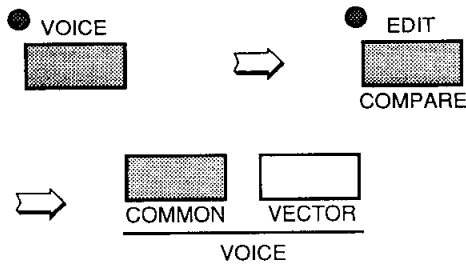# REFERENCE SECTION

VOICE COMMON

VOICE COMMON

The VOICE COMMON mode provides access to a range of parameters that affect the selected voice as a whole. Detailed programming of individual elements is provided by the ELEMENT TONE and ELEMENT ENVELOPE edit modes.

VOICE COMMON

Selecting the VOICE COMMON Edit Mode

From another VOICE EDIT mode simply press [VOICE COMMON].

Selecting the VOICE COMMON Edit Mode Functions

The various VOICE COMMON edit mode functions can be selected in sequence by pressing the [VOICE COMMON] key, or by using the PAGE [◁] and [▷] keys.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

CONFIGURATION

```
VC CONFIGURATION
  A-B-C-D
```

Summary: Selects the two-element (A-B) or four-element (A-B-C-D) voice configuration.

Settings: A-B, A-B-C-D

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired configuration.

Details: In the 2-element "A-B" configuration, element A is AWM and element B is FM. In the 4-element "A-B-C-D" configuration elements A and B are the same as in the "A-B" configuration, while element C is AWM and element D is FM.

A-B: A = AWM, B = FM.
A-B-C-D: A = AWM, B = FM, C = AWM, D = FM.

Refer to: page 60.

EFFECT (Type, Balance & Send Level)

```
VC VOICE EFFECT
  Type=Rev Hall  →
```

Summary: Selects one of sixteen digital effects, and sets the balance and send level of the selected effect for the current voice.

Settings: Effect type:

Rev Hall	(Reverb Hall)
Rev Room	(Reverb Room)
Rev Plate	(Reverb Plate)
Rev Club	(Reverb Club)
Rev Metal	(Reverb Metal)
Delay 1	(Short Single Delay)
Delay 2	(Long Delay)
Delay 3	(Long Delay)
Doubler	(Doubler)
Ping-Pong	(Ping Pong Delay)
Pan Ref	(Panned Reflections)
Early Ref	(Early Reflections)
Gate Rev	(Gated Reverb)
Dly&Rev 1	(Delay & Reverb 1)
Dly&Rev 2	(Delay & Reverb 2)
Dist&Rev	(Distortion & Reverb)

Balance (Bal): 0 ... 127
Send Level (Snd): 0 ... 127

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the effect type, balance, or send level parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired effect, balance, or send level.

Details: The balance parameter determines the balance between the "dry" sound of the voice and the effect sound. A setting of "0" produces only the voice with no effect, while the maximum setting of "127" produces only the effect sound.
The send level parameter determines the level of the signal sent to the effect processor. A setting of "0" means that the voice signal is not sent to the effect processor, while the maximum setting of "127" sends full effect level to the effect processor.
No sound will be produced if the send parameter is set to "0" and the balance parameter is set to "127".

Refer to: page 62, 78, 79.

NOTE: Some voice waveforms may exhibit a drop in level when distortion is applied. This is due to internal data overflow, and can be compensated for by reducing the effect send level or effect balance setting.

45

PITCH BEND

D

```
UC PITCH BEND
  Range= 2
```

Summary: Sets the available pitch bend range.

Settings: 0 ... 12 max.*

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired pitch bend range.

Details: Each increment from "0" to "12" represents a semitone. A setting of "0" produces no pitch bend. A setting of "12" allows a maximum pitch bend of plus or minus one octave, while a setting of "4" allows a maximum pitch bend of plus or minus a major third.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

WHEEL (Amplitude & Pitch Modulation)

```
UC WHEEL
  AM=on   PM=on
```

Summary: Assigns modulation wheel control to amplitude and/or pitch modulation.

Settings: AM (Amplitude Modulation): off, on
PM (Pitch Modulation): off, on

Procedure: Use the CURSOR [◁] and [▷] cursor keys to place the underline cursor under the AM or PM parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to turn the selected parameter on or off.

Details: Amplitude modulation produces a *tremolo* effect while pitch modulation produced a *vibrato* effect. This function allows a modulation wheel to be assigned to produce either or both. This is only an "off/on" switch, however, and the maximum depth of modulation to be applied must be set using the LFO AM Depth and PM Depth parameters in the ELEMENT TONE edit mode.

Refer to: page 64.

NOTE: Deep pitch modulation settings may produce noise with some voices. If this happens, reduce the modulation depth until the noise disappears.

Su

Se

Pr

AFTER TOUCH (Amplitude & Pitch Modulation, Pitch & Level Control)

D

```
UC AFTER TOUCH
  AM=on   PM=on   →
```

Summary: Assigns keyboard after-touch control to amplitude modulation, pitch modulation, pitch control, or level control — or any combination of the above.

Settings: AM (Amplitude Modulation): off, on
PM (Pitch Modulation): off, on
Pit (Pitch Control): -12 ... 0 ... +12 max.*
Lev (Level Control): off, on

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the AM, PM, Pit, or Lev parameter. The arrows at either end of the display mean that more parameters can be accessed by scrolling in the indicated direction. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to turn the AM, PM, and/or Lev parameter on or off, or to select the desired Pit control range.

Details: As with modulation wheel control, ampli-tude modulation produces a *tremolo* effect while pitch modulation produced a *vibrato* effect. The harder you press a key on the master keyboard, the deeper the modulation. This is only an "off/on" switch, however, and the maximum depth of modulation to be applied must be set using the LFO AM Depth and PM Depth parameters in the ELEMENT TONE edit mode. The Pit parameter allows keyboard after-touch to be used for note bending. The greater the key pressure the greater the amount of pitch bend. Positive values produce an upward bend when key pressure is applied, and minus values produce a downward bend. Each increment from represents a semitone. A setting of "0" produces no pitch bend. A setting of "12" allows a

maximum upward pitch bend of one octave, while a setting of "–4" allows a maximum downward pitch bend of a major third.

When the Lev parameter is turned on it becomes possible to control the level of the sound over a limited range by keyboard after-touch. The amount and direction (i.e. an increase or decrease) of level change depends on the setting of the AFTER TOUCH SENSITIVITY parameter in the ELEMENT TONE edit mode.

Refer to: page 63, 64.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

ENVELOPE (Attack & Release Rates)

```
VC ENVELOPE
AR=+ 0   RR=+ 0
```

**Summary:** Sets the overall attack and release rates for the current voice.

Settings: AR (Attack Rate): –99 ... +0 ... +99 max.*
RR (Release Rate): –99 ... +0 ... +99 max.*

Procedure: Use the [◁] and [▷] cursor keys to place the underline cursor under the AR or RR parameter. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to set the selected parameter as required.

Details: Although much more detailed envelope programming capability is available for individual elements (see the ELEMENT ENVELOPE edit mode), these functions provide an easy way to adjust the most important envelope parameters for the overall voice. Positive values produce a faster attack or release time, while negative values produce a slower attack or release time. You might want to lengthen the release time of a voice, for example, to produce a lingering sustain effect after you release the keys.

Please note that the AR parameter will have no effect on elements in which the INITIAL LEVEL parameter (page 70) is set to 99.
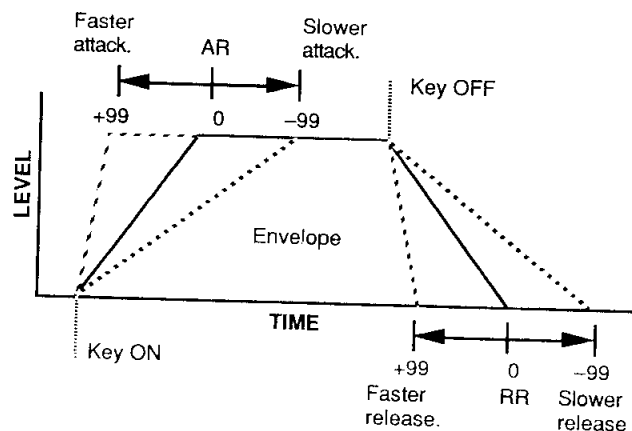
Refer to: page 69 ... 73.

* This range may be more limited in some cases. An exclamation mark (!) will appear after the range value when the limit is reached.

NOTE: The effect of the AR parameter may be more or less pronounced depending on the settings of the ELEMENT EG edit mode INITIAL LEVEL and ATTACK LEVEL parameters.

RANDOM (Element, Level Vectors & Detune Vectors)

```
VC RANDOM
▶ELEMENT      Y/N?
```

Summary: Automatically produces random combinations of elements, level vectors, or detune vectors.

Settings: None.

Procedure: Use the CURSOR [◁] and [▷] keys to place the cursor to the left of the leftmost parameter on the lower display line, then use the [–1/NO] and [+1/YES] keys to select ELEMENT, LEVEL VEC or DETUNE VEC. Press the [▷] key to move the cursor to "Y/N," then press the [+1/YES] key to generate random values of the select type. A new set of random values is generated each time the [+1/YES] key is pressed while the cursor is in this position. Pressing the [–1/NO] returns the cursor to the left parameter.

Details: This function is actually a very useful programming aid. It allows you try out a virtually unlimited variety of element combinations or level/detune vectors by simply pressing a single key. The random element combinations, in particular, can produce some very surprising and often pleasant results.
When the "A-B" voice configuration is selected (see CONFIGURATION on page 45), random element combinations will always consist of only two elements. When the "A-B-C-D" voice configuration is selected, random element generation will produce combinations of four elements.

Refer to: page 53 ... 56.

NAME

```
VC VOICE NAME
 ▶11   SP*Pro33
```

Summary: Assigns a name of up to 8 characters to the current voice.

Settings: The following characters are available for use in voice names:

(Space) ! "#$%&'( )*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMNOPQRSTUVWXYZ[¥]^_`
abcdefghijklmnopqrstuvwxyz{ }→←

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the character to be changed. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired character. Continue until the entire voice name has been programmed.

Details: It's a good idea to give your voices names that make them easily identifiable. If you've created a new voice that combines piano and organ elements, for example, you could call it something like "PianOrg".

VOICE INITIALIZE

```
VC INIT VOICE
  Are you sure?
```

Summary: Initializes all parameters of the current voice.

Settings: None.

Procedure: When the "INIT. VOICE" display is selected, "Are you sure?" will appear on the lower line. Press the [+1/YES] to initialize. ">>Completed!!<<" will appear briefly when the initialization is finished.

Details: When Voice Initialize is executed, the voice parameters are initialized to the following values:

		A	B	C	D
COMMON					
VOICE NAME		Initial			
CONFIGURATION		A–B–C–D			
EFFECT		Rev. Hall			
	Balance	64			
	Send Lvl	127			
PITCH BEND		2			
WHEEL	AM	off			
	PM	on			
AFTER TOUCH	AM	off			
	PM	off			
	Pit	0			
	Lvl	off			
ENVELOPE	AR	0			
	RR	0			
VECTOR					
VECTOR LEVEL SPEED		30 ms			
STEP/X/Y/TIME		1 0 0 End			
		2	50 STEP		
		:			
		50			
VECTOR DETUNE SPEED		30 ms			
STEP/X/Y/TIME		1 0 0 End			
		2	50 STEP		
		:			
		50			
ELEMENT TONE					
WAVE		000:PIANO:PIANO	151:OSC1:sin8'	039:Str:Vn.Ens	152:OSC1:sin4'
FREQ. shift		0	0	0	0
VOLUME		99	99	99	99
PAN		L--I--R	L--I--R	L--I--R	L--I--R
VELOCITY	Sense	2	2	2	2
AFTER	Sense	0	0	0	0
TONE Level		—	92	—	92
TONE FB		—	0	—	0
LFO AM		0	0	0	0
LFO PM		16	16	16	16
LFO TYPE		∧∧	∧∧	∧∧	∧∧
LFO Delay		0	0	0	0
LFO Rate		99	99	99	99
LFO Speed		20	20	20	20

VOICE COMMON

	A	B	C	D
ELEMENT ENV				
TYPE	PRESET	PRESET	PRESET	PRESET
DELAY Rate	99	99	99	99
DELAY on/off	off	off	off	off
INITIAL Level	67	0	90	0
ATTACK AL	99	92	97	92
ATTACK AR	99	99	64	99
DECAY1 D1L	99	92	95	92
DECAY1 D1R	0	0	32	0
DECAY2 D2L	0	92	95	92
DECAY2 D2R	26	0	0	0
RELEASE Rate	60	76	52	76
SCALING Lvl Type	2	1	4	1
Rate Type	3	1	2	1

The voice initialize function is useful if you want
to begin programming a voice "from scratch."

VOICE RECALL

```
VC RECALL VOICE
  Are you sure?
```

Summary: Recalls the last voice edited from the
TG33 edit buffer memory.

Settings: None

Procedure: When the "RECALL VOICE" function
is selected, "Are you sure?" appears on the
lower display line. Press the [+1/YES] key to
recall.
">>Completed!!<<" will appear briefly when the
recall operation is finished.

Details: Even if you've exited the edit mode and
called a different voice, this function will recall the
last voice edited with all parameters as they
were at the time the edit mode was exited. A
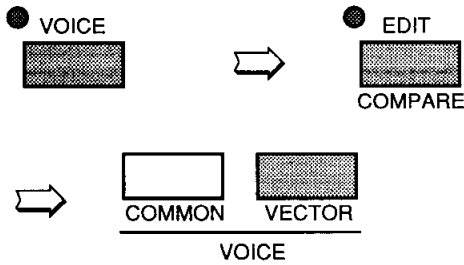handy "safety net" to help you recover acciden-
tally lost data.

VOICE VECTOR

The VOICE VECTOR edit mode allows recording and fine editing of dynamic level and detune vectors.

VOICE VECTOR

Selecting the VOICE VECTOR Edit Mode

From another VOICE EDIT mode simply press [VOICE VECTOR].

Selecting the VOICE VECTOR Edit Mode Functions

The various VOICE VECTOR edit mode functions can be selected in sequence by pressing the [VOICE VECTOR] key, or by using the PAGE [◁] and [▷] keys.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

LEVEL SPEED (Vector Rate)

```
VV LEVEL SPEED
Vector Rate 30ms
```

Summary: Sets the time between level vector steps.

Settings: 10 ... 160 milliseconds (in 10-millisecond steps)

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired vector rate.

Details: Each dynamic vector is composed of up to 50 "steps" corresponding to points along the path followed by the vector control. This function sets the initial time between each step. The Time parameter in the LEVEL EDIT function, described later, allows the length of individual steps to be edited. The vector rate parameter can be changed even after recording a vector, producing a corresponding change in the spacing between the steps.

Refer to: page 28.

LEVEL RECORD

```
VV LEVEL REC
▶STBY  REC  PLAY
```

Summary: Allows recording of a dynamic level vector.

Settings: STBY, REC, PLAY

Procedure: Use the CURSOR [◁] and [▷] keys to place the cursor to the left of STBY. The vector control LEVEL mode will be automatically selected and you can rehearse the vector sweep you wish to record.

Move the cursor to REC. Recording will actually begin as soon as you play a note. When you release the note or when 50 steps have been recorded (See "LEVEL SPEED" above), recording will end and the cursor will move to the PLAY position. You can now play the keyboard to hear how the vector sweep you just recorded sounds.

Details: The amount of time available for recording depends both on the vector rate setting and how much the vector control is moved.

Refer to: page 28, 29.

LEVEL EDIT (Step, X-axis, Y-axis & Time)

● *Step*

```
VV L.ED A■B■C■D■
1 X+ 0 Y+ 0 End
```

Summary: Selects any of the 50 steps in a recorded level vector for editing.

Settings: 1 ... 50

Procedure: Use the [◁] and [▷] cursor keys to place the underline cursor under the leftmost value on the lower display line (Step). Use the [-1/NO] and [+1/YES] keys to select the step to be edited.

Details: Step 1 is the first step recorded and step 50 is the last. Experience will give you a feel for relating specific points in a dynamic vector to the corresponding steps.

VOICE VECTOR

● *X-axis & Y-axis*

```
UU L.ED A■B■C■D■
1 X+ 0 Y+ 0 End
```

Summary: These parameters define the position of the currently selected step on the X and Y axes of the level vector control range.

Settings: –31 ... +0 ... +31

Procedure: After selecting the step to be recorded as described in the previous function, use the CURSOR [◁] and [▷] keys to place the underline cursor under the X or Y parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the value as required.

Details: On the X (D-C) axis, a setting of –31 places the step as far as possible toward the D element while a setting of +31 places it as far as possible toward the C element. The Y (A-B) axis values work in the same way: a setting of –31 places the step as far as possible toward the B element while a setting of +31 places it as far as possible toward the A element. In both axes a setting of +0 places the step at center position.

● *Time*

```
UU L.ED A■B■C■D■
1 X+ 0 Y+ 0 End
```
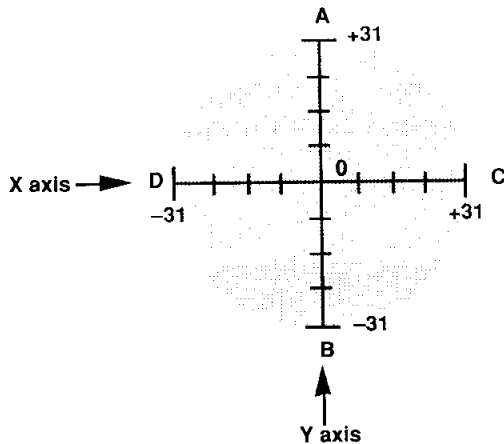
Summary: Multiplies the vector rate setting of the current level vector step only. Also allows vectors to be looped or ended at the current step.

Settings: 1 ... 254, Repeat, End

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the rightmost value on the lower display line (Time). Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the required time value, repeat, or end.

Details: Time values multiply the vector rate setting for the current step. If the vector rate parameter is set to 30ms, for example, setting the time parameter to 2 results in a step length of 60ms, setting it to 3 results in a step length of 90ms, and so on. Since the maximum time value is 254, extremely long steps can be created.
If you select the "End" setting, the vector will end at the current step.
The "Repeat" setting causes the vector to loop back to the first step from the current step, repeating continuously.

NOTE: Extreme LEVEL EDIT settings that are beyond a reasonable range for the current vector may not produce the expected results.

DETUNE SPEED (Vector Rate)

```
UV DETUNE SPEED
Vector Rate 30ms
```

Summary: Sets the time between detune vector steps.

Settings: 10 ... 160 milliseconds

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired vector rate.

