION	op1	op2	op3	op4
mode	POLY	mid C =	C 2	
portamento	FULL	rev rate	5	
porta time	0	pb range	0	
vol 99		pitch 50		
pitch 0		amp 0		
amp 0		eg bias 0		
pitch 50		p bias +50		
amp 0				

Notes:

This patch sounds best when played staccato.

OPERATOR	op1	op2	op3	op4
on/off	ON	ON	ON	ON
out level	90	71	58	73
freq. type	RTO	RTO	RTO	RTO
fix range	255	255	255	255
freq. coarse	4	4	4	4
freq. fine	0	0	0	0
detune	+1	+0	+0	+0
-1-	-2-	-3-	-4-	
1.00	1.00	1.00	1.00	

ENVELOPE	op1	op2	op3	op4
attack rate	16	25	18	12
decay 1 rate	31	31	11	5
decay 1 level	15	15	15	15
decay 2 rate	0	0	0	0
release rate	9	7	1	6
eg shift	OFF	OFF	OFF	OFF

SCALING/SENS	op1	op2	op3	op4
rate	1	0	0	0
level	0	11	13	0
ams on/off	ON	OFF	OFF	OFF
sens eg bias	0	0	0	0
key vel	2	3	2	2

voice name: Lyricon

algorithm no. 3

feedback 7

LFO	op1	op2	op3	op4
waveform		sync	OFF	
speed	28	delay	25	
amp mod depth	0	sens	3	
pitch mod depth	7	sens	5	

FUNCTION	op1	op2	op3	op4
mode	POLY	mid C =	C 3	
portamento	FULL	rev rate	5	
porta time	0	pb range	4	
vol 99		pitch 0		
pitch 0		amp 25		
amp 0		eg bias 99		
pitch 50		p bias +0		
amp 0				

Lyricon. A New TX81Z Voice By Mike Yorke.

Notes:

This is a patch that I thought might be useful for electronic woodwind players who intend to use a WX7 connected to a TX81Z; however, it can also be used effectively with a keyboard controller.

C1 Music Computer

**An Introduction To
Yamaha's New
Music Computer, Part 1.
By Michael A.
Huisman.**

IN THE PAST, MUSIC COMPUTERS have involved clever, innovative uses of computer technology, but they may have been somewhat underpowered. These earlier music computers may have lacked the speed and the ability to address large amounts of data in RAM, which obviously limits the usefulness of a computer. These limitations have led many who were inclined to use a computer for their music production to use computers that were not designed with music specifically in mind; therefore, they had to adapt them to music through the use of external interfaces and other hardware/software adaptations.

Computer and microprocessor design is easily one of the fastest moving technology fields today. Buzzwords abound everywhere: how many bits, what clock speed, how much RAM can be accessed, what kind of display—these are all concerns of today's computer user. In the past few years, we have seen the introduction of processors that have gone from 8-bit words to 32-bit words, clock speeds that have tripled to (in some cases) well over 10 million cycles per second, and directly accessible RAM that has gone from a maximum of 64K to over a gigabyte of memory. Absolutely incredible!

With the availability of all this computing power, it is only natural that one's computer can easily become the digital equivalent of a "right hand man." Let's face it, all the time we spent learning long division in school now appears to have been wasted, since we do the same by mastering a few keystrokes on our calculators.

While it is relatively simple to slip a calculator into your shirt pocket, the same is not exactly true with a computer. To maximize the portability of these power computers, portable computers were designed. Portables allow us to use the latest and most powerful microprocessors in a portable package; and, while not the size of pocket calculators, portables are very efficient users of space and design that are comparable in size to some calculus books.

The Current State of Music Software

There are many music programs available for computers, ranging from computer-aided voicing programs and sequencing programs to algorithmic composers and random music generators. Much of this software requires the use of the latest and most powerful processors to work well. This usually means that those who use these programs are required to use a large

and bulky computer (one was not designed specifically with music in mind) in their setups.

The need for a high-powered music computer has never been more clearly defined. A computer that allows direct interfacing to a MIDI system that is powerful and yet portable has been an absolute must, but it did not exist, until now.

