

3 EDIT

1. Rhythm Setup

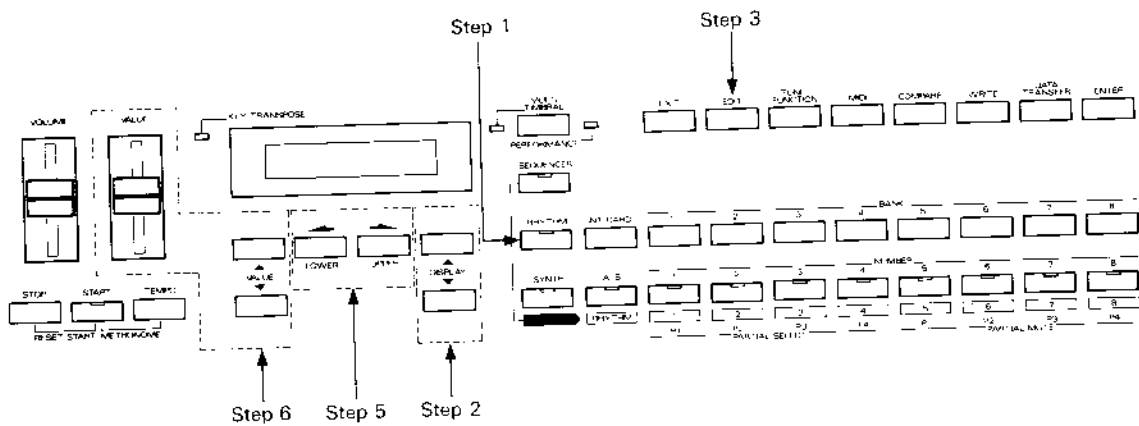
Rhythm Tones are assigned to the Key Numbers C1 to C8. When Key messages are received by the Rhythm Part, the Rhythm Tone assigned to that Key Number is played, resulting in rhythm performance.

Each Key Number can have an independent Pan and Level, allowing rhythm performance in a desired balance. As well as the Preset Rhythm Tones (63 kinds), original Tones you have programmed can be used as Rhythm Tones.

a. Editing Procedure

*The Editing procedure does not automatically rewrite old data.

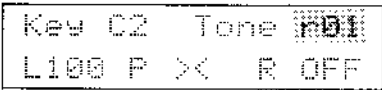
Therefore, the edited data will be erased if the unit is turned off. If you wish to retain the edited version even after the unit is turned off, take the appropriate writing procedure (page 85) for each Key Number.



- Step 1** Push the RHYTHM button (the indicator lights up).
- Step 2** Using the DISPLAY buttons, change to the Manual Drum Display.



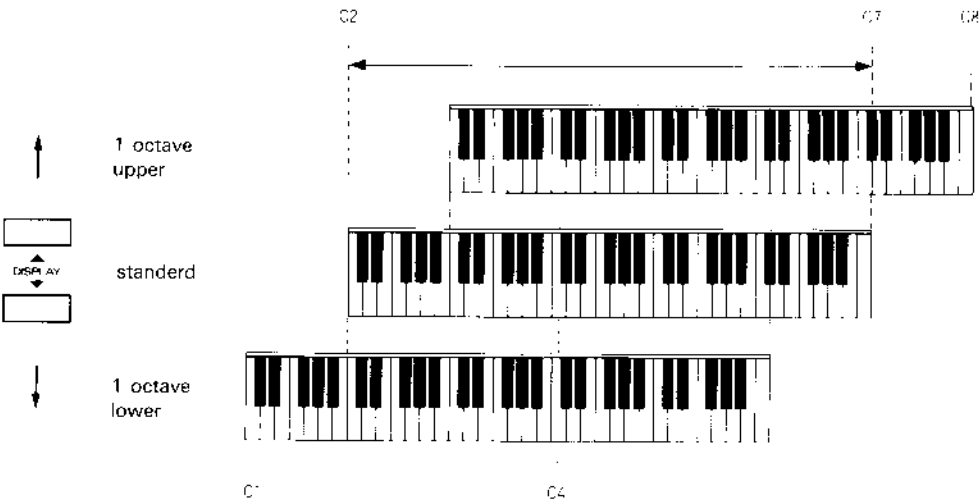
- Step 3** Push the EDIT button.
- Now, the keyboard is ready for manual rhythm performance.



*The Key—Rhythm Tone assignment preprogrammed by the manufacturer is shown on page 84.

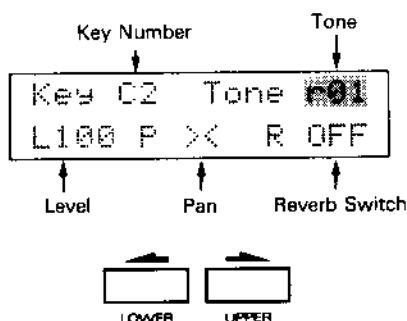
- Step 4** Push the key to be edited.

If you wish to select a key that exceeds the maximum range of the keyboard, transpose the pitch of the keyboard using the DISPLAY buttons before assigning the key. When the keyboard is transposed, the Key Transpose Indicator lights up.



Step 5 Using the Cursor Buttons, call the parameter to be edited.

The value of the selected parameter flashes.



Step 6 Change the value using the Value Control Knob.

Tone : A Rhythm Tone (from the Preset Rhythm Tones r1 to r63, and Internal Tones i1 to i64) can be selected. At OFF, no Rhythm Tone is assigned.

Level : The level of the volume can be set from 0 to 100. Higher values increase the volume.

Pan : The positioning of the sound image in the stereo output can be set from 7> to <7. At ><, the position is in the center, <7 the far right, >7 far left.

Reverb Switch : Turn this ON to obtain the reverb effect.

*The rhythm patterns are programmed using the Rhythm Tones which have been assigned to specific Key Numbers, and therefore may be changed after the assignment is edited.

*When a Rhythm Tone from the internal memory is used, the pitch may be changed depending on the key assigned to the Tone.

*Changing the Pan value may not affect the sound as expected in some Tones because of the Structure setting. (see page 109)

*When using a Tone made by using only one Partial, 8 panning positions are available.

*When an Internal Tone (i1 to 64) is used as a Rhythm Tone, the ENV mode (see page 124) of the Tone is automatically set to NO SUSTAIN (therefore it may sound different). This, however, does not apply to a rhythm tone in Track 8 or that played by MIDI messages sent from an external keyboard or device, then it is played according to the ENV mode setting. So, when you are making a Rhythm Tone, it may be necessary to set a NO SUSTAIN envelope.

- Step 7** To write the edited parameter, take the appropriate writing procedure (as explained on page 85.)
- Step 8** Push the EXIT button to retrieve the Manual Drum Display.

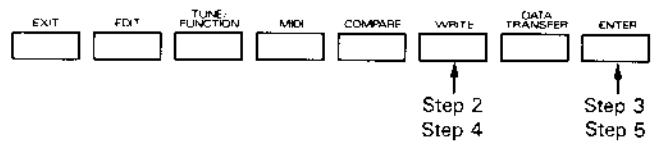
[Preset Rhythm Tones]

No.	Tone Name	Number of Partial
r01	Closed High Hat-1	1
r02	Closed High Hat-2	1
r03	Open High Hat-1	2
r04	Open High Hat-2	2
r05	Crash Cymbal	2
r06	Crash Cymbal (short)	1
r07	Crash Cymbal (mute)	1
r08	Ride Cymbal	2
r09	Ride Cymbal (short)	1
r10	Ride Cymbal (mute)	1
r11	Cup	2
r12	Cup (mute)	1
r13	China Cymbal	2
r14	Splash Cymbal	1
r15	Bass Drum-1	2
r16	Bass Drum-2	1
r17	Bass Drum-3	2
r18	Bass Drum-4	1
r19	Snare Drum-1	1
r20	Snare Drum-2	1
r21	Snare Drum-3	1
r22	Snare Drum-4	2
r23	Snare Drum-5	1
r24	Snare Drum-6	1
r25	Rim Shot	1
r26	Brush-1	2
r27	Brush-2	2
r28	High Tom Tom-1	1
r29	Middle Tom Tom-1	1
r30	Low Tom Tom-1	1
r31	High Tom Tom-2	1
r32	Middle Tom Tom-2	1
r33	Low Tom Tom-2	1
r34	High Tom Tom-3	2
r35	Middle Tom Tom-3	2
r36	Low Tom Tom-3	2
r37	High Pitch Tom Tom-1	1
r38	High Pitch Tom Tom-2	1
r39	Hand Clap	1
r40	Tambourine	1
r41	Cowbell	1
r42	High Bongo	1
r43	Low Bongo	1
r44	High Conga (mute)	1
r45	High Conga	1
r46	Low Conga	1
r47	High Timbale	1
r48	Low Timbale	1
r49	High Agogo	1
r50	Low Agogo	1
r51	Cabasa	1
r52	Maracas	1
r53	Short Whistle	2
r54	Long Whistle	2
r55	Quijada	3
r56	Claves	1
r57	Castanets	2
r58	Triangle	2
r59	Wood Block	1
r60	Bell	2
r61	Native Drum-1	1
r62	Native Drum-2	1
r63	Native Drum-3	1
OFF		0

[Preprogrammed Rhythm Setup]

r63	Native Drum-3	
r62	Native Drum-2	C7
r61	Native Drum-1	
r09	Ride Cymbal (short)	
r34	High Tom Tom-3	
r06	Crash Cymbal (short)	
r35	Middle Tom Tom-3	
r02	Closed High Hat-2	
r36	Low Tom Tom-3	
r24	Snare Drum-6	
r23	Snare Drum-5	
r22	Snare Drum-4	
r18	Bass Drum-4	
r17	Bass Drum-3	C6
r60	Bell	
r59	Wood Block	
r37	High Pitch Tom Tom-1	
r58	Triangle	
r38	High Pitch Tom Tom-2	
r57	Castanets	
r27	Brush-2	
r26	Brush-1	
r56	Claves	
r12	Cup (mute)	
r55	Quijada	
r54	Long Whistle	C5
r53	Short Whistle	
r52	Maracas	
r51	Cabasa	
r50	Low Agogo	
r49	High Agogo	
r48	Low Timbale	
r47	High Timbale	
r46	Low Conga	
r45	High Conga	
r44	High Conga (mute)	
r43	Low Bongo	C4 (Middle C)
r42	High Bongo	
r41	Ride Cymbal (mute)	
r21	Snare Drum-3	
r20	Crash Cymbal (mute)	
r14	Cowbell	
r14	Splash Cymbal	
r40	Tambourine	
r11	Cup	
r13	China Cymbal	
r08	Ride Cymbal	
r31	High Tom Tom-2	
r05	Crash Cymbal	C3
r28	High Tom Tom-1	
r32	Middle Tom Tom-2	
r03	Open High Hat-1	
r29	Middle Tom Tom-1	
r04	Open High Hat-2	
r33	Low Tom Tom-2	
r01	Closed High Hat-1	
r30	Low Tom Tom-2	
r20	Snare Drum-2	
r39	Hand Clap	
r19	Snare Drum-1	
r25	Rim Shot	
r16	Bass Drum-2	C2
r15	Bass Drum-1	

b. Writing Procedure



Step 1 Push the key to be edited.

Step 2 Push the WRITE button.

Write C4 Setup
Sure? Enter

Step 3 Push the ENTER button.

Turn Protect off
once? Write/Exit

Step 4 Push the WRITE button.

The Memory Protect function is cancelled temporarily and the Display is returned to that in Step 2.

Step 5 Push the ENTER button.

If the writing procedure is completed, the Display responds as shown below, then returns to the Edit Display.

Complete

2. Patch and Timbre

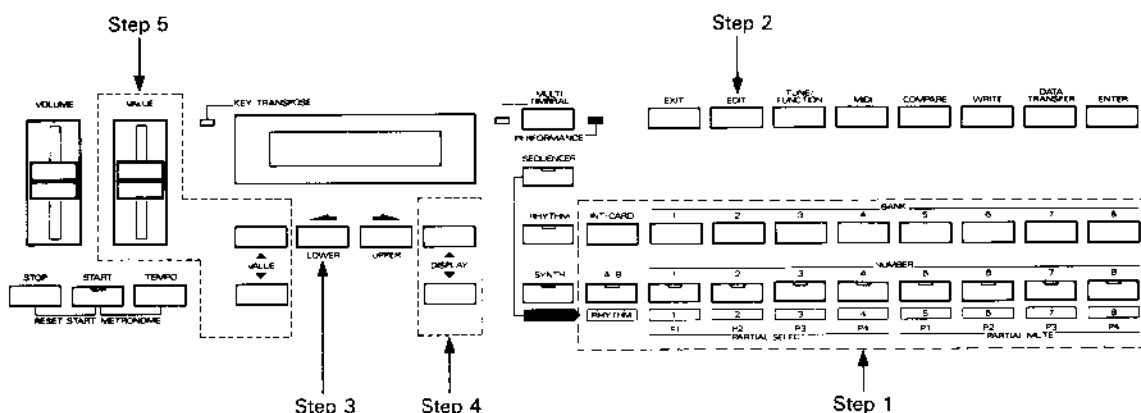
A Patch (in the Performance mode) and Timbre (in the Multi Timbral Mode) consists of various parameters. How the Tones are played will be changed by editing these parameter values.

a. Patch

1) Editing Procedure

Turn to the Performance Play mode (the Performance and Synth Indicators light up), then take the following procedure.

