

# KORG®

## Music Workstation

# T1 T2 T3

## Reference Guide

**ai** AI Synthesis System

PROGRAM	EDIT PROGRAM	EFFECT	COMBINATION	EDIT COMBINATION	SEQUENCER	GLOBAL	DISK/CARD	MIDI IMPLEMENTATION	ERROR MESSAGE
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# HOW TO READ A DISPLAY PAGE CHART

## P0-5 OSC1 Pitch EG (Oscillator 1 Pitch EG) ——— ①

A	S	Start Level	-99 – +99	Determines how the pitch of Oscillator 1 varies over time. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> </div>
B	AT	Attack Time	0 – 99	
C	A	Attack Level	-99 – +99	
D	DT	Decay Time	0 – 99	
E	RT	Release Time	0 – 99	
F	R	Release Level	-99 – +99	
G	L	EG Level Vel. Sens.	-99 – +99	Determines to what degree the effect of the pitch EG will vary in response to key velocity.
H	T	EG Time Vel. Sens.	-99 – +99	Determines to what degree the total time of the pitch EG will change in response to key velocity.

③

④

⑤

⑥

②

- ① **P0-5 OSC1 Pitch EG (oscillator 1 pitch EG)** : Indicates that the display is for the fifth line of page 0; Oscillator Pitch EG.
- ② The display for this page
- ③ Cursor position key to move to this parameter
- ④ Parameter name
- ⑤ Contents or value (number) range of parameter
- ⑥ Description of parameter function

\* The "cursor" is a parameter which is displayed in reverse video.

# T1/T2/T3 Operation Guide, Reference Guide Errata Sheet

Please make following corrections to your T1/T2/T3 operation guide, reference guide.

## Operation Guide

page	wrong	correct																				
15	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">P3-1</td> <td style="width: 5%;">F2-1</td> <td style="width: 15%;">MIDI Channel</td> <td style="width: 20%;">1 - 16 → A1 - A16 when keyboard is played, all channels will sound</td> <td style="width: 20%;">A1 - A16 → 1 - 16 B1 - B16 → 1 - 16 when keyboard is played, Timbres matching the Global MIDI channel will sound</td> <td style="width: 35%;">no change</td> </tr> </table>	P3-1	F2-1	MIDI Channel	1 - 16 → A1 - A16 when keyboard is played, all channels will sound	A1 - A16 → 1 - 16 B1 - B16 → 1 - 16 when keyboard is played, Timbres matching the Global MIDI channel will sound	no change	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">P3-1</td> <td style="width: 5%;">F2-1</td> <td style="width: 15%;">MIDI Channel</td> <td style="width: 20%;">1 - 16 → A1 - A16 when the keyboard is played, the Global mode settings are used</td> <td style="width: 20%;">A1 - A16 → 1 - 16 B1 - B16 → 1 - 16 when keyboard is played, Timbres matching the Global MIDI channel will sound</td> <td style="width: 35%;">no change</td> </tr> </table>	P3-1	F2-1	MIDI Channel	1 - 16 → A1 - A16 when the keyboard is played, the Global mode settings are used	A1 - A16 → 1 - 16 B1 - B16 → 1 - 16 when keyboard is played, Timbres matching the Global MIDI channel will sound	no change								
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## Reference Guide

page	wrong	correct
54 (In the middle on the right)	<ul style="list-style-type: none"> <li>Regardless of the MIDI channel setting, all Timbres will sound when you play the keyboard, and note data will be transmitted from MIDI OUT on all MIDI channels specified in the Combination. (Timbres whose Timbre Program is off will not produce sound, so you will normally turn unneeded Timbres off.)</li> </ul>	<ul style="list-style-type: none"> <li>All the Timbres will sound when playing the keyboard, regardless of the MIDI channel settings, when Combi Mode is set to Master in Global Mode. (Timbres whose Timbre Program is off do not produce sound. Always turn off any Timbres which are not in use.)</li> </ul> <p>When the Combi Mode is set to Multi, playing the keyboard produces the sound of the Timbres whose channel corresponds to the Global MIDI channel.</p>

page	wrong	correct
55 (Upper paragraph)	<ul style="list-style-type: none"> <li>When you select a T1/T2/T3 Combination, each Timbre will transmit the specified program change message and volume change message from MIDI OUT on its own MIDI channel. (However, Timbres whose MIDI channel matches the global MIDI channel will not transmit from MIDI OUT.)</li> </ul>	<ul style="list-style-type: none"> <li>When an external program is set for each Timbre, playing the keyboard outputs note data of all the MIDI channels assigned to each Timbre through MIDI OUT.</li> </ul> <p>When you select a T1/T2/T3 Combination, each Timbre will transmit the specified program change message and volume change message from MIDI OUT on its own MIDI channel. (However, Timbres whose MIDI channel matches the global MIDI channel will not transmit from MIDI OUT.)</p>

Add to page 110 after P7-7

Add to page 113

#### P7-8 Copy from Combi (Copy from Combination)

```

SONG00  SONG  ▶Source Combi
Next Song  Scale Type
Rename Song Vel/Aft.T Curve
Metronome  Copy Effect
Foot Controller ▶Copy Combination
from [C99]:FilmScore [COPY]

```

[B]	Source Combination	C00 - C99	Number of combination to make a copy of
[G]		[COPY]	Execution of copy

To make a copy of each Timbre setting of the selected Combination onto Tracks 1- 8 of the Song parameters.

- The following settings will be copied: Internal program, volume level, transpose, detune, pan pot, key window, velocity window, MIDI channel of each Timbre, and effect parameters. Nothing other than the above will change.

- Operations of MIDI OUT, etc. are partly different in Combination mode and Sequencer mode.

- Each Timbre requires 1 track when using a Combination sound on the sequencer, except that the same sound as the Combination sound will be produced on each track if the MIDI channels are all set to the same number.

#### P0-4 Combi Mode (Combination Mode)

```

GLOBAL  GLOBAL  ▶Combi Mode
Master Tune  =+00  Key Transpose =+00
MIDI channel :A01  Clock Source  :INT
Local Control :ON  MIDI Overflow :ON
Combi Mode :Master
PRUG:o  AFTT:o  CNTL:o  EXCL:o
Damper Switch Polarity = -

```

[A]	Combi Mode	Master/Multi	Combination Mode Switch
-----	------------	--------------	-------------------------

The operation can be set in the Combi Mode (Combination Mode) when the Timbre MIDI channel settings have been changed in this mode.

• This setting does not affect operations in the Program Mode and Sequencer Mode.

\* In Master Mode, playing the keyboard produces the sound of all the Timbres whose programs have been set, regardless of the Timbre MIDI channel settings. Setting the channel of each Timbre to the number of the channel on an external MIDI tone generator enables you to replace/layer the Timbre tone with the tone of the MIDI tone generator on the T1/T2/T3.

\* Only the Timbre whose channel number corresponds to the Global MIDI channel will sound when playing the keyboard in Multi Mode. Data input through MIDI IN will play Timbres whose channels have been set to numbers other than that of the Global MIDI channel.

- In Multi Mode, data input on the keyboard will be output through MIDI OUT of the Global MIDI channel as well as all the Timbre MIDI channels in which the external program has been set. (Turn the external program OFF when you want the data to be output through MIDI OUT for only the Global MIDI channel.)

- Velocity curve and aftertouch curves of Timbre 1 will be used when the number of the Global MIDI channel does not correspond to that of any Timbre MIDI channel.

Function Code List

Func	Description	T1, T2, T3					M1, M1R				
		R	C	D	E	S	R	C	D	E	
42	MODE DATA	○									
47	ALL DRUM SOUND NAME DUMP	○									
45	ALL MULTISOUND NAME DUMP	○									
4E	MODE CHANGE		○					○			
41	PARAMETER CHANGE		○								
50	TRACK PROGRAM BANK CHANGE					○					
40	PROGRAM PARAMETER DUMP	○	○								
4C	ALL PROGRAM PARAMETER DUMP	○	○	○			○		○		
49	COMBINATION PARAMETER DUMP	○	○								
4D	ALL COMBINATION PARAMETER DUMP	○	○	○			○		○		
48	ALL SEQUENCE DATA DUMP	○	○	○							
51	GLOBAL DATA DUMP	○	○	○			○		○		
50	ALL DATA(GLB. CMB. PRG. SEQ) DUMP	○	○	○							
44	MULTISOUND PARAMETER DUMP	○	○								
26	RECEIVED MESSAGE FORMAT ERROR	○								○	
23	DATA LOAD COMPLETED					○	○	○		○	
24	DATA LOAD ERROR					○	○	○		○	
21	WRITE COMPLETED					○	○	○		○	
22	WRITE ERROR					○	○	○		○	

Transmitted when  
R : Request Message is received  
C : Mode or No. is changed by SW  
D : Data dump by SW ( Don't respond to Exclusive On. Off )  
E : EX. Message received  
S : No. is changed by SW or Sequence

2-5 SYSTEM EXCLUSIVE MESSAGES

\* Don't receive when Sequencer is Playing, Recording except Func = 59

Function Code List

Func	Description	T1, T2, T3					M1, M1R	
		G	C	P	S	A	G	A
12	MODE REQUEST	○	○	○	○	○		
1F	ALL DRUM SOUND NAME DUMP REQUEST	○	○	○	○	○		
16	ALL MULTISOUND NAME DUMP REQUEST	○	○	○	○	○		
10	PROGRAM PARAMETER DUMP REQUEST			○				
1C	ALL PROGRAM PARAMETER DUMP REQUEST	◎	○	○	○	◎	○	
19	COMBINATION PARAMETER DUMP REQUEST							
1D	ALL COMBINATION PARAMETER DUMP REQUEST	◎	○	○	○	◎	○	
18	ALL SEQUENCE DATA DUMP REQUEST	◎	○	○	○	◎	○	
0E	GLOBAL DATA DUMP REQUEST	◎	○	○	○	◎	○	
0F	ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP REQUEST	◎	○	○	○	◎	○	
15	MULTISOUND PARAMETER DUMP REQUEST	○	○	○	○	○		
11	PROGRAM WRITE REQUEST			○				
1A	COMBINATION WRITE REQUEST		○					
47	ALL DRUM SOUND NAME DUMP	○	○	○	○	○		
40	PROGRAM PARAMETER DUMP			○				
4C	ALL PROGRAM PARAMETER DUMP	◎	○	○	○	◎	○	
49	COMBINATION PARAMETER DUMP		○	○	○			
4D	ALL COMBINATION PARAMETER DUMP	◎	○	○	○	◎	○	
48	ALL SEQUENCE DATA DUMP	◎	○	○	○	◎	○	
51	GLOBAL DATA DUMP	◎	○	○	○	◎	○	
50	ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP	◎	○	○	○	◎	○	
44	MULTISOUND PARAMETER DUMP	○	○	○	○	○		
4E	MODE CHANGE	○	○	○	○	○		
41	PARAMETER CHANGE		○	○				
53	DRUM-KIT AND MULTISOUND PARAMETER CHANGE	○						
59	TRACK PROGRAM BANK CHANGE			○				

Receive when in  
G : GLOBAL MODE  
(◎---Does not respond to Exclusive On. Off in DATA DUMP Page)  
C : COMBI, E. COMBI MODE  
P : PROG, E. PROG MODE  
S : SEQUENCER MODE  
A : ANY OTHER MODE

(27) MODE DATA T

Byte	Description	
FO. 42. 3n. 26	EXCLUSIVE HEADER	
0100 0010	MODE DATA	42H
0000 mmmm	Mode Data	(NOTE 1)
0000 000c	Program Bank	(NOTE 3-3)
0011 00mm	Card Variation	(NOTE 4)
000r 01cc	PCM Memory Status	(NOTE 5)
1111 0111	EOX	

Receives Func=12 message. and transmits this message & data.

(28) MIDI IN DATA FORMAT ERROR T

Byte	Description	
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER	
0010 0110	MIDI IN DATA FORMAT ERROR	26H
1111 0111	EOX	

Transmits this message when there is an error in the MIDI IN message (ex. data length).

(29) DATA LOAD COMPLETED T

Byte	Description	
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER	
0010 0011	DATA LOAD COMPLETED	23H
1111 0111	EOX	

Transmits this message when DATA LOAD.PROCESSING have been completed.

(30) DATA LOAD ERROR T

Byte	Description	
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER	
0010 0100	DATA LOAD ERROR	24H
1111 0111	EOX	

Transmits this message when DATA LOAD.PROCESSING have not been completed (ex. protected).

(31) WRITE COMPLETED T

Byte	Description	
FO. 42. 3n. 26	EXCLUSIVE HEADER	
0010 0001	WRITE COMPLETED	21H
1111 0111	EOX	

Transmits this message when DATA WRITE MIDI has been completed.

(32) WRITE ERROR T

Byte	Description	
FO. 42. 3n. 26	EXCLUSIVE HEADER	
0010 0010	WRITE ERROR	22H
1111 0111	EOX	

Transmits this message when DATA WRITE MIDI has not been completed.

(33) TRACK PROGRAM BANK CHANGE R, T

Byte	Description	
FO. 42. 3n. 26	EXCLUSIVE HEADER	
0101 1001	TRACK PROGRAM BANK CHANGE	59H
0000 nnnn	MIDI Channel of the TRACK	
0000 000c	Program Bank	(NOTE 3-1)
1111 0111	EOX	

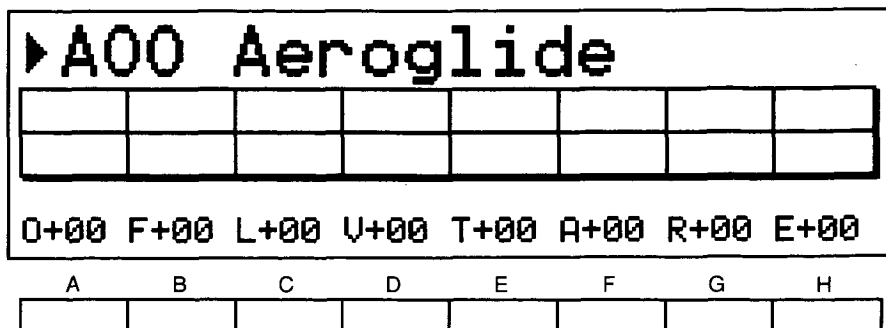
Receives and Transmits this message in Sequencer mode. Receives this message and data. Transmits Func = 23 or Func = 24, and it designates the track program bank for the forthcoming Program Change on each MIDI channel. Transmits this message prior to the Program Change message when track program has been changed by SW or Sequence data. This is the only system exclusive message recognized while the sequencer is playing. This message is available on ROM revision 25 or later.



# 1. PROGRAM MODE (PROG A / PROG B)

In this mode you can select and play Programs (sounds) from memory. Use PROG A to select Programs A00 – A99, and PROG B to select Programs B00 – B99.

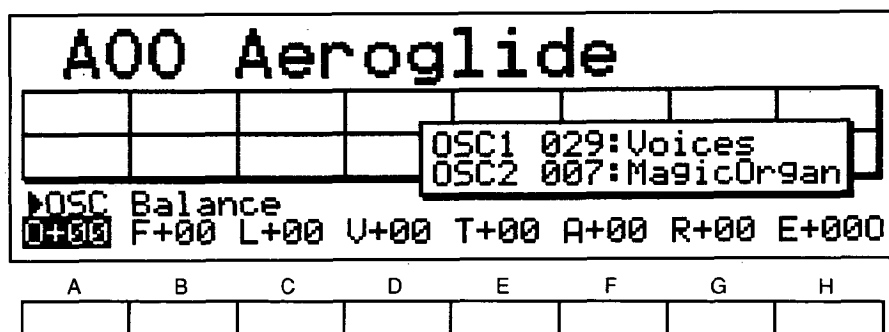
Programs can be selected using the BANK/PAGE keys (0 – 9), Program select keys (0 – 9), the  $\Delta/\nabla$  keys, a footswitch (PROG UP/DOWN) or MIDI program change messages.



When you press a BANK/PAGE key (0 – 9, upper row) the upper place of the Program number will appear, and the names of the 10 programs in that bank will be displayed. Next, press a program select key (0 – 9, lower row) to select a Program. If you press only a program select key, the lower place of the Program number will change.

- If you want to use a footswitch to select programs, set the foot controller setting of each program to Program Up or Program Down (see page 29).
- If you want to select programs via MIDI, set the Global mode setting Program Change to "o" (see page 112).

## Editing in Program mode



[A] O	OSC Balance	-10 – +10	Adjust the volume balance of OSC1 and OSC2 in Double mode
[B] F	VDF Cutoff	-10 – +10	Adjust the cutoff frequency of VDF1 and VDF2 (tone)
[C] L	VDA Level	-10 – +10	Adjust the level of OSC1 and OSC2 (volume)
[D] V	Velocity Sensitivity	-10 – +10	Adjust the sensitivity of tone and volume to key velocity
[E] T	After Touch	-10 – +10	Adjust the sensitivity of tone and volume to aftertouch (pressing down on the keyboard after playing a note)
[F] A	Attack Time	-10 – +10	Adjust the attack time of VDF1,2 and VDA1,2
[G] R	Release Time	-10 – +10	Adjust the release time of VDF1,2 and VDA1,2
[H] E	Dry:Effect Balance	-10 – +10	Adjust the balance of direct and processed sound for Effect 1,2

- You can also edit major program parameters in Program mode, by pressing a cursor position key and using the value slider and the  $\Delta/\nabla$  keys. This can be especially useful during a live performance.
- Editing these settings will automatically affect the corresponding Edit Program parameters.

- After using these editing operations, you can write your edits into memory using the Edit Program mode writing operation.
- When editing, press CURSOR UP to return to the previous display.

## Effect on Edit Program parameters

When these parameters are changed in the "+" direction, Program parameters in Edit Program mode will be affected as follows. (Changes in the "-" direction will have the opposite effect.)

PROGRAM Mode Parameters		Effect of a positive value setting on each parameter
OSC Balance	OSC1 Level OSC2 Level	OSC1 Level will change in the "+" direction, OSC2 Level will change in the opposite direction as OSC1 (*1).
VDF Cutoff	VDF1,2 Cutoff	"+" change (*1)
VDA Level	OSC1,2 Level	
Velocity Sense	OSC1,2 EG Level Vel Sense OSC1,2 EG Time Vel Sense VDF1,2 Vel Sens EG Int VDF1,2 Vel Sens EG Time VDA1,2 Vel Sens Amplitude VDA1,2 Vel Sens EG Time	<p>The sign of the number will remain the same, and only the value will change. (*2)</p> <p>-Editing in the "-" direction will only decrease the value. The sign will not change.</p> <p>-Parameters set to 0 will be unaffected, and will remain at 0.</p>
After Touch	After Touch Pitch Bend After Touch VDF Cutoff After Touch VDA Amplitude Pitch MG After Touch VDF MG After Touch	
Attack Time	VDF1,2 Attack Time VDA1,2 Attack Time	"+" change (*3)
Release Time	VDF 1,2 Release Time VDA1,2 Release Time	"+" change (*1)
Dry:Effect Balance	EFFECT1,2 Balance	

(\*1) Five times the value will be added to the value, or for negative (-) values, subtracted from the value. [Value=V, 5 x V]

(\*2) When the value is +10, the parameter value will increase 100% (twice). When the value is -10, the parameter value will decrease 100% (0). [1+ (V/10)]

(\*3) For the VDF, three times the value will be added. For the VDA, 5 times the value will be added. (Or, if the sign is negative, subtracted from the value.) [VDF1/2 ... 3 x V, VDA1/2 ... 5 x V]

- The resulting values are limited to the range of each parameter.

- For Programs other than Double mode, adjustments to OSC Balance and VDA Level will have the same effect.

## 2. EDIT PROGRAM MODE (E.PROG)

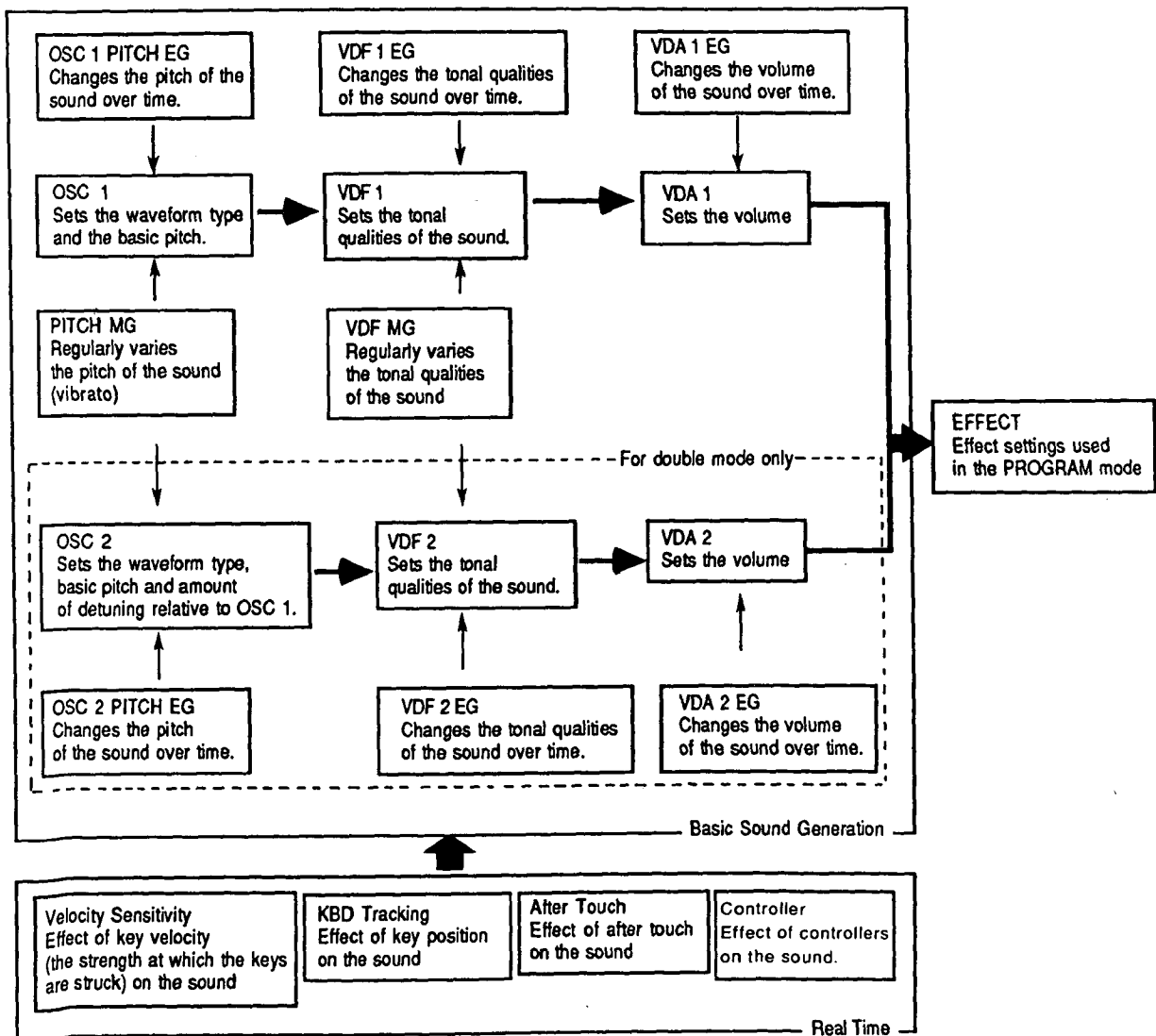
This mode is where you edit Program parameters, such as EG settings and the selection of a waveform.

- To edit a Program, you must first select it in PROGRAM A or PROGRAM B mode.
- You can also edit Programs in conjunction with PROGRAM mode editing (performance editing).
- When you finish editing, press WRITE to write your edits into memory. (If you select another Program before doing so, your edits will be lost.)

- While editing, you can press COMPARE to listen to the original un-edited Program. If you press COMPARE again without editing, you will return to the Program being edited.

In EDIT PROGRAM mode, the upper numeric keypad selects pages, and the lower numeric keypad selects edit functions. (For details, see the Operation Guide.)

### STRUCTURE OF THE T1/T2/T3 PROGRAM PARAMETERS



## FUNCTIONS IN EDIT PROGRAM MODE

- Press the upper row of numeric keys (0—9) to select the various function pages. Use the CURSOR UP/DOWN keys to select the parameter item to edit, and use the CURSOR POSITION keys ([A]—[H]) to select the parameter.

Page	Function	Parameter to be edited
<b>P0 OSC</b>		
0-1	OSC Mode	Oscillator mode
0-2	Assign / Hold	Poly/mono and Hold settings
0-3	OSC1 Multisound / Level	Oscillator 1 waveform and level
0-4	OSC2 Multisound / Level	Oscillator 2 waveform, level, and pitch (DOUBLE mode)
0-5	OSC1 Pitch EG	Change in oscillator 1 pitch over time
0-6	OSC2 Pitch EG	Change in oscillator 2 pitch over time
<b>P1 VDF1</b>		
1-1	VDF1 Cutoff	VDF1 cutoff frequency
1-2	VDF1 KBD Tracking	How key position affects VDF1
1-3	VDF1 EG Int/Vel Sense	EG intensity and velocity sensitivity of VDF1
1-4	VDF1 EG Time Vel Sense	How key velocity affects VDF1 EG Time
1-5	VDF1 EG Time KBD Track	How key position affects VDF1 EG Time
1-6	VDF1 EG	Change in VDF1 cutoff frequency over time
<b>P2 VDF2</b>		
2-1	VDF2 Cutoff	VDF2 cutoff frequency
2-2	VDF2 KBD Tracking	How key position affects VDF2
2-3	VDF2 EG Int/Vel Sense	EG intensity and velocity sensitivity of VDF2
2-4	VDF2 EG Time Vel Sense	How key velocity affects VDF2 EG Time
2-5	VDF2 EG Time KBD Track	How key position affects VDF2 EG Time
2-6	VDF2 EG	Change in VDF2 cutoff frequency over time
<b>P3 VDA1</b>		
3-1	VDA1 Velocity Sense	How key velocity affects VDA1
3-2	VDA1 KBD Track	How key position affects VDA1
3-3	VDA1 EG Time Vel Sense	How key velocity affects VDA1 EG
3-4	VDA1 EG Time KBD Track	How key position affects VDA1 EG
3-5	VDA1 EG	Change in VDA1 over time
<b>P4 VDA2</b>		
4-1	VDA2 Velocity Sense	How key velocity affects VDA2
4-2	VDA2 KBD Track	How key position affects VDA2
4-3	VDA2 EG Time Vel Sense	How key velocity affects VDA2 EG
4-4	VDA2 EG Time KBD Track	How key position affects VDA2 EG
4-5	VDA2 EG	Change in VDA2 over time
<b>P5 CONTROLLER</b>		
5-1	Pitch bend	How the joystick affects pitch and cutoff frequency
5-2	After Touch	How aftertouch affects tone
5-3	Pitch MG1	Pitch modulation (vibrato)
5-4	Pitch MG2	Pitch modulation (vibrato)
5-5	VDF MG1	VDF modulation (wah-wah)
5-6	VDF MG2	VDF modulation (wah-wah)

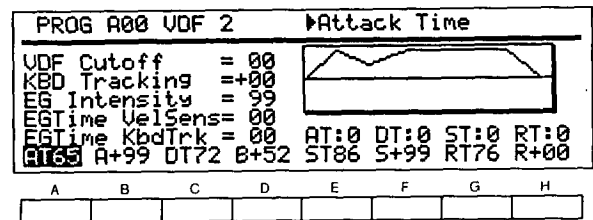
Page	Function	Parameter to be edited
<b>P6 EFFECT</b>		
6-1	Effect 1 Type	Select effect 1
6-2	Effect 1 Parameter	Parameters of effect 1
6-3	Effect 2 Type	Select effect 2
6-4	Effect 2 Parameter	Parameters of effect 2
6-5	Effect Placement	Placement of effects 1 and 2
<b>P7 WRITE</b>		
7-1	Write Program	Write a program
7-2	Rename Program	Rename a program
7-3	Foot Controller	Assign the functions of the two foot controllers
7-4	Scale type	Select the scale type (equal tempered, just intonation)
7-5	Vel/Aft.T Curve	Select the velocity curve and aftertouch curve
7-6	Copy Effect	Copy effect parameters
7-7	Copy OSC1 to OSC2	Copy OSC1 parameters to OSC2

- The total range of pitch change produced by Pitch Bend, Pitch EG, Pitch Modulation, Aftertouch, etc. is limited to one octave. (In some pitch ranges, some Multisounds will have an even narrower range of pitch change.)

- The total range of tonal change produced by the various VDF parameters and the VDF EG and VDF MG is limited to the tonal range that the VDF can control.

- The range of volume change produced by Oscillator Level, the VDA parameters, and the VDA EG etc. is limited to the volume range that the VDA can control.

- While EG parameters (Pitch EG 1/2, VDFEG 1/2, VDA EG 1/2) are being edited, the EG will be displayed graphically.



- The display shows a graph of the various parameters, and does not indicate the actual "shape" of the EG.

- To erase the display, move the cursor to any parameter other than an EG parameter.

- P0-1 OSC Mode
- P0-2 Assign / Hold
- P0-3 OSC1 Multisound / OSC1 Level
- P0-4 OSC2 Multisound / OSC2 Level
- P0-5 OSC1 Pitch EG
- P0-6 OSC2 Pitch EG

PROG A00 OSC				▶OSC Mode			
<b>OSC Mode : DOUBLE</b>							
Assign :		POLY		Hold		: OFF	
030:	Choir	L84	8'				
042:	Lore	L42	8'	I+00	D+00	DL00	
S+98	AT00	A-17	DT00	RT05	R+00	L+00	T+00
S-99	AT74	A+99	DT79	RT10	R+01	L+00	T+00
A	B	C	D	E	F	G	H

**P0-1 OSC Mode**

<b>A</b>	OSC Mode (oscillator mode)	SINGLE DOUBLE DRUMS	Tone generator mode one oscillator mode (single) two oscillator mode (double) Drum kit mode (drum kit)
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- OSC Mode determines the type of the Program. The number of oscillators and the type of waveform used will depend on this setting.
- If you change the OSC Mode, you will need to re-select the OSC1 Multisound (or Drum Kit).
- When SINGLE is selected, one OSC-VDF-VDA system will be used. You will be able to play up to 16 simultaneous notes.

- When DOUBLE is selected, two OSC-VDF-VDA systems will be used. This allows you to create more complex sounds, but you will be able to play only up to 8 simultaneous notes.
- When DRUMS is selected, drum sounds will be used as the sound source. Other details are the same as for SINGLE.

**P0-2 Assign / Hold**

<b>A</b>	Assign	POLY MONO	Number of voices sounded Play chords of up to the maximum number of voices Play monophonically
<b>E</b>	Hold	ON/OFF	Whether or not the sound will continue after a key is released

- Assign determines whether this Program will play polyphonically or monophonically.

- When Hold is set On, notes will continue sounding even after a key is released. This is useful mainly when playing the Drum Kit.
- For sounds with a VDA EG Sustain Level setting other than "0", setting Hold On will make, sustain-type sounds continue sounding forever.

### P0-3 OSC1 Multisound / OSC1 Level

A	Multisound  Drum Kit	0 – 189  Drum Kit 1 2 Drum Kit 4	When the OSC Mode is SINGLE or DOUBLE, select the OSC1 Multisound (waveform).  When OSC Mode is DRUMS, select the Drum Kit (GLOBAL mode P1–P4)
D L	OSC Level (oscillator level)	0 – 99	Volume of Oscillator 1
E	Octave	16' 8' 4'	Octave of Oscillator 1 1 octave lower normal pitch 1 octave higher

- When the P0-1 OSC Mode setting is SINGLE or DOUBLE, this parameter selects the Multisound used by Oscillator 1. (The back cover of this manual has a list of the Multisounds.)
- Multisounds indicated by “NT” will produce the same pitch regardless of the key that is pressed.
- Each Multisound (waveform) has a limited pitch range, and some Multisounds will produce no sound when played in high octaves.
- If an optional PCM card is inserted into the rear panel slot, you will be able to select Multisounds from the card as well. Move the VALUE slider to see the selectable Multisounds. (Card Multisounds are indicated by a “C” in front of the displayed number.)
- If multisounds are loaded into the PCM RAM (optional), multisounds loaded from a PCM disk can also be selected. Multisounds in PCM RAM will be displayed with a ‘D’ in front of their name. (When playing a program which uses a multisound from a PCM disk, be sure that the appropriate disk has been loaded.)

**Note:**  
Insert or remove PCM cards only when the T1/T2/T3 is producing no sound.

- When the OSC Mode is set to DRUMS, this parameter selects one of the four Drum Kits (1–4).
  - In GLOBAL mode, you can assign drum sounds to a Drum Kit.
- OSC Level determines the volume of Oscillator 1. 99 is the maximum volume.
  - For some sounds, high settings of OSC Level will result in distortion when chords are played. In such cases, lower the OSC Level.
- Octave sets the basic pitch of Oscillator 1 in units of an octave.

## P0-4 OSC 2 (Oscillator 2)

<b>A</b>	Multisound	0 – 189	Selection of Multisound for Oscillator 2
<b>D</b> L	OSC Level	0 – 99	Volume of Oscillator 2
<b>E</b>	Octave	16', 8', 4'	Octave of Oscillator 2
<b>F</b> I	Interval	-12 – +12	Pitch of Oscillator 2 relative to Oscillator 1 (adjustable in semitones)
<b>G</b> D	Detune	-50 – +50	Detuning of Oscillator 2 relative to Oscillator 1 (adjustable in cents)
<b>H</b> DL	Delay Start	0 – 99	Delay time before Oscillator 2's sound begins

Settings for Oscillator 2 can be made only if OSC Mode (P0-1) is set to DOUBLE.

- Multisound (Multisound select) selects the Multisound of Oscillator 2. The types of Multisound that can be selected are the same as in P0-3, OSC1 Multisound.
- OSC Level (oscillator level) sets the sound volume of Oscillator 2.
- Interval sets the pitch difference between Oscillator 1 and Oscillator 2 in semitones (over a range of -12 to +12). Creating chords with Oscillators 1 and 2 is possible by adjusting the pitch here.

- Detune allows finer adjustment in cents of the pitch difference between Oscillators 1 and 2 (over a range of -50 to +50). A thick sound can be obtained by detuning Oscillator 2 slightly.
- Delay Start determines the time it takes between the onset of the sound of Oscillator 1 and the start of Oscillator 2's sound. (Set to "0" when not using this effect.)

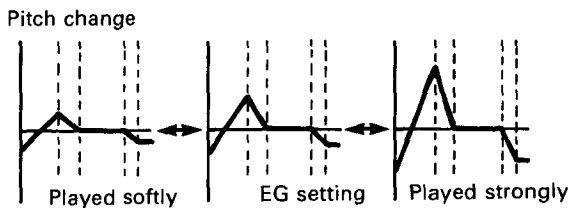
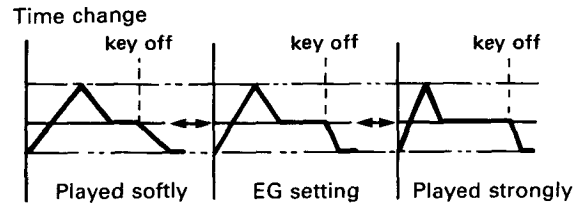


## P0-5 OSC1 Pitch EG (Oscillator 1 Pitch EG)

<b>A</b> S	Start Level	-99 - +99	<p>Determines how the pitch of Oscillator 1 varies over time.</p> <p>+99 = approx. 1 octave above 0 = pitch of oscillator when key is held down -99 = approx. 1 octave below</p>
<b>B</b> AT	Attack Time	0 - 99	
<b>C</b> A	Attack Level	-99 - +99	
<b>D</b> DT	Decay Time	0 - 99	
<b>E</b> RT	Release Time	0 - 99	
<b>F</b> R	Release Level	-99 - +99	
<b>G</b> L	EG Level Vel. Sens.	-99 - +99	Determines to what degree the effect of the pitch EG will vary in response to key velocity.
<b>H</b> T	EG Time Vel. Sens.	-99 - +99	Determines to what degree the total time of the pitch EG will change in response to key velocity.

- These settings determine how the pitch of Oscillator 1 will change over time.
  - Inverting the + and - settings for each EG level will invert the shape of the EG.
- For positive (+) settings of EG Level Vel. Sense (EG level velocity sensitivity), the pitch change will become greater as you play more strongly. (For negative (-) settings, the pitch change will become less as you play more strongly.) The range of pitch change produced by the Pitch EG is limited to  $\pm 1$  octave.
  - For positive "+" settings:

- For positive (+) settings of EG Time Vel. Sens. (EG time velocity sensitivity), the pitch change will become faster as you play more strongly. (For negative (-) settings, the time will become longer as you play more strongly.)
  - For positive "+" settings:



## P0-6 OSC2 Pitch EG (Oscillator 2 Pitch EG)

Settings for Oscillator 2 Pitch EG can be made only if OSC Mode (P0-1) is set to DOUBLE.

- These settings determine how the pitch of Oscillator 2 will change over time. Details are the same as for OSC1 Pitch EG.

- P1-1 Cutoff
- P1-2 KBD Tracking
- P1-3 EG Intensity
- P1-4 EG Time Vel Sens
- P1-5 EG Time KBD Track
- P1-6 VDF EG

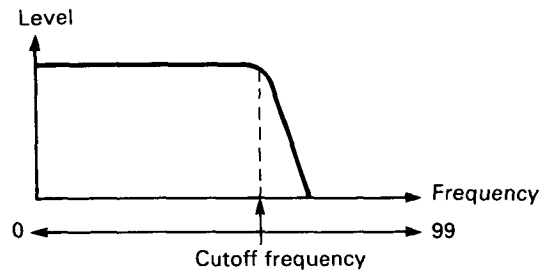
PROG A00 VDF 1		▶Cutoff	
<b>VDF Cutoff = 00</b>			
KBD Tracking	= +00	Center Key	= G5
EG Intensity	= .99	Vel Sense	= +55
EGTime VelSens	= 00	AT:0 DT:+ ST:0 RT:0	
EGTime KbdTrk	= 00	AT:0 DT:0 ST:0 RT:0	
AT00	A+98 DT81 B+41	ST99 S-32	RT36 R+83
A	B	C	D
E	F	G	H

**P1-1 Cutoff**

VDF Cutoff	0 - 99	VDF1 cutoff frequency (tonal brightness)
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The VDF (Variable Digital Filter) decreases (cuts off) the high frequencies of the Multisound to control tonal brightness.

- Cutoff determines the cutoff frequency of the VDF. Lower settings of this value will cut the high frequencies and result in a softer tone.

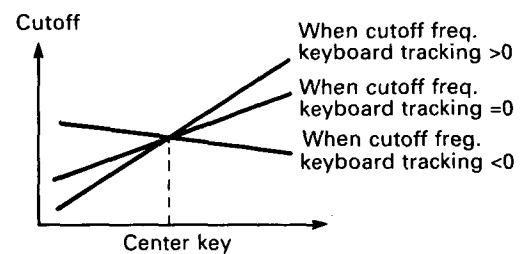


**P1-2 KBD Tracking**

<b>A</b>	KBD Tracking (cutoff frequency keyboard tracking)	-99 - +99	How key position will affect VDF1 cutoff frequency (tonal brightness)
<b>E</b>	Center Key	C-1 - G9	The center key around which the KBD Track setting will adjust the VDF1

VDF Keyboard Tracking determines how key position will affect the VDF cutoff frequency.

- For positive (+) settings of Keyboard Tracking, higher notes will be brighter in tone. (Negative (-) settings will have the opposite effect.) At a setting of 0, the cutoff frequency will be adjusted to correspond with the pitch of each key.
  - For a setting of -50, the VDF will have the same effect on each note; i.e., the VDF will be level across the keyboard.
- Center Key determines the key around which the KBD Track setting will adjust the VDF1. When Cutoff is set to a positive value (+1 - 99), notes above this Center Key will be brighter in tone. (Negative values (-1 - -99) will have the opposite effect.)

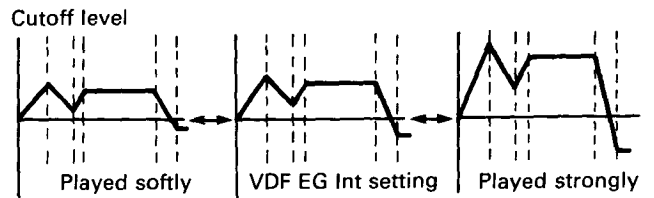


### P1-3 EG Intensity

<b>A</b>	EG Intensity	0 – 99	Depth of tonal change caused by VDF1 EG
<b>E</b>	Vel Sense (EG intensity velocity sensitivity)	-99 – +99	How EG Intensity will be affected by key velocity

- EG Intensity determines how greatly the VDF EG will change the cutoff frequency. A setting of 99 allows maximum change.
- Vel Sense (EG intensity velocity sensitivity) determines how key velocity will affect the tone.
  - For positive (+) settings, strongly played notes will be more greatly affected by the VDF EG; i.e., strongly played notes will have greater tonal change.
  - For negative (-) settings, strongly played notes will be less affected by the VDF EG; i.e., strongly played notes will have less tonal change.

- For positive (+) settings;



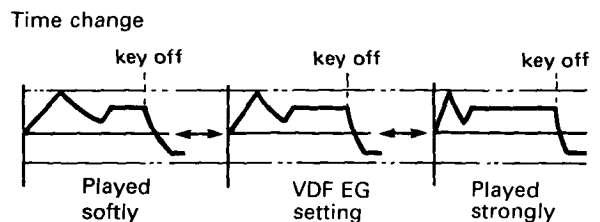
☆ For most acoustic instruments, softly played notes have less high frequency sound energy. To simulate this, set the VDF to a low cutoff frequency, and set all VDF EG levels (sustain, etc.), VDF EG intensity, and VDF EG intensity to positive (+) values.

### P1-4 EG Time Velocity Sens

<b>A</b>	EG Time Vel. Sense	-99 – +99	How key velocity affects VDF1 EG time
<b>E</b> AT	Attack Time	-, 0, +	These settings determine the direction in which the individual parameters of the VDF1 EG (attack time, etc.) will be affected by key velocity, in the amount specified by EG Time Velocity Sensitivity. (Parameters set to 0 will not be affected by key velocity.)
<b>F</b> DT	Decay Time	-, 0, +	
<b>G</b> ST	Slope Time	-, 0, +	
<b>H</b> RT	Release Time	-, 0, +	

- EG Time Velocity Sensitivity determines the direction in which key velocity will affect the speed of individual VDF EG parameters (Attack / Decay / Slope / Release times). Parameters set to “+” will become shorter for strongly played notes. Thus if Attack is set to “+” and Release to “-”, the stronger the key is struck, the shorter the Attack and the longer the Release will become.

- When all parameters are set to “+”:

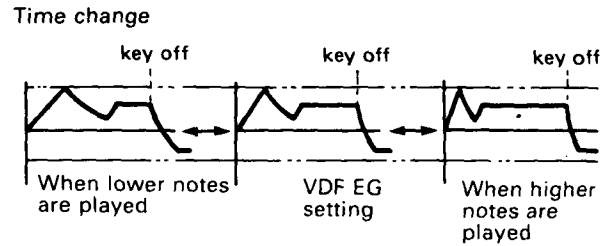


## P1-5 EG Time KBD Track

<b>A</b>	EG Time KBD Track	0 – 99	How key position affects VDF1 EG time
<b>E</b> AT	Attack Time	-, 0, +	These settings determine the direction in which the various VDF1 EG parameters (attack time, etc.) will be affected by key position, in the amount specified by EG Time KBD Track. (Parameters set to 0 will not be affected by key position.)
<b>F</b> DT	Decay Time	-, 0, +	
<b>G</b> ST	Slope Time	-, 0, +	
<b>H</b> RT	Release Time	-, 0, +	

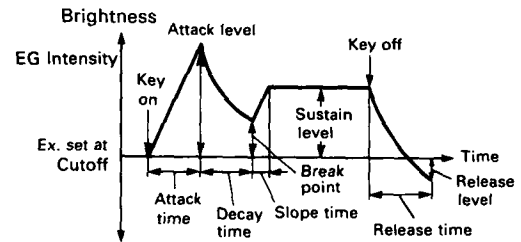
• EG Time KBD Track determines how much effect the key position will have on the speed of individual VDF EG parameters (Attack / Decay / Slope / Release times). For each parameter, you can specify the direction of the change resulting from key position; parameters set to “+” will become shorter for higher notes, and parameters set to “-” will become longer for higher notes.

- When all parameters are set to “+”:



## P1-6 VDF1 EG

<b>A</b> AT	Attack Time	0 – 99	Determines how the VDF1's cutoff frequency will vary over time. The time parameters (Attack Time, Decay Time, Slope Time, Release Time) are used to set the time it takes to reach the next level. The level parameters (Attack Level, Break Point, Sustain level, Release Level) are used to set the cutoff frequency of the VDF for that segment of the EG.
<b>B</b> A	Attack Level	-99 – +99	
<b>C</b> DT	Decay Time	0 – 99	
<b>D</b> B	Break Point	-99 – +99	
<b>E</b> ST	Slope Time	0 – 99	
<b>F</b> S	Sustain Level	-99 – +99	
<b>G</b> RT	Release Time	0 – 99	
<b>H</b> R	Release Level	-99 – +99	



VDF1 EG settings determine how the VDF1 cutoff frequency will change over time.

- Inverting each EG Level (“+” and “-”) will invert the EG shape.
- The VDF1 EG Intensity setting controls the overall effect that these EG Levels will have on the cutoff frequency.

PROG A00 VDF 2 ▶Cutoff							
<b>VDF Cutoff = 63</b>							
KBD Tracking = +00				Center Key = C-1			
EG Intensity = 00				Vel Sense = +99			
EGTime VelSens= 00				AT:+ DT:- ST:0 RT:0			
EGTime KbdTrk = 00				AT:+ DT:- ST:0 RT:0			
AT00 A+00 DT00 B+00				ST42 S+00 RT00 R+00			
A	B	C	D	E	F	G	H

- This is the VDF for oscillator 2.
  - The details are the same as for the VDF1 (Page 1).
- ☆ Use Page 0 OSC Mode to select between DOUBLE mode or SINGLE mode.

- P3-1 Velocity Sense
- P3-2 KBD Tracking / KBD Center Key
- P3-3 EG Time Velocity Sense
- P3-4 EG Time KBD Track
- P3-5 VDA1 EG

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PROG A00 VDA 1      ▶Velocity Sense
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Velocity Sense=+61
KBD Tracking  =+00   Center Key   = E3
EGTime Velsens= 20   AT:+   DT:0   ST:0   RT:0
EGTime KbdTrk = 00   AT:0   DT:0   ST:0   RT:-
AT42 A+99 DT74 B+67 ST00 S+50 RT81
    
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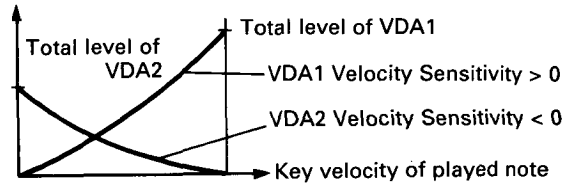
A	B	C	D	E	F	G	H

### P3-1 Velocity Sense

	VDA Velocity Sensitivity	-99 – +99	How key velocity affects the volume change produced by the VDA1
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• VDA Velocity Sensitivity determines how key velocity will affect the volume. For positive (+) settings, strongly played notes will be louder. For negative (-) settings, strongly played notes will be softer. For settings of +99 or -99, key velocity will have maximum effect on the volume.