Details: Each automatic vector sweep is composed of up to 50 "steps," corresponding to equally-spaced points along the path followed by the vector control. This function sets the initial time between each step.

Refer to: page 28.

DETUNE RECORD

```
UV DETUNE REC
▶STBY  REC  PLAY
```

Summary: Allows recording of a dynamic detune vector.

Settings: STBY, REC, PLAY

Procedure: Use the CURSOR [◁] and [▷] keys to place the cursor to the left of STBY. The vector control DETUNE mode will be automatically selected and you can rehearse the vector sweep you wish to record.

Move the cursor to REC. Recording will actually begin as soon as you play a note. When you release the note or when all 50 steps have been recorded (See "DETUNE SPEED" above), recording will end and the cursor will move to the PLAY position. You can now play the keyboard to hear how the vector sweep you just recorded sounds.

Details: The amount of time available for recording depends both on the vector rate setting and how much the vector control is moved.

Refer to: page 28, 29.

DETUNE EDIT (Step, X-axis, Y-axis & Time)

● *Step*

```
UV D.ED A■B■C■D■
1 X+ 0 Y+ 0 End
```

Summary: Selects any of the 50 steps in a recorded detune vector for editing.

Settings: 1 ... 50

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the leftmost value on the lower display line (Step). Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the step to be edited.

Details: Step 1 is the first step recorded and step 50 is the last. Experience will give you a feel for relating specific points in a dynamic vector to the corresponding steps.

55

VOICE VECTOR

● *X-axis & Y-axis*

```
VU D.ED A■B■C■D■
 1 X+ 0 Y+ 0 End
```

Summary: These parameters define the position of the currently selected step on the X and Y axes of the detune vector control range.

Settings: –31 ... +0 ... +31

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the X or Y parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the value as required.

Details: On the X (D-C) axis, a setting of –31 places the step as far as possible toward the D element while a setting of +31 places it as far as possible toward the C element. The Y (A-B) axis values work in the same way: a setting of –31 places the step as far as possible toward the B element while a setting of +31 places it as far as possible toward the A element. In both axes a setting of +0 places the step at center position.

● *Time*

```
VU D.ED A■B■C■D■
 1 X+ 0 Y+ 0 End
```
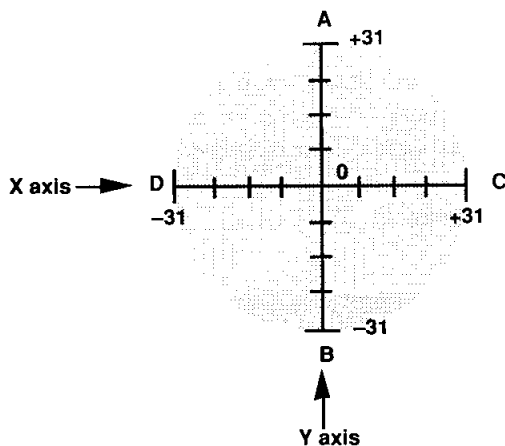
Summary: Multiplies the vector rate setting of the current detune vector step only. Also allows vectors to be looped or ended at the current step.

Settings: 1 ... 254, Repeat, End

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the rightmost value on the lower display line (Time). Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the required time value.

Details: Time values multiply the vector rate setting for the current step. If the vector rate parameter is set to 30ms, for example, setting the time parameter to 2 results in a step length of 60ms, setting it to 3 results in a step length of 90ms, and so on. Since the maximum time value is 254, extremely long steps can be created.
If you select the "End" setting, the vector will end at the current step.
The "Repeat" setting causes the vector to loop back to the first step from the current step, repeating continuously.

NOTE: Extreme DETUNE EDIT settings that are beyond a reasonable range for the current vector may not produce the expected results.
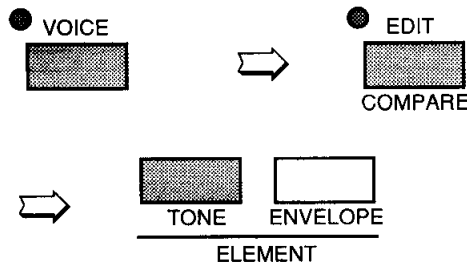
ELEMENT TONE

The ELEMENT TONE edit mode allows editing many of the most important sound-determining parameters of each individual element — A and B in a 2-element voice; A, B, C and D in a 4-element voice.

* These four parameters are not available for an AWM element in which wave number 127 (Drum Set) is selected — "Cannot edit" display appears.

ELEMENT TONE

Selecting the ELEMENT TONE Edit Mode

From another VOICE EDIT mode simply press [ELEMENT TONE].

Selecting Elements for Editing

Different elements can be selected for editing by pressing the appropriate [ELEMENT SELECT] key — [A], [B], [C] or [D]. If a 2-element voice is being edited, only elements A and B can be selected. The currently selected element is shown in the upper right-hand corner of the LCD as a reversed (white on black) character.

Any of the available elements can also be turned on or off by pressing the appropriate [ELEMENT ON/OFF] key. Each key alternately turns the associated element on and off, and the on/off status of the elements is shown to the right of the upper LCD line. If the element character is showing, the associated element is ON, if a dash appears in place of the element character, that element is OFF. The ability to turn elements on or off while editing makes it easier to hear the effect of parameter changes on a single element.

In this example elements A, B and D are ON, while element C is OFF. Element A is currently selected for editing.

```
ET WAVE 000  AB-D
Piano:Piano
```

Selecting the ELEMENT TONE Edit Mode Functions

The various ELEMENT TONE edit mode functions can be selected in sequence by pressing the [ELEMENT TONE] key, or by using the PAGE [◁] and [▷] keys.

The ELEMENT COPY Function

This function facilitates editing by copying all element parameters from an element of the same type (AWM or FM) in another voice to the current element of the current voice.

1. To call the ELEMENT COPY function, press the [STORE/COPY] key while in the ELEMENT TONE edit mode.

```
ET COPYfrom  AB-D
P 11 SP*Pro33 A→
```

In the ELEMENT COPY display, the source, bank and number parameters are shown in the standard TG33 voice number format. "P₁12," for example, is preset 1, bank 1, number 2; "I35" is internal bank 3, number 5, etc.

Data can only be copied between elements of the same type. If the element currently being edited is an AWM element (A or C), only element A or C of the source voice can be copied from. The same applies to FM elements.

The data for all parameters contained in the ELEMENT TONE mode will be copied.

2. Use the CURSOR [◁] and [▷] keys to move the cursor to the source, bank, or number of the source voice (the voice from which the element parameters are to be copied) to the left of the lower display line. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the selected parameter as necessary.

3. Next move the cursor to the element type parameter to the right of the lower display line, and select the element from which the data is to be copied using the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys.

4. Press the [▷] cursor key one more time and the "Are you sure?" display will appear. Press [+1/YES] to execute the element copy operation or [−1/NO] to cancel. ">>Completed!!<<" will appear briefly when the copy operation has finished.

5. Press the ELEMENT [TONE] key to return to the ELEMENT TONE edit mode.

The COMPARE Function

While in any VOICE EDIT mode, you can com-
pare the sound of the edited voice with the
sound of the voice before it was edited by press-
ing the [EDIT/COMPARE] key to activate the
COMPARE function. The [EDIT/COMPARE]
key indicator will flash while the COMPARE
function is active, and the sound of the voice
prior to editing will be heard when you play the
master keyboard or controller. Press the
[EDIT/COMPARE] key again to return to the
edit mode.

WAVE TYPE

```
ET WAVE 000 [ABCD]
 Piano:Piano
```

Summary: Assigns a preset wave to the selected element.

Settings: Elements A and C (AWM): 0 ... 127
Elements B and D (FM): 0 ... 255

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the left parameter on the lower display line to directly select the different wave categories, or under the right parameter to select individual waves. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired wave (refer to the wave list, below).

Details: The number of waves available depends on whether the currently selected element is an AWM element (A or C) or an FM element (B or D). The TG33 has 128 preset AWM waves (0 ... 127) and 256 preset FM waves (0 ... 255).

AWM WAVEFORM LIST

Category	No.	Name	Category	No.	Name	Category	No.	Name	Category	No.	Name
Piano	0	Piano	Bass	32	E.Bass 3	Synth	64	Oh Hit	OSC	96	Pad wv
	1	E.piano		33	E.Bass 4	SFX	65	Water 1		97	Digital1
	2	Clavi		34	Slap		66	Water 2		98	Digital2
	3	Cembalo		35	Fretless		67	Stream		99	Digital3
	4	Celesta		36	SynBass1		68	Coin		100	Digital4
Organ	5	P.organ		37	SynBass2		69	Crash		101	Digital5
	6	E.organ1	Str.	38	Strings		70	Bottle		102	Saw 1
	7	E.organ2		39	Vn.Ens.		71	Tear		103	Saw 2
	8	Reed		40	Cello		72	Cracker		104	Saw 3
Brass	9	Trumpet		41	Pizz.		73	Scratch		105	Saw 4
	10	Mute Trp		42	Syn Str	Hits	74	Metal 1		106	Square 1
	11	Trombone	Vocal	43	Choir		75	Metal 2		107	Square 2
	12	Flugel		44	Itopia		76	Metal 3		108	Square 3
	13	Fr Horn		45	Ooo!		77	Metal 4		109	Square 4
	14	BrasAtak	Perc.	46	Vibes		78	Wood		110	Pulse 1
	15	SynBrass		47	Marimba		79	Bamboo		111	Pulse 2
Wood	16	Flute		48	Bells		80	Slam		112	Pulse 3
	17	Clarinet		49	Timpani	Tran.	81	Tp. Body		113	Pulse 4
	18	Oboe		50	Tom		82	Tb. Body		114	Pulse 5
	19	Sax		51	E. Tom		83	HornBody		115	Pulse 6
Gtr	20	Gut		52	Cuica		84	Fl. Body		116	Tri
	21	Steel		53	Whistle		85	Str.Body		117	Sin8'
	22	E.Gtr 1		54	Claps		86	AirBlown		118	Sin8'+4'
	23	E.Gtr 2	Synth	55	Hit		87	Reverse1	SEQ	119	SEQ 1
	24	Mute Gtr		56	Harmonic		88	Reverse2		120	SEQ 2
	25	Sitar		57	Mix		89	Reverse3		121	SEQ 3
	26	Pluck 1		58	Sync	OSC	90	EP wv		122	SEQ 4
	27	Pluck 2		59	Bell Mix		91	Organ wv		123	SEQ 5
Bass	28	Wood B 1		60	Styroll		92	M.Tp wv		124	SEQ 6
	29	Wood B 2		61	DigiAtak		93	Gtr wv		125	SEQ 7
	30	E.Bass 1		62	Noise 1		94	Str wv 1		126	SEQ 8
	31	E.Bass 2		63	Noise 2		95	Str wv 2	Drum	127	Drum set

AWM Waveform Category Descriptions

Piano	Piano, clavi, and other decay-type keyboard sounds.	Synth	A range of synth sounds (including noise).
Organ	Pipe, electric and reed organs.	SFX	Special effects – water, bottles, etc.
Brass	Acoustic and synthesized brass sounds.	Hits	Struck metal and woods.
Wood	Flute, sax and other woodwind sounds.	Tran.	Transient attack waves and some reverse sounds.
Gtr	Acoustic and electric guitars.	OSC	Standard synth waveforms and the basic waveforms from some actual instruments.
Bass	Acoustic, electric, and synth bass.		
Str.	Violin ensemble and other strings.	SEQ	Sequences of sampled sounds.
Vocal	Choir and other vocal-type sounds.	Drum	Drum set waves.
Perc.	Vibes, tympani, etc.		

FM VOICE LIST

Category	No.	Name	Category	No.	Name	Category	No.	Name	Category	No.	Name
Piano	0	E.Piano1	Pluck	49	Guitar 4	Syn.S	98	Sus. 1	SFX	147	SFX 5
	1	E.Piano2		50	Guitar 5		99	Sus. 2		148	SFX 6
	2	E.Piano3		51	Guitar 6		100	Sus. 3		149	SFX 7
	3	E.Piano4		52	Guitar 7		101	Sus. 4	OSC 1	150	Sin 16'
	4	E.Piano5		53	Guitar 8		102	Sus. 5		151	Sin 8'
	5	E.Piano6	Bass	54	Bass 1		103	Sus. 6		152	Sin 4'
Organ	6	E.organ1		55	Bass 2		104	Sus. 7		153	Sin2 2/3
	7	E.organ2		56	Bass 3		105	Sus. 8		154	Sin 2'
	8	E.organ3		57	Bass 4		106	Sus. 9		155	Saw 1
	9	E.organ4		58	Bass 5		107	Sus. 10		156	Saw 2
	10	E.organ5		59	Bass 6		108	Sus. 11		157	Square
	11	E.organ6		60	Bass 7		109	Sus. 12		158	LFOnoise
	12	E.organ7		61	Bass 8		110	Sus. 13		159	Noise 1
	13	E.organ8		62	Bass 9		111	Sus. 14		160	Noise 2
Brass	14	Brass 1	Str.	63	Str 1		112	Sus. 15		161	Digi 1
	15	Brass 2		64	Str 2		113	Attack 1		162	Digi 2
	16	Brass 3		65	Str 3		114	Attack 2		163	Digi 3
	17	Brass 4		66	Str 4		115	Attack 3		164	Digi 4
	18	Brass 5		67	Str 5		116	Attack 4		165	Digi 5
	19	Brass 6		68	Str 6		117	Attack 5		166	Digi 6
	20	Brass 7		69	Str 7	Syn.M	118	Move 1		167	Digi 7
	21	Brass 8	Perc.	70	Vibes 1		119	Move 2		168	Digi 8
	22	Brass 9		71	Vibes 2		120	Move 3		169	Digi 9
	23	Brass 10		72	Vibes 3		121	Move 4		170	Digi 10
	24	Brass 11		73	Vibes 4		122	Move 5		171	Digi 11
	25	Brass 12		74	Marimba1		123	Move 6	OSC 2	172	wave1-1
	26	Brass 13		75	Marimba2		124	Move 7		173	wave1-2
	27	Brass 14		76	Marimba3	Syn.D	125	Decay 1		174	wave1-3
Wood	28	Wood 1		77	Bells 1		126	Decay 2		175	wave2-1
	29	Wood 2		78	Bells 2		127	Decay 3		176	wave2-2
	30	Wood 3		79	Bells 3		128	Decay 4		177	wave2-3
	31	Wood 4		80	Bells 4		129	Decay 5		:	
	32	Wood 5		81	Bells 5		130	Decay 6		220	wave17-1
	33	Wood 6		82	Bells 6		131	Decay 7		221	wave17-2
	34	Wood 7		83	Bells 7		132	Decay 8		222	wave17-3
	35	Wood 8		84	Bells 8		133	Decay 9	OSC 3	223	wave18-1
Reed	36	Reed 1		85	Metal 1		134	Decay 10		224	wave18-2
	37	Reed 2		86	Metal 2		135	Decay 11		225	wave18-3
	38	Reed 3		87	Metal 3		136	Decay 12		:	
	39	Reed 4		88	Metal 4		137	Decay 13		250	wave27-1
	40	Reed 5		89	Metal 5		138	Decay 14		251	wave27-2
	41	Reed 6		90	Metal 6		139	Decay 15		252	wave27-3
Pluck	42	Clavi 1	Syn.S	91	Lead 1		140	Decay 16		253	wave28
	43	Clavi 2		92	Lead 2		141	Decay 17		254	wave29
	44	Clavi 3		93	Lead 3		142	Decay 18		255	wave30
	45	Clavi 4		94	Lead 4	SFX	143	SFX 1			
	46	Guitar 1		95	Lead 5		144	SFX 2			
	47	Guitar 2		96	Lead 6		145	SFX 3			
	48	Guitar 3		97	Lead 7		146	SFX 4			

FM Voice Category Descriptions

Piano	Electric pianos.	Perc.	Vibes, marimba, bells and other percussion sounds.
Organ	Electric organs.	Syn.S	Sustained lead synth sounds.
Brass	A variety of brass sounds.	Syn.M	Synth sounds that vary with time.
Wood	Woodwind instrument sounds.	Syn.D	Decay-type synth sounds.
Reed	Sax, oboe and other reed instruments.	SFX	A range of sound-effect type synth sounds.
Pluck	Guitar, clavi, and other plucked instrument sounds.	OSC1	Sine, sawtooth, and other standard synth waveforms.
Bass	Bass sounds.	OSC2	Basic FM timbres, group 1.
Str.	Strings.	OSC3	Basic FM timbres, group 2.

If the TYPE parameter in the ELEMENT ENVELOPE edit mode (page 69) is set to PRESET, selecting a WAVE TYPE also selects the corresponding preset envelope. If a different envelope type is selected, the preset envelope is *not* selected together with the wave.

Refer to: page 19 ... 27, 45.

FREQUENCY SHIFT

```
ET FREQ.    ABCD
 Shift=+ 0
```

Summary: Shifts the frequency (pitch) of the selected element up or down in semitone steps.

Settings: −12 ... +0 ... +12.

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired amount of frequency shift.

Details: A setting of "−12," for example, shifts the pitch of the selected element down by one octave; a setting of "+4" shifts the pitch up by a major third.

The Frequency Shift function can be used to transpose an element to its most useful range, or to create harmony (intervals) between different elements.

VOLUME

```
ET VOLUME    ABCD
 Level=  0
```

Summary: Adjusts the volume of the selected element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired volume level.

Details: A setting of "0" produces no sound while a setting of "99" produces maximum volume.

The ability to independently adjust the volume of each element makes it simple to set up the optimum balance or "mix" between elements.

PAN

```
ET PAN    ABCD
 L--I--R
```

Summary: Determines the position in the stereo sound field in which the sound from selected element will be heard (left to right).

Settings: Graphic Display: L--I--R, 5 positions from left to right

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired pan position.

Details: The lower line of the display shows a graphic representation of the stereo sound field with "L" representing "left" and "R" representing "right." As you edit the pan parameter the position indicator will appear at the corresponding position on the graphic display. A total of five different positions are available, corresponding to left, left-center, center, right-center, and right.

Interesting stereo effects can be produced by placing the output from different elements at different locations in the stereo sound field.

Please note that when the EFFECT Balance parameter is set to or close to its maximum value (127), the PAN setting has no effect.

Refer to:

VELOCITY SENSITIVITY

```
ET VELOCITY ▣BCD
 Type= +0   ----
```

Summary: Determines how the output level of the selected element changes in response to velocity changes (keyboard initial touch response).

Settings: –5 ... +0 ... +5

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired velocity sensitivity.

Details: Plus "+" settings produce higher output level in response to higher velocity values — i.e. the harder a key is played, the louder the sound. Minus "–" settings produce the opposite effect: lower level in response to higher velocity. A setting of "0" results in no level variation.