*Your edited version does not automatically rewrite existing data, and therefore will be erased when a different Patch is selected or the unit is turned off. To retain the edited data, take the appropriate writing procedure (see page 101).



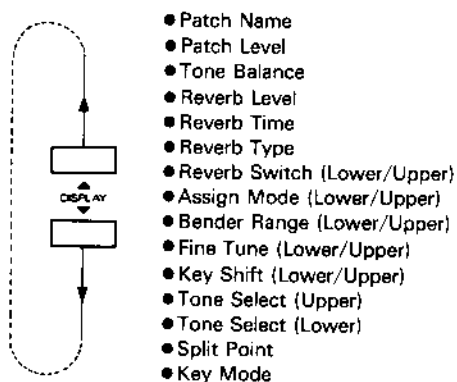
- Step 1** Call the Patch to be edited.
- Step 2** Push the EDIT button.

Edit	Select
Patch	Tone

- Step 3** **Push the left Cursor Button.**

Key Mode
SPLIT

Step 4 **Select the parameter to be edited using the DISPLAY buttons.**



***If more than two values are shown in the Display, select one of those using the Cursor Buttons. The selected value will flash showing it is ready to be edited.**

Step 5 **Change the value with the Value Control Knob.**

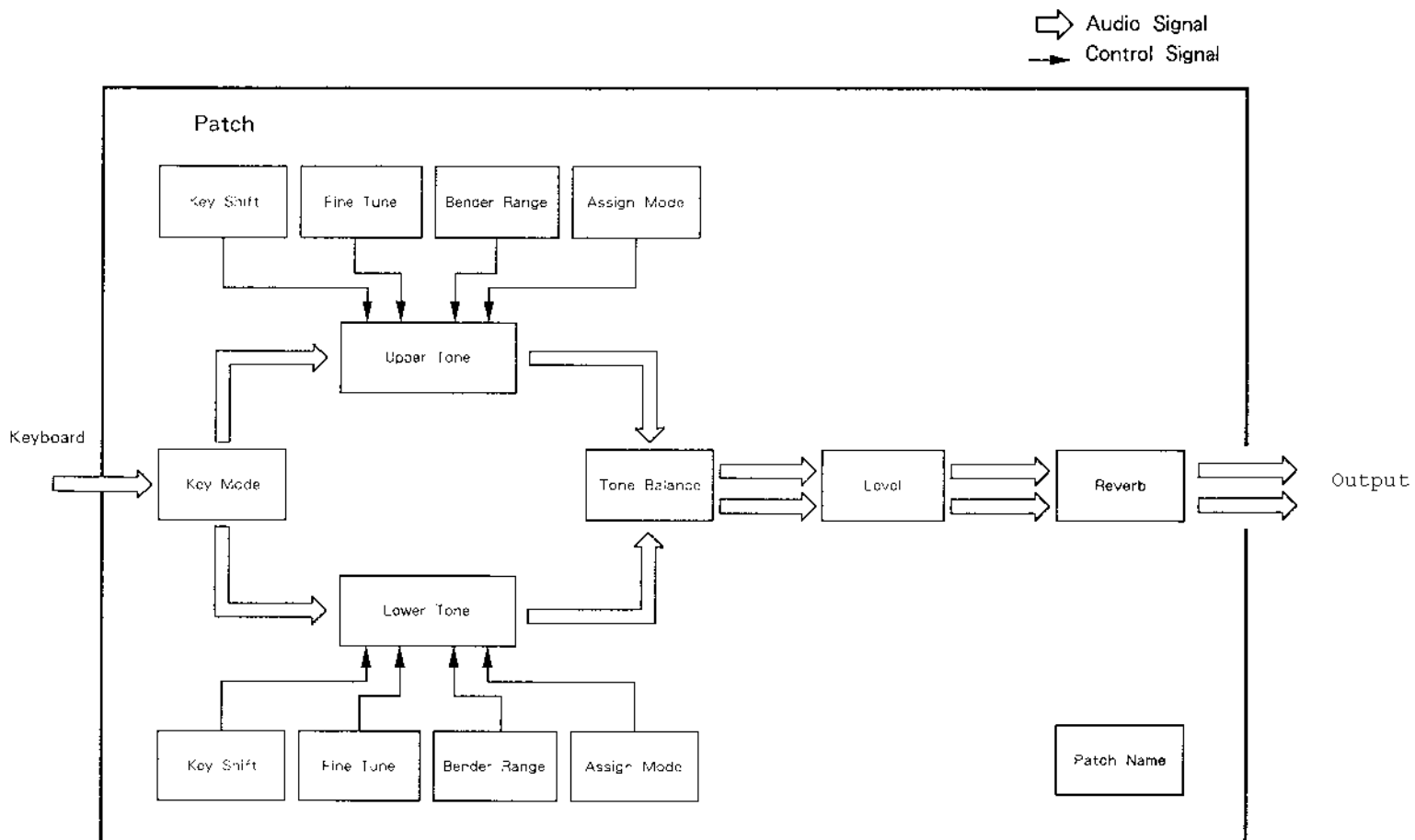
Step 6 **Repeat Steps 4 and 5 as many times as necessary.**

Step 7 **To write the value you have set, go to the writing procedure (page 101).**

***To leave the Patch editing mode, push the EXIT button.**

2) Patch Parameters

A Patch is made of the following parameters.



● Key Mode

Key Mode
SPLIT

Key Mode refers to how the Upper and Lower Tones are played on the keyboard.

WHOLE : Only the Upper Tone is played. Use this mode for playing a piano type sound which requires many voices (notes).

DUAL : Both the Upper and Lower Tones are played simultaneously. This is ideal for strings or organ type sounds.

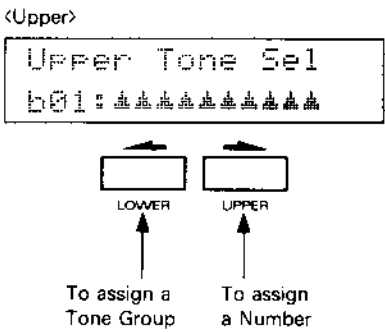
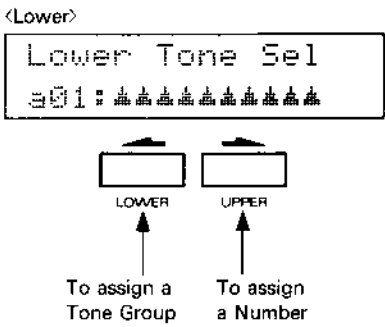
SPLIT : The Split mode divides the keyboard into the upper and lower sections, where two different Tones can be played simultaneously.

● Split Point

Split Point
C4

In the Split Key mode, the key where the keyboard is divided into two sections, upper and lower sections, is called the Split Point. The Split Point can be set in the range of C2 to C#7 in semi-tone steps.

● Tone Select

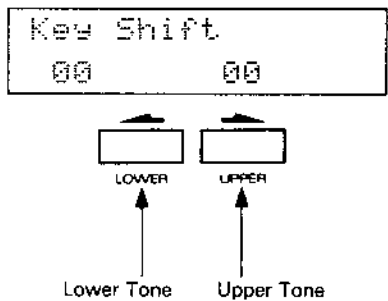


This selects the Tones which are to be assigned to the upper and lower sections of the keyboard. Depending on which memory, internal memory or memory card the Patch belongs to, the available Tones will differ.

	Internal		Memory Card	
Tone Group	a, b, i	r	a, b, c	r
Number	1-64	1-63, OFF	1-64	1-63, OFF

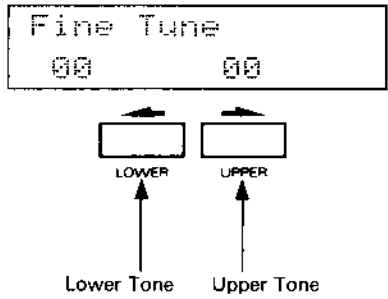
- a : Preset Tone (Internal)
- b : Preset Tone (Internal)
- r : Preset Rhythm Tone (Internal)
- i : Programmable Tone (Internal)
- c : Tone a memory card

● Key Shift



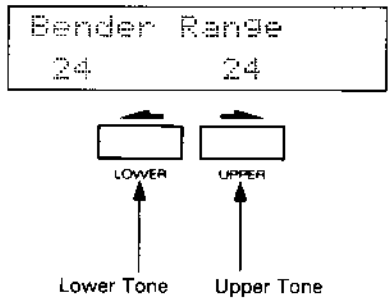
The relative pitch of the Upper and Lower Tones can be separately set from -24 to +24 (2 octaves) in semi-tone steps.

● Fine Tune



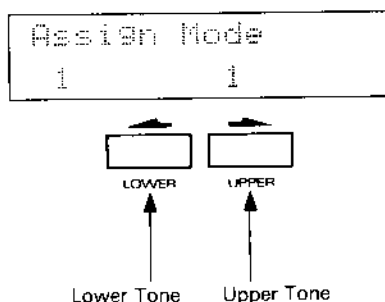
The pitch of each Tone can be finely changed from -50 to +50 (about ± 50 cents).

● Bender Range



This sets the variable range of the pitch change caused by moving the Bender Lever right and left from 0 to 24 (2 octaves) in semi-tone steps.

● Assign Mode



Assign mode refers to how each Tone should be played by Key messages received.

- 1 : Single Assign—Played with Last Note Priority**
- 2 : Single Assign—Played with First Note Priority**
- 3 : Multi Assign—Played with Last Note Priority**
- 4 : Multi Assign—Played with First Note Priority**

SINGLE ASSIGN

In this mode, when more than one Key ON message is received by the same Key Number, the sound of that key is muted once, then played again.

MULTI ASSIGN

In this mode, when more than one Key ON message is received by the same Key Number, two sounds are mixed.

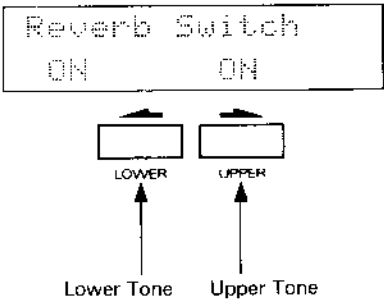
LAST NOTE PRIORITY

In this mode, when the D-20 has received more than 32 Key ON messages, the previously received ones are replaced by the later received ones.

FIRST NOTE PRIORITY

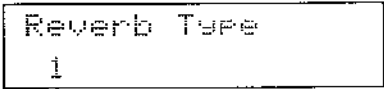
In this mode, when the D-20 has received more than 32 Key On messages, the later received ones are ignored, retaining the currently playing sounds.

● Reverb Switch



This selects whether to use the Reverb effect or not individually for each Tone. ON turns the effect on.

● Reverb Type



One of the 8 Reverb Types can be selected. At OFF, no reverb effect is obtained.

Number	Reverb Type
1	Small Room
2	Medium Room
3	Medium Room
4	Large Hall
5	Plate
6	Delay 1
7	Delay 2
8	Delay 3
OFF	No Reverb

● Reverb Time

Reverb Time
01

Reverberation times can be set from 1 to 8. Higher values refer to longer reverb times.(When a delay effect is selected, = delay times.)

● Reverb Level

Reverb Level
04

This sets the volume of the reverb sound from 0 to 7. Higher values increase the volume.

● Tone Balance

Tone Balance	
30	70

↑
↑

Volume of Lower Tone Volume of Upper Tone

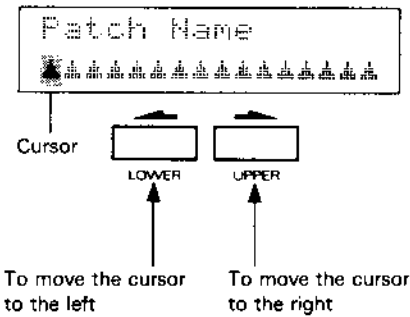
The volume balance of the Upper and Lower Tones can be changed. The total amount of the two Tones is always 100. At 50, both levels are equal.

● Patch Level

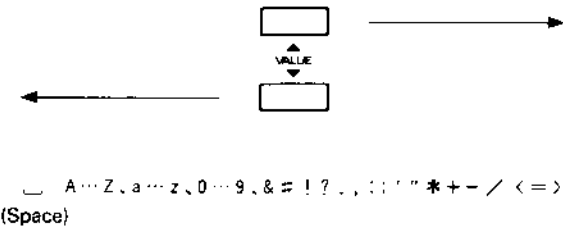
Patch Level
80

The volume of a Patch can be set from 0 to 100. Using this parameter, the volume balance between two different Patches can be adjusted.

● Patch Name



A Patch can be named using 16 letters. Move the cursor to the letter you wish to change by using the Cursor Buttons, then change the letter with the Value Control Knob. The letters available for naming a Patch are shown below.