• In DOUBLE mode, you can achieve a velocity crossfade effect by giving oscillators 1 and 2 opposite settings for VDA Velocity Sensitivity. This will allow you to fade between sounds by playing softly or strongly, as shown in the following diagram.



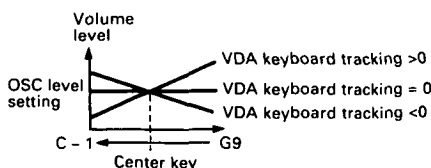
- Strongly played notes: OSC1 is heard
- Normally played notes: OSC1 and OSC2 are both heard
- Softly played notes: OSC2 is heard

### P3-2 KBD Tracking

A	KBD Tracking	-99 – +99	How key position affects VDA1 volume change
E	Center Key	C-1 – G9	The center key around which the KBD Tracking setting will adjust the VDA1

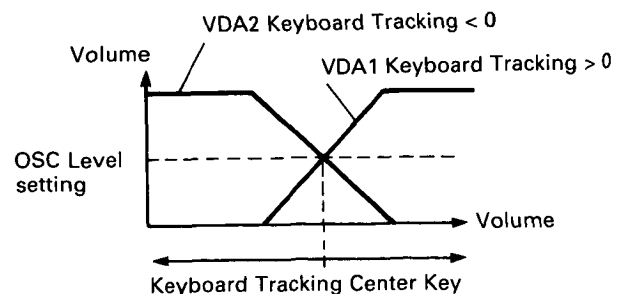
VDA Keyboard Tracking determines how VDA volume and the various EG Times will be affected by the key position.

- For positive (+1 – +99) settings of KBD Tracking, the volume will increase as you play notes above the Center Key. For negative (-1 – -99) settings, the volume will decrease as you play notes above the Center Key.
- Center Key determines the center key around which change (Volume and EG Times) will occur.



In DOUBLE mode, you can create a “positional crossfade” effect by setting an identical Keyboard Tracking Center Key for both oscillators 1 and 2, and giving them opposite “+” and “-” settings.

- The resulting volume after the Keyboard Tracking setting is applied will not exceed 99.



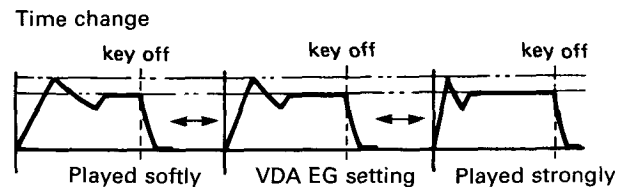
### P3-3 EG Time Velocity Sensitivity

<b>A</b>	EG Time Velocity Sense	0 – 99	How key velocity affects VDA1 EG time
<b>E</b> AT	Attack Time	-, 0, +	These settings determine the direction in which the various VDA1 EG parameters (attack time, etc.) will be affected by key velocity, in the amount specified by EG Time Velocity Sensitivity. (Parameters set to 0 will not be affected by key velocity.)
<b>F</b> DT	Decay Time	-, 0, +	
<b>G</b> ST	Slope Time	-, 0, +	
<b>H</b> RT	Release Time	-, 0, +	

• EG Time Velocity Sense determines how much effect the key velocity will have on the speed of individual VDA1 EG time parameters (Attack/Decay/Slope/Release). For each parameter, you can specify the direction of the change controlled by key velocity; parameters set to “+” will have shorter VDA EG times as you play more strongly, and parameters set to “-” will have longer VDA EG times as you play more strongly.

\*For example if Attack Time is set to “+”, strongly played notes will have a sharp attack, and softly played notes will have a gentle attack. This is especially effective for string sounds.

- When all parameters are set to “+”:

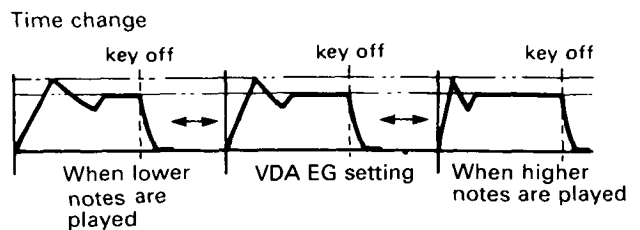


### P3-4 EG Time KBD Tracking

<b>A</b>	EG Time KBD Track	0 – 99	How key position affects VDA1 EG time
<b>E</b> AT	Attack Time	-, 0, +	These settings determine the direction in which the various VDA1 EG parameters (attack time, etc.) will be affected by key position, in the amount specified by EG Time KBD Track. (Parameters set to 0 will not be affected by key position.)
<b>F</b> DT	Decay Time	-, 0, +	
<b>G</b> ST	Slope Time	-, 0, +	
<b>H</b> RT	Release Time	-, 0, +	

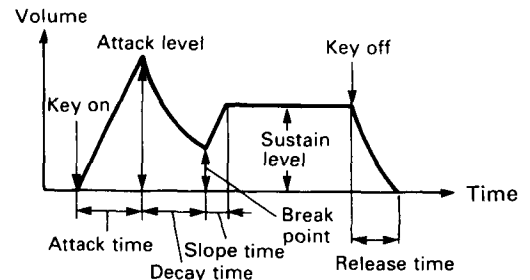
• EG Time Keyboard Tracking determines how much effect the key position velocity will have on the speed of individual VDA1 EG time parameters (Attack / Decay / Slope / Release). For each parameter, you can specify the direction of the change controlled by key position; parameters set to “+” will have increasingly shorter VDA EG times as you play notes above the Center Key, and parameters set to “-” will have longer VDA EG times as you play notes above the Center Key.

- When all parameters are set to “+”:



### P3-5 VDA1 EG

<b>A</b>	AT	Attack Time	0 – 99	Determines how the volume of VDA 1 will vary over time These parameters affect the shape of the VDA EG.
<b>B</b>	A	Attack Level	0 – 99	
<b>C</b>	DT	Decay Time	0 – 99	
<b>D</b>	B	Break Point	0 – 99	
<b>E</b>	ST	Slope Time	0 – 99	
<b>F</b>	S	Sustain Level	0 – 99	
<b>G</b>	RT	Release Time	0 – 99	



The VDA (Variable Digital Amplifier) controls the volume.

- The VDA EG determines how volume will change over time.



Page 4 — VDA2 (only for DOUBLE mode)

PROG A00 VDA 2    ▶Velocity Sense							
<b>Velocity Sense=+98</b>							
KBD Tracking =+00				Center Key = C-1			
EGTime VelSens= 00		AT:0 DT:0 ST:0 RT:0		AT:0 DT:0 ST:0 RT:0		AT:0 DT:0 ST:0 RT:0	
EGTime KbdTrk = 00		AT:+ DT:- ST:0 RT:0		AT:+ DT:- ST:0 RT:0		AT:+ DT:- ST:0 RT:0	
AT00 A+99 DT50 B+42		ST59 S+47 RT59		ST59 S+47 RT59		ST59 S+47 RT59	
A	B	C	D	E	F	G	H

- This is the VDA for oscillator 2.  
The details are the same as for Page 3 VDA1.
- Use Page 0 OSC Mode to select between DOUBLE mode or SINGLE mode.

- P5-1 Pitch Bend
- P5-2 After Touch
- P5-3 Pitch MG1
- P5-4 Pitch MG2
- P5-5 VDF MG1
- P5-6 VDF MG2

PROG A00 BEND/MG		Pitch Bend	
PitchBend	Range: +12	VDF Sweep	=+00
Aft Touch	Pitch: +00	Fc: +00	Amp: +00
Pitch MG	TRIANGLE	F58 D00	I00 OSC1
	Sync: OFF	Aft. T: 00	JS06 MF0
VDF MG	TRIANGLE	F53 D00	I00 BOTH
	Sync: OFF	Aft. T: 00	JS06 MF0

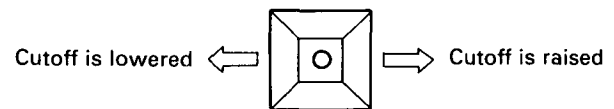
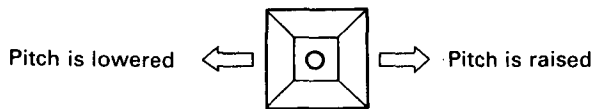
A	B	C	D	E	F	G	H

### P5-1 Pitch Bend

<b>C</b>	Range	-12 - +12	The maximum effect that the joystick will have on pitch
<b>E</b>	VDF Sweep Intensity	-99 - +99	How the joystick will affect VDF cutoff

- Range determines the maximum pitch change (in half-steps) caused by moving the joystick to left or right. For a setting of 12, the range of pitch change will be 1 octave. For positive settings (+1 - +12), moving the joystick to the right will raise the pitch. Negative settings will have the opposite effect.
  - For positive settings:

- VDF Sweep Intensity determines how the left/right joystick movement will affect the VDF Cutoff Frequency. For positive settings (+1 - +99), moving the joystick to the right will raise the cutoff frequency. Negative settings will have the opposite effect.
  - For positive settings:



### P5-2 After Touch


<b>C</b>	Pitch	-12 - +12	How aftertouch will affect Pitch ( $\pm 1$ octave)
<b>E</b>	Fc	-99 - +99	How aftertouch will affect Cutoff Frequency (tone)
<b>G</b> Amp	VDA Amplitude	-99 - +99	How aftertouch will affect Volume

After Touch settings allow you to specify how the sound will change when you press down on the keyboard after playing a note; i.e., aftertouch.

- Pitch determines how aftertouch will affect Pitch, over a range of -12 - +12 ( $\pm 1$  octave).
- When VDF Cutoff is set to a positive value (+1 - +99), aftertouch will raise the Cutoff Frequency, resulting in a brighter tone. Negative settings (-1 - -99) will have the opposite effect.





- When VDA Amplitude is set to a positive value (+1 - +99), aftertouch will increase the volume. Negative settings (-1 - -99) will have the opposite effect.

### P5-3 Pitch MG1

<b>C</b>	Waveform	TRIANGLE, SAW UP SAW DOWN, SQUARE	Select the modulation waveform Triangle wave Upwards sawtooth wave Downwards sawtooth wave Square wave	
<b>E F</b>	Frequency	0 – 99	Speed of modulation	
<b>F D</b>	Delay	0 – 99	Delay from when key is pressed to when modulation begins	
<b>G I</b>	Intensity	0 – 99	Depth of modulation	
<b>H</b>	OSC Select	OFF OSC1 OSC2 BOTH	Specify which oscillators are affected by modulation No modulation effect Modulation affects only OSC1 Modulation affects only OSC2 Modulation affects both OSC1 and OSC2	

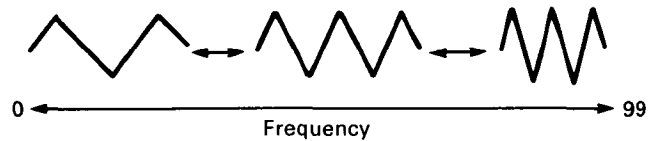
Pitch MG (pitch modulation) periodically varies the pitch.

- Waveform selects the modulation waveform; i.e., the “shape” of the variation in pitch.

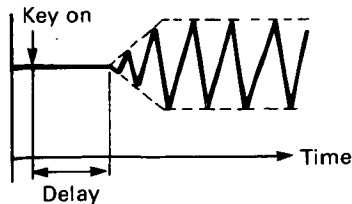
- Triangle  Triangle wave (most often used)
- Saw Up  Upwards sawtooth wave
- Saw Down  Downwards sawtooth wave
- Square  Square wave

- Frequency determines the modulation frequency (the speed of the pitch variation).

- When Triangle wave is selected:



- Delay determines the time delay from when key is pressed to when modulation begins.



- Intensity determines the depth of the modulation.



- \* This setting has no effect when OSC Select is OFF.

- OSC Select specifies which oscillators will be affected by modulation. When BOTH is selected, both oscillators will be modulated.

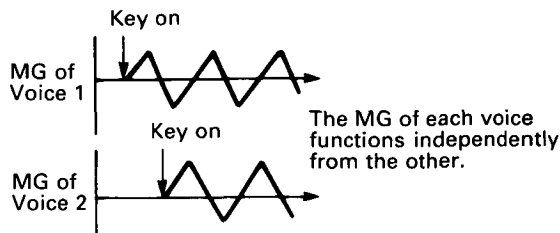
- In all modes except for DOUBLE mode, a setting of OSC2 has the same result as OFF, and a setting of BOTH has the same result as OSC1.

## P5-4 Pitch MG2

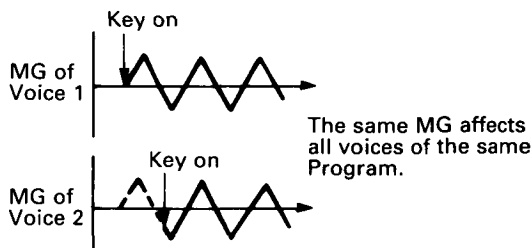
<b>C</b> Sync	Key Sync	OFF ON	All notes will be modulated together The modulation waveform will be re-started for each note
<b>E</b> Aft.T	After Touch	0 – 99	How aftertouch affects pitch modulation
<b>G</b> JS	Joy Stick	0 – 99	How the joystick affects pitch modulation
<b>H</b> MF	Pitch MG Frequency	0 – 3	How the joystick affects the speed of pitch modulation

- When Key Sync is set ON, the modulation waveform will be re-started for each newly played note.

- When Key Sync is ON:



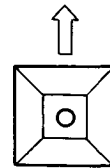
- When Key Sync is OFF:



- Higher settings of After Touch will result in a greater increase in pitch modulation when you press harder after playing a note. For a setting of 0, aftertouch will have no effect on pitch modulation.

- Higher settings of Joy Stick will result in a greater increase in pitch modulation as you move the joystick away from you.

- Higher settings of Pitch MG Frequency will result in a greater increase in modulation speed as you move the joystick away from you.



- If Joy Stick > 0, the pitch modulation will become deeper, when the joystick is operated.
- If Pitch MG Frequency > 0, the pitch modulation will become faster, when the joystick is operated.

## P5-5 VDF MG1

<b>C</b>	Waveform	TRIANGLE, SAW UP SAW DOWN, SQUARE	Select the modulation waveform Triangle wave Upwards sawtooth wave Downwards sawtooth wave Square wave
<b>E F</b>	Frequency	0 – 99	Speed of modulation
<b>F D</b>	Delay	0 – 99	Delay from when key is pressed to when modulation begins
<b>G I</b>	Intensity	0 – 99	Depth of modulation
<b>H</b>	OSC Select	OFF OSC1 OSC2 BOTH	Specify which oscillators are affected by modulation No modulation effect Modulation affects only OSC1 Modulation affects only OSC2 Modulation affects both OSC1 and OSC2

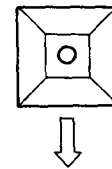
VDF MG (VDF modulation) creates periodic variation in the Cutoff Frequency, resulting in a “wah-wah” effect. The details are the same as for Pitch MG.

## P5-6 VDF MG2

<b>C</b> Sync	Key Sync	OFF ON	All notes will be modulated together The modulation waveform will be re-started for each note
<b>E</b> Aft.T	After Touch	0 – 99	How aftertouch affects VDF modulation
<b>G</b> JS	Joy Stick	0 – 99	How the joystick affects VDF modulation
<b>H</b> MF	VDF MG Frequency	0 – 3	How the joystick affects the speed of VDF modulation

- When Key Sync is set ON, the modulation waveform will be re-started for each newly played note. For details, refer to the explanation of P5-4 Key Sync.
- Higher settings of After Touch will result in a greater increase in VDF modulation when you press harder after playing a note. For a setting of 0, aftertouch will have no effect on VDF modulation.
- Higher settings of Joy Stick will result in a greater increase in VDF modulation as you move the joystick towards you.

- Higher settings of VDF MG Frequency will result in a greater increase in VDF modulation speed as you move the joystick towards you.



- If Joy Stick > 0, the VDF modulation will become deeper, when the joystick is operated.
- When VDF MG Frequency > 0, the VDF modulation will become faster, when the joystick is operated.

## Page 6 Effect

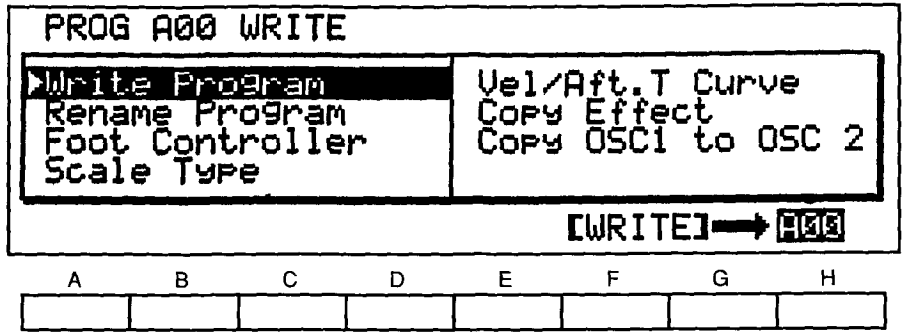
For details of the following parameters, refer to "Effect Parameters" (page 33).

P-1 Effect 1 Type  
P-2 Effect 1 Parameter  
  
P-3 Effect 2 Type  
P-4 Effect 2 Parameter  
P-5 Effect Placement

PROG A00 EFFECT							
<b>EFFECT1 06:Live Stage</b> : ON							
2.4 0020 E60 H000 L+03 H+03 80:20							
EFFECT2 10:Stereo Delay : ON							
L247 R414 F+80 H000 L+00 H+03 50:50							
[ SERIAL ] Out3 = 21:79 Out4 = OFF							
A	B	C	D	E	F	G	H

- The effect settings made here only apply to the corresponding Program.
- In Program mode, programs other than Drum Kits will be sent to effect inputs A and B at the same volumes. (They will not be sent to C/D.)

**P7-1 Write**



[F]	WRITE		Execute writing
[H]		00 - 99	Program number to write

This function is used to write an edited (or unedited) program into an internal memory.

- The WRITE key will also write data into the original program memory location.

- (1) Use cursor key [H] to select the Program number into which you will write the edited settings.
- (2) Press cursor key [F] to execute writing.
- (3) The display will ask for confirmation. If you are sure you want to write the data into memory, press [YES] (cursor key [E]).
  - The data previously in that memory will be lost.
  - To quit without writing, press [NO] (cursor key [G]).

(4) When writing is completed, the display will show "Completed".

- Press a cursor key ([A] - [H]) to return to the first display.

\*To copy a Program from internal memory to another program number, select the source Program in PROGRAM mode, and use this writing function to write it into the destination memory number.

\*It is not possible to execute this writing operation if Program Memory Protect is set "ON". (Turn it off using the GLOBAL mode function.)

**P7-2 Rename**

<b>PROG A00 WRITE</b>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Write Program</td> <td style="padding: 2px;">Vel/Aft. T Curve</td> </tr> <tr> <td style="padding: 2px;">▶Rename Program</td> <td style="padding: 2px;">Copy Effect</td> </tr> <tr> <td style="padding: 2px;">Foot Controller</td> <td style="padding: 2px;">Copy OSC1 to OSC 2</td> </tr> <tr> <td style="padding: 2px;">Scale Type</td> <td></td> </tr> </table>	Write Program	Vel/Aft. T Curve	▶Rename Program	Copy Effect	Foot Controller	Copy OSC1 to OSC 2	Scale Type		
Write Program	Vel/Aft. T Curve								
▶Rename Program	Copy Effect								
Foot Controller	Copy OSC1 to OSC 2								
Scale Type									
A00: Universe <span style="float: right;">[ ◀ ] [ ▶ ]</span>									
A	B	C	D	E	F	G	H		

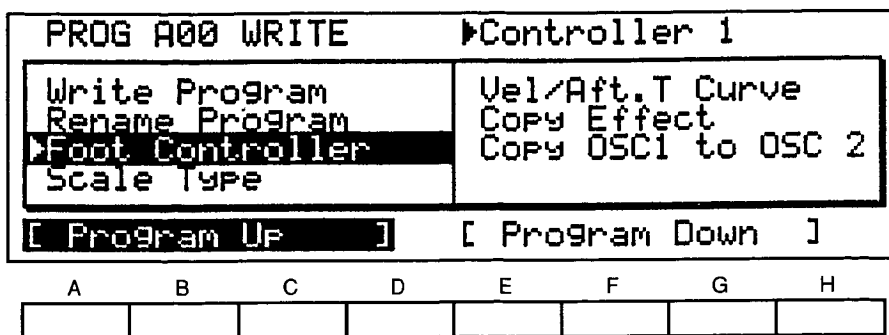
<b>[G]</b>	[ ◀ ](cursor left)		Move the cursor to the left
<b>[H]</b>	[ ▶ ](cursor right)		Move the cursor to the right

- Use this function to modify the Program name.
- Use ◀ (cursor key [G]), ▶ (cursor key [H]), the VALUE slider, and the UP(Δ)/DOWN(∇) keys to modify the Program name.
  - A Program name consists of up to 10 characters and symbols. Select from the following characters.

```
!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[^\_
`abcdefghijklmnopqrstuvwxyz{|}~`
```



## P7-3 Foot Controller



A	Foot Controller 1	Program Up Program Down Effect 1 ON/OFF Effect 2 ON/OFF Volume VDF Cutoff Effect 1 Control Effect 2 Control Data Entry	The function assigned to Pedal 1  A footswitch will select the next Program  A footswitch will select the previous Program  A footswitch will turn Effect 1 on/off  A footswitch will turn Effect 2 on/off  A foot controller will regulate Volume  A foot controller will regulate VDF Cutoff  A foot controller will regulate the Effect 1 Balance  A foot controller will regulate the Effect 2 Balance  A foot controller will function as a data entry control
E	Foot Controller 2	(Same as above)	The function assigned to Pedal 2

- This selects the function assigned to the Pedal 1/2 jack
  - Depending on the selected function, connect either a Footswitch (on/off type) or a Foot Controller (continuous type) to the Pedal 1/2 jack.
  - The actual control range of the foot controller will be determined by various parameter settings for the function being controlled.
  - These settings apply only to this Program.

\* **Program Up:** A footswitch will select the next Program, and transmit a MIDI program change message from MIDI OUT.

\* **Program Down:** A footswitch will select the previous Program.

\* **Effect 1 ON/OFF:** A footswitch will turn effect 1 on/off.

\* **Effect 2 ON/OFF:** A footswitch will turn effect 2 on/off.

\* **Volume:** A foot controller will regulate the volume of the T1/T2/T3. (This data is not transmitted from MIDI OUT.)

\* **VDF Cutoff:** A foot controller will regulate cutoff frequency (tone). As the pedal is advanced, cutoff frequency will rise (the sound will become brighter).

\* **Effect 1 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 1) and the sound of the effect. As the pedal is advanced, the effect sound will increase.

\* **Effect 2 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 2) and the sound of the effect. As the pedal is advanced, the effect sound will increase.

\* **Data Entry:** A foot controller will perform the same function as the front panel VALUE slider. If you select a parameter for editing and specify "Data Entry" for the foot controller function, you can use a foot controller to adjust that parameter while playing.

☆ Be sure to connect either a footswitch (on/off type) or a foot controller (continuous type) to the Pedal 1 jack, as appropriate for the function you have assigned.

When no pedal or footswitch is connected to the Pedal 1 jack, set this to Program Up, Program Down, or Effect ON/OFF.

☆ When a Program Up/Down occurs, the function of the foot controller or footswitch will change to the function specified by the newly selected Program.

- Please use the Korg EXP-2 as a foot controller.

## P7-4 Scale Type

PROG A00 WRITE				▶Scale Type			
Write Program				Vel/Aft.T Curve			
Rename Program				Copy Effect			
Foot Controller				Copy OSC1 to OSC 2			
▶Scale Type							
[ Equal Temp ]							
A	B	C	D	E	F	G	H

[A]	Scale Type	Equal Temp. (equal temperament)  Equal Temp. 2 (equal temperament, random pitch)  Pure Major  Pure Minor  User Programmable	Equal temperament  Equal temperament, but with random detuning applied to each note played  Pure major temperament  Pure minor temperament  User-defined pitch for each note of the scale.
[F]	Key	C, C#, ... A#, B	Tonic note for pure temperament

\* This selects the scale (temperament).

- The temperament specified here is effective only in PROGRAM mode.

• **Equal Temp. (equal temperament):** The temperament most widely used in keyboard instruments today, equal temperament allows free transposition to all keys; i.e., a chord will sound the same in any key.

• **Equal Temp.2 (equal temperament, random pitch):** Equal temperament, but with slight randomness applied to the pitch of each note. This is useful when simulating the natural irregularities in pitch that are found in many acoustic instruments.

• **Pure Major:** Pure major intonation produces in-tune chords for the specified major scale. Select a key (tonic) of C – B.

• **Pure Minor:** Pure minor intonation produces in-tune chords for the specified minor scale. Select a key (tonic) of C – B.

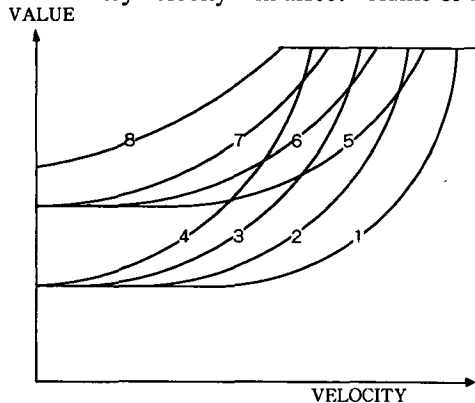
• **User Programmable:** By specifying a pitch offset of  $\pm 50$  cents for each of the 12 notes (C – B) of the equal tempered scale, you can create your own unique temperament. Make settings in GLOBAL mode User Scale.

# P7-5 Vel / Aft.T Curve

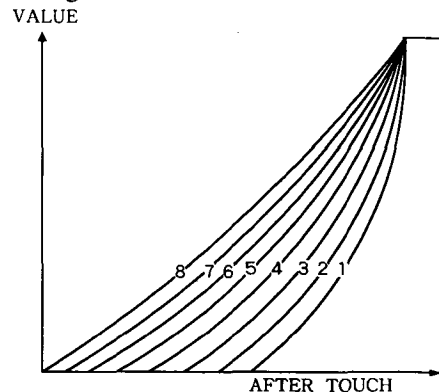
PROG A00 WRITE Write Program Rename Program Foot Controller Scale Type	▶Velocity Curve ▶Vel/Aft.T Curve Copy Effect Copy OSC1 to OSC 2
Vel Curve:4	Aft.T Curve:4
A      B      C      D      E      F      G      H	
<div style="display: flex; justify-content: space-around;"> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> <div style="width: 20px; height: 20px; border: 1px solid black;"></div> </div>	

<b>A</b>	Velocity Curve	1 - 8	Select the velocity curve; i.e., the way in which key velocity (how hard you play a note) will affect volume or tone.
<b>E</b>	After Touch Curve	1 - 8	Select the aftertouch curve; i.e., the way in which aftertouch (how hard you press down after playing a note) will affect volume or tone.

• Velocity Curve allows you to select one of 8 curves according to which key velocity will affect volume or tone.



• After Touch Curve allows you to select one of 8 curves according to which aftertouch will affect volume or tone.



- The Velocity / After Touch curves selected here apply only to this Program.
- The Velocity Curve will also determine the velocity value of Note On messages transmitted from MIDI OUT. The After Touch curve will determine the value of Aftertouch messages transmitted from MIDI OUT. However, messages received from MIDI IN will not be affected by the Velocity Curve.

## P7-6 Copy Effect

PROG A00 WRITE		▶Source Mode	
Write Program	Vel/Aft. T Curve		
Rename Program	▶Copy Effect		
Foot Controller	Copy OSC1 to OSC 2		
Scale Type			
from [ PROGRAM ]		- A00	[COPY]
A	B	C	D
E	F	G	H

[B]	Source Mode	PROGRAM COMBINATION SONG	Copy effects from a Program Copy effects from a Combination Copy effects from a Song
[E]	Source Number	A00 – A99, B00 – B99 00 – 99 00 – 19	Number of PROG to copy from Number of COMBI to copy from Number of SONG to copy from
[G]		[COPY]	Execute the copy operation

This function copies only the Effect parameters from a Combination, Program, or Song in internal memory.

- The data will be copied into the program currently being edited.

(1) Select the mode containing the memory whose Effect you want to copy ([B]).

(2) Select the number you want to copy. (When copying from a Program, select the Program number; when copying from a Combination, select the Combination number; when copying from a Song, select the Song number.)

(3) Press [COPY] ([G]) to copy the effect parameters from the specified memory.

(4) You will be asked to confirm the copy.  
Press [E] to confirm, [G] to cancel the copy.

## P7-7 Copy OSC1 to OSC2

PROG A00 WRITE			
Write Program	Vel/Aft. T Curve		
Rename Program	Copy Effect		
Foot Controller	▶Copy OSC1 to OSC 2		
Scale Type			
OSC 1 → OSC 2		[COPY]	
A	B	C	D
E	F	G	H

[G]		[COPY]	Execute the copy operation
-----	--	--------	----------------------------

This function copies all parameters of oscillator 1 (OSC1, OSC1 Pitch EG, VDF1, VDA1) to oscillator 2.

- The previous settings of OSC2 will be lost.

Again, you will be asked to confirm the copy. Press [E] to confirm, [G] to cancel the copy.

## 3. EFFECT PARAMETERS

A two-system, two-channel Multi Digital Effect unit is built into the T1/T2/T3. Each effect has a wide range of effect types that can be selected; reverb, delay, chorus, flanger, phase shifter, distortion and exciter. Fine adjustment of all effect parameters is possible.

Since all effects can be assigned separately to each Program Combination and song track, you can use the most appropriate effect for each playing situation.

- The Effect functions can be considered as an additional element in the sound making process, since each Program can have its own effect settings.

- It is possible to assign different effects to specific Programs when using Drum Kit Programs, Combinations, and the sequencer.

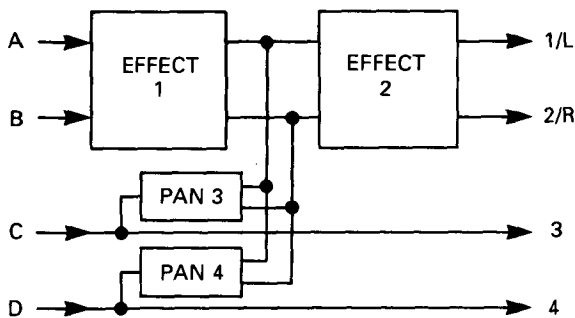
You can edit the effect parameters in Edit Program Mode, Edit Combination Mode or Sequencer Mode. (Details of editing and parameters are identical.)

The Effect section consists of 2 effects and 2 panpots with a 4-input (A, B, C and D) and 4-output (1/L, 2/R, 3 and 4) configuration.

The two effects can be arranged in two ways; in Series or in Parallel. (All signal routing is digital; the signal is changed from digital to analog by the D/A converter only after passing through the Effect section.)

### EFFECT PLACEMENT

#### Serial Routing

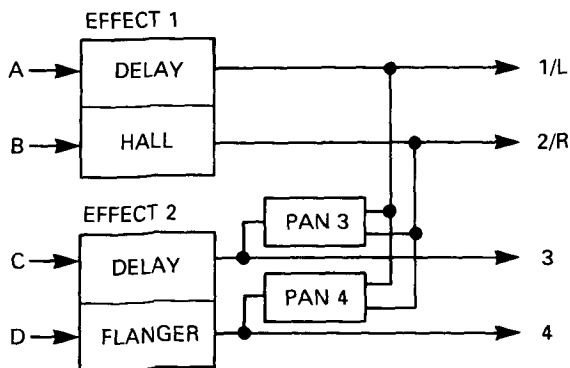


In Serial mode, Inputs A and B send signals to both Effect 1 and Effect 2 and are output from 1/L and 2/R.

Signals from C and D are output through 3 and 4 unprocessed. The output signals from 3 and 4 can also be mixed with the A and B inputs to be routed together through Effect 2.

- \*By using inputs C and D, you can make settings so that Effect 1 is not applied to a specific sound. Or, you could apply Effect 1 only to a specific sound, and then apply Effect 2 to all the sounds.

#### Parallel Routing



Different effects are applied to each input pair (inputs A and B, and inputs C and D), and each pair is sent directly to outputs 1/L, 2/R, 3 and 4. The outputs from 3 and 4 can be mixed with the Effect 1 outputs and sent through the outputs 1/L and 2/R.

\*The following various settings are possible by setting the pans of each Program by using Output 3 Pan and Output 4 Pan.

- Different sounds that are output to C and D can be mixed with the stereo output by adjusting the pan setting of each Program with Output 3 Pan and Output 4 Pan.

- There are two types of effects: effects 1 - 25 are stereo effects and 26 - 33 are dual effects in which each channel has a different effect.

- The input to A—D is determined by the Panpot settings of the Combination mode and Sequencer mode parameters. In Program mode, programs other than Drum Kits will be output from A and B at a balance of 5:5, and will not be sent to C/D.

- When stereo effects have been selected for Effect 1 and 2, and the operation mode has been set to Parallel, stereo out mixed outputs of Effect 1 and Effect 2 can be used by setting Output 3 Pan to L, and Output 4 Pan to R.

- When using an external effects unit or mixer, outputs 3 and 4 can be used as separate outputs by setting the Output 3 Pan and Output 4 Pan to OFF.

## Page 6 Effect

P-1 Effect 1 Type  
 P-2 Effect 1 Parameter  
 P-3 Effect 2 Type  
 P-4 Effect 2 Parameter  
 P-5 Effect Placement

PROG A00 EFFECT							
<b>EFFECT1 06:Live Stage : ON</b>							
2.4	0020	E60	H000	L+03	H+03	80:20	
<b>EFFECT2 10:Stereo Delay : ON</b>							
L247	R414	F+80	H000	L+00	H+03	50:50	
[ SERIAL ] Out3 = 21:79 Out4 = OFF							
A	B	C	D	E	F	G	H

### P6-1 Effect 1

<b>A</b>	EFFECT TYPE	01~33 No Effect	Selecting effect type Effect not used
<b>F</b>	SWITCH	ON/OFF	Effect operation switch

- When selecting the effect type again, effect parameters will be set to the default value (see pp.52-53).
- Note that among the 2-system effects, when #24 Symphonic Ensemble or #25 Rotary Speaker are selected for one system, the Effect types Chorus (12, 13, 30), Flanger (14, 15, 31), Phaser (16, 17, 32), Tremolo (18, 19, 33), Symphonic Ensemble, or Rotary Speaker cannot be selected for the second effect. (Likewise, when an asterisk-indicated Effect type is selected for one system, #24 and #25 cannot be selected for the other. Refer to p.53.)
- When a footswitch is assigned to Effect On/Off in any mode, the effect is toggled ON and OFF each time the footswitch is pressed.

Switch [ F ] indicates and sets the condition of the switch.

- When selecting another Program, Combination or song, the ON/OFF setting returns to the condition set in the effect parameter of each mode.

\* For all effects except Reverb (01 to 06), Overdrive (21), Distortion (22) and Ensemble (24), the equalizer settings (Low EQ and High EQ) are effective even when the effect switch is OFF.

Set the effect type to No Effect when you want all effects, including the equalizer, to be off while editing Programs.

### P6-2 Effect 1 Parameter

This sets the parameters for Effect 1. Parameters will differ for each type of effect. Please refer to the explanation of each effect type.

### P6-3 Effect 2

This selects the Type for Effect 2.

- Details are the same as for Effect 1.

### P6-4 Effect 2 Parameter

These are parameter settings for Effect 2.

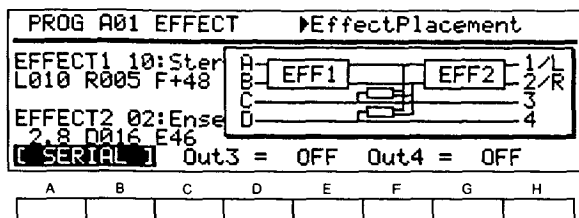
- Details are the same as for Effect 1 Parameters.

## P6-5 Effect Placement

<b>A</b>	Effect Placement	PARALLEL SERIAL	Selection of effect operation mode Parallel Serial
<b>C</b>	OUT 3 Panpot	OFF L, 99:1 – 1:99, R	The sound from out 3 is not sent to L or R Pan setting of output 3 (L:R balance)
<b>F</b>	OUT 4 Panpot	OFF L, 99:1 – 1:99, R	The sound from out 4 is not sent to L or R Pan setting of output 4 (L:R balance)

This determines the Effect Placement and the Pan setting of outputs 3 and 4.

- When editing Effect Placement, Out 3 Panpot, or Out 4 Panpot, the effect placement will be displayed graphically.

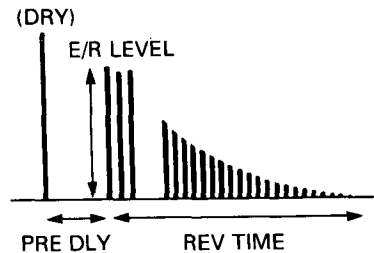
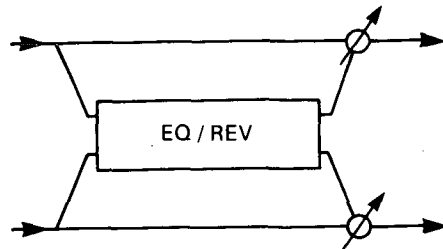


- To cancel the display, move the cursor to another line.

Parameters will differ according to the effect type. Refer to the explanation for the selected type of effect. The displays show the initial settings for each type of effect.

## Reverb group

These effects simulate reverberation, adding ambience to a sound.



### 1. HALL

The natural, spacious ambience characteristic of a hall.

EFFECT1 01:Hall : ON							
3.2 D060 E62 HD30 L-04 H+00 75:25							
A	B	C	D	E	F	G	H

### 2. ENSEMBLE HALL

Similar to #1 Hall above, but especially suited for string and brass ensemble sounds.

EFFECT1 02:Ensemble Hall : ON							
2.8 D040 E46 HD32 L-01 H-02 70:30							
A	B	C	D	E	F	G	H

### 3. CONCERT HALL

Similar again to #1 Hall above, but with particular emphasis on the early reflections characteristic of a large hall.

EFFECT1 03:Concert Hall : ON							
3.8 D120 E46 HD40 L+00 H-02 75:25							
A	B	C	D	E	F	G	H

### 4. ROOM

The tight, well-defined reverberation patterns of a relatively small room.

EFFECT1 04:Room : ON							
1.1 D010 E75 HD20 L+03 H-02 68:32							
A	B	C	D	E	F	G	H

### 5. LARGE ROOM

Emphasis here is on the relative density of the sound. An effect similar to gating can be achieved when the reverb time is set to 0.5 seconds.

EFFECT1 05:Large Room : ON							
2.3 D045 E60 HD25 L+02 H+04 75:25							
A	B	C	D	E	F	G	H

### 6. LIVE STAGE

Reverberation characteristics of a relatively large room.

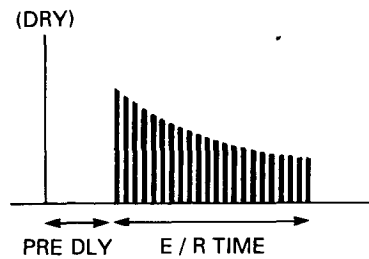
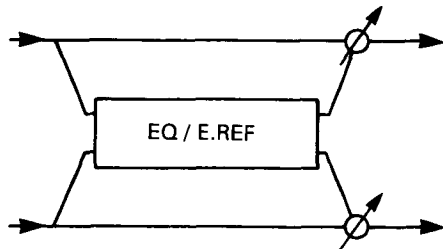
EFFECT1 06:Live Stage : ON							
2.0 D020 E60 HD20 L+03 H+00 60:40							
A	B	C	D	E	F	G	H

<b>A</b>	Reverb Time	0.2 – 9.9 [Sec.](HALL group) 0.2 – 5.0 [Sec.] (ROOM group)	Time before reverberation decays.
<b>B</b> <b>D</b>	Pre Delay	0 – 200 [mSec]	Time between the direct sound and the first early reflections.
<b>C</b> <b>E</b>	E/R Level	0 – 99	Level of early reflections.
<b>D</b> <b>HD</b>	High Damp	0 – 99 [%]	The larger the value set, the faster the high frequencies are damped
<b>F</b> <b>L</b>	EQ Low	-12 – +12 [dB]	Control for cutting or boosting the low frequency components
<b>G</b> <b>H</b>	EQ High	-12 – +12 [dB]	Control for cutting or boosting the high frequency components
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound



## EARLY REFLECTION Group

Early Reflection is an effect that allows you to adjust only the early reflections, which are crucial in determining the realism of the reverb sound as it would be heard in an actual room, separate from the reverberant "wash." Adjustment of the E/R Time permits a wide range of effects, such as adding density to the sound or achieving a "live" room sound with more discrete echoes and reflections.



### 7. EARLY REFLECTION I

```
EFFECT1 07:Early Ref 1 : ON
220mS 0015 L+03 H-05 67:33
```

A	B	C	D	E	F	G	H

### 8. EARLY REFLECTION II

This is an effective program for reinforcing the low frequency range, as well as a general-purpose gating effect for use on drum sounds.

```
EFFECT1 08:Early Ref 2 : ON
200mS 0020 L+00 H+00 60:40
```

A	B	C	D	E	F	G	H

### 9. EARLY REFLECTION III

Unlike EARLY REFLECTION I and EARLY REFLECTION II, this effect uses a reverse envelope on the early reflections. A reverse effect (similar to a tape recorder being played backwards) can be applied to sounds which have strong attack characteristics, such as cymbals.

```
EFFECT1 09:Early Ref 3 : ON
190mS 0010 L+00 H+00 60:40
```

A	B	C	D	E	F	G	H

<b>A</b>	E/R Time	100 – 800 [mSec]	E/R time
<b>C D</b>	Pre Delay	0 – 200 [mSec]	Time between direct sound and E/R sound
<b>F L</b>	EQ Low	-12 – +12 [dB]	Identical to corresponding parameters in the REVERB group
<b>G H</b>	EQ High	-12 – +12 [dB]	Gain to cut or boost the high range components
<b>H</b>	DRY:EFF Balance	-12 – +12 [dB]	Output balance of direct sound and effect sound

## DELAY Group

Delay patterns here make the use of a stereo configuration; the delay time can be set independently for the left and right channels. The natural damping of high frequencies for more accurate reproduction of the decay of high frequencies in an actual room can be achieved by using the high damp parameter.

### 10. STEREO DELAY

A stereo delay effect having two delay systems, each of which has a feedback circuit that sends part of the sound back to the delay again. All parameters except delay time are set to the same value for the two delays.

```
EFFECT1 10: Stereo Delay : ON
L250 R260 F+80 HD30 L+00 H+00 75:25
```

A	B	C	D	E	F	G	H

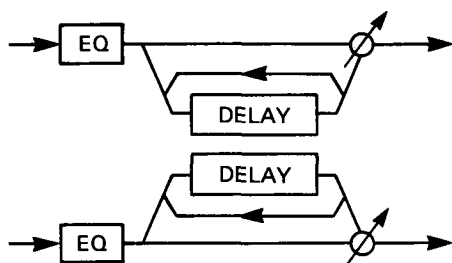
### 11. CROSS DELAY

A stereo delay in which the feedback signal of each delay crosses over and is routed to the other delay.

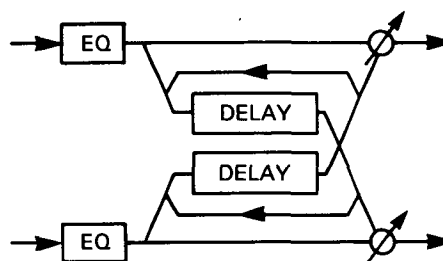
```
EFFECT1 11: Cross Delay : ON
L180 R360 F+80 HD10 L+00 H+00 70:30
```

A	B	C	D	E	F	G	H

#### • STEREO DELAY



#### • CROSS DELAY



[A] L	Delay Time Left	0 – 500 [mSec]	Time between the direct sound and effect sound of the left channel (Input A or C)
[B] R	Delay Time Right	0 – 500 [mSec]	Time between the direct sound and effect sound of the right channel (Input B or D)
[C] F	Feedback	-99 – +99 [%]	Amount of feedback (negative values produce inverted phase)
[D] HD	High Damp	0 – 99 [%]	The larger the value set, the faster the frequencies are damped.
[F] L	EQ Low	-12 – +12 [dB]	Control for cutting or boosting the low frequency components.
[G] H	EQ High	-12 – +12 [dB]	Control for cutting or boosting the high frequency components.
[H]	DRY:EFF Balance	-12 – +12 [dB]	Output balance of direct sound and effect sound

# CHORUS Group

This is a stereo effect that combines two chorus circuits and imparts a natural, warm and “fat” sound to any instrument sound and is particularly effective with piano, strings and brass.

## 12. STEREO CHORUS I

A stereo effect that combines two chorus circuits. A swirling, constantly changing sound that moves between the stereo outputs is created through phase inversion of the two circuits.

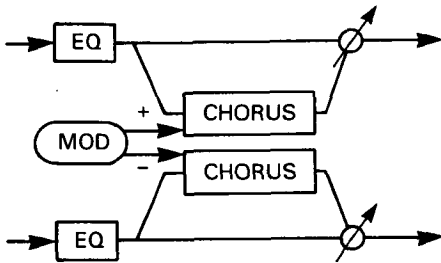
EFFECT1 12:Chorus 1				: ON			
M60	50.30	D010	TRI	L+00	H+00	60:40	
A	B	C	D	E	F	G	H

## 13. STEREO CHORUS II

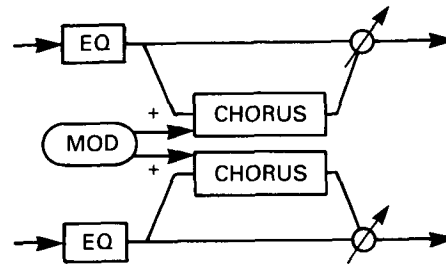
Similar to STEREO CHORUS I except that there is no phase inversion.



EFFECT1 13:Chorus 2				: ON			
M40	51.11	D005	SIN	L+00	H+00	60:40	
A	B	C	D	E	F	G	H

### • STEREO CHORUS I



### • STEREO CHORUS II



<b>A</b> M	Mod Depth	0 – 99	Intensity of modulation
<b>B</b> S	Mod Speed	0.03 – 30 [Hz]	Speed of modulation (frequency)
<b>C</b> D	Delay Time	0 – 200 [mSec]	Time between direct sound and effect sound
<b>D</b>	Mod Waveform	SIN TRI	Selection of waveform Sine wave  Triangle wave 
<b>F</b> L	EQ Low	-12 – +12 [dB]	Control to cut or boost the low range components
<b>G</b> H	EQ High	-12 – +12 [dB]	Control to cut or boost the high range components
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance between direct sound and effect sound

## FLANGER Group

This effect is achieved by the addition of feedback to the chorus effect. Since its pronounced swirling adds color and motion, it is most effective with sounds that have many harmonics, such as cymbals.

### 14. STEREO FLANGER

A stereo effect that combines two flanger circuits. The swirling and swishing effect that moves expansively between the stereo outputs is enhanced by phase inversion of the two flanger circuits.

