AFTERTOUCH ™

THE OFFICIAL PUBLICATION OF THE YAMAHA USERS GROUP

MEP4/MJC8

◆ YAMAHA ®

June 1986

Volume 2, Number 6
Issue #9

From The Editor

OUR LAST ISSUE contained our first Evatone Data Disk, and we continue this issue with a second Evatone disk—and this one contains both musical performances *and* music data. That's why we're calling it a Sound & Data Disk. The focus this time is on the CX5M music computer. You will find the disk bound between pages 6 and 7, along with complete instructions on how to use the data portion with your CX5M music system.

Next month, we will continue with yet another Evatone Disk, which will focus on the musical capabilities of the FB01 tone module. Enjoy these Disks, and let us know what you think.

For the remainder of this column, I want to reiterate some information I gave you last month. We still get a lot of mail that involves one or more of these areas, so I want to continue giving out guidelines for each item. I want to clarify all of the procedures involved, so that you can get the information (or subscription or back issue) as quickly as possible. Here goes:

Back Issues: If a request for back issues is combined with a subscription request or other material, chances are it will not be fulfilled. All requests for AFTERTOUCH subscriptions must go to our Mailing List input service. After the addresses are entered, the letters are normally kept on file, in keeping with various postal regulations. To be absolutely sure that you receive any available back issues that you want, *make back issue requests separately,* and include the indication "ATTN: Back Issues" on the envelope.

Product Literature: All requests for specific product literature must go directly to Yamaha [Yamaha International Corp., P.O. Box 6600, Buena Park, CA 90622]. We at AFTERTOUCH are happy to receive specific questions concerning the *use* of Yamaha professional music products, and we will answer as many of them as we can in the Questions column; however, requests for general product information must be sent to Yamaha.

Warranty Cards & AFTERTOUCH: We have received a number of letters from Yamaha users complaining that they expected an AFTERTOUCH subscription because they recently purchased a product and sent in a warranty card, but still haven't received an issue. It is true that our initial mailing was developed from a warranty card list, but no subscriptions were sent to those names—just a sample mailing of the first three issues. In order to receive a free subscription, you need to send us your request on the attached postcard below. And remember, don't combine your subscription request with a request for back issues: Send the two requests separately.

We are very happy to offer AFTERTOUCH as a free informational service. In order to make sure that we can serve your needs (and continue to offer these various services *free*), we must ask you to help us by sending different requests in different envelopes. Thanks.

Finally, watch your mailbox. You'll be getting the next few issues of AFTERTOUCH sooner than you think!

—TD

Receive AFTERTOUCH *Free* Every Month!

YOU CAN RECEIVE AFTERTOUCH for an entire year, absolutely free, just by asking. Using the attached postcard, give us your name and address. Then sign the card (a postal regulation—it lets us know that you *really* want to receive AFTERTOUCH).

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

(By the way, if you received *this* issue in the mail, you are already on our permanent mailing list, so you don't need to send in another card.)

Also, don't limit yourself to just sending in your address. Let us know what kind of articles you want to read. The more input we receive, the more we will be able to tailor the information in AFTERTOUCH to suit your musical needs.

To receive AFTER-TOUCH every month, absolutely free, just put your name and address on the enclosed card and mail it to us.

DX7

Notes:

This is a "processed" piano-like voice that is responsive to touch.

			LFO			
SINE	35	33	0	0	ON	1
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

R1	R2	R3	R4	
98	98	98	99	**C3** KEY TRANSPOSE

L1	L2	L3	L4
53	50	50	50

PITCH ENVELOPE

ON OSC SYNC

FUNCTIONS

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	99	OFF	OFF	ON
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	39	ON	OFF	OFF

OP 3

FREQUENCY	DETUNE	AMS
4.00	-6	0

ENVELOPE DATA

R1	R2	R3	R4	RS
95	50	29	10	3
L1	L2	L3	L4	
99	99	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L -L	G4	L 0
R -L		R 37

OP#	OUTPUT LEVEL	VELOCITY
3	54	0

OP 6

FREQUENCY	DETUNE	AMS
3.00	+1	0

ENVELOPE DATA

R1	R2	R3	R4	RS
95	48	28	24	7
L1	L2	L3	L4	
94	79	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L +E	C#5	L 99
R -L		R 0

OP#	OUTPUT LEVEL	VELOCITY
6	82	2

(5)

OP 2

FREQUENCY	DETUNE	AMS
1.00	-2	0

ENVELOPE DATA

R1	R2	R3	R4	RS
95	46	16	12	3
L1	L2	L3	L4	
99	99	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L +L	C#4	L 8
R -L		R 0

OP#	OUTPUT LEVEL	VELOCITY
2	85	1

OP 5

FREQUENCY	DETUNE	AMS
6.00	+4	0

ENVELOPE DATA

R1	R2	R3	R4	RS
95	35	23	28	4
L1	L2	L3	L4	
99	70	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L +L	C#4	L 0
R -L		R 35

OP#	OUTPUT LEVEL	VELOCITY
5	75	3

OP 1

FREQUENCY	DETUNE	AMS
2.089Hz	+7	0

ENVELOPE DATA

R1	R2	R3	R4	RS
45	95	20	40	5
L1	L2	L3	L4	
65	99	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L -L	C7	L 0
R -E		R 0

OP#	OUTPUT LEVEL	VELOCITY
1	98	2

OP 4

FREQUENCY	DETUNE	AMS
1.00	-7	0

ENVELOPE DATA

R1	R2	R3	R4	RS
74	99	23	43	3
L1	L2	L3	L4	
81	99	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT	DEPTH
L +L	B3	L 14
R -L		R 0

OP#	OUTPUT LEVEL	VELOCITY
4	97	2

ALGORITHM #3

SHORTHORNS. A New DX7 Voice By Lowell Levinger.

TR1	31	0	0	0	OFF	1
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS

LFO

R1	R2	R3	R4		
95	69	94	99		C2
L1	L2	L3	L4		KEY TRANSPOSE
49	51	50	50		ON
	PITCH ENVELOPE				OSC SYNC

FUNCTIONS

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

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	99	OFF	OFF	ON
FOOT CONTROL	0	OFF	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	39	ON	OFF	OFF

Operator 6

FREQUENCY	DETUNE	AMS
3.00	+5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
77	53	20	70	7
L1	L2	L3	L4	
99	99	99	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C7	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
6	64	0

Operator 5

FREQUENCY	DETUNE	AMS
4.20	+5	0

ENVELOPE DATA

R1	R2	R3	R4	RS
48	36	22	50	0
L1	L2	L3	L4	
99	97	95	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C7	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
5	60	0

Operator 2

FREQUENCY	DETUNE	AMS
1.00	+1	0

ENVELOPE DATA

R1	R2	R3	R4	RS
67	32	14	70	2
L1	L2	L3	L4	
99	97	94	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C7	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
2	81	0

Operator 3

FREQUENCY	DETUNE	AMS
1.00	-4	0

ENVELOPE DATA

R1	R2	R3	R4	RS
57	31	15	50	3
L1	L2	L3	L4	
99	96	95	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C7	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
3	81	0

Operator 4

FREQUENCY	DETUNE	AMS
1.00	+4	0

ENVELOPE DATA

R1	R2	R3	R4	RS
59	55	22	50	0
L1	L2	L3	L4	
51	59	59	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C7	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
4	92	0

6

Operator 1

FREQUENCY	DETUNE	AMS
1.00	-2	0

ENVELOPE DATA

R1	R2	R3	R4	RS
67	28	14	55	2
L1	L2	L3	L4	
99	99	99	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	C1	L	0
R	-E		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	2

ALGORITHM #18

Notes:

This voice works well for short stabs, but also has a nice swell for a short crescendo on a half-note. It is also useful for cadenzas or solos.