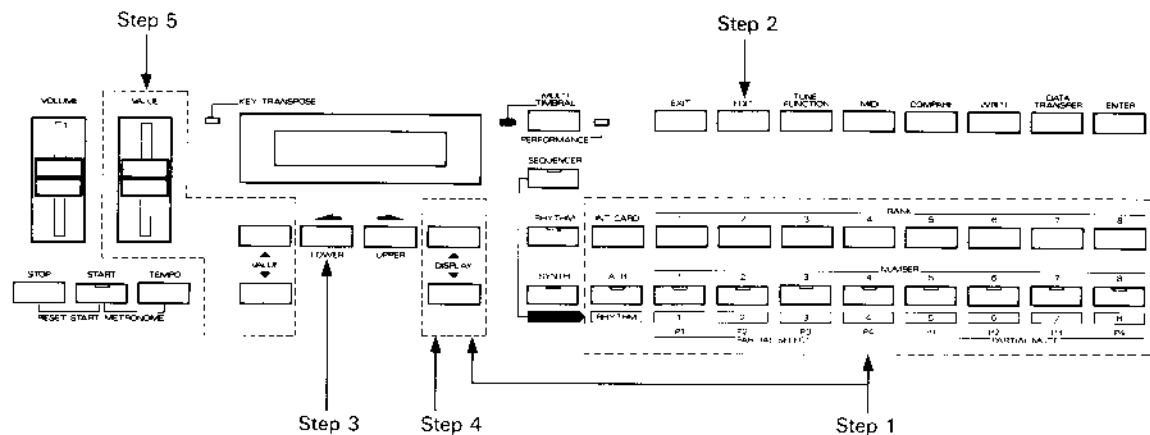


b. Timbre

1) Editing Procedure

Turn to the Multi Timbral mode (the Multi Timbral and Synth Indicators light up), then take the following procedure.

***Your edited version does not automatically rewrite existing data, and therefore will be erased when a different Timbre is selected or the unit is turned off. To retain the edited data, take the appropriate writing procedure (see page 101).**

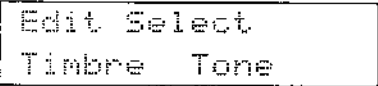


Step 1 Call the Timbre to be edited.

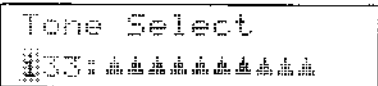
To edit a Timbre assigned to any Part, call the relevant Part Display using the DISPLAY buttons.

To edit a Timbre which is not assigned to any Part, you can use any Part Display.

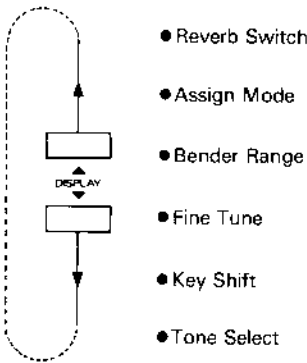
Step 2 Push the EDIT button.



Step 3 Push the left Cursor Button.



Step 4 **Select the parameter to be edited using the DISPLAY buttons.**



Step 5 **Change the value with the Value Control Knob.**

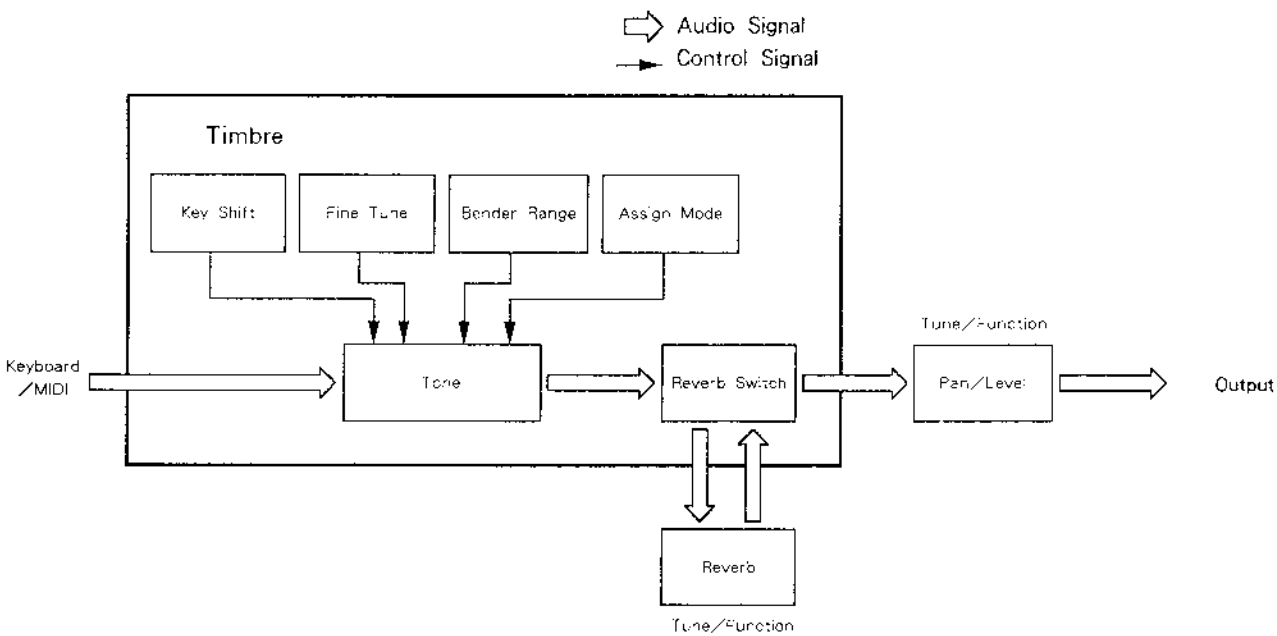
Step 6 **Repeat Steps 4 and 5 as many times as necessary.**

Step 7 **To write the value you have set, go to the writing procedure (page 101).**

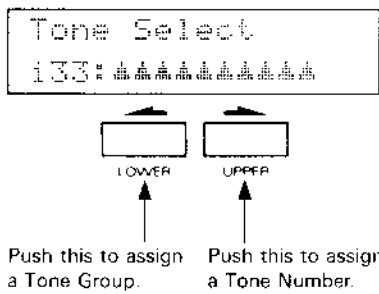
***To leave the Timbre editing mode, push the EXIT button.**

2) Timbre Parameters

A Timbre is made of the following parameters.



● Tone Select



This selects a Tone which is to be assigned to a Timbre. Depending on which memory, the internal memory or memory card the Timbre belongs to, the available Tones will differ.

	Internal		Memory Card	
Tone Group	a, b, i	r	a, b, c	r
Number	1-64	1-63, OFF	1-64	1-63, OFF

- a : Preset Tone (Internal)
- b : Preset Tone (Internal)
- r : Preset Rhythm Tone (Internal)
- i : Programmable Tone (Internal)
- c : Tone a memory card

● Key Shift

Key Shift 00

The pitch of the Tone can be set from -24 to +24 (2 octaves) in semi-tone steps.

● Fine Tune

Fine Tune 00

The pitch of a Tone can be finely changed from -50 to +50 (about ± 50 cents).

● Bender Range

Bender Range 24

This sets the variable range of the pitch change caused by moving the Bender Lever right and left from 0 to 24 (2 octaves) in semi-tone steps.

● Assign Mode

Assign Mode
1

The Assign mode refers to how each Tone should be played by Key messages received.

- 1 : Single Assign—Played with Last Note Priority
- 2 : Single Assign—Played with First Note Priority
- 3 : Multi Assign—Played with Last Note Priority
- 4 : Multi Assign—Played with First Note Priority

SINGLE ASSIGN

In this mode, when more than one Key ON message is received by the same Key Number on the same MIDI channel, the sound of that key is muted once, then played again.

MULTI ASSIGN

In this mode, when more than one Key ON message is received by the same Key Number on the same MIDI channel, two sounds are mixed.

LAST NOTE PRIORITY

In this mode, when the D-20 has received more than 32 Key ON messages, the previously received ones are replaced by the later received ones.

FIRST NOTE PRIORITY

In this mode, when the D-20 has received more than 32 Key On messages, the later received ones are ignored, retaining the currently playing sounds.

● Reverb Switch

Reverb Switch
OFF

This selects whether to use the Reverb effect or not individually for each Tone. ON turns the effect on.

c. Writing Procedure

If you wish to retain your edited Patch or Timbre, write it into the internal memory or onto an optional memory card (M-256D).

1) Writing into the internal memory

To write the edited data into the internal memory, do as follows.

***If you write the Patch or Timbre on a memory card into the D-20's internal memory, a Tone of "c" group will be automatically replaced with a Tone of "i" group. Therefore, the contents of a Patch or Timbre will be changed. To avoid this, first write the Tone on the memory card into the internal memory.(See page 146.)**

[Memory Protect]

The Memory Protect function is provided for preventing data in memory from accidental erasure. To write data into the internal memory, you should turn off the Memory Protect of the D-20.

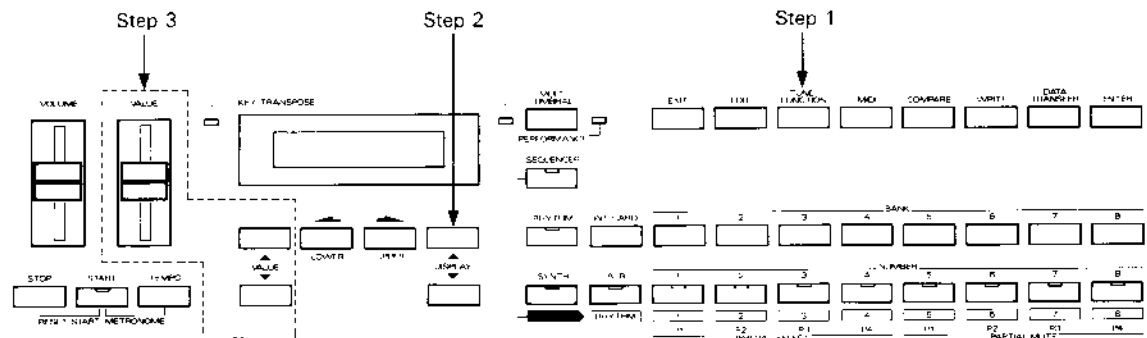
There are two types of Memory Protect OFF as follows :

<Temporary Type Memory Protect OFF during Writing>

This turns the Memory Protect function OFF just for one action of writing, then automatically returns to Protect ON right after. If you need to turn off the Memory Protect just once, such as when writing edited data, this type of Protect OFF will be sufficient.

<Normal Type Memory Protect OFF>

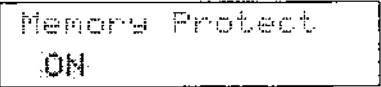
This type of Memory Protect OFF is retained until it is returned to ON, and therefore may be required when you need to write repeatedly.



Step 1 Push the TUNE/FUNCTION button.

Step 2 Push the DISPLAY ▲ button.

The Memory Protect Display will appear.

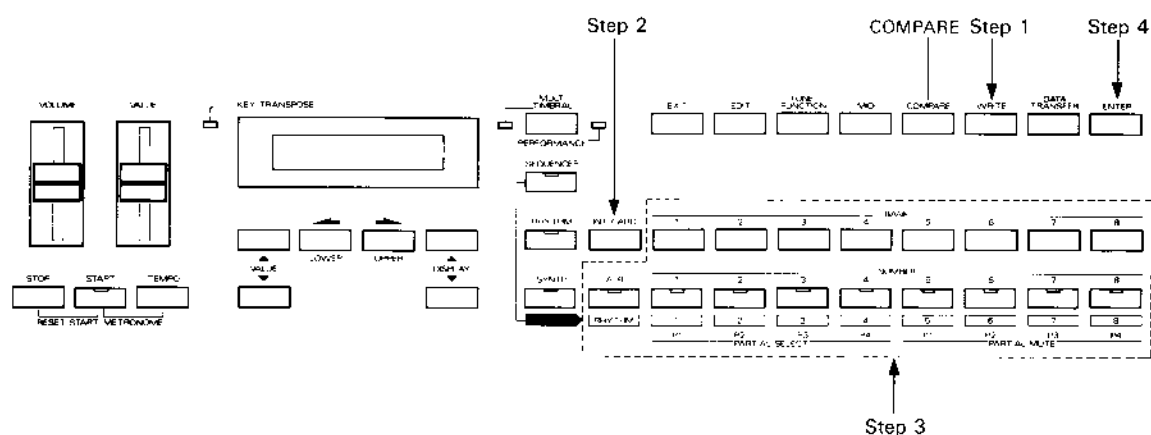


Step 3 Set the Memory Protect to OFF using the Value Control Knob.

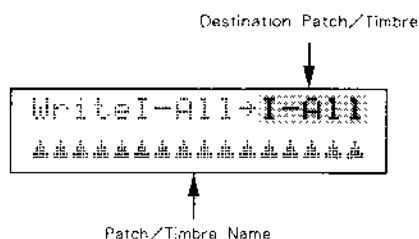
*Be sure to return the Memory Protect to ON whenever you have finished writing.

*The D-20 defaults to Memory Protect ON.

【Writing Procedure】



Step 1 Push the **WRITE** button.

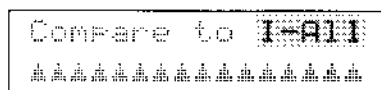


Step 2 If you have edited a Patch or Timbre on a memory card, push the **INT/CARD** button to change to "I" (Internal mode).

Step 3 To change the destination Patch or Timbre number, use the **A/B**, **BANK** and **NUMBER** buttons.

If you wish to listen to the destination Patch or Timbre, do as follows.

① Push the **COMPARE** button.



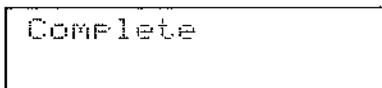
② Using the **A/B**, **BANK** and **NUMBER** buttons, assign the destination Patch or Timbre number.