Yamaha's Solution—The C1

At this point, it's time to introduce the focus of this two-part article: Yamaha's new computer for musicians, the C1.

The C1 is a portable computer that utilizes Intel's 80286 microprocessor (the same one used in IBM's PC AT models). The processor can run at switchable speeds of 8 or 10 megahertz. The C1 supports an optional math-coprocessor, the 80287.

The C1 is equipped with 640K of main memory and 512K of extended memory, totaling more than 1 megabyte. The unit includes two 3.5" disk drives, using the MS-DOS standard; this means that each disk has a maximum capacity of 720K. One version of the C1 will feature an on-board 20 megabyte hard disk drive.

The keyboard is a full ASCII character keyboard with an additional area layed out as a ten-key pad. There are also 10 function keys and a number of cursor movement keys. Unique for this type of computer is the inclusion of two sliders (named in the Yamaha standard as CS1 and CS2). Yes, this computer has continuous sliders that are user definable!

The display is a backlit supertwist LCD with a 640 x 400 resolution. There are brightness and contrast controls, which allow you to adjust the display so that it is readable in nearly any kind of lighting situation.

The C1, being a music computer, includes MIDI specific hardware and connections. There is a custom MIDI chip for handling MIDI communication, and a separate timer for specific applications. This timer is independent of the clock that drives the main processor. The reason this separate timer is important is that it greatly increases the reliability and accuracy of time-dependent applications. MIDI sequencing is one of the most time-dependent applications anywhere. An inaccuracy of a couple of milliseconds here or there will completely ruin the "feel" of a piece.

Place your order for more MIDI cables, because the C1 has two MIDI IN ports, a MIDI



C1 music computer.

THRU port, and (count 'em) *eight* MIDI OUT ports! Don't let anybody talk to you about MIDI logjams with one of these units!

The C1 features an input and an output specifically designed for the purpose of reading and generating SMPTE time code data. Yes, the C1 is directly SMPTE compatible—there is no need for a separate MIDI/SMPTE converter!

There are also ports for connecting a printer (a parallel Centronics interface), and two serial ports for connecting a modem and mouse or other serial device.

We aren't through yet; for those who are expansion-minded, there is also an expansion port that allows the use of Toshiba-compatible expansion devices. Toshiba is one of the most popular marketers of portable computers. The company has a large catalog of expansion devices for their portables, most of which should work with the C1.

MS-DOS

The C1 is a fully AT-compatible MS-DOS computer. MS-DOS is the most widely-used operating system for personal computers in the world. Every IBM or IBM-compatible PC is capable of running MS-DOS. MS-DOS is a simple, command-oriented user interface that

allows one to run programs, organize files, and so on. Further, there are literally tens of thousands of MS-DOS software titles already in existence that will run on the C1.

C1 Window Seats

For those who prefer a window/mouse/icon-based operating system, Microsoft markets a program, Windows, which allows an MS-DOS computer to work very much like other window/mouse/icon-based computers. Simply point and click—that's it.

Software Compatibility

Let's look at compatibility with existing software for a moment. The C1 is capable of running nearly any MS-DOS PC or PC/AT software title currently available. The reason why the word "nearly" appears is that there might be a software title out there, somewhere, that does not run on the C1, and I don't want to guarantee something that is impossible to test: There are simply too many titles available to test each and every one of them. However, it can be said that every program we tried and expected to run on the C1 did so without any glitches. Popular titles such as D-Base, Lotus 1-2-3, Microsoft Word, Microsoft Works, and

C1 Music Computer *Continued*

WordPerfect worked fine.

Certain titles we didn't expect to work. These include some MS-DOS music programs currently in use. The problem with these programs is *not* the C1, but rather the Roland-style MPU-401 MIDI interface they require. This interface is not needed with the C1, since it already has MIDI ports on its rear panel; yet, these programs are looking for the interface in order to speak MIDI. Many of these popular titles are already being adapted for use with the C1. More on this in a minute.