CX5M Sound

An Introduction To Our Second Eva-Tone Disk. By Kevin Laubach & Tom Darter.

THIS MONTH'S FREE DISK, the second one in our AfterTouch series, focuses on the CX5M music computer. Unlike the first disk, which presented music *data* instead of recorded musical performances, this special CX5M Sound & Data Disk contains both. Side 1 features two musical performances that showcase the CX5M, while side 2 contains voice data and sequence data for one of the selections featured on side 1.

To play the musical selections on side 1, simply place the Evatone disk on your turntable (on top of another record), weight it down with a coin (on the center of the disk, as shown) and play.

To use the music data supplied on side 2 of the disk, it is necessary to first copy (record) the data from the disk onto a data cassette. This process is as simple as making a cassette recording of any record. Place the disk on your turntable (as outlined above), set to record on the cassette, then place the needle on the disk and observe the recording levels so as not to cause distortion on the tape. For best results, do not use any noise reduction circuitry such as Dolby.

To give you a proper introduction to this month's Sound & Data Disk, we will start by describing what you will find on each track of the Disk. In the case of the musical performances on side 1, we will tell you what equipment and software was used to create the material, and outline the basic setup used. In the case of the music *data* on side 2, we will give you step-by-step instructions for loading the data from cassette into your CX5M music computer, and will describe how to set your system up to recreate the musical performance using this data.

Side 1, Track 1

The first piece on our disk, "Marco Polo," was created using a very basic CX5M system: one CX5M music computer (equipped with an

SFG01 or SFG05 MIDI/tone generator module) plus the YRM501 FM Composer II cartridge. A complete rundown of the equipment you will need to recreate this performance will be given later, as part of the information on how to use the music data on side 2 of this disk.

Side 1, Track 2

This piece, "Ahamai," was created using a very complex CX5M music system, and was designed to demonstrate some of the musical complexity that is possible using a system that employs more than one CX5M. The following equipment was necessary for this recording:

- 6 CX5M Music Computers (with SFG05 MIDI/tone generator module)

- 1 MIDI Recorder Cartridge (YRM301)

- I RX Editor Cartridge (YRM302)

- 1 RX11 Digital Rhythm Programmer

- 1 YME8 MIDI Junction Box

- 1 REV7 Stereo Digital Reverb

- Sound Reinforcement gear (including a mixer with at least 10 channels)

One of the CX5M's was used to run the MIDI Recorder program (on which the basic sequence was created), while another was used to run the RX Editor program (which was used to program and drive the RX11 digital rhythm programmer. The other four CX5Ms were used to generate sound (using their SFG tone generators and the Call Music routine). The YME8 was necessary to split the MIDI output of the MIDI Recorder program so that it could drive all of the other CX5Ms simultaneously.

As you can see, this piece uses a very involved setup. Since the piece can only be recreated by using the collection of material outlined above, we decided not to include the voluminous music data for the piece on our disk. We included the musical performance to give you a glimpse of some of the possibilities available with a multiple-CX5M system.

Side 2, Track 1

This track contains the CX5M voice data

& Data Disk

that was used in "Marco Polo" (the first track on side 1 of our CX5M disk). To load this data into your CX5M computer, you will need the following equipment:

- CX5M Music Computer (with SFG01 or SFG05 MIDI/tone generator module)

- Cassette Recorder (with appropriate Yamaha interface cable)

- Video Monitor (with video/sound cable)

- FM Composer II Cartridge (YRM501)

Make sure that the power to the CX5M is OFF, and make the proper connections between the CX5M and the cassette recorder (see the accompanying diagram). Then insert the FM Composer II Cartridge into the CX5M cartridge slot and turn the CX5M ON—the program will boot-up automatically. Now follow these steps to load the voice data into your CX5M:

1) Put the appropriate cassette into the cassette recorder and rewind to the beginning of the voice data.
2) On the CX5M, type the following:

cload=VOICE

then press RETURN. Make sure to hold down the SHIFT key while typing "VOICE."

3) The CX5M will ask if you are sure. Answer "yes" by pressing RETURN.

4) Press PLAY on your cassette recorder. After about 35 seconds, the voice data will be loaded into your computer.
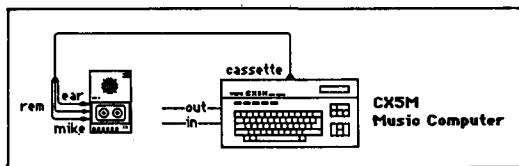
Side 2, Track 2

This track contains the CX5M sequence data that was used in "Marco Polo" (the first track on side 1 of our CX5M disk). To load this data into your CX5M computer, you will need the following equipment:

- CX5M Music Computer (with SFG01 or SFG05 MIDI/tone generator module)

- Cassette Recorder (with appropriate Yamaha interface cable)

- Video Monitor (with video/sound cable)

- FM Composer II Cartridge (YRM501)

Make sure that you have the proper connections between the CX5M and the cassette recorder (see the accompanying diagram) and

Basic connections for loading cassette data into a CX5M music computer.

that the FM Composer II cartridge is properly inserted into the CX5M cartridge slot—if you have just loaded the data from Side 2, track 1, these initial steps should already by taken care of. Now follow this procedure to load the sequence data into your CX5M:

1) Put the appropriate cassette into the cassette recorder and rewind to the beginning of the sequence data.
2) On the CX5M, type the following:

cload=

then press RETURN.

3) The CX5M will ask if you are sure. Answer "yes" by pressing RETURN.

4) Press PLAY on your cassette recorder. After about 3 minutes and 40 seconds, the sequence data will be loaded into your computer.

After you have loaded the voice and sequence data into your CX5M (from side 2 of our CX5M disk), it is easy to recreate the musical performance heard on side 1. First, make sure that the left and right Audio Outs of the CX5M are connected to two mixer inputs; then make sure that the "Left" input is panned to the left, while the "Right" input is panned to the right. Connect any additional effects you would like to your mixer—the recording on side 1 used a REV7 stereo digital reverb.

Now, to begin playback, simply press F5 on the CX5M. The FM Composer II program will respond with this display:

play=

Now simply press RETURN and the CX5M will begin playback.