Now, the relevant sound will be heard by playing any key on the keyboard.

③ Push the COMPARE button to return to the previous Display.

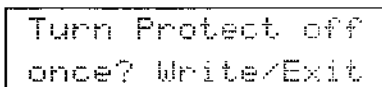
Step 4 Push the ENTER button.

When the Memory Protect function has been turned OFF, the Display responds as shown below for a while, then returns to the Play Mode Display.



Complete

If the Memory Protect has been set to ON, the Display shows as below.



Turn Protect off
once? Write/Exit

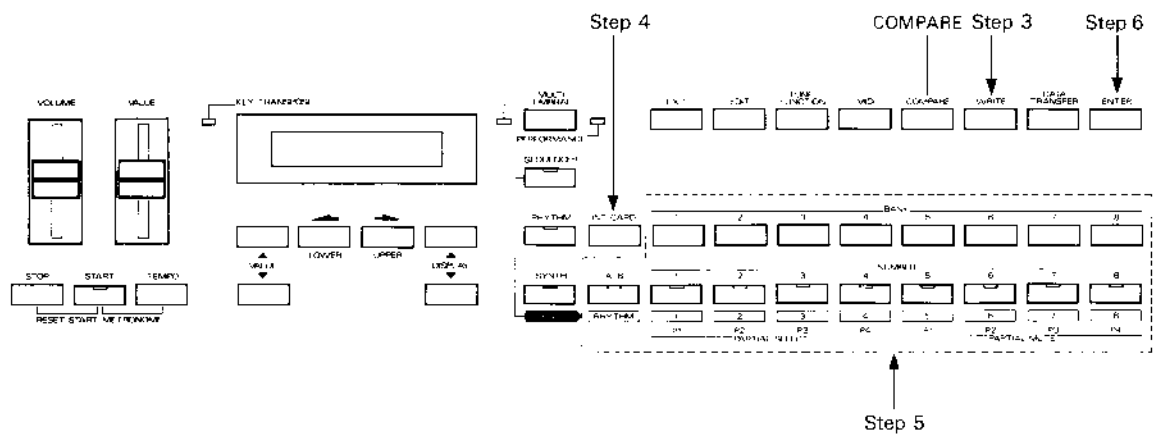
If you wish to turn the Memory Protect OFF (=Temporary Memory Protect OFF during writing) here, push the WRITE button then the ENTER button.

***If the writing procedure is not completed properly, an Error Message will be shown instead. If so, resolve it as shown on page 212 "Error Messages".**

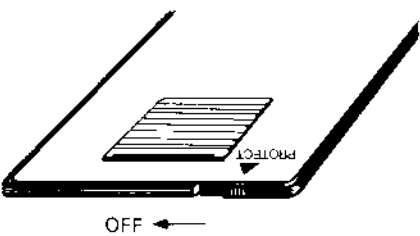
2) Writing onto a Memory Card

*When using a brand new memory card, take the "Saving" procedure (see page 189) to copy the entire data onto the memory card, before writing the Patch or Timbre data.

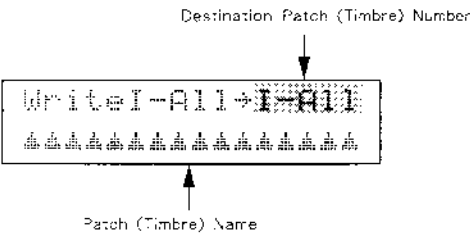
*If you write the Patch or Timbre in the D-20's internal memory onto a memory card, a Tone of i group will be automatically replaced with a Tone of c group. Therefore, the contents of a Patch or Timbre will be changed. To avoid this, first write the Tone in the internal memory onto the card.(See page 146.)



- Step 1 Insert a memory card into the Card Slot.
- Step 2 Set the Protect Switch on the memory card to the OFF position.



- Step 3 Push the WRITE button

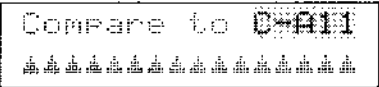


Step 4 If you have edited a source Patch or Timbre in the internal memory, change to "c" by pushing the INT/CARD button.

Step 5 If you wish to change the destination Patch or Timbre number, use the A/B, BANK and NUMBER buttons.

If you wish to listen to the destination Patch or Timbre, do as follows.

①Push the COMPARE button.



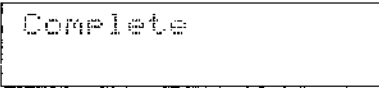
②Using the A/B, BANK and NUMBER buttons, assign the destination Patch or Timbre number.

Now, the relevant sound will be heard by playing any key on the Keyboard..

③Push the COMPARE button to return to the previous Display.

Step 6 Push the ENTER button.

When completed, the Display shows as below for a while and then returns to the Play Mode Display.



*If the writing procedure is not properly completed, an Error Message will appear instead. See page 212 "Error Messages" to resolve this.

Step 7 Return the Protect Switch on the memory card to the ON position.

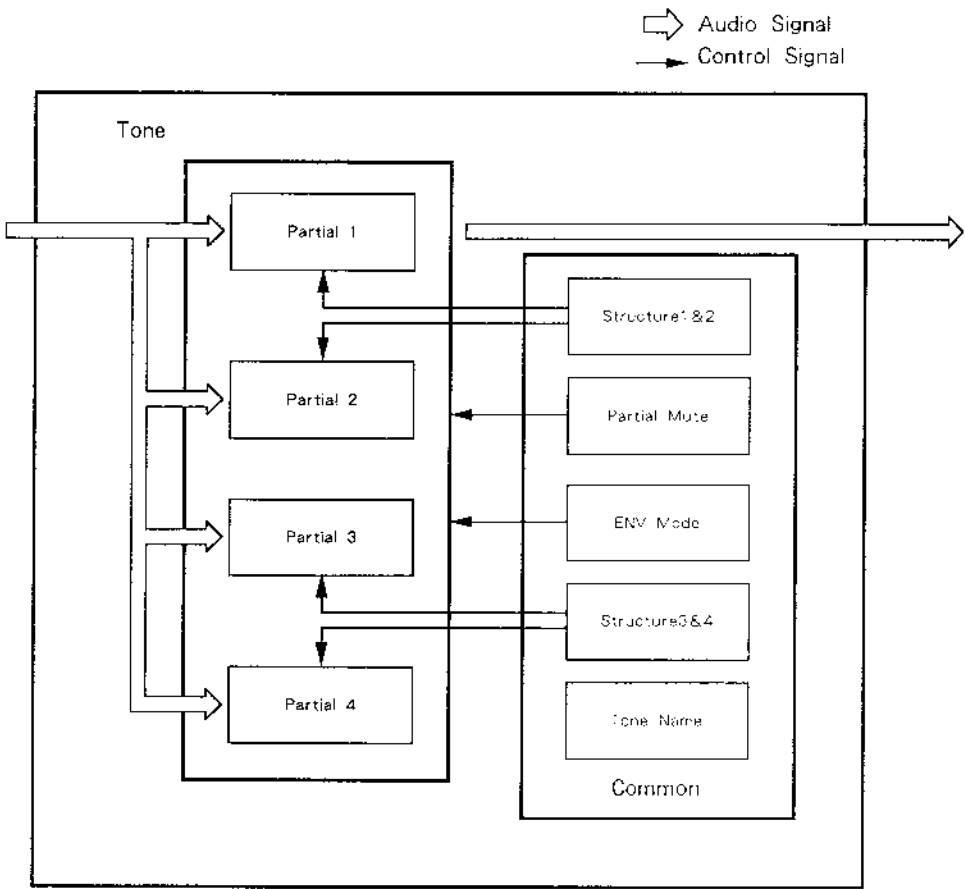
3. Tone

Please read "LA System" on page 200 together with this chapter.

a. The Basic Concept of a Tone

1) Partial and Structure

The basic concept of Tone as shown below.



A Tone consists of four Partial and a Common block. The Partial are combined in pairs, and two pairs of partials form a Tone. An important parameter called "Structure" decides how each pair of Partial should be combined, or which sound generator should be used for each Partial. COMMON parameters are common to both Tones.

[Functions of the Structure]

(1) **Selects a sound generator to be used for each Partial.**

The Structure selects which of the two sound generators, a synthesizer sound generator or a PCM sound generator.

Synthesizer Sound Generator

⇒ This synthesizer behaves like a conventional analog synthesizer.

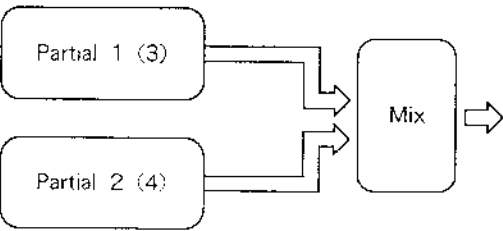
PCM Sound Generator

⇒ This behaves like a PCM sampled synthesizer.

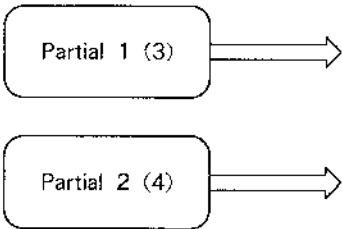
(2) **Determines how to combine two Partial.**

There are four different ways to combine Partial :

○ **Mixing two Partial**



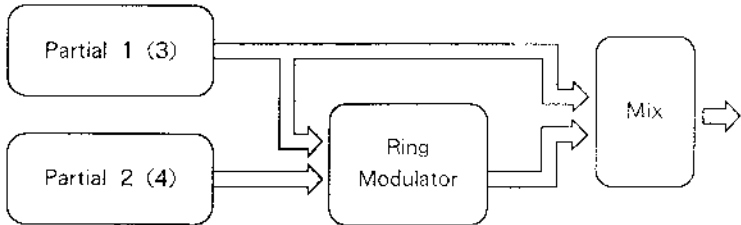
- Sending two Partial sounds in stereo. This combination is effective for Timbres or Rhythm Tones in stereo. However, if using this setting for Patches in monaural output, this will have exactly the same effect as above "Mixing two Partial".



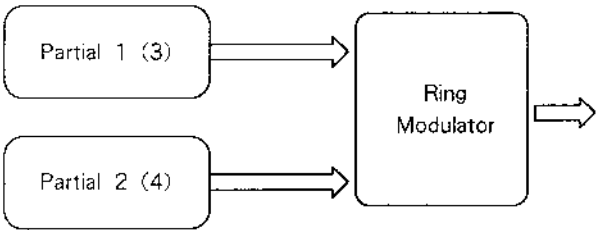
*When this Structure is selected, the condition of each Partial is automatically set as follows depending on the pan setting.

Value of Pan	Actual Value	
	Partial 1 (3)	Partial 2 (4)
<7	<7	<7
<6	<5	<7
<5	<3	<7
<4	<1	<7
<3	1>	<7
<2	3>	<7
<1	5>	<7
><	7>	<7
1>	7>	<5
2>	7>	<3
3>	7>	<1
4>	7>	1>
5>	7>	3>
6>	7>	5>
7>	7>	7>

- Partial 1 (or 3) is mixed with the ring modulated sound of two Partial (including Partial 1).



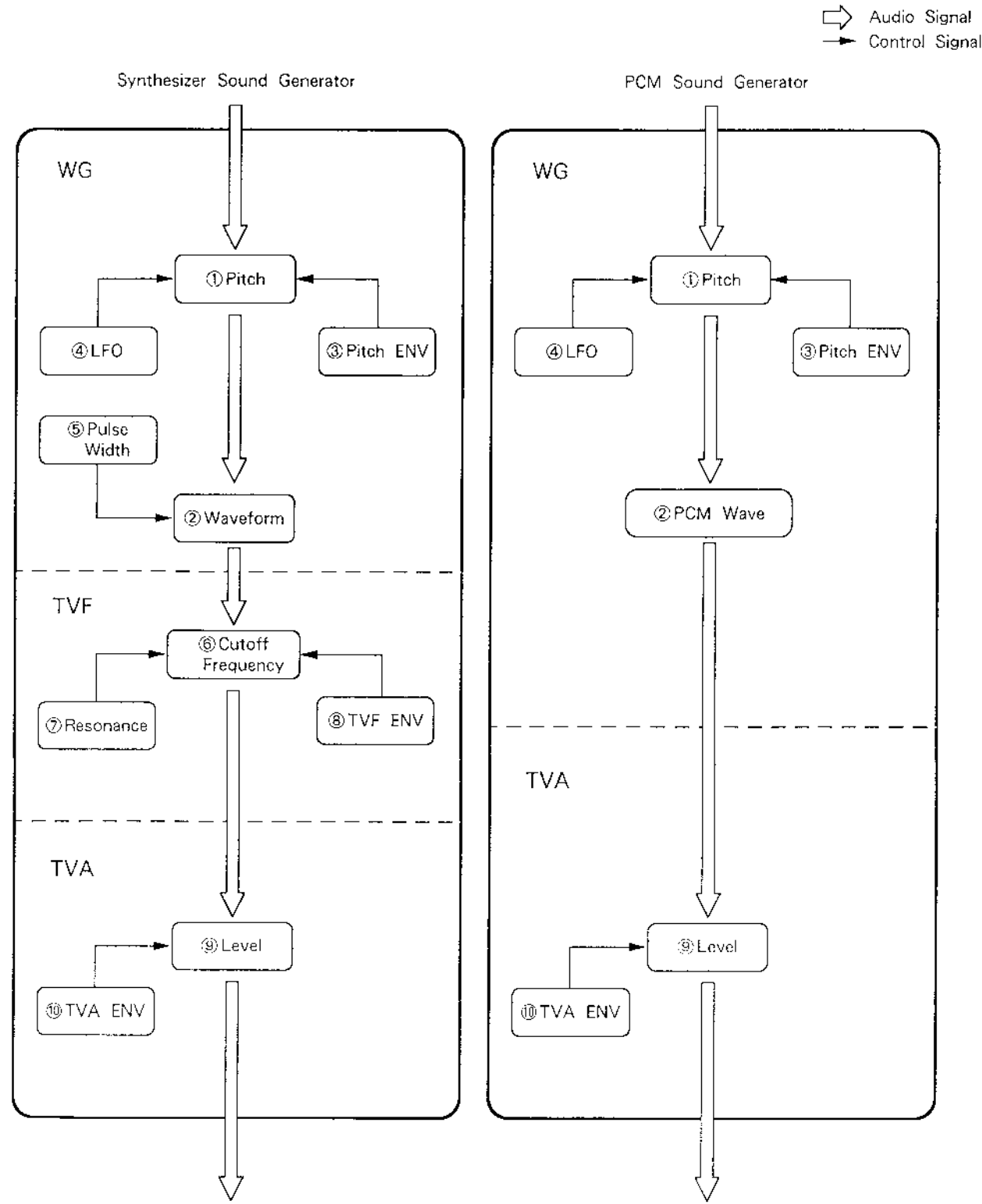
○Two Partials are ring-modulated and sent out.