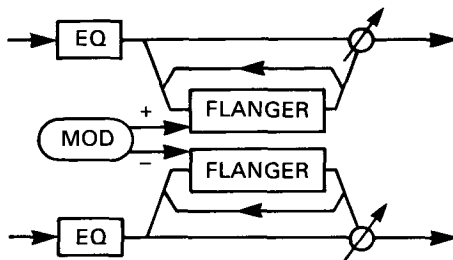
EFFECT1 14:Flanger : ON							
M99 50.36 005 F-53 SIN L+00 H+00 40:60							
A	B	C	D	E	F	G	H

### 15. CROSS FLANGER

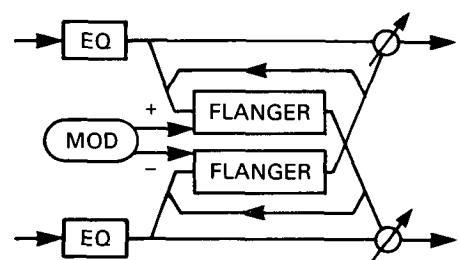
A flanger effect in which the feedback signal of each flanger circuit crosses over and is routed to the other flanger. See #11 CROSS DELAY for more on feedback.



EFFECT1 15:Cross Flanger : ON							
M37 50.21 025 F+80 SIN L+00 H+00 25:75							
A	B	C	D	E	F	G	H

#### • STEREO FLANGER



#### • CROSS FLANGER



[A] M	Mod Depth	0 – 99	Depth of modulation
[B] S	Mod Speed [Hz]	0.03 – 30.0	Speed of modulation
[C] D	Time [ms]	0 – 50	Delay between “dry” and “effected” sound
[D] F	Feedback [%]	–99 – +99	Amount of feedback (negative values produce inverted phase)
[E]	Waveform	SIN TRI	Selection of modulation waveform Sine wave  Triangle wave 
[F] L	EQ Low [dB]	–12 – +12	Cut or boost for low-frequency components
[G] H	EQ High [dB]	–12 – +12	Cut or boost for high-frequency components
[H]	Balance	DRY, 99:01 – 01:99, EFF	Balance between direct sound and effected sound.

## PHASE SHIFTER (Phaser) Group

Compared to the chorus and flanger programs, which use time delay to achieve their distinctive effects, the phase shifter programs use both time delay and phase shifting to create a more pronounced swirling and swishing sound than either chorus or flanger. It is most effective on electronic piano and guitar sounds.

### 16. PHASER I

This is a stereo effect that combines two phaser circuits. The swirling and swishing effect that moves expansively between the stereo outputs is enhanced by phase inversion of the two phaser circuits.

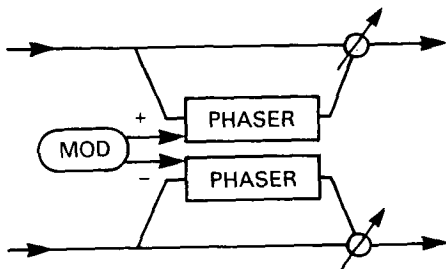
EFFECT1 16:Phaser 1								:	ON
MN99 S0.69 M60 F-75								SIN	25:75
A	B	C	D	E	F	G	H		

### 17. PHASER II

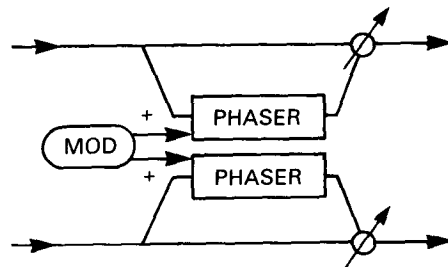
Similar to PHASE SHIFTER I except that there is no phase inversion.



EFFECT1 17:Phaser 2								:	ON
MN99 S0.57 M69 F+87								TRI	60:40
A	B	C	D	E	F	G	H		

#### • PHASER I



#### • PHASER II



[A] MN	Manual	0 - 99	Center frequency which phase shift affects
[B] S	Mod Speed	0.03 - 30 [Hz]	Speed of modulation
[C] M	Mod Depth	0 - 99	Depth of phase shift
[D] F	Feedback	-99 - +99 [%]	Amount of feedback (negative values produce inverted phase)
[E]	Mod Waveform	SIN TRI	Selection of modulation waveform Sine wave  Triangle wave 
[H]	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance of direct sound and effect sound

## TREMOLO Group

This effect periodically varies (or modulates) the volume.

### 18. STEREO TREMOLO I

This is a stereo effect that combines two tremolo circuits. The stereo effect is enhanced by phase inversion of the two tremolo circuits and automatic panning between the left and right outputs.

EFFECT1 18:Tremolo 1 : ON							
M80 S1.59 SIN S+99 L+00 H+00 EFF							
A	B	C	D	E	F	G	H

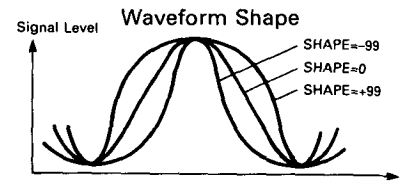
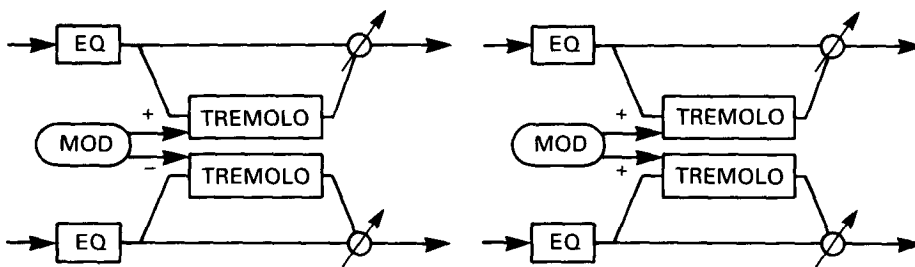
### 19. STEREO TREMOLO II



Similar to STEREO TREMOLO I except that there is no phase inversion between the LFOs of the two tremolo circuits.

EFFECT1 19:Tremolo 2 : ON							
M63 S04.0 TRI S+00 L+00 H+00 EFF							
A	B	C	D	E	F	G	H

#### • STEREO TREMOLO I

#### • STEREO TREMOLO II

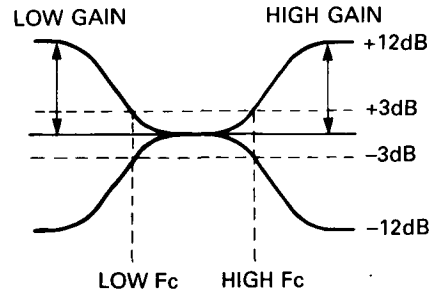
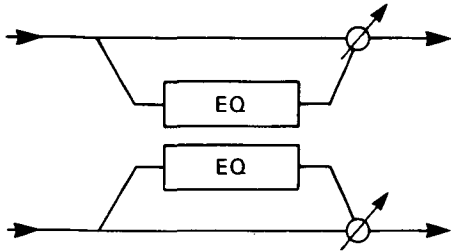


<b>A</b>	M	Mod Depth	0 – 99	Depth of tremolo effect
<b>B</b>	S	Mod Speed	0.03 – 30 [Hz]	Speed of modulation (tremolo effect)
<b>C</b>		Mod Waveform	SIN TRI	Selection of modulation waveform Sine wave  Triangle wave 
<b>D</b>	S	Shape	-99 – +99	Changing the modulation waveform (refer to the diagram above)
<b>F</b>	L	EQ Low	-12 – +12 [dB]	Gain that cuts or boosts low range components
<b>G</b>	H	EQ High	-12 – +12 [dB]	Gain that cuts or boosts high range components
<b>H</b>		DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance between direct sound and effect sound

## EQUALIZER Group

### 20. EQUALIZER

This is a 2-band (low range and high range) equalizer. It decreases (cuts) or increases (boosts) the components of each frequency range.



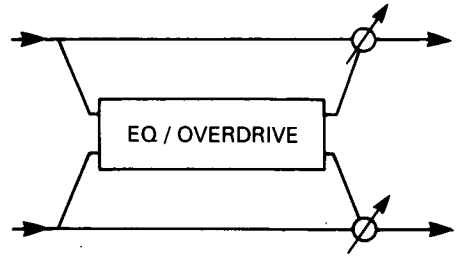
EFFECT1 20:Equalizer : ON							
L+00 500		H+00 2K		EFF			
A	B	C	D	E	F	G	H

<b>A</b> L	Low Gain	-12 – +12 [dB]	Gain which cuts or boosts low range components
<b>B</b>	Low Fc (Low Cutoff)	250/500/1K [Hz]	Low frequency point at which boost or cut will be made
<b>E</b> H	High Gain	-12 – +12 [dB]	Gain that cuts or boosts the high range components
<b>F</b>	High Fc	1K/2K/4K [Hz]	High frequency at which boost or cut will be made
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

# OVERDRIVE Group

## 21. OVERDRIVE

This is an effect that simulates the overdrive used generally for guitars, and is particularly effective when applied to guitar-like lines and solos.



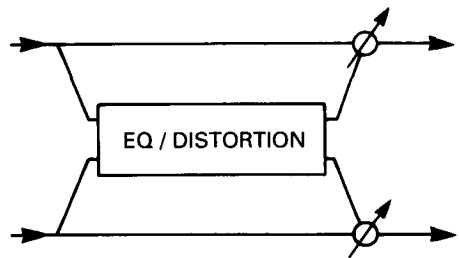
```

EFFECT1 21:Over Drive      : ON
0080 L015                  L+00 H+00  EFF
  A      B      C      D      E      F      G      H
  [ ]    [ ]    [ ]    [ ]    [ ]    [ ]    [ ]    [ ]
  
```

[A] D	Drive	0 – 100	Overdrive of input signal
[B] L	Level	0 – 100	Output level of processed sound
[F] L	EQ Low	-12 – +12 [dB]	Gain that cuts or boosts low range components
[G] H	EQ High	-12 – +12 [dB]	Gain that cuts or boosts high range components
[H]	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance between direct sound and effect sound

## 22. DISTORTION

Compared with OVERDRIVE, this effect has a “dirtier” sound with more of a hard edge and is excellent for simulating a fuzz distortion sound. As with OVERDRIVE, it is effective when used in solos.



```

EFFECT1 22:Distortion      : ON
0080 L020                  L+00      EFF
  A      B      C      D      E      F      G      H
  [ ]    [ ]    [ ]    [ ]    [ ]    [ ]    [ ]    [ ]
  
```

[A] D	Distortion	0 – 100	Amount of distortion applied to the input signal
[B] L	Level	0 – 100	Output level of distorted sound
[F] L	EQ Low	-12 – +12 [dB]	Gain that cuts or boosts low range components
[H]	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

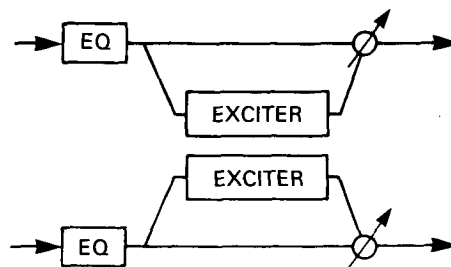


## EXCITER Group

### 23. EXCITER

This is an effect that increases the clarity of the sound, gives it greater definition and presence, and helps in bringing the sound to the forefront.

EFFECT1 23:Exciter		: ON					
B+50	EP05	L+04	H+00	EFF			
A	B	C	D	E	F	G	H



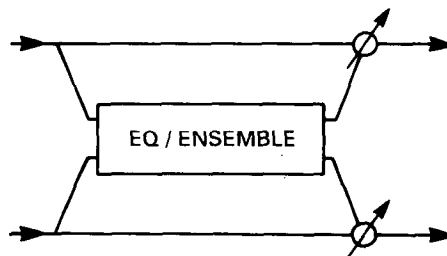
<b>A</b> B	Blend	-99 - +99	Setting the balance of the unprocessed and the exciter signals following the circuit.
<b>C</b> EP	Emphatic Point	1 - 10	Central frequency emphasized by exciter
<b>F</b> L	EQ Low	-12 - +12 [dB]	Gain that cuts or boosts low range components
<b>G</b> H	EQ High	-12 - +12 [dB]	Gain that cuts or boosts high range components
<b>H</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance of direct sound and effect sound

## ENSEMBLE Group

### 24. SYMPHONIC ENSEMBLE

This effect is designed to be most effective for ensemble sounds like strings by applying greater modulation in a chorus-type program.

EFFECT1 24:Symphonic Ens		: ON					
M80		L+00	H+00	50:50			
A	B	C	D	E	F	G	H



<b>A</b> M	Mod Depth	0 - 99	Depth of ensemble effect
<b>F</b> L	EQ Low	-12 - +12 [dB]	Gain that cuts or boosts low range components
<b>G</b> H	EQ High	-12 - +12 [dB]	Gain that cuts or boosts high range components
<b>H</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance between direct sound and effect sound

# ROTARY EFFECT

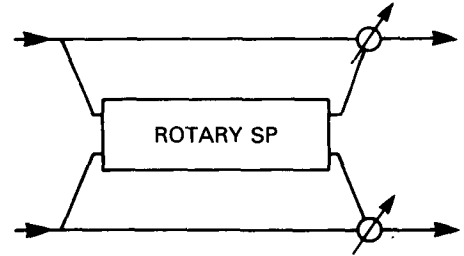
## 25. ROTARY SPEAKER

This effect is designed to duplicate the rotational (Leslie) speaker effect popular for organ sounds.

The speed changes characteristic of the Leslie speaker can also be made in real time with the use of a volume pedal.

\*The volume pedal normally assigned to control the dry sound/effect sound balance does not control that parameter here, but is instead used to control the speed selection of the rotary effect. The pedal works as a switch and the speed of the rotary effect gradually changes regardless of the speed with which the pedal is moved.

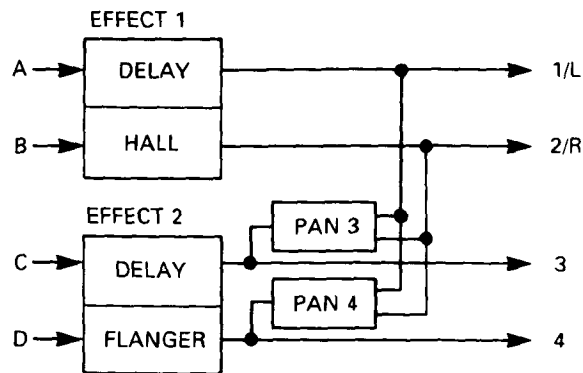
EFFECT1 25:Rotary SP : ON								EFF
M62 R+05								
A	B	C	D	E	F	G	H	



<b>A</b> M	Mod Depth	0 - 99	Depth of effect
<b>C</b> R	Speed Ratio	-10 - +10	Ratio of rotation speed of the high range speaker to the rotation speed of the low range speaker
<b>H</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance of direct sound and effect sound

## COMBINATION Effects Group

Effect programs 26 to 33 are combination effects in which different effects are assigned to the two channels. Each effect can even be used in the two-system (Effect 1 and 2) configuration common to the other programs. The diagram shows a parallel arrangement in which #26 DELAY/HALL is selected for Effect 1 and #31 DELAY/FLANGER for Effect 2.



\* See the explanation of effect programs #1 to #26 for details about each effect.

\* Parameters A to D correspond to one effect and E to H to the other one.

### 26. DELAY/HALL

```
EFFECT1 26:Delay/Hall : ON
D250 F+50 HD10 70:30 3.5 D055 HD40 60:40
```

A	B	C	D	E	F	G	H

#### DELAY

[A] D	Delay time	0-500 [mSec]	Time from direct sound to effect sound
[B] F	Feedback	-99 - +99 [%]	Amount of feedback (negative values produce inverted phase)
[C] HD	High Damp	0 - 99 [%]	The larger the value set, the faster the high frequencies are damped.
[D]	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance of direct sound and effect sound

#### HALL

[E]	Reverb Time	0.2-9.9 [Sec]	Time before reverberation decays.
[F] D	Pre Delay	0-150 [mSec]	Time between the direct sound and the first early reflection.
[G] HD	High Damp	0-99 [%]	The larger the value set, the faster the high frequencies are damped.
[H]	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Output balance between direct sound and effect sound.

## 27. DELAY/ROOM

EFFECT1 27:Delay/Room : ON  
 D250 F+50 HD10 70:30 1.5 D030 HD30 60:40

A	B	C	D	E	F	G	H

### DELAY

<b>A</b> D	Delay time	0 – 500 [mSec]	Time from direct sound to effect sound
<b>B</b> F	Feedback	-99 – +99 [%]	Amount of feedback (negative values produce inverted phase)
<b>C</b> HD	High Damp	0 – 99 [%]	The larger the value set, the faster the high frequencies are damped.
<b>D</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

### ROOM

<b>E</b>	Reverb Time	0.2 – 5.0 [Sec] (ROOM)	Time before reverberation decays.
<b>F</b> D	Pre Delay	0 – 150 [mSec]	Time between the direct sound and first early reflections
<b>G</b> HD	High Damp	0 – 99 [%]	The larger the value set, the faster the high frequencies are damped.
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance between direct sound and effect sound.

## 28. DELAY/EARLY REFLECTION

EFFECT1 28:Delay/E.Ref : ON  
 D250 F+50 HD10 70:30 200 D030 60:40

A	B	C	D	E	F	G	H

### DELAY

<b>A</b> D	Delay time	0 – 500 [mSec]	Time from direct sound to effect sound
<b>B</b> F	Feedback	-99 – +99 [%]	Amount of feedback (negative values produce inverted phase)
<b>C</b> HD	High Damp	0 – 99 [%]	The larger the value set, the faster high frequencies are damped.
<b>D</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

### EARLY REFLECTION

<b>E</b>	E/R Time	100 – 400 [mSec]	E/R time
<b>F</b> D	Pre Delay	0 – 150 [mSec]	Time between the direct sound and E/R sound
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

## 29. DELAY/DELAY

EFFECT1 29:Delay/Delay : ON  
250 F+50 HD10 70:30 260 F+50 HD10 70:30

A	B	C	D	E	F	G	H

### DELAY

<b>A</b>	Delay Time	0 - 500 [mSec]	Same as DELAY of #26 DELAY/HALL
<b>B F</b>	Feedback	-99 - +99 [%]	
<b>C HD</b>	High Damp	0 - 99 [%]	
<b>D</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	

### DELAY

<b>E</b>	Delay Time	0 - 500 [mSec]	Same as above
<b>F F</b>	Feedback	-99 - +99 [%]	
<b>G HD</b>	High Damp	0 - 99 [%]	
<b>H</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	

## 30. DELAY/CHORUS



EFFECT1 30:Delay/Chorus : ON  
D250 F+50 HD10 70:30 M60 0.30 TRI 60:40

A	B	C	D	E	F	G	H

### DELAY

<b>A D</b>	Delay time	0 - 500 [mSec]	Same as DELAY of #26 DELAY/HALL
<b>B F</b>	Feedback	-99 - +99 [%]	
<b>C HD</b>	High Damp	0 - 99 [%]	
<b>D</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	

### CHORUS

<b>E M</b>	Mod Depth	0 - 99 [%]	Intensity of modulation effect
<b>F</b>	Mod Speed	0.03 - 30 [Hz]	Speed of modulation (frequency)
<b>G</b>	Mod Waveform	SIN TRI	Selection of waveform Sine wave  Triangle wave 
<b>H</b>	DRY:EFF Balance	DRY, 99:1 - 1:99, EFF	Sound volume balance of direct sound and effect sound

### 31. DELAY/FLANGER

```
EFFECT1 31:Delay/Flanger : ON
D250 F+50 HD10 70:30 M70 0.18 F-75 40:60
```

A	B	C	D	E	F	G	H

#### DELAY

A D	Delay time	0 – 500 [mSec]	Same as DELAY of #26 DELAY/HALL
B F	Feedback	–99 – +99 [%]	
C HD	High Damp	0 – 99 [%]	
H	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	

#### FLANGER

E M	Mod Depth	0 – 99	Depth of flanging effect
F	Mod Speed	0.03 – 30 [Hz]	Speed of modulation
G F	Feedback	–99 – +99 [%]	Amount of feedback (negative values produce inverted phase)
H	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

### 32. DELAY/PHASER

```
EFFECT1 32:Delay/Phaser : ON
D250 F+50 HD10 70:30 M60 0.69 F-75 25:75
```

A	B	C	D	E	F	G	H

#### DELAY

A D	Delay time	0 – 500 [mSec]	Same as DELAY of #26 DELAY/HALL
B F	Feedback	–99 – +99 [%]	
C HD	High Damp	0 – 99 [%]	
D	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	

#### PHASER

E M	Mod Depth	0 – 99	Depth of phase shift
F	Mod Speed	0.03 – 30 [Hz]	Speed of modulation
G F	Feedback	–99 – +99 [%]	Amount of feedback (negative values produce inverted phase)
H	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance of direct sound and effect sound

### 33. DELAY/TREMOLO

EFFECT1 33:Delay/Tremolo : ON  
 0250 F+50 HD10 70:30 M80 1.59 S+00 EFF

A	B	C	D	E	F	G	H

#### DELAY

<b>A</b> D	Delay Time	0 – 500 [mSec]	Same as Delay of #26 DELAY/HALL
<b>B</b> F	Feedback	-99 – +99	
<b>C</b> HD	High Damp	0 – 99	
<b>D</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	

#### TREMOLO

<b>E</b> M	Mod Depth	0 – 99	Depth of tremolo effect
<b>F</b>	Mod Speed	0.03 – 30 [Hz]	Speed of modulation
<b>G</b> S	Shape	-99 – +99	Changing the modulation waveform
<b>H</b>	DRY:EFF Balance	DRY, 99:1 – 1:99, EFF	Output balance between direct sound and effect sound

## EFFECT PARAMETERS DEFAULT VALUES CHART

NO.	EFFECT	A	B	C	D
		REVERB TIME	PRE DELAY	E/R LEVEL	HIGH DAMP
0 1	HALL	3. 2S	60mS	62	30%
0 2	ENSEMBLE HALL	2. 8S	40mS	46	32%
0 3	CONCERT HALL	3. 8S	120mS	46	40%
0 4	ROOM	1. 1S	10mS	75	20%
0 5	LARGE ROOM	2. 3S	45mS	60	25%
0 6	LIVE STAGE	2. 0S	20mS	60	20%
		E/R TIME		PRE DELAY	
0 7	EARLY REF 1	220mS		15mS	
0 8	EARLY REF 2	200mS		20mS	
0 9	EARLY REF 3	190mS		10mS	
		DELAY TIME L	DELAY TIME R	FEEDBACK	HIGH DAMP
1 0	STEREO DELAY	250mS	260mS	-40%	30%
1 1	CROSS DELAY	180mS	360mS	+80%	10%
		MOD DEPTH	SPEED	DELAY TIME	WAVEFORM
1 2	STEREO CHORUS 1 *	60	0. 30Hz	10mS	TRI
1 3	STEREO CHORUS 2 *	40	1. 11Hz	5mS	SIN
		MOD DEPTH	SPEED	DELAY TIME	FEEDBACK
1 4	STEREO FLANGER *	99	0. 36Hz	5mS	-53%
1 5	CROSS FLANGER *	37	0. 21Hz	25mS	+80%
		MANUAL	SPEED	MOD DEPTH	FEEDBACK
1 6	PHASER 1 *	99	0. 69Hz	60	-75%
1 7	PHASER 2 *	99	0. 57Hz	69	+87%
		MOD DEPTH	SPEED	WAVEFORM	SHAPE
1 8	STEREO TREMOLO 1 *	80	1. 59Hz	SIN	+99
1 9	STEREO TREMOLO 2 *	63	4. 00Hz	TRI	0
		LOW GAIN	LOW FC		
2 0	EQUALIZER	0dB	500Hz		
		DRIVE	LEVEL		
2 1	OVER DRIVE	80	15		
		DISTORTION	LEVEL		
2 2	DISTORTION	80	20		
		BLEND		EMPHATIC	
2 3	EXCITER	+50		5	
		MOD DEPTH			
2 4	SYMPHONIC ENS *	80			
		MOD DEPTH		SPEED RATIO	
2 5	ROTARY SPEAKER *	62		+5	
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
2 6	DELAY/HALL	250mS	+50%	10%	70:30
2 7	DELAY/ROOM	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
2 8	DELAY/E. REF	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
2 9	DELAY/DELAY	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
3 0	DELAY/CHORUS *	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
3 1	DELAY/FLANGER *	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
3 2	DELAY/PHASER *	250mS	+50%	10%	70:30
		DELAY TIME	FEEDBACK	HIGH DAMP	DRY:EFF
3 3	DELAY/TREMOLO *	250mS	+50%	10%	70:30



When using an effect marked with an asterisk (\*) for one of the effects, neither #24 SYMPHONIC ENS nor #25 ROTARY SPEAKER can be selected for the other one.

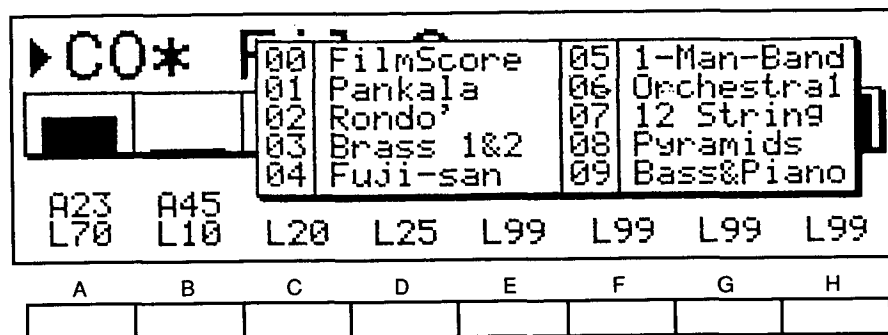
E	F	G	H	NO.	NOTES
	EQ LOW	EQ HIGH	DRY: EFF		
	-4dB	0dB	75:25	0 1	
	-1dB	-2dB	70:30	0 2	
	0dB	-2dB	75:25	0 3	
	+3dB	-2dB	68:32	0 4	
	+2dB	+4dB	75:25	0 5	
	+3dB	0dB	60:40	0 6	
	EQ LOW	EQ HIGH	DRY: EFF		
	3dB	-5dB	67:33	0 7	
	0dB	0dB	60:40	0 8	
	0dB	0dB	60:40	0 9	
	EQ LOW	EQ HIGH	DRY: EFF		
	0dB	0dB	75:25	1 0	
	0dB	0dB	70:30	1 1	
	EQ LOW	EQ HIGH	DRY: EFF		
	0dB	0dB	60:40	1 2	*
	0dB	0dB	60:40	1 3	*
WAVEFORM	EQ LOW	EQ HIGH	DRY: EFF		
SIN	0dB	0dB	40:60	1 4	*
SIN	0dB	0dB	25:75	1 5	*
WAVEFORM			DRY: EFF		
SIN			25:75	1 6	*
TRI			60:40	1 7	*
	EQ LOW	EQ HIGH	DRY: EFF		
	0dB	0dB	EFF	1 8	*
	0dB	0dB	EFF	1 9	*
HIGH GAIN	HIGH FC		DRY: EFF		
0dB	2KHz		EFF	2 0	
	EQ LOW	EQ HIGH	DRY: EFF		
	0dB	0dB	EFF	2 1	
	EQ LOW		DRY: EFF		
	0dB		EFF	2 2	
	EQ LOW	EQ HIGH	DRY: EFF		
	+4dB	0dB	EFF	2 3	
	EQ LOW	EQ HIGH	DRY: EFF		
	0dB	0dB	50:50	2 4	*
			DRY: EFF		
			EFF	2 5	*
REVERB TIME	PRE DELAY	HIGH DAMP	DRY: EFF		
3.5S	55mS	40%	60:40	2 6	
1.5S	30mS	30%	60:40	2 7	
E/R TIME	PRE DELAY		DRY: EFF		
200mS	30mS		60:40	2 8	
DELAY TIME	FEEDBACK	HIGH DAMP	DRY: EFF		
260mS	+50%	10%	70:30	2 9	
MOD DEPTH	SPEED	WAVEFORM	DRY: EFF		
60	0.30Hz	TRI	60:40	3 0	*
MOD DEPTH	SPEED	FEEDBACK	DRY: EFF		
70	0.18Hz	-75%	40:60	3 1	*
MOD DEPTH	SPEED	FEEDBACK	DRY: EFF		
60	0.69Hz	-75%	25:75	3 2	*
MOD DEPTH	SPEED	SHAPE	DRY: EFF		
80	1.59Hz	0	EFF	3 3	*

## 4. COMBINATION MODE (COMBI)

In this mode you can select and play Combinations (a combination of Programs) from memory. Combinations can be selected using the BANK/PAGE keys (0 – 9), Program select keys (0 – 9), the  $\Delta / \nabla$  keys, a footswitch (COMBI UP/DOWN) or MIDI program change messages.

When you press a BANK/PAGE key (0 – 9, upper row) the upper place of the Combination number will appear, and the names of the 10 Combinations in that bank will be displayed. Next, press a program select key (0 – 9, lower row) to specify the Combination.

If you press only a program select key, the lower place of the Combination number will change.



- If you want to select Combinations using a foot controller, set the footswitch setting in each Combination to COMBI Up or COMBI Down (see page 70).
- If you want to select Combinations via MIDI, set the Global mode Program Change setting to "o", so that MIDI program change messages arriving on the global channel will select Combinations.

Incoming program change messages on other channels will select the Program of the corresponding Timbre. If a Timbre channel is the same as the global channel, the global channel will take priority, and a Combination will be selected.

- Regardless of the MIDI channel setting, all Timbres will sound when you play the keyboard, and note data will be transmitted from MIDI OUT on all MIDI channels specified in the Combination. (Timbres whose Timbre Program is off will not produce sound, so you will normally turn unneeded Timbres off.)

\* Notes can be played until the total number of oscillators used by all Timbres reaches 16.

\* In Combination mode, effect settings for each Program will be ignored, and the effect settings specified by the Combination parameters will be used.

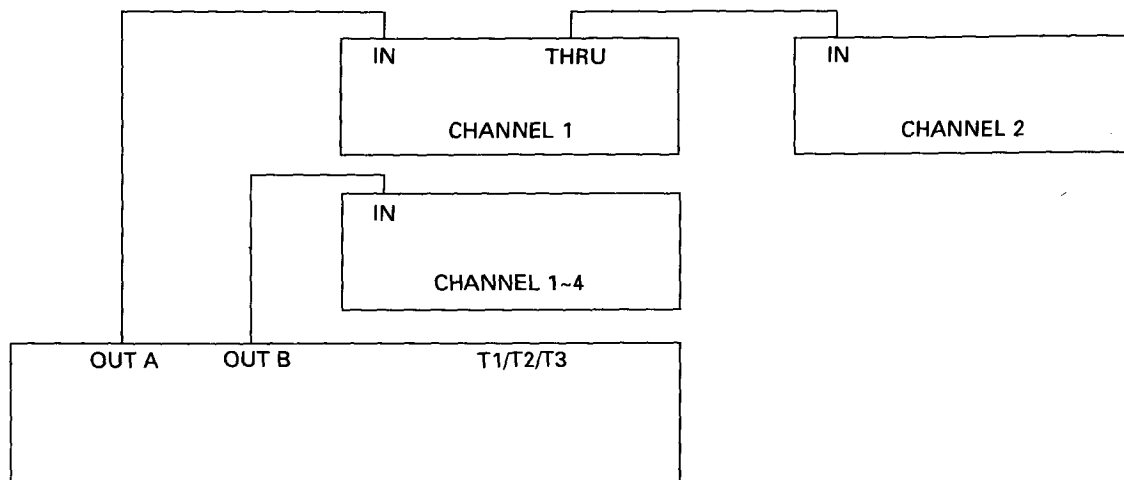
\* An "\*" will be displayed in front of the program number of a Program selected in Program mode. If you enter Combination mode after editing in Program mode or Edit Program mode, the edited Program will be used.

## Controlling external MIDI tone generators

When you select a T1/T2/T3 Combination, each Timbre will transmit the specified program change message and volume change message from MIDI OUT on its own MIDI channel. (However, Timbres whose MIDI channel matches the global

MIDI channel will not transmit from MIDI OUT.)

By specifying the MIDI channel of each Timbre, you can control up to 8 channels of external MIDI tone generators. (Refer to page 20 of the Operation Guide for details.)



## Editing in Combination mode

In Combination mode, you can modify the Programs assigned to the Combination, the volume of each Program, and the program change and volume change messages that will be transmitted from MIDI OUT.

- Editing a Combination in this mode will affect the parameters of Edit Combination mode.
- To write the edits made in this mode into memory, use the writing operation of Edit Combination mode.
- When you enter Combination mode you will be in Page 0. Press the PAGE+ key to move to Page 1.
- To move to a lower line, press CURSOR DOWN. To return to an upper line, press CURSOR UP. Press the PAGE- key to return to Page 0.

## C00 CosmicRain

▶T1 = A20:Night Dad

<input checked="" type="checkbox"/> A20	B00	OFF	OFF	OFF	OFF	OFF	OFF
L99	L99	L99	L99	L99	L99	L99	L99

A	B	C	D	E	F	G	H

P0-1 Program  
P0-2 Level

**P0-1 Program**

<input type="checkbox"/> A	Timbre 1 Program	OFF, A00 – A99, B00 – B99	Select the Program used by each Timbre
?	?	?	
<input type="checkbox"/> H	Timbre 8 Program	OFF, A00 – A99, B00 – B99	

**P0-2 Level**


<input type="checkbox"/> A	L Timbre 1 Level	0 – 99	Set the output level of each Timbre
?	?	?	
<input type="checkbox"/> H	L Timbre 8 Level	0 – 99	

The output level of each Timbre is indicated as a bar graph.

## Page 1 Performance Edit External

P1-1 External Program  
P1-2 External Volume

### C00 CosmicRain



Ext.1 = MIDI-A Ch 1

<input checked="" type="checkbox"/>	P000	OFF	OFF	OFF	OFF	OFF	OFF
	U127	U127	U127	U127	U127	U127	U127

A	B	C	D	E	F	G	H

### P1-1 External Program

<input checked="" type="checkbox"/>	P	Timbre 1 External Program	OFF, 0 – 127	Specify the program change that each Timbre will transmit from MIDI
?		?	?	
<input checked="" type="checkbox"/>	P	Timbre 8 External Program	OFF, 0 – 127	

This determines the program change message that each Timbre will transmit from MIDI OUT on its MIDI channel. Timbres set “OFF” will not transmit note data.

### P1-2 External Volume

<input checked="" type="checkbox"/>	V	Timbre 1 External Volume	0 – 127	Specify the MIDI volume message that each Timbre will transmit from MIDI OUT
?		?	?	
<input checked="" type="checkbox"/>	V	Timbre 8 External Volume	0 – 127	

This determines the MIDI volume message that each Timbre will transmit from MIDI OUT on its MIDI channel. The data value of the volume message is displayed as a bar graph.

## 5. EDIT COMBINATION MODE (E.COMBI)

Settings in this mode determine how programs are combined into a Combination.

A Combination consists of 8 Timbres. Each Timbre consists of a Program, various parameters related to performance and output (panpot, level, MIDI channel, etc.), and a set of effect parameters that apply to the entire Combination.

- Operations in this mode will edit the Combination you previously selected in COMBINATION mode.
- When you finish editing a Combination, press the WRITE button to write your edits into memory. (If you select another Combination in COMBINATION mode before writing, your edits will be lost.)
- \*In EDIT COMBINATION mode, the upper rows of the numeric key pads function as page select keys, and the lower rows function as edit function keys. (For details, refer to the Operation Guide.)

## Functions of EDIT COMBINATION mode

Use the numeric keypad (0 – 9) or the PAGE+ and PAGE- keys to select pages. To select the parameter, use the CURSOR keys (UP, DOWN, [A]—[H]).

Page	Function	Parameter to edit
<b>P0 INT-1</b>		
0-1	Program (T1 – T8)	Program assigned to each Timbre
0-2	Level (T1 – T8)	Output level of each Timbre
0-3	Velocity Curve (T1 – T8)	Velocity curve of each Timbre
0-4	After Touch Curve (T1 – T8)	Aftertouch Curve of each Timbre
<b>P1 INT-2</b>		
1-1	Transpose (T1 – T8)	Transpose setting of each Timbre
1-2	Detune (T1 – T8)	Detune setting of each Timbre
1-3	Panpot (T1 – T8)	Output destination of each Timbre
<b>P2</b>		
<b>EXTERNAL</b>		
2-1	External Program (T1 – T8)	MIDI Program Change transmitted by each Timbre
2-2	External Volume (T1 – T8)	MIDI Volume transmitted by each Timbre
2-3	External Vel Curve (T1 – T8)	Velocity curve used by each Timbre when transmitting MIDI note velocity
2-4	External Aft T Curve (T1 – T8)	Aftertouch curve used by each Timbre when transmitting MIDI aftertouch
<b>P3 MIDI-1</b>		
3-1	MIDI Channel (T1 – T8)	MIDI transmission and reception channel for each Timbre
3-2	Vel Window Top (T1 – T8)	Top velocity value of velocity switch for each Timbre
3-3	Vel Window Bottom (T1 – T8)	Bottom velocity value of velocity switch for each Timbre
3-4	Key Window Top (T1 – T8)	Top key of keyboard range played by each Timbre
3-5	Key Window Bottom (T1 – T8)	Bottom key of keyboard range played by each Timbre
<b>P4 MIDI-2</b>		
4-1	Program Change Filter (T1 – T8)	Program change transmission/reception switch for each Timbre
4-2	Control Change Filter (T1 – T8)	Control change transmission/reception switch for each Timbre
4-3	Damper Switch Filter (T1 – T8)	Damper switch transmission/reception switch for each Timbre
4-4	After Touch Filter (T1 – T8)	Aftertouch transmission/reception switch for each Timbre
<b>P5 CON- TROLLER</b>		
5-1	Joy Stick X	Function assigned to the horizontal direction of the joystick
5-2	Joy Stick +Y	Function assigned to the upward direction of the joystick
5-3	Joy Stick -Y	Function assigned to the downward direction of the joystick
5-4	Foot Controller 1	Function assigned to foot controller 1
5-5	Foot Controller 2	Function assigned to foot controller 2
5-6	Scale Type	Select a scale (equal temperament, pure, etc.)
<b>P6 EFFECT</b>		Effect settings
<b>P7 WRITE</b>		
7-1	Write Combination	Write a Combination into memory
7-2	Rename Combination	Rename a Combination
7-3	Copy Effect	Copy an Effect

For details of Page 6 EFFECT, refer to Effect Parameters (page 33).

P0-1 Program  
 P0-2 Level  
 P0-3 Velocity Curve  
 P0-4 After Touch curve

COMBI 00 INT-1 ▶Program							
▶T1 = A20:Night Dad							
<input checked="" type="checkbox"/>	*B00	OFF	OFF	OFF	OFF	OFF	OFF
L99	L99	L99	L99	L99	L99	L99	L99
VC:4	VC:4	VC:4	VC:4	VC:4	VC:4	VC:4	VC:4
AC:4	AC:4	AC:4	AC:4	AC:0	AC:4	AC:4	AC:4
A	B	C	D	E	F	G	H

**P0-1 Program**

<input type="checkbox"/> A	Timbre 1	OFF, A00 – A99, B00 – B99	Select a Program for each Timbre
?	?	?	
<input type="checkbox"/> H	Timbre 8	OFF, A00 – A99, B00 – B99	

Select a Program for each Timbre. When “OFF” is selected, that Timbre will not sound.

**P0-2 Level**

<input type="checkbox"/> A L	Timbre 1	0 – 99	Specify the output level for each Timbre
?	?	?	
<input type="checkbox"/> H L	Timbre 8	0 – 99	

This determines the output level for each Timbre. At 99, the Program selected by that Timbre will be at the maximum volume specified by the Program parameters. At 0, that Timbre will not sound.

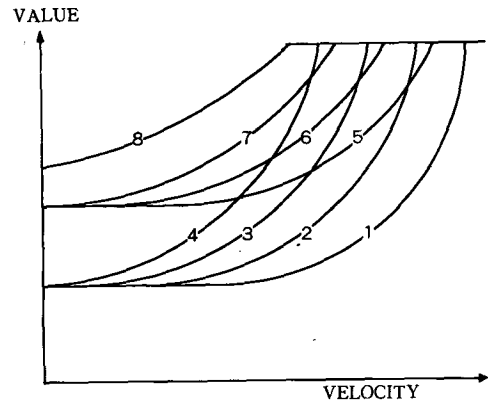


### P0-3 Velocity Curve

[A] VC	Timbre 1	1 - 8	Select a velocity curve for each Timbre. (This determines how key velocity — the force with which a note is played — will affect volume or tone.)
∩	∩	∩	
[H] VC	Timbre 8	1 - 8	

Velocity Curve selects the velocity curve; i.e., the way in which key velocity (how hard you play a note) will affect the volume or tone of each Timbre. You can select from 8 different velocity curves.

- \*The velocity curve setting for each Program will be ignored.
- \*This selection has no effect on note data received from MIDI IN, or transmitted from MIDI OUT.
- \*The data transmitted from MIDI OUT will use the velocity curve specified by P2-3 External Vel Curve.

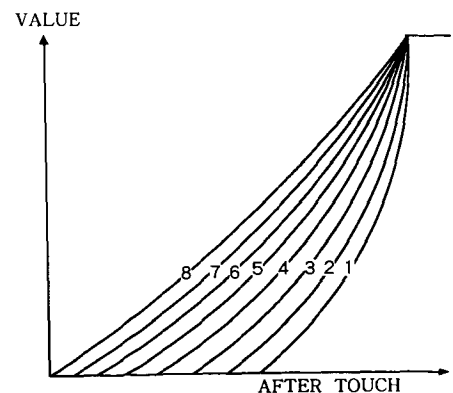


### P0-4 After Touch Curve

[A] AC	Timbre 1	1 - 8	Select an aftertouch curve for each Timbre. (This determines how aftertouch — pressing down on the keyboard after playing a note — will affect volume or tone.)
∩	∩	∩	
[H] AC	Timbre 8	1 - 8	

After Touch Curve selects the aftertouch curve; i.e., the way in which aftertouch (pressing down on the keyboard after playing a note) will affect the volume or tone of each Timbre. You can select from 8 different aftertouch curves.

- \*The aftertouch curve setting for each Program will be ignored.
- \*This selection has no effect on aftertouch data received from MIDI IN, or transmitted from MIDI OUT.





## Page 2 External

EXTERNAL parameters determine how the T1/T2/T3 will control external MIDI devices connected to its MIDI OUT jack.

P2-1 External Program  
 P2-2 External Volume  
 P2-3 External Vel Curve  
 P2-4 External Aft Touch Curve

COMBI 00 EXTERNAL ▶Program							
Ext1 = MIDI-A Ch 1							
<del>P023</del>	P023	P023	P023	OFF	OFF	OFF	OFF
U127	U127	U127	U000	U127	U127	U127	U127
UC:4	UC:4	UC:4	UC:4	UC:4	UC:4	UC:4	UC:4
AC:4	AC:4	AC:4	AC:4	AC:4	AC:4	AC:4	AC:4
A	B	C	D	E	F	G	H

### P2-1 External Program

[A] P	Timbre 1	OFF, 0 – 127	Specify the MIDI program change number that each timbre will transmit from MIDI OUT
}	}	}	
[H] P	Timbre 8	OFF, 0 – 127	

This specifies the Program Change message that each Timbre will transmit from MIDI OUT when a Combination is selected.

• When set "OFF", that Timbre will not transmit note data, either.

• Program changes for individual Timbres will not be transmitted on the Global channel.

### P2-2 External Volume

[A] V	Timbre 1	0 – 127	Specify the Volume control change message that each timbre will transmit from MIDI OUT.
}	}	}	
[H] V	Timbre 8	0 – 127	

This specifies the MIDI Volume control change message that each Timbre will transmit from MIDI OUT when a Program is selected.

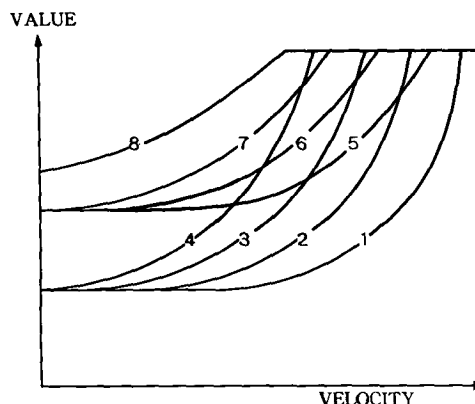
### P2-3 External Vel Curve

[A] VC	Timbre 1	1 - 8	Specify the velocity curve that each Timbre will use to determine the velocity of the notes it transmits from MIDI OUT
?	?	?	
[H] VC	Timbre 8	1 - 8	

This specifies which of the 8 velocity curves will be used by each Timbre to determine the velocity value of the MIDI Note messages it transmits from MIDI OUT; i.e., the actual velocity

of your keyboard playing is “translated” through the specified Velocity Curve before being transmitted from MIDI OUT.

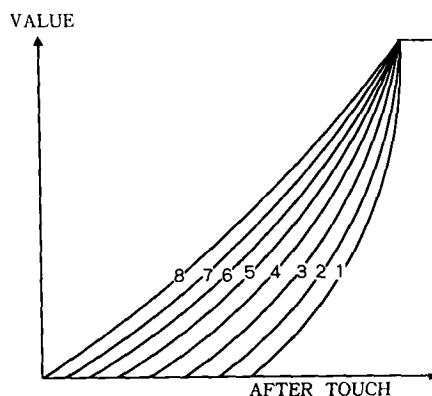
\*The velocity curve selected here will be used for the data transmitted by each channel from MIDI OUT.



### P2-4 External Aft Touch Curve

[A] AC	Timbre 1	1 - 8	Specify the aftertouch curve that each Timbre will use to determine the values of the aftertouch messages it transmits from MIDI OUT.
?	?	?	
[H] AC	Timbre 8	1 - 8	

This specifies which of the 8 aftertouch curves will be used by each Timbre to determine the data value of the MIDI Aftertouch messages it transmits from MIDI OUT; i.e., the actual force with which you press down on the keyboard (after playing a note) is “translated” through the specified After Touch Curve before being transmitted from MIDI OUT as an Aftertouch message.



- 3-1 MIDI Channel
- 3-2 Vel Window Top
- 3-3 Vel Window Bottom
- 3-4 Key Window Top
- 3-5 Key Window Bottom

COMBI 00		MIDI-1		MIDI Channel			
A01G		A01G	A01G	A01G	A01G	A01G	A01G
127	127	127	127	127	127	127	127
001	001	001	001	001	001	001	001
G9	C4	G9	C4	G9	G9	G9	C-1
C-1	C-1	C-1	C-1	C-1	C-1	C-1	C-1
A		B		C		D	
E		F		G		H	

**P3-1 MIDI Channel**

<b>A</b>	Timbre 1	A1 – A16, B1 – B16	Specify the MIDI channel and MIDI OUT jack (A or B) that each Timbre will use to transmit and receive data.
?	?	?	
<b>H</b>	Timbre 8	A1 – A16, B1 – B16	

This specifies the MIDI channel and MIDI OUT jack that each Timbre will use to transmit and receive data.

- When you play the keyboard, each Timbre (whose Note Data setting is other than "OFF") will transmit note messages on the specified MIDI channel from the specified MIDI OUT jack.
- Notes, pitch bend, aftertouch, and control change data from MIDI IN will be received by each Timbre on the specified MIDI channel. (P4-1—4 allows you to specify that data not be received.) This means that data of up to 8 different channels can be received at MIDI IN, to play up to 8 independent sounds at once.

- The "A" or "B" in front of the channel number indicates the MIDI OUT jack. If the channel number matches the Global channel you have specified, a "G" will be displayed after the channel number, and program changes will not be transmitted on that channel.

\* If you set two or more Timbres to the same channel, the External parameters of those Timbres will not be distinguishable as MIDI data. Thus, the External parameters of Timbres who share the same MIDI channel will have identical settings.