+0 No response.
+1 Narrow change between medium-hard and hard velocity.

+2 Broader change between medium and hard velocity.
+3 Smooth change all the way from soft to hard velocity.
+4 Large change over small velocity range.
+5 Sudden change from no sound to maximum level at about medium velocity.

"–" Settings have the same effect, but the sound level decreases rather than increasing with increased key velocity. A graphic display to the right of the sensitivity value provides a visual clue as to the type of change produced by each setting.

Type –5	Type –4	Type –3	Type –2

Type –1	Type +0	Type +1	Type +2

Type +3	Type +4	Type +5
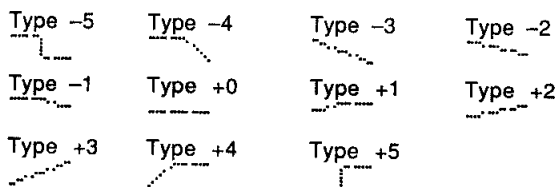
AFTER TOUCH SENSITIVITY

```
ET A.TOUCH  ▣BCD
 Type= +0   ----
```

Summary: Determines how the output level of the selected element changes in response to after-touch pressure changes when the Lev (Level) parameter of the AFTER TOUCH function in the VOICE COMMON mode is set to "on" (see page 46).

Settings: –3 ... +0 ... +3

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired after touch sensitivity.

Details: Plus "+" settings produce higher output level in response to higher after touch pressure. Minus "–" settings produce the opposite effect: lower level in response to higher pressure. A setting of "0" results in no level variation.

+0 No response.
+1 Narrow change between medium-high and high pressure.
+2 Broader change between medium and high pressure.
+3 Smooth change all the way from low to high pressure.

"–" Settings have the same effect, but the sound level decreases rather than increasing with increased after touch pressure. A graphic display to the right of the sensitivity value provides a visual clue as to the type of change produced by each setting.

Type –3	Type –2	Type –1	Type +0

Type +1	Type +2	Type +3
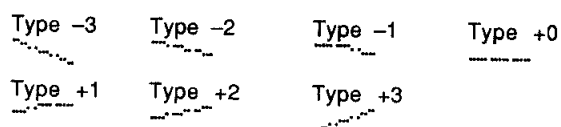
Refer to: page 46.

TONE (Level & Feedback: FM Elements B and D Only)

```
ET TONE      ABCD
  Lev= 0  FB=0
```

Summary: Adjusts the tone of the selected FM element — B or D.

Settings: Lev (Level): 0 ... 99
FB (Feedback): 0 ... 7

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the Lev or FB parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the level or feedback as required.

Details: The Lev parameter adjusts the modulation level of the select FM element, so higher values produce a brighter, sharper tone while lower values produce a rounder, more mellow tone. The effect of the feedback parameter varies from element to element, but in general higher values make the sound more brassy or noisy, while lower values make the sound smoother.

Refer to: page 45.

LFO (Low Frequency Oscillator) AM Depth, PM Depth, Type, Delay, Rate & Speed

● *AM (Amplitude Modulation Depth)*

```
ET LFO       ABCD
AM= 0 PM= 0 ∿∿∿⇥
```

Summary: Determines the maximum amount of amplitude modulation that can be applied to the selected element by a modulation wheel or keyboard after touch.

Settings: 0 ... 15

Procedure: Use the CURSOR [◁] and [▷] keys to select the AM parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the desired degree of amplitude modulation.

Details: A "0" setting produces no modulation while a setting of "15" produces maximum modulation. Amplitude modulation produces a periodic variation in the volume of the sound, thus creating a tremolo effect.

Please note that the AM parameter of the WHEEL and/or AFTER TOUCH function in the VOICE COMMON edit mode must be set to "on" before amplitude modulation can be applied manually (see page 46). Amplitude modulation is applied automatically when these parameters are off.

Refer to: page 46, 47.

● *PM (Pitch Modulation Depth)*

```
ET LFO       ABCD
AM= 0 PM= 0 ∿∿∿⇥
```

Summary: Determines the maximum amount of pitch modulation that can be applied to the selected element by a modulation wheel or keyboard after touch.

Settings: 0 ... 31

Procedure: Use the CURSOR [◁] and [▷] keys to select the PM parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired degree of pitch modulation.

Details: A "0" setting produces no modulation while a setting of "31" produces maximum modulation. Pitch modulation produces a periodic pitch variation, thereby creating a vibrato effect. Please note that the PM parameter of the WHEEL and/or AFTER TOUCH function in the VOICE COMMON edit mode must be set to "on" before pitch modulation can be applied manually (see page 46). Pitch modulation is applied automatically when these parameters are off.

● *Type*

```
ET LFO        ▤BCD
AM= 0 PM= 0 ᴉᴉᴉᴉ→
```

Summary: Determines the waveform of the LFO for the selected element.

Settings:

SAW UP	SAW DOWN	TRIANGLE
⌐⌐⌐	ᴉᴉᴉ	∧∨∧
SQUARE	**SAMPLE&HOLD**	
⊓⊔⊓	¨¯⌐¯	

Procedure: Use the CURSOR [◁] and [▷] keys to select the waveform parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired LFO waveform.

Details:

⌐⌐⌐	= Upward sawtooth.
ᴉᴉᴉ	= Downward sawtooth.
∧∨∧	= Triangle.
⊓⊔⊓	= Square.
¨¯⌐¯	= Sample and hold.

● *Dly (Delay)*

```
ET LFO        ▤BCD
←Dly= 0 Rate= 0→
```

Summary: Sets the delay time between the beginning of a note and the beginning of LFO operation for the selected element.

Settings: 0 ... 99

Procedure: Use the CURSOR [◁] and [▷] keys to select the Dly parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired LFO delay.

Details: The minimum setting "0" results in no delay, while the maximum setting of "99" produces maximum delay before the LFO begins operation.

Refer to: page 46, 47.

● *Rate*

```
ET LFO        ▤BCD
←Dly= 0 Rate= 0→
```

Summary: Sets the rate of LFO "fade in" for the selected element.

Settings: 0 ... 99

Procedure: Use the CURSOR [◁] and [▷] keys to select the Rate parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired LFO fade-in rate.

Details: "99" is the fastest rate, causing the LFO to start operation at full depth immediately. A setting of 0 produces the longest LFO fade in.

Refer to: page 46, 47.

ELEMENT TONE

● *Spd (Speed)*

```
 ET LFO      ⊞BCD
 ←Speed= 0
```

Summary: Sets the speed of the LFO for the selected element.

Settings: 0 ... 31

Procedure: Use the CURSOR [◁] and [▷] keys to select the Speed parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired LFO speed.

Details: "0" is slowest LFO speed setting; "31" is the fastest.

The speed parameter can not be edited when the sample-and-hold (¨⌐.-¨) LFO TYPE is selected.
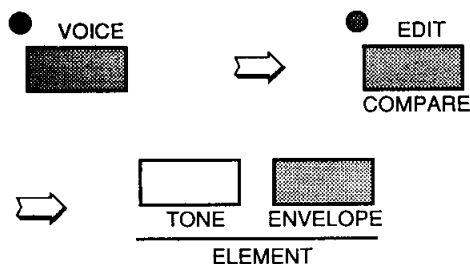
ELEMENT ENVELOPE

The ELEMENT ENVELOPE edit mode allows detailed programming of the amplitude envelopes for each element in the selected voice.

NOTE: The ELEMENT ENVELOPE parameters are not available for AWM elements in which wave number 127 (Drum Set) is selected (the "Cannot edit" display will appear).

ELEMENT ENVELOPE

Selecting the ELEMENT ENVELOPE Edit Mode

From another VOICE EDIT mode simply press [ELEMENT ENVELOPE].

Selecting Elements for Editing

Different elements can be selected for editing by pressing the appropriate [ELEMENT SELECT] key — [A], [B], [C] or [D]. If a 2-element voice is being edited, only elements A and B can be selected. The currently selected element is shown in the upper right-hand corner of the LCD as a reversed (white on black) character.

Any of the available elements can also be turned on or off by pressing the appropriate [ELEMENT ON/OFF] key. Each key alternately turns the associated element on and off, and the on/off status of the elements is shown to the right of the upper LCD line. If the element character is showing, the associated element is ON, if a dash appears in place of the element character, that element is OFF. The ability to turn elements on or off while editing makes it easier to hear the effect of parameter changes on a single element.

In this example elements A, B and D are ON, while element C is OFF. Element A is currently selected for editing.

Selecting the ELEMENT ENVELOPE Edit Mode Functions

The various ELEMENT ENVELOPE edit mode functions can be selected in sequence by pressing the [ELEMENT ENVELOPE] key, or by using the PAGE [◁] and [▷] keys.

The ENVELOPE COPY Function

This function facilitates editing by copying envelope parameters from a selected element to the current element. ENVELOPE COPY can save a lot of programming time by allowing easy copying of complex USER type envelope data between elements.

1. To call the ENVELOPE COPY function, press the [STORE/COPY] while in the ELEMENT ENVELOPE edit mode.

2. Use the CURSOR [◁] and [▷] keys to move the cursor to the "from" element parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the element from which the envelope data is to be copied.

3. Press the CURSOR [▷] key one more time and the "Are you sure?" display will appear. Press [+1/YES] to execute the copy operation or [–1/NO] to cancel. ">>Completed!!<<" will appear briefly when the copy operation has finished.

4. Press the ELEMENT [EG] key to return to the ELEMENT EG edit mode.

The COMPARE Function

While in any VOICE EDIT mode, you can compare the sound of the edited voice with the sound of the voice before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the voice prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

TYPE

```
EE TYPE      ▨BCD
   USER
```

Summary: Selects a user or preset amplitude envelope for the selected element.

Settings: PRESET, PIANO, GUITAR, PLUCK, BRASS, STRINGS, ORGAN, USER

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired envelope.

Details: When "PRESET" is selected, the original envelope of the wave selected for the current element is used. For example, if the current element uses a guitar wave the corresponding guitar envelope will be selected.
When "PIANO," "GUITAR," "PLUCK," "BRASS," "STRINGS," or "ORGAN" is selected, a generic envelope of the appropriate type is used. The envelopes are roughly as shown below:

PIANO

LEVEL

TIME

PLUCK

LEVEL

TIME

STRINGS

LEVEL

TIME

GUITAR

LEVEL

TIME

BRASS

LEVEL

TIME

ORGAN

LEVEL

TIME
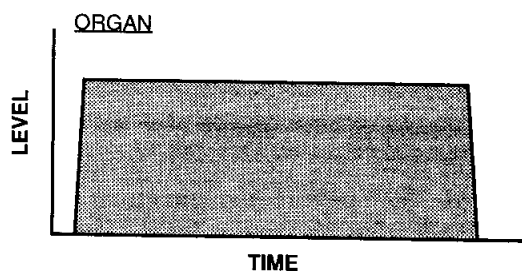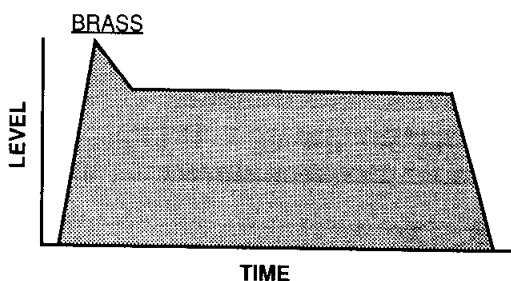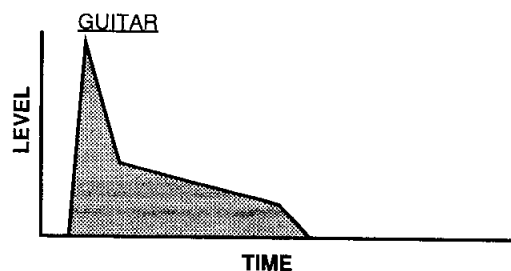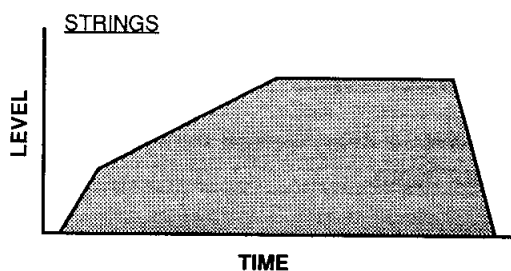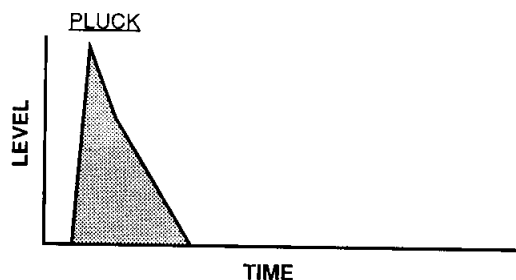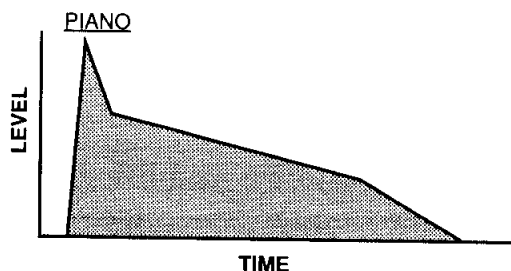
When "USER" is selected, an original envelope can be programmed using the attack, decay, and release parameters described on pages 70, 71 and 72.

Refer to: page 47.

DELAY (Delay Rate & ON/OFF)

```
EE DELAY    ABCD
Rate= 0    off
```

Summary: Sets a delay before the envelopes of all elements begin.

Settings: Delay: 0 ... 99
Mode: on/off

Procedure: Use the CURSOR [◁] and [▷] keys to move the cursor to the "Rate" parameter. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired delay rate.

Press the [▷] cursor key one more time to move to the on/off mode parameter, and use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set as required.

Details: The envelope delay rate parameter affects all envelopes simultaneously. A setting of "99" produces almost no delay while a setting of "0" produces maximum delay.

Refer to: page 47.

INITIAL LEVEL

```
EE INITIAL  ABCD
Level= 0
```

Summary: Sets the starting level of the amplitude envelope for the current element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the initial level.

Details: A setting of "0" means that the envelope will begin from zero (minimum) level, while a setting of "99" causes the envelope to begin immediately from maximum level. The highest setting produces the sharpest attack.

Refer to: page 47.

ATTACK (Level & Rate)

```
EE ATTACK   ABCD
AL= 0   AR= 0
```

Summary: Sets the rate and peak level of the attack of the amplitude envelope for the current element.

Settings: AL (Attack Level): 0 ... 99
AR (Attack Rate): 0 ... 99

Procedure: Use the CURSOR [◁] and [▷] keys to move the cursor to the "AL" or "AR" parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest attack, and a setting of "99" produces the fastest attack.

A level setting of "0" produces the lowest attack level, while a setting of "99" produces the highest level.

Refer to: page 47.

DECAY 1 (Level & Rate)

```
EE DECAY1    ⊟BCD
D1L= ⊠ D1R= ⊠
```

Summary: Sets the rate and final level of the first decay of the amplitude envelope for the current element.

Settings: D1L (Decay 1 Level): 0 ... 99
D1R (Decay 1 Rate): 0 ... 99

Procedure: Use the CURSOR [◁] and [▷] keys to move the cursor to the "D1L" or "D1R" parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest decay, and a setting of "99" produces the fastest decay.

A level setting of "0" produces the lowest decay level, while a setting of "99" produces the highest level.

Refer to: page 47.

DECAY 2 (Level & Rate)

```
EE DECAY2    ⊟BCD
D2L= ⊠ D2R= ⊠
```

Summary: Sets the rate and final level of the second decay of the amplitude envelope for the current element.

Settings: D2L (Decay 2 Level): 0 ... 99
D2R (Decay 2 Rate): 0 ... 99

Procedure: Use the CURSOR [◁] and [▷] keys to move the cursor to the "D2L" or "D2R" parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the selected level or rate parameter.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.

A rate setting of "0" produces the slowest decay, and a setting of "99" produces the fastest decay.

A level setting of "0" produces the lowest decay level, while a setting of "99" produces the highest level.

The decay 2 level parameter also sets the hold level at which the note is sustained until released.

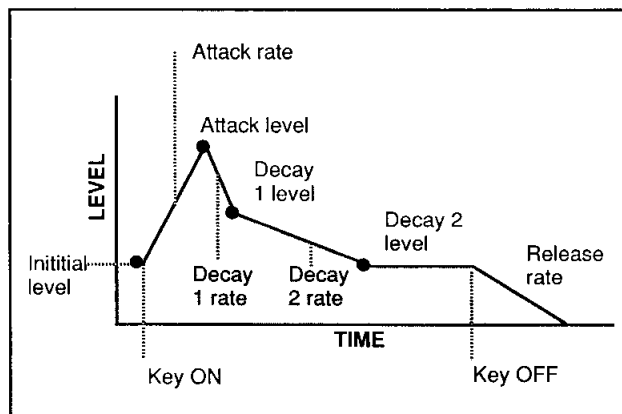**Refer to:** page 47.

RELEASE RATE

```
EE RELEASE  □BCD
  Rate= 0
```

Summary: Sets the release rate of the amplitude envelope for the current element.

Settings: 0 ... 99

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the release rate.

Details: Refer to the INITIAL LEVEL function for a complete envelope diagram.
A release rate setting of "0" produces the slowest release, and a setting of "99" produces the fastest release.

Refer to: page 47.

LEVEL SCALING

```
EE SCALING  □BCD
  Lev Type= 1 ----
```

Summary: Determines how the level of the current element changes across the range of the keyboard.

Settings: 1 ... 16

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired level scaling curve.

Details: Most acoustic instruments do not produce a uniform sound level throughout their pitch range. This results in a level curve that can be simulated by appropriate settings of the level scaling parameter. Often, for example, the level decreases slightly as the pitch increases.

Each of the 16 available level scaling curves is shown in graphic form on the LCD when selected, making it easy to locate and select the optimum curve for each application.

Type 1	Type 2	Type 3	Type 4
Type 5	Type 6	Type 7	Type 8
Type 9	Type 10	Type 11	Type 12
Type 13	Type 14	Type 15	Type 16
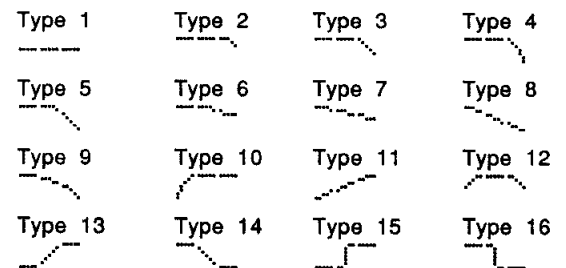
Refer to: page 47.