The Ring Modulator can be effectively used for creating metallic sounds, since it can increase harmonics by multiplying two Partial's.

2) Partial

Depending on which generators are selected in the Partial Block, greatly different parameters will be used. Some parameters used for the synthesizer sound generators are irrelevant to the PCM generator. See the diagram below.



● WG (Wave Generator)

In the WG (Wave Generator), the pitch and wave form are controlled.

① Pitch

The basic pitch of a Partial (sound generator) at C4 key (=middle C) can be set here.

② Waveform/PCM Wave Number

This selects the waveform of the sound source.

③ Pitch ENV

This controls an envelope curve of the pitch changes caused by Key On/Off.

④ LFO (Low Frequency Oscillator)

LFO controls the vibrato.

⑤ Pulse Width

This changes the waveform of the sound source.

● TVF (Time Variant Filter)

This filter passes lower frequency harmonics and cuts off the higher ones. By changing the cutoff point and the resonance, the waveform changes.

⑥ Cutoff Frequency

This sets the cutoff point.

⑦ Resonance

This emphasizes the cutoff point, making more unusual or electronic sounds.

⑧ TVF ENV

This controls an envelope curve which changes the cutoff point, caused by Key On/Off.

● TVA (Time Variant Amplifier)

This controls the volume of the Partial.

⑨ Level

This determines the volume of the sound.

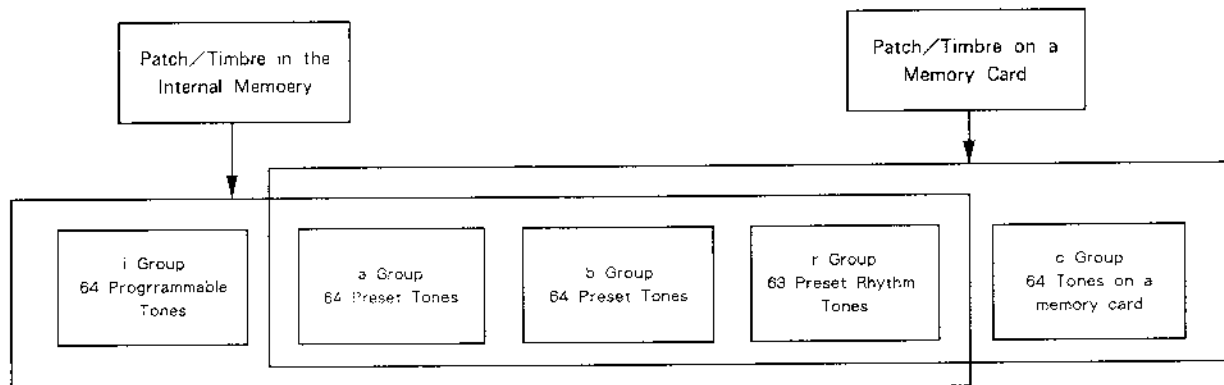
⑩ TVA ENV

This controls an envelope curve of the level changes caused by Key On/Off.

b. Editing Procedure

⇒ For quicker and easier editing or synthesizing from scratch, the optional programmer PG-10 may be essential.

There are various groups of Tones. The Tones available for a Timbre or Patch differ depending on which memory, the internal memory or memory card, it belongs to.



1) Editing Procedure

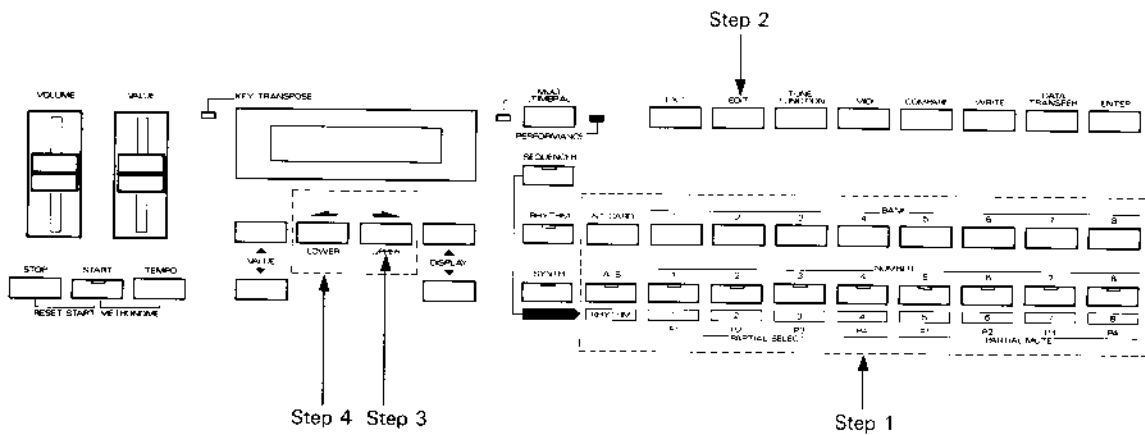
*The editing procedure does not automatically rewrite the existing data, the appropriate writing procedure on page 146 must be taken.

【Tone Selection】

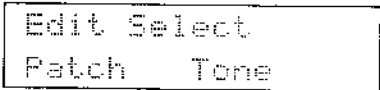
Select a Tone which is similar to the sound you wish to make. The procedure for selecting a Tone differs in the Performance mode or Multi Timbral mode.

=Performance Mode=

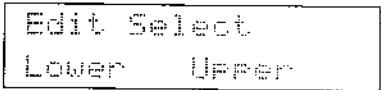
Enter the Performance Play mode (The Performance and Synth Indicators light up), then do as follows.



- Step 1 Select a Patch that contains the Tone you want.
- Step 2 Push the EDIT button.



- Step 3 Push the right Cursor Button.



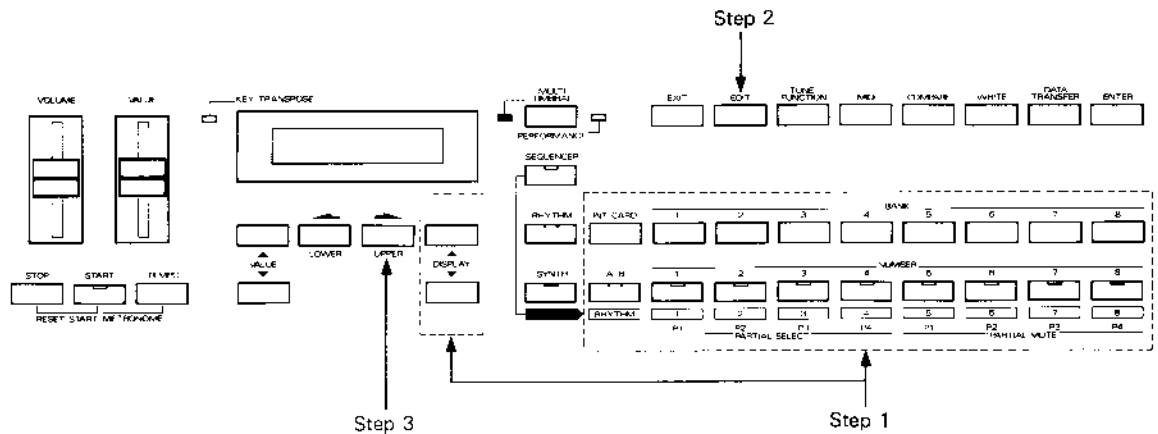
- Step 4 To edit the Lower Tone, push the left Cursor Button, and to edit the Upper Tone, the Cursor Button on the right.



Go to the following "Editing Tone Parameters".

= Multi Timbral Mode =

Take the following procedure in the Multi Timbral Play mode (=the Multi Timbral and Synth Indicators are lit.)



Step 1 Select a Timbre that contains the Tone you want.

To select a Timbre already assigned to any Part, use the relevant Part Display.

To select a Timbre which is not assigned to any Part, you can use any Part Display.

Step 2 Push the EDIT button.

```

Edit Select
Timbre Tone
    
```

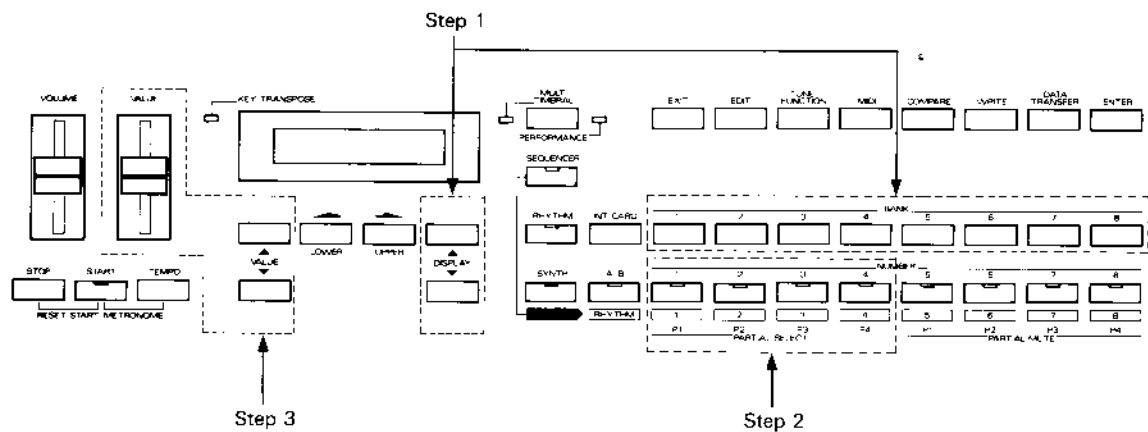
Step 3 Push the right Cursor Button.

```

Common
Select Parameter
    
```

Go to the following "Editing Tone Parameters".

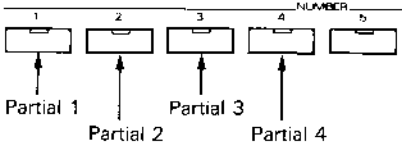
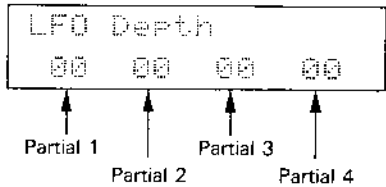
[Editing Tone Parameters]



Step 1 Call the group that contains the parameter to be edited using the **DISPLAY** buttons, then select the parameter with the **BANK** button. (See the table below.)

Group	BANK							
	1	2	3	4	5	6	7	8
TVA ENV	Key Follow (Time)	Time 1	Time 2	Time 3	Time 4	Level 1	Level 2	Sustain Level
TVA Level	Level	Velocity	Bias Point 1	Bias Level 1	Bias Point 2	Bias Level 2	ENV Velocity Follow (Time)	
TVF ENV	Key Follow (Time)	Time 1	Time 2	Time 3	Time 4	Level 1	Level 2	Sustain Level
TVF Frequency	Cutoff Frequency	Resonance	Key Follow	Bias Point	Bias Level	ENV Depth	ENV Velocity	ENV Key Follow (Depth)
WG Pitch ENV	Time 1	Time 2	Time 3	Time 4	Level 0	Level 1	Level 2	End Level
WG Form/ Pitch ENV	Waveform	PCM Wave Bank	PCM Wave No.	Pulse Width	PW Velocity	ENV Depth	ENV Velocity	ENV Key Follow (Time)
WG Pitch Modulation	Pitch Coarse	Pitch Fine	Key Follow (Pitch)	LFO Rate	LFO Depth	LFO Modulation Sensitivity	Bender Switch	
Common	Tone Name	Structure 1 & 2	Structure 3 & 4	ENV Mode				

Step 2 The Partial's Display shows the values of four Partials at the same time. Select the value to be edited using the **NUMBER** buttons (1-4).



The corresponding Number Indicator will light up and the value you have selected (=flashing) can be now edited. It is possible to edit more than one Partial simultaneously by pressing different NUMBER buttons.