DX7

TR1	35	0	17	0	ON	1
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS
		LFO				

R1	R2	R3	R4	
99	99	99	99	**C3** KEY TRANSPOSE
L1	L2	L3	L4	
50	50	50	50	**ON** OSC SYNC

PITCH ENVELOPE

FUNCTIONS

POLY	NA	NA	NA	NA	NA
POLY/MONO	RANGE	STEP	MODE	GLISSANDO	TIME
	PITCH BEND			PORTAMENTO	

(CONTROLLER)	RANGE	PITCH	AMPLITUDE	EG BIAS
MOD WHEEL	0	NA	NA	NA
FOOT CONTROL	0	NA	NA	NA
BREATH CONTROL	0	NA	NA	NA
AFTERTOUCH	100	ON	OFF	OFF

Operator 2

FREQUENCY	DETUNE	AMS	
1.00	-7	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
80	16	26	25	0
L1	L2	L3	L4	
85	99	81	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
2	81	0

Operator 4

FREQUENCY	DETUNE	AMS	
1.00	+7	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
80	16	26	25	0
L1	L2	L3	L4	
85	99	81	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
4	81	0

Operator 6

FREQUENCY	DETUNE	AMS	
1.00	0	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
80	16	26	25	0
L1	L2	L3	L4	
85	99	81	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
6	81	0

Operator 1

FREQUENCY	DETUNE	AMS	
1.000Hz	0	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
45	20	95	30	0
L1	L2	L3	L4	
70	99	99	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
1	99	0

Operator 3

FREQUENCY	DETUNE	AMS	
1.202Hz	0	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
45	20	95	30	0
L1	L2	L3	L4	
70	99	99	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

OP#	OUTPUT LEVEL	VELOCITY
3	99	0

Operator 5

FREQUENCY	DETUNE	AMS	
1.349Hz	0	0	

ENVELOPE DATA

R1	R2	R3	R4	RS
45	20	95	30	0
L1	L2	L3	L4	
70	99	99	0	

KEYBOARD SCALING

CURVE		BREAKPOINT		DEPTH
L	-L	A-1	L	0
R	-L		R	0

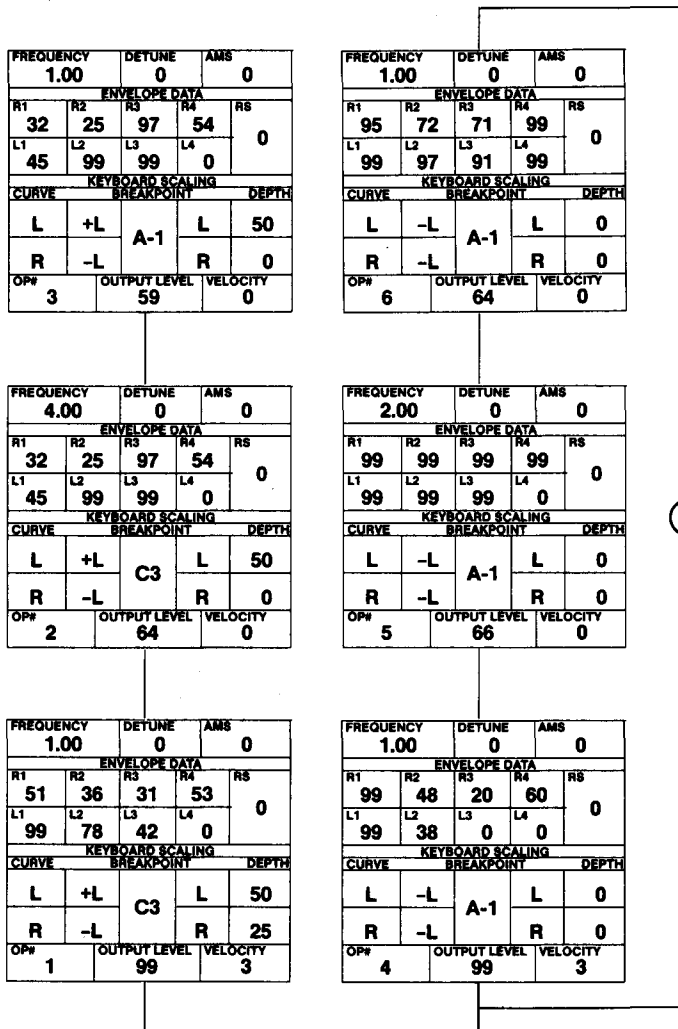| OP#	OUTPUT LEVEL	VELOCITY
5	99	0

ALGORITHM #5

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

LYRIC-WOW. A New DX7 Voice By Cedric D. Reverand II.

TR1	35	0	0	0	OFF	3
WAVE	SPEED	DELAY	PMD	AMD	SYNC	PMS
		LFO				

R1	R2	R3	R4		C3
99	99	99	99		KEY TRANSPOSE
L1	L2	L3	L4		ON
50	50	50	50		OSC SYNC

PITCH ENVELOPE

FUNCTIONS

POLY	2	0	RETAIN	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	50	ON	OFF	OFF
BREATH CONTROL	0	OFF	OFF	OFF
AFTERTOUCH	30	ON	OFF	OFF

OP 3

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
32	25	97	54	0
L1	L2	L3	L4	
45	99	99	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	+L	L	50
	A-1		
R	-L	R	0

OP#	OUTPUT LEVEL	VELOCITY
3	59	0

OP 6

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
95	72	71	99	0
L1	L2	L3	L4	
99	97	91	99	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	L	0
	A-1		
R	-L	R	0

OP#	OUTPUT LEVEL	VELOCITY
6	64	0

OP 2

FREQUENCY	DETUNE	AMS
4.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
32	25	97	54	0
L1	L2	L3	L4	
45	99	99	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	+L	L	50
	C3		
R	-L	R	0

OP#	OUTPUT LEVEL	VELOCITY
2	64	0

OP 5

FREQUENCY	DETUNE	AMS
2.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
99	99	99	99	0
L1	L2	L3	L4	
99	99	99	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	L	0
	A-1		
R	-L	R	0

OP#	OUTPUT LEVEL	VELOCITY
5	66	0

OP 1

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
51	36	31	53	0
L1	L2	L3	L4	
99	78	42	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	+L	L	50
	C3		
R	-L	R	25

OP#	OUTPUT LEVEL	VELOCITY
1	99	3

OP 4

FREQUENCY	DETUNE	AMS
1.00	0	0

ENVELOPE DATA

R1	R2	R3	R4	RS
99	48	20	60	0
L1	L2	L3	L4	
99	38	0	0	

KEYBOARD SCALING

CURVE	BREAKPOINT		DEPTH
L	-L	L	0
	A-1		
R	-L	R	0

OP#	OUTPUT LEVEL	VELOCITY
4	99	3

(6)

ALGORITHM #4

Notes:

This patch is designed for use in lryical (not rapid) playing, and there's a "wow" sound in it.

Essentially, it's all done with envelopes. The stack of Ops #4-#6 provides the initial attack, because the envelopes swiftly go to max. The sound decays rapidly, because of L2 at 38 in Op #4.

Meanwhile, the other stack of Ops #1-#3 is responsible for the brassy sound that comes in a bit later. The envelopes of Op #2 and Op #3 get off to a slow and low start, and add the harmonics as they ooze in. Op #1 actually serves as a transition between the two sounds, largely because of the R1 at 51.

The aftertouch is optional. The foot control is set for 50, but it should just be slightly touched, enough to add a shade of vibrato.

MEP4

An Introduction To Yamaha's New MIDI Event Processor. By Kevin Laubach.

THE NEW YAMAHA MEP4 is a powerful and highly flexible MIDI event processor. It can be programmed to modify MIDI data in many useful ways that include creating up to four-way keyboard splits, filtering out certain MIDI messages, changing one type of MIDI data into another, and even creating time delay effects. The MEP4 contains four internal processors, which can be routed in any combination to its four programmable outputs.

Understanding The MEP4

The MEP4 has three operational modes: **RUN**, **EDIT**, and **UTILITY**. To enter any of the three modes, simply press the appropriate mode button, When you turn the power ON, the MEP4 defaults to RUN mode.