The Programmer's Toolbox

Yamaha has made a "programmer's toolbox" available to software developers. These are pre-written and compiled, pre-tested routines that handle all the MIDI hardware in the C1. All a developer has to do is use a Yamaha-supplied routine in place of their own MIDI routines to support the C1's more extensive MIDI hardware. This is why we are very confident that the music software library for the C1 will be quite substantial *very* quickly.

Music Software Titles Available

As mentioned earlier, there are already a number of developers adapting and improving their software titles specifically for the C1. Here is an alphabetical listing of these developers; each listing includes the developer's company name, address, and phone number, followed by a short description of their software products for the C1 (and the projected date of availability):

Bacchus

2210 Wilshire Blvd. #330
Santa Monica, CA 90403
213-820-9145

- Voice Manager Series: These editor/librarian programs work with the original series of Yamaha 6-operator FM synthesizers (including the DX7, TX7, and TX816). Only memory-resident control is available. These products can be used concurrently with sequencing software or other software. The company reports that these programs are available now.
 - TX81Z Graphic Editing System: This mouse and icon based program supports the C1's full 640 x 400 screen mode. The company reports that this program is available now.
 - TX802/DX7 II Series Graphic Editing System: This mouse and icon based program supports the C1's full 640 x 400 screen mode. The company reports that this program is available now.
- Magnetic Music**
RD 5-Box 227A
Myrtle Drive
Mahopac, NY 10540
attn: Steve Rossi
914-248-8208
- Texture II by Roger Powell: Texture is a very popular sequencer featuring 24 tracks and pattern/song architecture. The company reports that the projected availability of this program is September 1988.
- Passport Design**
625 Miramontes Street
Half Moon Bay, CA 94019
415-726-0280
- SCORE™: This is a Desktop Music Publishing for the C1. It was developed at Stanford University. It brings the full power of computing to music printing and music publishing applications. Using a mouse, MIDI keyboard, or C1 keyboard, you can input and edit musical symbols on the screen. It features a full complement of graphic editing and page layout commands, which provide complete control over the placement, size, shape, spacing, and output of standard music notation. It prints music on a dot-matrix or Postscript compatible laser printer or typesetter. The company reports that this program is available now.
 - Master Tracks Pro™: This is a professional Sequencing program for the C1. Its features include a 64 track MIDI sequencer, graphic editing capabilities, real-time or step-time input, on-screen editing using a mouse, a sys/ex librarian, the ability to read and write standard MIDI song files, extensive editing commands, the ability to display and edit continuous controller MIDI data, and MIDI/SMPTE synchronization. The company reports that the projected availability of this program is August 1988.
 - Master Tracks Jr.™: This is a personal MIDI

Recording Studio program for the C1 based on Master Tracks Pro™. This easy-to-operate program offers an easy-to-operate composing environment that features 64 tracks, real-time and step-time recording, on-screen editing of songs, and the ability to read and write standard MIDI song files. The company reports that the projected availability of this program is August 1988.

Turtle Beach Softworks

1912 Alcott Rd.
York, PA 17402
717-757-2348

- **SampleVision:** This sample editing software features waveform manipulation, DSP (digital signal processing) routines, frequency analysis using FFT displays, and extensive loop editing functions. It supports many different samplers, including the Yamaha TX16W, the E-mu Emax, the Prophet 2000 and 2002, the Ensoniq EPS, and any SDS (sample dump standard) sampler. This mouse and icon based application includes the GEM operating system, and uses the C1's extended memory as "virtual memory" for memory-intensive functions. The company reports that the projected availability of this software (supporting the above list of samplers) is July 15th, 1988, with more samplers to be supported soon.

Voyetra

333 Fifth Ave.
Pelham, NY 10803
914-738-4500

- **Sequencer Plus (version 2.0):** This program features 64 tracks and sophisticated editing features. It also utilizes the C1's built-in SMPTE reader/generator.
- **Sideman DTX:** This program is an editor/librarian for Yamaha's series of 6-operator FM synthesizers, including the DX7 II and the TX802. It also includes random patch generation capabilities.
- **Sideman 81Z:** This program is an editor/librarian for Yamaha's series of 4-operator FM synthesizers, including the new DX11. It also includes random patch generation capabilities.

The list of software developers for the C1 is growing every day. If you are interested in developing software for the C1, contact Yamaha for further details.