Step 3 **Change the value with the Value Control Knob.**

Step 4 **If you wish to write the edited value, take the appropriate writing procedure (page 146) immediately.**

***If you do not wish to write the edited value, push the EXIT button.**

2) Editing Functions

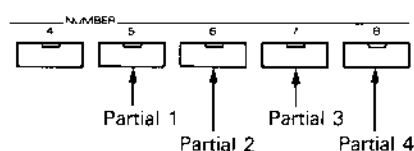
Various useful functions for editing are provided as follows.

【Partial Mute】

While editing a Partial parameter, any Partial sound can be muted, for you to listen to only the Partial you need.

The Partial Mute, which is also one of the Tone parameters, can be written into memory.

Simply push the relevant NUMBER buttons (5–8). The button indicator is muted when the corresponding Partial is muted.



*Parameters of the Partial currently muted can be edited just the same.

*Muting one of the Partials used in the Ring Modulator will automatically output the other Partial which is not muted.

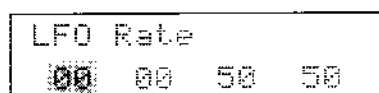
*Partial Mute decreases the number of Partials which are to be used, and therefore increases the number of voices.

【Previous Value】

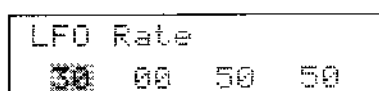
"Previous Value" is the function that returns the current value of the parameter to the original value before being edited in the same Display.

<e.g.>

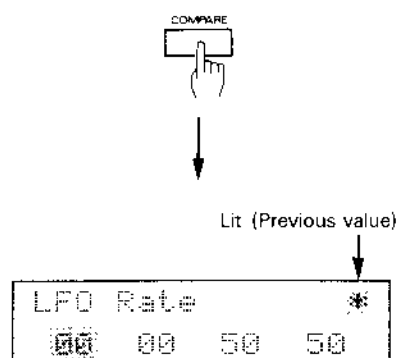
① Change to the LFO Display.



② Change the value of Partial 1 from 00 to 30.



③ Push the COMPARE button.



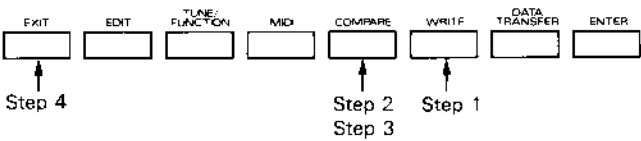
Now, the value before being edited (=00) is retrieved and played from the keyboard.

④ Push the COMPARE button to return to the edited value (sound).

*If you change the value or the setting of the Partial Select in the Previous Value Display, the * mark will disappear and the Previous Value mode is cancelled. This means that pressing the COMPARE button does not retrieve the edited value (--30).

【Compare】

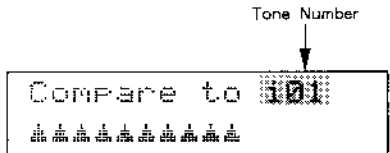
While editing a parameter, you may wish to hear the original sound before it was edited. The Compare function allows you to call the original Tone without erasing the edited sound.



Step 1 Push the **WRITE** button.

Step 2 Push the **COMPARE** button.

The original sound can be heard by playing the keyboard.

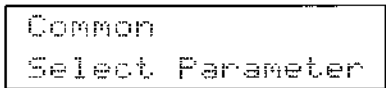


*If the source Tone you have been using is a Preset Tone, the Display does not show the Tone Number.

Step 3 Push the **COMPARE** button to return the edited Tone.

Step 4 Push the **EXIT** button.

Now, the unit is returned to the Tone Editing mode.



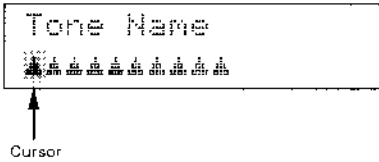
c. Tone Parameters

Some parameters included in a Partial that uses PCM sound generators are invalid. The following mark is shown when the parameters apply even for PCM sounds.

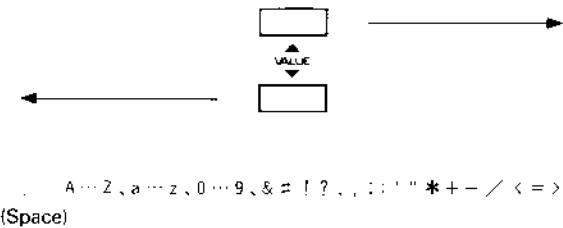
PCM

1) Common

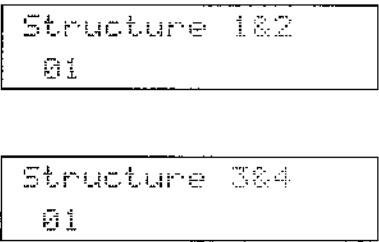
● Tone Name **PCM**



A Tone can be named using up to 10 letters. Move the cursor to the letter to be changed, then change letters with the Value Control Knob. The available letters for naming are as shown below.



Structure 1&2/3&4 **PCM**



Select one of the following 13 Structures.

S (Synthesizer Sound Generator)
P (PCM Sound Generator)

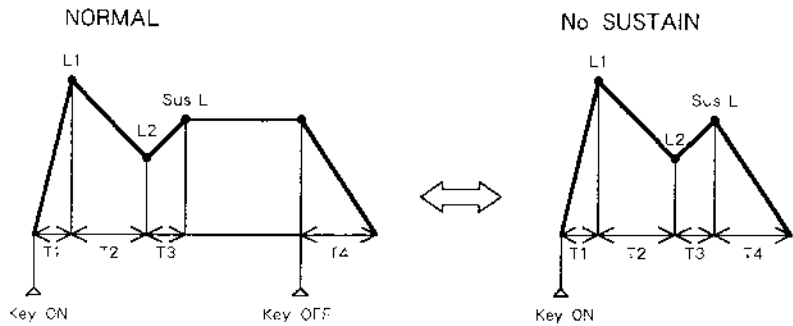
Structure Number	Partial 1	Partial 2	Combination of two Partial	Block Diagram
1	S	S	Mixtrue of Partial 1 (or 3) and Partial 2 (or 4).	
2	S	S	Mixtrue of Partial 1 (or 3) and ring-modulation.	
3	P	S	Mixtrue of Partial 1 (or 3) and Partial 2 (or 4).	
4	P	S	Mixtrue of Partial 1 (or 3) and ring-modulation.	
5	S	P	Mixtrue of Partial 1 (or 3) and ring-modulation.	
6	P	P	Mixtrue of Partial 1 (or 3) and Partial 2 (or 4).	
7	P	P	Mixtrue of Partial 1 (or 3) and ring-modulation.	
8	S	S	Partial 1 (or 3) and Partial 2 (or 4) are output in stereo.	
9	P	P	Partial 1 (or 3) and Partial 2 (or 4) are output in stereo.	
10	S	S	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	
11	P	S	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	
12	S	P	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	
13	P	P	Partial 1 (or 3) and Partial 2 (or 4) are ring-modulated then output.	

● ENV Mode **PCM**

ENV Mode
NORMAL

This selects whether to receive or ignore the Key Off messages in the ENV of each Partial. Normally, this should be set to NORMAL, but set to NO SUSTAIN for programming a Rhythm Tone.

[e.g.] TVF ENV/TVA ENV



*When using a non-Rhythm Tone as a rhythm tone, the ENV mode always changes to NO SUSTAIN no matter how it is set. (This applies to only when playing a rhythm tone with a rhythm pattern.)

2) WG Pitch/Modulation

● Pitch Coarse **PCM**

WG Pitch Coarse			
C4	C4	C4	C4

This sets the standard pitch of a Partial in semi-tone steps from C1 to C9.

*The standard pitch is the pitch at C4 (middle C) key.

● Pitch Fine **PCM**

WG Pitch Fine			
00	00	00	00

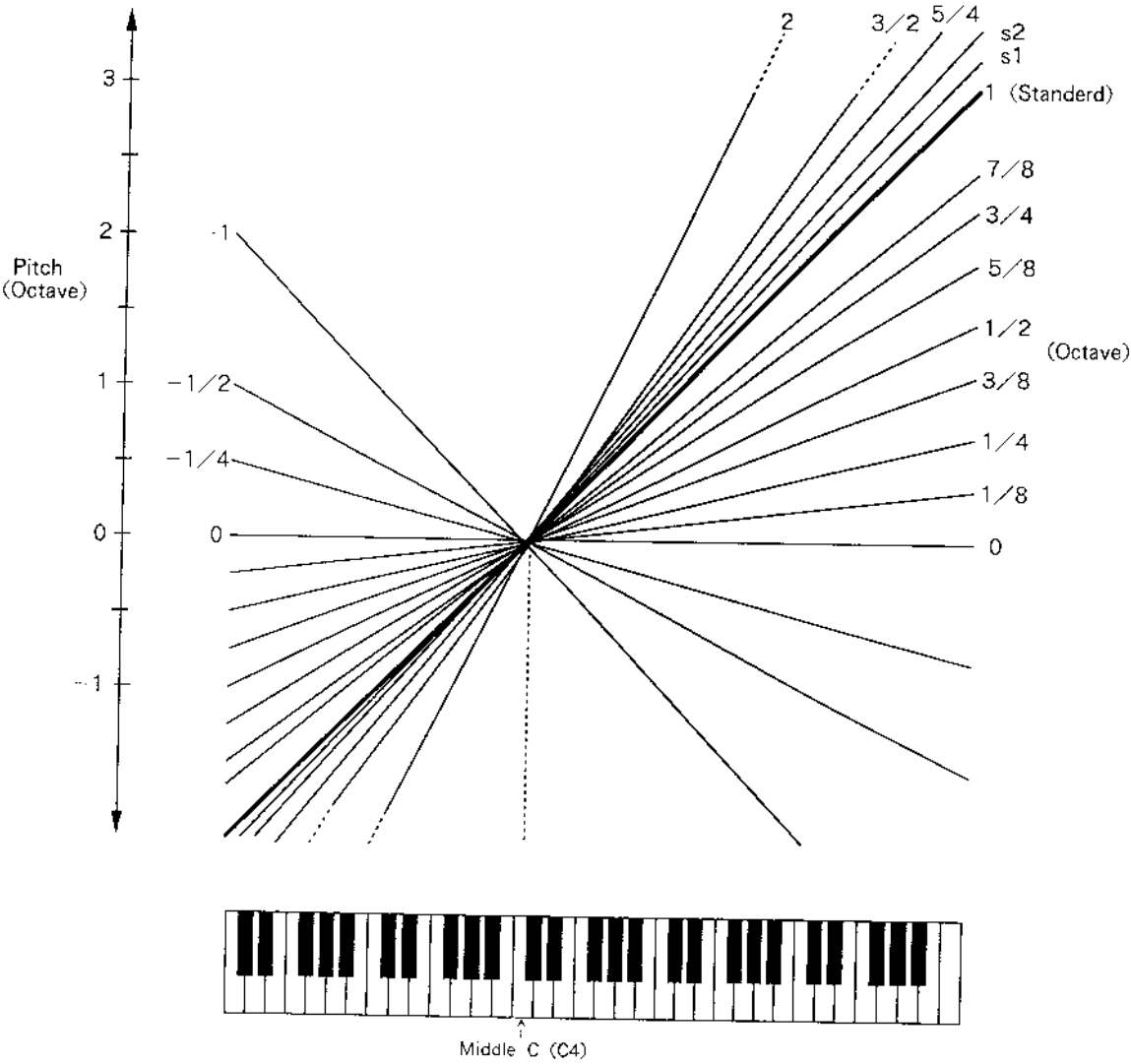
The standard pitch can be altered over about ± 50 cents from -50 to +50.

● Key Follow (Pitch) **PCM**

WG Pitch KF			
1	1	1	1

Usually, the keyboard of a synthesizer assigns a semi-tone to each key. This Parameter can change the pitch ratio as shown below.

A value represents how many octaves are changed over 12 keys.



*s1 or s2 may be selected for slightly stretching octaves. The "s" standing for special tuning.

s1 : Pitch 1 cent higher than one octave.

s2 : Pitch 5 cents higher than one octave.

● LFO Rate **PCM**

LFO Rate
00 00 00 00

This sets the rate (frequency) of the LFO from 0 to 100. Higher values quicken the rate.

● LFO Depth **PCM**

LFO Depth
00 00 00 00

This sets the depth of the LFO from 0 to 100. Higher values deepen the depth.

● Modulation Sensitivity **PCM**

WG Modulation
00 00 00 00

This sets the sensitivity of the vibrato depth controlled by the bender lever from 0 to 100. Higher values deepen the effect.

● Bender Switch **PCM**

WG Bender Switch
ON ON ON ON

This selects whether to control the pitch by the bender lever or not.


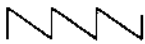
3) WG Form/Pitch ENV

● Waveform **PCM**

WG Waveform

SQU SQU SQU SQU

This selects a waveform of the synthesizer sound generator.

Display	Waveform
SQU (Square)	
SAW (Sawtooth)	

*A sawtooth waveform is produced by processing a square waveform at the TVF, that is, even a sawtooth waveform can be controlled by Pulse Width.

● PCM Wave Bank/Number **PCM**

PCM Wave Bank

WG PCM Wave Bank

1 1 1 1

PCM Wave Number

WG PCM Wave No.