### P3-2 Vel Window Top

[A]	Timbre 1	1 – 127	Specify the maximum velocity that will play each Timbre.
?	?	?	
[H]	Timbre 8	1 – 127	

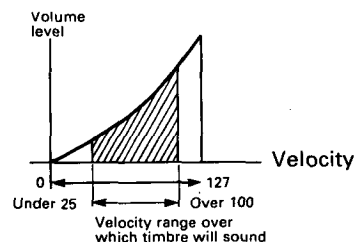
### P3-3 Vel Window Bottom

[A]	Timbre 1	1 – 127	Specify the minimum velocity that will play each Timbre.
?	?	?	
[H]	Timbre 8	1 – 127	

Velocity Window specifies the range of velocity for which notes will sound each Timbre. This allows you to specify different Timbres to sound for notes played with different strengths (velocities).

- It is not possible to set a Top value lower than the Bottom value.

- Example : velocity window bottom = 25, velocity window top = 100



\* Notes whose velocity falls outside of the Velocity Window specified here will not be transmitted from MIDI OUT.

### P3-4 Key Window Top

[A]	Timbre 1	C-1 – G9	Specify the highest note that will play each Timbre.
?	?	?	
[H]	Timbre 8	C-1 – G9	

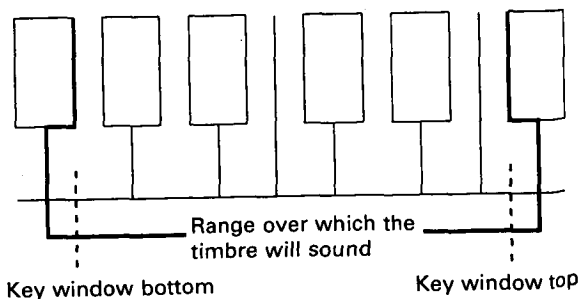
### P3-5 Key Window Bottom

[A]	Timbre 1	C-1 – G9	Specify the lowest note that will play each Timbre.
?	?	?	
[H]	Timbre 8	C-1 – G9	

Key Window specifies the range of notes which will sound each Timbre. This allows you to play different Timbres over different areas of the keyboard.

- It is not possible to set a Top key lower than a Bottom key. (If you set the Top key lower than the Bottom key, the Bottom key will automatically be set a half-step below the Top key, and vice versa.)

- Notes outside of the Key Window specified here will not be transmitted from MIDI OUT.
- When editing the key window, the key window settings of each timbre will be graphically displayed.
- To cancel the display, move the cursor to a parameter other than key window.



COMBI 00	MIDI-2	▶Program Change					
▶T1 = A20:Night Dad							
P1: <input checked="" type="checkbox"/>	P2: <input type="checkbox"/>	P3: <input type="checkbox"/>	P4: <input type="checkbox"/>	P5: <input type="checkbox"/>	P6: <input type="checkbox"/>	P7: <input type="checkbox"/>	P8: <input type="checkbox"/>
C1: <input type="checkbox"/>	C2: <input type="checkbox"/>	C3: <input type="checkbox"/>	C4: <input type="checkbox"/>	C5: <input type="checkbox"/>	C6: <input type="checkbox"/>	C7: <input type="checkbox"/>	C8: <input type="checkbox"/>
D1: <input type="checkbox"/>	D2: <input type="checkbox"/>	D3: <input type="checkbox"/>	D4: <input type="checkbox"/>	D5: <input type="checkbox"/>	D6: <input type="checkbox"/>	D7: <input type="checkbox"/>	D8: <input type="checkbox"/>
A1: <input type="checkbox"/>	A2: <input type="checkbox"/>	A3: <input type="checkbox"/>	A4: <input type="checkbox"/>	A5: <input type="checkbox"/>	A6: <input type="checkbox"/>	A7: <input type="checkbox"/>	A8: <input type="checkbox"/>
A	B	C	D	E	F	G	H

P4-1 Program Change Filter  
 P4-2 Control Change Filter  
 P4-3 After Touch Filter  
 P4-4 Damper Switch Filter

**P4-1 Program Change Filter**

<input checked="" type="checkbox"/> A	P	Timbre 1	× / ○	Specify whether or not each Timbre will respond to or transmit MIDI program changes.
?		?	?	
<input type="checkbox"/> H	P	Timbre 8	× / ○	

When the Program Change Filter is set to “×”, that Timbre will not change Programs even when a MIDI program change message is received.

- When a program change message is received on the Global channel, the Combination will be changed regardless of this setting.

**P4-2 Control Change Filter**

<input checked="" type="checkbox"/> A	C	Timbre 1	× / ○	Specify whether each Timbre will respond to control changes (joystick, etc.).
?		?	?	
<input type="checkbox"/> H	C	Timbre 8	× / ○	

When the Control Change Filter is set to “×”, that Timbre will not be affected by control changes (joystick, etc.) or pitch bend.

**P4-3 After Touch Filter**

<input checked="" type="checkbox"/> A		Timbre 1	× / ○	Specify whether each Timbre will respond to aftertouch.
?		?	?	
<input type="checkbox"/> H		Timbre 8	× / ○	

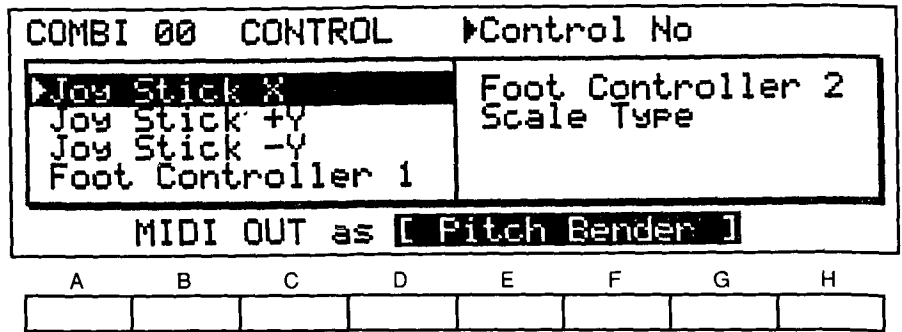
When the After Touch Filter is set to “×”, that Timbre will not respond to aftertouch.

**P4-4 Damper Switch Filter**

<input checked="" type="checkbox"/> A		Timbre 1	× / ○	Specify whether each Timbre will respond to the damper pedal.
?		?	?	
<input type="checkbox"/> H		Timbre 8	× / ○	

When the Damper Switch Filter is set to “×”, that Timbre will not respond to the damper pedal.

P5-1 Joy Stick X



B	Joy Stick X	Pitch Bender / Control No. 0 – 101	The MIDI control number (or pitch bend) assigned to joystick movement in the horizontal direction (X axis).
---	-------------	------------------------------------	---

This determines the type of MIDI data (any control change number 0 – 101, or pitch bend) that will be transmitted when the joystick is moved in the X axis (sideways).

- \* This will not change the way in which the Joy Stick affects the internal tone generator.
- \* When “Pitch Bender” is selected, MIDI Pitch Bend data will be transmitted.

• The following are some examples of Control Change messages. However, the Control Change numbers that can be received will depend on the specific receiving device. When controlling external MIDI devices, consult the MIDI implementation chart for each device.

1 Modulation	64 Damper pedal
2 VDF modulation / breath controller	65 Portamento switch
4 Foot controller	66 Sostenuto pedal
5 Portamento time	67 Soft pedal
7 Volume	80 Rotary SP Effect Speed (M3R only)
8 Balance control	91~95 Effect switches
10 Panpot	

\* When the joystick is not being moved, the X value of the joystick will be at the center of the value range. This means that when the joystick is assigned to control a switch-type function, unexpected results may occur.



### P5-2 Joy Stick +Y

COMBI 00 CONTROL				▶Control No			
Joy Stick X				Foot Controller 2			
▶Joy Stick +Y				Scale Type			
Joy Stick -Y							
Foot Controller 1							
MIDI OUT as [Control No 001]							
A	B	C	D	E	F	G	H

B	Joy Stick +Y	Control No. 0 – 101	The MIDI control number assigned to joystick movement in the upward direction (+Y axis).
---	--------------	---------------------	--

### P5-3 Joy Stick -Y

COMBI 00 CONTROL				▶Control No			
Joy Stick X				Foot Controller 2			
Joy Stick +Y				Scale Type			
▶Joy Stick -Y							
Foot Controller 1							
MIDI OUT as [Control No 002]							
A	B	C	D	E	F	G	H

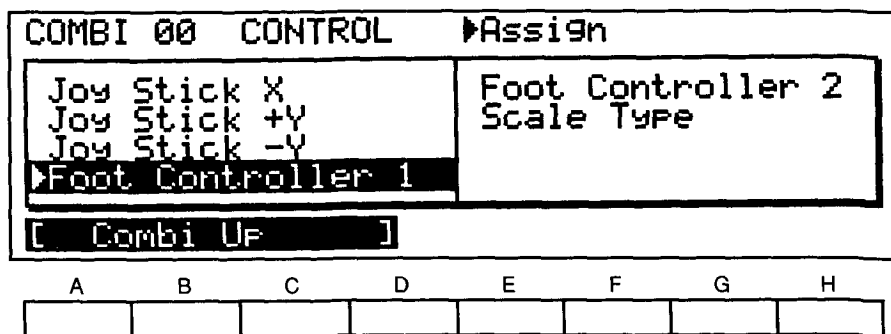
B	Joy Stick -Y	Control No. 0 – 101	The MIDI control number assigned to joystick movement in the downward direction (-Y axis).
---	--------------	---------------------	--

These settings allow you to specify the types of MIDI control change that will be transmitted from MIDI OUT when the joystick is moved forwards or backwards .

\*When using the joystick to control pitch modulation and VDF modulation, set these to 1 and 2 respectively.

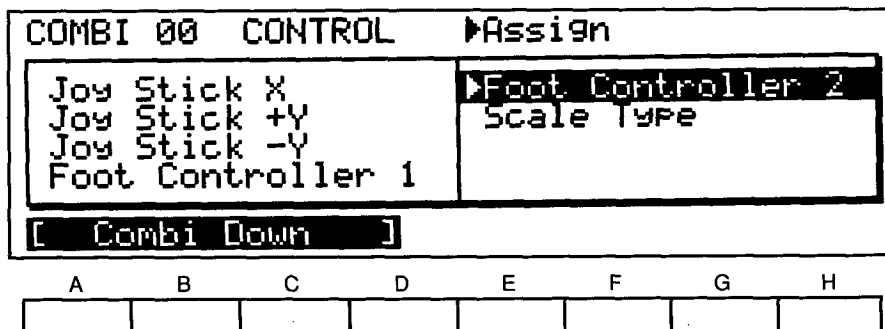
\* This will not change the way in which the Joy Stick affects the internal tone generator.

## P5-4 Foot Controller 1



[A]	Foot Controller 1	Combination Up Combination Down Effect 1 ON/OFF Effect 2 ON/OFF Volume VDF Cutoff Effect 1 Control Effect 2 Control Data Entry External	The function assigned to Foot Controller 1 A footswitch will select the next Combination A footswitch will select the previous Combination A footswitch will turn Effect 1 on/off A footswitch will turn Effect 2 on/off A foot controller will regulate Volume A foot controller will regulate VDF Cutoff A foot controller will regulate the Effect 1 Balance A foot controller will regulate the Effect 2 Balance A foot control will function as a data entry control A foot controller will transmit Control Change messages
[E]	Control No.	0 – 101	The number of the Control Change messages transmitted when Foot Controller 1 is assigned to “External”

## P5-5 Foot Controller 2



[A]	Foot Controller 2	(same as Foot Controller 1)	The function assigned to Foot Controller 2 (same as Foot Controller 1)
[E]	Control No.		(same as Foot Controller 1)

- These settings select the function assigned to Foot Controller 1 and 2.  
- The actual effect that the foot controllers will have will be determined by the various parameter settings.

- \* **Combination Up:** A footswitch will select the next Combination.
- \* **Combination Down:** A footswitch will select the previous Combination.
- \* **Effect 1 ON/OFF:** A footswitch will turn effect 1 on/off.
- \* **Effect 2 ON/OFF:** A footswitch will turn effect 2 on/off.
- \* **Volume:** A foot controller will regulate the volume of the T1/T2/T3 (This data is not transmitted from MIDI OUT.)

- \* **VDF Cutoff:** A foot controller will regulate cutoff frequency (tone). As the pedal is depressed, the cutoff frequency will rise (the sound will become brighter).
- \* **Effect 1 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 1) and the sound of the effect. As the pedal is depressed, the effect sound will increase.
- \* **Effect 2 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 2) and the sound of the effect. As the pedal is depressed, the effect sound will increase.
- \* **Data Entry:** A foot controller will perform the same function as the front panel VALUE slider. If you select a parameter for editing and specify “Data Entry” for the foot controller function, you can use a foot controller to adjust that parameter while playing.

\* **External (external control change):** A foot controller will transmit MIDI Control Change messages of the specified number from MIDI OUT. This allows you to use the T1/T2/T3 foot controller to control MIDI devices connected to MIDI OUT.

- MIDI devices receive and interpret Control Change messages in different ways. Consult the MIDI implementation chart for your device.

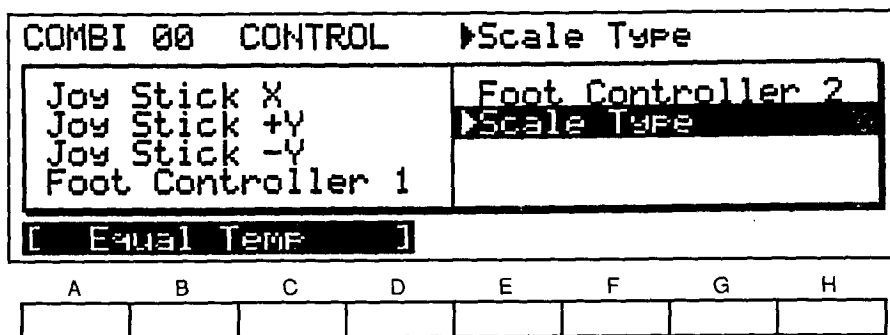
\* Be sure to connect either a footswitch (on/off type) or a foot controller (continuous type) to the Pedal 1 jack, as appropriate for the function you have assigned.

When no pedal or footswitch is connected to the Pedal 1 jack, set this to Combination Up, Combination Down, or Effect ON/OFF.

\* When a Combination Up/Down is executed, the function of the foot controller will change to the settings of the newly selected Combination.

• Please use the Korg EXP-2 as a foot controller.

## P5-6 Scale Type



[A]	Equal Temp.		Equal temperament
	Equal Temp. 2		Equal temperament with a randomized pitch for each note
	Pure Major		Just intonation for the major scale
	Pure Minor		Just intonation for the minor scale
	User Programmable		A scale of pitches set by the user
[F]	Key	C - B	Tonic for the just intonation scales

This specifies the scale (temperament) to be used.

• **Equal Temp. (equal temperament):** The temperament most widely used in keyboard instruments today, equal temperament allows free transposition to all keys; i.e., a chord will sound the same in any key.

• **Equal Temp.2 (equal temperament, random pitch):** Equal temperament, but with slight randomness applied to the pitch of each note. This is useful when simulating the natural irregularities in pitch that are found in many acoustic instruments.

• **Pure Major:** Pure major intonation produces in-tune chords for the specified major scale. Select a key (tonic) of C - B.

• **Pure Minor:** Pure minor intonation produces in-tune chords for the specified minor scale. Select a key (tonic) of C - B.

• **User Programmable:** By specifying a pitch offset of  $\pm 50$  cents for each of the 12 notes (C - B) of the equal tempered scale, you can create your own unique temperament. Make settings GLOBAL mode Page 5 User Scale).

\* The Scale Type you specify here is used by all Timbres.

\* The Scale Type specified in Edit Program mode will be ignored.

## Page 6 Effect

For details of the effect parameters, refer to "Effect Parameters" (page 52).

P6-1 Effect 1 Type  
 P6-2 Effect 1 Parameter  
 P6-3 Effect 2 Type  
 P6-4 Effect 2 Parameter  
 P6-5 Effect Placement

COMBI 00 EFFECT							
<b>EFFECT1 02:Ensemble Hall</b> : ON							
2.8	0030	E46	H015	L-03	H+00	78:22	
EFFECT2 23:Exciter : ON							
B+50	EP01			L+06	H+06	50:50	
[ SERIAL ]	Out3 =	L	Out4 =	R			
A	B	C	D	E	F	G	H

- If you want to use the effect settings that are specified as part of a Program, use the Copy Effect (P7-3) function.

P7-1 Write Combination  
 P7-2 Rename Combination  
 P7-3 Copy Effect

COMBI 00 WRITE							
Write Combination							
Rename Combination							
Copy Effect							
							[WRITE] → 00
A	B	C	D	E	F	G	H

**P7-1 Write Combination**

COMBI 00 WRITE							
Write Combination							
Rename Combination							
Copy Effect							
							[WRITE] → 00
A	B	C	D	E	F	G	H

[F]	WRITE		Execute writing
[H]		00 – 99	Combination number to write

This function writes (stores) an edited Combination into internal memory.

- To write the settings into the original Combination memory, press WRITE without changing the Combination number.

- (1) Select the combination number of the writing destination (use cursor key [H]).
- (2) Press WRITE (cursor key [F]).
- (3) The display will ask for confirmation, so if you are sure you want to write the data into memory, press [YES] (cursor key [E]).

- The Combination previously in that memory will be lost.
- To quit without writing, press [NO] (cursor key [G]).
- Writing is not possible if Combination Memory Protect is On. (Turn memory protect off in GLOBAL mode.)

- (4) When finished, the display will show "Completed".
  - Press a cursor key ([A] – [H]) to return to the previous display.

\* To copy a Combination from internal memory into another Combination memory, select the copy source in COMBINATION mode, and use this page to write it into another memory.

### P7-2 Rename Combination

COMBI 00 WRITE

Write Combination	
Rename Combination	
Copy Effect	

00: [cosmicRain] [◀] [▶]

A	B	C	D	E	F	G	H

[G]	[◀] (cursor left)		Move the cursor to the left
[H]	[▶] (cursor right)		Move the cursor to the right

Use ◀ (cursor key [G]), ▶ (cursor key [H]), the VALUE slider, and the UP (▲)/DOWN (▼) keys to change the Combination name.

- You may give a Combination a name of up to 10 characters or symbols.

!"#\$%&'()\*+,-./0123456789:;<=>?  
 @ABCDEFGHIJKLMNPOQRSTUVWXYZ[^\\_`  
 abcdefghijklmnopqrstuvwxyz{|}~

### P7-3 Copy Effect

COMBI 00 WRITE ▶ Source Mode

Write Combination	
Rename Combination	
Copy Effect	

from [COMBINATION] - 00 [COPY]

A	B	C	D	E	F	G	H

[B]	Source Mode	PROGRAM COMBINATION SONG	Copy from a Program Copy from a Combination Copy from a Song
[E]	Source Number	A00 – A99, B00 – B99 00 – 99 00 – 19	Number of PROG to copy from Number of COMBI to copy from Number of SONG to copy from
[G]		COPY	Execute copying

This function copies only the Effect parameters from an internal memory Combination, Program, or Song.

- The Effect data will be copied into the Combination you are currently editing.

(1) Select the mode containing the memory whose Effect parameters you want to copy ([B]).

(2) Select the number you want to copy. (When copying from a Program, select the Program number; when copying from a Combination, select the Combination number; when copying from a Song, select the Song number.)

(3) Press [COPY] ([G]) to copy the effect parameters from the specified memory.

## 6. SEQUENCER MODE (SEQ)

### What is a Song?

The T1/T2/T3's memory can hold up to 20 Songs. Each Song consists of the following data.

SONG		
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Song parameters (tempo, time signature, etc.)</div> <div style="border: 1px solid black; padding: 5px;">EFFECT (effect settings used in this Song)</div>	TRACK 1 parameters (Program number, volume, MIDI channel, etc.)	TRACK 1 musical data
	TRACK 2 parameters	TRACK 2 musical data
	TRACK 3 parameters	TRACK 3 musical data
	TRACK 4 parameters	TRACK 4 musical data
	TRACK 5 parameters	TRACK 5 musical data
	TRACK 6 parameters	TRACK 6 musical data
	TRACK 7 parameters	TRACK 7 musical data
	TRACK 8 parameters	TRACK 8 musical data

- Each song contains 8 tracks.
- A Program and MIDI channel can be specified for each track. (It is also possible to insert program changes at any point in a song.)
- Each track can contain up to 999 measures of musical data.
- Effect settings can be made for each song. (In Sequencer mode, the effect settings of the Program assigned to each Track will be ignored.)
- The number of simultaneous notes that the T1/T2/T3 can produce will not exceed 16 oscillators total for all Tracks. (Using the metronome will decrease the number of simultaneous notes by one.)
- By setting a MIDI channel for each Track, you can also use external tone generators.

Tracks in a Song can be used in three ways.

- (1) Realtime recording: Your keyboard playing will be recorded in the timing that you play it. This is the simplest way to record. When you enter Sequencer mode, you will automatically be in the realtime recording page.
- (2) Step recording: This allows you to enter notes one by one (a step at a time) from the keyboard, specifying the length and velocity of each note.
- (3) Pattern: Patterns (musical data of 1—8 measures) can be strung together to form rhythm parts, etc.

### What is a Pattern?

In addition to the 20 Songs, memory also holds 200 Patterns. These Patterns can be arranged in a Track, and played during a Song. It is also possible to use Patterns for repeating sections of a Song, such as rhythm patterns or phrases. This lets you save memory.

Each Pattern consists of the following data.

PATTERN	
Pattern parameters (time signature, number of measures)	Musical data

- A Pattern can be placed in any Track of any Song. However, it is not possible to place two or more Patterns in the same measure of the same Track, nor can Patterns and musical data be combined.

Patterns can be created in three ways.

- (1) Realtime recording: Your keyboard playing will be recorded in the timing that you play it. Unlike realtime Track recording, realtime Pattern recording overdubs your playing (the newly played data is added to the old data) as the Pattern continues to repeat. (This allows you to record a drum kit pattern by playing each drum separately.)
- (2) Step recording: This allows you to enter notes one by one (a step at a time) from the keyboard, specifying the length and velocity of each note. Unlike step Track recording, the newly played data is overdubbed (added to the old data).
- (3) Copy from a Track: Musical data can be copied from a Track into a Pattern.

## Sequence data memory

The sequence memory of the T1/T2/T3 can contain a total of 50,000 notes total for all Songs and Patterns. However, a single Track or Pattern can contain no more than 16,000 steps.

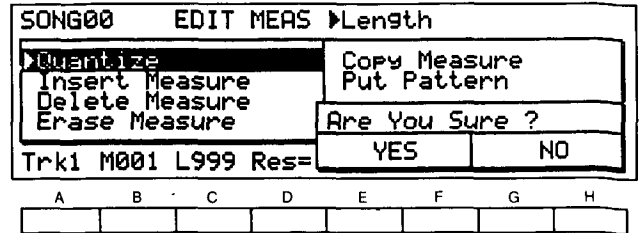
When you turn the T1/T2/T3 power off, all the sequence data in memory will be lost. Be sure to save your newly created sequence data to disk.

When there is enough free memory, you can press the COMPARE key to cancel the previous edit and return the sequence data to its previous condition.

For example, if after executing a Quantize operation you decide that you don't like the results, this function allows you to restore the data to its original state.

This Compare function applies only to the last-edited operation. While editing a sequence, it is a good idea to save your work to disk as necessary.

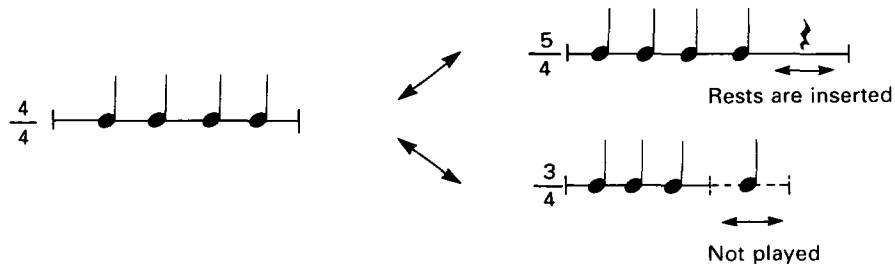
- If there is not enough free memory and the Compare function is not available, the display will ask "Are You Sure?".



Press YES ([E]) to execute the operation. To quit without executing, press NO ([G]).

## Beat (time signature)

The T1/T2/T3 allows you to specify the beat (time signature) for each measure, but two or more tracks cannot be set to different beats for the same measure. If a time signature of a track changes as a result of recording or editing, the other tracks will also change. If the result is longer, rests will be inserted into the measure. If the result is shorter, the notes falling outside of the range will not be played. (The data still remains, and you can restore and play it later.)





## Functions in Sequencer mode

Functions in Sequencer mode allow you to play and record a Song, and edit musical data and Song parameters. In this mode, the keyboard will play the Program assigned to the currently selected Track.

PAGE	FUNCTION	
<b>P0 REC/PLAY</b>		
0-1	Real Time Recording	Record a Track in realtime
0-2	Punch In Recording	Punch In record a Track
0-3	Track Program	Specify the Program for each Track
0-4	Track Volume	Specify the volume for each Track
<b>P1 TRACK</b>		
1-1	Track Status	On/Off, MIDI output for each Track
1-2	Track Protect	Protect On/Off for each Track
1-3	Transpose	Transpose setting for each Track
1-4	Detune	Detune setting for each Track
1-5	Panpot	Panpot setting for each Track
<b>P2 MIDI</b>		
2-1	MIDI Channel	Specify MIDI channel for each Track
2-2	Velocity Window Top	Specify velocity window for each Track
2-3	Velocity Window Bottom	
2-4	Key Window Top	Specify key window for each Track
2-5	Key Window Bottom	
<b>P3 EDIT SONG</b>		
3-1	Step Recording	Step Record a Track
3-2	Event Edit	Edit the events in a Track
3-3	Erase Track	Erase a Track
3-4	Bounce Track	Bounce a Track
3-5	Copy Track	Copy a Track
3-6	Erase Song	Erase a Song
3-7	Append Song	Append a Song
<b>P4 EDIT MEASURE</b>		
4-1	Quantize	Quantize
4-2	Insert Measure	Insert measures
4-3	Delete Measure	Delete measures
4-4	Erase Measure	Erase measures
4-5	Copy Measures	Copy measures
4-6	Put Pattern	Place a Pattern in a measure
4-7	Copy from Pattern	Copy a pattern to a measure
<b>P5 EDIT PATTERN</b>		
5-1	Real Time Recording	Record a Pattern in realtime
5-2	Step Recording	Step record a Pattern
5-3	Event Edit	Edit the events in a Pattern
5-4	Pattern Parameter	Set time signature and length of a Pattern
5-5	Erase Pattern	Erase a Pattern
5-6	Get from Track	Define a Pattern as data from a Track
5-7	Bounce Pattern	Bounce a Pattern
5-8	Copy Pattern	Copy a Pattern
<b>P6 EFFECT</b>		Effect settings
<b>P7 SONG</b>		
7-1	Next Song	Specify the Song to be played next
7-2	Rename Song	Set the Song name
7-3	Metronome	Metronome settings
7-4	Pedal Assign	Assign the function of the foot pedals
7-5	Scale Type	Specify the scale type
7-6	Vel/Aft.T Curve	Velocity / aftertouch curves
7-7	Copy Effect	Copy effect parameters

## P0 REC/PLAY (play and realtime recording)

Song No. & Name  
P0-3 Track Program  
P0-4 Track Volume

P0-2 Track REC/PLAY  
P0-1 Real Time REC/PLAY

SONG00 New Song		▶Song	
*A00	*A00	*A00	*A00
U99	U99	U99	U99
Beat: 04/04		MM: OFF	Res=♪/48
999	♪=120 Trk1	M001 NORM	[▶◀]
A	B	C	D
E	F	G	H

### P0-1 Real Time REC/PLAY

[B] l	Beat	01/04 – 09/04 01/08 – 16/08 01/16 – 16/16 **/**	Display and set the time signature
[D] MM	Metronome	ON/OFF	Turn the metronome On/Off
[F]	Resolution	♪/48 – ♩/1	Step

[A] S	Song	00 – 19	Select the Song to play or record
[B] ♩=	Tempo	40 – 208	Tempo (the number of beats per minute)
[C] Trk	Track	1–8 MLT	Select the Track
[D] M	Measure	001 – 999	Measure number
[E]	REC Mode	NORM P.IN	Normal recording Punch in recording
[F]	Punch In Measure	001–998	Measure to punch in
[G]	Punch Out Measure	002–999	Measure to punch out
[H]		[▶◀]	Return to the beginning of the Song

The punch in measure and punch out measure will be displayed when REC Mode is set to “P.IN”.

“MIDI” will be displayed instead of the Tempo display, when the Clock Source is set to EXT.

### Play

Specify the Song number (bottom row [A] key) to play, and press START/STOP to begin playback. To playback from a specific location in the song, specify the measure (bottom row [D] key). During playback, pressing START/STOP will pause. Press START/STOP once again to resume playback. When the song ends, playback will stop and the measure will be reset to the measure where playback began. However if P7-1 Next Song has been specified, the song will be changed, and playback will continue on this song if this has been specified.

- If playback was started from the middle of a song, the position will be reset to the measure at which playback was started when the song ends.
- While not playing back and the cursor is on the lower two lines, pressing RESET (bottom row [H] key) will return to the beginning of the song.

- Even if the tempo and volume levels are changed during playback, they will be restored to their originally recorded settings when the song is reset. (When the song is played to the end, or when RESET is pressed.) To change the recorded tempo setting of a song, press the WRITE key to write the data into memory.

- It is not possible to modify the Beat during playback.

## Realtime recording

- (1) Select the Song (bottom row [A] key) and Track (bottom row [C] key) to record, and set the recording mode (bottom row [E] key) to "NORM".
- (2) Press the REC key to make the indicator light.
- (3) If necessary, specify tempo (bottom row [B] key), beat (second row from the bottom [B] key), metronome On/Off (second row from the bottom [D] key), resolution ([F]1), P0-3 Track Program, and P0-4 Track Volume.
- (4) Press START/STOP. After a countdown of the number of measures specified by P7-3 Lead In, recording will begin. Other tracks will be played according to the P1-1 Track Status setting.
- (5) When you are finished, press START/STOP. You will return to the measure at which recording began. Press START/STOP to hear the performance you just recorded from that measure.

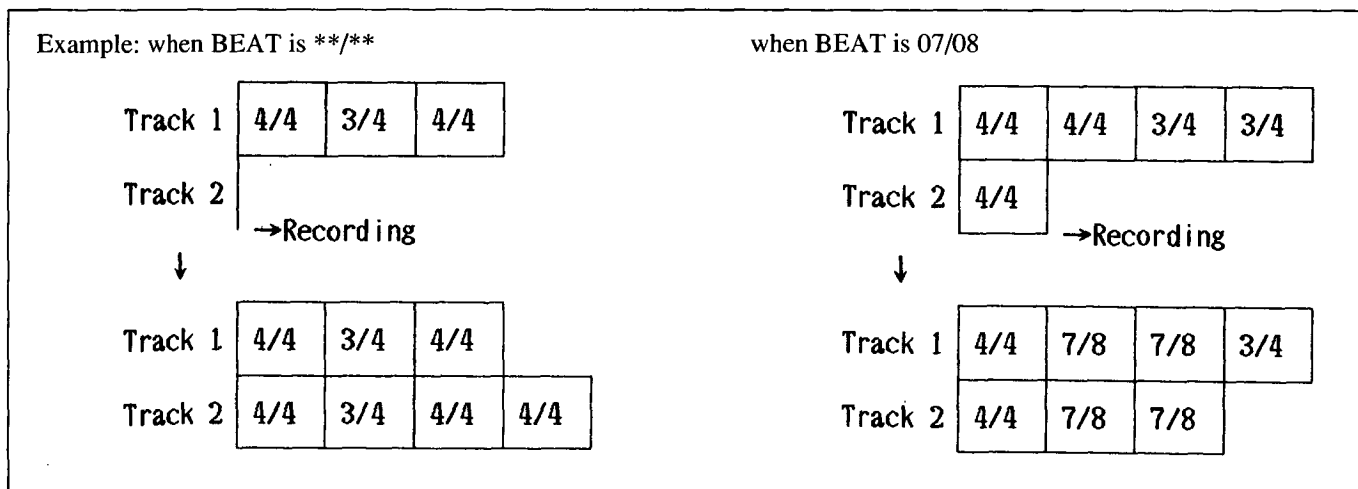
- If you realtime record a Track which already contains data, the new data will replace the old data, and all data following the point at which recording began will be lost.
- If you modify tempo (bottom row [B] key), P0-2 Track Program, or P0-3 Track Volume while recording, the tempo change, program change, or volume change data will be recorded into the Track. (Tempo changes apply to all 8 tracks.)

- Aftertouch data uses up a lot of memory. When recording a Track which does not require aftertouch data, save memory by setting the GLOBAL mode P0 MIDI Filter setting for Aftertouch to "X".

**Resolution:** Resolution (second row from the bottom [F] key) determines the timing accuracy with which data will be recorded in realtime. For a setting of ♩/48, notes will be recorded almost exactly as you play them. For a setting of ♩/1, notes will be recorded at timing intervals of a quarter note.

If a musical performance including control data such as pitch bend is recorded at a rough resolution (such as ♩/1), it will have an unnatural "stepped" effect when played back. In such cases, record using as fine a resolution as possible, and then use P4-1 Quantize to adjust the timing of note data.

**Changing meters:** By specifying the beat (second row from the bottom [B] key) before starting to record, you can change the time signature of that measure. Changes in time signature will apply to all tracks that contain musical data.



## Punch In recording

Punch In recording allows you to re-record a specified section of a Track.

- (1) Select the Song (bottom row [A] key) and Track (bottom row [C] key) to record, and set the recording mode to "P.IN".
- (2) Specify the punch in measure (bottom row [F] key) and the punch out measure (bottom row [G] key).
- (3) Press the REC key to make the indicator light.
- (4) If necessary, specify tempo (bottom row [B] key), beat (second row from the bottom [B] key), metronome On/Off (second row from the bottom [D] key), resolution (second row from the bottom [F] key), P0-3 Track Program, and P0-4 Track Volume.
- (5) Set the measure (bottom row [D] key) to a location several measures before the punch in measure, and press START/STOP. After a two-measure countdown, recording will begin.

- (6) When the punch in measure is reached, recording will automatically begin.
- (7) When the punch out measure is past, press START/STOP to stop playback. You will return to the measure at which playback began. To punch in record once again, repeat from step (3).

- If the Track on which you are punching in contains a Pattern of two or more measures, you will not be able to punch out on a measure inside the Pattern.
  - If the specified punch in/out area contains damper off or pitch bend data, the loss of this data may result in a "stuck" damper pedal or pitch bend when played back. If so, use measure edit or event edit to correct the data.
- \* To change the resolution or beat, refer to Realtime Recording.

## **P0 - 2 Track REC/PLAY**

[A]	Track 1	■ REC PLAY	A Track which does not contain data A Track begin recorded A Track being played
?	?		
[H]	Track 8		

## Recording multi-channel data

The T1/T3 can record MIDI data from external devices. When a Track (bottom row [C] key) is set to "Trk1"–"Trk8", only MIDI data which matches the channel specified for that Track will be recorded. When a Track (bottom row [C] key) is set to "MULT", several Tracks can simultaneously record data on each of their MIDI channels.

- (1) Specify the P2-1 Track MIDI Channel for each Track.
- (2) Set Track (bottom row [C] key) to "MULT".
- (3) Set P0-2 Track REC/PLAY to "REC" for each Track you want to record. (Tracks you do not wish to record should be set to "■".)

(4) Follow steps (3) – (5) for Realtime Recording.

- If the amount of MIDI data on each channel is uneven, a memory full error may occur even though not all memory has been used up. In such cases, record without the largest track, and then re-record this track later.
- The following data received at MIDI IN will be recorded; note on/off, pitch bend, program change, channel pressure, and control change (0 – 101).
- When Trk1 – Trk8 are selected, the Track REC/PLAY display will show "PLAY" for Tracks which contain data. When the REC key is pressed, the selected track will display "REC".

## P0-3 Track Program

[A]	Track 1	OFF A00 – A99 B00 – B99	Program number
?	?		
[H]	Track 8		

This determines the Program assigned to each Track. This can be modified for playback, but when the song is reset, the recorded settings (or the settings at the time the WRITE key was pressed) will be restored.

- If a Track contains program change data, the display will change during playback (or when you move to another measure) to indicate this.

## P0-4 Track Volume

[A]	Track 1	00 – 99	Track volume
?	?		
[H]	Track 8		

This determines the volume of each Track. This can be modified for playback, but when the song is reset, the recorded settings (or the settings at the time the WRITE key was pressed) will be restored.

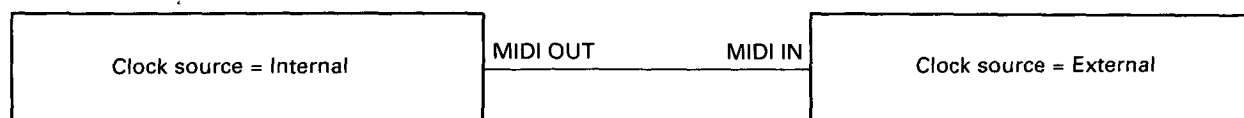
- If a Track contains volume control data, the display will change during playback (or when you move to another measure) to indicate this.

## Synchronizing with external MIDI devices

Rhythm machines or sequencers can be connected via MIDI to play back in synchronization with the T-series.

Set the clock (timing) source of one unit to Internal (transmit MIDI clock messages), and the other unit to External (synchronize to incoming MIDI clock messages), and connect the Internal unit's MIDI OUT to the External unit's MIDI IN.

- Specify the clock source of the T-series in Global mode (P0-2). (The owners manual of your other unit will tell you how to set its clock source.)
- Start and stop operations must be done on the device set to Internal Clock.
- If the connected MIDI device is able to use Song Select and Song Position Pointer messages, selecting a measure on the Internal Clock device will make the External Clock device start from the same location of the same song.



## Page 1 Track Parameters

- P1-1 Track Status
- P1-2 Track Protect
- P1-3 Transpose
- P1-4 Detune
- P1-5 Panpot

SONG00	TRACK		▶Track Status					
<input checked="" type="checkbox"/>	ON	ON	ON	ON	ON	ON	ON	ON
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
T+00	T+00	T+00	T+00	T+00	T+00	T+00	T+00	T+00
D+00	D+00	D+00	D+00	D+00	D+00	D+00	D+00	D+00
5:5	5:5	5:5	5:5	5:5	5:5	5:5	5:5	5:5
	A	B	C	D	E	F	G	H

### P1-1 Track Status

[A]	TRACK1	OFF INT EXT ON	Not played back Played back only internally Played back only from MIDI OUT Played back both internally and from MIDI OUT
?	?		
[H]	TRACK8		

You can specify whether each track will not be played back (OFF), played back only from MIDI OUT (EXT), played back only by the internal tone generators (INT), or played back by the tone generators and from MIDI OUT. (ON).

- When you select a track which is set to "EXT", playing the keyboard will not make the internal tone generator produce sound. If the selected track is set "OFF", playing the keyboard will not transmit data from MIDI OUT.

### P1-2 Track Protect

<b>A</b>	Track 1	OFF/ON	Protect On/Off for each Track
?	?		
<b>H</b>	Track 8		

If protect is turned On, that track can neither be recorded nor edited.

### P1-3 Transpose

<b>A</b>	Track 1	-24 – +24	Transpose setting for each Track (chromatic steps)
?	?		
<b>H</b>	Track 8		

Each Track can be transposed in chromatic steps. This has no effect on the data transmitted from MIDI OUT.

### P1-4 Detune

<b>A</b>	Track 1	-50 – +50	Fine pitch setting for each Track (steps of 1 cent)
?	?		
<b>H</b>	Track 8		

This is a fine pitch adjustment for each Track in steps of 1 cent.

### P1-5 Panpot

<b>A</b>	Track 1	A, 9:1 – 1:9, B, C, C+D, D	Panpot setting for each Track
?	?		
<b>H</b>	Track 8		

This determines the output panpot setting for each Track. For Tracks that have been assigned a Drum Kit Program, the display will show “SND”, and the settings of each Drum Kit will be used.

P2-1 MIDI Channel  
 P2-2 Velocity Window Top  
 P2-3 Velocity Window Bottom  
 P2-4 Key Window Top  
 P2-5 Key Window Bottom

SONG00	MIDI	MIDI Ch						
A01	A02	A03	A04	A05	A06	A07	A08	
127	127	127	127	127	127	127	127	
001	001	001	001	001	001	001	001	
G9	G9	G9	G9	G9	G9	G9	G9	
C-1	C-1	C-1	C-1	C-1	C-1	C-1	C-1	
A	B	C	D	E	F	G	H	

**P2-1 MIDI Channel**

A	Track 1	A1 – A16/ B1 – B16	MIDI transmission and reception channels and MIDI OUT terminals (A/B) for each track
?	?		
H	Track 8		

This determines the MIDI output jack (A/B) and MIDI channel (1 – 16) for each Track.

- The output jack setting affects only MIDI OUT. The internal tone generator used for each Track is determined only by the channel setting.
- By assigning the same MIDI channel to Tracks for which different Programs are selected, you can play those Programs in unison.

Example:

Track 1	Data	ch:A3	Prog B10
Track 2	No data	ch:A3	Prog A30

As a result, Programs B10 and A30 will be played in unison.

- It is also possible to set two or more Tracks to the same MIDI channel, and divide note and controller data between the Tracks.

Example:

Track 1	Note data	ch:A1	Prog A15
Track 2	Control data	ch:A1	Prog OFF



## P2-2 Velocity Window Top

<b>A</b>	Track 1	1 – 127	Upper limit of the velocity window
?	?		
<b>H</b>	Track 8		

This determines the upper limit of the velocity that will play the Program assigned to each Track.

## P2-3 Velocity Window Bottom

<b>A</b>	Track 1	1 – 127	Lower limit of the velocity window
?	?		
<b>H</b>	Track 8		

This determines the lower limit of the velocity that will play the Program assigned to each Track.

## P2-4 Key Window Top

<b>A</b>	Track 1	C-1 – G9	Upper limit of the key window
?	?		
<b>H</b>	Track 8		

This determines the highest note of the key range that will play the Program assigned to each Track.

## P2-5 Key Window Bottom

<b>A</b>	Track 1	C-1 – G9	Lower limit of the key window
?	?		
<b>H</b>	Track 8		

This determines the lowest note of the key range that will play the Program assigned to each Track.

To exit the display, move the cursor to a parameter other than key window.



- When recording, only the notes that fall inside the specified velocity window and key window will be recorded.
- By setting two or more Tracks to the same MIDI channel and different velocity and key windows, you can record and playback using velocity switched and/or key split sounds.
- When editing the key window, the display will show a graphic indication of the key window setting for each Track.

P3-1 Step Recording

SONG00 EDIT SONG ▶Track Number							
▶Step Recording	Copy Track						
Event Edit	Erase Song						
Erase Track	Append Song						
Bounce Track							
Track1 Meas001 (REC + S/S to Start)							
A	B	C	D	E	F	G	H

[A]	Track	1—8	Track number to record
[C]	Measure	1—999	Measure at which to begin recording

SONG00 Step REC ▶Beat							
Track = 1							
Measure = 001							
Location = 1:00							
100% Free	-M001--Beat:04/04-						
04/04 1/4 ---- mf ---- [RST] [◀]							
A	B	C	D	E	F	G	H

[A]	Beat	1/4 – 16/16	Specify the time signature
[B]	Step Time	1/32 – 1/1	Basic note length (32nd note  — whole note  )
[C]	Triplet / Dot	Trip ---- Dot	Modify the note length Triplet of note length specified by Step Note length specified by Step Dotted note of note length specified by Step
[D]	Key Dynamics	ppp–fff	Note velocity (very soft — very loud)
[E]	Stacc / Tenuto	Stac ---- Ten	Note duration Staccato (notes are released quickly) Normal note duration Tenuto (notes are held long)
[F]		[RST]	Specify a rest
[G]		[TIE]	Specify a tie (only when a note has been input)
[H]		[◀]	Go back one step

## Step recording

Step recording allows you to enter notes one by one from the keyboard, specifying the length and velocity for each note. If you step record over a measure which already contains data, the old data in that measure will be lost.

- (1) Specify the Track program and volume for the Song you will be recording (P0-3/4), and write the settings into memory.
- (2) Specify the Track ([A]) and starting measure ([C]) for recording.
- (3) Press REC to make the indicator light, and then press START/STOP. The upper left of the display will indicate the measure number being recorded, the current beat of that measure, and the current "clock" in that beat. (0:01 corresponds to a 1/48th of a beat.)
- (4) Specify the beat ([A]). If you change the beat, the beat of other Tracks will also be changed.
- (5) Specify the type of note to be input, using step time ([B]) and triplet / dot ([C]). (A triplet changes the step time by 2/3, and a dot changes the step time by 3/2.)

	[B]	32	16	8	4	2	1
[C]							
TRIP							
.....							
DOT							

- (6) Use staccato / tenuto ([E]) to specify the duration of the note.

	Note duration
stac	
.....	
ten	

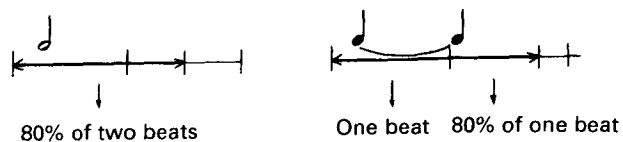
- (7) Use key dynamics ([D]) to specify the loudness of the note.

	Loudness	Velocity value
ppp	Pianississimo (extremely soft)	24
pp	Pianissimo	44
p	Piano	54
mp	Mezzo piano (somewhat soft)	64
mf	Mezzo forte (somewhat loud)	74
f	Forte	84
ff	Fortissimo	94
fff	Fortississimo	114

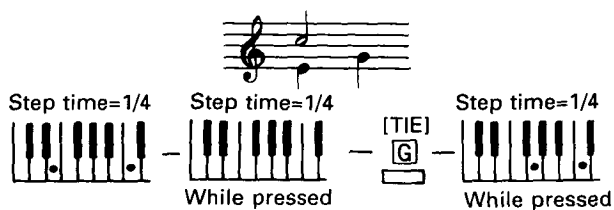
- (8) Use the keyboard to enter a note. (To enter a chord, press that chord.) Regardless of the timing with which they were pressed, each note that is pressed until all notes are released will be recorded at the same step.
- (9) When all notes are released, you will advance to the next step. Repeat steps (4) – (8) as many times as necessary. To enter a rest, specify the length of the rest and then press [RST] ([F]).
- (10) When you are finished recording, press "START/STOP" to exit step recording.

- When you press [RST] ([F]), the position will advance as specified by the step time.
- When you press [TIE] ([G]), the note you entered in the previous step will be lengthened by the step time.

In order to enter a note that is longer than the currently specified step time setting, you can either change the step time or use a tie to lengthen the note. These two methods will result in different note durations, as follows.

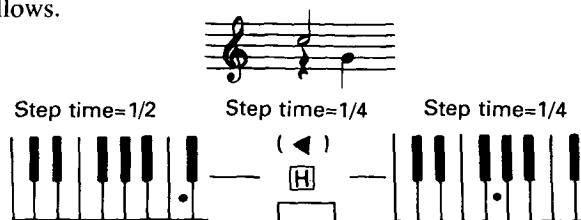


A tie can be specified while a key is being pressed, and will add the step time to the length of that note. In this case, the tie will apply only to the note being pressed. This allows you to enter a chord consisting of different note lengths.