Included Software

The C1 is shipped with the MS-DOS operating system (version 3.3) and a very useful MIDI monitoring program. A full description of this program will appear in the next issue of *Aftertouch*—the program is very extensive, and does quite a bit more than just let you see raw MIDI data.

The Business Of Doing Business

It would seem that any computer capable of managing a large MIDI setup should also be able to handle the books. The C1, since it is PC/PC AT compatible, has a large library of business software titles that it can run.

Whether you are a full-time musician or a part-timer, there may be a strong benefit to managing your finances with the aid of a computer. For starters, your math will always be correct. It is widely held in some circles that those with a financial plan of some sort are most likely to be the ones that will be dubbed as "successful" in the future. A financial plan can best be investigated with the aid of a computer and a spreadsheet program. Changing a single number in a complex equation of tax tables and income variables can all be calculated and recalculated in a second.

Okay, so you're not in the business of the music business. Other uses include:

- Using a database program to keep a list of players in your area. This can make it very easy to find a "sub" when you need one.
- Keeping a list of serial numbers for your equipment.
- Notating how your sounds are created: what was MIDIed to what, relative levels, effects settings, and so on. I personally find this one invaluable.

Well, we're out of space for this issue. Next month, we'll discuss some important considerations for using a computer in a music setup. We'll also take a closer look at the programmer's toolbox, and update the music software picture for the C1.

Hot Tips

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



DX7 II FD digital FM synthesizer.

Using the DX7 II Pitch Bend Wheel to Introduce Harmony

By Max Hunsicker

I have a really nifty DX7 II sax sound that I use a lot. Since I usually try to stay in Performance mode, I copied the voice to a second location and put it into a Performance memory as a dual voice.

Now for the fun part: I assigned different pitch bend ranges to the two different voice locations. For example, I left one voice set to 0, and set the other at 4. With these settings, a full pitch bend gives me a major third. Used tastefully in solos, this can be a nice effect.

Of course, the interval is up to you. Setting one voice to 2 and the other to 3 can give you some really nasty dissonance when you bend.

RX11 digital rhythm programmer.



Once I started doubling voices, I found that slight shifts in other parameters could also be fun. The standard detuning between voices is obvious; not so obvious is different quantities of modulation, different LFO speeds and depths—the sky is the limit.

. . . .

Tips For Creating Drum Recordings With An RX11 And An SPX90

By Mathew Gurman

If you are dealing with a small-track-format studio situation, you may not have a lot of extra channels to burn, so you have to be creative with your mixer. I have found a way of getting very "produced" drum sounds with a minimum number of channels.

First, set the RX11 so that the drum mix you want is coming out of the stereo mix, hard left only. Next, take the snare, cowbell, and claps, and move them to hard right in the stereo mix.

Run the left channel out from the RX11 to your mixer, and set the mixer pan for that channel to center. Next, take the right channel out from the RX11 to the SPX90, and set the SPX90 to your favorite Gate patch. Run one channel of the SPX90 out to another channel on your mixer, or use the "Aux In" to get the stereo Gate effect.

Next, take the bass drum out from the RX11 and run it to the Aux In or to another channel on your mixer (use a y-connector if your Aux In is stereo). Do not remove the bass drum from

the stereo out on the RX11: It is run this way so that when you dial in the reverb, you still have some dry kick for extra punch.

Next, take the toms and pan them so they are L-11, *not* hard left. This will assign a splash of toms to the Gate. Mix the SPX Gate return channel on your mixer to center.

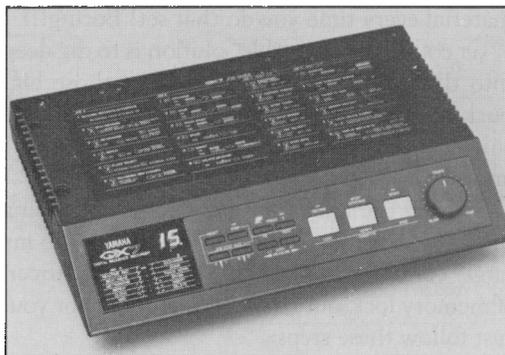
Now add reverb as desired through your mixer effects loop. If you don't have a separate reverb unit (and you should), use the SPX90 reverb when you mix down.