01 01 01 01

This selects one of the 256 different sampled waves (128 waves in each Bank 1 or 2) of the PCM sound generator. Each sample is named (PCM name) as shown in the following table. A PCM name is shown in the PCM Wave Number Display when only one Partial is selected with the Partial Select parameter.

WG PCM Wave No.

1- 01:#####

↑

Bank

↑

Number

↑

PCM Name

*For PCM sounds 112 to 128 in Bank 1, noise may be conspicuous during decay, depending on the setting of the TVA ENV.

Bank 1

No.	PCM Name	Remarks
1	Bass Drum-1	Rhythm Sound
2	Bass Drum-2	
3	Bass Drum-3	
4	Snare Drum-1	
5	Snare Drum-2	
6	Snare Drum-3	
7	Snare Drum-4	
8	Tom Tom-1	
9	Tom Tom-2	
10	High-Hat	
11	High-Hat (Loop)	
12	Crash Cymbal-1	
13	Crash Cymbal-2 (Loop)	
14	Ride Cymbal-1	
15	Ride Cymbal-2 (Loop)	
16	Cup	
17	China Cymbal-1	
18	China Cymbal-2 (Loop)	
19	Rim Shot	
20	Hand Clap	
21	Mute High Conga	
22	Conga	
23	Bongo	
24	Cowbell	
25	Tambourine	
26	Agogo	
27	Claves	
28	Timbale High	
29	Timbale Low	
30	Cabasa	
31	Timpani Attack	Attack Sound
32	Timpani	
33	Acoustic Piano High	
34	Acoustic Piano Low	
35	Piano Forte Thump	
36	Organ Percussion	
37	Trumpet	
38	Lips	
39	Trombone	
40	Clarinet	
41	Flute High	
42	Flute Low	
43	Steamer	
44	Indian Flute	
45	Breath	
46	Vibraphone High	
47	Vibraphone Low	
48	Marimba	
49	Xylophone High	
50	Xylophone Low	
51	Kalimba	
52	Wind Bell	
53	Chime Bar	
54	Hammer	
55	Guio	
56	Chink	
57	Nails	
58	Fretless Bass	
59	Pull Bass	
60	Slap Bass	
61	Thump Bass	
62	Acoustic Bass	
63	Electric Bass	
64	Gut Guitar	

No.	PCM Name	Remarks
65	Steel Guitar	
66	Dirty Guitar	
67	Pizzicato	
68	Harp	
69	Contrabass	
70	Cello	
71	Violin-1	
72	Violin-2	
73	Koto	
74	Draw bars (Loop)	Sustained Sound
75	High Organ (Loop)	
76	Low Organ (Loop)	
77	Trumpet (Loop)	
78	Trombone (Loop)	
79	Sax-1 (Loop)	
80	Sax-2 (Loop)	
81	Reed (Loop)	
82	Slap Bass (Loop)	
83	Acoustic Bass (Loop)	
84	Electric Bass-1 (Loop)	
85	Electric Bass-2 (Loop)	
86	Gut Guitar (Loop)	
87	Steel Guitar (Loop)	
88	Electric Guitar (Loop)	
89	Clav (Loop)	
90	Cello (Loop)	
91	Violin (Loop)	
92	Electric Piano-1 (Loop)	
93	Electric Piano-2 (Loop)	
94	Harpsichord-1 (Loop)	
95	Harpsichord-2 (Loop)	
96	Telephone Bell (Loop)	
97	Female Voice-1 (Loop)	
98	Female Voice-2 (Loop)	
99	Male Voice-1 (Loop)	
100	Male Voice-2 (Loop)	
101	Spectrum-1 (Loop)	
102	Spectrum-2 (Loop)	
103	Spectrum-3 (Loop)	
104	Spectrum-4 (Loop)	
105	Spectrum-5 (Loop)	
106	Spectrum-6 (Loop)	
107	Spectrum-7 (Loop)	
108	Spectrum-8 (Loop)	
109	Spectrum-9 (Loop)	
110	Spectrum-10 (Loop)	
111	Noise (Loop)	
112	Shot-1	Decay Sound
113	Shot-2	
114	Shot-3	
115	Shot-4	
116	Shot-5	
117	Shot-6	
118	Shot-7	
119	Shot-8	
120	Shot-9	
121	Shot-10	
122	Shot-11	
123	Shot-12	
124	Shot-13	
125	Shot-14	
126	Shot-15	
127	Shot-16	
128	Shot-17	

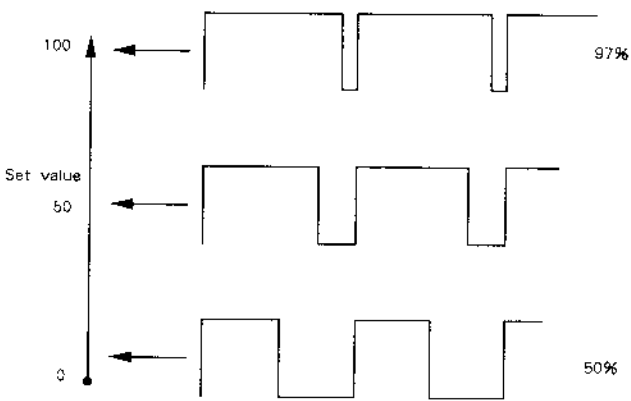
Bank 2

No.	PCM Name	Remarks	No.	PCM Name	Remarks
1	Bass Drum-1*	Rhythm Sound (The Master Tune does not affect the pitch.)	65	Loop-35	
2	Bass Drum-2*		66	Loop-36	
3	Bass Drum-3*		67	Loop-37	
4	Snare Drum-1*		68	Loop-38	
5	Snare Drum-2*		69	Loop-39	
6	Snare Drum-3*		70	Loop-40	
7	Snare Drum-4*		71	Loop-41	
8	Tom Tom-1*		72	Loop-42	
9	Tom Tom-2*		73	Loop-43	
10	High-Hat*		74	Loop-44	
11	High-Hat* (Loop)		75	Loop-45	
12	Crash Cymbal-1*		76	Loop-46	
13	Crash Cymbal-2* (Loop)		77	Loop-47	
14	Ride Cymbal-1*		78	Loop-48	
15	Ride Cymbal-2* (Loop)		79	Loop-49	
16	Cup*		80	Loop-50	
17	China Cymbal-1*		81	Loop-51	
18	China Cymbal-2* (Loop)		82	Loop-52	
19	Rim Shot*		83	Loop-53	
20	Hand Clap*		84	Loop-54	
21	Mute High Conga*		85	Loop-55	
22	Conga*		86	Loop-56	
23	Bongo*		87	Loop-57	
24	Cowbell*		88	Loop-58	
25	Tambourine*		89	Loop-59	
26	Agogo*		90	Loop-60	
27	Claves*		91	Loop-61	
28	Timbale High*		92	Loop-62	
29	Timbale Low*		93	Loop-63	
30	Cabasa*		94	Loop-64	
31	Loop-1	Effect Sound (The same sound is repeated.)	95	Jam-1 (Loop)	Effect Sound (A combination of several sounds is repeated.)
32	Loop-2		96	Jam-2 (Loop)	
33	Loop-3		97	Jam-3 (Loop)	
34	Loop-4		98	Jam-4 (Loop)	
35	Loop-5		99	Jam-5 (Loop)	
36	Loop-6		100	Jam-6 (Loop)	
37	Loop-7		101	Jam-7 (Loop)	
38	Loop-8		102	Jam-8 (Loop)	
39	Loop-9		103	Jam-9 (Loop)	
40	Loop-10		104	Jam-10 (Loop)	
41	Loop-11		105	Jam-11 (Loop)	
42	Loop-12		106	Jam-12 (Loop)	
43	Loop-13		107	Jam-13 (Loop)	
44	Loop-14		108	Jam-14 (Loop)	
45	Loop-15		109	Jam-15 (Loop)	
46	Loop-16		110	Jam-16 (Loop)	
47	Loop-17		111	Jam-17 (Loop)	
48	Loop-18		112	Jam-18 (Loop)	
49	Loop-19		113	Jam-19 (Loop)	
50	Loop-20		114	Jam-20 (Loop)	
51	Loop-21		115	Jam-21 (Loop)	
52	Loop-22		116	Jam-22 (Loop)	
53	Loop-23		117	Jam-23 (Loop)	
54	Loop-24		118	Jam-24 (Loop)	
55	Loop-25		119	Jam-25 (Loop)	
56	Loop-26		120	Jam-26 (Loop)	
57	Loop-27		121	Jam-27 (Loop)	
58	Loop-28		122	Jam-28 (Loop)	
59	Loop-29		123	Jam-29 (Loop)	
60	Loop-30		124	Jam-30 (Loop)	
61	Loop-31		125	Jam-31 (Loop)	
62	Loop-32		126	Jam-32 (Loop)	
63	Loop-33		127	Jam-33 (Loop)	
64	Loop-34		128	Jam-34 (Loop)	

● Pulse Width

WG Pulse Width			
50	50	50	50

A square waveform has exactly the same width, vertically and horizontally, but a Pulse Width waveform has different widths. The ratio of upper width to lower is called pulse width. 0 to 100 are valid for setting the pulse width. Depending on the set pulse width value, the harmonic content of the sound changes greatly.

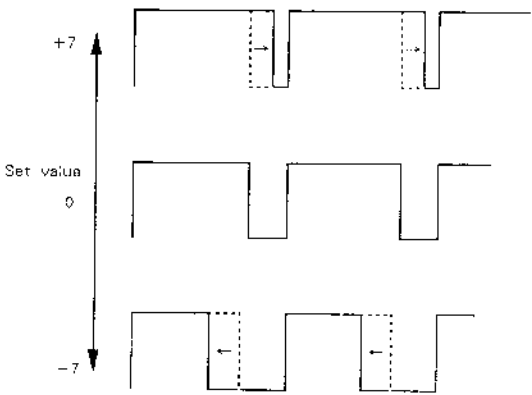


*When a sawtooth is selected with the WG Waveform parameter, pulse width 50% raises the pitch by an octave.

● Pulse Width Velocity Sensitivity

WG PW Velocity			
00	00	00	00

This sets the sensitivity of the velocity that controls the pulse width from -7 to +7. With "-" values, the pulse width becomes smaller by playing the keyboard harder, and with "+" values, the pulse width becomes wider by playing the keyboard harder.



● Pitch ENV Depth

PCM

P-ENV Depth			
05	05	05	05

This sets the depth of the Pitch ENV from 1 to 10. Higher values deepen the effect.

● Pitch ENV Velocity Sensitivity

PCM

P-ENV Velocity			
02	02	02	02

This sets the maximum effect of the velocity that controls the pitch of the Pitch ENV from 0 to 3. At higher values, the keyboard velocity has a greater effect on the envelope.

● Pitch ENV Key Follow (Time)

PCM

P-ENV Time KF			
00	00	00	00

This sets the time of the Pitch ENV depending on the key played, from 0 to 4. Higher values change the time more drastically.

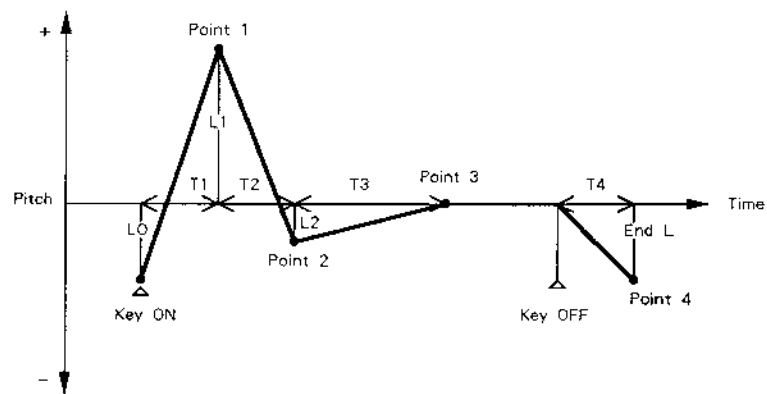


4) Pitch ENV

● Pitch ENV Time/Level

PCM

These parameters are the time needed for a pitch curve to move from one point to another, and the pitch level of a certain point.



Time 1/Time 2/Time 3/Time 4

P-ENV Time 1
50 50 50 50

P-ENV Time 2
50 50 50 50

P-ENV Time 3
50 50 50 50

P-ENV Time 4
50 50 50 50

This sets the time needed from one point to another, from 0 to 100.

Level 0/Level 1/Level 2/End Level

P-ENV Level 0
00 00 00 00

P-ENV Level 1
00 00 00 00

P-ENV Level 2
00 00 00 00

P-ENV End Level
00 00 00 00

This sets the pitch of a certain point from -50 to+50.