In the **RUN** mode, you can select and store memories, and can turn each processor on and off. To select a desired memory, press the INC or DEC buttons. Pressing any processor button (P1, P2, P3, or P4) will toggle that processor on and off.

In the **EDIT** mode, you program the MEP4 to modify incoming messages. Each processor is edited individually. To select a processor, hold down the EDIT button and press either P1, P2, P3, or P4. The Processor Select LED will blink to let you know which processor is currently being edited.

To select which of the six groups of functions to edit, hold down the GROUP SELECT button and press the left or right key (PARAM/ CURSOR) buttons. The data flows through each processor as shown in the accompanying diagram; however, the display will show the group names in the following order:

1. The DATA PRESETTER can send out one Program Change, one Pitch Bender

position (useful for detuning), and two Control Change messages of your choice (such as Volume, Modulation Wheel position, Poly/Mono, Portamento Time, Sustain On/Off, and so on). This "one time" function is performed each time any one of the 60 MEP4 memories is selected.

2. The CHANNEL FILTER can be set to accept one, all, or any combination of MIDI channels.

3. The MESSAGE FILTER lets you filter out specific types of MIDI data such as program changes, pitch bend, aftertouch, and the like.

4. The DATA MODIFIER allows you you to choose the type of MIDI message to be modified, and how it will be modified. You can partially modify an incoming MIDI message or convert it to a completely different MIDI message. For example, you can convert aftertouch messages into pitch-bend messages. This is the most powerful and flexible section of the MEP4. Extreme applications may require more than one processor to achieve the desired effect.

5. The DELAY PROCESSOR delays the output of the selected processor from 0 to 3000 milliseconds. Slapback and other echo effects can be created with this function.

6. The OUTPUT ASSIGNER allows you to assign the output of each processor to any one of the four MIDI OUTput ports. This is where you can individually set the MIDI

*Front and back panels of the MEP4.*
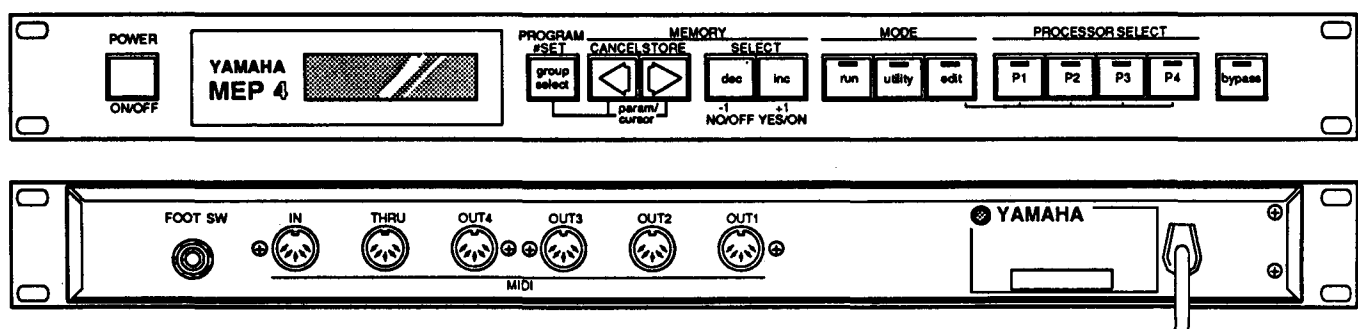
OUTput channel for each processor.

The UTILITY mode has seven functions. These may be selected by holding down the GROUP SELECT button and pressing the left or right key (PARAM/CURSOR) buttons. The functions will be displayed in this order:

1. MEMORY PROTECT (*memory protect*). This function turns the MEP4 memory protect on and off.

2. MEM-NAME INPUT (*memory name input*). This function allows you to name programs you have created or edited.

3. ED-BUFFER INIT (*edit buffer initialization*). This function allows you to initialize the Edit Buffer so you create a setup from scratch.

4. PRGRM-CHANGE RCV (*program change receive*). This function sets the MEP4 to respond to incoming MIDI Program Change messages.

5. FOOT-SW ASSIGN (*footswitch assign*). This function allows you to determine the use of a footswitch. When plugged into the jack on the back panel, a footswitch can be used in one of three ways: memory increment, memory decrement, or receive mode select.

6. MIDI MONITOR (*MIDI monitor*). This function lets you monitor the output of each processor.

7. MIDI BULK DUMP (*bulk dump*). This function lets you dump the entire contents of the MEP4 memory via MIDI OUTputs 1 through 4. The same bulk data is sent from each MIDI OUT.

The best way to understand how the MEP4 can be used is to show some specific applications for the unit in conjunction with other MIDI instruments. Let's take a look at two specific MIDI systems that involve the MEP4, and outline a few of the possible applications for the MEP4 in each system. In each case, we will include a step-by-step routine for programming the MEP4 to perform the specific application described.

This diagram shows the basic data flow in each of the MEP4's processors.
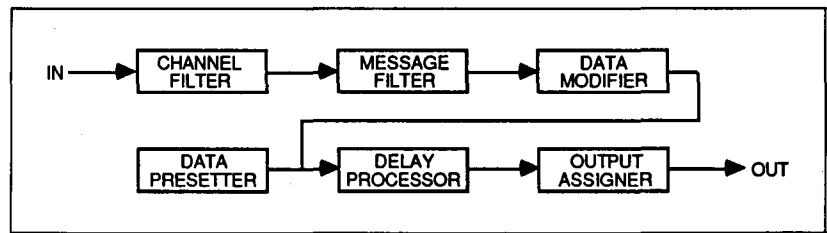
System 1

This basic system uses the DX7 as a MIDI keyboard controller for a TX7 (see the diagram on page 13). The DX7 sends MIDI messages into the MEP4; the MEP4 processes those messages and sends them through MIDI OUT port 1 to the TX7; the effect is heard through the TX7 audio output.

As many of you may know, the DX7's MIDI velocity output does not cover the full 0-127 range of MIDI velocity. The MEP4 can be used to rectify this situation, so that the full upper range of MIDI velocity can be utilized when the DX7 is used as a MIDI keyboard controller.

Adding A Velocity Offset To A DX7 Keyboard

To achieve the effect described above, program the MEP4 by following these steps:

1. In the **RUN** mode, select an empty MEP4 preset by pressing the INC or DEC buttons.
2. Press UTILITY to enter the **UTILITY** mode.
3. Select the ED-BUFFER INIT function by holding down GROUP SELECT while pressing the left or right cursor keys.
4. Press INC twice. The display will read:

*   Completed!   *

The Edit buffer is now initialized. [*Note: After being initialized, the MESSAGE FILTER default settings filter out program change, aftertouch, and pitch-bend messages. If you wish to use these controllers, see the procedure outlined at the end of this article.*]

5. Select the **EDIT** mode for processor 1 by holding down EDIT and pressing P1.
6. Hold down GROUP SELECT while pressing the left or right cursor keys to select the MESSAGE FILTER.
7. Press DEC once. The display will read:

MEP4 *Continued*

Note OFF = OFF

This stops processor 1 from letting note-off messages go through.