RATE SCALING

```
EE SCALING  □BCD
  Rate Type= 1 ----
```

Summary: Determines how the overall rate of the amplitude envelope for the current element changes across the range of the keyboard.

Settings: 1 ... 8

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to set the desired rate scaling curve.

Details: Many acoustic instruments do not produce uniform note length throughout their pitch range. This results in a rate curve that can be simulated by appropriate settings of the rate scaling parameter. Often, for example, the overall note length decreases slightly as the pitch increases. Each of the 8 available rate scaling curves is shown in graphic form on the LCD when selected, making it easy to locate and select the optimum curve for each application.

Type 1	Type 2	Type 3	Type 4
‒‒‒‒‒	‒‒‒‒‒.	‒‒‒‒_	‒·‒__

Type 5	Type 6	Type 7	Type 8
‒·..‒_	‒‒‒‒..	_·‒‒‒	/‒‒‒
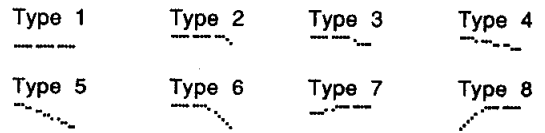
Refer to: page 47.

ELEMENT ENVELOPE

MULTI

The MULTI edit mode allows 16 different voices to be assigned to different MIDI channels, and a range of parameters including volume, detuning, pan position, and others, to be set for each voice. The assigned voices can then be individually controlled over the appropriate channels from an external MIDI sequence recorder or other controller. Refer to "5. THE MULTI PLAY & EDIT MODES" beginning on page 33 of the TUTORIALS section for more details.

Selecting the MULTI Edit Mode

Selecting Different MULTI Channels for Editing

The small white numbers above the BANK/MULTI CHANNEL keys correspond to the 16 available MIDI channels. Pressing any of these while in the MULTI EDIT mode selects the corresponding channel for programming.

BANK/MULTI CHANNEL

The currently selected channel number is shown in the upper right-hand corner of the display — e.g. "CH 1" is channel 1, "CH 2" is channel 2, etc.

Selecting the MULTI Edit Mode Functions

The various MULTI edit mode functions can be selected by using the PAGE [◁] and [▷] keys.

The CHANNEL COPY Function

This function facilitates MULTI PLAY setup editing by copying parameters from a selected channel to the current channel.

1. To call the CHANEL COPY function, press the [STORE/COPY] while in the MULTI EDIT mode.

2. Use the CURSOR [◁] and [▷] keys to move the cursor to the "Channel" element parameter. Use the [–1/NO] and [+1/YES] keys to select the channel from which the data is to be copied.

3. Press the CURSOR [▷] key one more time and the "Are you sure?" display will appear. Press [+1/YES] to execute the copy operation or [–1/NO] to cancel. ">>Completed!!<<" will appear briefly when the copy operation has finished.

4. Press the [EDIT] key to return to the MULTI edit mode.

The COMPARE Function

While in the MULTI EDIT mode, you can compare the sound of the edited MULTI PLAY setup with the sound of the setup before it was edited by pressing the [EDIT/COMPARE] key to activate the COMPARE function. The [EDIT/COMPARE] key indicator will flash while the COMPARE function is active, and the sound of the setup prior to editing will be heard when you play the master keyboard or controller. Press the [EDIT/COMPARE] key again to return to the edit mode.

VOICE NUMBER

```
┌─────────────────────────┐
│ MU VOICE NO CH 1        │
│ ▯11    SP*Pro33         │
└─────────────────────────┘
```

Summary: Assigns a preset, card or internal voice to the selected multi-play part.

Settings: Source: I, C_1, C_2, P_1, P_2
Bank: 1 ... 8
Number: 1 ... 8

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.
Use the CURSOR [◁] and [▷] keys to move the cursor to the source, bank, or number parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the selected parameter as necessary.
The number parameter can be decrement below "1" (by pressing the [–1/NO] key while "1" is showing, for example) to turn the selected channel "off."

Details: In this display the source, bank and number parameters are shown in the standard TG33 voice number format. "$P_1 12$," for example, is preset 1, bank 1, number 2; "I35" is internal bank 3, number 5, etc.
    Please note that although preset voices can be assigned to any multi-play setup, internal voices can only be assigned to internal multi-play setups and card voices can only be assigned to multi-play setups in card memory, as follows:

MULTI	VOICE
I	I, P_1, P_2
C_1	C_1, P_1, P_2
C_2	C_2, P_1, P_2

Refer to: page 13.

VOLUME

```
┌─────────────────────────┐
│ MU VOLUME    CH 1       │
│ Level= ▯                │
└─────────────────────────┘
```

Summary: Adjusts the volume of the selected MULTI channel.

Settings: 0 ... 99

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.

Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired volume level.

Details: A setting of "0" produces no sound while a setting of "99" produces maximum volume.
The ability to independently adjust the volume of each MULTI channel makes it simple to set up the optimum balance or "mix" between parts.

DETUNE

```
┌─────────────────────────┐
│ MU DETUNE    CH 1       │
│ + ▯cent                 │
└─────────────────────────┘
```

Summary: Allows slight upward or downward pitch adjustment of the selected MULTI channel.

Settings: –50 ... +0 ... +50

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.
Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired amount of detuning.

Details: The Detune function allows different parts in a MULTI PLAY setup to be slightly detuned in relation to each other, thereby "thickening" the overall sound.

Detuning occurs in 3 or 4-cent steps. Since 100 cents equals one semitone, the overall detune range is approximately one semitone. Plus settings tune upward from normal pitch, and minus settings tune downward. A setting of "+0" produces normal pitch.

NOTE SHIFT

```
MU NOTE SFT CH 1
   + 0
```

Summary: Shifts the pitch of the selected MULTI channel up or down in semitone steps.

Settings: –24 ... +0 ... +24.

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.
Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired degree of note shift.

Details: A setting of "–12," for example, shifts the pitch of the selected voice down by one octave; a setting of "+4" shifts the pitch up by a major third. The maximum range is plus or minus two octaves.
The Note Shift function can be used to transpose a voice to its most useful range, or to create harmony (intervals) between different channels in a MULTI PLAY setup.

PAN

```
MU PAN      CH 1
  L--I--R
```

Summary: Determines the position in the stereo sound field in which the sound from selected MULTI channel will be heard (left to right).

Settings: Graphic Display: L--I--R, 5 positions from left to right; voice

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel.
Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired pan position.

If you pan past the "R" end of the graphic pan display, the word "voice" will appear. In this case the original PAN position of the voice as determined by the VOICE ELEMENT TONE edit mode PAN function will be retained.

Details: The lower line of the display shows a graphic representation of the stereo sound field with "L" representing "left" and "R" representing "right." As you edit the pan parameter the position indicator will appear at the corresponding position on the graphic display. A total of five different positions are available, corresponding to left, left-center, center, right-center, and right. The PAN function will *not* affect the stereo position of drum voice instruments.

Interesting stereo effects can be produced by placing the output from different channels at different locations in the stereo sound field.

Please note that when the EFFECT Balance parameter is set to or close to its maximum value (127), the PAN setting has no effect.

Refer to: page 45, 79, 80.

ASSIGN MODE

```
MU ASSIGN MODE
G1/G2=32/0
```

Summary: Determines how the TG33 DVA (Dynamic Voice Allocation) system will distribute notes to the two output groups (see SEND GROUP SELECT, below).

Settings: 32/0, 24/8, 16/16

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired note distribution.

Details: The ASSIGN MODE settings work as follows:

G1/G2=32/0   32 notes to group 1, none to group 2.

G1/G2=24/8   24 notes to group 1, 8 to group 2.
G1/G2=16/16 16 notes each to group 1 and group 2.

NOTE: 4-element voices reduce the total number of available notes.

Always make sure this function is set so that a sufficient number of notes is available for the voices assigned to each group.
When the ASSIGN MODE setting is "32/0" *no* notes are assigned to group 2, therefore other MULTI EDIT mode parameters related to group 2 — i.e. those in the OUTPUT GROUP SELECT and OUTPUT SELECT functions — will not be available.

Refer to: page 80.

SEND GROUP SELECT

```
MU SEND      CH 1
Group=1
```

Summary: Determines whether the current MULTI channel is assigned to output group 1 or 2. This function is only available if the ASSIGN MODE function (above) is set to *other than* "32/0."

Settings: Group: 1, 2

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel. Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired group.

Details: The two groups to which each channel can be assigned using this function can further be assigned to either the OUTPUT 1 or OUTPUT 2 stereo outputs using the OUTPUT SELECT function described on page 80. The ASSIGN MODE function, described above, determines how the polyphonic output of a MULTI PLAY setup is distributed to the two groups.
The parameter will appear as "*" on the display if the ASSIGN MODE parameter (above) is set to "32/0".

Refer to: page 80.

OUTPUT SELECT

```
MU OUTPUT SELECT
G1=out1 G2=out2
```

Summary: Determines to which of the TG33's two pairs of stereo outputs — OUTPUT 1 and OUTPUT 2 — the voices assigned to output group 1 and output group 2 (see SEND GROUP SELECT, page 79) will be sent.

Settings: Group 1 (G1): out1, out2
Group 2 (G2): out1, out2

Procedure: Use the CURSOR [▷] key to move the cursor to the G1 or G2 parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to assign the selected group to the desired output pair.

Details: The TG33's group assignment ability can be used in conjunction with the PAN function to assign individual voices to specific outputs for processing via an external mixing console or other equipment. Or you could simply feed separate stereo signals to two stereo sound systems. When making output assignments, keep in mind the fact that effects will only apply to OUTPUT 1.

Group 2 can only be assigned using this function if the ASSIGN MODE function, described next, is set to a value *other than* "32/0." If ASSIGN MODE is set to "32/0," the G2 parameter will appear as "***" on the display.

Refer to: page 79.

EFFECT (Type, Balance & G1/G2 Send Levels)

```
MU EFFECT
Type=Rev Hall  ÷
```

Summary: Selects one of sixteen digital effects, and sets the balance and group 1 and group 2 send levesl of the selected effect for the current MULTI channel.

Settings: Effect type:

Rev Hall	(Reverb Hall)
Rev Room	(Reverb Room)
Rev Plate	(Reverb Plate)
Rev Club	(Reverb Club)
Rev Metal	(Reverb Metal)
Delay 1	(Short Single Delay)
Delay 2	(Long Delay)
Delay 3	(Long Delay)
Doubler	(Doubler)
Ping-Pong	(Ping Pong Delay)
Pan Ref	(Panned Reflections)
Early Ref	(Early Reflections)
Gate Rev	(Gated Reverb)
Dly&Rev 1	(Delay & Reverb 1)
Dly&Rev 2	(Delay & Reverb 2)
Dist&Rev	(Distortion & Reverb)

Balance (Bal): 0 ... 127
Group 1 Send Level (G1): 0 ... 127
Group 2 Send Level (G2): 0 ... 127

Procedure: Press the [BANK/MULTI CHANNEL] key corresponding to the desired MULTI channel. Use the CURSOR [◁] and [▷] keys to place the underline cursor under the effect type, balance, or G1 or G2 send level parameter. Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired effect, balance, or send level.

Details: The balance parameter determines the balance between the "dry" sound of the voice and the effect sound. A setting of "0" produces only the voice with no effect, while the maximum setting of "127" produces only the effect sound.

The send level parameter determines the level of the signal sent via the effect processor to the corresponding output group. A setting of "0" means that the voice signal is not sent to the effect processor, while the maximum setting of "127" sends full effect level to the effect processor.

NOTE: *Some voice waveforms may exhibit a drop in level when distortion is applied. This is due to internal data overflow, and can be compensated for by reducing the effect send level or effect balance setting.*

Please note that effects *only* apply to OUTPUT1, so if a group is assigned to OUTPUT2 (out2) using the OUTPUT SELECT function, described above, its level send parameter will not be available and will be shown on the display as "***". The G2 send level parameter will also not be available if the ASSIGN MODE function described on page 79 is set to 32/0.

Refer to:

NAME

```
MU NAME
  I11   Quartet
```

Summary: Assigns a name of up to 8 characters to the current MULTI PLAY setup.

Settings: The following characters are available for use in multi-play names:

```
(Space) !"#$%&'( )*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMNOPQRSTUVWXYZ[ ¥ ]^_`
abcdefghijklmnopqrstuvwxyz{ | }→←
```

Procedure: Use the CURSOR [◁] and [▷] keys to place the underline cursor under the character to be changed. Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired character. Continue until the entire name has been programmed.

Details: It's a good idea to give your multi-play setups names that make them easily identifiable. If you've created a new setup using three voices intended for rock music, you could call it something like "RockTrio".

MULTI INITIALIZE

```
MU INIT MULTI
  Are you sure?
```

Summary: Initializes all parameters of the current MULTI PLAY setup.

Settings: None.

Procedure: When the "INIT MULTI" display is selected "Are you sure?" will appear on the lower line. Press the [+1/YES] to initialize. ">>Completed!!<<" will appear briefly when the initialization is finished.

Details: When multi-play Initialize is executed, the multi-play setup parameters are initialized to the following values:

TG33 MULTI INITIAL

MULTI NAME	Initial
ASSIGN MODE	32poly
OUTPUT SELECT G1	out1
(OUTPUT SELECT G2	out1)
EFFECT	Rev.Hall
Balance	64
Send 1	127
(Send 2	127)

	Channel 1 ...... Channel 16
VOICE NUMBER	P1 11
VOLUME	99
DETUNE	+0
NOTE SHIFT	+0
PAN	L--I--R
(SEND GROUP	1)

MULTI

SET UP	
MASTER TUNE	+0
TRANSPOSE	+0
CONTROLLER RESET	hold
MIDI	
VOICE RECEIVE CH	omni
VECTOR CHANNEL	1
PROG.CHANGE	on
EXCLUSIVE	off
DEVICE NUMBER	all

The multi initialize function is useful if you want to begin programming a setup "from scratch."

MULTI RECALL

```
MU RECALL MULTI
Are you sure?
```

Summary: Recalls the last MULTI PLAY setup edited from the TG33 edit buffer memory.

Settings: None

Procedure: When the "RECALL MULTI" function is selected "Are you sure?" appears on the lower display line. Press the [+1/YES] key to recall .
">>Completed!!<<" will appear briefly when the initialization is finished.

Details: Even if you've exited the edit mode and called a different MULTI PLAY setup, this function will recall the last setup edited with all parameters as they were at the time the edit mode was exited.

UTILITY SYSTEM

The UTILITY SYSTEM mode provides access to the TG33 MASTER TUNE, TRANS-POSE, and CONTROLLER RESET functions.

Selecting the **UTILITY SYSTEM** Mode

```
UTILITY              SYSTEM   MIDI    CARD
   ⬛        ⟹     ▓▓▓▓▓   [    ]  [    ]
                          ‾‾‾‾‾‾UTILITY‾‾‾‾‾‾
```

From another UTILITY mode simply press [UTILITY SYSTEM].

Selecting the **UTILITY SETUP** Mode Functions

The various UTILITY SETUP mode functions can be selected in sequence by pressing the [UTILITY SYSTEM] key, or by using the PAGE [◁] and [▷] keys.

MASTER TUNE

```
US MASTER TUNE
   + 0cent
```

Summary: Tunes the overall pitch of the TG33 over approximately a 100-cent range.

Settings: –50 ... +0 ... +50

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the desired degree of tuning.

Details: Tuning occurs in 3 or 4-cent steps. Since 100 cents equals one semitone, the overall tuning range is approximately one semitone — i.e. plus or minus a quarter tone. Plus settings tune upward from normal pitch, and minus settings tune downward. A setting of "+0" produces normal pitch.

TRANSPOSE

```
US TRANSPOSE
   + 0
```

Summary: Transposes the overall pitch of the TG33 up or down in semitone steps.

Settings: –12 ... +0 ... +12

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the desired degree of transposition.

Details: A setting of "–12," for example, transposes down by one octave; a setting of "+4" transposes up by a major third.

CONTROLLER RESET

```
US CONT RESET
   hold
```

Summary: Determines whether controller settings (modulation wheel, pitch bend, breath controller, foot controller, etc.) are held or reset when voices or multi-play setups are switched.

Settings: hold, reset

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the desired controller mode.

Details: If this function is set to "hold," then if, for example, you have applied modulation to a voice via the modulation wheel and switch to a new voice while maintaining the same modulation wheel position, then the same amount of modulation will be applied to the new voice. If "reset" is selected, than all controller values are reset when a new voice or multi-play setup is selected.

UTILITY MIDI

The UTILITY MIDI mode provides access to all of the TG33's MIDI control functions.

UTILITY MIDI

Selecting the UTILITY MIDI Mode

UTILITY

⇨ SYSTEM   MIDI   CARD
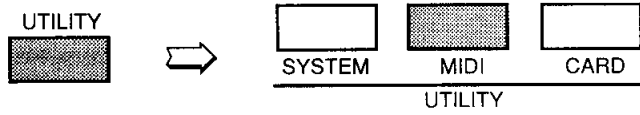
UTILITY

From another UTILITY mode simply press [UTILITY MIDI].

Selecting the UTILITY MIDI Mode Functions

The various UTILITY MIDI mode functions can be selected in sequence by pressing the [UTILITY MIDI] key, or by using the PAGE [◁] and [▷] keys.

VOICE RECEIVE CHANNEL

```
UM MIDI
  Receive Ch= 1
```

Summary: Sets the TG33 MIDI VOICE MODE receive channel to any channel between 1 and 16, or the "omni" mode for reception on all channels.

Settings: 1 ... 16, omni

Procedure: The [DATA ENTRY] control or [−1/NO] and [+1/YES] keys are used to select the desired MIDI channel or the omni mode.

Details: When the TG33 is operating in the VOICE PLAY mode and is to receive data from an external MIDI device such as a sequencer, make sure that the TG33 MIDI voice receive channel is either set to the channel that the external device is transmitting on, or the omni mode.

Refer to: page 12.

VECTOR CHANNEL

```
UM MIDI
  Vector Ch= 1
```

Summary: Sets the MIDI channel on which data relating to VECTOR CONTROL operation will be transmitted or received.

Settings: 1 ... 16.

Procedure: Use the [DATA ENTRY] control or [−1/NO] and [+1/YES] keys to select the desired MIDI transmit channel number.

Details: This function allows the TG33 VECTOR CONTROL to control other compatible devices such as a second TG33 or an SY22 synthesizer, or vice versa. Make sure that both the TG33 and external device VECTOR CHANNEL numbers are set to the same number. Further, if an external device is to control level or detune vectors, use the TG33 [VECTOR] button to turn the corresponding vector control function ON — LEVEL or DETUNE. When receiving LEVEL VECTOR information, internal dynamic detune vectors will still play automatically, and vice versa.

Refer to: page 12.