- Pressing ◀ ([H]) will move back one step as specified by the step time. If any notes exist at or later than that position, they will be deleted.

- Use this function when you make a mistake. By setting a shorter step time and stepping back, you can enter notes as follows.



In step recording only notes can be entered, not control data. If necessary, you can record control data into another Track in realtime and then use the Bounce function (mix the two tracks), or insert control data using Event Edit.

P3-2 Event Edit

SONG00 EDIT SONG ▶Track Number

Step Recording	Copy Track
▶Event Edit	Erase Song
Erase Track	Append Song
Bounce Track	

Track1 (REC + S/S to Start.)

A	B	C	D	E	F	G	H

[B]	Track	1-8	Track to be edited
-----	-------	-----	--------------------

SONG00 EDIT SONG ▶Note Data

▶Event Edit	
	Event Filter
	NOTE CONT AFTT BEND PROG
	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

A	B	C	D	E	F	G	H

[C] NOTE	Note (note data)	× / ○	Specify the type of events to be displayed and edited. (Events set to "×" will not be displayed during editing.)
[D] CONT	Cntl (control change)	× / ○	
[E] AFT	Aft.T (aftertouch)	× / ○	
[F] BEND	Bend (pitch bend)	× / ○	
[G] PROG	Prog (program change)	× / ○	

SONG00	Track1	▶Measure	
M001 #000	===	BAR	Beat: 04/04
<b>M001 #001</b>	1:00	C2	U074 0:38
M001 #002	2:00	D2	U074 0:38
M001 #003	3:00	E2	U074 0:38
M001 #004	4:00	F2	U074 0:38
M002 #000	===	BAR	Beat: 04/04

A	B	C	D	E	F	G	H

<b>A</b> M	Measure	001 – 999	Measure to be edited
<b>B</b> #	Index	000 –	Event index *1
<b>C</b>	Location	TIE, 1:00 – 9:47	Event timing
<b>D</b>	Event	BAR C-1 – G9 BEND AFTT PROG CNTL	Type of event Bar line Note Pitch bend Aftertouch Program change Control change
<b>E</b>	Beat	01/04 – 09/04 01/08 – 16/08 01/16 – 16/16	(for bar lines)
V	Velocity	2 – 126	(for notes)
	Bend	-8192 – +8192	(for pitch bend)
	After Touch	0 – 127	(for aftertouch)
	Program	A00 – A99 B00 – B99	(for program changes)
C	Control	0 – 107	(for control changes)
<b>F</b>	Length Data	0:00 – 9:00, TIE 0 – 127	Note length (for notes) Control data (for control changes)
<b>G</b> [INS]			Insert an event
<b>H</b> [DEL]			Delete an event

\*1 Index numbers are assigned in the order of their location in the track. If you modify the location, the index numbers will change automatically.

## Event Edit

A single step of musical data is called an “event”. Event Edit allows you to modify, insert, or delete individual events from the data in a Track.

A note event consists of the note pitch (note number), loudness (velocity), and note length. For data other than notes, one MIDI message is considered an event.

\* Since event edit allows you to directly modify sequence data, careless editing can modify the data so that it can no longer be restored to its original state. Please use caution.

- (1) Specify the Track ([C]) to edit.
- (2) Press REC to make the indicator light. The Event Filter setting will be displayed, so set the event types which you want to edit to “○”. (Events set to “×” will not be displayed during editing.)

(3) Press START/STOP and the event editing display will appear.

(4) Use UP/DOWN or measure ([A]) and index ([B]) to select the event to edit.

(5) Select a parameter, and edit it.

(6) When you have finished, press START/STOP to exit event editing.

- The location is indicated by the beat number in the measure, and the clock number in that beat.

- One clock is 1/48th of a beat. (A MIDI clock corresponds to 2 clocks of the T1/T2/T3.)

NOTE: Note data	BEND: Pitch bend
CNTL: Control change	PROG: Program change
AFTT: Aftertouch	

- For note events, [D] indicates the note name (pitch), [E] indicates the velocity (loudness), and [F] indicates the length (note duration).

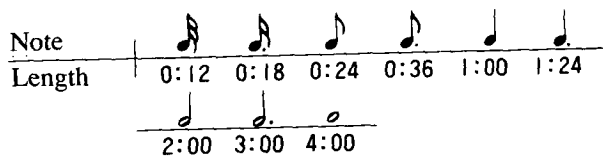
- Odd numbered velocity values can not be set.

- In event edit, note data will be sounded with a length of 0:01. (When edited, notes will sound with the current data.)

SONG00		Track1		▶Event	
M001	#000	===	BAR	Beat:04/04	
M001	#001	1:12	G4	V120	0:06
M001	#002	1:12	G4	V116	0:06
M001	#003	2:00	D4	V116	0:08
M001	#004	2:00	G4	V110	0:16
M001	#005	3:00	C4	V106	0:08

[INS] [DEL]

A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---



- For pitch bend, aftertouch, and program change events, [E] indicates the data value.

SONG00		Track1		▶After Touch	
M002	#000	===	BAR	Beat:04/04	
M002	#001	1:00	BEND	-8192	
M002	#002	1:00	AFTT	127	
M002	#003	1:00	PROG	000	
M002	#004	2:00	BEND	0000	
M002	#005	2:00	AFTT	000	

[INS] [DEL]

A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---

- For control change events, [E] indicates the control number and [F] indicates the data value.

- Control numbers not listed in this table indicate control change data that has been recorded from MIDI IN.

- Control numbers 102 to 107 are not received or transmitted via MIDI.

SONG00		Track1		▶Tempo	
M003	#000	===	BAR	Beat:04/04	
M003	#001	1:00	CNTL	C001	000
M003	#002	1:00	CNTL	C002	000
M003	#003	1:00	CNTL	C007	127
M003	#004	1:00	CNTL	C064	000
M003	#005	1:00	CNTL	0127	064

[INS] [DEL]

A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---

Control No.	Type of control	Value	Remarks
1	Pitch modulation	0 (off) — 127 (max)	Data of 64 sets VDF Cutoff to the edited value of the Program. When data of 0 arrives, the effect will be switched on/off. (1—127 are not used.) Data of 64 sets Effect 1 to the edited value. Data of 64 sets Effect 2 to the edited value. For data of 64, the Tempo will be the specified value.
2	VDF modulation	0 (off) — 127 (max)	
7	Volume	0 (min) — 127 (max)	
64	Damper switch	0 (off), 127 (on)	
102	VDF cutoff	0 (low) — 64 — 127 (high)	
103	Effect 1 switch	0	
104	Effect 2 switch	0	
105	Effect 1 control	0 (min) — 64 — 127 (max)	
106	Effect 2 control	0 (min) — 64 — 127 (max)	
107	Tempo change	0 (-50%) — 64 — 127(+50%)	

- For bar line events, [F] indicates the time signature. When the time signature is edited, the time signature of other Tracks will automatically be changed.

SONG00		Track1		▶Beat	
M004	#000	===	BAR	Beat:04/04	
M005	#000	===	BAR	Beat:04/04	
M006	#000	===	BAR	Beat:03/04	
M007	#000	===	BAR	Beat:03/04	
M008	#000	===	BAR	Beat:04/04	
M008	#001	1:00	C4	V108	0:08

[INS]

A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---

- Measures which contain a Pattern will be displayed as follows. (These cannot be edited. To replace a pattern, use P4-6 Put Pattern.)

SONG00		Track1		▶Measure	
M009	==	Pat000(H)	==	Beat:04/04	
M010	==	Pat000	==	Beat:04/04	
M011	==	Pat000(H)	==	Beat:04/04	
M012	==	Pat000	==	Beat:04/04	
M013	==	Pat001(H)	==	Beat:04/04	
M014	==	Pat001(H)	==	Beat:04/04	

A	B	C	D	E	F	G	H
---	---	---	---	---	---	---	---

### Editing an event

[D] modifies the note pitch or event type, and [E] and [F] modify the event data. (Refer to the table of event types.)

### Moving an event

Use [C] to move the event within that measure.

If a change in event location has changed the order of events, the index numbers within the measure will be re-numbered.

To move an event to another measure, use Delete and Insert.

### Deleting an event

Press [DEL] ([H]) to delete the event at the cursor.

If you accidentally delete a note, press insert ([G]) before doing anything else, and the note will be restored.

However if the note was tied, inserting it will not make it return immediately.

### Inserting an event

Press [INS] ([G]) to create a new, identical event at the location of the cursor. By moving the location or editing the event, you can use this to insert any desired event.

If you insert immediately after deleting, the deleted event will be inserted.

\* It is also possible to insert events into a new Track. In this case, you must first use F5-3 Measure Insert to create blank measures.

\* Notes which overlap bar lines are treated as two tied notes. To edit such notes, use the following procedure. (Refer to the diagram below.)

- (1) Edit the note number and velocity for note A. Note B will automatically be corrected.
- (2) To change the note length, edit note B.
- (3) To delete notes A+B, delete in the order of A, then B. To delete only B, set the length of A to a value less than [TIE], and then delete B. (If you delete A or set a length greater than [TIE], note B will be given a location of 1:00.)
- (4) To insert A+B, insert B at location 1:00, then insert A, and set the note length to [TIE]. Set the note numbers and velocities of A and B to the same values.

SONG00		Track1		Velocity	
M015	#000	===	BAR	Beat:04/04	
M015	#001	1:00	E4	0064	TIE
M016	#000	===	BAR	Beat:04/04	
M016	#001	TIE	E4	0064	1:00
=== End of Track ===					
[INS] [DEL]					

A
B
C
D
E
F
G
H

If you have made a mistake in editing, complete the edit first, then press the COMPARE key, and you will return to the status before editing.

### P3-3 Erase Track

SONG00		EDIT SONG		Dest Track	
Step Recording		Copy Track			
Event Edit		Erase Song			
▶ Erase Track		Append Song			
Bounce Track					
Track1				[ERASE]	

A
B
C
D
E
F
G
H

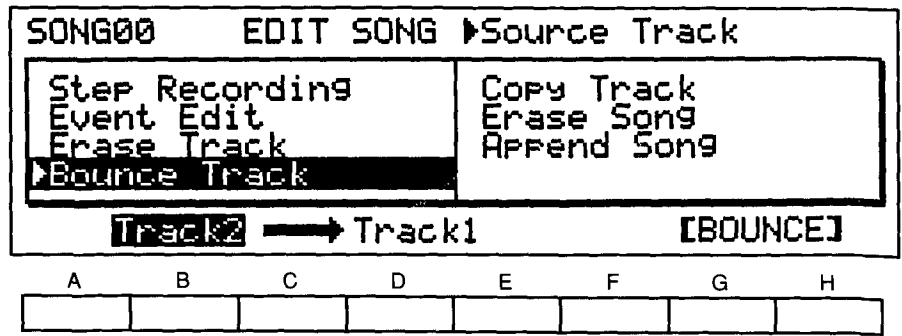
[B]	Track	1 - 8	Specify the Track to be erased
[G]		[ERASE]	Erase the track

This function erases a Track from a Song.

- (1) Select the Track ([B]) to be erased.
- (2) Press [ERASE] ([G]) and the track will be erased.

\* If you erase by mistake, press the COMPARE key to restore the previous data before editing again.

### P3-4 Bounce Track



[B]	Source track	1 - 8	Specify the Track to be bounced
[D]	Dest track	1 - 8	Specify the bounce destination
[G]		[BOUNCE]	Bounce the track

This function combines the data from two Tracks into a single Track.

- (1) Select the source Track ([B]: the Track to combine) and the destination Track ([D]: the Track into which to combine the data).
- (2) Press [BOUNCE] ([G]) and the data will be combined.

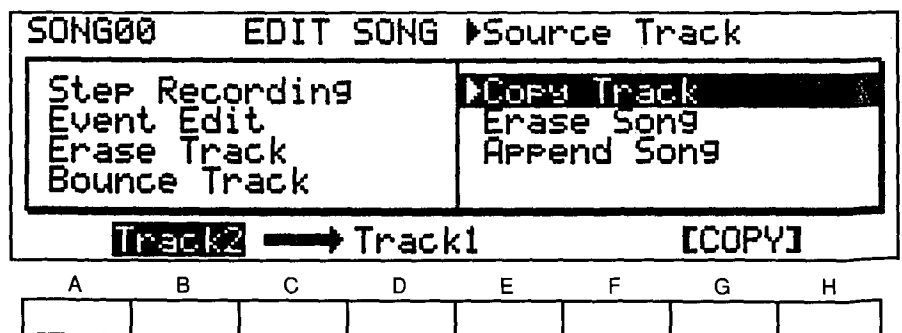
- When the Bounce operation is completed, the data in the source track will be erased.
- The settings of the destination Track will determine the

track parameters such as Track program and MIDI channel. (If you bounce tracks with different program or MIDI channel settings, the program and MIDI channel settings will no longer be distinguished, and you will no longer be able to separate the data.)

- If both Tracks contain control change data etc., this bounce function can have unexpected effects. (You can use F5-3 Measure Erase to delete control change data.)
- When bouncing tracks which contain Patterns, an error will occur if the corresponding measures of the other track are not empty.

\* If you Bounce by mistake, press the COMPARE key to restore the previous data before editing again.

### P3-5 Copy Track



[B]	Source track	1 - 8	Specify the Track to be copied
[D]	Dest track	1 - 8	Specify the copy destination
[G]		[COPY]	Copy the track

This function copies a Track to another Track.

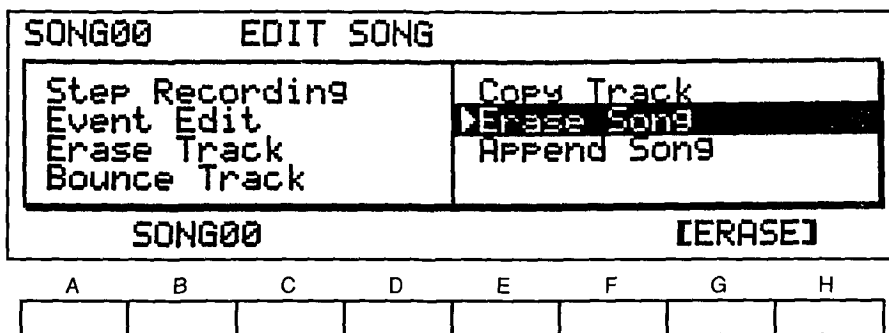
- (1) Select the source Track ([B]: the Track to copy) and the destination Track ([D]: the Track into which to copy the data).

- (2) Press [COPY] ([G]) and the data will be copied.

\* If you copy by mistake, press the COMPARE key to restore the previous data before editing again.



### P3-6 Erase Song

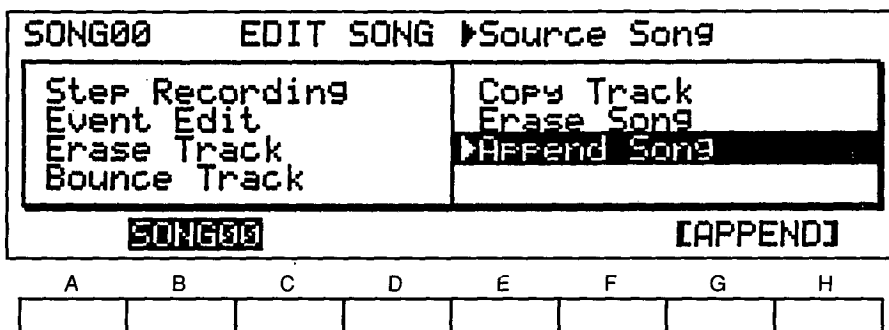


[G]	[ERASE]	Erase the Song
-----	---------	----------------

This function erases all data from a Song. Press [ERASE] ([G]) to erase the currently edited song.

\*If you erase by mistake, press the COMPARE key to restore the previous data before editing again.

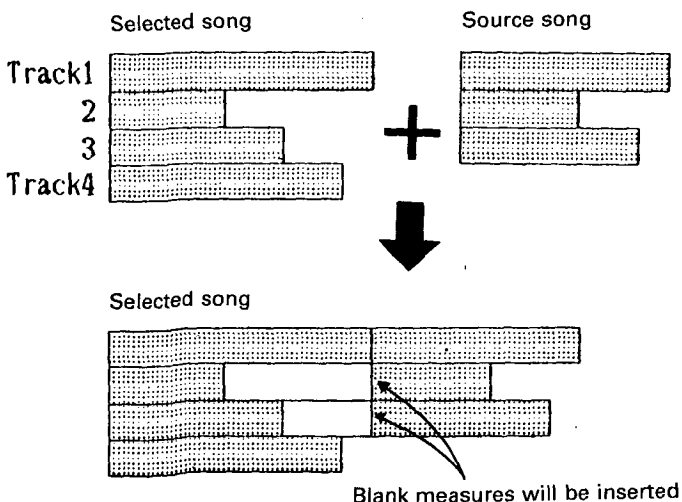
### P3-7 Append Song



[B]	Source song	00 - 19	Specify the source Song
[G]		[APPEND]	Append the track

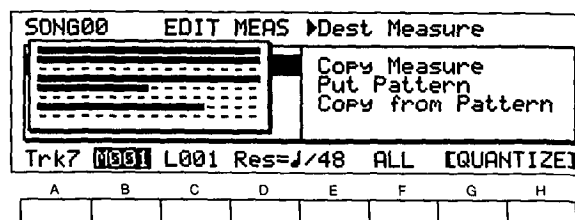
This function appends the data from a specified Song to the end of the currently selected Song.

- Press ([B]) to select the song to append, and press [APPEND] ([G]) to execute the operation.
- The data of the Source song will not be affected.
- Track parameters of the currently selected song will be used.
- If the currently selected song has unnecessary blank space at the end, use P4-3 Delete Measure to delete it.

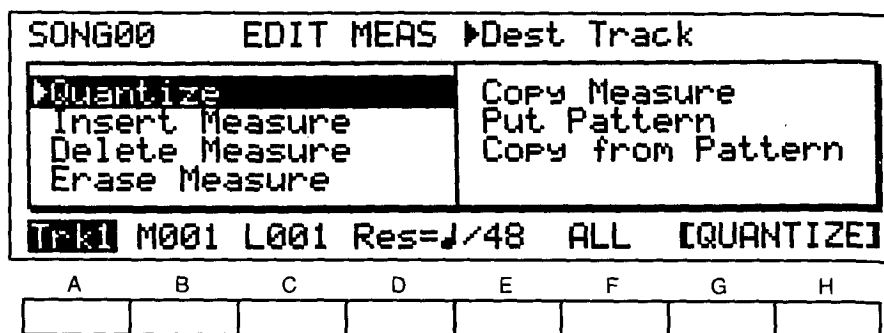


## Page 4 Edit Measure

When you specify the measures to be affected by the various measure editing functions (P4-1 — P4-7), the condition of each Track will be displayed for 8 measures beginning with the specified measure.



### 4-1 Quantize



[A] Trk	Track	1 - 8	Number of Track to be quantized
[B] M	Measure	1 - 999	Number of first measure to be quantized
[C] L	Length	1 - 999	Length to quantize (number of measures)
[D] Res	Resolution	♪/48 - ♩/1	Quantization step
[F]	Quantize data	ALL NOTE PROG BEND CNTL AFTT	Type of data to be quantized All data Note data (keyboard data) Program changes Pitch bend only Control changes only Aftertouch only
[G]		[QUANTIZE]	Execute quantization

This function corrects the timing of the data in the specified range to the nearest specified timing unit.

- (1) Specify the Track ([A]), first measure ([B]), and number of measures ([C]) to be quantized.
- (2) Specify the quantizing resolution ([D]). For example if you specify ♩/1, data will be corrected to the nearest quarter note.
- (3) Specify the data to be quantized. ([F])
  - ALL : All data
  - NOTE: Note data (keyboard data)
  - PROG: Program changes
  - BEND: Pitch bend (joystick X)
  - CNTL: Control changes (joystick Y, damper, tempo change, etc.)
  - AFTT : Aftertouch

- (4) Press [QUANTIZE] to execute quantization.

- \* If quantization moves two control change events of the same type onto the same location, they will be combined into a single event. This allows you to use quantization to thin out control data and save memory.
- Quantizing at a resolution of ♩/48 will thin out control data while leaving the timing of note data unchanged.
- You can quantize program change data to thin out unnecessary program changes that were recorded in realtime recording.
- \* If you quantize by mistake, press the COMPARE key to restore the previous data before editing again.

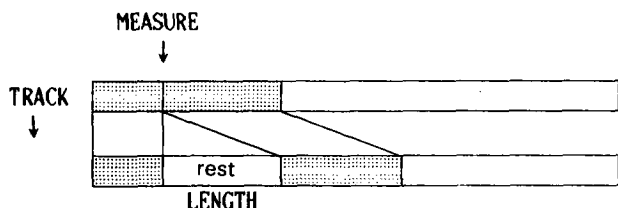
## P4-2 Insert Measure

SONG00. EDIT MEAS ▶ Dest Track							
Quantize	Copy Measure						
▶ Insert Measure	Put Pattern						
Delete Measure	Copy from Pattern						
Erase Measure							
Trk1 M001 L001 **/** [INSERT]							
A	B	C	D	E	F	G	H

[B] Trk	Dest track	1 – 8, ALL	The track to be edited
[C] M	Dest measure	001 – 999	Measures to be inserted
[D] L	Measure length	001 – 999	Length to be inserted (number of measures)
[E]	Beat	**/** 01/04 – 09/04 01/08 – 16/08 01/16 – 16/16	Time signature of measures to be inserted
[G]		[INSERT]	Insert the measures

This function inserts blank measures into the specified measure location.

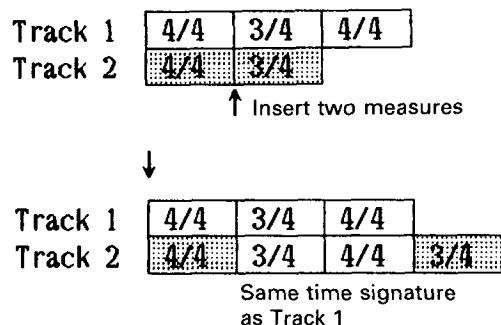
- (1) Specify track ([B]), measure ([C]), length ([D]), and if necessary, the beat ([E]) of the measures to be inserted.
- (2) Press [INSERT] ([G]) to insert the measures.



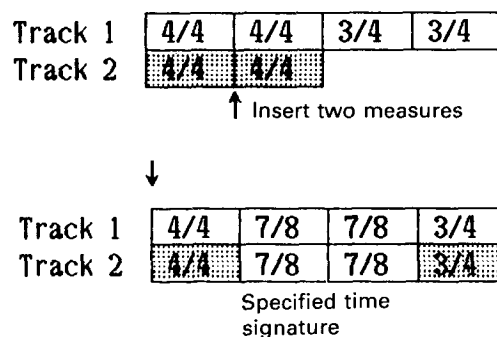
- Measures after the specified measure will be pushed back to make room for the newly inserted measures.
- If the Destination Track has been set to "ALL", the measures will be inserted into all tracks.
- A note which extends beyond the specified first measure will be divided into two notes.
- When beat ([E]) is set to "\*\*/\*\*", the time signature of the inserted measures will match the time signature of the measures already existing in the other tracks. If any other beat is specified, the other tracks will be changed to the specified beat.

- If measures are inserted into Track 2:

If BEAT: \*\*/\*\*



If BEAT: 07/08



\*If you have made a mistake in insertion, you can return to the previous status by pressing the COMPARE key before processing with editing.

### P4-3 Delete Measure

SONG00 EDIT MEAS ▶Dest Track							
Quantize Insert Measure ▶Delete Measure Erase Measure	Copy Measure Put Pattern Copy from Pattern						
[Trk] M001 L001 <span style="float: right;">[DELETE]</span>							
A	B	C	D	E	F	G	H

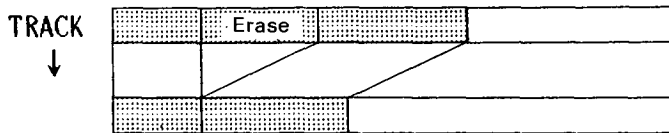
[B] Trk	Dest track	1 - 8, ALL	The Track to be edited
[C] M	Dest measure	001 - 999	Measures to be deleted
[D] L	Measure length	001 - 999	Length to be deleted (number of measures)
[G]		[DELETE]	Delete the measures

This function deletes measures from the specified area.

- (1) Specify the track ([B]), first measure ([C]), and number of measures ([D]) to delete.
- (2) Press [DELETE] to delete the measures.

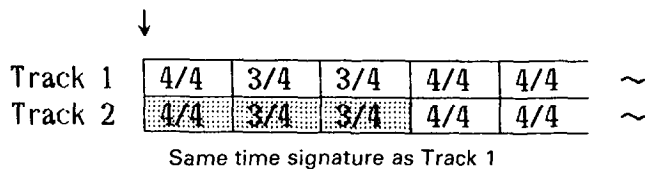
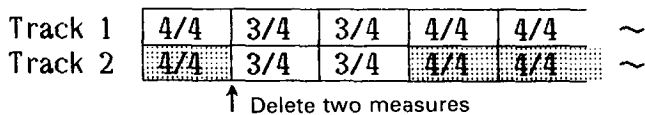
- If a note overlaps the entire area being erased, it will be shortened by the deleted length.
- \* If you delete by mistake, press the COMPARE key to restore the previous data before editing again.

DEST MEASURE  
↓ LENGTH



If Track has been set to "ALL", the specified measures will be deleted from all Tracks.

- Measures after the deleted measures will be moved forward. The measures moved forward in this way will have the same time signature as measures in other tracks.
- Delete measures from Track 2



## P4-4 Erase Measure

SONG00		EDIT MEAS		▶Dest Track			
Quantize		Copy Measure		Put Pattern			
Insert Measure		Put Pattern		Copy from Pattern			
Delete Measure		Erase Measure					
▶Erase Measure							
Trk1		M001 L001		ALL		[ERASE]	
A	B	C	D	E	F	G	H

[B] Trk	Dest track	1 - 8, ALL	Number of Track to be edited
[C] M	Dest measure	001 - 999	Number of first measure to be erased
[D] L	Measure length	001 - 999	Length to erase (number of measures)
[E]	Erase data	ALL NOTE CNTL AFTT BEND PROG	All data Note data only (keyboard data) Control changes only Aftertouch only Pitch bend only Program changes only
[G]		[ERASE]	Erase the data

This function erases the specified data from the specified area.

(1) Specify the track ([B]), first measure ([C]), and number of measures ([D]) to erase.

(2) Specify the type of data to be erased.

ALL : All data

NOTE : Note on/off data (keyboard data)

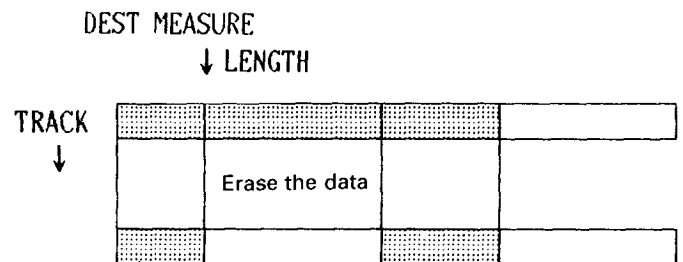
PROG : Program changes

BEND : Pitch bend (joystick X)

CNTL : Control changes (joystick Y, damper, tempo change, etc.)

AFTT : Aftertouch

(3) Press [ERASE] to erase the data.



- If you specify ALL for Track, the same measures of all tracks will be erased.

- If part of a note lies outside the specified range, only the portion within the range will be erased.

\* If editing operations erase damper off or pitch bend (0 data) events, "stuck" damper pedal or pitch bend will result when the data is played back. In such cases you can either erase the corresponding damper on or pitch bend messages, or use the event edit function to correct the data.

\* If you erase by mistake, press the COMPARE key to restore the previous data before editing again.

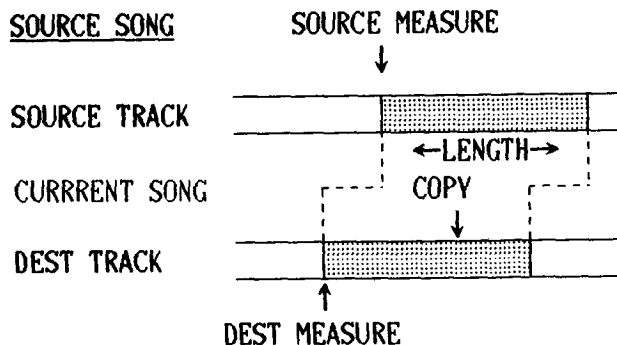
## P4-5 Copy Measure

SONG00 EDIT MEAS ▶Source Song							
Quantize Insert Measure Delete Measure Erase Measure	▶Copy Measure Put Pattern Copy from Pattern						
SON Trk1 M001→Trk1 M001 L001 [COPY]							
A	B	C	D	E	F	G	H

[A] S	Source Song	0 - 19	Song containing the measures to copy
[B] Trk	Source Track	1 - 8	Track containing the measures to copy
[C] M	Source Measure	1 - 999	First measure to copy
[D] Trk	Dest Track	1 - 8	Track containing destination measures
[E] M	Dest Measure	1 - 999	First measure of copy destination
[F] L	Length	1 - 999	Number of measures to copy (length)
[G]		[COPY]	Copy the data

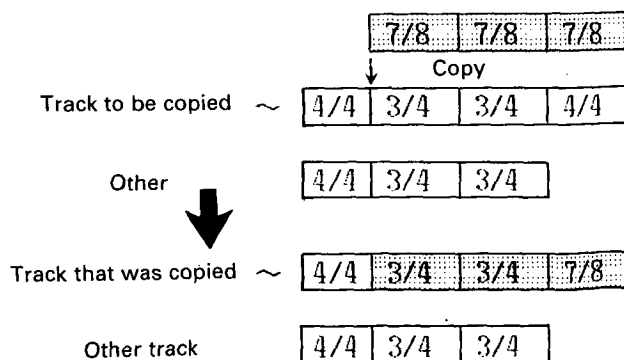
This function copies the specified range of data.

- Specify the Song ([A]), Track ([B]), and first measure ([C]) of the copy source, the number of measures to be copied ([D]), and the Track ([E]) and first measure ([F]) of the copy destination.
- Press [COPY] ([G]) to copy the data.



\* If you copy by mistake, press the COMPARE key to restore the previous data before editing again.

- The data in the copy destination measures will be lost. (If the destination measures contain data, you will be asked for confirmation.)
- If you specify source measures which do not exist, blank measures will be copied.
- If the beat of the destination and source songs are different, copying is not possible.
- If other tracks contain data, the time signature of the copied measures will be the same as the time signature of the other tracks.



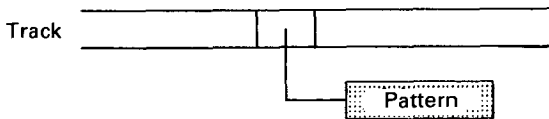
## P4-6 Put Pattern

SONG00 EDIT MEAS ▶Pattern							
Quantize Insert Measure Delete Measure Erase Measure	Copy Measure ▶Put Pattern Copy from Pattern						
[P000] → Trk1 M001 [PUT]							
A	B	C	D	E	F	G	H

[B] P	Pattern	000 – 199	Pattern to put
[D] Trk	Dest Track	1 – 8	Track into which the Pattern will be put
[E] M	Dest Measure	001 – 999	Measure into which the Pattern will be put
[G]		[PUT]	Put the Pattern

This function puts (assigns) a Pattern into a specified measure of a Track. The Track will contain only a pattern number, not the actual data. (To copy the data from a Pattern, use P4-7 Copy From Pattern.)

### • Put Pattern



- Uses less memory.
- When the Pattern is modified, the playback will be affected.

- (1) Specify the Pattern to put ([B]).
  - (2) Specify the Track ([D]) and measure ([E]) to put the Pattern into.
  - (3) Press [PUT] ([G]) to put the Pattern.
- When creating a new Track, first set the Track program etc. in P0 REC/PLAY, and write the settings into memory.
  - After this function is executed, measure ([E]) will automatically move forward the length of the Pattern.
  - When you put a Pattern into a measure, the data of that measure will be erased.
  - If other Tracks contain data, the Pattern you put will be played with the same time signature as the other Tracks.
  - \* If you put a pattern by mistake, press the COMPARE key to restore the previous data before editing again.

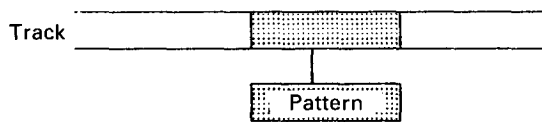
## P4-7 Copy From Pattern

SONG00		EDIT MEAS		▶Pattern			
Quantize		Copy Measure		Put Pattern			
Insert Measure		Put Pattern		▶Copy from Pattern			
Delete Measure		Erase Measure					
[P000]		→		Trk1 M001		[COPY]	
A	B	C	D	E	F	G	H

[B] Pat	Pattern	000 – 999	Pattern to copy
[D] Trk	Dest Track	1 – 8	Track to be edited
[E] M	Dest Measure	001 – 999	Measure into which the Pattern will be copied
[G]		[COPY]	Copy the Pattern

This function copies the data from a specified Pattern into a Track.

### • Copy From Pattern

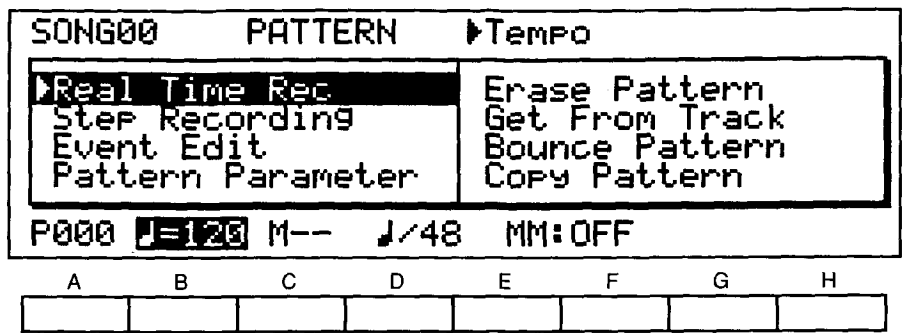


- Data can be edited in the Track
- Playback will not be affected when you modify the Pattern

- (1) Specify the Pattern to copy ([B]).
- (2) Specify the destination Track ([D]) and measure ([E]).
- (3) Press [COPY] ([G]) to copy the Pattern.

- When this function is executed, the measure will advance by the length of the Pattern.
- If other Tracks contain data, the time signature of the data copied from the pattern will be the same as the other Tracks.
- \* If you copy by mistake, press the COMPARE key to restore the previous data before editing again.





[A] P	Pattern Number	000 – 999	Pattern to record
[B] ♩ =	Tempo	40 – 208	Tempo
[C] M	Measure	00 – 99	Measure display
[D]	Resolution	♩/48 – ♩/1	Unit to which time will be corrected
[E] MM:	Metronome	OFF/ON	Turn metronome Off/On
[G]	Add / Remove	[ADD] [RMV]	Add data Remove data
[H]		[ERA]	Erase data

**P5-1 Real Time Recording**

This function allows you to record a Pattern in realtime. When creating a new Pattern or when you want to modify the beat or length of the Pattern, make settings in P5-4 Pattern Parameter.

This function allows you to realtime record, delete, and modify Pattern data.

- When creating a new Pattern, first use F6-3 Pattern Initialize to set the beat (time signature) and length (number of measures), and erase the data that was previously in that Pattern. (For Patterns which contained no data, you can also set the beat etc.)

- (1) Select the Pattern ([A]) to create. You may also select Patterns that were created by step recording, copy, etc. Set the keyboard MIDI channel to match the Track selected in F0-1 Play/Rec.
- (2) Set the tempo ([B]), resolution ([D]), and metronome On/Off ([E]). These can also be modified after you start recording.
- (3) Press REC to make the indicator light, and then press START/STOP to begin recording. In Pattern realtime recording, when the last measure of the Pattern ends, you will return to the first measure and recording will continue. The data of each pass will be added (overdubbed) to the previous data. If you make a mistake, you can delete the incorrect data (see below).

• In Pattern realtime recording there are two ways to erase data.

- After starting the Pattern, press [ERA] ([H]), and all data existing over the time while the key is pressed will be erased.

- After starting, press All/Remove ([G]) to select “RMV”. Press a key and the data for that note will be removed while you continue pressing the note. While applying an effect such as Joystick or Pitchbend, the data for that controller will be removed.

(4) Press START/STOP and recording will stop. To play the Pattern, start again without pressing REC. To add data to the Pattern, repeat steps (2) – (4).

• In Pattern realtime recording, tempo settings and operations will not be recorded. Use a tempo that is comfortable for recording.

• When creating a Pattern, the Programs of currently selected Tracks will sound. (When a Pattern is put into a Track, it will use the Program of that Track.)

\* Control data such as joystick or pedal data can also be recorded in a Pattern. However, be careful to return the controllers to their normal position before the end of the Pattern, to avoid “stuck” controllers or pedals when that Pattern is copied into a Track. Also, remember that overdubbing several passes of the same control change can result in unnatural effects.



\* When recording with a high resolution and repeating overdubs, a note you intended for the beginning of the Pattern will sometimes be recorded at the end. In such cases, record using a lower resolution.

## P5-2 Step Recording

SONG00		PATTERN		▶Pattern Number			
Real Time Rec		Erase Pattern					
▶Step Recording		Get From Track					
Event Edit		Bounce Pattern					
Pattern Parameter		Copy Pattern					
Pattern000		(REC + S/S to Start)					
A	B	C	D	E	F	G	H

[B]	Pattern	000 - 199	Pattern number to create
-----	---------	-----------	--------------------------

SONG00		Step REC		▶Beat			
Pattern = 000							
Measure = 01							
Location = 1:00							
99% Free				-M001--Beat:04/04-			
04/04		1/4		---- mf		---- [RST] [◀]	
A	B	C	D	E	F	G	H

[A]	Beat	1/4 - 16/16	Set the time signature
[B]	Step	1/32 - 1/1	Basic note length (32nd note  — whole note  )
[C]	Triplet / Dot	Trip ... Dot	Modify the note length Triplet of note length specified by Step Note length specified by Step Dotted note of note length specified by Step
[D]	Key Dynamics	ppp-fff	Note velocity (very soft — very loud)
[E]	Stacc / Tenuto	Stac ... Ten	Note duration Staccato (notes are released quickly) Normal note duration Tenuto (notes are held long)
[F]		[RST]	Specify a rest
[G]		[TIE]	Specify a tie (only when a note has been input)
[H]		[◀]	Go back one step

This is where you step record a Pattern. When creating a new Pattern or when you want to modify the time signature or length of the Pattern, make settings in P5-4 Pattern Parameter.

- (1) Specify the Pattern to record ([C]).
- (2) Press REC to make the indicator light, and press START/STOP to begin step recording.
- (3) Follow the procedure explained in step (3) and following of P3-1 Track Step Recording.

- In Pattern step recording, when the last measure of the Pattern ends, you will return to the first measure and recording will continue. The data of each pass will be added (overdubbed) to the previous data.

- [RST] ([F]) and [TIE] ([G]) can be used as explained in P3-1 Step Recording.

- When you press ◀ ([H]), you will move back one step as specified by the step time, and any data which existed in that step will be erased. (See P3-1 Step Recording.)

- When creating a Pattern, the Program of the Track selected in P0-01 Play/Rec will be used.

### P5-3 Event Edit

SONG00		PATTERN		▶Pattern Number			
Real Time Rec		Step Recording		▶Event Edit		Erase Pattern	
Pattern Parameter						Get From Track	
						Bounce Pattern	
						Copy Pattern	
Pattern000				(REC + S/S to Start)			
A	B	C	D	E	F	G	H

[B]	Pattern	000 - 199	Pattern to edit
-----	---------	-----------	-----------------

This function allows you to event edit a Pattern.

(1) Select the Pattern to edit ([C]).

(2) Press REC to make the indicator light, and press START/STOP to begin event editing.

(3) The remaining procedure is the same as explained in steps (4) and following of P3-2 Track Event Edit.

### P5-4 Pattern Parameters

SONG00		PATTERN		▶Pattern Number			
Real Time Rec		Step Recording		▶Event Edit		Erase Pattern	
Pattern Parameter						Get From Track	
						Bounce Pattern	
						Copy Pattern	
[P54] Beat:04/04				Length01 [SET]			
A	B	C	D	E	F	G	H

[A] P	Pattern Number	000 - 199	Pattern to edit
[B]	Pattern Beat	01/04 - 09/04, 01/08 - 16/08, 01/16 - 16/16	Time signature of Pattern
[E]	Pattern Length	01 - 99	Length of Pattern (number of measures)
[G]		[SET]	Set the specified Pattern parameters

These settings determine the time signature and length (number of measures) in each Pattern.

(2) Press [SET] ([G]) and the parameters will be set.

(1) Specify the Pattern ([A]) whose parameters you want to edit, and set the beat ([B]) and length ([E]). If the specified Pattern is used in a Track, the display will show the number of the Track in which that Pattern is used. (If you edit a Pattern which is being used in a Track, that Track may not play back correctly.)

SONG00		PATTERN		▶Pattern Number			
Pattern 100 Used in		SONG04 Trk[.....8]		se Pattern		From Track	
				nce Pattern		s Pattern	
Pattern100				[ERASE]			
A	B	C	D	E	F	G	H

## P5-5 Erase Pattern

SONG00		PATTERN		▶Pattern Number			
Real Time Rec		Step Recording		Event Edit		Pattern Parameter	
Erase Pattern		Get From Track		Bounce Pattern		Copy Pattern	
Pattern000		[ERASE]					
A	B	C	D	E	F	G	H

[B]	Pattern Number	000 – 199	Pattern to erase
[G]		[ERASE]	Erase the Pattern

This function erases a Pattern.

- Specify the Pattern ([B]) to be erased. If the specified Pattern is used in a Track, the display will show the number of the Track in which that Pattern is used.
- Press [Erase] ([G]) to erase the Pattern.

\*If you erase a pattern by mistake, press the COMPARE key to restore the previous data before editing again.

## P5-6 Get From Track

SONG00		PATTERN		▶Source Song			
Real Time Rec		Step Recording		Event Edit		Pattern Parameter	
Erase Pattern		Get From Track		Bounce Pattern		Copy Pattern	
[S]	Trk1	M001	→	P000	[GET]		
A	B	C	D	E	F	G	H

[A] S	Source Song	00 – 19	Song from which to get measures
[B] Trk	Source Track	1 – 8	Track from which to get measures
[C] M	Source Measure	1 – 999	Number of first measure to get
[E] P	Pattern	0 – 199	Pattern number into which data will be placed
[G]		[GET]	Get the data into the Pattern

This function places data from a Track into a Pattern, allowing data recorded as a Track to be used as a Pattern. The number of measures that will be copied is determined by the length of the Pattern as specified in P5-4 Pattern Parameters.

- Specify the Song ([A]), Track ([B]), and measure ([C]) of the data, and the Pattern ([E]) into which the data will be copied.
- Press [GET] ([G]) to execute the operation.

\*If you get a pattern by mistake, press the COMPARE key to restore the previous data before editing again.

- This function cannot be executed if the specified range of measures contains a Pattern.
  - If a note overlaps the specified range of measures, the tie will be deleted.
- \* Editing operations not available for Patterns (such as quantize) can be performed by copying the Pattern data to an empty Track, editing the data, and copying the data back to a Pattern.

## P5-7 Bounce Pattern

SONG00		PATTERN		▶Source Pattern			
Real Time Rec		Erase Pattern		Get From Track			
Step Recording		▶Bounce Pattern		Copy Pattern			
Event Edit							
Pattern Parameter							
P001		→		P000		[BOUNCE]	
A	B	C	D	E	F	G	H

[B] P	Source Pattern	000 – 199	Source Pattern
[D] P	Dest Pattern	000 – 199	Destination Pattern
[G]		[BOUNCE]	Execute bouncing

This function combines the data of two Patterns into one Pattern.

- (1) Specify the source Pattern (the Pattern to bounce, [B]) and the bounce destination Pattern ([D]).
- (2) Press [BOUNCE] ([G]) to execute the operation.

- After the bounce operation, the data of the source Pattern will be erased.

- The time signature and length of the destination Pattern will be used for the newly combined data.

\* If you bounce by mistake, press the COMPARE key to restore the previous data before editing again.

## P5-8 Copy Pattern

SONG00		PATTERN		▶Source Pattern			
Real Time Rec		Erase Pattern		Get From Track			
Step Recording		▶Copy Pattern					
Event Edit							
Pattern Parameter							
P001		→		P000		[COPY]	
A	B	C	D	E	F	G	H

[B] P	Source Pattern	000 – 199	Source Pattern
[D] P	Dest Pattern	000 – 199	Destination Pattern
[G]		[COPY]	Execute copying

This function copies a Pattern to another Pattern.

- (1) Specify the source Pattern (the Pattern to copy, [B]) and the copy destination Pattern ([D]).
- (2) Press [COPY] ([G]) to copy the Pattern.

• If you copy by mistake, press the COMPARE key to restore the previous data before editing again.

- The newly copied data will have the time signature and length of the source Pattern.

• When the copy operation is used, the previous data of the destination Pattern will be lost.

\* If you copy by mistake, press the COMPARE key to restore the previous data before editing again.

## Page 6 Effect

For details of the effect parameters, refer to "Effect Parameters" (page 52).

- P6-1 Effect 1 Type
- P6-2 Effect 1 Parameter
- P6-3 Effect 2 Type
- P6-4 Effect 2 Parameter
- P6-5 Effect 2 Parameter
- P6-6 Effect Placement

SONG00		EFFECT	
EFFECT1 23:Exciter		: ON	
B+99	EP01	L+08	H+07 50:50
EFFECT2 01:Hall		: ON	
2.1 0070	E46 HD40	L-05	H+00 69:31
[ SERIAL ]	Out3 = OFF	Out4 = OFF	
A	B	C	D
E	F	G	H

• If you press the PAGE+ key while a song is playing, the EFFECT page will appear, allowing you to edit the various effect parameters.

• If you want to use effect settings created as part of a Program, use the Copy Effect (P7-7) function.

\* Do not change the Effect Type, since this may affect the musical playback.

## Page 7 Song

### P7-1 Next Song

SONG00		SONG		▶Next Song	
▶Next Song		Scale Type		Vel/Aft. T Curve	
Rename Song		Copy Effect			
Metronome					
Foot Controller					
Next: OFF		[STOP]			
A	B	C	D	E	F
G	H				

[B]	Next Song	OFF / 00 – 19	Specify the next song to be played
[E]		[STOP] [PLAY]	Select the next song and then stop. Continue playing the next song.

This function allows you to specify a Song to be selected (and played) when the currently selected Song ends.

- When set to STOP, playback will stop at the beginning of the specified Song.

- When set to PLAY, playback will continue with the specified Song.

\* When Next PLAY is selected, there may be a slight delay when the Song is selected.

## P7-2 Rename Song

SONG00		SONG	
Next Song		Scale Type	
Rename Song		Vel/Aft. T Curve	
Metronome		Copy Effect	
Foot Controller			
00: New Song		[ < ] [ > ]	
A	B	C	D
E	F	G	H

[G]	[ < ]	Move the cursor left
[H]	[ > ]	Move the cursor right

This function sets the Song name.

- Use ◀ (cursor key [G]) and ▶ (cursor key [H]), the VALUE slider, and the UP(▲)/DOWN(▼) keys to set the Song name.