8. Hold down EDIT and press P2. This selects **EDIT** mode for processor 2.
9. You will still be in the MESSAGE FIL-TER group. Press the right cursor once. The display will read:

Note ON = ON

10. Press DEC once. The display will read:

Note ON = OFF

This stops processor 2 from letting note-on messages go through. [*Note: In this application, processor 1 accepts only note-on messages and modifies them. Processor 2 lets note-off messages go through. Thus, only note-on messages are modified.*]

11. Select **EDIT** mode for processor 1 by holding down EDIT and pressing P1.
12. Hold down GROUP SELECT and press the right cursor once to select the DATA MODIFIER.
13. Press INC twice. The display will read:

0:MSG:9n.xx.yy

14. Press the right cursor four times. The display will read:

1:***:

15. Press INC three times. The display will read:

1:OFS:xx,V=0

16. Press the right cursor once to move the cursor to "xx."
17. Press INC once to change the display to "yy." This sets the MEP4 to offset the DX7 velocity.
18. Press the right cursor once to move the cursor to "0."
19. Press and hold down INC until the display reads:

1:OFS:yy,V=+30

This sets processor 1 to increase the DX7 velocity by a value of 30.

20. Select the **EDIT** mode for processor 2 by holding EDIT and pressing P2.
21. Hold down GROUP SELECT and press the right cursor twice to select the OUT-PUT ASSIGNER.
22. Press the right cursor twice. The display will read:

OUTPORT ASSIGN=2

23. Press DEC once. The display will read:

OUTPORT ASSIGN=1.

This sets processor 2 to outport 1.

24. Select the **RUN** mode by pressing RUN.

Play the DX7 with different velocities to hear the effect. Pressing the BYPASS button will toggle the effect on and off.

Storing Your New MEP4 Program

If you are happy with the effect, you will want to store the settings in the MEP4's memory. To do so, use the following steps:

1. Press UTILITY to enter the **UTILITY** mode.
2. Hold down GROUP SELECT while pressing the left cursor to select the MEMORY PROTECT function. The display will read:

Protect (ON)

3. Press DEC. The display will read:

Protect (OFF)

4. Hold down GROUP SELECT and press the right cursor once to select the MEM-ORY NAME function. The display will read:

MEM-NAME INPUT

5. Press and hold the INC button to select the letter "D" for the first space. If you pass "D," press DEC until the display reads:

No.xx D

[*Note: "xx" is the currently-selected memory.*]

6. Press the right cursor to move the cursor over one space to the right.
7. Repeat the previous two steps for each space until the display reads:

No.xx DX7 VEL

You have now given the program a name, and it's time to store it.

8. Press RUN to enter the **RUN** mode.
9. Press the right cursor (STORE). The display will read:

Store xx to xx

10. Press the right cursor (STORE). The display will read:

Are you sure?

11. Press INC to store the setup.
12. Press UTILITY to enter the **UTILITY** mode.
13. Hold down GROUP SELECT while pressing the left cursor to select the MEMORY PROTECT function. The display will read:

Protect (OFF)

14. Press INC. The display will read:

Protect (ON)

You have now named and stored your new MEP4 program, and the MEMORY PROTECT function is on again.

System 2

This system uses the KX88 as a MIDI keyboard controller for a TX816 (see the diagram on page 15). The KX88 sends MIDI messages into the MEP4; the MEP4 processes those messages and sends them through MIDI OUT port 1 to the TX816; the effect is heard through the TX816 audio outputs.

This setup is very useful for presetting TX816 performance and function settings in all eight tone modules from one MEP4 preset. Each time an MEP4 memory is selected the DATA PRESETTER can send one Program Change, one Pitch Bender position, and any two

System 1   MIDI Diagram

DX7

MEP4

TX7
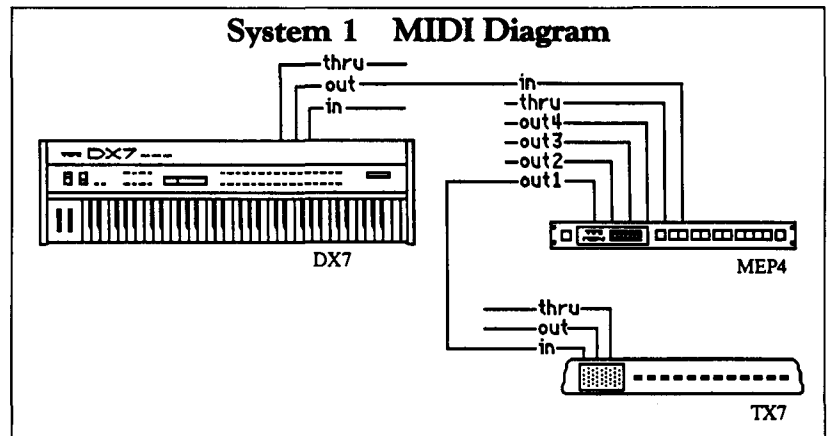
Control Change messages.

Since there are four processors in the MEP4, each can send a different set of changes. You can set up the TX816 to take advantage of this situation by creating four "groups" of two modules each. This is done by assigning different MIDI channel numbers to specific modules: modules 1 and 2 to MIDI channel 1 (controlled by the MEP4's processor 1), modules 3 and 4 to MIDI channel 2 (controlled by the MEP4's processor 2), modules 5 and 6 to MIDI channel 3 (controlled by the MEP4's processor 3) and modules 7 and 8 to MIDI channel 4 (controlled by the MEP4's processor 4). If you are not sure how to set the MIDI channels in your TX816, consult your owners manual for instructions.

With this configuration, you can send information from the MEP4 that will call up four different Program Changes, four detuning offsets (via the Pitch Bender settings), and four sets of initial Control Changes settings—one for each pair of modules. To get an idea of how this works, let's got through the procedure for creating different program changes.

Sending Four Different Program Changes To The TX816

To achieve the effect described above, program the MEP4 by following these steps:

1. In the **RUN** mode, select an empty MEP4 preset by pressing the INC or DEC buttons.
2. Press UTILITY to enter the **UTILITY** mode.
3. Select the ED-BUFFER INIT function by holding down GROUP SELECT while pressing the left or right keys.
4. Press INC twice. The display will read:

Basic MIDI connections for System 1, using a DX7 and a TX7 with the MEP4.

MEP4 *Continued*

* Completed! *

The Edit buffer is now initialized. [*Note: After being initialized, the MESSAGE FILTER default settings filter out program change, aftertouch, and pitch-bend messages. If you wish to use these controllers, see the procedure outlined at the end of this article.*]

5. Select the **EDIT** mode for processor 1 by holding down EDIT and pressing P1.
6. Hold down GROUP SELECT while pressing the left or right keys to select the DATA PRESETTER.
7. If necessary, press the left or right keys until the display reads as follows:

PRGM(OFF): 1

8. Press INC. The display will read:

PRGM(ON): 1

9. Press the right cursor to move the cursor over the "1."
10. Press and hold INC until the desired program number is displayed. This sets the DATA PRESETTER in processor 1 to send the desired Program Change number to modules 1 and 2 of the TX816.
11. Select processor 2 **EDIT** mode by holding down EDIT and pressing P2.
12. Follow the steps above to set the desired Program Change number for modules 3 and 4 of the TX816.
13. Using the same procedure, set the desired Program Change number in processor 3 (for modules 5 and 6 of the TX816).
14. Finally, use the same procedure to set the desired Program Change number in processor 4 (for modules 7 and 8 of the TX816).