MIDI PROGRAM CHANGE

```
UM MIDI
  Prog Change=off
```

Summary: Determines how the TG33 will respond to MIDI program change messages for remote voice/multi selection.

Settings: off, on

Procedure: The [DATA ENTRY] control or [−1/NO] and [+1/YES] keys are used to select the desired MIDI program change mode.

Details: The "off" setting turns MIDI program change reception off, so MIDI program change messages received from external equipment will not cause the corresponding TG33 voice to be selected.

When MIDI PROGRAM CHANGE is turned "on," program change data received by the TG33 has the following effects in the VOICE PLAY, MULTI PLAY, and MULTI EDIT modes:

VOICE PLAY Program change numbers 0 through 63 received from external equipment will select TG33 voices 1.1 through 8.8 in the currently selected memory area. All other program change numbers will be ignored.

MULTI PLAY Program change numbers 0 through 63 received from external equipment will select TG33 voices 1.1 through 8.8 for the corresponding MIDI channel, and program change numbers 64 through 79 received on the VOICE RECEIVE CHANNEL select multi-play setups 1.1 through 2.8. The card, internal or preset voice banks cannot be selected via MIDI control.

MULTI EDIT Operation is basically the same as in the MULTI PLAY mode except that program change numbers 64 through 79 will be ignored

ALL MODES For more detailed technical information on Bank Select operation, refer to "2.2.2 Control Change" in the "MIDI DATA FORMAT" section, page 104.

Bank Data	Select Value	Mode & Memory
2*	0~63	VOICE PLAY/PRESET 1
0*	0~63	VOICE PLAY/INTERNAL
1*	0~63	VOICE PLAY/CARD 1
5*	0~63	VOICE PLAY/PRESET 2
4*	0~63	VOICE PLAY/CARD 2
16*	64~79	MULTI PLAY setup/INTERNAL
17*	64~79	MULTI PLAY setup/CARD 1
20*	64~79	MULTI PLAY setup/CARD 2
34**	0~63	MULTI PLAY voice/PRESET 1
32**	0~63	MULTI PLAY voice/INTERNAL (or CARD 1/2 if currently selected)
33**	0~63	MULTI PLAY voice/CARD 1 or 2 (or INTERNAL if currently selected)
37**	0~63	MULTI PLAY voice/PRESET 2

* Must be received on the VOICE RECEIVE CHANNEL.
** If 32, 33, 34, or 37 are received in the VOICE PLAY mode, they will be interpreted as 0, 1, 2, and 5, respectively.

If the above bank select data are immediately followed by a program change number (0 — 79), the corresponding voice or multi-play setup can be selected.

Bank select numbers *other than* 16, 17, and 20 can only be followed by program change numbers 0 through 63.

Bank select numbers 16, 17, and 20 can only be followed by program change numbers 64 through 79.

Refer to: page 12.

EXCLUSIVE ON/OFF & DEVICE NUMBER

```
UM MIDI BULK
off Device#=all
```

Summary: Turns transmission/reception of MIDI system exclusive data (including bulk data) on or off, and sets the DEVICE NUMBER for exclusive data transfer.

Settings: Exclusive ON/OFF: on, off.
Device #: 1 ... 16, all.

Procedure: When the underline cursor is under the left parameter, use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to turn exclusive data transmission/reception "on" or "off." Use the CURSOR [▷] key to move the underline cursor to the DEVICE # parameter, and use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to set the device number.

Details: MIDI system exclusive data is transmitted by the TG33 when one of the BULK TRANSMIT functions described below is used. The same type of data will also be automatically loaded into the TG33 memory when received from a second TG33 or other MIDI device, thus erasing previous data. This function can be turned "off" to prevent accidental erasure of the internal memory, or the memory of external equipment, do to mistaken exclusive data reception or transmission.

The device number makes it possible to limit the devices in a MIDI system between which exclusive can be exchanged. Exclusive data can only be received by the TG33 if it is set to the same device number as the transmitting device. If the device number is set to "all," exclusive data can be received from any transmitting device.

NOTE: The TG33 will recognize and receive "1 Voice" and "Voice & Multi" bulk data from a Yamaha SY22 Music Synthesizer. Since the SY22 do not have Effect Balance and Effect Send level parameters, however, these parameters are automatically set to their default values (Effect Balance = 64; Effect Level = 127) when SY22 voices are used with the TG33. When "Voice & Multi" data is received from an SY22, only the voice data will be recognized. The SY22 MULTI data will be ignored.

BULK TRANSMIT

```
UM MIDI BULK
Trans=Multi I12→
```

Summary: Initiates MIDI bulk transmission of the selected voice, multi-play, and/or system data.

Settings: Voice, Multi, 16mlt, 64vce, V & M, Sys, All.

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the data to be transmitted.

If you select "16mlt", "64vce", "V & M", "Sys", or "ALL", press the CURSOR [▷] key to move the cursor to the "Are you sure?" display. Press the [+1/YES] key to begin transmission, or the [–1/NO] key to cancel. "Now Transmitting" will appear on the display during transmission.

If you select "Voice", move the cursor to the media, bank, and number parameters at the right of the display and select the voice you wish to send before moving to the "Are you sure?" display and starting the transmission. Transmission procedure is the same as above.

If you select "Multi", move the cursor to the bank and number parameters at the right of the display and select the multi-play setup you wish to send before moving to the "Are you sure?" display and starting the transmission. Transmission procedure is the same as above.

Details: The data corresponding to the various data group settings provided by this function are as follows:

Voice	A single voice from I, P_1, or P_2.
Multi	A single multi-play setup from I only.
16mlt	All 16 multi-play setups.
64vce	All 64 internal voices.
V & M	All 64 internal voices and 16 multi-play setups.
Sys	Basic system setup data.
All	All data — 64 voices, 16 multi-play setups, and system data.

This function is useful for transferring voice, multi-play, and/or system data from one TG33 to another. If the MIDI OUT of the transmitting TG33 is connected to the MIDI IN of the receiving TG33 via a MIDI cable, the receiving unit will automatically receive and load the data as long as its EXCLUSIVE ON/OFF function is turned "on" and it is set to the same device number as the transmitting TG33. Another possibility is to transfer the data to a MIDI bulk data storage device for long-term storage.

UTILITY CARD

The UTILITY CARD mode provides access to all functions necessary for saving and loading memory card data.

UTILITY CARD

Selecting the UTILITY CARD Mode

UTILITY

$\Longrightarrow$

| SYSTEM | MIDI | CARD |

UTILITY

From another UTILITY mode simply press [UTILITY CARD].

Selecting the UTILITY CARD Mode Functions

The various UTILITY CARD mode functions can be selected in sequence by pressing the [UTILITY CARD] key, or by using the PAGE [◁] and [▷] keys.

SAVE TO CARD

```
UC CARD
  SAVE TO CARD?
```

Summary: Saves all voice, multi-play, and system data to a memory card.

Settings: None

Procedure: When this function is selected the "SAVE TO CARD?" display will appear. Press the [+/YES] key to start the save operation. "****SAVE NOW****" will appear on the display while the operation is in progress, and ">>Completed!!<<" will appear briefly when the save operation has finished.

Details: The SAVE operation can only be executed if the WRITE PROTECT switch of the MCD32 or MCD64 Memory Card loaded in into the card slot is turned "off."

When an MCD64 Memory Card is used, the bank to which the data is to be saved can be selected using the CARD BANK SELECT function described on page 96.

Exercise caution when saving data to a memory card — the previous card data will be erased and completely replaced by the saved data.

If an error is encountered, one of the following displays may appear:

Card not ready!	No card in card slot.
Card protected!	Card protect switch is ON.
Card not format!	Card not formatted for use with TG33.
Change card bat!	Card battery is low and must be replaced.

Refer to: page 13 ... 15, 33, 34.

LOAD DATA SELECT & LOAD FROM CARD

```
UC CARD
  LOAD=011          ⇡
```

Summary: Loads voice, voice & multi-play, system, or all data from a memory card into the TG33 internal memory.

Settings: All, Vce&Multi, System, SY22Voice.

Procedure: Use the [DATA ENTRY] control or [–1/NO] and [+1/YES] keys to select the data group to be loaded, then press the CURSOR [▷] key to move to the "LOAD FROM CARD?" display. Press the [+/YES] key to start the load operation, or the [–1/NO] key to cancel. "****LOAD NOW****" will appear on the display while the operation is in progress, and ">>Completed!!<<" will appear briefly when the load operation has finished.

Details: When an MCD64 Memory Card is used, the bank from which the data is to be loaded can be selected using the CARD BANK SELECT function described on page 96.

Exercise caution when loading data from a memory card — the corresponding internal TG33 data will be erased and completely replaced by the loaded data.

If an error is encountered, one of the following displays may appear:

Card not ready!	No card in card slot.
Card not format!	Card not formatted for use with TG33.

Refer to: page 13 ... 15, 33, 34.

NOTE: Voices from Yamaha SY22 Music Synthesizer voice cards can also be loaded into the TG33. Since the SY22 does not have Effect Balance and Effect Send level parameters, however, these parameters are automatically set to their default values (Effect Balance = 64; Effect Level = 127) when SY22 voices are used with the TG33.
The TG33 will load only voice data from an SY22 card. Other SY22 data (MULTI, etc.) will be ignored.

CARD FORMAT

```
UC CARD
  FORMAT ?
```

Summary: Formats an MCD32 memory card or the currently selected BANK of a MCD64 memory card so that it can be used by the TG33 to save and load voice and multi-play data.

Settings: None

Procedure: When this function is selected the "FORMAT ?" display will appear. Press the [+/YES] key to start the format operation. ">>Completed!!<<" will appear briefly when the format operation has finished.

Details: Formatting can only be carried out if the memory card WRITE PROTECT switch is turned OFF (refer to your MCD64 or MCD32 Memory Card instructions for details).
If an error is encountered, one of the following displays may appear:

Card not ready!	No card in card slot.
Card protected!	Card protect switch is ON.
Change Card Bank	32k card inserted and C2 is selected.

CARD BANK SELECT

```
UC CARD
  BANK      1
```

Summary: Selects bank 1 or bank 2 of a Yamaha MCD64 type memory card prior to formatting or load/save operations.

Settings: 1, 2

Procedure: Use the [DATA ENTRY] control or [-1/NO] and [+1/YES] keys to select the desired bank.

Details: MCD32 memory cards only have a single bank, so bank 2 settings are ignored if this type of card is used. MCD64 memory cards allow selection of bank 1 or 2. Each bank holds 64 voices and 16 multi-play setups.

ERROR MESSAGES

Things do go wrong from time to time, and people do make mistakes. When an error occurs, the TG33 will usually display a message that describes the type of error so you can easily take steps to rectify the problem. The following are quick summaries of the TG33 error displays.

Change int bat!

The internal memory backup battery voltage has dropped to an unsafe level. Have the backup battery replaced by *qualified Yamaha service personnel*.

Card not ready!

You have attempted to perform a data card operation (save, load, format, etc.) while no data card is present in the TG33 card slot.

Card protected!

You have attempted to perform an operation that writes to the data card (save or format) while the card protect switch is ON.

Card not format!

You have attempted to save or load using a card that has not been properly formatted for use with TG33.

Change Card Bank

You have attempted to save to, compare or format a 32k card while card bank 2 (C_2) is selected.

Change card bat!

The data card battery is low and must be replaced — refer to the operating instructions that came with your data card for details.

Verify error!

Unrecognizable data has been received by the TG33.

SPECIFICATIONS

Tone Generator Systems: AWM (Advanced Wave Memory) & FM (Frequency Modulation)

Internal Memory: Wave ROM; 128 preset AWM & 256 preset FM waveforms
Preset ROM; 128 preset voices
Internal RAM; 64 user voices & 16 user multi setups

External Memory: Voice & Multi data; MCD64 or MCD32 — write & read

Displays: 16-character × 2-line backlit LCD

Controls: MASTER VOLUME, VECTOR CONTROL

Keys & Switches: POWER ON/OFF; MODE VOICE, MULTI and UTILITY; EDIT/ COMPARE; STORE/COPY; VECTOR PLAY LEVEL/DETUNE; EF BYPASS ON/OFF; PAGE ◁ and ▷; CURSOR ◁ and ▷; –1/NO and +1/YES; MEMORY INTERNAL, CARD and PRESET; BANK/MULTI CHANNEL 1–16 (VOICE COMMON and VECTOR; ELEMENT TONE and EG; UTILITY SYSTEM, MIDI and CARD; ELEMENT SELECT A, B, C and D; ELEMENT ON/OFF A, B, C and D)

Connectors: DC 10V IN; PHONES; OUTPUT 1 (L/MONO,R) and OUTPUT 2 (L/MONO, R)

MIDI Connectors: IN, OUT, THRU

Power Requirement/Consumption: DC 10V, 700 mA

Dimensions (W × H × D): 439 × 80.4 × 229.9 mm

Weight: 2.8 kg

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MIDI DATA FORMAT

1. MIDI reception/transmission block diagram

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Vch .... Voice Receive ch.
PC .... Program Change on/off
VM .... Vector Mode off/level/detune
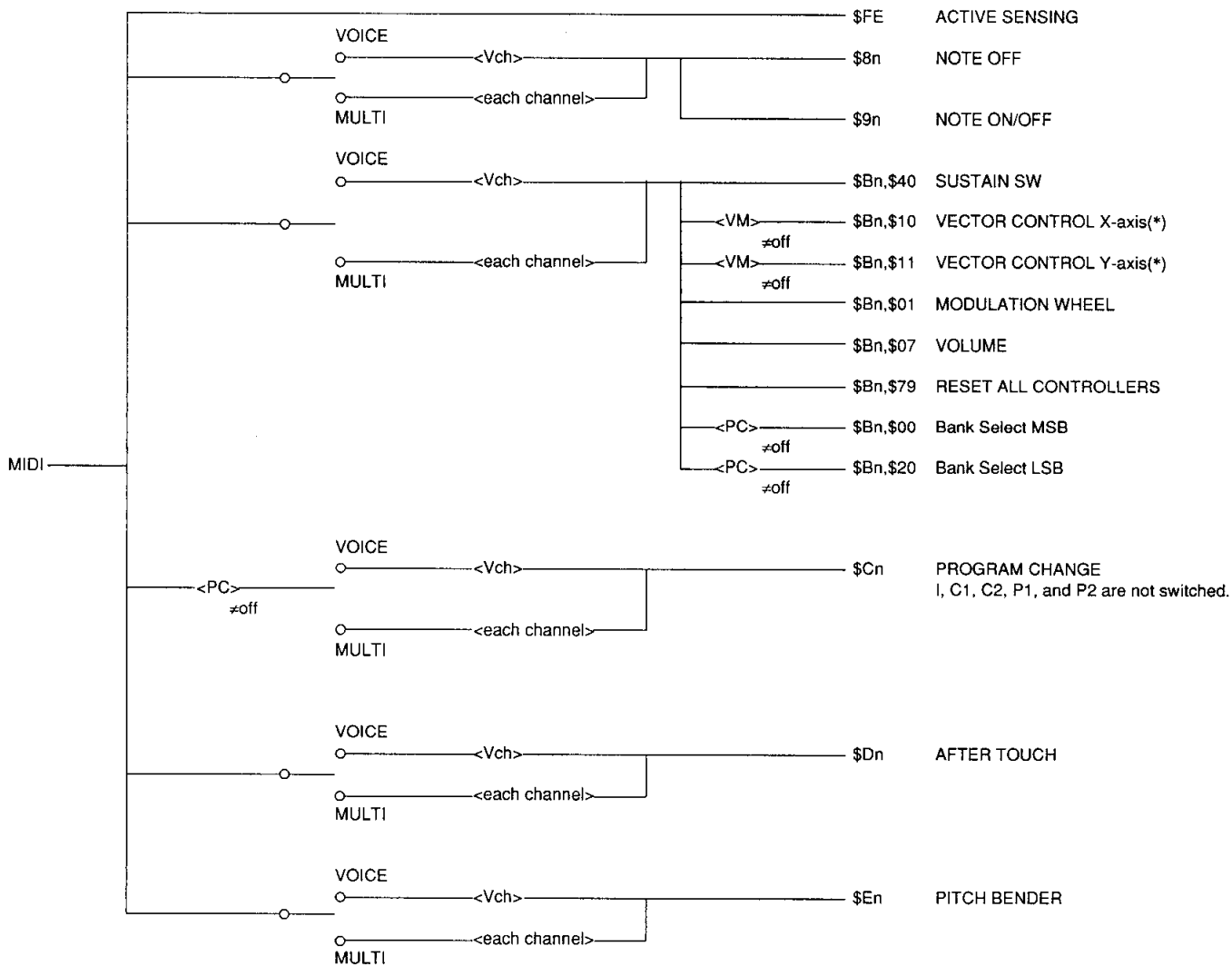
(*) In the case of MULTI, only the channel which matches the vector channel can be received.

<MIDI reception conditions> 2/2

```
MIDI ──┬──────────────────────────── $F0,$43,$1x,$26,$07      TG33 SW Remote
       │            ≠off
       └─<Exclusive>─┬───────────── $F0,$43,$10,$18,$5A,$00,$F7 test code
                     │
                     ├──┬──── $F0,$43,$0n,$7E        VOICE bulk
                     │  │     (LM_ _0012VC)           (VMEM)
                     │  ├──── $F0, $43,$0n,$7E       VOICE bulk(**)
                     │  │     (PK_ _2203VM)           (VMEM)
                     │  ├──── $F0,$43,$0n,$7E        MULTI bulk
                     │  │     (LM_ _0012MU)           (MMEM)
                     │  ├──── $F0,$43,$0n,$7E        System bulk
                     │  │     (LM_ _0012SY)
                     │  ├──── $F0,$43,$0n,$7E        1 VOICE bulk
                     │  │     (LM_ _0012VE)
                     │  ├──── $F0,$43,$0n,$7E        1 VOICE bulk (***)
                     │  │     (PK_ _2203AE)
                     │  └──── $F0,$43,$0n,$7E        1 MULTI bulk
                     │        (LM_ _0012ME)
                     │
                     ├──┬──── $F0,$43,$1n,$26,$00    Parameter change
                     │  │                             (VOICE common data)
                     │  ├──── $F0,$43,$1n,$26,$01    Parameter change
                     │  │                             (VOICE vector data)
                     │  ├──── $F0,$43,$1n,$26,$02    Parameter change
                     │  │                             (VOICE element tone data)
                     │  ├──── $F0,$43,$1n,$26,$03    Parameter change
                     │  │                             (VOICE element eg data)
                     │  ├──── $F0,$43,$1n,$26,$04    Parameter change
                     │  │                             (MULTI data)
                     │  ├──── $F0,$43,$1n,$26,$05    Parameter change
                     │  │                             (System data)
                     │  ├──── $F0,$43,$1n,$26,$06    Parameter change
                     │  │                             (System MIDI data)
                     │  └──── $F0,$43,$1n,$26,$08    Parameter change
                     │                                (Vector mode)
                     │
                     └──┬──── $F0,$43,$2n,$7E        VOICE bulk dump request
                        │     (LM_ _0012VC)
                        ├──── $F0,$43,$2n,$7E        MULTI bulk dump request
                        │     (LM_ _0012MU)
                        ├──── $F0,$43,$2n,$7E        System bulk dump request
                        │     (LM_ _0012SY)
                        ├──── $F0,$43,$2n,$7E        1 VOICE bulk dump request
                        │     (LM_ _0012VE)
                        └──── $F0,$43,$2n,$7E        1 MULTI bulk dump request
                              (LM_ _0012ME)
```

Exclusive = Exclusive on/off
VMEM   = Voice memory
MMEM   = Multi memory

(**)   Only 64 voice data of SY22 is expanded into the TG33 format and is received.
(***) Only 1 voice data of SY22 is expanded into the TG33 format and is received.