- Each Song can be given a ten-character name.

```
! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?
@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _
` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~ +
```

## P7-3 Metronome

SONG00		SONG		▶ Lead In	
Next Song		Scale Type		Vel/Aft. T Curve	
Rename Song		Copy Effect			
Metronome					
Foot Controller					
L. In=2		Level=99		Pan=5:5	
A	B	C	D	E	F
G	H				

[B]	Lead In	0 - 2	Number of measures for the lead-in
[D]	Metronome Level	00 - 99	Metronome volume
[F]	Metronome Panpot	A, 9:1 - 1:9, B, C, C+D, D	Panpot for the metronome sound

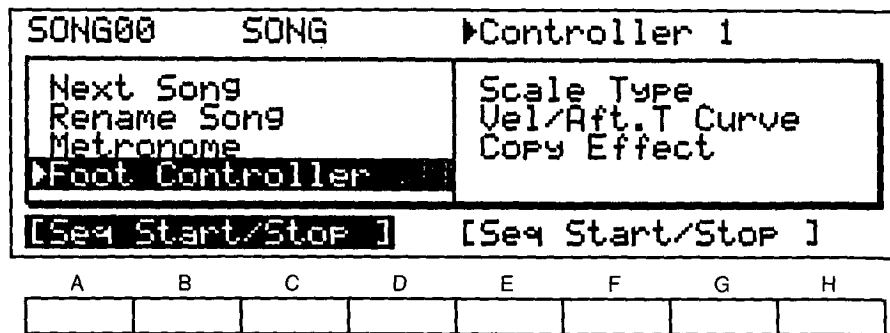
These settings determine how the metronome will sound for each Song.

- Lead In specifies the number of measures which the metronome will countdown before realtime recording begins.

• The metronome volume ([D]) and panpot ([F]) can also be set.

- Using the metronome will decrease the simultaneous note capability of the T1/T2/T3 by one note.

## P7-4 Foot Controller



A	Foot Controller 1	Seq Start/Stop Effect 1 ON/OFF Effect 2 ON/OFF Volume VDF Cutoff Effect 1 Control Effect 2 Control Data Entry	The function assigned to Pedal 1 A footswitch will start/stop the sequencer. A footswitch will turn Effect 1 on/off A footswitch will turn Effect 2 on/off A foot controller will regulate Volume A foot controller will regulate VDF Cutoff A foot controller will regulate the Effect 1 Balance A foot controller will regulate the Effect 2 Balance A foot control will function as a data entry control
E	Foot Controller 2		Same as foot controller 1

This selects the function assigned to Pedal 1 and Pedal 2.

- Depending on the type of function that is selected, connect either a Footswitch (on/off type) or a Foot Controller (continuous type) to the Pedal 1/2 jack.
- The actual control range of the foot controller will be determined by various parameter settings for the function being controlled.

**Seq Start/Stop:** A footswitch will start or stop the Sequencer.

**Effect 1 ON./OFF:** A footswitch will turn effect 1 on/off.

**Effect 2 ON/OFF:** A footswitch will turn effect 2 on/off.

**Volume:** A foot controller will regulate the volume of the selected Track. If other Tracks are set to the same MIDI channel, their volume will also be controlled.

**VDF Cutoff:** A foot controller will regulate cutoff frequency (tone) for the selected Track. If other Tracks are set to the same MIDI channel, they will also be controlled.

**Effect 1 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 1) and the sound of the effect. As the pedal is advanced, the effect sound will increase.

**Effect 2 Control:** A foot controller will regulate the balance between the direct sound (the sound before it is processed by effect 2) and the sound of the effect. As the pedal is advanced, the effect sound will increase.

**Data Entry:** A foot controller will perform the same function as the front panel VALUE slider. If you select a parameter for editing and specify "Data Entry" for the foot controller function, you can use a foot controller to adjust that parameter while playing.

\* Be sure to connect either a footswitch (on/off type) or a foot controller (continuous type), as appropriate for the function you have assigned.

When no pedal or footswitch is connected to the pedal jacks, assign them to Seq Start/Stop or Effect ON/OFF.

- Please be sure to use a Korg EXP-2 as a foot controller.



## P7-5 Scale Type

SONG00	SONG	▶Scale Type
Next Song	Rename Song	Metronome
Foot Controller		▶Scale Type
		Vel/Aft.T Curve
		Copy Effect
[ Pure Minor ]		Key= E
A	B	C
D	E	F
G	H	

[A]	Scale Type	Equal Temp. (equal temperament) Equal Temp. 2 (equal temperament, random pitch) Pure Major Pure Minor User Programmable	Equal temperament  Equal temperament, but with random detuning applied to each note played Pure major temperament Pure minor temperament User-defined pitch for each note of the scale.
[F]	Key	C, C#, ... A#, B	Tonic note for pure temperament

This selects the scale (temperament) for the Song.

**Equal Temp. (equal temperament):** The temperament most widely used in keyboard instruments today, equal temperament allows free transposition to all keys; i.e., a chord will sound the same in any key.

**Equal Temp.2 (equal temperament, random pitch):** Equal temperament, but with slight randomness applied to the pitch of each note. This is useful when simulating the natural irregularities in pitch that are found in many acoustic instruments.

**Pure Major:** Pure major intonation produces in-tune chords for the specified major scale. Select a key (tonic) of C—B.

**Pure Minor:** Pure minor intonation produces in-tune chords for the specified minor scale. Select a key (tonic) of C—B.

**User Programmable:** By specifying a pitch offset of  $\pm 50$  cents for each of the 12 notes (C—B) of the equal tempered scale, you can create your own unique temperament. Make settings in GLOBAL mode page 5 User Scale.

\*The selected scale type will be used in common by the Programs of all Tracks.

## P7-6 Vel / Aft.T Curve

SONG00	SONG	▶Velocity Curve
Next Song	Rename Song	Metronome
Foot Controller		▶Scale Type
		▶Vel/Aft.T Curve
		Copy Effect
Vel Curve:4		Aft.T Curve:4
A	B	C
D	E	F
G	H	

[A]	Velocity Curve	1 – 8	Select the velocity curve; i.e., the way in which key velocity (how hard you play a note) will affect volume or tone.
[E]	After Touch Curve	1 – 8	Select the aftertouch curve; i.e., the way in which aftertouch (how hard you press down after playing a note) will affect volume or tone.

This specifies the velocity curve and aftertouch curve for each Song.

- Velocity Curve allows you to select one of 8 curves to determine how key velocity will affect volume or tone.

- After Touch Curve allows you to select one of 8 curves to determine how aftertouch will affect volume or tone.

- The velocity / aftertouch curves specified here will be used when recording note data. This will have no effect on data that has already been recorded.

## P7-7 Copy Effect

SONG00		SONG		▶Source Mode			
Next Song		Rename Song		Scale Type		Vel/Aft. T Curve	
Metronome		Foot Controller		▶Copy Effect			
from		[ SONG ]		- 00		[COPY]	
A	B	C	D	E	F	G	H

[B]		PROGRAM COMBINATION SONG	Copy from a Program Copy from a Combination Copy from a Song
[E]		A00 – A99, B00 – B99 00 – 99 00 – 19	Program from which to copy Combination from which to copy Song from which to copy
[G]		[COPY]	Execute the copy operation

This function copies only the Effect parameters from a Song, Combination, or Program in internal memory. The data will be copied into the Song currently being edited.

(1) Select the mode containing the memory whose Effect parameters you want to copy ([B]).

(2) Select the number you want to copy. (When copying from a Song, select the Song number; when copying from a Program, select the Program number; when copying from a Combination, select the Combination number.)

(3) Press [COPY] ([G]) to copy the effect parameters from the specified memory.

## 7. GLOBAL MODE

In this mode you can make settings that affect the entire T1/T2/T3 (overall tuning, and MIDI-related settings), and assign drum sounds to a Drum Kit.

With the exception of some MIDI-related parameters, settings made in this mode are memorized even when the power is turned off. It is not necessary to write these settings into memory.

### Functions in Global mode

Press the BANK SELECT / PAGE SELECT keys (0 – 9) and the PAGE+ PAGE- keys to select the page for each function.

Page	Function	Parameter to set
<b>P0 GLOBAL</b>		
0-1	Master Tune, Key Transpose	Overall pitch adjustment, overall transposition
0-2	MIDI Channel, Clock Source	Specify MIDI global channel, MIDI clock
0-3	Local, MIDI Overflow	Local on/off, MIDI overflow on/off
0-4	MIDI Filtering	Transmission / reception switches for each type of MIDI message
0-5	Damper Switch Polarity	Specify the polarity of the damper footswitch
P1	Drum Kit 1	Assign drum sounds
P2	Drum Kit 2	Assign drum sounds
P3	Drum Kit 3	Assign drum sounds
P4	Drum Kit 4	Assign drum sounds
P5	User Scale	Set the user scale
<b>P6 PROTECT</b>		
6-1	Program Memory Protect	Memory protect on/off for Program parameters
6-2	Combination Memory Protect	Memory protect on/off for Combination parameters
6-3	Sequencer Memory Protect	Memory protect on/off for Sequence data
P7	MIDI Data Dump	Transmit various parameters and sequence data as a MIDI exclusive message

- P0-1 Master Tune / Key Transpose
- P0-2 MIDI Channel / Clock Source
- P0-3 Local / MIDI Overflow
- P0-4 MIDI Filtering
- P0-5 Damper Switch Polarity

GLOBAL	GLOBAL	▶Master Tune
Master Tune =+00		
MIDI channel :A01	Key Transpose =+00	Clock Source :INT
Local Control :ON		MIDI Overflow :OFF
PROG:o	AFTT:o	CNTL:o
Damper Switch Polarity = -		EXCL:x
A	B	C
D	E	F
G	H	

**P0-1 Master Tune / Key Transpose**

A	Master Tune	-50 – +50	Adjust the overall pitch of the T1/T2/T3 (steps of 1 cent)
E	Key Transpose	-12 – +12	Transpose the overall pitch of the T1/T2/T3 (chromatic steps)

These parameters determine the pitch of the entire T1/T2/T3.

- Master tune adjusts the tuning of the entire T1/T2/T3 over a range of ± 50 cents. Use this when tuning the T1/T2/T3 to other instruments.
- Key transpose adjusts the pitch of the entire T1/T2/T3 over a range of ±1 octave, in chromatic steps (-12 – +12). This can

be used when you need to play songs of a difficult key signature in an easier key.

- This setting applies to the data that is recorded by the sequencer, and to the data that is transmitted from MIDI OUT. However, data played back by the sequencer will not be affected by this setting.

**P0-2 MIDI Channel / Clock Source**

A	MIDI Channel	A1 – A16	Select the channel on which the T1/T2/T3 will receive or transmit data
E	Clock Source	INT / EXT	Select the MIDI clock which the sequencer will receive or transmit

- MIDI channel determines the transmission and reception channel for musical data in Program mode, Combination changes in Combination mode, and for system exclusive data.
  - These messages will be transmitted from MIDI OUT A.
  - Musical data in Combination mode and Sequencer mode will be transmitted on the channel specified in each mode.
- If you want to receive MIDI clock data from an external sequencer etc. to determine the playback tempo, set Clock

Source to “EXT”. (The T1/T2/T3 internal tempo settings will have no effect.) Use this setting when synchronizing the T1/T2/T3 to an external device.

- If no MIDI device is connected to MIDI IN, be sure to set this to “INT”.
- Start, stop, continue, song select, and song position messages will be received from external MIDI devices only when this is set to “EXT”.
- When the power is turned on, this will be set to “INT”.
- When set to “INT”, MIDI clock data will be transmitted from all MIDI OUTs.

### P0-3 Local / MIDI Overflow

<b>A</b>	Local Control	OFF/ON	MIDI local mode switch
<b>E</b>	MIDI Overflow	OFF/ON	MIDI overflow mode switch

- When local control is set “Off”, the T-series’ keyboard and controllers (joystick, aftertouch, etc.) will be disconnected from its tone generator. (However, they will transmit MIDI data.) Normally you will leave this set “ON”.
  - When local control is set “Off”, the sequencer will transmit and receive only MIDI data, and will sound only in response to data received from MIDI IN.
  - When the power is turned on, this will be set “On”.
- When Overflow is set “On”, When Overflow is set “On”, note on/off data that exceeds the maximum simultaneous note capacity will be re-transmitted from MIDI OUT.

If you have connected another T1/T2/T3 or an M1/M1R to MIDI OUT A, this allows you to increase the simultaneous note capacity.

- Be sure that the T1/T2/T3/M1/M1R connected to MIDI OUT A is set to the same Program or Combination. (If an M1/M1R is connected, avoid using parameters which the M1/M1R does not have.)
- If MIDI OUT is connected to a device other than a T1/T2/T3/M1/M1R, set this “Off”.
- When Overflow is set “On”, be sure that the data transmitted from MIDI OUT A is not returned to MIDI IN; i.e., make sure that the data is not echoed back.

### P0-4 MIDI Filtering

<b>A</b> PROG	Combination / Program Change	× / ○	When set to “x”, the specified type of MIDI data will neither be transmitted nor received.
<b>C</b> AFTT	After Touch	× / ○	
<b>E</b> CNTL	Control Change	× / ○	
<b>G</b> EXCL	Exclusive	× / ○	

These parameters allow you to disable reception and transmission of specified types of MIDI data. (This is known as “filtering”.)

Data will be filtered when it is recorded by the sequencer, but not when it is played back.

- When Combination / Program Change is set to “x”, Combination (Program) changes will neither be transmitted nor received.
- When Control Change is set to “x”, control change messages will neither be transmitted nor received.

- When After Touch is set to “x”, aftertouch data will not be received.

- When Exclusive is set to “x”, system exclusive messages for parameter changes will neither be transmitted nor received.

- System exclusive parameter changes are used by personal computer voice editing programs. When two T1/T3s are connected and Exclusive is set to “○”, you will be able to simultaneously edit the voice data of both units.
- When the T1/T3 is connected to other types of MIDI devices, set this to “x”.

### P0-5 Damper Switch Polarity

	Damper Switch Polarity	+, -	Select the polarity of the footswitch connected to the damper jack
--	------------------------	------	--

The damper switch is used as a damper switch or hold pedal. While it is depressed, released notes will continue sustaining as though they had not been released.

- Damper Switch Polarity selects the polarity of the damper foot switch. When using  $\nabla$  types of footswitch such as the Korg PS-1, set this to “-”. When using other types of footswitch  $\uparrow$ , set this to “+”.
  - If a damper switch is not connected, set this to “-”.

GLOBAL		DRUM KIT1		▶Kick 1			
#00	01	C1	+000	L+00	D+00	S:5	
#01	02	D1	+000	L+00	D+00	S:5	
#02	03	F1	+000	L+12	D+00	S:5	
#03	04	T1	+000	L+00	D+00	S:5	
#04	05	G1	+000	L+00	D+00	S:5	
#05	06	A1	+000	L+00	D+00	S:5	

A	B	C	D	E	F	G	H

**P2-1 Drum Kit 1**

<b>A</b> #	Index	0 – 59	Drum sound to edit
<b>B</b>	Inst	--, 01 – 85	Select drum sound
<b>C</b>	Inst Key	C0 – G8	Key assigned to drum sound
<b>D</b>	Inst Tune	-120 – +120	Pitch adjustment of ±pm 1 octave
<b>E</b> L	Inst Level	-99 – +99	Level adjustment for each sound
<b>F</b> D	Inst Decay	-99 – +99	Decay time adjustment for each sound
<b>G</b>	Pan	A, 9:1 –1:9, B, C, C+D, D	Output selection

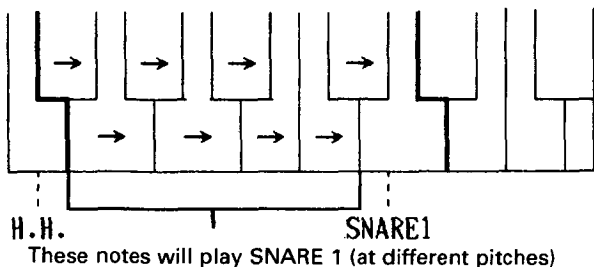
This is where you edit the Drum Kit used as a sound source by a Program in Drum Kit mode. Up to 60 types of drum sound can be assigned to each of 4 Drum Kits (1 – 4).

- Index selects the drum index to edit.
  - The display will scroll when the index setting is modified, or when you press CURSOR UP (DOWN) at the top (bottom) line.
  - An index for which no drum sound is assigned will be indicated by the display “No Assign”. (When assigning a new sound, select an index which displays “No Assign”.)

- Inst is where you select the drum sound used by that index. (The back cover has a list of the drum sounds.)
  - If an optional PCM card containing drum sounds has been inserted, card sounds can also be selected using the VALUE slider. (When playing Programs which use PCM card drum sounds, be sure that the appropriate card is inserted.)
  - If drum sounds are loaded into the PCMRAM (optional for the T2/T3), drum sounds loaded from a PCM disk can also be selected. Drum sounds from PCM RAM will be displayed with a “D” in front of their name. (When playing a Program which uses a PCM disk sound, be sure that the appropriate disk has been loaded.)
  - Select “No Assign” for each Index which you don’t need to assign, and set Key ([C]) to an unused key.

- Key determines the key (C0 – G8) assigned to that index. (The note name for an octave setting of 8<sup>1</sup> will be displayed.)
- You will not be able to select keys which have already been assigned to another sound.
- You can assign a single sound to be played by more than one key.
- Keys which have not been assigned a sound will automatically be given the sound assigned to the next higher key. (However the pitch will change according to the scale.)

Example:

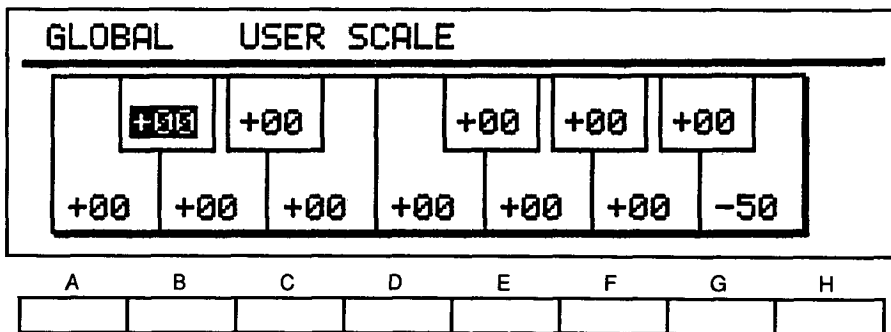


- Tune, Level, and Decay are parameters which determine the pitch, volume, and VDA decay time for each drum sound.
- When the corresponding Program parameter is modified, the volume etc. of the entire Drum Kit will be affected.
- Other Program parameters will also affect the entire Drum Kit.
- When you play the keyboard in this page, the parameters of the Program selected in Prog A/B mode will be used. In other words, if a Program with (for example) a slow attack has been selected, the drum kit will not sound right. If the drum sound is assigned to C, C+D, or D, and the Program mode setting Effect Placement of the Program is turned off, there will be no sound from 1/L, 2/R, or the headphones.
- Tune adjusts the pitch of an assigned key over a range of -120 – +120 (in steps of 10 cents, ± 1 octave).
- Level is an adjustment relative to the oscillator level setting in Program mode, over a range of -99 – +99.
- Decay is an adjustment relative to the VDA EG decay setting in Program mode, over a range of -99 – +99.
- Pan specifies the output; A, A:B (9:1 – 1:9), B, C, C+D, D.

## Page 2 – 4 Drum Kit 2 – 4

Details are the same as for Page 1 Drum Kit 1.

## Page 5 User Scale



### P5-1 User Scale

C – B	-50 – +50	Pitch offset (in cents) for each note of the equal tempered scale
-------	-----------	---

This function determines the pitch for each note of the User Scale — the scale used when User Scale is selected as the Scale Type in Edit Program mode P7-2, Edit Combi mode P5-5, or in Sequencer mode P7-5.

- These settings for the 12 notes will be extended over the entire range (in each octave) of the T1/T2/T3.

## Page 6 Memory Protect

P6-1 Program Memory Protect  
 P6-2 Combination Memory Protect  
 P6-3 Sequencer Memory Protect

GLOBAL PROTECT							
Program Memory Protect : OFF Combination Memory Protect : OFF Sequence Memory Protect : OFF							
A	B	C	D	E	F	G	H

These settings prohibit writing for internal memory parameters.

### P6-1 Program Memory Protect

B	Program Memory Protect	OFF/ON	Memory protect for Program parameters in internal memory
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When Program Memory Protect is set "On", it will not be possible to write Program parameters into internal memory.

### P6-2 Combination Memory Protect

B	Combination Memory Protect	OFF/ON	Memory protect for Combination parameters in internal memory
---	----------------------------	--------	--

When Combination Memory Protect is set "On", it will not be possible to write Combination parameters into internal memory.

### P6-3 Sequencer Memory Protect

B	Sequencer Memory Protect	OFF/ON	Memory protect for Sequence data in internal memory
---	--------------------------	--------	---

When Sequence Memory Protect is set "On", it will not be possible to write Sequence data into internal memory.



## MIDI Data Dump

The T1/T2/T3 can transmit Parameter and Sequence data from its internal memory to another T1/T2/T3 or M1/M3R connected via MIDI.

- When transmitting data to a M1/M1R, parameters will be converted in the same way as when using a PROG DATA card. (For details, refer to the Operation Guide, page 14 "PROG DATA cards".)
- When this page is selected, MIDI data dumps can be transmitted and received regardless of the MIDI Filtering Exclusive setting.

- To receive data, be sure that memory protect is turned "Off", and that the global MIDI channels of the transmitting and receiving devices match. No other operations are necessary.
- By using a MIDI device that is able to save exclusive data, you can store voice data and sequence data in an external device.
- Exclusive data will be transmitted from MIDI OUT A.

Data type	Length of message	Time required for transmission
Program (200)	approx. 37 K	approx. 12 seconds
M1 Programs (100)	approx. 16 K	approx. 5 seconds
Combinations (100)	approx. 27 K	approx. 9 seconds
M1 Combinations (100)	approx. 14 K	approx. 4 seconds
Global data	approx. 2 K	approx. 1 second
M1 Global data	approx. 1 K	approx. 1 second
Sequence data	5 K – 256 K	2 – 80 seconds
Combination / Program / Sequence	71 K – 326 K	20 – 100 seconds

For details of the exclusive message data format, refer to the end of this manual.

## Page 7 Data Dump

### P7-1 Dump Program

GLOBAL DATA DUMP ▶Data Format							
▶DUMP Program				DUMP All Data			
DUMP Combination				Rcv Sample DUMP			
DUMP Global							
DUMP Sequence							
DUMP to T1/T2/T3						[DUMP]	
A	B	C	D	E	F	G	H

[A]	Dump to T1/T2/T3 Dump to M1/M1R	
[G]	[DUMP]	Execute dump

This function transmits (dumps) Program parameters to another T1/T2/T3 or M1/M1R connected via MIDI.

- (1)When transmitting to another T1/T3 select "Dump to T1/T2/T3", when transmitting to a M1/M1R select "Dump to M1/M1R".

- (2)Press [DUMP] to execute the data dump.

- When transmitting to or receiving from a M1/M1R, set the M1/M1R to Large Program Allocation.
- Programs B00-B99 will not be transmitted in M1 format.
- When the T1/T2/T3 receives a M1 format Program Data

Change the data with the received PRO A00 - A99.

## P7-2 Dump Combination

GLOBAL DATA DUMP ▶Data Format							
DUMP Program	DUMP All Data						
▶DUMP Combination	Rcv Sample Dump						
DUMP Global							
DUMP Sequence							
DUMP to T1/T2/T3 [DUMP]							
A	B	C	D	E	F	G	H

[B]	Dump to T1/T2/T3	Transmit all Combination parameters
	Dump to M1/M1R	Transmit all Combination parameters in M1 format
[G]	[DUMP]	Execute dump

This function transmits (dumps) Combination parameters to another T1/T2/T3 or M1/M1R connected via MIDI.

(1)When transmitting to another T1/T2/T3 select “Dump to T1/T2/T3”, when transmitting to a M1/M1R select “Dump to M1/M1R”.

(2)Press [DUMP] to execute the data dump.

- When transmitting to or receiving from a M1/M1R, set the M1/M1R to Large Program Allocation.
- Some Combination parameters will not be transmitted in M1 format.

## P7-3 Dump Global

GLOBAL DATA DUMP ▶Data Format							
DUMP Program	DUMP All Data						
DUMP Combination	Rcv Sample Dump						
▶DUMP Global							
DUMP Sequence							
DUMP to T1/T2/T3 [DUMP]							
A	B	C	D	E	F	G	H

[B]	Dump to T1/T2/T3	Transmit all Global parameters
	Dump to M1/M1R	Transmit all Global parameters in M1 format
[G]	[DUMP]	Execute dump

This function transmits (dumps) all Global parameters except for MIDI settings to another T1/T2/T3 or M1/M1R connected via MIDI.

(1)When transmitting to another T1/T2/T3 select “Dump to T1/T2/T3”, when transmitting to a M1/M1R select “Dump to M1/M1R”.

(2)Press [DUMP] to execute the data dump.

- Index 30 – 59 of each Drum Kit will not be transmitted in M1 format.

## P7-4 Dump Sequence

GLOBAL DATA DUMP							
DUMP Program DUMP Combination DUMP Global <b>DUMP Sequence</b>	DUMP All Data Rcv Sample DUMP						
<b>[DUMP]</b>							
A	B	C	D	E	F	G	H

<b>G</b>	[DUMP]	Execute dump
----------	--------	--------------

This function transmits (dumps) all sequence data to another T1/T2/T3 connected via MIDI.

- Press [DUMP] to execute the data dump.
- It is not possible to dump sequence data to a M1/M1R.

## P7-5 Dump All Data

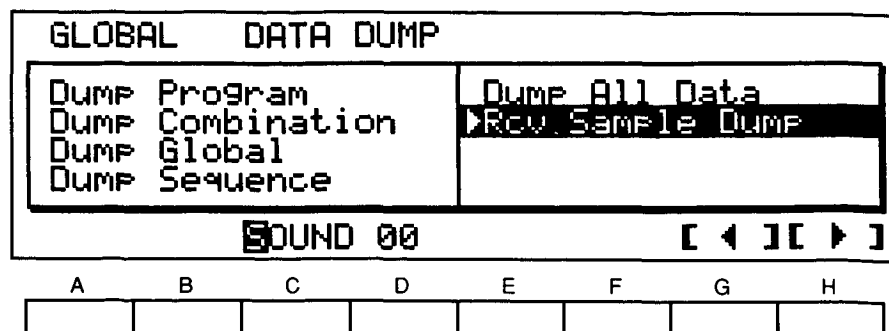
GLOBAL DATA DUMP							
DUMP Program DUMP Combination DUMP Global DUMP Sequence	<b>DUMP All Data</b> Rcv Sample DUMP						
<b>[DUMP]</b>							
A	B	C	D	E	F	G	H

<b>G</b>	[DUMP]	Execute dump
----------	--------	--------------

This function transmits (dumps) all Program parameters, Combination parameters, Global parameters, and Sequence data to another T1/T2/T3 connected via MIDI.

- Press [DUMP] to execute the data dump.
- It is not possible to dump All Data data to a M1/M1R.

## P7-6 Receive Sample Dump (for the T2/T3 only if PCM RAM option is installed)



[G]	[◀] (cursor left)	Move the cursor left
[H]	[▶] (cursor right)	Move the cursor right

This function receives PCM data from a MIDI device (sampler, etc.) that conforms to the MIDI Sample Dump standard, and adds it to the Drum Sounds.

\* For the T2/T3, this function can be selected only if the PCM RAM option has been installed.

(1) Connect the MIDI OUT of the transmitting device to the MIDI IN of the T1/T2/T3.

- Transmission time will be reduced if you connect the MIDI OUT A of the T1/T2/T3 to the MIDI IN of the transmitting device.

(2) Make sure that the T1/T2/T3 global channel matches the channel of the transmitted sample dump message (the method of setting this will differ for each device).

(3) Use ◀ (cursor key [G]), ▶ (cursor key [H]), the VALUE slider, and the ▲/▼ keys to specify the name of the drum sound to be received.

(4) Initiate transmission from the transmitting device.

- Regardless of the settings of the transmitting side, the transmitted PCM data will be added to the end of the Drum Sounds. (Reception will not be possible if there is insufficient space in PCM memory.)

- It is not possible to delete or rename a received Drum Sound.

- It is not possible to initiate sample dump transmission from the T1/T2/T3. Therefore, if the other device cannot send a transmission request (this includes the T1/T2/T3), PCM data transmission is not possible.

## 8. DISK / CARD MODE (DISK)

In this mode, data from a disk or memory card can be loaded (copied into internal memory) or saved to a disk or RAM card (copied from internal memory).

\* Sequence memory data and PCM RAM data is lost when the power is turned off. Before turning the power off, be sure to save important data to disk.

\* It is not possible to store all T1/T2/T3 parameters in a RAM card. Unless you are creating a RAM card to be used by a M1/M1R, save data to disk, not card. (For details, see the Operation Guide.)

- Only 3.5 inch disks marked "High density, double sided, double track" can be used. These disks are usually called "MF2HD", "MFD-2HD", "MF2-256HD", etc.
- We suggest that you use Korg MF-2HD floppy disks.
- The T1/T2/T3 can use Program ROM cards for the M1/M1R.
- Please use the Korg MCR-03 RAM card.

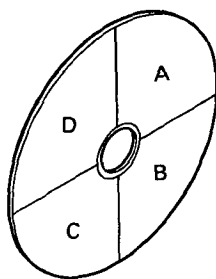
### Functions in Disk / Card mode

Page	Function	
P0	DISK LOAD 1	Load disk data into internal memory (copy all data)
P1	DISK LOAD 2	Load disk data into internal memory (copy individual Combinations, etc.)
P2	DISK SAVE	Save internal memory data to disk
P3	MIDI DATA FILE	Transmit MIDI bulk data (load, save)
P4	CARD LOAD	Load memory card data into internal memory
P5	CARD SAVE	Save internal memory data to memory card

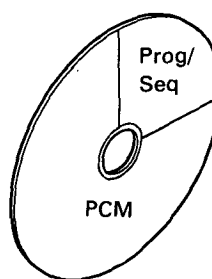
### Files

The T1/T2/T3 uses two types of disk format; Program/Sequence and PCM. A Program/Sequence disk can contain 4 files, and a PCM disk can contain 1 file.

Program/Sequence disk



PCM disk



A single file of a Program/Sequence disk contains the entire contents of the T1/T2/T3 internal memory except for PCM RAM data. A PCM disk contains the entire contents of the T1/T2/T3 internal memory including PCM RAM data. (For the T2/T3, the PCM RAM option must be installed.)

## Loading from disk

These functions load data from disk into internal memory.

When you load data, the data that was in the specified loading destination will be lost.

The following types of data can be loaded.

All data (P0-1)	All Combinations, Programs, and Global parameters (P0-2)	1 Combination (P1-1) 1 Program (P1-2) 1 Drum Kit (P1-3)
	All sequence data (P0-3)	1 Song (P1-4) 1 Pattern (P1-5)
	All PCM data (P0-4)	1 Multisound (P1-6) 1 Drum Sound (P1-7)
MIDI Data File (P3-1)		

\*In order to load PCM data (Multisound data, Drum sound data) into the T1/T2/T3, PCM RAM (sold separately) is required.

• Never remove the disk while the data is being loaded (the display shows "Now Loading").

• When the data has been correctly loaded, the display will show "Completed". If an error message appears, re-insert the disk in the disk drive, and try the load operation once again. (Refer to page 152 "Error Messages" for an explanation of each error message.)

• Loading is not possible if memory protect is turned On in Global mode. (Defeat memory protect in Global mode Page 6.)

## Page 0 Disk Load-1

### **P0-1 Disk Load All Data**

DISK	LOAD-1	▶File					
▶Load All Data Load Combi/Prog Load All Sequence Load All PCM Data		Load DSM PCM Data					
File-A		[LOAD]					
A	B	C	D	E	F	G	H

[A]	FILE	A - D	Specify the disk file to be loaded
[G]		[LOAD]	Execute loading

All data in the specified disk file will be loaded into internal memory.

- (1) Insert the disk into the disk drive.
- (2) Specify the disk file to be loaded ([A], file A - file D).

- It is not possible to specify files B - D for a PCM format disk.

- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

### P0-2 Disk Load All Combi / Prog / Glob

DISK	LOAD-1	File					
Load All Data		Load DSM PCM Data					
Load Combi/Prog							
Load All Sequence							
Load All PCM Data							
File-A		[LOAD]					
A	B	C	D	E	F	G	H

This function loads all Combinations, Programs, and Global parameters from a specified disk file into internal memory. The procedure is the same as explained in P0-1 Load All Data.

### P0-3 Disk Load All Sequence

DISK	LOAD-1	File					
Load All Data		Load DSM PCM Data					
Load Combi/Prog							
Load All Sequence							
Load All PCM Data							
File-A		[LOAD]					
A	B	C	D	E	F	G	H

This function loads all Sequence data from a specified disk file into internal memory. The procedure is the same as explained in P0-1 Load All Data.

### P0-4 Disk Load All PCM Data (for the T2/T3, only when optional PCM RAM is installed)

DISK	LOAD-1	File					
Load All Data		Load DSM PCM Data					
Load Combi/Prog							
Load All Sequence							
Load All PCM Data							
		[LOAD]					
A	B	C	D	E	F	G	H

[G]	[LOAD]	Execute loading
-----	--------	-----------------

\* For the T2/T3, this function can be selected only when PCM RAM is installed.

This function loads PCM data from disk into PCM RAM (optional).

- (1) Insert a disk containing PCM data into the disk drive.
- (2) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

- It is not possible to select files B—D for a PCM format disk.

**P0-5 Disk Load DSM-1 PCM Data** (for the T2/T3, the PCM RAM option must be installed)

DISK		LOAD-1	▶DSM-1 PCM Bank				
Load All Data			▶Load DSM PCM Data				
Load Combi/Prog							
Load All Sequence							
Load All PCM Data							
DSM-1 PCM		Bank 1 + Bank 2	[LOAD]				
A	B	C	D	E	F	G	H

[A]	DSM1 PCM Bank	1+2 / 1+3 / 1+4 / 2+3 / 2+4 / 3+4	Specify which DSM-1 PCM memory bank is to be loaded
[G]	LOAD		Execute loading

\*For the T2/T3, this function can be selected only if the PCM RAM option has been installed.

This function loads PCM data (Multisound) from a DSM-1 performance disk into PCM data RAM.

- It is not possible to load PCM data from a work disk. Save the data to a DSM-1 performance disk before loading.

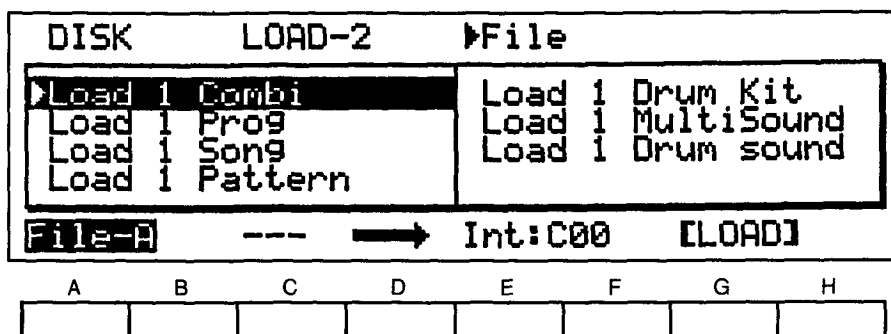
- (1) Insert the DSM-1 performance disk into the disk drive.
- (2) Specify the PCM memory banks (two banks) 1 – 4 into which to load the data.

(3) Press [G]. Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

- The previous PCM memory data will be lost.
- All Multisounds in the two banks will be loaded, and in addition, all sounds in the Multisounds will be added to the drum sounds.
- The total number of sounds is limited to 100. (Sounds exceeding this limit will be discarded.)
- To load only a specific Multisound / Drum Sound, first save the data to a T1/T2/T3 PCM disk, and then load 1 Multisound / 1 Drum sound.
- Since the data must be converted, a considerable amount of time is required to load a DSM-1 disk. We recommend that you re-save the data as a T1/T2/T3 PCM disk.



**P1-1 Disk Load 1 Combination**



[A]	File	A - D	Specify the disk file from which to load a Combination
[C]	Disk Combination	00 - 99	Specify the Combination from the file being loaded
[E]	Internal Combination	00 - 99	Specify the internal memory Combination into which the data will be loaded
[G]		[LOAD]	Execute loading

This function loads one Combination from a disk file.

- Use the P1-2 LOAD 1 Program function to load the Programs used by that Combination into the same Program numbers.

- (1) Insert the disk into the disk drive.
- (2) Specify the disk file containing the Combination to be loaded ([A]), the Combination number ([C]), and the internal memory Combination number ([E]) into which the Combination is to be loaded.

- It is not possible to select files B - D for a PCM format disk.
- When you press [C], no other operations will be possible for approximately 0.4-1.6 seconds while the Combination name area of the disk is being searched.
- When searching ends, the name of the disk Combination will be displayed in the upper right of the LCD.
- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P1-2 Disk Load 1 Program

DISK		LOAD-2	File
Load 1	Combi		Load 1 Drum Kit
▶Load 1	Prog		Load 1 MultiSound
Load 1	Song		Load 1 Drum sound
Load 1	Pattern		

File-A --- → Int:A00 [LOAD]

A	B	C	D	E	F	G	H

[A]	File	A - D	Specify the disk file from which to load a Program
[C]	Disk Program	A00 - B99	Specify the Program from the file being loaded
[E]	Internal Program	A00 - B99	Specify the internal memory Program into which the data will be loaded
[G]		[LOAD]	Execute loading

This function loads one Program from a disk file.

- (1) Insert the disk into the disk drive.
- (2) Specify the disk file containing the Program to be loaded ([A]), the Program number ([C]), and the internal memory Program number ([E]) into which the Program is to be loaded.

- It is not possible to select files B—D for a PCM format disk.
  - When you press [C], no other operations will be possible for approximately 0.4 - 1.6 seconds while the Program name area of the disk is being searched.
  - When searching ends, the name of the disk Program will be displayed in the upper right of the LCD.
- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P1-3 Disk Load 1 Song

DISK		LOAD-2	File
Load 1	Combi		Load 1 Drum Kit
Load 1	Prog		Load 1 MultiSound
▶Load 1	Song		Load 1 Drum sound
Load 1	Pattern		

File-A --- → Int:S00 [LOAD]

A	B	C	D	E	F	G	H

[A]	File	A - D	Specify the disk file from which to load a Song
[C]	Disk Song	00 - 19	Specify the Song from the file being loaded
[E]	Internal Song	00 - 19	Specify the internal memory Song into which the data will be loaded
[G]		[LOAD]	Execute loading

This function loads one Song from a disk file.

- When loading a Song that uses patterns, load the necessary patterns first.
- (1) Insert the disk into the disk drive.
  - (2) Specify the disk file containing the Song to be loaded ([A]), the Song number ([C]), and the internal memory Song number ([E]) into which the Song is to be loaded.
- It is not possible to select files B-D for a PCM format disk.

- When you press [C], no other operations will be possible for approximately 0.4 - 1.6 seconds while the Song name area of the disk is being searched.
  - When searching ends, the name of the disk Song will be displayed in the upper right of the LCD.
- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P1-4 Disk Load 1 Pattern

DISK		LOAD-2	File				
Load 1	Combi		Load 1 Drum Kit				
Load 1	Prog		Load 1 MultiSound				
Load 1	Song		Load 1 Drum sound				
Load 1	Pattern						
File-A		P000	Int:P000 [LOAD]				
A	B	C	D	E	F	G	H

[A]	File	A - D	Specify the disk file from which to load a Pattern
[C]	Disk Pattern	00 - 199	Specify the Pattern from the file being loaded
[E]	Internal Pattern	00 - 199	Specify the internal memory Pattern into which the data will be loaded
[G]		[LOAD]	Execute loading

This function loads one Pattern from a disk file.

- (1) Insert the disk into the disk drive.
- (2) Specify the disk file containing the Pattern to be loaded ([A]), the Pattern number ([C]), and the internal memory Pattern number ([E]) into which the Pattern is to be loaded.

- It is not possible to select files B - D for a PCM format disk.

- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P1-5 Disk Load 1 Drum Kit

DISK		LOAD-2	File				
Load 1	Combi		Load 1 Drum Kit				
Load 1	Prog		Load 1 MultiSound				
Load 1	Song		Load 1 Drum sound				
Load 1	Pattern						
File-A		Kit1	Int:Kit1 [LOAD]				
A	B	C	D	E	F	G	H

[A]	File	A - D	Specify the disk file from which to load a Drum Kit
[C]	Disk Drum Kit	1 - 4	Specify the Drum Kit from the file being loaded
[E]	Internal Drum Kit	1 - 4	Specify the internal memory Drum Kit into which the data will be loaded
[G]		[LOAD]	Execute loading

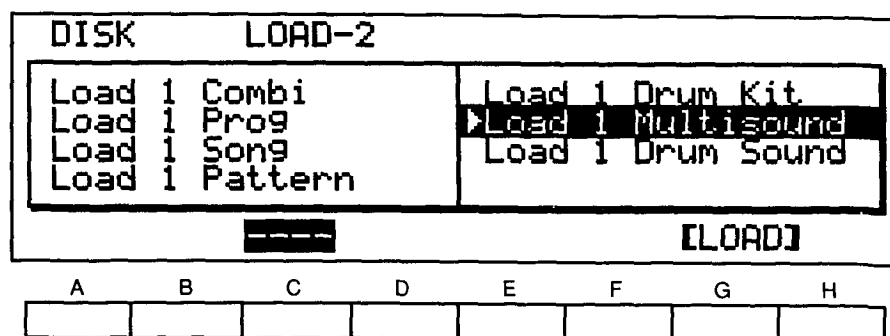
This function loads one Drum Kit from a disk file.

- (1) Insert the disk into the disk drive.
- (2) Specify the disk file containing the Drum Kit to be loaded ([A]), the Drum Kit number ([C]), and the internal memory Drum Kit number ([E]) into which the Drum Kit is to be loaded.

- It is not possible to select files B - D for a PCM format disk.

- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

### P1-6 Disk Load 1 Multisound (for the T2/T3, only when optional PCM RAM is installed)



[A]	Multisound	00 -	Specify the Multisound to be loaded
[G]		[LOAD]	Execute loading

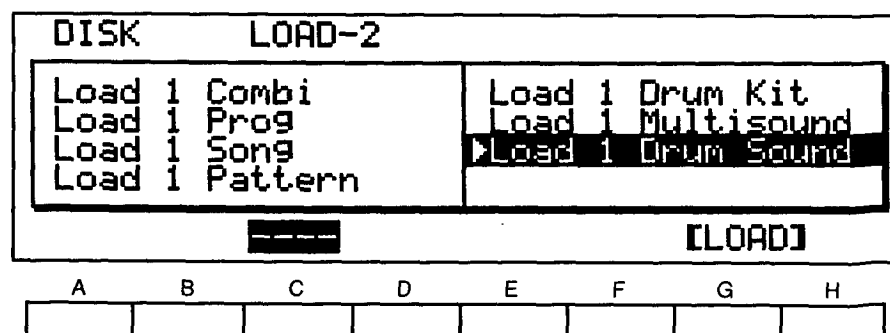
This function loads one Multisound from a T1/T2/T3 PCM disk and adds it to the Multisounds in PCM RAM.

\*For the T2/T3, this function can be selected only if the optional PCM RAM has been installed.

- (1) Insert the disk into the disk drive.
- (2) Press [A] and specify the Multisound to load. The Multisound name will be shown in the upper right of the display. (No other operations will be possible for a few seconds while the Multisound name area of the disk is being searched.)
- (3) Press [LOAD] ([G]). Then, if you are sure you want to execute loading, press [YES] ([E]). To quit without loading, press [NO] ([G]).

- The loaded Multisound will be added after the Multisounds already in PCM RAM. (All the sounds it contains will be added after the drum sounds.)
- It is not possible to delete Multisounds from disk or from PCM RAM. You will have to save all PCM data to disk, clear PCM RAM, and load the desired Multisounds once again.
- PCM RAM can be cleared by loading a freshly formatted PCM disk, or by turning the power off.
- After loading the desired Multisounds and Drum sounds, remember to save the data to a new disk using the P2-4 Disk Save All PCM Data function, since PCM RAM data will be lost when the power is turned off.

### P1-7 Disk Load 1 Drum Sound (for the T2/T3, only when optional PCM RAM is installed)



[A]	Drum sound	00 -	Specify the Drum sound to be loaded
[G]		[LOAD]	Execute loading

This function loads one Drum sound from a T1/T2/T3 PCM disk and adds it to the Drum sounds in PCM RAM.

\*For the T2/T3, this function can be selected only if the optional PCM RAM has been installed.

- The procedure is the same as explained for P1-6 LOAD 1 MULTISOUND.

## Saving to disk

Use these functions to save data from internal memory to disk.

When data is saved to a disk file which already exists, the old data of that disk file will be lost. You can use the disk protect slider to keep important disk data from being accidentally overwritten.

The following types of data can be saved to disk.

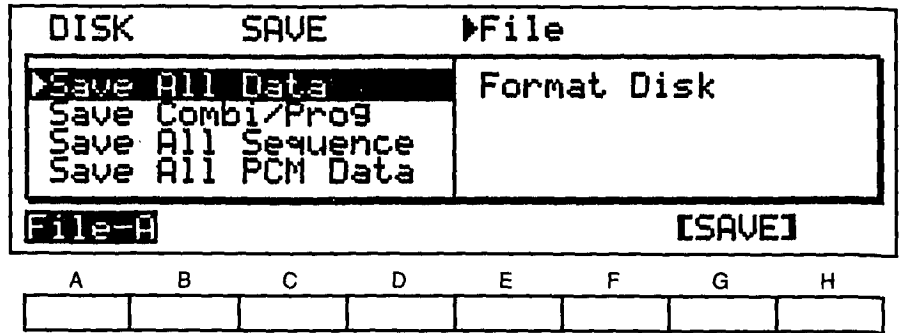
All data (P2-1)	All Combinations, Programs, Global parameters (P2-2)
	All Sequence data (P2-3)
	All PCM data (P2-4)
MIDI data file (P3-2)	

It is not possible to rewrite an individual Combination, Program, Song, Pattern, or Drum Kit inside a file. Load the file you want to edit (but remember to first save the current contents of internal memory as a different file), and edit it in memory.

\*For the T2/T3, the separately sold PCM RAM option must be installed in order to save PCM data (Multisound data, Drum Sound data).

- A newly purchased disk must be “formatted” before it can be used to store data. 2HD disks used by another device must also be formatted before they can be used to store T1/T2/T3 data. For details, see P2-5 Format Disk.
- While data is being saved to disk and the display shows “Now Saving”, do not remove the disk.
- When the data has been correctly saved, the display will show “Completed”. If an error message appears, re-insert the disk in the disk drive, and try the save operation once again. (Refer to page 152 “Error Messages” for an explanation of each error message.)

**P2-1 Disk Save All Data**



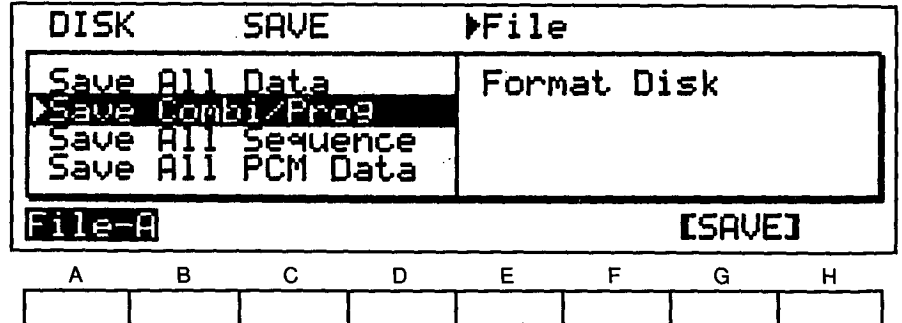
[A]	FILE	A - D	Specify the disk file into which the data will be saved
[G]		[SAVE]	Execute saving

This function saves all internal memory data to disk.