At this point, you will need to set the MIDI output channel for each processor. The default setting for all processors is MIDI channel 1, so you will not need to change any settings for processor 1. To set the other processors to the desired MIDI channel for this application, use these steps:

1. Hold down EDIT and press P2.
2. Press and hold GROUP SELECT, then press INC five times. Display will read:

OUTPUT ASSIGN

3. Press INC once. The display will read:

OUT-CH ASSIGN = 2

This sets processor 2 to output on channel 2.
4. Hold down EDIT and press P3.
5. Press INC twice. The display will read:

OUT-CH ASSIGN = 3

This sets processor 3 to output on channel 3.

6. Hold down EDIT and press P4.
7. Press INC three times. The display will read:

OUT-CH ASSIGN = 4

This sets processor 4 to output on channel 4.

Finally, you will need to set the MIDI OUT port for each processor. Since the default setting for processor 1 to OUT port 1, you will not need to change its setting. To set the processors to MIDI OUT port 1, use these steps:

1. Hold down EDIT and press P2.
2. Press the right cursor twice. The display will read:

OUTPORT ASSIGN = 2

3. Press DEC once. The display will read:

OUTPORT ASSIGN = 1

This sets processor 2 to outport 1.
4. Hold down EDIT and press P3. The display will read:

OUTPORT ASSIGN = 3

5. Press DEC twice. The display will read:

OUTPORT ASSIGN = 1

This sets processor 3 to outport 1.
6. Hold down EDIT and press P4. The display will read:

OUTPORT ASSIGN = 4

7. Press DEC three times. The display will read:

OUTPORT ASSIGN = 1

This sets processor 4 to outport 1.

If you are happy with the effect, you will want to store the settings in the MEP4's memory. To do so, use the procedure outlined above, in the section called "Storing Your New MEP4 program."
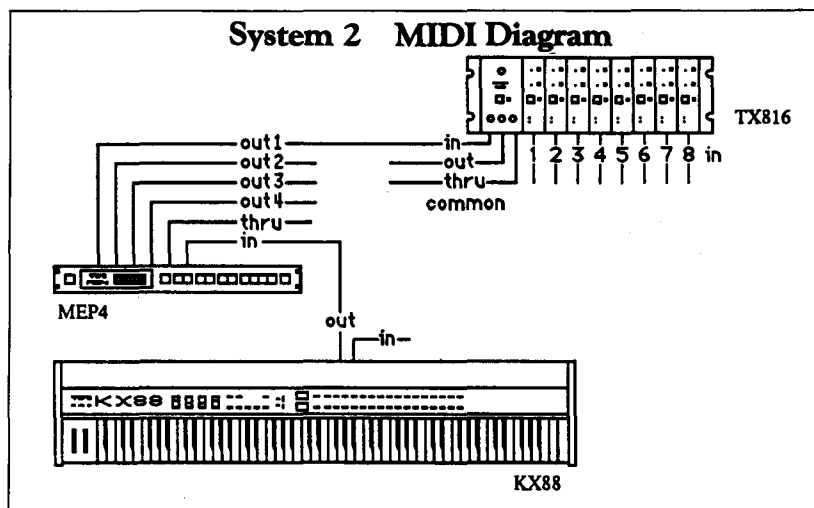
Message Filter Settings

After being initialized, the MESSAGE FILTER only accepts note-on and note-off messages. The default settings are as follows:

NOTE OFF = ON
NOTE ON = ON
POLY A.TOUCH = OFF
CNTL# = ———— **,**
PRGRM CHANGE = OFF
CH A.TOUCH = OFF
PITCH BEND = OFF
CH MODE MSG = OFF
SYSTEM = OFF

To change any of these settings, follow these steps:

1. Hold down GROUP SELECT while pressing the left or right keys to select the MESSAGE FILTER.
2. Press the left or right keys until the function you want to change is displayed.
3. Pressing the INC button will toggle the function ON.
4. Pressing the DEC button will toggle the function OFF.

The CNTL# function is a special case. You can choose to accept none, all, one, or any two

System 2   MIDI Diagram

Basic MIDI connections for System 2, using a KX88 and a TX816 with the MEP4.

Control Change messages (in the range 00-79; control changes 7A-7F are covered in Mode Messages).

To accept *all* Control Change messages, do the following:

1. Press the left or right keys until the cursor is over the "————" in the display.
2. Press INC once. The display will read:

CNTL# = ALL

To accept *one* or *two* Control Change messages, do the following:

1. Press the right cursor to move the cursor over the "**" in the display.
2. Press the INC or DEC buttons to set the desired Controller number(s).

*   *   *   *

As you can see, the MEP4 gives you the ability to customize your MIDI music system, and gives you a great deal of control over the raw materials of MIDI. Programming the MEP4 does take some patience, but you will find that the end results are more than worth the effort.

MJC8

YAHAMA'S NEW MJC8 MIDI junction controller allows complete control over MIDI signal routing. Changing an instrument from a master to a slave can be accomplished by pressing a button instead of physically unplugging and replugging MIDI cables. MIDI delays that result from "daisy chaining" a group of instruments (using the individual instrument MIDI THRU jacks) can also be avoided.

Reading The Front-Panel Display

The key to understanding how the MJC8 works involves understanding how to read its front-panel LCD (liquid-crystal display). The top half of the display is fixed, and consists of the word "output" followed by eight numbers in order, as follows:

OUTPUT 1 2 3 4 5 6 7 8

The bottom half of the display lets you know how the machine is configured at any given moment. Before you have programmed anything in, the display consists of the word "patch" directly followed by the number of the current MJC8 patch; after this you will find eight "*" position markers, aligned directly under the eight numbers in the top half of the display:

patch 00 * * * * * * * *

There are 50 patches in the MJC8 (allowing you to preset 50 different MIDI routing configurations). To access the different patches, hold down MEMORY SELECT while pressing the left and right cursor keys.

The portion of the display with the "*" is where you set the MIDI sources for each of the eight outputs. There are two main steps to this procedure:

1) **Choose a destination.** Using the left and right cursor keys, move the cursor to the "*" that is directly under the OUTPUT number whose destination is the MIDI device you want to control.

2) **Choose a source.** Select a MIDI device you want to be the source by pressing the INC and DEC buttons until you see the number of the desired MIDI input. A "*" marker under a particular output means that

Eliminate MIDI Spaghetti With The MJC8 MIDI Junction Controller. By Kevin Laubach.

no source is selected for that output.

There are also eight LEDs on the front panel. They correspond to the eight MIDI outputs. The proper LED will light whenever there is a MIDI signal present at its respective output.

Please note that each OUTPUT (destination) *always goes to the same instrument*, which is the instrument connected to the same-numbered MIDI THRU jack on the back panel. In other words, the OUTPUTs or destinations are always fixed; selecting the INPUT (source) sets the routing configuration.

The MJC8 is *not* a MIDI merge unit. That is one reason why the OUTPUTs are fixed—it is impossible to route more than one INPUT to the same OUTPUT. On the other hand, the MJC8 is a very flexible MIDI-routing and MIDI-junction box: any INPUT can be routed to any OUTPUT, and a single INPUT can be routed to *any* of the OUTPUTs.

The best way to understand how the MJC8 works is to show some specific applications for the unit in conjunction with other MIDI instruments. Let's take a look at two specific MIDI systems that involve the MJC8, and show some of the ways it can be used to increase the flexibility of your MIDI routings, all without changing a single MIDI cable.