If you have a dedicated reverb, there is another trick you can perform that will yield incredible drum sounds. Run as described above, but set the SPX90 for a Harmonizer patch, with a pitch drop of an octave and no delay. Set the balance mix very low, say about 30%. Set the RX11 pan as above, but don't use the Aux In on your mixer for the SPX90 return; instead, use a channel. Set your dedicated reverb for a Gate patch. Set your drum mix channel dry, and pan it center. Mix the Gate in on your SPX90 return channel. Don't forget to put on a splash of reverb when you mix down.

. . . .

Let's Dust Off That QX7 And Compute By Ken Como

I've come to find that my QX7 sequencer is



QX7 digital sequence recorder.

more than just a sequencer. It's true! Actually, the QX7 is a very handy MIDI tool, which provided me with the answer to a very troublesome problem.

First, let me explain the problem. I have moved from using a dedicated hardware sequencer to using a computer. This was done in order to handle everything from my RX5 drums to the lighting in my show, not to mention word processing.

A set of material lasts approximately 45 minutes, and can be contained on one disk. However, a disk holds 800K maximum. Allowing for the system information that the computer needs, you're looking at approximately 650K for music (ten to fourteen songs for your set).

In other words, the disk is full; and, because of this, you are locked into playing that same

Continued on page 16



RX5 digital rhythm programmer.

Hot Tips *Continued*

material every time you do that set! Boring!!!

Of course, one possible solution is to dig deep into those pockets, and buy one of those big-buck computer hard drives, so you can rid yourself of musical lock-out. There has to be another way—and there is.

I found the answer to my dilemma by using my QX7 sequencer as an add-on memory to my larger computer. You can use any QX sequencer. If memory lock-out has been a problem for you, just follow these steps:

- 1) After locating the material you wish to move on the computer, plug the MIDI OUT of the computer's MIDI interface to the MIDI IN of the QX; likewise, plug the MIDI OUT of the QX to the MIDI IN of the computer. Set the computer's clock to External.
- 2) Now that the two units have been linked, set the QX to record in "All MIDI Tracks" mode. Also, set the QX clock to Internal (Quantize off).
- 3) You are now ready to move the data from the computer to your QX. When you press START on the QX, your computer will now start to play back, while the QX records the MIDI data stream coming from the computer. Once the song or passage has ended, the QX will automatically shut down the system.
- 4) After the data has been moved to your QX, you can now locate the intended destination within your computer disk and file system. (For example: Move song #1 from set 2 to a space in set 4.)
- 5) At this point, reset the clocks as follows: QX clock to External, and the computer's clock to Internal.
- 6) Now, tell the computer to record "merged tracks" (or "record all"), and start to record from the QX into the computer. Once the computer has completed the

recording process, unmerge the tracks, and the mission is accomplished.

* * * *

An SPX90 Full Stereo Chorus Patch

By Kevin Odorczyk

This program creates a very sull stereo chorus effect. Start from the Pitch Change C preset, #23, and use the following settings:

L Pitch: +0
L Fine: +12
L Delay: 0.1 ms
R Pitch: +0
R Fine: -12
R Delay: 0.1 ms

Panning the SPX90's outputs fully left and right with the source in the center produces the best effect. For more of a flange-type effect, adjust L Fine to +4 and R Fine to -4. If the SPX90 is used in conjunction with a mixer and the SPX90 is returned via an input channel, add a little regeneration using the effects sends. Other nice effects can be created by changing the delay times to around 33-46 milliseconds. Experiment!

* * * *

Listening To Two Instruments With One Set of Headphones

By Steve Adler

For a long time, I wanted to be able to use headphones to listen to both my TX1P and my DX7 II at the same time, without the use of a mixer. I discovered this solution.

I simply plug the two audio outputs of my TX1P into the audio outputs of the DX7 II, and then plug the headphones into the headphone jack on the DX7 II. The stereo integrity is maintained, and the sound quality of the TX1P through the DX7 II headphone jack is the same as it is through its own headphone jack. In other words, one set of headphones can monitor two instruments in stereo.