<MIDI transmission conditions>

```
VECTOR CONTROL X-axis $Bn,$10 ──────────┐
                                        │
VECTOR CONTROL Y-axis $Bn,$11 ──────────┤
                                        └──<Tch>──────────► MIDI
                                            vector ch
Voice bulk  ──────┐
                  │        <Exclusive>
Multi bulk  ──────┤         ≠off
                  │
1 Voice bulk ─────┤
                  │
1 Multi bulk ─────┤
                  │
System bulk ──────┘
```
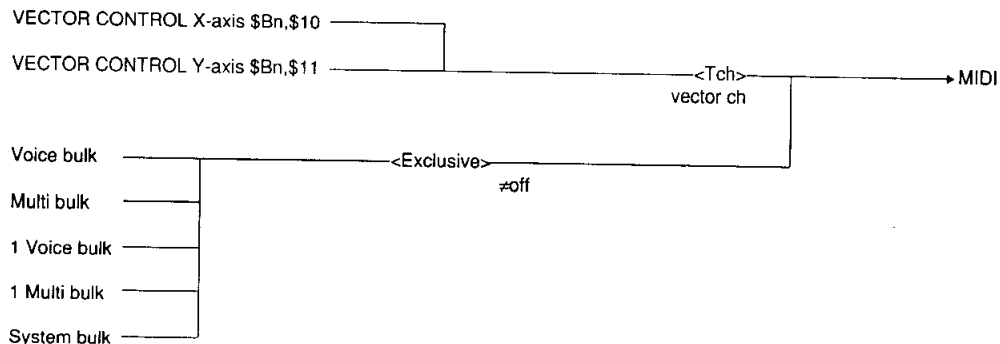
MIDI DATA FORMAT

2. Channel messages

2.1 Transmission

2.1.1 Control change

Data is output to the MIDI port when you operate the following controller.

cntrl#	parameter	data rng
16	Vector control X-axis	0~127
17	Vector control Y-axis	0~127

2.2 Reception

2.2.1 Note on/off

Reception note range = C2~G8
Velocity range = 1~127 (Only note on can be received for velocity.)

2.2.2 Control change

The following parameters can be controlled via MIDI.

cntrl#	parameter	data rng	
0	Bank Select MSB	0...127	#
1	Modulation Wheel	0...127	
7	Volume	0...127	
16	Vector Control X-axis	0...127	
17	Vector Control Y-axis	0...127	
32	Bank Select LSB	0...127	#
64	Sustain Switch	0...127	
121	Reset All Controllers	0	

\# The following Bank Select Data can be used for changing mode and the mode and voice are changed when receiving the succeeding program changes 00~79.

bank select data value	HEX 14bit	
* #2	(0x0002)	Voice Mode PRESET1
* #0	(0x0000)	Voice Mode INTERNAL
* #1	(0x0001)	Voice Mode CARD1
* #5	(0x0005)	Voice Mode PRESET2
* #4	(0x0004)	Voice Mode CARD2
* #16	(0x0010)	Multi Mode Multi INTERNAL
* #17	(0x0011)	Multi Mode Multi CARD1
* #20	(0x0014)	Multi Mode Multi CARD2
#34	(0x0022)	Multi Mode Voice PRESET1
#32	(0x0020)	Multi Mode Voice INTERNAL or CARD1 (CARD2) (the one selected by MULTI currently)
#33	(0x0021)	Multi Mode Voice CARD1 (CARD2) or INTERNAL (the one selected by MULTI currently)
#37	(0x0025)	Multi Mode Voice PRESET2

However, when the receiving device is in Voice mode, #32~#34, #37 will be interpreted as

#32 → #0
#33 → #1
#34 → #2
#37 → #5

and will be received while remaining in Voice mode.

When 0~79 are received as the Program Change Data immediately after the Bank Select Data is received, the Mode, Voice, and Multi are switched according to the above table.
However, when the Bank Select Data is those other than 16, 17, and 20, the succeeding Program Change Data must be equal to 0~63.
In the similar manner, when the Bank Select Data is 16, 17, and 20, the succeeding Program Change Data must be equal to 64~79.
Those marked by an asterisk mark (*) are valid only when data is received through the Voice Receive Channel.

2.2.3 Program change

When a program change is received, this unit operates as follows. The Utility System allows the following two types of reception modes.

1) off: No program changes are received.
2) on

[Voice Play Mode]
When the Program Change Data 0~63 are received, the Media selection stays as it is, thus switching only the voice numbers 11~88.
The Program Change Data 64~127 are ignored.
Only the Program Change Data received through the voice Receive Channel is valid.

[Multi Play Mode]
When the Program Change Data 0~63 are received, the Media of Voice corresponding to that Channel stays as it is, thus switching to the Voice 11~88.
When the Program Change Data 64~79 is received through the Voice Receive Channel, the Media selection stays as it is, thus switching to the Multi 11~28.
The Program Change Data 80~127 are ignored.

[Multi Edit Mode]
It is the same as in the case of the Multi Play Mode. However, the Program Change Data 64~79 are ignored.

[Cautions]
● In the case of the Voice Edit Mode, even if the Voice program change and multi program change are received, they are ignored.
● In the case of the Multi Edit Mode, when the Voice (mode) program change and multi program change are received, they are ignored.
● When data is received in Utility Mode, Voice Play or Multi Play mode is selected, thus receiving data.
● No data is received during Vector recording, Compare, Card load/save execution, and Bulk transmit execution.

2.2.4 Pitch bend

Reception of pitch bend is operated at the MSB side only.

2.2.5 After touch

2.2.6 Channel mode message

No data is received.

3. System exclusive message

3.1 Parameter change

This unit receives the following 9 types of parameter changes. Also, when 8). Remote Switch is received, the corresponding display will appear just as if the switch had actually be pressed.

1) Voice Common Data parameter change
2) Voice Vector Data parameter change
3) Voice Element Tone Data parameter change
4) Voice Element Envelope Data parameter change
5) Multi Data parameter change
6) System Data parameter change
7) System MIDI Data parameter change
8) Switch Remote parameter change
9) Vector Mode parameter change

Reception of parameter change cannot be turned off by each MIDI switch other than Exclusive = off.

8) The Switch Remote parameter change can be received even if the exclusive is off.

[Cautions]

● No data is received during Vector recording, Compare, Card load/save execution, and Bulk transmit execution.

3.1.1 Voice Common Data parameter change

```
11110000   F0
01000011   43
0001nnnn   nnnn    - Device Number
00100110   26
00000000   00
0aaaaaaa   aaaaaaa = ST of appended table 1-1
00000000   00
0ccccccc   ccccccc - (MSB7bits) F1 of appended table 1-1
0ccccccc   ccccccc - (LSB7bits) F2 of appended table 1-1
0000000d   d        - (MSB) B1 of appended table 1-1
0ddddddd   ddddddd - (LSB7bits) B2 of appended table 1-1
0000000v   v        - Data Value (MSB)
0vvvvvvv   vvvvvvv - Data Value (LSB7bits)
11110111   F7
```

This message is used to change the Voice Common Data for each parameter.
When this message is received, the following automatically results.

Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

3.1.2 Voice Vector Data parameter change

```
11110000   F0
01000011   43
0001nnnn   nnnn    - Device Number
00100110   26
00000001   01
0aaaaaaa   aaaaaaa - ST of appended table 1-2
00000000   00
0ccccccc   ccccccc - (MSB7bits) F1 of appended table 1-2
0ccccccc   ccccccc - (LSB7bits) F2 of appended table 1-2
0000000d   d        - (MSB) B1 of appended table 1-2
0ddddddd   ddddddd - (LSB7bits) B2 of appended table 1-2
0000000v   v        - Data Value (MSB)
0vvvvvvv   vvvvvvv - Data Value (LSB7bits)
11110111   F7
```

This message is used to change the Voice Common Data for each parameter.

When this message is received, the following results automatically.

Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

3.1.3 Voice Element Tone Data parameter change

```
11110000   F0
01000011   43
0001nnnn   nnnn    = Device Number
00100110   26
00000010   02
0aaaaaaa   aaaaaaa - ST of appended table 1-3
000000bb   bb       - Element Number
0ccccccc   ccccccc - (MSB7bits) F1 of appended table 1-3
0ccccccc   ccccccc - (LSB7bits) F2 of appended table 1-3
0000000d   d        - (MSB) B1 of appended table 1-3
0ddddddd   ddddddd - (LSB7bits) B2 of appended table 1-3
0000000v   v        - Data Value (MSB)
0vvvvvvv   vvvvvvv - Data Value (LSB7bits)
11110111   F7
```

This message is used to change the Voice Element Tone Data for each parameter.
When this message is received, the following results automatically.

Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
Multi Play Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

[Cautions]

When the element C data is received in the A-B (2 element) mode, only the screen changes to the element A. When the element D data is received, only the screen changes to the element B.
If there is no parameter agreeing with the corresponding element, it is ignored.

3.1.4 Voice Element Envelope Data parameter change

```
11110000   F0
01000011   43
0001nnnn   nnnn    - Device Number
00100110   26
00000011   03
0aaaaaaa   aaaaaaa = ST of appended table 1-4
000000bb   bb       - Element Number
0ccccccc   ccccccc - (MSB7bits) F1 of appended table 1-4
0ccccccc   ccccccc - (LSB7bits) F2 of appended table 1-4
0000000d   d        - (MSB) B1 of appended table 1-4
0ddddddd   ddddddd - (LSB7bits) B2 of appended table 1-4
0000000v   v        - Data Value (MSB)
0vvvvvvv   vvvvvvv - Data Value (LSB7bits)
11110111   F7
```

This message is used to change the Voice Element Envelope Data for each parameter.
When this message is received, the following results automatically.

MIDI DATA FORMAT

Voice Play Mode : Shifts to Voice Edit Mode and receives data (Screen shift).
Voice Edit Mode : The Mode stays as it is, receiving data (Screen shift).
Multi Play Mode : **Shifts to the Voice Edit Mode and receives data (Screen shift).**
Multi Edit Mode : Shifts to the Voice Edit Mode and receives data (Screen shift).
Utility Mode : Shifts to the Voice Edit mode and receives data (Screen shift).

[Cautions]
When the element C data is received in the A-B (2 element) mode, only the screen changes to the element A. When the element D data is received, only the screen changes to the element B.

3.1.5 Multi Data parameter change

```
11110000  F0
01000011  43
0001nnnn  nnnn    - Device Number
00100110  26
00000100  04
0aaaaaaa  aaaaaaa - ST of appended table 1-5
0000bbbb  bbbb    - Channel Number
0ccccccc  ccccccc - (MSB7bits) F1 of appended table 1-5
0ccccccc  ccccccc - (LSB7bits) F2 of appended table 1-5
0000000d  d       - (MSB) B1 of appended table 1-5
0ddddddd  ddddddd - (LSB7bits) B2 of appended table 1-5
0000000v  v       - Data Value (MSB)
0vvvvvvv  vvvvvvv - Data Value (LSB7bits)
11110111  F7
```

This message is used to change the Multi Data for each parameter.
When this message is received, the following results automatically.

Voice Play Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
Voice Edit Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
Multi Play Mode : Shifts to Multi Edit Mode and receives data (Screen shift).
Multi Edit Mode : The Mode stays as it is, receiving data (Screen shift).
Utility Mode : Shifts to the Multi Edit Mode and receives data (Screen shift).

[Cautions]
The Channel Number is ignored if not the parameter for each channel.

3.1.6 System Data parameter change

```
11110000  F0
01000011  43
0001nnnn  nnnn    - Device Number
00100110  26
00000101  05
0aaaaaaa  aaaaaaa - ST of appended table 1-6
00000000  00
0ccccccc  ccccccc - (MSB7bits) F1 of appended table 1-6
0ccccccc  ccccccc - (LSB7bits) F2 of appended table 1-6
0000000d  d       - (MSB) B1 of appended table 1-6
0ddddddd  ddddddd - (LSB7bits) B2 of appended table 1-6
0000000v  v       - Data Value (MSB)
0vvvvvvv  vvvvvvv - Data Value (LSB7bits)
11110111  F7
```

This message is used to change the System Data for each parameter.
When this message is received, the following results automatically.

Voice Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
Voice Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
Multi Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
Multi Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
Utility Mode : The Mode stays as it is, receiving data (Screen shift).

3.1.7 System MIDI Data parameter change

```
11110000  F0
01000011  43
0001nnnn  nnnn    - Device Number
00100110  26
00000110  06
0aaaaaaa  aaaaaaa - ST of appended table 1-7
00000000  00
0ccccccc  ccccccc - (MSB7bits) F1 of appended table 1-7
0ccccccc  ccccccc - (LSB7bits) F2 of appended table 1-7
0000000d  d       - (MSB) B1 of appended table 1-7
0ddddddd  ddddddd - (LSB7bits) B2 of appended table 1-7
0000000v  v       - Data Value (MSB)
0vvvvvvv  vvvvvvv - Data Value (LSB7bits)
11110111  F7
```

This message is used to change the System MIDI Data for each parameter.
When this message is received, the following results automatically.

Voice Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
Voice Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
Multi Play Mode : Shifts to Utility System Mode and receives data (Screen shift).
Multi Edit Mode : Shifts to Utility System Mode and receives data (Screen shift).
Utility Mode : The Mode stays as it is, receiving data (Screen shift).

3.1.8 Switch Remote parameter change

```
11110000  F0
01000011  43
0001xxxx  xxxx    - don't care
00100110  26
00000111  07
0sssssss  sssssss - CD of appended table 1-8
11110111  F7
```

All panel switches can be remotely controlled. This message has the same effect as pressing the corresponding switch.

3.1.9 Vector Mode parameter change

```
11110000  F0
01000011  43
0001nnnn  nnnn    - Device Number
00100110  26
00001000  08
000000ss  ss=0:OFF, 1:LEVEL, 2:DETUNE
11110111  F7
```

Switches the Vector Mode to OFF (=Auto), LEVEL, or DETUNE. However, no data is received in the case of the VOICE VECTOR EDIT, COMPARE VOICE, COMPARE MULTI, and DEMO.

4. Bulk dump

Reception is enabled in cases other than Vector recording, Comparing, Card load/save execution, and Bulk transmit execution. Transmission is executed when the "Bulk Transmit" of UTILITY MIDI is executed or Dump Request is received.

4.1 Voice data bulk dump

4.1.1 64 voice data

```
11110000  F0
01000011  43
0000nnnn  nnnn     - Device Number
01111110  7E
0bbbbbbb  BYTE count(MSB)
0bbbbbbb  BYTE count(LSB)
01001100  4C(ascii"L")──────────┐
01001101  4D(ascii"M")          │  Byte count shows
00100000  20(ascii" ")          │  this area.
00100000  20(ascii" ")          │
00110000  30(ascii"0")          │
00110000  30(ascii"0")          │
00110001  31(ascii"1")          │  Check sum is 2's
00110010  32(ascii"2")          │  compliment 7bits
01010110  56(ascii"V")          │  sum of their
01000011  43(ascii"C")          │  data bytes.
0ddddddd  ddddddd─┐ VOICE DATA   │
   ↓         ↓    │ (Appended table 2) │
0ddddddd  ddddddd─┘ (00~03)──────┘
0sssssss  sssssss CHECK SUM
────────100 msec WAIT────────────────────────────
0bbbbbbb  BYTE count(MSB)
0bbbbbbb  BYTE count(LSB)
0ddddddd  ddddddd─┐ VOICE DATA
   ↓         ↓    │ (Appended table 2)
0ddddddd  ddddddd─┘ (04~C7)
0sssssss  sssssss CHECK SUM
────────100 msec WAIT────────────────────────────
```

As shown in the above, voice data is divided (four voices in a set) and transmitted. Always keep 100 msec or more between transmission.

```
   ↓         ↓
11110111  F7
```

♦ Reception data is written into the Internal Voice Memory (VMEM).

♦ See Appended table 2 for details on each bulk dump data and dump request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.1.2 1 voice data

```
11110000  F0
01000011  43
0000nnnn  nnnn     - Device Number
01111110  7E
0bbbbbbb  BYTE count(MSB)
0bbbbbbb  BYTE count(LSB)
01001100  4C(ascii"L")──────────┐
01001101  4D(ascii"M")          │  Byte count
00100000  20(ascii" ")          │  shows this area.
00100000  20(ascii" ")          │
00110000  30(ascii"0")          │
00110000  30(ascii"0")          │
00110001  31(ascii"1")          │  Check sum is
00110010  32(ascii"2")          │  2's compliment
01010110  56(ascii"V")          │  7bits sum of
01000101  45(ascii"E")          │  their data bytes.
0ddddddd  ddddddd─┐ VOICE DATA   │
   ↓         ↓    │ (Appended table 2)┘
0ddddddd  ddddddd─┘
0sssssss  sssssss CHECK SUM
11110111  F7
```

♦ Reception data is written into Voice Edit Buffer (VCED) and is handled as being edited.

♦ See Appended table 2 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.1.3 SY22 64 voice data

Only 64 voice data out of the SY22 ALL V/M BULK DUMP are expanded into the TG33 format and received. The 16 MULTI Data is ignored. See the SY22 reference for details on data format.

♦ The reception data is written into the Internal Voice Memory (VMEM).

4.1.4 SY22 1 voice data

The SY22 1 VOICE BULK DUMP is expanded into the TG33 format and is received. See the SY22 reference for details on data format.

♦ The reception data is written into the Voice Edit Buffer (VCED) and is handled as being edited.