System 1

This system involves a DX7, a TX7, a QX21, and an RX11 (see the accompanying diagram). All MIDI connections are made directly to the MJC8, as shown. Here are some of the routing possibilities:

● **Playing the TX7 from the DX7.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  2 1 * * * * * *
```

Make sure that the TX7 is set to MIDI channel 1 and the combined mode is set. When you play the DX7, the TX7 will also play. This setup also allows the TX7 to send function data to the DX7 whenever a new voice is selected on the DX7 or the TX7.

● **Recording the DX7 to the QX21.** Set the

MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  3 * 1 * * * * *
```

Make sure that the DX7 receive channel matches the QX21 transmit channel. The QX21 will record the DX7, and the DX7 will play the sequence back when the QX21 is put into PLAY mode.

● **Overdubbing on the QX21.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  * 3 1 * * * * *
```

Make sure the TX7 receive channel matches the QX21 transmit channel. Bounce the previously-recorded material to track 2 of the QX21 using the EXCHANGE command (Job Command B1; then set the QX21 to record on a different MIDI channel than you used in the previous example (Job Command A6). The QX21 will now record what you play on the DX7 while you hear the original part played on the TX7.

● **Playing the DX7, TX7, and RX11 from the QX21.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  3 3 * 3 * * * *
```
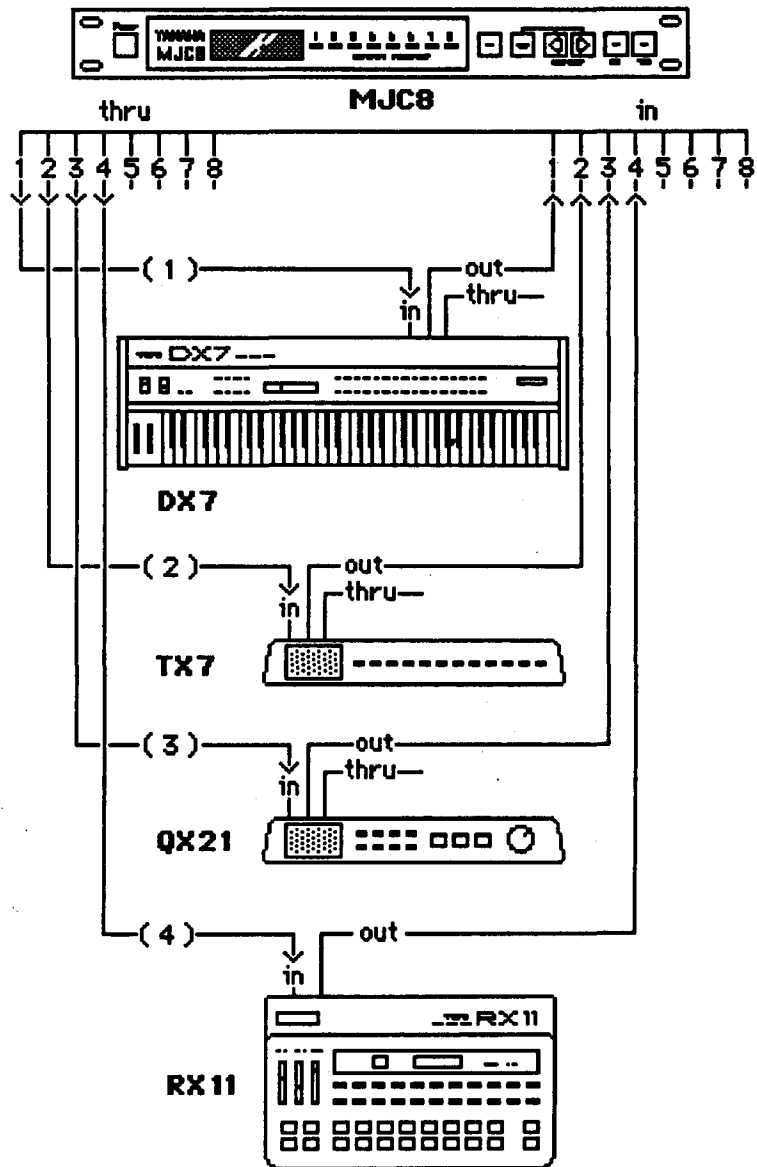
Make sure the DX7 and TX7 are set to the proper MIDI channels: one should be set to the channel on which you recorded your original part, and the other should be set to the channel on which you recorded your overdub. Set the RX11 to sync to a MIDI clock and select the desired pattern or song. Now, when you press PLAY on the QX21, the DX7 and TX7 will play the parts you recorded; the RX11 will also begin and play in time with your sequence.

● **Syncing the QX21 to the RX11.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  3 3 4 * * * * *
```

System 1   MIDI Diagram

Basic MIDI connections for System 1, which uses a DX7, a TX7, a QX21, and an RX11 with the MJC8.

DESTINATIONS	SOURCES
1. DX7 in	1. DX7 out
2. TX7 in	2. TX7 out
3. QX21 in	3. QX21 out
4. RX11 in	4. RX11 out
5. *	5. *
6. *	6. *
7. *	7. *
8. *	8. *

Set the QX21 to external sync (Job Command A5). Be sure that the RX11 is in the internal clock mode. Now, when the RX11 is started, the QX21 will begin playing the DX7 and TX7 in sync with the RX11's tempo. *Continued*

MJC8 *Continued*

● **Playing the RX11 from the DX7 while recording on the QX21.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  * * 1 1 * * * *
```
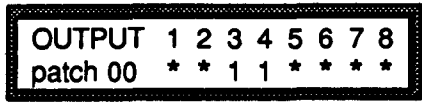
Make sure that the RX11 is set to MIDI channel 1 and CH INFO AVAIL. Turn the volume off on the DX7. Check the RX11 owners manual to find out which notes on the DX7 will trigger the desired drum sounds. Now, when you play the proper notes on the DX&, you will hear the assigned drums on the RX11. Playing the RX11 drums from the DX7 keyboard gives you the ability to play each drum sound with velocity sensitivity. You can also record your DX7 "drum" performance on the QX21. This allows you to make the drums a permanent part of your sequence.
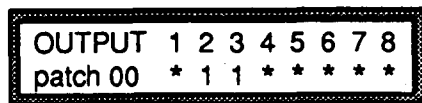
System 2

This system involves a KX88, a QX1, a TX816, a DX7, and an RX11 (see the accompanying diagram). All MIDI connections are made directly to the MJC8, as shown. Here are some of the routing possibilities:

● **Playing the TX816 from the KX88.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  * * 1 * * * * *
```
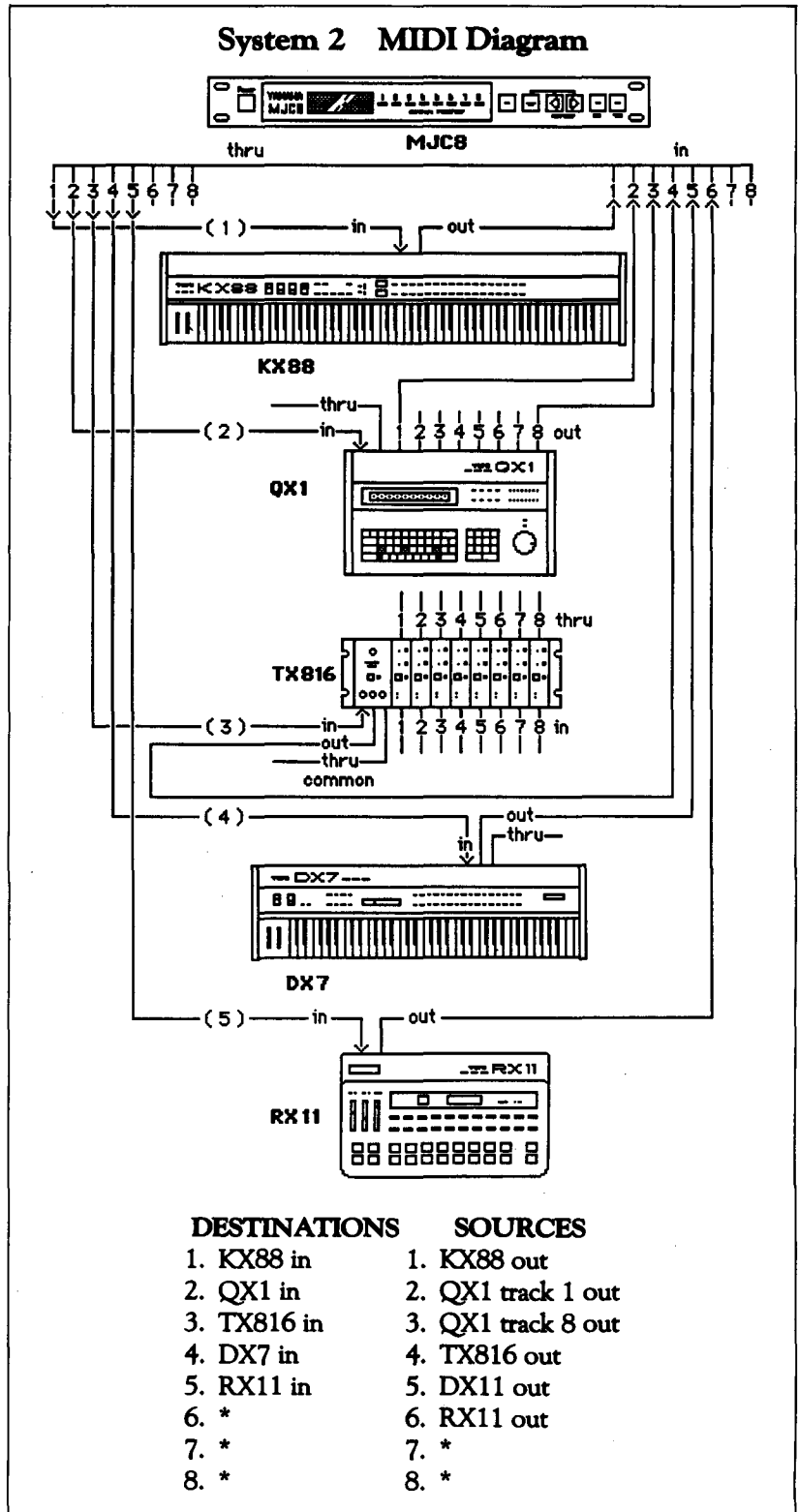
Be sure that the KX88 and TX816 modules are on the same MIDI channel. Set the TX816 modules to COMMON mode. Playing the KX88 will trigger the TX816 modules that have been set to the corresponding MIDI channel.

● **Recording on the QX1.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  * 1 1 * * * * *
```
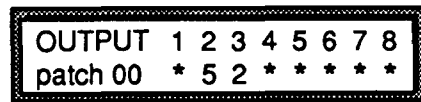
Prepare the QX1 for recording on track 1. When you start recording, the QX1 will record what you play on the KX88. You will hear the part you are recording on the TX816.

System 2   MIDI Diagram

Basic connections for System 2, which uses a KX88, a TX816, a QX1, a DX7, and an RX11 with the MJC8.

DESTINATIONS	SOURCES
1. KX88 in	1. KX88 out
2. QX1 in	2. QX1 track 1 out
3. TX816 in	3. QX1 track 8 out
4. DX7 in	4. TX816 out
5. RX11 in	5. DX11 out
6. *	6. RX11 out
7. *	7. *
8. *	8. *

● **Overdubbing on the QX1 from the DX7.** Set the MJC8 front panel as follows:

```
OUTPUT  1 2 3 4 5 6 7 8
patch 00  * 5 2 * * * * *
```

Touch Response

Letters From
Readers
About Users
Groups, DX7
Voices, And
The DX9.

HERE ARE SOME MORE letters from fellow AFTERTOUCH readers. Some are about Users Groups, and others are simply asking for information. If you are interested, make contact and offer your help.

* * * *

There is a Users Group that meets monthly in the Torrance/San Pedro area of California. For information, contact me at the address below, or call 213-326-2709.
Tom Owens
2107 W. 230th Place
Torrance, CA 90501

I have just recently purchased a DX7, and would like to correspond with someone who can assist me with some patches or share some patches with me. I am interested in finding out about how to get some of the same sounds that the old ARP synthesizers had in them. If you think you can help, please contact me at the address below.
Larry Melton
NJR Ministries
P.O. Box 1314
Branson, MO 65616

I am encountering more and more musicians on the west coast of Florida who have recently purchased CX5M computers. There seems to be a real need to have a focal point where these new computer owners can discuss their problems and pass on their discoveries.

Please announce that such a club has been established. Interested parties can make contact by calling me at 813-639-7425, or by writing to the address below.
Bob Gordon
32 Colony Point Dr.
Punta Gorda, FL 33950

I am now the proud (but lonely) owner of a Yamaha DX9. I would like to know some names of people or groups that are in the same boat as myself. That way, I can get in touch with them and greatly increase the knowledge of such an ancient but powerful artifact as the DX9. I'm looking for anyone in my immediate area that owns a DX9. When I say "immediate area," I am of course referring to the continental United States, since I doubt there are many in my township. If you are out there, please contact me at the address below.
David Shaw
2674 Galaxie
Bartlett, TN 38134

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If you just have a question regarding the use of Yamaha professional 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 X users, send something in to our letters column, "Touch Response." We'll do our best to print names and addresses of all those who are interested in starting up regional users groups.

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P.O. Box 2338
Northridge, CA 91⁊⁊⁊ ⁊⁊⁊⁊

MJC8 *Continued from page 18*

Assign the same MIDI channel to the QX1 OUT port 1 (job Command 3) and the TX816 modules. Prepare the QX1 for recording on track 2. While you are recording, you will hear the existing track(s) playing on the TX816. Your new part can be monitored from the DX7.

- **Playing the TX816, DX7, and RX11 from the QX1.** Set the MJC8 front panel as follows:

```
OUTPUT   1 2 3 4 5 6 7 8
patch 00  * * 2 2 3 * * *
```

Send tracks 1-4 through OUT port 1 and set their respective MIDI channels (Job Command

3). Set the MIDI channels of the TX816 modules and DX7 to match the channel assignments of QX1 tracks 1-4. Select MIDI clock sync on the RX11. The QX1 will now play the TX816 and the DX7 when it is put into PLAY mode. The RX11 will also start its pattern and play in time with the QX1.

This configuration is also perfect for a number of other applications, such as voicing the TX816 modules from the DX7. As you can see, the MJC8 allows you to streamline your MIDI connections between instruments, and makes it possible to change MIDI routings quickly; all without moving a single MIDI cable!