Since it is the DX7 II that makes this possible, it should be easy to do this same thing with a TX16W, a TX81Z, or any other stereo-output tone module (in conjunction with a DX7 II).

SPX90 digital multi-effects processor.



Questions Continued

stant velocity value to any MIDI output from either unit. Also, the DX7 II MIDI chart is correct: the instrument reacts to the full velocity range, and responds within its own velocity range.

I have a number of Yamaha instruments produced for the USA market, which means that they are set for the USA standard of 120V and 60Hz electrical AC current. I plan to use these instruments in Europe, where the standard is 220V and 50Hz. I can use a transformer for the difference in voltage, but what about the difference in Hz?

The European standard of 50Hz will give your Yamaha equipment no problems. You will only run into difficulties if one of your pieces of equipment is a tape deck with a digital timer.

I recently bought an MDF1 MIDI data filer for use with my QX21 sequencer. I also own an RX15 drum machine and was depressed to learn that the unit has no MIDI bulk dump capabilities. Are there any retrofit modifications that can remedy this situation?

No. Unfortunately, there is no way to modify the RX15 so that it has MIDI bulk dump capabilities.

The Compressor program on the SPX90 confuses me. It appears that one must tailor the timing of the operation of this algorithm to specific features in, for example, a recorded vocal, rather than merely set the overall parameters to control volume within a specific level range.

You are probably being confused by the "Hold Time" parameter, which sets the "maximum" compression time after the "Attack Time" parameter has elapsed. The range for Attack Time extends to 32000 ms (or 32 seconds), and the range for "Hold Time" extends to 30000 ms (or 30 seconds). If you want compression to cease after a certain time, use a short value for Hold Time; if you want compression to the constant, set Hold Time to its maximum value.

I have a small recording studio setup. If I use a tape-head demagnetizer in close proximity to my synthesizers, is there a possibility of damage to the electronics in my instruments?

It is possible that a demagnetizer will cause a momentary synthesizer malfunction, but this malfunction will not be permanent. If you are

plagued with a momentary malfunction, simply turn the unit off and back on; this operation will restore the unit's basic operational system.

Using my CX5M, I have some random-pattern line-generating graphic programs written in MSX Basic. I would like to print them out on my Yamaha PN101 printer, but can't find enough information on how to do it. Can you help?

The PN101 can print any graphics that the CX5M can create (because they have equivalent resolution). However, the CX5M doesn't have an automatic screen print command, so a short routine needs to be written in MSX Basic to perform this task. All print functions are covered thoroughly in the Basic Reference manual that comes with the CX5M.

I own a DX100 and two FB-01s. I find that I like the FB-01's selection of factory voices much better than I like most of the DX100's stock patches. I also like (and use) the FB-01's capabilities with regard to setting up the two user banks. I'd like to know if it is possible to perform a MIDI data dump of the user-programmable banks using the MIDI OUT port of the FB-01 so that it acts as a patch librarian for the other four-operator Yamaha synthesizers (such as the DX21, DX27, and DX100). On the opposite side of the coin, is there a way to use the other four-operator synthesizers as voice editors for the FB-01, or is a computer the only interface allowing access to the FB-01's voices?

The FB-01's voice is compatible with the CX5M's synthesizer voice, but not with the DX21/27/100 voice. Therefore, the FB-01 cannot share voices directly with any of the Yamaha 4-operator synthesizers.

I have an RX17 drum machine, and I can't seem to save and load its memory to cassette. I use high-grade computer tape and a Panasonic dictation-type recorder, which works fine with my DX27 (but not with the RX17). What do you recommend?

The RX17 has proven to be more sensitive than most other Yamaha units that feature cassette storage. The Yamaha Service Department uses Radio Shack decks: either the CCR81 or the CCR82. They seem to work consistently with all Yamaha cassette-storage units.

AfterTouch Diary

I AM A MINISTER OF MUSIC in a Southern Baptist Church in south Alabama. My church is not so different from any stereotypical Southern Baptist Church in the deep south. Many of the members are old-fashioned and set in their ways. Most of the members have very conservative ideas about a lot of things, especially about what is and is not appropriate in church.