- (1) Insert the disk into the disk drive. (Make sure that the write protect slider of the disk is in the Write Permit position.)
- (2) Specify the disk file into which the data will be saved ([A], file A – file D). It is not possible to specify files B – D for a PCM format disk.

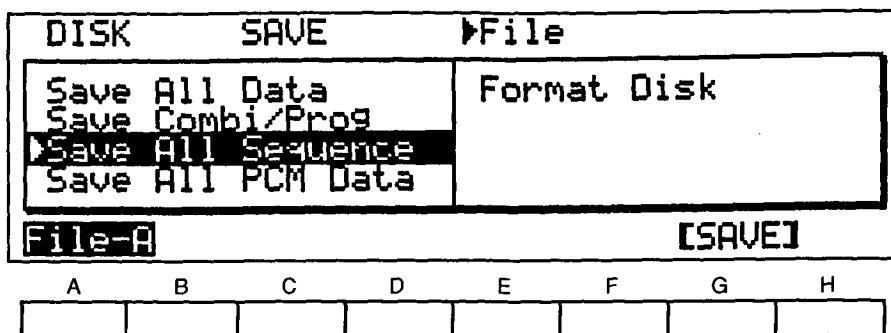
- (3) Press [SAVE] ([G]). Then, if you are sure you want to execute saving, press [YES] ([E]). To quit without saving, press [NO] ([G]).

**P2-2 Disk Save All Combi / Prog / Glob**



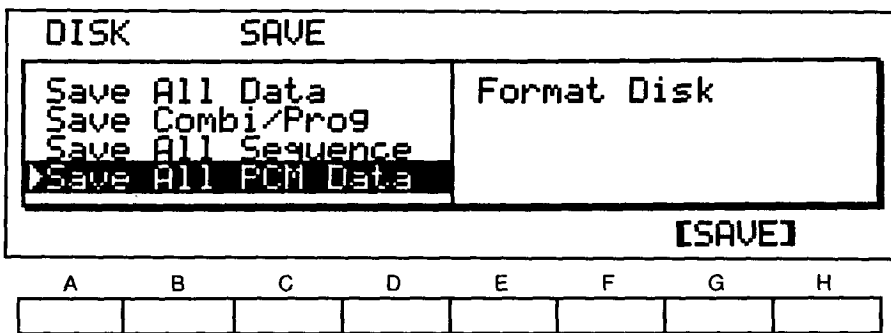
This function saves all Combinations, Programs, and Global parameters to disk. The procedure is the same as explained in P2-1 Save All Data.

### P2-3 Disk Save All Sequence



This function saves all Sequence data from internal memory to disk. The procedure is the same as explained in P2-1 Save All Data.

### P2-4 Disk Save All PCM Data (for the T2/T3, only when optional PCM RAM is installed)



G		[SAVE]	Execute saving
---	--	--------	----------------

This function saves all PCM data in PCM RAM (optional) to a PCM disk.

\*For the T2/T3, this function can be selected only if PCM RAM (sold separately) has been installed.

- (1) Insert the disk into the disk drive. (Make sure that the write protect slider is in the Write Permit position.)
- (2) Press [SAVE]. Then, if you are sure you want to execute saving, press [YES] ([E]). To quit without saving, press [NO] ([G]).

## Formatting a disk

### P2-5 Disk Format (for the T2/T3 when PCM RAM option is not installed)

DISK		SAVE	
Save All Data			
Save Combi/Prog			
Save All Sequence			
▶Format Disk			
[FORMAT]			
A	B	C	D
E	F	G	H

### P2-5 Disk Format (for the T1, and for the T2/T3 with PCM RAM option)

DISK		SAVE		▶Format Type	
Save All Data				▶Format Disk	
Save Combi/Prog					
Save All Sequence					
Save All PCM Data					
▶PROG/COMBI/SEQ 4 Files				[FORMAT]	
A	B	C	D	E	F
G	H				

[A]	PROG / COMBI / SEQ 4 FILES PCM / PROG / COMBI / SEQ	Select Program / Sequence disk format Select PCM disk format
[G]	[FORMAT]	Execute formatting (initialization)

This function formats a floppy disk (2HD type) for use by the T1/T2/T3.

- A newly purchased floppy disk must be formatted before it can be used to store data. 2HD floppy disks used by other devices must also be formatted before they can be used to store T1/T2/T3 data.

When a disk is formatted, all its data is erased. Be careful not to format a disk containing important data, and use the disk write protect slider to prevent accidents.

- (1) Insert the disk into the disk drive.
- (2) For the T1 (and for the T2/T3 with the PCM RAM option), Select the disk format ([A]). (For details of the disk format, see page 14 of the Operation Guide.)

(3) Press [YES] ([G]). Then, if you are sure you want to format the disk, press [YES] ([E]). To quit without formatting, press [NO] ([G]).

- Be sure that the write protect tab on the disk is in the open ("write permit") position.
- Formatting takes approximately 2 minutes.
- Do not remove the disk while formatting is taking place (while the display shows "Now Formatting").
- When formatting is completed, the display will show "Completed". If an error message appears, re-insert the disk into the disk drive and try the operation once again. If an error appears again, try formatting a different disk. (For an explanation of each error message, see "Error messages" page 152.)



## MIDI data file

The T1/T2/T3 can receive MIDI Exclusive data (sound data etc. specific to each device) from external devices and save this data to disk.

- Each file can store up to 64 Kbytes of MIDI data.

- Since each device handles MIDI exclusive messages in different ways, it may not be possible for the T1/T2/T3 to save data from a certain device even if that device is able to use exclusive messages.

- In order to save/load a MIDI data file, the sequencer data memory must be at least 33% free.

## Page3 Data File

### P3-1 Disk Load MIDI Data

DISK DATA FILE ▶File							
▶Load MIDI Data							
Save MIDI Data							
File-A	[LOAD]						
A	B	C	D	E	F	G	H

[A]	File	A - D	Specify the disk file to be loaded
[G]		[LOAD]	Execute loading

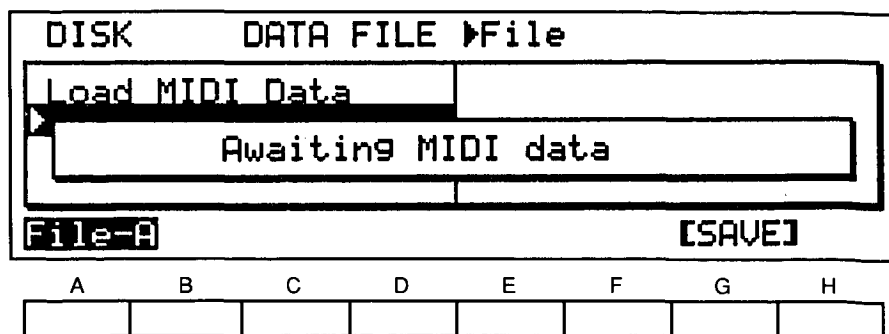
This function loads exclusive data (unique data for each device) that was received from an external MIDI device using the P3-2 Save MIDI Data function, and transmits this data from MIDI OUT.

- (1) Insert the disk into the disk drive.
- (2) Specify the file ([A], file A - file D) to be loaded.

- It is not possible to select files B - D for a PCM format disk.  
 (3) Press [LOAD]. Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

- The data will be transmitted from the MIDI OUT A jack.
- Do not remove the disk while the "Now Loading" message appears in the display.

## P3-2 Disk Save MIDI Data



[A]	File	A - D	Specify the disk file into which the data will be saved
[G]		[SAVE]	Execute saving

This function receives a MIDI system exclusive message from an external MIDI device, and saves the data to disk. Data received from when this function is selected to when you press [SAVE] ([G]) will be saved.

\*To save a MIDI Data File, the sequence data memory must be at least 33% free.

(1) Insert the disk to which you will save the data into the disk drive, making sure that the write protect tab on the disk is in the open ("write permit") position.

(2) Specify the file ([A], file A — file D) into which the data will be saved.

- It is not possible to select files B - D for a PCM format disk.

(3) Operate the MIDI device connected to the T1/T2/T3 MIDI IN to make it transmit the system exclusive data you want to store. Different devices will call this function by various names, such as "Data Dump", "Transmit Exclusive Data", etc. Consult the manual for your device.

- The display will indicate the number of bytes in the received message.

- Exclusive messages from more than one device may be received, up to a total of 64 Kbytes of data. (If you will be saving data from two or more devices of the same type, you will need to distinguish the data in some way, for instance by transmitting the data on different MIDI channels. Korg devices allow you to specify the transmission channel of exclusive data.)

If more than 64 Kbytes of data was received, an error message will appear, and the received data will be canceled.

(4) When finished receiving, press [SAVE] ([G]). Then, if you are sure you want to save the data, press [YES] ([E]). To quit without saving, press [NO] ([G]).

- Do not remove the disk while the "Now Saving" message appears in the display.

## Program Card loading and saving

These functions load and save data using a ROM/RAM card. The following groups of parameters can be Loaded.

100 Combinations / 100 Programs / Global parameters (P4-1,2)	1 Combination (P4-4) 1 Program (P4-5) 1 Drum Kit (P4-6)
50 Combinations / 50 Programs / All sequence data / Global parameters (P4-1)	
All sequence data (P4-1,3)	

The following groups of parameters can be saved.

100 Combinations / 100 Programs / Global parameters (P5-1)
---

### Page 4 Card Load

#### P4-1 Card Load All Data

CARD	LOAD	Destination					
Load All Data		Load 1 Prog Load 1 Drum Kit					
Load Combi/Prog							
Load All Sequence							
Load 1 Combi							
Combi/Prog A/Seq		[LOAD]					
A	B	C	D	E	F	G	H

[B]	COMBI / PROG A / SEQ COMBI / PROG B / SEQ	Specify whether you want to load the 100 Programs from the card into internal memory Programs A00 – A99 or into B00 – B99.
[G]	[LOAD]	Execute loading

This function loads all data from a ROM/RAM card (Combinations, Programs, Global parameters, Sequence data) into internal memory.

- (1) Press [A], and specify whether you want to load the 100 Programs from the card into internal memory Programs A00 – A99 or into B00 – B99. (For program sequence cards, specify A00 – A49 or B00 – B49.)

- A RAM card will not hold all the T1/T2/T3 parameters, so unless you are creating a card that will be used for the M1/M1R, save data to disk. (Parameters that can be saved to disk are listed in the Operation Guide, page 15.)
- It is not possible to store T1/T2/T3 sequence data in a RAM card.
- Program ROM cards for the M1/M1R and RAM cards saved by the M1/M1R can be loaded into the T1/T2/T3. Also, Combinations and Programs created on the T1/T2/T3 can be saved to a RAM card and used by the M1/M1R. (For details, see the Operation Guide, page 14.)
- \* Use a Korg “MCR-03” Memory Card RAM (256 KBits).
- Loading data into internal memory will overwrite the data previously in internal memory.
- It is not possible to load if Memory Protect is turned On. (Defeat memory protect in Global mode.)

- (2) Press [LOAD]([G]). Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

- When Combi / Prog A / Seq is selected, Programs B00—B99 (C00—C99 in the M1/M1R) used by a Combination will be replaced with A00—A99 when loading.

## P4-2 Card Load All Combi / Prog / Glob

CARD	LOAD	Destination
Load All Data		Load 1 Prog
Load Combi/Prog		Load 1 Drum Kit
Load All Sequence		
Load 1 Combi		
Combi/Prog A		[LOAD]

A	B	C	D	E	F	G	H

[A]	Combi/Prog A Combi/Prog B	Select which 100 Programs (A00-A99 or B00-B99) to load from card.
[G]	[LOAD]	Execute loading

This function loads all Combinations, Programs, and Global parameters from a ROM/RAM card into internal memory. The procedure is the same as for P3-1 Load All Data.

## P4-3 Card Load All Sequence

CARD	LOAD	Destination
Load All Data		Load 1 Prog
Load Combi/Prog		Load 1 Drum Kit
Load All Sequence		
Load 1 Combi		
		[LOAD]

A	B	C	D	E	F	G	H

[G]		[LOAD]	Execute loading
-----	--	--------	-----------------

This function loads all sequence data from a ROM/RAM card into internal memory. Press [LOAD] ([G]). Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P4-4 Card Load 1 Combination

CARD	LOAD	Source
Load All Data		Load 1 Prog
Load Combi/Prog		Load 1 Drum Kit
Load All Sequence		
▶Load 1 Combi		

→ Int:C00 [LOAD]

A	B	C	D	E	F	G	H

<input type="checkbox"/> [C]	CARD COMBI	00 – 99	Specify the Combination to be loaded from card
<input type="checkbox"/> [E]	INT COMBI	00 – 99	Specify the internal memory into which the Combination will be loaded
<input type="checkbox"/> [G]		[LOAD]	Execute loading

This function loads a Combination from a card. Use the P4-5 Card Load 1 Program function to load each Program used by the card Combination.

(1) Specify the card Combination ([C]) to be loaded, and the internal Combination memory ([E]) into which it will be loaded.

(2) Press [LOAD] ([G]). Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P4-5 Card Load 1 Program

CARD	LOAD	Source
Load All Data		▶Load 1 Prog
Load Combi/Prog		Load 1 Drum Kit
Load All Sequence		
Load 1 Combi		

→ Int:A00 [LOAD]

A	B	C	D	E	F	G	H

<input type="checkbox"/> [C]	CARD PROG	00 – 99	Specify the Program to be loaded from card
<input type="checkbox"/> [E]	INT PROG	A00 – A99, B00 – B99	Specify the internal memory into which the Program will be loaded
<input type="checkbox"/> [G]		[LOAD]	Execute loading

This function loads a Program from a card.

(1) Specify the card Program ([C]) to be loaded, and the internal Program memory ([E]) into which it will be loaded.

(2) Press [LOAD] ([G]). Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## P4-6 Card Load 1 Drum Kit

CARD	LOAD	▶Source					
Load All Data		Load 1 Prog					
Load Combi/Prog		▶Load 1 Drum Kit					
Load All Sequence							
Load 1 Combi							
[Kit1] →		Int:Kit1 [LOAD]					
A	B	C	D	E	F	G	H

[C]	CARD DRUM KIT	1 - 4	Specify the Drum Kit to be loaded from card
[E]	INT DRUM KIT	1 - 4	Specify the internal memory into which the Drum Kit will be loaded
[G]		[LOAD]	Execute loading

This function loads a Drum Kit from a card.

(1) Specify the card Drum Kit ([C]) to be loaded, and the internal Drum Kit memory ([E]) into which it will be loaded.

(2) Press [LOAD] ([G]). Then, if you are sure you want to load the data, press [YES] ([E]). To quit without loading, press [NO] ([G]).

## Page 5 Card Save

### P5-1 Card Save All Prog / Combi / Glob

CARD	SAVE	▶Destination					
▶Save Combi/Prog							
[Combi/Prog A]		[SAVE]					
A	B	C	D	E	F	G	H

[B]	COMBI / PROG A COMBI / PROG B	Save all Combinations, Programs A00 - A99, and Global parameters Save all Combinations, Programs B00 - B99, and Global parameters
[G]	[SAVE]	Execute saving

This function saves (writes) internal memory data to a RAM card. The protect switch located on the upper part of the card must be turned Off.

(1) Press [B], and specify whether to save Programs A00—A99 or B00—B99.

(2) Press [SAVE] ([G]). Then, if you are sure you want to save the data, press [YES] ([G]). To quit without saving, press [NO] ([H]).

- When data is saved to a card, the card will automatically be formatted. This will erase all data which was previously in that card. Use the card protect switch to prevent important card data from being accidentally erased.

- When Combi / Prog A is selected, Programs A00—A99 used by a Combination will be replaced with B00—B99 (C00—C99 for the M1/M1R) when saving.

# T1, T2, T3 MIDI IMPLEMENTATION

## 1. TRANSMITTED DATA

### 1-1 CHANNEL MESSAGES

Status	Second	Third	Description	ENA
1000 nnnn	0kkk kkkk	0100 0000	Note Off	*1 A
1001 nnnn	0kkk kkkk	0vvv vvvv	Note On vvv vvvv=1~127	*1 A
1011 nnnn	0000 0001	0vvv vvvv	Pitch Modulation (Joy Stick(+Y))	C
1011 nnnn	0000 0010	0vvv vvvv	VDF Modulation (Joy Stick(-Y))	C
1011 nnnn	0000 0110	0vvv vvvv	Data Entry (MSB) (E.Slider, A.Pedal) *2	E
1011 nnnn	0000 0111	0vvv vvvv	Volume (Assignable Pedal)	C
1011 nnnn	0010 0110	0vvv vvvv	Data Entry (LSB) (E.Slider, A.Pedal) *2	E
1011 nnnn	0100 0000	0000 0000	Damper Off (Damper Pedal)	C
1011 nnnn	0100 0000	0111 1111	Damper On (Damper Pedal)	C
1011 nnnn	0110 0000	0000 0000	Data Increment (UP Switch) *2	E
1011 nnnn	0110 0001	0000 0000	Data Decrement (DOWN Switch) *2	E
1011 nnnn	0ccc cccc	0vvv vvvv	Control Data ccc cccc=00~101	*3 CorQ
1100 nnnn	0ppp pppp	---- ----	Program Change (Program or Combi) ppp pppp=0~99	P
1101 nnnn	0vvv vvvv	---- ----	Channel Pressure (After Touch)	T
1110 nnnn	0bbb bbbb	0bbb bbbb	Bender Change (Joy Stick(X))	C

nnnn : MIDI Channel No. (0~15) Usually Global Channel. When using Sequencer, each track's channel, and when in Combination Mode, each timbre's channel.

ENA = A : Always Enabled

C : Enabled when Control On

P : Enabled when Program On

T : Enable when After Touch On

E : Enabled when Exclusive On

Q : Enabled when Sequencer is Playing(T), Recording(R)

\*1 T1 : kkk kkk=9~120 (88Keys + Transpose)

T2 : kkk kkk=16~115 (76Keys + Transpose)

T3 : kkk kkk=24~108 (61Keys + Transpose)

\*2 : Prog. E. Prog. Combi. E. Combi Mode Only

\*3 : Seq. recorded Data. External assigned pedal and Control Number assigned Joy Stick use all c=0~101 area

### 1-2 SYSTEM COMMON MESSAGES

Status	Second	Third	Description
1111 0010	0111 1111	0hhh hhhh	Song Position Pointer 111 1111 : Least significant hhh hhhh : Most significant
1111 0011	000s ssss	---- ----	Song Select s ssss : Song No. = 0~19

Transmits when Sequencer Mode (Internal Clock)

### 1-3 SYSTEM REALTIME MESSAGES

Status	Description
1111 1000	Timing Clock *4
1111 1010	Start *4
1111 1011	Continue *4
1111 1100	Stop *4
1111 1110	Active Sensing

\*4 : Transmits when Sequencer Mode (Internal Clock)

### 1-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status	] EX. Header
2nd Byte = 0111 1110 (7E) : Non Realtime Message	
3rd Byte = 0ccc cccc (cc) : Channel Number *5	
4th Byte = 0sss ssss (ss) : Sub ID1	
5th Byte = 0sss ssss (ss) : Sub ID2 (Sub ID1=5or6) or Data	
6th Byte = 0ddd dddd (dd) : Data	
...	
...	
LastByte = 1111 0111 (F7) : EOX	

\*5 : ccc cccc = 00~0F : Global Channel  
= 7F : Receive any Channel

Sub ID1	Sub ID2	Description	R	E
01	--	Sample Dump Header	○	○
02	--	Sample Data Packet	○	○
05	01	Loop Point Transmission	○	○
06	02	Inquiry ID Reply	○	○
7D	--	Cancel	○	○
7E	--	NAK	○	○
7F	--	ACK	○	○

Transmit when  
R : Request Message received  
E : EX. Message received  
(Does not respond to Exclusive on, off in DATA DUMP Page, except Inquiry ID Reply)

### 1-5 SYSTEM EXCLUSIVE MESSAGES

1st Byte = 1111 0000 (F0) : Exclusive Status	] EX. Header
2nd Byte = 0100 0010 (42) : RORG ID	
3rd Byte = 0011 nnnn (3n) : Format ID n:Global ch.	
4th Byte = 0010 0110 (26) : T1, T2, T3 ID ( = 0001 1001 (19) : M1, M1R ID )	
5th Byte = 0fff ffff (ff) : Function Code	
6th Byte = 0ddd dddd (dd) : Data	
...	
...	
LastByte = 1111 0111 (F7) : End of Exclusive ..... EOX	

Function Code List

Func	Description	T1, T2, T3				M1, M1R			
		R	C	D	E	R	C	D	E
42	MODE DATA	○							
47	ALL DRUM SOUND NAME DUMP	○							
45	ALL MULTISOUND NAME DUMP	○							
4E	MODE CHANGE		○				○		
41	PARAMETER CHANGE		○						
40	PROGRAM PARAMETER DUMP	○	○						
4C	ALL PROGRAM PARAMETER DUMP	○				○		○	
49	COMBINATION PARAMETER DUMP	○	○						○
4D	ALL COMBINATION PARAMETER DUMP	○		○					○
48	ALL SEQUENCE DATA DUMP	○		○					
51	GLOBAL DATA DUMP	○		○				○	
50	ALL DATA(GLB. CMB. PRG. SEQ) DUMP	○		○					○
44	MULTISOUND PARAMETER DUMP	○		○					
26	RECEIVED MESSAGE FORMAT ERROR	○			○				○
23	DATA LOAD COMPLETED				○				○
24	DATA LOAD ERROR				○				○
21	WRITE COMPLETED				○				
22	WRITE ERROR				○				

Transmitted when

R : Request Message is received

C : Mode or No. is changed by SW

D : Data dump by SW ( Don't respond to Exclusive On, Off )

E : EX. Message received

## 2. RECOGNIZED RECEIVE DATA

## 2-1 CHANNEL MESSAGES

Status	Second	Third	Description	ENA
1000 nnnn	0kkk kkkk	0xxx xxxx	Note Off	A
1001 nnnn	0kkk kkkk	0000 0000	Note Off	A
1001 nnnn	0kkk kkkk	0vvv vvvv	Note On vvv vvvv=1-127	A
1011 nnnn	0000 0001	0vvv vvvv	Pitch Modulation	C
1011 nnnn	0000 0010	0vvv vvvv	VDF Modulation	C
1011 nnnn	0000 0110	0vvv vvvv	Data Entry (MSB)	*1.3 E
1011 nnnn	0000 0111	0vvv vvvv	Volume	C
1011 nnnn	0010 0110	0vvv vvvv	Data Entry (LSB)	*1.3 E
1011 nnnn	0100 0000	00xx xxxx	Damper Off	C
1011 nnnn	0100 0000	01xx xxxx	Damper On	C
1011 nnnn	0110 0000	0000 0000	DATA Increment	*1.3 E
1011 nnnn	0110 0001	0000 0000	DATA Decrement	*1.3 E
1011 nnnn	0110 0100	0000 0001	RPC Parameter No. (LSB) (M. Tune)	*3 E
1011 nnnn	0110 0101	0000 0000	RPC Parameter No. (MSB) (M. Tune)	*3 E
1011 nnnn	0ccc cccc	0vvv vvvv	Control Data (For Seq. Recording) ccc cccc=00~101	Q
1011 nnnn	0111 1010	0000 0000	Local Control Off	A
1011 nnnn	0111 1010	0111 1111	Local Control On	A
1011 nnnn	0111 1011	0000 0000	All Notes Off	A
1011 nnnn	0111 110x	0000 0000	(All Notes Off)	A
1011 nnnn	0111 1110	000m mmmm	(All Notes Off) m mmmm=0~16	A
1011 nnnn	0111 1111	0000 0000	(All Notes Off)	A
1100 nnnn	0ppp pppp	---- ----	Program Combination Change	*2.3 P
1101 nnnn	0vvv vvvv	---- ----	Channel Pressure (After Touch)	T
1110 nnnn	0bbb bbbb	0bbb bbbb	Bender Change	C

x : Random

ENA ..... Same as TRANSMITTED DATA

\*1 : Prog. E. Prog. Combi. E. Combi Mode Only

\*2 : Data beyond value of 99 are assigned a new value by subtracting 100.  
ex. 100→00, 127→27

\*3 : After Processing (While Exclusive On).

Transmits Exclusive Message[DATA LOAD COMPLETED]or[DATA LOAD ERROR].



2-2 SYSTEM COMMON MESSAGES

Status	Second	Third	Description
1111 0010	0111 1111	0hhh hhhh	Song Position Pointer 111 1111 : Least significant hhh hhhh : Most significant
1111 0011	000s ssss	-----	Song Select s ssss : Song No. = 0~19

Receive when in Sequencer Mode (External Clock)

2-3 SYSTEM REALTIME MESSAGES

Status	Description	
1111 1000	Timing Clock	*4
1111 1010	Start	*4
1111 1011	Continue	*4
1111 1100	Stop	*4
1111 1110	Active Sensing	

\*4 : Receive when in Sequencer Mode (External Clock)

2-4 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE

Sub ID1	Sub ID2	Description
01	--	Sample Dump Header
02	--	Sample Data Packet
03	--	Sample Dump Request
05	01	Loop Point Transmission
05	02	Loop Point Request
06	01	Inquiry ID Request
7C	--	Wait
7D	--	Cancel
7E	--	NAK
7F	--	ACK

(Does not respond to Exclusive On. Off in DATA DUMP Page. except Inquiry ID Request)

2-5 SYSTEM EXCLUSIVE MESSAGES

\* Don't receive when Sequencer is Playing,Recording

Func	Description	T1, T2, T3				M1, M1R	
		G	C	P	A	G	A
12	MODE REQUEST	○	○	○	○		
1F	ALL DRUM SOUND NAME DUMP REQUEST	○	○	○	○		
16	ALL MULTISOUND NAME DUMP REQUEST	○	○	○	○		
10	PROGRAM PARAMETER DUMP REQUEST						
1C	ALL PROGRAM PARAMETER DUMP REQUEST	◎	○	○	○	◎	○
19	COMBINATION PARAMETER DUMP REQUEST						
1D	ALL COMBINATION PARAMETER DUMP REQUEST	◎	○	○	○	◎	○
18	ALL SEQUENCE DATA DUMP REQUEST	◎	○	○	○		
0E	GLOBAL DATA DUMP REQUEST	◎	○	○	○	◎	○
0F	ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP REQUEST	◎	○	○	○		
15	MULTISOUND PARAMETER DUMP REQUEST	○	○	○	○		
11	PROGRAM WRITE REQUEST						
1A	COMBINATION WRITE REQUEST		○				
47	ALL DRUM SOUND NAME DUMP	○	○	○	○		
40	PROGRAM PARAMETER DUMP						
4C	ALL PROGRAM PARAMETER DUMP	◎	○	○	○	◎	○
49	COMBINATION PARAMETER DUMP						
4D	ALL COMBINATION PARAMETER DUMP	◎	○	○	○	◎	○
48	ALL SEQUENCE DATA DUMP	◎	○	○	○	◎	○
51	GLOBAL DATA DUMP	◎	○	○	○	◎	○
50	ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP	◎	○	○	○	◎	○
44	MULTISOUND PARAMETER DUMP	○	○	○	○		
4E	MODE CHANGE	○			○		
41	PARAMETER CHANGE	○	○	○			
53	DRUM-KIT AND MULTISOUND PARAMETER CHANGE	○					

Receive when in  
 G : GLOBAL MODE  
 (◎...Does not respond to Exclusive On, Off in DATA DUMP Page)  
 C : COMBI, E. COMBI MODE  
 P : PROG, E. PROG MODE  
 S : SEQUENCER MODE  
 A : ANY OTHER MODE

## 3. MIDI EXCLUSIVE FORMAT (R: Receive, T: Transmit)

## (1) MODE REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 0010	MODE REQUEST 12H
1111 0111	EOX

Receives this message, and transmits Func=42 message.

## (2) PROGRAM PARAMETER DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 0000	PROGRAM PARAMETER DUMP REQUEST 10H
1111 0111	EOX

Receives this message, and transmits Func=40 or Func=24 message.

## (3) ALL DRUM SOUND NAME DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 1111	ALL DRUM SOUND NAME DUMP REQUEST 1FH
0000 000c	PCM Data Bank (NOTE 18)
1111 0111	EOX

Receives this message, and transmits Func=47 or Func=24 message.

## (4) ALL MULTISOUND NAME DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 0110	ALL MULTISOUND NAME DUMP REQUEST 16H
0000 000c	PCM Data Bank (NOTE 18)
1111 0111	EOX

Receives this message, and transmits Func=45 or Func=24 message.

## (5) ALL PROGRAM PARAMETER DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER
0001 1100	ALL PROGRAM PARAMETER DUMP REQUEST 1CH
0000 000c	Program Bank (NOTE 3-2)
1111 0111	EOX

Receives this message, and transmits Func=4C or Func=24 message.

## (6) COMBINATION PARAMETER DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 1001	COMBINATION PARAMETER DUMP REQUEST 19H
1111 0111	EOX

Receives this message, and transmits Func=49 or Func=24 message.

## (7) ALL COMBINATION PARAMETER DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER
0001 1101	ALL COMBI. PARAMETER DUMP REQUEST 1DH
0000 0000	
1111 0111	EOX

Receives this message, and transmits Func=4D or Func=24 message.

## (8) ALL SEQUENCE DATA DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 1000	ALL SEQUENCE DATA DUMP REQUEST 18H
0000 0000	
1111 0111	EOX

Receives this message, and transmits Func=48 or Func=24 message.

## (9) GLOBAL DATA DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26(19)	EXCLUSIVE HEADER
0000 1110	GLOBAL DATA DUMP REQUEST 0EH
0000 0000	
1111 0111	EOX

Receives this message, and transmits Func=51 or Func=24 message.

## (10) ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0000 1111	ALL DATA(GLB. CMB. PRG. SEQ.) DUMP REQ. 0FH
0000 0000	
1111 0111	EOX

Receives this message, and transmits Func=50 or Func=24 message.

## (11) MULTISOUND PARAMETER DUMP REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 0101	MULTISOUND PARAMETER DUMP REQUEST 15H
1111 0111	EOX

Receives this message only if the PCM RAM has been installed.  
Receives this message, and transmits Func=44 or Func=24 message.

## (12) PROGRAM WRITE REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 0001	PROGRAM WRITE REQUEST 11H
0000 000c	Program Bank (NOTE 3-1)
0ppp pppp	Write Program No. (0-99)
1111 0111	EOX

Receives this message, writes the data and transmits Func=21 or Func=22 message.

## (13) COMBINATION WRITE REQUEST R

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0001 1010	COMBINATION WRITE REQUEST 1AH
0000 0000	
0ppp pppp	Write Combination No. (0-99)
1111 0111	EOX

Receives this message, writes the data and transmits Func=21 or Func=22 message.

## (14) PROGRAM PARAMETER DUMP R, T

Byte	Description
FO. 42. 3n. 26	EXCLUSIVE HEADER
0100 0000	PROGRAM PARAMETER DUMP 40H
0ddd dddd	Data (NOTE 6)
:	:
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.

Receives Func=10 message, and transmits this message & data.

When the Program No. is changed by SW, transmits this message & data.

(15) ALL PROGRAM PARAMETER DUMP R, T

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0100 1100	PROGRAM PARAMETER DUMP 4CH
0000 000c	Program Bank (NOTE 3-2)
0ddd dddd	Data (NOTE 7)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=1C message, and transmits this message & data.  
 Transmits this message & data by DATA DUMP.

(16) COMBINATION PARAMETER DUMP R, T

Byte	Description
F0. 42. 3n. 26	EXCLUSIVE HEADER
0100 1001	COMBINATION PARAMETER DUMP 49H
0ddd dddd	Data (NOTE 8)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=19 message, and transmits this message & data.  
 When the Combi No. is changed by SW, transmits this message & data.

(17) ALL COMBINATION PARAMETER DUMP R, T

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0100 1101	ALL COMBINATION PARAMETER DUMP 4DH
0000 0000	
0ddd dddd	Data (NOTE 9)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=1D message, and transmits this message & data.  
 Transmits this message & data by DATA DUMP.

(18) ALL SEQUENCE DATA DUMP R, T(26 only)

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0100 1000	ALL SEQUENCE DATA DUMP 48H
0000 0000	
0sss ssss	Seq. Data Size (NOTE 10-1)
⋮	⋮
0ddd dddd	Control Data (NOTE 10-2)
⋮	⋮
0ddd dddd	Sequence Data (NOTE 10-3)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=18 message, and transmits this message & data.  
 Transmits this message & data by DATA DUMP.

(19) GLOBAL DATA DUMP R, T

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0101 0001	GLOBAL DATA DUMP 51H
0000 0000	
0ddd dddd	Data (NOTE 11)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=0E message, and transmits this message & data.  
 Transmits this message & data by DATA DUMP.

(20) ALL DATA(GLOBAL, COMBI, PROG, SEQ.) DUMP R, T(26 only)

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0101 0000	ALL DATA(GLBL, COMBI, PROG, SEQ.) DUMP 50H
0000 0000	
0sss ssss	Seq. Data Size (NOTE 10-1)
⋮	⋮
0ddd dddd	Data (NOTE 12)
⋮	⋮
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=0F message, and transmits this message & data.  
 Transmits this message & data by DATA DUMP.

(21) MULTISOUND PARAMETER DUMP R, T

Byte	Description
F0. 42. 3n. 26	EXCLUSIVE HEADER
0100 0100	MULTISOUND PARAMETER DUMP 44H
000m mmmm	Number of Multisound (NOTE 16)
0ddd dddd	Data (NOTE 16)
⋮	⋮
1111 0111	EOX

Receives and transmits this message only if the PCM RAM has been installed.  
 Receives this message & data, and transmits Func=23 or Func=24 message.  
 Receives Func=15 message, and transmits this message & data.  
 Note: When this Multisound Parameter dump is received, Drum sounds loaded from a PCM disk and PCM data received as Drum sounds via Sample Dump can be used as a Multisound.

(22) MODE CHANGE R(26 only), T

Byte	Description
F0. 42. 3n. 26(19)	EXCLUSIVE HEADER
0100 1110	MODE CHANGE 4EH
000b mmmm	Mode Data (NOTE 1.2)
000b 000c	Program Bank (NOTE 2.3-3)
1111 0111	EOX

Receives this message & data, changes the Mode/Bank, and transmits Func=23 or Func=24.  
 When the Mode is changed by SW, transmits this message & data.

## (23) PARAMETER CHANGE R, T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0100 0001	PARAMETER CHANGE 41H
0000 0ppp	Parameter Page (TABLE 6.7)
0000 0sss	Parameter Stage (TABLE 6.7)
0000 0ppp	Parameter Position (TABLE 6.7)
0vvv vvvv	Value (LSB bit6-0) (NOTE 13)
0vvv vvvv	Value (MSB bit15-7) (NOTE 13)
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.  
When the Parameter No. is changed by SW, transmits this message & data.

## (24) DRUM-KIT AND MULTISOUND PARAMETER CHANGE R

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0101 0011	DRUM KIT AND MULTISOUND PARAMETER CHANGE 53H
0000 000c	Bank (NOTE 17)
000n nnnn	Drum Kit / Multisound Number (NOTE 17)
0sss ssss	Index / Sound Number (NOTE 17)
0000 pppp	Parameter Number (TABLE 8)
0vvv vvvv	Value (LSB bit6~0) (NOTE 13)
0vvv vvvv	Value (MSB bit13~7) (NOTE 13)
1111 0111	EOX

Receives this message & data, and transmits Func=23 or Func=24 message.

## (25) ALL DRUM SOUND NAME R, T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0100 0111	ALL DRUM SOUND NAME 47H
0000 000c	PCM Data Bank (NOTE 18)
0sss ssss	Number of Drum Sound (NOTE 14)
0ddd dddd	Data (NOTE 14)
:	:
1111 0111	EOX

Receives Func=1F message, and transmits this message & data or transmits Func=24 message.

Receives this message only when c=1, and transmits Func=23 or Func=24 message.

Note: The transmitting device can send names for all Drums sounds loaded from a PCM disk and received via Sample Dump. If the number of drum sounds on the PCM RAM exceeds the number of received names, the extra Drum Sounds will be deleted.

## (26) ALL MULTISOUND NAME T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0100 0101	ALL MULTISOUND NAME 45H
0000 000c	PCM Data Bank (NOTE 18)
0sss ssss	Number of Multisound (NOTE 14)
0ddd dddd	Data (NOTE 14)
:	:
1111 0111	EOX

Receives Func=16 message, and transmits this message & data or transmits Func=24 message.

## (27) MODE DATA T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0100 0010	MODE DATA 42H
0000 mmmm	Mode Data (NOTE 1)
0000 000c	Program Bank (NOTE 3-3)
0011 00mm	Card Variation (NOTE 4)
000r 01cc	PCM Memory Status (NOTE 5)
1111 0111	EOX

Receives Func=12 message, and transmits this message & data.

## (28) MIDI IN DATA FORMAT ERROR T

Byte	Description
F0.42.3n.26(19)	EXCLUSIVE HEADER
0010 0110	MIDI IN DATA FORMAT ERROR 26H
1111 0111	EOX

Transmits this message when there is an error in the MIDI IN message (ex. data length).

## (29) DATA LOAD COMPLETED T

Byte	Description
F0.42.3n.26(19)	EXCLUSIVE HEADER
0010 0011	DATA LOAD COMPLETED 23H
1111 0111	EOX

Transmits this message when DATA LOAD.PROCESSING have been completed.

## (30) DATA LOAD ERROR T

Byte	Description
F0.42.3n.26(19)	EXCLUSIVE HEADER
0010 0100	DATA LOAD ERROR 24H
1111 0111	EOX

Transmits this message when DATA LOAD.PROCESSING have not been completed (ex. protected)

## (31) WRITE COMPLETED T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0010 0001	WRITE COMPLETED 21H
1111 0111	EOX

Transmits this message when DATA WRITE MIDI has been completed.

## (32) WRITE ERROR T

Byte	Description
F0.42.3n.26	EXCLUSIVE HEADER
0010 0010	WRITE ERROR 22H
1111 0111	EOX

Transmits this message when DATA WRITE MIDI has not been completed.

NOTE 1 : mmm = 0 : COMBINATION 3 : EDIT PROG. 8: DISK/CARD  
 1 : EDIT COMBI. 4 : GLOBAL  
 2 : PROGRAM 6 : SEQUENCER

NOTE 2 : b = 0 : Change the Mode, Bank  
 = 1 : Don't change the Mode, Bank

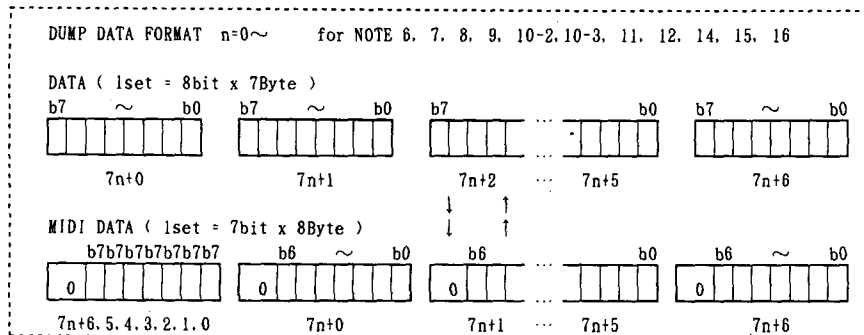
NOTE 3-1 : c = 0 : Prog. A  
 = 1 : Prog. B

NOTE 3-2 : If product ID is 26 C=0 : fixed  
 19 C=0 : Prog A  
 C=1 : Prog B

NOTE 3-3 : If mmm=2 or 3 C=0 or 1  
 otherwise C=0 fixed

NOTE 4 : 11.mm = 0.0 : Card Off  
 = 0.1 : NG Card (ROM)  
 = 0.2 : - - (RAM)  
 11 = 1 : ROM Card mm = 0 : G1b.+100:100  
 = 2 : RAM Card (Protect Off) = 1 : G1b.+ 50: 50+Seq.  
 = 3 : - - ( - On ) = 2 : Sequencer

NOTE 5 : cc = 0 : Card Off r = 0 : No PCM RAM  
 = 1 : NG Card = 1 : 512k Word PCM RAM  
 = 2 : PCM Card In



NOTE 6 : PROGRAM PARAMETER DUMP FORMAT ( See TABLE 1 )  
 T1, T2, T3: [Parameter No. 00], ..., [Parameter No. 159]

$$160\text{Byte} = 7 \times 22 + 6 \rightarrow 8 \times 22 + (1+6) = 183\text{Byte}$$

NOTE 7 : ALL PROGRAM PARAMETER DUMP FORMAT

T1, T2, T3: [Prog. A 00 (160Byte)], ..., [Prog. B 99 (160Byte)]

$$160 \times 200\text{Byte} = 4571 \times 7 + 3 \rightarrow 8 \times 4571 + (1+3) = 36572\text{Byte} \quad (11.7\text{Sec})$$

M1, M1R: [Prog. No. 00 (143Byte)], ..., [Prog. No. 99 (143Byte)]

$$14300\text{Byte} = 7 \times 2042 + 6 \rightarrow 8 \times 2042 + (1+6) = 16343\text{Byte} \quad (5.2\text{Sec})$$

NOTE 8 : COMBINATION PARAMETER DUMP FORMAT ( See TABLE 2 )

T1, T2, T3: [Parameter No. 00], ..., [Parameter No. 239]

$$240\text{Byte} = 7 \times 34 + 2 \rightarrow 8 \times 34 + (1+2) = 275\text{Byte}$$

NOTE 9 : ALL COMBINATION PARAMETER DUMP FORMAT

T1, T2, T3: [Combi. No. 00 (240Byte)], ..., [Combi. No. 99 (240Byte)]

$$240 \times 100\text{Byte} = 7 \times 3428 + 4 \rightarrow 8 \times 3428 + (1+4) = 27429\text{Byte} \quad (8.8\text{Sec})$$

M1, M1R: [Combi. No. 00 (124Byte)], ..., [Combi. No. 99 (124Byte)]

$$12400\text{Byte} = 7 \times 1771 + 3 \rightarrow 8 \times 1771 + (1+3) = 14172\text{Byte} \quad (4.5\text{Sec})$$

NOTE 10 : ALL SEQUENCE DATA DUMP FORMAT ( See TABLE 4 )

10-1 : Sequence Data Size (2Byte)

[Data Size (bit6-0)],  
 [Data Size (bit12-7)]

10-2 : T1, T2, T3 Control Data Dump Format (4322Byte)

[Control Data (Song Size(160) x 20 = 3200Byte)],  
 [Pattern Data (400Byte)],  
 [Song0-Track1 Address (2Byte)], ..., [Song0-Track8 Address],  
 [Song1-Track1 Address], ..., [Song19-Track8 Address] (320Byte),  
 [Pattern0 Address (2Byte)], ..., [Pattern199 Address] (400Byte),  
 [Pattern End Address (2Byte)]

M1, M1R Control Data Dump Format (1522Byte)

[Control Data (Song Size(96) x 10 = 960Byte)],  
 [Pattern Data (200Byte)],  
 [Song0-Track1 Address (2Byte)], ..., [Song0-Track8 Address],  
 [Song1-Track1 Address], ..., [Song9-Track8 Address] (160Byte),  
 [Pattern0 Address (2Byte)], ..., [Pattern99 Address] (200Byte),  
 [Pattern End Address (2Byte)]

10-3 : Sequence Data Dump Format

[Sequence 1st Data(4Byte)], ..., [Seq. nth Data]  
 n : Seq. Data Size = 0 ~ 50000 (T1, T2, T3)  
 0 ~ 7700 (M1, M1R)

T1, T2, T3 : 4322Byte + 4x[Seq. Data Size]Byte = 7xA+B → 8xA+(1+B)Byte  
 ∴ 10-1, 10-2, 10-3 = 2+8xA+(1+B)Byte (1.6~74.7Sec)

M1, M1R : 1522Byte + 4x[Seq. Data Size]Byte = 7xC+D → 8xC+(1+D)Byte  
 ∴ 10-1, 10-2, 10-3 = 2+8xC+(1+D)Byte (0.6~11.8Sec)

NOTE 11 : GLOBAL DATA DUMP FORMAT ( See TABLE 3 )

[Global Data (19+2Byte)],

T1, T2, T3 : [Drum Kit Data (7x240Byte)]

$$21 + 1680\text{Byte} = 7 \times 243 + 0 \rightarrow 8 \times 243 = 1944\text{Byte}$$

M1, M1R : [Drum Kit Data (7x120Byte)]

$$21 + 840\text{Byte} = 7 \times 123 + 0 \rightarrow 8 \times 123 = 984\text{Byte}$$

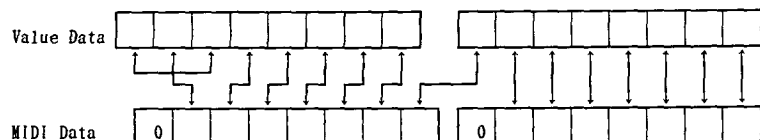
NOTE 12 : ALL DATA (GLOBAL, COMBI, PROG, SEQ) DUMP FORMAT

[Global Data], ( See NOTE 11 )  
 [All Combination Parameter Data], ( See NOTE 9 )  
 [All Program Parameter Data], ( See NOTE 7 )  
 [All Sequence Data] ( See NOTE 10-2, 10-3 )

T1, T2, T3 : 1701+24000+32000+4322+4x[Seq. Data Size]Byte = 7xE+F  
 → 8xE+(1+F)Byte (22.7~95.8Sec)  
 M1, M1R : 861+12400+14300+1522+4x[Seq. Data Size]Byte = 7xG+H  
 → 8xG+(1+H)Byte (10.7~17.1Sec)

NOTE 13 : VALUE DATA FORMAT

Bit15-13 of Value Data is the Sign Flag, and each bit has the same value



NOTE 14 : ALL DRUM SOUND NAME DATA FORMAT

[Drum Sound 1 Name (10Byte)], ..., [Drum Sound n Name (10Byte)]  
 n : Drum Sound Number

NOTE 15 : ALL MULTISOUND NAME DATA FORMAT

[Multisound 1 Name (10Byte)], ..., [Multisound n Name (10Byte)]  
 n : Multisound Number

NOTE 16 : MULTISOUND PARAMETER FORMAT

( See TABLE 5 )

[Multisound 1 Data], ..., [Multisound m Data]  
 m : Number of Multisound 0~28

NOTE 17 : c=0 DRUM KIT PARAMETER CHANGE

n nnnn : Drum Kit Number = 0~3  
 sss ssss : Index = 0~59

c=1 MULTISOUND PARAMETER CHANGE

n nnnn : Multisound Number = 0~27  
 sss ssss : Sound Number = 0~m-1  
 m : Number of Sound in Multisound ( See TABLE 5 )

NOTE 18 : c=0 : PCM Card

c=1 : PCM RAM

Receives and transmits the message with c=1 only if the PCM RAM has been installed.