4.2 Multi data bulk dump

4.2.1 16 multi data

```
11110000  F0
01000011  43
0000nnnn  nnnn     = Device Number
01111110  7E
0bbbbbbb  BYTE count(MSB)
0bbbbbbb  BYTE count(LSB)
01001100  4C(ascii"L")──────────┐
01001101  4D(ascii"M")          │  Byte count shows
00100000  20(ascii" ")          │  this area.
00100000  20(ascii" ")          │
00110000  30(ascii"0")          │
00110000  30(ascii"0")          │
00110001  31(ascii"1")          │  Check sum is
00110010  32(ascii"2")          │  2's compliment
01001101  4D(ascii"M")          │  7bits sum of
01010101  55(ascii"U")          │  their data bytes.
0ddddddd  ddddddd─┐ MULTI DATA   │
   ↓         ↓    │ (Appended table 3)│
0ddddddd  ddddddd─┘ (00~15)──────┘
0sssssss  sssssss CHECK SUM
11110111  F7
```

♦ The reception data is written into the Internal Multi Memory (MMEM).

♦ See Appended table 3 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

4.2.2 1 multi data

```
11110000  F0
01000011  43
0000nnnn  nnnn     - Device Number
01111110  7E
0bbbbbbb  BYTE count(MSB)
0bbbbbbb  BYTE count(LSB)
01001100  4C(ascii"L")──────────┐
01001101  4D(ascii"M")          │  Byte count shows
00100000  20(ascii" ")          │  this area.
00100000  20(ascii" ")          │
00110000  30(ascii"0")          │
00110000  30(ascii"0")          │
00110001  31(ascii"1")          │  Check sum is
00110010  32(ascii"2")          │  2's compliment
01001101  4D(ascii"M")          │  7bits sum of
01000101  45(ascii"E")          │  their data bytes.
0ddddddd  ddddddd─┐ MULTI DATA   │
   ↓         ↓    │ (Appended table 3)┘
0ddddddd  ddddddd─┘
0sssssss  sssssss CHECK SUM
11110111  F7
```

♦ The reception data is written into the Multi Edit Buffer (MCED) and is handled as being edited.

♦ See Appended table 3 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

MIDI DATA FORMAT

4.3 System data bulk dump

```
11110000   FO
01000011   43
0000nnnn   nnnn - Device Number
01111110   7E
0bbbbbbb   BYTE count(MSB)
0bbbbbbb   BYTE count(LSB)
01001100   4C(ascii"L")
01001101   4D(ascii"M")
00100000   20(ascii" ")
00100000   20(ascii" ")
00110000   30(ascii"0")
00110000   30(ascii"0")
00110001   31(ascii"1")
00110010   32(ascii"2")
01010011   53(ascii"S")
01011001   59(ascii"Y")
0ddddddd   ddddddd    SYSTEM DATA
   ↓          ↓      (Appended table 4)
0ddddddd   ddddddd
0sssssss   sssssss CHECK SUM
11110111   F7
```

Byte count shows
this area.

Check sum is
2's compliment
7bits sum of
their data bytes.

♦ See Appended table 4 for details on each bulk data and bulk request format. The MIDI data format is different from that on the actual memory since the data size is equal to 7 bits.

5. Status FE (Active Sensing)

a) Transmission
   No transmission

b) Reception
   If no signal arrives through MIDI port for approximately 300 msec or more after receiving the FE once, the MIDI reception buffer is cleared and the remaining key-on data is keyed off.

<Table 1-1>

MIDI Parameter Change table (Voice Common)

$F0, $43, $1n, $26, $00, $ST, $00, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
   V1 ; MSB of parameter value
   V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$00	$01	$7E	CONFIGURATION	$00:A-B, $01:A-B-C-D
1	$01	$00	$01	$01	$7F	EFFECT TYPE	0:Rev Hall
							1:Rev Room
							2:Rev Plate
							3:Rev Club
							4:Rev Metal
							5:Delay 1
							6:Delay 2
							7:Delay 3
							8:Doubler
							9:Ping_Pong
							10:Pan Ref
							11:Early Ref
							12:Gate Rev
							13:Dly&Rev 1
							14:Dly&Rev 2
							15:Dist&Rev
2	$02	$00	$02	$01	$7F	EFFECT BALANCE	0~127
3	$02	$00	$06	$01	$7F	EFFECT SEND LEVEL	0~127
4	$09	$00	$0C	$01	$7F	VOICE NAME 1	32~127 (ASCII)
5	$09	$00	$0D	$01	$7F	VOICE NAME 2	32~127 (ASCII)
6	$09	$00	$0E	$01	$7F	VOICE NAME 3	32~127 (ASCII)
7	$09	$00	$0F	$01	$7F	VOICE NAME 4	32~127 (ASCII)
8	$09	$00	$10	$01	$7F	VOICE NAME 5	32~127 (ASCII)
9	$09	$00	$11	$01	$7F	VOICE NAME 6	32~127 (ASCII)
10	$09	$00	$12	$01	$7F	VOICE NAME 7	32~127 (ASCII)
11	$09	$00	$13	$01	$7F	VOICE NAME 8	32~127 (ASCII)
12	$03	$00	$14	$01	$7F	PITCH BEND RANGE	0~12
13	$06	$00	$15	$01	$3F	AFTER TOUCH LEVEL	$00:off, $40:on
14	$05	$00	$15	$01	$5F	AFTER TOUCH PM	$00:off, $20:on
15	$05	$00	$15	$01	$6F	AFTER TOUCH AM	$00:off, $10:on
16	$04	$00	$15	$01	$7D	MODULATION WHEEL PM	$00:off, $02:on
17	$04	$00	$15	$01	$7E	MODULATION WHEEL AM	$00:off, $01:on
18	$06	$00	$16	$01	$7F	PITCH BIAS	−12~+12 (2's comp)
19	$01	$00	$17	$01	$7F	EG DELAY RATE	0:0~127:99
20	$07	$00	$18	$01	$7F	EG ATTACK RATE	$C1:−99~$00:0 −99~$3F:+99
21	$07	$00	$19	$01	$7F	EG RELEASE RATE	$C1:−99~$00:0 −99~$3F:+99

[Cautions]
The Element EG Delay Rate screen appears when the EG DELAY RATE is received.

MIDI DATA FORMAT

<Table 1-2>

MIDI Parameter Change table (Voice Vector)

$F0, $43, $1n, $26, $01, $ST, $00, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
V1 ; MSB of parameter value
V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$00	$01	$7F	LEVEL SPEED	0:160msec 1:10msec : 15:150msec
1	$03	$00	$01	$01	$7F	DETUNE SPEED	0:160msec 1:10msec : 15:150msec
2	$02	$00	$02	$01	$7F	LEVEL TIME 1	0~253, 255:End
3	$02	$00	$03	$01	$7F	LEVEL X-AXIS 1	0:-31~31:+0~62:+31
4	$02	$00	$04	$01	$7F	LEVEL Y-AXIS 1	0:-31~31:+0~62:+31
:	:		:		:	:	:
:	:		:		:	:	:
128	$02	$01	$00	$01	$7F	LEVEL TIME 43	0~253, 254:Repeat, 255:End
129	$02	$01	$01	$01	$7F	LEVEL X-AXIS 43	0:-31~31:+0~62:+31
130	$02	$01	$02	$01	$7F	LEVEL Y-AXIS 43	0:-31~31:+0~62:+31
:	:		:		:	:	:
:	:		:		:	:	:
149	$02	$01	$15	$01	$7F	LEVEL TIME 50	0~253, 254:Repeat, 255:End
150	$02	$01	$16	$01	$7F	LEVEL X-AXIS 50	0:-31~31:+0~62:+31
151	$02	$01	$17	$01	$7F	LEVEL Y-AXIS 50	0:-31~31:+0~62:+31
152	$05	$01	$18	$01	$7F	DETUNE TIME 1	0~253, 255:End
153	$05	$01	$19	$01	$7F	DETUNE X-AXIS 1	0:-31~31:+0~62:+31
154	$05	$01	$1A	$01	$7F	DETUNE Y-AXIS 1	0:-31~31:+0~62:+31
:	:		:		:	:	:
:	:		:		:	:	:
254	$02	$01	$7E	$01	$7F	LEVEL TIME 35	0~253, 254:Repeat, 255:End
255	$02	$01	$7F	$01	$7F	LEVEL X-AXIS 35	0:-31~31:+0~62:+31
256	$02	$02	$00	$01	$7F	LEVEL Y-AXIS 35	0:-31~31:+0~62:+31
:	:		:		:	:	:
:	:		:		:	:	:
299	$05	$02	$2B	$01	$7F	DETUNE TIME 50	0~253, 254:Repeat, 255:End
300	$05	$02	$2C	$01	$7F	DETUNE X-AXIS 50	0:-31~31:+0~62:+31
301	$05	$02	$2D	$01	$7F	DETUNE Y-AXIS 50	0:-31~31:+0~62:+31

<Table 1-3>

MIDI Parameter Change table (Voice Element Tone)

$F0, $43, $1n, $26, $02, $ST, $0b, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
　　　b ; element number 0:Element A, 1:Element B, 2:Element C, 3:Element D
　　　V1 ; MSB of parameter value
　　　V2 ; LSB 7bits of parameter value

(1) Element A or C

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$00	$01	$7F	WAVE TYPE	0~127
1	$01	$00	$01	$01	$7F	FREQUENCY SHIFT	−12~+12 (2's comp)
2	$05	$00	$02	$01	$0F	AFTER TOUCH SENSITIVITY	$50:−3
							$60:−2
							$70:−1
							$00:+0
							$10:+1
							$20:+2
							$30:+3
3	$04	$00	$02	$01	$70	VELOCITY SENSITIVITY	$06:−5
							$07:−4
							$08:−3
							$09:−2
							$0A:−1
							$00:+0
							$01:+1
							$02:+2
							$03:+3
							$04:+4
							$05:+5
4	$07	$00	$03	$00	$1F	LFO TYPE	$00:saw down
							$20:triangle
							$40:square
							$60:sample & hold
							$80:saw up
5	$09	$00	$03	$01	$60	LFO SPEED	$00~$1F
6	$08	$00	$04	$01	$7F	LFO DELAY	0:0~127:99
7	$08	$00	$05	$01	$7F	LFO RATE	127:0~0:99
8	$07	$00	$06	$01	$70	LFO AM	$00~$0F
9	$07	$00	$07	$01	$60	LFO PM	$00~$1F
10	$03	$00	$08	$01	$78	PAN	$00:left
							$01:left center
							$02:center
							$03:right center
							$04:right
11	$02	$00	$09	$01	$7F	VOLUME	127:0~0:99

MIDI DATA FORMAT

(2) Element B or D

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$16	$01	$7F	WAVE TYPE	0~255
1	$01	$00	$17	$01	$7F	FREQUENCY SHIFT	−12~+12 (2's comp)
2	$05	$00	$18	$01	$0F	AFTER TOUCH SENSITIVITY	$50:−3
							$60:−2
							$70:−1
							$00:+0
							$10:+1
							$20:+2
							$30:+3
3	$04	$00	$18	$01	$70	VELOCITY SENSITIVITY	$06:−5
							$07:−4
							$08:−3
							$09:−2
							$0A:−1
							$00:+0
							$01:+1
							$02:+2
							$03:+3
							$04:+4
							$05:+5
4	$07	$00	$19	$00	$1F	LFO TYPE	$00:saw down
							$20:triangle
							$40:square
							$60:sample & hold
							$80:saw up
5	$09	$00	$19	$01	$60	LFO SPEED	$00~$1F
6	$08	$00	$1A	$01	$7F	LFO DELAY	0:0~127:99
7	$08	$00	$1B	$01	$7F	LFO RATE	127:0~0:99
8	$07	$00	$1C	$01	$70	LFO AM	$00~$0F
9	$07	$00	$1D	$01	$60	LFO PM	$00~$1F
10	$03	$00	$1E	$01	$78	PAN	$00:left
							$01:left center
							$02:center
							$03:right center
							$04:right
11	$06	$00	$1F	$01	$78	FEED BACK	$00~$07
12	$06	$00	$21	$01	$7F	TONE LEVEL	127:0~0:99
13	$02	$00	$2D	$01	$7F	VOLUME	127:0~0:99

<Table 1-4>

MIDI Parameter Change table (Voice Element Envelope)

$F0, $43, $1n, $26, $03, $ST, $0b, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
      b ; element number 0:Element A, 1:Element B, 2:Element C, 3:Element D
      V1 ; MSB of parameter value
      V2 ; LSB 7bits of parameter value

(1) Element A or C

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$08	$01	$0F	TYPE	$00:user $10:preset $20:piano $30:guitar $40:pluck $50:brass $60:strings $70:organ
1	$07	$00	$0B	$00	$0F	LEVEL SCALING	$00:1~$F0:16
2	$08	$00	$0B	$01	$78	RATE SCALING	$00:1~$07:8
3	$01	$00	$0C	$00	$7F	DELAY ON/OFF	$00:off, $80:on
4	$03	$00	$0C	$01	$40	ATTACK RATE	$00:0~$3F:99
5	$04	$00	$0D	$01	$40	DECAY1 RATE	$00:0~$3F:99
6	$05	$00	$0E	$01	$40	DECAY2 RATE	$00:0~$3F:99
7	$06	$00	$0F	$01	$40	RELEASE RATE	$00:0~$3F:99
8	$02	$00	$10	$01	$00	INITIAL LEVEL	$7F:0~$00:99
9	$03	$00	$11	$01	$00	ATTACK LEVEL	$7F:0~$00:99
10	$04	$00	$12	$01	$00	DECAY1 LEVEL	$7F:0~$00:99
11	$05	$00	$13	$01	$00	DECAY2 LEVEL	$7F:0~$00:99

(2) Element B or D

	ST	F1	F2	B1	B2	data name	data range
0	$00	$00	$1E	$01	$0F	TYPE	$00:user $10:preset $20:piano $30:guitar $40:pluck $50:brass $60:strings $70:organ
1	$07	$00	$2F	$00	$0F	LEVEL SCALING	$00:1~$F0:16
2	$08	$00	$2F	$01	$78	RATE SCALING	$00:1~$07:8
3	$01	$00	$30	$00	$7F	DELAY ON/OFF	$00:off, $80:on
4	$03	$00	$30	$01	$40	ATTACK RATE	$00:0~$3F:99
5	$04	$00	$31	$01	$40	DECAY1 RATE	$00:0~$3F:99
6	$05	$00	$32	$01	$40	DECAY2 RATE	$00:0~$3F:99
7	$06	$00	$33	$01	$40	RELEASE RATE	$00:0~$3F:99
8	$02	$00	$34	$01	$00	INITIAL LEVEL	$7F:0~$00:99
9	$03	$00	$35	$01	$00	ATTACK LEVEL	$7F:0~$00:99
10	$04	$00	$36	$01	$00	DECAY1 LEVEL	$7F:0~$00:99
11	$05	$00	$37	$01	$00	DECAY2 LEVEL	$7F:0~$00:99

MIDI DATA FORMAT

<Table 1-5>

MIDI Parameter Change table (Multi)

$F0, $43, $1n, $26, $04, $ST, $0b, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
b ; channel number
V1 ; MSB of parameter value
V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	$08	$00	$00	$01	$7F	EFFECT TYPE	0:Rev Hall 1:Rev Room 2:Rev Plate 3:Rev Club 4:Rev Metal 5:Delay 1 6:Delay 2 7:Delay 3 8:Doubler 9:Ping_Pong 10:Pan Ref 11:Early Ref 12:Gate Rev 13:Dly&Rev 1 14:Dly&Rev 2 15:Dist&Rev
1	$09	$00	$01	$01	$7F	EFFECT BALANCE	0~127
2	$0A	$00	$05	$01	$7F	GROUP1 EFFECT SEND LEVEL	0~127
3	$0A	$00	$06	$01	$7F	GROUP2 EFFECT SEND LEVEL	0~127
4	$07	$00	$07	$01	$7D	GROUP2 OUTPUT SELECT	$00:out1, $02:out2
5	$07	$00	$07	$01	$7E	GROUP1 OUTPUT SELECT	$00:out1, $01:out2
6	$0B	$00	$0D	$01	$7F	MULTI NAME 1	32~127 (ASCII)
7	$0B	$00	$0E	$01	$7F	MULTI NAME 2	32~127 (ASCII)
8	$0B	$00	$0F	$01	$7F	MULTI NAME 3	32~127 (ASCII)
9	$0B	$00	$10	$01	$7F	MULTI NAME 4	32~127 (ASCII)
10	$0B	$00	$11	$01	$7F	MULTI NAME 5	32~127 (ASCII)
11	$0B	$00	$12	$01	$7F	MULTI NAME 6	32~127 (ASCII)
12	$0B	$00	$13	$01	$7F	MULTI NAME 7	32~127 (ASCII)
13	$0B	$00	$14	$01	$7F	MULTI NAME 8	32~127 (ASCII)
14	$05	$00	$15	$01	$7F	ASSIGN MODE	0:32/0, 1:24/8, 2:16/16

	ST	F1	F2	B1	B2	data name	data range
						<The same structure in the order of channels 1~16 in the following>	
0	$00	$00	$00	$01	$77	VOICE SWITCH	$00:off voice, $08:on
1	$06	$00	$00	$01	$7B	SEND GROUP	$00:group1, $04:group2
2	$00	$00	$01	$01	$7F	VOICE MEMORY	0:Internal (Card1, Card2) 1:Preset1 2:Preset2
3	$00	$00	$02	$01	$7F	VOICE NUMBER	0~63
4	$01	$00	$03	$01	$7F	VOLUME	127:0~0:99
5	$02	$00	$04	$01	$7F	DETUNE	−50~+50 (2's comp)
6	$03	$00	$05	$01	$7F	NOTE SHIFT	−24~+24 (2's comp)
7	$04	$00	$06	$01	$7F	PAN	0:left 1:left center 2:center 3:right center 4:right 5:voice

<Table 1-6>

MIDI Parameter Change table (System)

$F0, $43, $1n, $26, $05, $ST, $00, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
      V1 ; MSB of parameter value
      V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	$01	$00	$04	$01	$7F	TRANSPOSE	−12~+12 (2's comp)
1	$00	$00	$05	$01	$7F	MASTER TUNE	−50~+50 (2's comp)
2	$02	$00	$01	$01	$77	CONTROLLER RESET	$00:hold, $08:reset

<Table 1-7>

MIDI Parameter Change table (System MIDI)

$F0, $43, $1n, $26, $06, $ST, $00, $F1, $F2, $B1, $B2, $V1, V2, $F7

Note) n ; device number
      V1 ; MSB of parameter value
      V2 ; LSB 7bits of parameter value

	ST	F1	F2	B1	B2	data name	data range
0	$03	$00	$00	$01	$7F	DEVICE NUMBER	0~15, 16:all
1	$03	$00	$01	$01	$7B	EXCLUSIVE ON/OFF	$00:off, $04:on
2	$02	$00	$01	$01	$7C	PROGRAM CHANGE	$00:off, $01:on
3	$00	$00	$02	$01	$7F	VOICE RECEIVE CHANNEL	0~15, 16:omni
4	$01	$00	$03	$01	$7F	VECTOR CHANNEL	0~15