Their basic point of view revolves around what they saw and did when they were growing up. Most of them still feel uncomfortable with instruments of various types—except the sacred piano and organ—being used in the church. Trumpets and other brass instruments are too loud, and reed instruments are too soft. Saxophones are not even considered “real” instruments. And that genre of instruments that require electricity to work (synthesizers, guitars, and so on) fall suspect to the mindset that says they did not have electricity in Bible days, therefore those instruments should not be used today.

Therein lies our own Baptist schizophrenia. Most of our churches have electronic organs, not pipe organs. We trace our musical roots to such church musicians as Bach and Brahms, yet regularly perform such classics as “I Know She Was A Prostitute, But Lord, You Will Love Her Anyway” or “I’ll Fly Away.” Members complain about the use of rhythm and orchestration tracks to accompany soloists and choral groups as being “canned” music, yet also complain about how everything always sounds the same.

However, some Baptist churches are beginning to change. As a result of the 60s and 70s influence, youth groups have now been “sanctioned” to use guitars, drums, and other instruments when they perform. Many churches now have regular performing church orchestras (Called “Churchestras”), made up of church and community members. These groups incorporate all of those “outlawed” instruments—even saxophones! Most of these groups perform the original orchestrations to the seasonal and special works their choirs perform. In most of these works, this involves a full orchestration, involving extensive string and percussion parts. For most churchestras, extensive string and percussion parts highlight what they either do not do well or do not even have! In the past this has left directors with only two choices: Either suffer with the meager efforts of the members

they have, or hire the needed players. Now there is another choice: Use synthesizers.

I have a Yamaha DX21 and DX7 as my principal violin and cello. I also use two DX11s to fill out the string section. Not only are they more dependable than some hired players, but I can afford to rehearse with them every week! They are extremely versatile, they always play in tune, they don’t gripe and complain, and they do not mind long rehearsals (the instruments, that is!). And, more important, they can even pick up an occasional bell part or bassoon solo, which I have never gotten a hired string player to do! I also use an RX11 to augment my percussion section. Its versatility and ease of use for one player frees up other players to handle other parts.

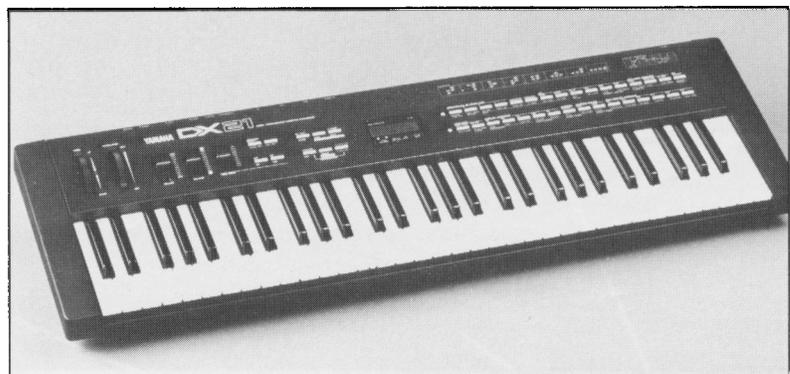
A friend of mine has a regular group of synthesizer players that rehearse each week—a Yamaha Synthesizer Quintet. They play a variety of musical styles from classical wind and string quintet music to full orchestral scores. They also play their own arrangements.

My typical/not-so-typical church has readily received the use of synthesizers as legitimate instruments with a very useful purpose in the church. And, as for those people who still hang on to the notion that if it was not mentioned in the Bible it should not be used, well—cars, planes, phones, McDonalds, and a very long list of other things are also not mentioned, and I dare say that these people probably make good use of many of these things!

A lot of my friends are beginning to make great use of synthesizers in the church. Some churches have even chosen the versatility and incredible accuracy of synthesizers instead of purchasing a new electronic organ. Synthesizers are less expensive and infinitely more versatile than their conventional electronic counterpart.

**Synthesizers
In Church?
Never!
By Roger
Walworth.**

DX21 FM digital synthesizer.



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