SEQUENCER CONTROL DATA

No.	PARAMETER	DATA(Hex) : VALUE
SONG 0 CONTROL DATA		
00	MIDI Channel (Tr. 1)	00~0F : 1~16
07	MIDI Channel (Tr. 8)	
08	STATUS (Tr. 1)	00~03 *9
15	STATUS (Tr. 8)	
16	BEAT	*14
17	TEMPO	28~D0 : 40~208
18	PROTECT (Tr. 1)	bit0=0:ENA. =1:DIS
18	PROTECT (Tr. 8)	bit7
19	NEXT SONG NO.	FF~13:OFF. 0~19
20	SONG NAME (Head)	20~7F : ' ~ ' ←
29	SONG NAME (Tail)	
30	( NUL )	
31	EFFECT PARAMETER	*11
55		
TRACK 1 CONTROL DATA		
56	PROGRAM NO.	00~C7 : A00~B99
57	OUTPUT LEVEL	00~63
58	KEY TRANSPOSE	E8~18 : -24~24
59	DETUNE	CE~32 : -50~50
60	PAN	00~0D *5
61	KEY WINDOW TOP	00~7F
62	KEY WINDOW BOTTOM	00~7F
63	VELOCITY WINDOW TOP	01~7F
64	VELOCITY WINDOW BOTTOM	01~7F
65	MIDI OUT A/B	bit6 =0:A. =1:B
66	MIDI CHANNEL	00~0F : 1~16
TRACK 2~8 CONTROL DATA		
67	SAME AS TRACK 1(56~66) x 7	
143		
144	VELOCITY CURVE	01~08
145	AFTER TOUCH CURVE	01~08
146	FOOT CONTROLLER 1	00~09 *7
147	FOOT CONTROLLER 2	00~09 *7
148	SCALE TYPE	00~04 *8
149	PURE SCALE KEY	00~0B : 1~8
150	METRONOME LEVEL	00~63 : 0~99
151	METRONOME PAN	00~0D *5
152	METRONOME LEAD IN	0~2
153	( NUL )	
159		
SONG 1~19 CONTROL DATA		
160	SAME AS SONG 0(00~159) x 19	
3199		

( TABLE 4 )

No.	PARAMETER	DATA(Hex) : VALUE
PATTERN 0 CONTROL DATA		
3200	BEAT	*14
3201	LENGTH	01~63 : 1~99
PATTERN 1~199 CONTROL DATA		
3202	SAME AS PATTERN 0(3200, 3201) x 199	
3599		
SONGO-TRACK1 DATA ADDRESS		
3600	DATA ADDRESS(LSB)...	0000 (Start Addr)
3601	(MSB)	
SONGO-TRACK2 ~ SONG19-TRACK8 DATA ADDRESS		
3602	SAME AS SONGO-TRACK1 ADDRESS(3600, 3601) x 159	
3919		
PATTERN 0 DATA ADDRESS		
3920	DATA ADDRESS (LSB)	
3921	(MSB)	
PATTERN 1 ~ PATTERN 199 DATA ADDRESS		
3922	SAME AS PATTERN 0(3920, 3921)	
4319		
4320	End Pattern Addr(L)	
4321	(H)	

SEQUENCE DATA

No.	PARAMETER	DATA(Hex) : VALUE
SEQUENCE DATA 1		
4322	DATA (1-L)	*10
4323	DATA (1-H)	*10
4324	DATA (2-L)	*10
4325	DATA (2-H)	*10
SEQUENCE DATA 2 ~		
4326	SAME AS SEQUENCE DATA 1(4322~4325)	

MULTISOUND PARAMETERS (TABLE 5)

No.	PARAMETER	DATA(Hex) : VALUE
MULTISOUND DATA		
00	NUMBER OF SOUND	00~64 : 0~100
01	MULTISOUND NAME (Head)	20~7F : ' ~ ' ←
10	MULTISOUND NAME (Tail)	
SOUND 1 DATA		
11	SOUND NUMBER	*16
12	( NUL )	00
13	TOP KEY	0C~73 : C0~68
14	PAN	05
15	TUNE	CE~32 : -50~50
16	TRANSPOSE SWITCH	bit7=0 TRANSPOSE. =1 NOT TRANSPOSE
16	ORIGINAL KEY	bit6~0 : 0~127
17	LEVEL	CE~32 : -50~50
18	CUT OFF	CE~32 : -50~50
19	VDA DECAY	CE~32 : -50~50
20	( NUL )	00
SOUND 2 ~ n DATA		
21	SAME AS SOUND 1 DATA (11~20) x (n-1)	
n	DATA of NUMBER OF SOUND (offset No. 00)	



SEQUENCER CONTROL DATA

No.	PARAMETER	DATA(Hex) : VALUE
SONG 0 CONTROL DATA		
00	MIDI Channel (Tr. 1)	00~0F : 1~16
07	MIDI Channel (Tr. 8)	
08	STATUS (Tr. 1)	00~03 *9
15	STATUS (Tr. 8)	
16	BEAT	*14
17	TEMPO	28~D0 : 40~208
18	PROTECT (Tr. 1)	bit0=0:ENA. =1:DIS
	PROTECT (Tr. 8)	bit7
19	NEXT SONG NO.	FF~13:OFF, 0~19
20	SONG NAME (Head)	20~7F : ' ~ ' ←
29	SONG NAME (Tail)	
30	( NUL )	
31	EFFECT PARAMETER	*11
55		
TRACK 1 CONTROL DATA		
56	PROGRAM NO.	00~C7 : A00~B99
57	OUTPUT LEVEL	00~63
58	KEY TRANSPOSE	E8~18 : -24~24
59	DETUNE	CE~32 : -50~50
60	PAN	00~0D *5
61	KEY WINDOW TOP	00~7F
62	KEY WINDOW BOTTOM	00~7F
63	VELOCITY WINDOW TOP	01~7F
64	VELOCITY WINDOW BOTTOM	01~7F
65	MIDI OUT A/B	bit6 =0:A, =1:B
66	MIDI CHANNEL	00~0F : 1~16
TRACK 2~8 CONTROL DATA		
67	SAME AS TRACK 1(56~66) x 7	
143		
144	VELOCITY CURVE	01~08
145	AFTER TOUCH CURVE	01~08
146	FOOT CONTROLLER 1	00~09 *7
147	FOOT CONTROLLER 2	00~09 *7
148	SCALE TYPE	00~04 *8
149	PURE SCALE KEY	00~0B : 1~8
150	METRONOME LEVEL	00~63 : 0~99
151	METRONOME PAN	00~0D *5
152	METRONOME LEAD IN	0~2
153	( NUL )	
159		
SONG 1~19 CONTROL DATA		
160	SAME AS SONG 0(00~159) x 19	
3199		

( TABLE 4 )

PATTERN 0 CONTROL DATA		
3200	BEAT	*14
3201	LENGTH	01~63 : 1~99
PATTERN 1~199 CONTROL DATA		
3202	SAME AS PATTERN 0(3200,3201) x 199	
3599		
SONGO-TRACK1 DATA ADDRESS		
3600	DATA ADDRESS(LSB)	0000 (Start Addr)
3601	(MSB)	
SONGO-TRACK2 ~ SONG19-TRACK8 DATA ADDRESS		
3602	SAME AS SONGO-TRACK1 ADDRESS(3600,3601) x 159	
3919		
PATTERN 0 DATA ADDRESS		
3920	DATA ADDRESS (LSB)	
3921	(MSB)	
PATTERN 1 ~ PATTERN 199 DATA ADDRESS		
3922	SAME AS PATTERN 0(3920,3921)	
4319		
4320	End Pattern Addr(L)	
4321	(H)	

SEQUENCE DATA

No.	PARAMETER	DATA(Hex) : VALUE
SEQUENCE DATA 1		
4322	DATA (1-L)	*10
4323	DATA (1-H)	*10
4324	DATA (2-L)	*10
4325	DATA (2-H)	*10
SEQUENCE DATA 2 ~		
4326	SAME AS SEQUENCE DATA 1(4322~4325)	

MULTISOUND PARAMETERS (TABLE 5)

No.	PARAMETER	DATA(Hex) : VALUE
MULTISOUND DATA		
00	NUMBER OF SOUND	00~64 : 0~100
01	MULTISOUND NAME (Head)	20~7F : ' ~ ' ←
10	MULTISOUND NAME (Tail)	
SOUND 1 DATA		
11	SOUND NUMBER	*16
12	( NUL )	00
13	TOP KEY	0C~73 : C0~G8
14	PAN	05
15	TUNE	CE~32 : -50~50
16	TRANSPOSE SWITCH	bit7=0 TRANSPOSE, =1 NOT TRANSPOSE
	ORIGINAL KEY	bit6~0 : 0~127
17	LEVEL	CE~32 : -50~50
18	CUT OFF	CE~32 : -50~50
19	VDA DECAY	CE~32 : -50~50
20	( NUL )	00
SOUND 2 ~ n DATA		
21	SAME AS SOUND 1 DATA (11~20) x (n-1)	
	n:DATA of NUMBER OF SOUND (offset No.00)	

PROGRAM PARAMETER

PAGE STAGE POSITION → OFFSET TABLE (TABLE 6)

STAGE	PARAMETER	POSITION							
		A	B	C	D	E	F	G	H
PROGRAM MODE									
	PAGE 0	0	1	2	3	4	5	6	7
1		*	*	*	*	*	*	*	*
EDIT PROGRAM MODE									
	PAGE 0 OSC	0	1	2	3	4	5	6	7
0	0	OSD MODE	10						
1	1	ASSIGN/HOLD	11						
2	2	OSCI MULTISOUND	11, 12		86		13		
--	3	OSC2 MULTISOUND	11, 14		126		15		16, 17, 18
3	4	OSCI PITCH EG	63	64	65	66	67	68	70, 69
--	5	OSC2 PITCH EG	103	104	105	106	107	108	110, 109
	PAGE 1 VDF1	0	1	2	3	4	5	6	7
0	0	CUT OFF	71						
1	1	KBD TRACKING	73			72			
2	2	EG INTENSITY	74						
3	3	EG TIME VELOCITY SENSE	76			100		100, 100, 100	
4	4	EG TIME KBD TRACK	75			99		99, 99, 99	
5	5	VDF1 EG	78	79	80	81	82	83	84, 85
	PAGE 2 (DBL) VDF2	0	1	2	3	4	5	6	7
--	0	CUT OFF	111						
--	1	KBD TRACKING	113			112			
--	2	EG INTENSITY	114						
--	3	EG TIME VELOCITY SENSE	116			140		140, 140, 140	
--	4	EG TIME KBD TRACK	115			139		139, 139, 139	
--	5	VDF2 EG	118	119	120	121	122	123	124, 125
	PAGE 2(SGL) PAGE 3(DBL) VDA1	0	1	2	3	4	5	6	7
0	0	VELOCITY SENSE	89						
1	1	KBD TRACKING	88			87			
2	2	EG TIME VELOCITY SENSE	91			102		102, 102, 102	
3	3	EG TIME KBD TRACK	90			101		101, 101, 101	
4	4	VDA1 EG	92	93	94	95	96	97	98
	PAGE 4(DBL) VDA2	0	1	2	3	4	5	6	7
--	0	VELOCITY SENSE	129						
--	1	KBD TRACKING	128			127			
--	2	EG TIME VELOCITY SENSE	131			142		142, 142, 142	
--	3	EG TIME KBD TRACK	130			141		141, 141, 141	
--	4	VDA2 EG	132	133	134	135	136	137	138
	PAGE 3(SGL) PAGE 5(DBL) BEND/MG	0	1	2	3	4	5	6	7
0	0	PITCH BEND	32			33			
1	1	AFTER TOUCH	27			29		31	
2	2	PITCH MG	19			20		21, 22, 19	
3	3					19		28, 34, 35	
4	4	VDF MG	23			24		25, 26, 23	
5	5					23		30, 36, 37	
	PAGE 4(SGL) PAGE 6(DBL) EFFECT	0	1	2	3	4	5	6	7
0	0	EFFECT1 TYPE	38			46			
1	1	EFFECT1 PARAMETER	*	*	*	*	*	*	*
2	2	EFFECT2 TYPE	39			46			
3	3	EFFECT2 PARAMETER	*	*	*	*	*	*	*
4	4	PLACEMENT	46		44		45		
	PAGE 5(SGL) PAGE 7(DBL) WRITE	0	1	2	3	4	5	6	7
2	2	FOOT CONTROLLER	146			147			
3	3	SCALE TYPE	148			149			
4	4	VELOCITY/AFTER TOUCH CURVE	144			145			

See P. 6

See P. 36

See P. 36



COMBINATION PARAMETER PAGE STAGE POSITION → OFFSET TABLE (TABLE 7)

STAGE	PARAMETER	POSITION								
		A	B	C	D	E	F	G	H	
COMBINATION MODE										
PAGE 0		0	1	2	3	4	5	6	7	
1	PROGRAM	36	47	58	69	80	91	102	113	
2	OUTPUT LEVEL	37	48	59	70	81	92	103	114	
PAGE 1		0	1	2	3	4	5	6	7	
1	EXTERNAL PROGRAM	124	135	146	157	168	179	190	201	
2	EXTERNAL VOLUME	125	136	147	158	169	180	191	202	
EDIT COMBINATION MODE										
PAGE 0 INT-1		0	1	2	3	4	5	6	7	
0	PROGRAM SELECT	36	47	58	69	80	91	102	113	
1	OUTPUT LEVEL	37	48	59	70	81	92	103	114	
2	VELOCITY CURVE	129	140	151	162	173	184	195	206	
3	AFTER TOUCH CURVE	130	141	152	163	174	185	196	207	
PAGE 1 INT-2		0	1	2	3	4	5	6	7	
0	TRANSPOSE	38	49	60	71	82	93	104	115	
1	DETUNE	39	50	61	72	83	94	105	116	
2	PANPOT	40	51	62	73	84	95	106	117	
PAGE 2 EXTERNAL		0	1	2	3	4	5	6	7	
0	PROGRAM	124	135	146	157	168	179	190	201	
1	VOLUME	125	136	147	158	169	180	191	202	
2	VELOCITY CURVE	131	142	153	164	175	186	197	208	
3	AFTER TOUCH CURVE	132	143	154	165	176	187	198	209	
PAGE 3 MIDI-1		0	1	2	3	4	5	6	7	
0	MIDI CHANNEL	46	57	68	79	90	101	112	123	
1	VELOCITY WINDOW TOP	43	54	65	76	87	98	109	120	
2	VELOCITY WINDOW BOTTOM	44	55	66	77	88	99	110	121	
3	KEY WINDOW TOP	41	52	63	74	85	96	107	118	
4	KEY WINDOW BOTTOM	42	53	64	75	86	97	108	119	
PAGE 4 MIDI-2		0	1	2	3	4	5	6	7	
0	PROGRAM CHANGE	45	56	67	78	89	100	111	122	
1	CONTROL CHANGE	45	56	67	78	89	100	111	122	
2	DAMPER	45	56	67	78	89	100	111	122	
3	AFTER TOUCH	45	56	67	78	89	100	111	122	
PAGE 5 CONTROL		0	1	2	3	4	5	6	7	
0	JOY STICK X	216								
1	JOY STICK +Y	218								
2	JOY STICK -Y	219								
3	FOOT CONTROLLER 1	212			214					
4	FOOT CONTROLLER 2	213			215					
5	SCALE TYPE	220					221			
PAGE 6 EFFECT		0	1	2	3	4	5	6	7	
0	EFFECT 1 TYPE	11						19		
1	EFFECT 1 PARAMETER	*	*	*	*	*	*	*	*	
2	EFFECT 2 TYPE	12						19		
3	EFFECT 2 PARAMETER	*	*	*	*	*	*	*	*	
4	PLACEMENT	19		17			18			

See P. 36

See P. 36

DRUM KIT AND MULTISOUND PARAMETER CHANGE PARAMETER LIST (TABLE 8)

DRUM KIT PARAMETER CHANGE (C=0)			MULTISOUND PARAMETER CHANGE (C=1)		
PPPP	PARAMETER	DATA(Hex) : VALUE	pppp	PARAMETER	DATA(Hex) : VALUE
1	INST NUMBER	*16	0	SOUND NUMBER	*16
2	KEY	0C~73 : C0~G8	1	TOP KEY	0C~73 : C0~G8
3	TUNE	88~78 : -120~120	2	TUNE	CE~32 : -50~50
4	LEVEL	CE~32 : -50~50	3	TRANSPOSE SWITCH	0 : TRANSPOSE 1 : NOT TRANSPOSE
5	DECAY	CE~32 : -50~50	4	ORIGINAL KEY	00~7F : C-1~G9
6	PAN	00~0D *5	5	LEVEL	CE~32 : -50~50
			6	CUT OFF	CE~32 : -50~50
			7	VDA DECAY	CE~32 : -50~50

\*11 EFFECT PARAMETER

No.	PARAMETER	DATA(Hex) : VALUE
(00)	Effect 1 Pattern No.	0~20, 21:1~33, Tru
(01)	- 2 - -	0~20, 21:1~33, Tru
(02)	- 1 L-Ch E. Balnc	00~64 : 00~100
(03)	- 1 R-Ch -	00~64 : 00~100
(04)	- 2 L-Ch -	00~64 : 00~100
(05)	- 2 R-Ch -	00~64 : 00~100
(06)	Output 3 Pan	00.01~65 *11-1
(07)	- 4 -	00.01~65 *11-1
(08)	Effect I/O	bit4~0 *11-2
(09)	Effect 1 Parameter	*11-3
(10)	Effect 1 Parameter	
(11)	Effect 1 Parameter	
(12)	Effect 1 Parameter	
(17)	Effect 2 Parameter	*11-3
(18)	Effect 2 Parameter	
(24)	Effect 2 Parameter	

\*11-0 : DRY/EFFECT BALANCE : Set the same value L and R-ch of Effect Balance parameters for type 1~25

\*11-1 : 00 : Off \*11-2 :  
 01 : R bit0=0:Efct1 L-Ch Off, =1:0n  
 02 : 01:99 bit1=0: - 1 R-Ch Off, =1:0n  
 ... bit2=0: - 2 L-Ch Off, =1:0n  
 64 : 99:01 bit3=0: - 2 R-Ch Off, =1:0n  
 65 : L bit4=0:Efct2 Para. =1:Serial

\*11-3 : Effect Parameter (8Byte) 33 Type

offset	PARAMETER	DATA(Hex) : VALUE
1~3	Hall. ( 4.5 : Room. 6 : Live Stage )	
(00)	Reverb Time	00~61(2F):0.2~9.9(4.9)
(01)	( NUL )	00
(02)	High Damp	00~63 : 00~99
(03)	Pre Delay	00~C8 : 00~200
(04)	E/R Level	00~63 : 00~99
(05)	( NUL )	00
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

'Nul' is omitted from the next table. The data of 'Nul' must be 00.

7~9 : Early Reflection 1,2,3

(00)	E/R Time	00~46 : 100~800
(01)	Pre Delay	00~C8 : 00~200
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

10 : Stereo Delay, 11 : Cross Delay

(00)	Delay Time L (L)	00~1F4 : 00~500
(01)	(H)	
(02)	Feed Back	9D~63 : -99~99
(03)	High Damp	00~63 : 00~99
(04)	Delay Time R (L)	00~1F4 : 00~500
(05)	(H)	
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

12,13 : Stereo Chorus 1,2. ( 14,15 : Flanger )

(00)	Depth	00~63 : 00~99
(01)	Speed	00~D8 *11-3-2
(02)	MG Status *11-3-3	bit0=0:Sin, =1:Tri bit1 ← 1 bit2 ← 0 (1)
(03)	( Feed Back )	(9D~63 : -99~99)
(04)	Delay Time	0~C8(32):0~200(50)
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

16 : Phase Shifter 1, ( 17 : Phase Shifter 2 )

(00)	Depth	00~63 : 00~99
(01)	Speed	00~D8 *11-3-2
(02)	MG Status *11-3-3	bit0=0:Sin, =1:Tri bit1 ← 0, (1) bit2 ← 0
(03)	Feedback	9D~63 : -99~99
(04)	Manual	00~63 : 00~99

18 : Stereo Tremolo 1, ( 19 : Stereo Tremolo 2 )

(00)	Depth	00~63 : 00~99
(01)	Speed	00~D8 : *11-3-2
(02)	MG Status *11-3-3	bit0=0:Sin, =1:Tri bit1 ← 0, (1) bit2 ← 0
(03)	Shape	9D~63 : -99~99
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

20 : 3 Band EQ

(00)	Mid fc	0.1, 2 : 0.5k, 1k, 2k
(01)	Mid Gain	F4~0C : -12~12
(04)	Low fc	0.1, 2:0.25k, 0.5k, 1k
(05)	High fc	0.1, 2 : 1k, 2k, 4k
(06)	High Gain	F4~0C : -12~12
(07)	Low Gain	F4~0C : -12~12

21 : Over Drive

(00)	EQ Mid fc	0.1, 2 : 0.5k, 1k, 2k
(01)	EQ Mid Gain	F4~0C : -12~12
(02)	Drive	00~63 : 00~99
(03)	Level	00~63 : 00~99
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

22 : Distortion

(02)	Distortion	00~63 : 00~99
(03)	Level	00~63 : 00~99
(07)	EQ Low Gain	F4~0C : -12~12

23 : Exciter

(00)	Blend	9D~63 : -99~99
(01)	Emphatic Point	00~09 : 01~10
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

24 : Symphonic Ensemble

(00)	Depth	00~63 : 00~99
(06)	EQ High	F4~0C : -12~12
(07)	EQ Low	F4~0C : -12~12

25 : Rotary Speaker

(00)	Depth	00~63 : 00~99
(02)	Speed Rate	F6~0A : -10~10

26 : Delay / Hall

(00)	Delay Time (L)	00~1F4 : 00~500
(01)	Delay Time (H)	
(02)	Feed Back	9D~63 : -99~99
(03)	High Damp	00~63 : 00~99
(04)	Reverb Time	00~61 : 0.2~9.9
(06)	High Damp	00~63 : 00~99
(07)	Pre Delay	00~96 : 00~150

27 : Delay / Room

(00)	Delay Parameter	*11-3-1
(03)		
(04)	Reverb Time	00~2F : 0.2~4.9
(06)	High Damp	00~61 : 00~99
(07)	Pre Delay	00~96 : 00~150

28 : Delay / Early Reflection

(00)	Delay Parameter	*11-3-1
(03)		
(04)	E/R Time	00~1E : 100~400
(05)	Pre Delay	00~96 : 00~150

29 : Delay / Delay

(00)	Delay Time L (L)	00~1F4 : 00~500
(01)	(H)	
(02)	Feed Back L	9D~63 : -99~99
(03)	High Damp L	00~63 : 00~99
(04)	Delay Time R (L)	00~1F4 : 00~500
(05)	(H)	
(06)	Feed Back R	9D~63 : -99~99
(07)	High Damp R	00~63 : 00~99

30 : Delay / Chorus, ( 31 : Delay / Flanger )

(00)	Delay Parameter	*11-3-1
(03)		
(04)	Depth	00~63 : 00~99
(05)	Speed	00~D8 *11-3-2
(06)	MG Status *11-3-3	bit0=0:S, =1:T (-0) bit1 ← 0 bit2 ← 0, (-1)
(07)	Feed Back	0, (9D~63:-99~99)

32 : Delay / Phaser

(00)	Delay Parameter	*11-3-1
(03)		
(04)	Depth	00~63 : 00~99
(05)	Speed	00~D8 *11-3-2
(06)	Feedback	9D~63 : -99~99

33 : Delay / Tremolo

(00)	Delay Parameter	*11-3-1
(03)		
(04)	Depth	00~63 : 00~99
(05)	Speed	00~D8 *11-3-2
(07)	Shape	9D~63 : -99~99

\*11-3-1 : Delay Parameter

Same as 26-(00)~(03)

\*11-3-2 : Data(Hex) Value[Hz]

00~63 0.03~3.00 (0.03step)  
 64~C7 3.1~13.0 (0.1 step)  
 C8~D8 14 ~30.0 (1 step)

\*11-3-3 : MG Status

bit0 : Wave Form =0:Sin, =1:Tri  
 bit1 : Phase =0:0°, =1:180°  
 bit2 : Wave Shape =0: Normal  
 =1: for Flanger

\*13 :

MULTISOUND	VALUE(for PARAMETER CHANGE)	NO.11 bit4/6	NO.12/14
00~99	00H~63H	0	00H~63H
100~189	64H~BDH	1	00H~59H
C0~C27	BEH~D9H	0	64H~7FH
D0~D27	BEH+nc~	1	64H~7FH

nc : NUMBER of MULTISOUND in CARD

\*14 : 10~18 : 1/4~9/4  
 20~2F : 1/8~16/8  
 30~3F : 1/16~16/16

\*16 : DRUM SOUND DRUMKIT OTHERWISE

PARAMETER CHANGE

NO ASSIGN	00H	00H
01~44	01H~2CH	01H~2CH
45~85	2DH~55H	4BH~73H
C00~C29	56H~73H	2DH~4AH
D00~	56H+nc~	83H~

nc : Number of DRUM SOUND in CARD

\*17 : COPY OF PROGRAM A00

4. UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (R : Receive, T : Transmit)

(1) Sample Dump Header R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
01	Sample Dump Header (Sub ID)
ss ss	Sample Number (LSB first) (NOTE 1)
ee	Sample Format (NOTE 2)
ff ff ff	Sample Period (1/Sample Rate) (LSB first)
gg gg gg	Sample Length in Words (LSB first)
hh hh hh	Sustain Loop Start Point Word Number(LSB first)
ii ii ii	Sustain Loop End Point Word Number(LSB first)
tt	Loop Type (NOTE 3)
F7	EOX

(2) Sample Data Packet R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
02	Sample Data Packet (Sub ID)
kk	Running Packet Count (0~7F)
dd ... dd	Data (120 bytes)
11	Check Sum (XOR of 7E cc 02 kk (120 bytes) )
F7	EOX

(3) Sample Dump Request R

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
03	Sample Dump Request (Sub ID)
ss 00	Requested Sample (NOTE 4)
F7	EOX

(4) ACK R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
7F	ACK (Sub ID)
pp	Packet Number
F7	EOX

(5) NAK R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
7E	NAK (Sub ID)
pp	Packet Number
F7	EOX

(6) Cancel R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
7D	Cancel (Sub ID)
pp	Packet Number
F7	EOX

(7) Wait R

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
7C	Wait (Sub ID)
pp	Packet Number
F7	EOX

(8) Loop Point Transmit R, T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
05	Loop Point Message (Sub ID #1)
01	Loop Point Transmission (Sub ID #2)
ss 00	Sample Number (NOTE 4)
bb bb	Loop Number (NOTE 5, 6)
tt	Loop Type (NOTE 3)
dd dd dd	Loop Start Address (LSB first)
ee ee ee	Loop End Address (LSB first)
F7	EOX

(9) Loop Point Request R

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
05	Loop Point Message (Sub ID #1)
02	Loop Point Request (Sub ID #2)
ss 00	Sample Number (NOTE 4)
bb bb	Loop Number (LSB first) (NOTE 5)
F7	EOX

(10) Inquiry ID Request R

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
06	Inquiry Message (SUB ID #1)
01	ID Request (Sub ID #2)
F7	EOX

(11) Inquiry ID Reply T

Byte	Description
F0 7E cc	Exclusive Non-Realtime Header
06	Inquiry Message (Sub ID #1)
02	ID Reply (Sub ID #2)
42	KORG ID (Manufacturers ID)
26 00	T1, T2, T3 ID (Family Code, LSB first)
0m 00	m = 0:T1 = 1:T2 = 2:T3 (Member Code, LSB first)
rr 00	ROM Number 1~ (Minor Version, LSB first)
ss 00	Soft Version 1~ (Major Version, LSB first)
F7	EOX

cc = 00~0F : Global Channel  
 = 7F : Receive Any Channel

NOTE 1 : Sample Number is ignored on receiving Sample Dump Header, and the new sample is always appended as the last data and given an internal sample number.

On transmitting ss ss = 00H~63H

NOTE 2 : ee = 08~1CH (Receive)  
 = 0FH (Transmit)

NOTE 3 : tt = 00 : Forward Only  
 7F : Loop Off  
 If the received loop type is 01 (means backward/forward), this is converted into 00.

NOTE 4 : SS = 00H~63H (Drum Sound D00~D99)  
 If the Sample Number is over 63H, the message is ignored.

NOTE 5 : Loop number is ignored on receiving, and the loop point is set to the last loop point.  
 On transmitting, loop number is always 00.

NOTE 6 : Delete All Loops (loop number 7F 7F) is ignored.

# ERROR MESSAGES

## Common to all modes

Error message	Reason
Battery Low (Internal)	The internal memory backup battery is low. (Contact your nearby service department or dealer.)
Memory Protected	The Global mode memory protect setting is turned on for the memory into which you attempted to write data.

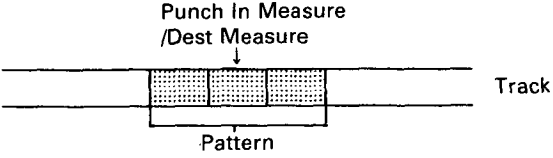
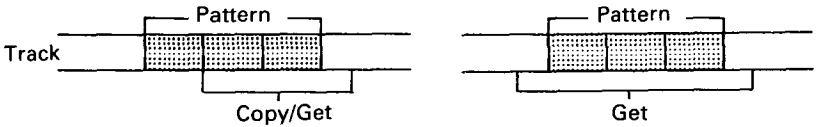
## Disk mode

Error message	Reason
Drive Not Ready	A disk is not inserted into the disk drive.
Protected Disk	Formatting or saving is not possible because the write protect tab of the disk is in the write prohibit position (open). Move the write protect tab to the write permit (closed) position, and try the operation again.
Disk Type Error	The disk is not for the T1/T2/T3. Or, you specified a file B—D for a disk in PCM format.
Data Error	<p>When saving data to disk or when loading data from disk, the data was incomplete and meaningless. Or, the inserted disk is not formatted for the T1/T2/T3. Data errors are often caused by scratches on the disk surface, or by dust getting into the disk case. Or, the disk may not be fully compatible with the drive. Data errors can also be caused by dirty disk drive heads.</p> <p>If a Data Error occurs, take the following measures.</p> <ul style="list-style-type: none"> <li>- Re-insert the disk and try the operation once again.</li> <li>- If you are formatting or saving, insert another disk and try again.</li> <li>- Clean the disk drive heads, and try the operation again. (For details of how to clean the disk drive heads, see the Operation Guide page 17.)</li> </ul>
No File	The specified file does not exist on the disk.
Memory Overflow	When saving a MIDI Data file, the received data exceeded 64 Kbytes.
Insufficient Memory	Not enough sequence data memory is free, and MIDI Data files cannot be saved or loaded.
No Multisound	The specified Multisound does not exist on the disk.
No Sound	The specified sound does not exist on the disk, or a sound to be saved does not exist in memory.
PCM Memory Overflow	Multisound/sound loading cannot be done because there is not enough space left in the PCM RAM, or because the sound total has exceeded 100.

## Card mode

Error message	Reason
Battery Low (Card)	The card memory backup battery is low. (Load the data from the card into internal memory, replace the card battery, and then save the data from internal memory back into the card. Remember that the card will lose all data when the battery is replaced.)
Card Format Mismatch	You tried to read data that the card did not contain.
Invalid (Blank) Card	The inserted card contains no data, or is not for the M1/M1R/T1/T2/T3.
No Card Inserted	You tried to read or write data when a card was not inserted.
ROM Card or Protected Card	You tried to write data to a ROM card or to a RAM card whose protect switch was ON.

## Sequencer mode

Error message	Reason
Blank Measure	There is no data in the measure specified.
Blank Pattern	There is no data in the pattern specified.
Blank Track	There is no data in the track specified.
Measure Occupied by Pattern	<p>Part of a pattern is included in the measure you specified for punch in or punch out, or the measure specified as destination in measure edit.</p>  <p>The diagram shows a horizontal line representing a track. Below it, a shaded rectangular area represents a pattern. A vertical arrow points to a specific measure within the pattern, labeled 'Punch In Measure /Dest Measure'.</p>
Measure Overflow	Executing the editing operation would produce a track longer than 999 measures.
Memory Full	The total number of steps in all songs and patterns has used up the entire capacity of the sequence data memory.
No Events Exist	The track/pattern you specified in event edit contains no musical data.
Pattern Across Source	<p>When Copying from a track, the specified source range contains part of a pattern. Or during a Get operation, the specified source range includes part of a pattern or an entire pattern.</p>  <p>The diagram consists of two parts. The left part shows a track with a pattern. A bracket labeled 'Copy/Get' spans across the pattern. The right part shows a track with a pattern. A bracket labeled 'Get' spans across the entire pattern.</p>
Pattern Conflicts with Events	The Bounce operation is impossible, since one track contains patterns and the other track contains events or patterns in the same measure.
Track Protected	The protect setting for the specified track is ON.

# SPECIFICATIONS AND OPTIONS

System	: AI-synthesis system (full digital processing)
Tone generator	: 16 voice, 16 oscillator (single mode), 8 voice 16 oscillator (double mode)
Keyboard	: T1/88 notes, T2/76 notes, T3/61 notes, initial and aftertouch
Wave memory	: T1 PCMROM 4 Mword (8 Mbyte) PCM RAM 512 Kword (1 Mbyte) T2/T3 PCM ROM 4 Mword (8 Mbyte)
Tone generator quantization	: 16 bit
Effects	: Two digital multi-effect units
Number of programs	: 200 Programs
Number of Combinations	: 100 Combinations
Sequencer section	: 20 songs, 200 patterns, maximum 50,000 notes _ 8 tracks, 8 multi-timbres (dynamic voice allocation)
Control inputs	: Damper pedal, assignable footswitch (pedal) 1/2
Outputs	: 1/L, 2/R, 3, 4, headphone
Floppy disk drive	: 3.5 inch, 2HD : PCM data, Program/Combination/Sequence data
Card slots	: PCM data, Program/Combination/Sequence data
MIDI	: IN, OUT A (2), OUT B (2), THRU
Display	: 64 x 240 dot full dot matrix backlit LCD
Options	: EXK-T (T2, T3 only), control wheel (T1 only), PCM data disk, RAM card (MCR-03), ROM card, PCM card
Power consumption	: 15 W
Dimensions	: T1 1474 (W) x 507 (D) x 135.5 (H) mm : T2 1268.3 (W) x 355 (D) x 111.5 (H) mm : T3 1058 (W) x 355 (D) x 111.5 (H) mm
Weight	: T1 35 Kg : T2 15.5 Kg : T3 13.6 Kg

\* Specifications and appearance are subject to change without notice for product improvement.

# TROUBLESHOOTING

Problem	Possible reason
The LCD shows nothing even though the power switch is turned on	<ul style="list-style-type: none"> <li>• Is the power cable connected to an AC outlet?</li> <li>• Is the contrast control turned all the way to the left?</li> </ul>
No sound	<ul style="list-style-type: none"> <li>• Are the headphones or the amplifier connected to the correct output jack?</li> <li>• Is the master volume raised?</li> <li>• Are any of the level-related parameters in the various modes set to 0?</li> <li>• In Global mode, is the Local setting turned OFF?</li> <li>• Are you playing an area of the keyboard which does not produce sound due to split settings or key range assignments?</li> </ul>
Cannot format a disk	<ul style="list-style-type: none"> <li>• Is the write protect slider of the disk in the open position?</li> <li>• Is the disk correctly inserted?</li> </ul>
Cannot save data to disk	<ul style="list-style-type: none"> <li>• Is the write protect slider of the disk in the open position?</li> <li>• Is the disk correctly inserted?</li> <li>• Is the disk a correctly formatted and reliable 2HD disk?</li> </ul>
Cannot load data from disk	<ul style="list-style-type: none"> <li>• Is the disk correctly inserted?</li> <li>• Does the disk contain data?</li> </ul>
Cannot save data to card	<ul style="list-style-type: none"> <li>• Is the card protect switch turned ON?</li> <li>• Is a ROM card inserted?</li> <li>• Is the card inserted correctly?</li> </ul>
Cannot load data from card	<ul style="list-style-type: none"> <li>• Is the card inserted correctly?</li> <li>• Does the card contain data?</li> </ul>
Wrong sound	<ul style="list-style-type: none"> <li>• Is the inserted PCM card the one for which the sound was created?</li> <li>• Does PCM RAM contain the data that was used when creating the sound?</li> </ul>
Sequencer does not start	<ul style="list-style-type: none"> <li>• Is the clock source set to EXT?</li> <li>• Does sequencer data exist?</li> </ul>
Cannot record on the sequencer	<ul style="list-style-type: none"> <li>• Are memory protect or track protect turned on?</li> </ul>

# T1/T2/T3 MIDI IMPLIEMENTATION CHART

Function . . .		Transmitted	Recognized	Remarks
Basic Channel	Default Change	1 ~ 16 1 ~ 16	1 ~ 16 1 ~ 16	Memorized
Mode	Default Messages Altered	× *****	3 ×	
Note number:	Sound range	9 ~ 120 *4 *****	0 ~ 127 0 ~ 127	0-127 when transmitting sequence data
Velocity	Note on Note off	○ 9n, V=1 ~ 127 ×	○ 9n, V=1 ~ 127 ×	2-126 when transmitting sequence data
After Touch	Keys Ch's	× ○	× ○	Transmit/receive when AFTER TOUCH is set to ENA in GLOBAL mode
Pitch bend		○	○	*1
Control Change	1 2 6 7 38 64 96 97 100 101 0-101	○ ○ ○ ○ ○ ○ ○ ○ ○ × × ○	○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Pitch modulation *1 VDF modulation *1 Data entry (MSB) *2 Volume *1 Data entry (LSB) *2 Damper pedal *1 Data increment *2 Data decrement *2 LSB of RPC for master tune *2 MSB of RPC for master tune *2 *5
Program Change	Actual No.	○ 0 ~ 99 *****	○ 0 ~ 127 0 ~ 99	Transmit/receive when PROG/COMBI CHANGE is set to ENA in GLOBAL Mode.
System Exclusive		○	○	*2
System Common	: Song pos. : Song sel. : Tune	○ ○ 0 ~ 19 ×	○ ○ 0 ~ 19 ×	*3 *3
System Real time	: Clock : Commands	○ ○	○ ○	*3 *3
Aux Message	: Local ON/OFF : All note off : Active sensig : Reset	× × ○ ×	○ ○ 123 ~ 127 ○ ×	
<p>NOTES: *1 Transmit/receive if CONTROL is set to ENA in GLOBAL Mode.                  *2 Transmit/receive if EXCLUSIVE is set to ENA in GLOBAL Mode.                  *3 When the clock is set to internal, these signals can be transmitted but cannot be received. If the clock is set to external, this situation is reversed.                  *4 This applies to the T1. For the T2, this is 16-115; for the T3, 24-108.                  *5 When assigned to the Ass. Pedal, and when sending/receiving sequencer data.</p>				

Mode 1: OMNI ON, POLY  
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO  
Mode 4: OMNI OFF, MONO

○ : Yes  
× : No



No. Name

		A	B	C	D	E	F	G	H	
0	OSC Mode	OSC Mode								
	Assign/Hold	Assign				Hold				
		OSC1	Multisound		Level	Octave				
	OSC2	Multisound		Level	Octave	Interval	Detune	Delay Start		
	OSC1 Pitch EG	Start Level	Attack Time	Attack Level	Decay	Release Time	Release Level	L Vel. SensVel.	T Vel. Sens	
	OSC2 Pitch EG	Start Level	Attack Time	Attack Level	Decay	Release Time	Release Level	L Vel. Sens	T Vel. Sens	
1	Cutoff	Cutoff								
	KBD TRK	KBD Tracking					Center Key			
		EG Int	EG Intensity					Vel. Sense		
	EG Time V. Sens	Vel. Sense					Attack Time	Decay Time	Slope Time	Release Time
	EG Time K. TRK	KBD Tracking					Attack Time	Decay Time	Slope Time	Release Time
	VDF EG	Attack Time	Attack Level	Decay Time	Break Point	Slope Time	Sustain Level	Release Time	Release Level	
2	Cutoff	Cutoff								
	KBD TRK	KBD Tracking					Center Key			
		EG Int	EG Intensity					Vel. Sense		
	EG Time V. Sens	Vel. Sense					Attack Time	Decay Time	Slope Time	Release Time
	EG Time K. TRK	KBD Tracking					Attack Time	Decay Time	Slope Time	Release Time
	VDF EG	Attack Time	Attack Level	Decay Time	Break Point	Slope Time	Sustain Level	Release Time	Release Level	
3	Velocity Sense	Vel. Sense								
	KBD Tracking	KBD Tracking					Center Key			
		EG Time V. Sens	Vel. Sense					Attack Time	Decay Time	Slope Time
	EG Time K. TRK	KBD Tracking					Attack Time	Decay Time	Slope Time	Release Time
	VDA EG	Attack Time	Attack Level	Decay Time	Break Point	Slope Time	Sustain Level	Release Time		
4	Velocity Sense	Vel. Sense								
	KBD Tracking	KBD Tracking					Center Key			
		EG Time V. Sens	Vel. Sense					Attack Time	Decay Time	Slope Time
	EG Time K. TRK	KBD Tracking					Attack Time	Decay Time	Slope Time	Release Time
	VDA EG	Attack Time	Attack Level	Decay Time	Break Point	Slope Time	Sustain Level	Release Time		
5	Pitch Bend			Range			VDF Sweep			
	After Touch			Pitch			Fc	Amp		
		Pitch MG1			Waveform			Frequency	Delay	Intensity
	Pitch MG2			Key Sync			After Touch	Joy Stick		MG Frequency
	VDF MG1			Waveform			Frequency	Delay	Intensity	OSC Select
	VDF MG2			Key Sync			After Touch	Joy Stick		MG Frequency



# MULTISOUND

00 Piano	38 DoubleReed	76 VoiceWvNT2	114 SynthBass3	152 Clang Hit
01 E. Piano 1	39 Koto Trem	77 DWGS E. P. 1	115 Mandolin	153 ClangHitNT
02 E. Piano 2	40 BambooTrem	78 DWGS E. P. 2	116 Banjo	154 Stick Hit
03 Clav	41 Rhythm	79 DWGS E. P. 3	117 Harp	155 StickHitNT
04 Harpsicord	42 Lore	80 DWGS Piano	118 Koto	156 Block 2
05 Organ 1	43 Lore NT	81 DWGS Clav	119 Pick Piano	157 Block 2 NT
06 Organ 2	44 Flexatone	82 DWGS Vibe	120 PicPianoNT	158 Cabasa
07 MagicOrgan	45 WindBells	83 DWGS Bass1	121 Stick	159 Cabasa NT
08 Guitar 1	46 Pole	84 DWGS Bass2	122 Marimba	160 Choriana
09 Guitar 2	47 Pole NT	85 DWGS Bell1	123 Gamelan	161 Analog
10 E. Guitar	48 Block	86 DWGS Orgn1	124 Pot Covers	162 Piano Pad
11 Sitar 1	49 Block NT	87 DWGS Orgn2	125 PotCoverNT	163 PianoPad A
12 Sitar 2	50 FingerSnap	88 DWGS Voice	126 Music Box	164 WaveSweep1
13 A. Bass	51 Pop	89 SquareWave	127 Toy Piano	165 WvSweep 1A
14 Pick Bass	52 Drop	90 Digital 1	128 Cymbell	166 WvSweep 1B
15 E. Bass	53 Drop NT	91 Saw Wave	129 Bellsynth	167 WaveSweep2
16 Fretless	54 Breath	92 Digital 2	130 BellsynthA	168 WvSweep 2A
17 SynthBass1	55 Breath NT	93 25% Pulse	131 Timpani	169 WvSweep 2B
18 SynthBass2	56 Pluck	94 10% Pulse	132 Vocoder	170 MouthHarp1
19 Vibes	57 Pluck NT	95 Digital 3	133 Da Voice	171 MouthHrp1A
20 Bell	58 Vibe Hit	96 Digital 4	134 Cha Voice	172 MouthHarp2
21 Tubular	59 VibeHit NT	97 Digital 5	135 Strings 2	173 MouthHrp2A
22 Bell Ring	60 Hammer	98 DWGS TRI	136 Strings 3	174 Zawinul
23 Karimba	61 Metal Hit	99 DWGS Sine	137 SoloString	175 Spectrum 1
24 KarimbaNT	62 MetalHitNT	100 Piano 2	138 Hard Flute	176 Spectrum 2
25 SynMallet	63 Pick	101 Soft E. P.	139 Clarinet	177 Spectrum 4
26 Flute	64 Distortion	102 Hard E. P.	140 Alto Sax	178 Spctrum4NT
27 Pan Flute	65 Dist NT	103 Clav 2	141 Hard Sax	179 Noise
28 Bottles	66 Bass Thumb	104 Organ 3	142 BaritonSax	180 Noise NT
29 Voices	67 BasThumNT1	105 Organ 4	143 Trombone	181 Perc. Wave
30 Choir	68 BasThumNT2	106 PipeOrgan1	144 FrenchHorn	182 Wire 2
31 Strings	69 Wire	107 PipeOrg 1A	145 Harmonica	183 Prosync
32 Brass 1	70 Pan Wave	108 PipeOrgan2	146 Accordion	184 16% Pulse
33 Brass 2	71 Ping Wave	109 E. Guitar 2	147 Clicker	185 8% Pulse
34 Tenor Sax	72 Fv Wave	110 Harmonics	148 Clicker NT	186 6% Pulse
35 Mute TP	73 Mv Wave	111 E. Bass 2	149 Waterphone	187 4% Pulse
36 Trumpet	74 Voice Wave	112 Slap Bass	150 Bell Hit	188 2% Pulse
37 TubaFlugel	75 VoiceWvNT1	113 Round Bass	151 BellHit NT	189 Saw Wave 2

"NT" のついたマルチサウンドは、どのキーを弾いても同じ音程で発音します。

The "NT" designation on certain Multisounds indicates that the pitch of the sound is the same regardless of the key played.

# DRUM SOUND

01 Kick 1	18 Timbales 1	35 Pluck	52 Ambient SD	69 Cabasa
02 Kick 2	19 Timbales 2	36 FlexaTone	53 Synth SD	70 Block 2
03 Kick 3	20 Cowbell	37 Wind Bell	54 Rim Shot	71 Bell Hit
04 Snare 1	21 Claps	38 Tubular 1	55 Stick Hit	72 Techno Zap
05 Snare 2	22 Tambourine	39 Tubular 2	56 AmbientTom	73 Marimba
06 Snare 3	23 E. Tom	40 Tubular 3	57 Closed HH3	74 Gamelan 1
07 Snare 4	24 Ride	41 Tubular 4	58 Open HH3	75 Gamelan 2
08 Side Stick	25 Rap	42 Bell Ring	59 Pedal HH	76 Potcover
09 Tom 1	26 Whip	43 Metronome1	60 Clang Hit	77 Cymbell
10 Tom 2	27 Shaker	44 Metronome2	61 Bell Ride	78 Timpani
11 Closed HH1	28 Pole	45 Pro BD	62 Ping Ride	79 Clicker 1
12 Open HH1	29 Block	46 Tight BD	63 Bongo Low	80 Clicker 2
13 Closed HH2	30 FingerSnap	47 Punch BD	64 Bongo High	81 Spectrum4L
14 Open HH2	31 Drop	48 Synth BD	65 Bongo Slap	82 Spectrum4H
15 Crash	32 Vibe Hit	49 Pro SD 1	66 Claps 2	83 Noise
16 Conga 1	33 Hammer	50 Pro SD 2	67 Maracas 1	84 Perc. WaveL
17 Conga 2	34 Metal Hit	51 Tight SD	68 Maracas 2	85 Perc. WaveH

# KORG<sup>®</sup> KORG INC.

15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo, Japan.