<Table 1-8>

MIDI Parameter Change table (Switch Remote)

$F0, $43, $1x, $26, $07, $CD, $F7

Note) x ; don't care

	CD	switch
0	$00	VECTOR
1	$02	←
2	$03	→
3	$04	+1
4	$05	−1
5	$06	VOICE
6	$07	MULTI
7	$08	EDIT/COMPARE
8	$09	STORE/COPY
9	$0A	CARD
10	$0B	INTERNAL
11	$0C	PRESET
12	$0D	BANK SELECT 1
13	$0E	BANK SELECT 2
14	$0F	BANK SELECT 3
15	$10	BANK SELECT 4
16	$11	BANK SELECT 5

	CD	switch
17	$12	BANK SELECT 6
18	$13	BANK SELECT 7
19	$14	BANK SELECT 8
20	$15	PROGRAM SELECT 1
21	$16	PROGRAM SELECT 2
22	$17	PROGRAM SELECT 3
23	$18	PROGRAM SELECT 4
24	$19	PROGRAM SELECT 5
25	$1A	PROGRAM SELECT 6
26	$1B	PROGRAM SELECT 7
27	$1C	PROGRAM SELECT 8
28	$1D	DEMO
29	$1E	UTILITY
30	$21	PAGE ◁
31	$22	PAGE ▷
32	$25	EFFECT BYPASS

MIDI DATA FORMAT

\<Appended table 2\>

The data format of each voice of (64) voice bulk is the same as that of 1 voice bulk. Only those with data at the MSB are 2-byte data.

```
Mb7~Mb1='0000000'
------------------------------------------------
ADRS(HEX) Mb0 Lb7 Lb6 Lb5 Lb4 Lb3 Lb2 Lb1 Lb0
------------------------------------------------
     00        0   0   0   0   0   0  DRM 2/4
     01        0   0   0   0   ----EFFECT-----
     02        0   ------EFFECT BALANCE-------
     03        0   --------((don't care))------
     04        0   --------((don't care))------
     05        0   --------((don't care))------
     06        0   ------EFFECT SEND----------
     07        0   --------((don't care))------
     08        0   --------((don't care))------
     09        0   --------((don't care))------
     0A        0   --------((don't care))------
     0B        0   --------((don't care))------
     0C        0   ----------NAME 1-----------
     0D        0   ----------NAME 2-----------
     0E        0   ----------NAME 3-----------
     0F        0   ----------NAME 4-----------
     10        0   ----------NAME 5-----------
     11        0   ----------NAME 6-----------
     12        0   ----------NAME 7-----------
     13        0   ----------NAME 8-----------
     14        0   0   0   0   -PITCH BEND R-
              0   -AFTER TUCH-   PIT -WHEEL-
     15        0   LEV  PM  AM  0  TYP  PM  AM
16   17    →   0   -----AFTER PITCH-----------
     18        0   -------EG DELAY RATE--------
19   1A    →   0   --COMMON ENV. ATTACK-------
18   1C    →   0   --COMMON ENV. RELEASE------
************** ELEMENT A *****************
     1D        0   -------WAVE NO.------------
1E   1F    →   0   ----FREQUENCY SHIFT--------
     20        0   -AFTER SNS-  -VELOCITY TYP--
21   22    →   0   LFO TYP -----LFO SPEED-----
23   24    →   0   -----LFO DELAY TIME--------
25   26    →   0   -----LFO DELAY RATE--------
     27        0   0   0   AM  ---AM DEPTH----
     28        0   0   PM  ----- PM DEPTH-----
     29        0   --EG TYPE--  0  ----PAN----
     2A        0   --------VOLUME-------------
     2B        0   0  -DT2-  -----DT1------
2C   2D    →   0   -L.SCALING-  --RATE SCALING-
2E   2F  DLAY  0   0   ------EG AR----------
30   31    →   0   MAX  ------EG D1R----------
     32        0   0   ------EG D2R----------
     33        0   0   ------EG RR----------
     34        0   ----------EG IL----------
     35        0   ----------EG AL----------
     36        0   ----------EG D1L----------
     37        0   ----------EG D2L----------
     38        0   -------((don't care))------
     39        0   -------((don't care))------
************** ELEMENT B *****************
3A   3B    →   0   -------WAVE NO.------------
3C   3D    →   0   ----FREQUENCY SHIFT--------
     3E        0   -AFTER SNS-  -VELOCITY TYP--
3F   40    →   0   LFO TYP -----LFO SPEED-----
41   42    →   0   -----LFO DELAY TIME--------
43   44    →   0   -----LFO DELAY RATE--------
     45        0   0   0   AM  ---AM DEPTH----
     46        0   0   PM  ----- PM DEPTH-----
     47        0   --EG TYPE--  0  ----PAN----
     48        0   --CONNECT--  0  --FEEDBACK-
49   4A   MFX  0   --M WAVE---  ----M MULTI----
     4B        0   -------TONE LEVEL---------
     4C        0   0  -M DT2-  ----M DT1------
4D   4E    →   0   M L.SCALING -M RATE SCALING
4F   50   MDY  0   0   ------M EG AR---------
51   52    →   0   MAX  ------M EG D1R--------
     53        0   0   ------M EG D2R--------
     54        0   0   ------M EG RR---------
     55        0   ----------M EG IL---------
     56        0   ----------M EG AL---------
     57        0   ----------M EG D1L-------
```

```
     58        0   ----------M EG D2L--------
59   5A   CFX  0   --C WAVE---  ----C MULTI----
     5B        0   --------VOLUME-------------
     5C        0   0  -C DT2-  ----C DT1------
5D   5E    →   0   C L.SCALING -C RATE SCALING
5F   60   CDY  0   0   ------C EG AR---------
61   62    →   0   MAX  ------C EG D1R--------
     63        0   0   ------C EG D2R--------
     64        0   0   ------C EG RR---------
     65        0   ----------C EG IL---------
     66        0   ----------C EG AL---------
     67        0   ----------C EG D1L-------
     68        0   ----------C EG D2L-------
     69        0   -------((don't care))------
     6A        0   -------((don't care))------
************** ELEMENT C *****************
     6B        0   -------WAVE NO.-----------
      :
      :
     85        0   ----------EG D2L----------
     86        0   -------((don't care))------
     87        0   -------((don't care))------
************** ELEMENT D *****************
88   89        0   -------WAVE NO.-----------
      :
      :
     B6        0   ----------C EG D2L--------
     B7        0   -------((don't care))------
     B8        0   -------((don't care))------
************** VECTOR *****************
     B9        0   0   0   0  --LEVEL SPEED--
     BA        0   0   0   0  --DETUNE SPEED-
************** LEVEL VECTOR *****************
BB   BC    →   0   --LEVEL TIME INTERVAL STEP-
     BD        0   ---------LEVEL X-axis------
     BE        0   ---------LEVEL Y-axis------
      :
      :
************** DETUNE VECTOR ***************
183  184   →   0   -DETUNE TIME INTERVAL STEP-
     185       0   --------DETUNE X-axis------
     186       0   --------DETUNE Y-axis------
      :
      :
     24A       0   -------DETUNE Y-axis------
------------------------------------------------
```

VOICE bulk dump request		1 VOICE bulk dump request	
	data		data
0	$F0	0	$F0
1	$43	1	$43
2	$2n	2	$2n
3	$7E	3	$7E
4	L	4	L
5	M	5	M
6	—	6	—
7	—	7	—
8	0	8	0
9	0	9	0
10	1	10	1
11	2	11	2
12	V	12	V
13	C	13	E
14	$F7	14	$F7

n: device number

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<Appended table 3>

The data format of each voice of (64) voice bulk is the same as that of 1 voice bulk. Only those with data at the MSB are 2-byte data.

```
Mb7~Mb1='0000000'
---------------------------------------------
ADRS(HEX) Mb0 Lb7 Lb6 Lb5 Lb4 Lb3 Lb2 Lb1 Lb0
---------------------------------------------
   00      0   0   0   0  ----EFFECT-----
   01      0   ------EFFECT BALANCE--------
   02      0   -------((don't care))------
   03      0   -------((don't care))------
   04      0   -------((don't care))------
   05      0   ----GROUP1 EFFECT SEND-----
   06      0   ----GROUP2 EFFECT SEND-----
                                   GRP2GRP1
   07      0   0   0   0   0   0  1/2 1/2
   08      0   -------((don't care))------
   09      0   -------((don't care))------
   0A      0   -------((don't care))------
   0B      0   -------((don't care))------
   0C      0   -------((don't care))------
   0D      0   ---------NAME 1------------
   0E      0   ---------NAME 2------------
   0F      0   ---------NAME 3------------
   10      0   ---------NAME 4------------
   11      0   ---------NAME 5------------
   12      0   ---------NAME 6------------
   13      0   ---------NAME 7------------
   14      0   ---------NAME 8------------
   15      0   0   0   0   0   0  -ASIN--
   16      0   -------((don't care))------
   17      0   -------((don't care))------
   18      0   -------((don't care))------
   19      0   -------((don't care))------
   1A      0   -------((don't care))------
   1B      0   -------((don't care))------
   1C      0   -------((don't care))------
   1D      0   -------((don't care))------
   1E      0   -------((don't care))------
   1F      0   -------((don't care))------
****************** CHANNEL 1 ******************
                               GRP
   20      0   0   0   0  VSW 1/2  0   0
   21      0   0   0   0   0   0  ---MED--
   22      0   0   -----VOICE NUMBER-----
   23      0   --------VOLUME------------
24 25  →   0   --------DETUNE------------
26 27  →   0   --------NOTE SHIFT---------
   28      0   0   0   0   0  ----PAN----
   29      0   ------((don't care))------
   2A      0   ------((don't care))------
****************** CHANNEL 2 ******************
   2B      0   0   0   0  VSW 1/2  0   0
   :
   33      0   0   0   0   0  ----PAN----
   34      0   ------((don't care))------
   35      0   ------((don't care))------
****************** CHANNEL 3 ******************
   36      0   0   0   0  VSW 1/2  0   0
   :
   3E      0   0   0   0   0  ----PAN----
   3F      0   ------((don't care))------
   40      0   ------((don't care))------
****************** CHANNEL 4 ******************
   41      0   0   0   0  VSW 1/2  0   0
   :
   49      0   0   0   0   0  ----PAN----
   4A      0   ------((don't care))------
   4B      0   ------((don't care))------
****************** CHANNEL 5 ******************
   4C      0   0   0   0  VSW 1/2  0   0
   :
   54      0   0   0   0   0  ----PAN----
   55      0   ------((don't care))------
   56      0   ------((don't care))------
****************** CHANNEL 6 ******************
   57      0   0   0   0  VSW 1/2  0   0
   :
   5F      0   0   0   0   0  ----PAN----
```

```
   60      0   ------((don't care))------
   61      0   ------((don't care))------
****************** CHANNEL 7 ******************
   62      0   0   0   0  VSW 1/2  0   0
   :
   6A      0   0   0   0   0  ----PAN----
   6B      0   ------((don't care))------
   6C      0   ------((don't care))------
****************** CHANNEL 8 ******************
   6D      0   0   0   0  VSW 1/2  0   0
   :
   75      0   0   0   0   0  ----PAN----
   76      0   ------((don't care))------
   77      0   ------((don't care))------
****************** CHANNEL 9 ******************
   78      0   0   0   0  VSW 1/2  0   0
   :
   80      0   0   0   0   0  ----PAN----
   81      0   ------((don't care))------
   82      0   ------((don't care))------
****************** CHANNEL 10 ******************
   83      0   0   0   0  VSW 1/2  0   0
   :
   8B      0   0   0   0   0  ----PAN----
   8C      0   ------((don't care))------
   8D      0   ------((don't care))------
****************** CHANNEL 11 ******************
   8E      0   0   0   0  VSW 1/2  0   0
   :
   96      0   0   0   0   0  ----PAN----
   97      0   ------((don't care))------
   98      0   ------((don't care))------
****************** CHANNEL 12 ******************
   99      0   0   0   0  VSW 1/2  0   0
   :
   A1      0   0   0   0   0  ----PAN----
   A2      0   ------((don't care))------
   A3      0   ------((don't care))------
****************** CHANNEL 13 ******************
   A4      0   0   0   0  VSW 1/2  0   0
   :
   AC      0   0   0   0   0  ----PAN----
   AD      0   ------((don't care))------
   AE      0   ------((don't care))------
****************** CHANNEL 14 ******************
   AF      0   0   0   0  VSW 1/2  0   0
   :
   B7      0   0   0   0   0  ----PAN----
   B8      0   ------((don't care))------
   B9      0   ------((don't care))------
****************** CHANNEL 15 ******************
   BA      0   0   0   0  VSW 1/2  0   0
   :
   C2      0   0   0   0   0  ----PAN----
   C3      0   ------((don't care))------
   C4      0   ------((don't care))------
****************** CHANNEL 16 ******************
   C5      0   0   0   0  VSW 1/2  0   0
   :
   CD      0   0   0   0   0  ----PAN----
   CE      0   ------((don't care))------
   CF      0   ------((don't care))------
---------------------------------------------
```

MIDI DATA FORMAT

MULTI bulk dump request

	data
0	$F0
1	$43
2	$2n
3	$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	M
13	U
14	$F7

1 MULTI bulk dump request

	data
0	$F0
1	$43
2	$2n
3	$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	M
13	E
14	$F7

n: device number

<Table 4>

System bulk dump

Only those with data at the MSB are 2-byte data.

```
Mb7~Mb1='0000000'
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  ADRS(HEX) Mb0 Lb7 Lb6 Lb5 Lb4 Lb3 Lb2 Lb1 Lb0
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
      00        0   0   0  ---DEVICE NUMBER---
                               C.R EXC         P.C
  01  02    1   0   1   1   1  h/r SW    0    SW
      03        0   0   0  -VOICE RECEIVE CH--
      04        0   0   0   0  ---VECTOR CH---
  05  06    →   0  --------TRANSPOSE----------
  07  08    →   0  --------MASTER TUNE--------
```

bulk dump request

	data
0	$F0
1	$43
2	$2n
3	$7E
4	L
5	M
6	—
7	—
8	0
9	0
10	1
11	2
12	S
13	Y
14	$F7

n: device number

```
YAMAHA  [ Tone Generator ]                          Date :13-JUL-1990
        Model  TG33    MIDI Implementation Chart    Version : 1.00
```

Function ...	Transmitted	Recognized	Remarks
:Basic Default	1 - 16	1 - 16	memorized
:Channel Changed	1 - 16	1 - 16	
:Mode Default	3	1,3	memorized
: Messages	x	x	
: Altered	**************	x	
:Note	x	0 - 127	
:Number : True voice:	**************	19 - 114	
:Velocity Note ON	x	o v=1-127	
: Note OFF	x	x	
:After Key's	x	x	
:Touch Ch's	x	o	
:Pitch Bender	x	o 0-12 semi	:7 bit resolution
: 0	x	o	:Bank Select MSB
: 1	x	o	:Modulation Wheel
: 7	x	o	:Volume
: Control 16	o	o	*1:Vector X-axis
: 17	o	o	*1:Vector Y-axis
: Change 32	x	o	:Bank Select LSB
: 64	x	o	:Sustain
: Reset All Cntrls	x	o	
:Prog	x	o 0-79	:with Bank Select
:Change : True #	**************	*2:	
:System Exclusive	o *3:	o	*3:Voice Parameters
:System : Song Pos	x	x	
: : Song Sel	x	x	
:Common : Tune	x	x	
:System :Clock	x	x	
:Real Time :Commands:	x	x	
:Aux :Local ON/OFF :	x	x	
: :All Notes OFF:	x	x	
:Mes- :Active Sense :	x	o	
:sages :Reset	x	x	

```
:Notes: *1  ; receive if vector switch is on.
:       *2  ; voice : 11 - 88 ,    multi : 11 - 28
:       *3  ; transmit/receive if exclusive switch is on.
```

```
Mode 1 : OMNI ON,  POLY    Mode 2 : OMNI ON,  MONO      o : Yes
Mode 3 : OMNI OFF, POLY    Mode 4 : OMNI OFF, MONO      x : No
```

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16-28, Jalan SS 2/72, Petaling Jaya, Selangor, Malaysia
Tel: 3-717-8977

PHILIPPINES
Yupangco Music Corporation
339 Gil J. Puyat Avenue, Makati, Metro Manila 1200, Philippines
Tel: 2-85-7070

SINGAPORE
Yamaha Music Asia Pte., Ltd.
80 Tannery Lane, Singapore 1334, Singapore
Tel: 747-4374

TAIWAN
Kung Hsue She Trading Co., Ltd.
KHS Fu Hsing Building, 322, Section 1, Fu-Hsing S Road, Taipei 10640, Taiwan. R.O.C.
Tel: 2-709-1266

THAILAND
Siam Music Yamaha Co., Ltd.
933/1-7 Rama 1 Road, Patumwan, Bangkok, Thailand
Tel: 2-215-0030

THE PEOPLE'S REPUBLIC OF CHINA AND OTHER ASIAN COUNTRIES
Yamaha Corporation,
International Marketing Division
Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2311

OCEANIA

AUSTRALIA
Yamaha Music Australia Pty. Ltd.
17-33 Market Street, South Melbourne, Vic. 3205, Australia
Tel: 3-699-2388

NEW ZEALAND
Music Houses of N.Z. Ltd.
146/148 Captain Springs Road, Te Papapa, Auckland, New Zealand
Tel: 9-640-099

COUNTRIES AND TRUST TERRITORIES IN PACIFIC OCEAN
Yamaha Corporation,
International Marketing Division
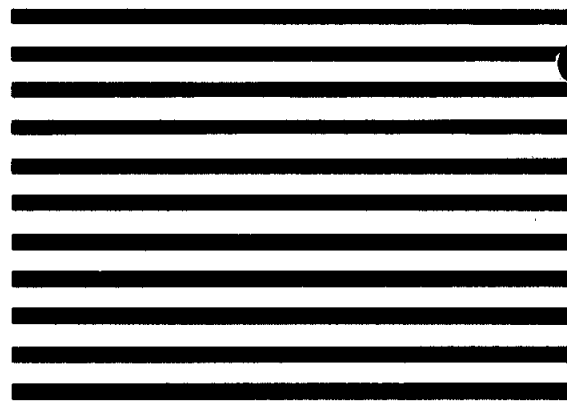Nakazawa-cho 10-1, Hamamatsu, Japan 430
Tel: 053-460-2311

HEAD OFFICE Yamaha Corporation, Electronic Musical Instrument Divison
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