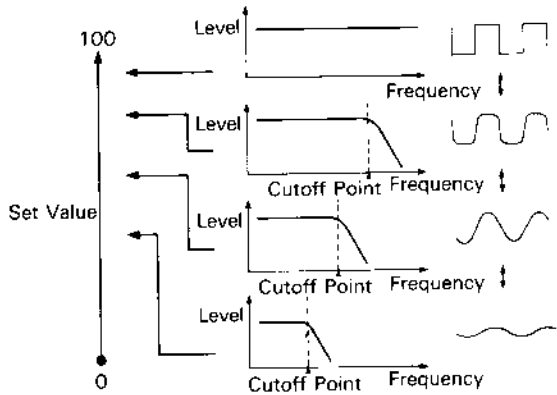
*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

5) TVF Frequency/ENV

● Cutoff Frequency

TVF Cutoff Freq
100 100 100 100

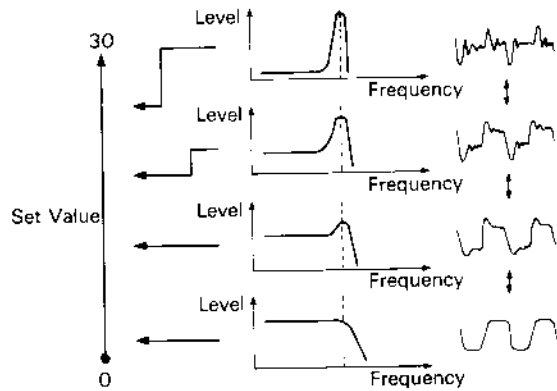
This sets the cutoff point of the TVF from 0 to 100. As you lower the value, higher frequencies are removed and the waveform gradually become an approximation of a sine wave, then the sound will finally fade out.



● Resonance

TVF Resonance
00 00 00 00

This boosts the cutoff point from 0 to 30. As you increase the value, specific harmonics are emphasized and the sound will become more unusual, more electronic in nature.

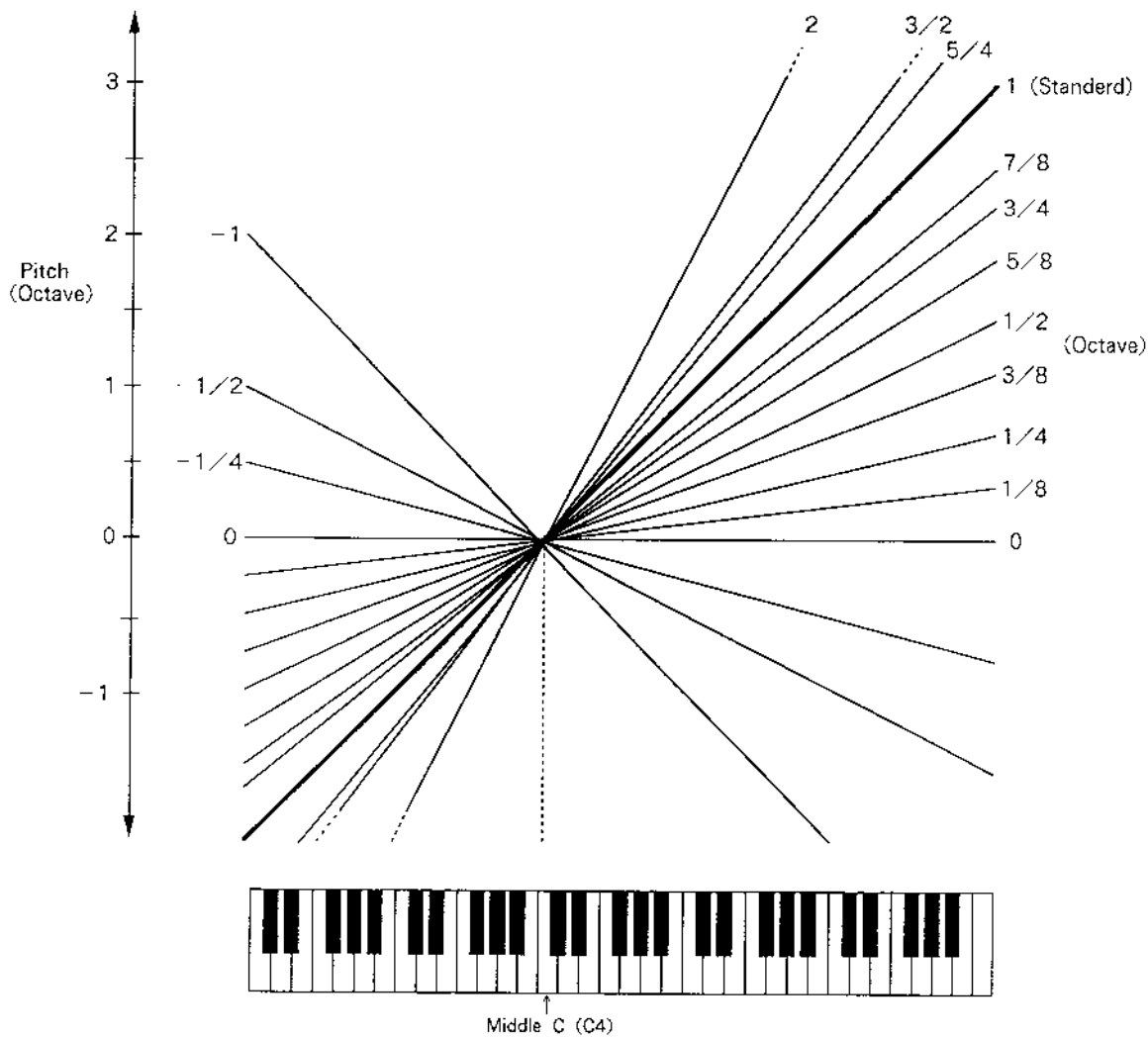


● Key Follow (Frequency)

TUF	Freq	KF
1/2	1/2	1/2 1/2

This can change the cutoff point depending on the key played.

Just like the Key Follow of WG Pitch, the value represents how many octaves change over 12 keys.



● Bias Point/Level

You can add a further change (=bias level) to the Key Follow curve from any point (key).

Bias Point

```
TVF Bias Point
<C4 <C4 <C4 <C4
```

This sets the range (point and direction) where the bias level is valid, from <A1 to <C7 and from >A1 to >C7 in semi-tone steps.

[e.g.] >C4 : The bias level is valid on the keyboard above the C4 key.

<C4 : The bias level is valid on the keyboard below the C4 key.

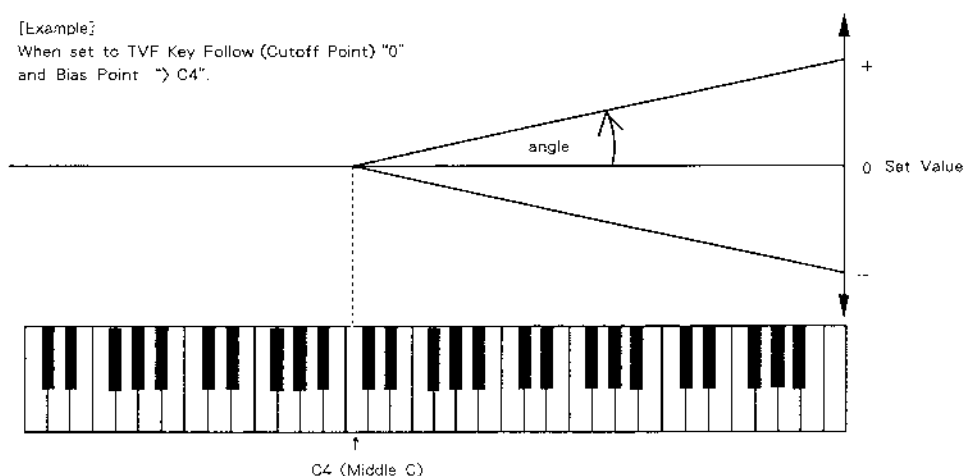
Bias Level

```
TVF Bias Level
00 00 00 00
```

This bias level can be set from -7 to +7. "+" values raise the curve, and "-" values lower the curve.

[Example]

When set to TVF Key Follow (Cutoff Point) "0" and Bias Point "> C4".



*The curve shown in the picture represents the Key Follow value with the Bias Level added.

●ENV Depth

TVF	ENV	Depth	
50	50	50	50

This sets the depth of the TVF ENV modulation that changes the TVF Cutoff point. 0 to 100 are valid. At higher values the effect is deeper.

●ENV Velocity Sensitivity

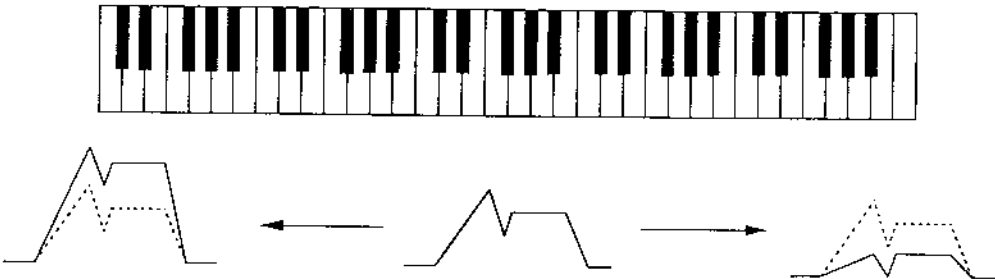
TVF	ENV	Velocity	
50	50	50	50

This sets the sensitivity of the velocity that controls the depth of the TVF ENV. 0 to 100 are valid. At higher values, the effect is deeper by playing the keyboard harder.

●ENV Key Follow (Depth)

TVF	ENV	Depth	KF
00	00	00	00

This can change the TVF ENV depth depending on the key played. 0 to 4 are valid, higher values change the depth more drastically.

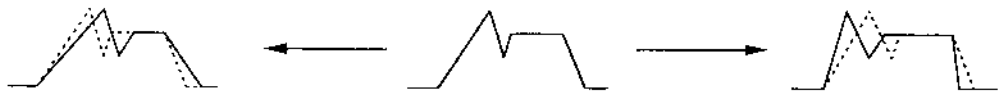


6) TVF ENV

● ENV Key Follow (Time)

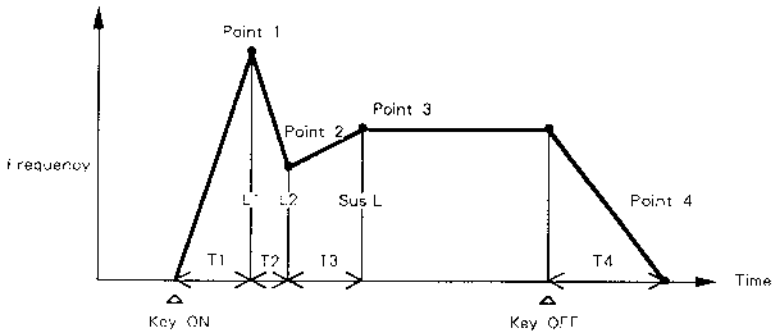
TVF	ENV	Time	KF
00	00	00	00

This can change the time of the TVF ENV depending on the key played. 0 to 4 are valid, higher values changing the time more drastically.



● ENV Time/Level

These parameters are the time needed for the envelope curve of cutoff frequencies to move from one point to another, and the level of the cutoff frequencies at a certain point.



Time 1/Time 2/Time 3/ Time 4

TUF	ENV	Time 1
50	50	50 50

TUF	ENV	Time 2
50	50	50 50

TUF	ENV	Time 3
50	50	50 50

TUF	ENV	Time 4
50	50	50 50

This sets the time needed from one point to another, from 0 to 100.

Level 0/Level 1/Level 2/End Level

TUF	ENV	Level 1
50	50	50 50

TUF	ENV	Level 2
50	50	50 50

TUF	ENV	Sus Lev1
50	50	50 50

This sets the level of a certain point from -50 to+50.

*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

7) TVA Level

● Level **PCM**

```
TVA Level
 50  50  50  50
```

This sets the volume of a Partial from 0 to 100.

*Higher values may cause sound distortion. If so, lower the value.

*Even when this is set to zero here, the sound may not be completely muted if the TVA ENV curve is high.

● Velocity Sensitivity **PCM**

```
TVA Velocity
00  00  00  00
```

This sets the sensitivity of the velocity that controls the volume of the sound from -50 to +50. "-" values lower the level by harder playing, and "+" values raise the level by harder playing.

● Bias Point/Level **PCM**

You can add a further change (=bias level) to the volume level from any point (key).

Bias Point

```
TVA Bias Point 1
<C4 <C4 <C4 <C4
```

```
TVA Bias Point 2
<C4 <C4 <C4 <C4
```

This sets the range (point and direction) where the bias level is valid at two positions (keys), from <A1 to <C7 and from >A1 to >C7 in semi-tone steps.

[e.g.] >C4 : The bias level is valid on the keyboard above the C4 key.
 <C4 : The bias level is valid on the keyboard below the C4 key.

Bias Level

TVA Bias Level 1
00 00 00 00

TVA Bias Level 2
00 00 00 00

This bias level can be set from 0 to -12. Lower values lower the curve.

[Example]
When set the Bias Point 1 to "<C3" and
the Bias Point 2 to "<C6".



● ENV Velocity Follow (Time 1)

PCM

TVA	ENV	T1	Velo
00	00	00	00

This sets the maximum effect of the velocity that controls the time of the TVA ENV from 0 to 4. At higher values, Time 1 will be shortened by playing the keyboard harder.

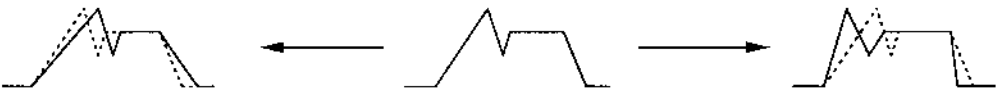
8) TVA ENV

●ENV Key Follow (Time)

PCM

TVA	ENV	Time	KF
00	00	00	00

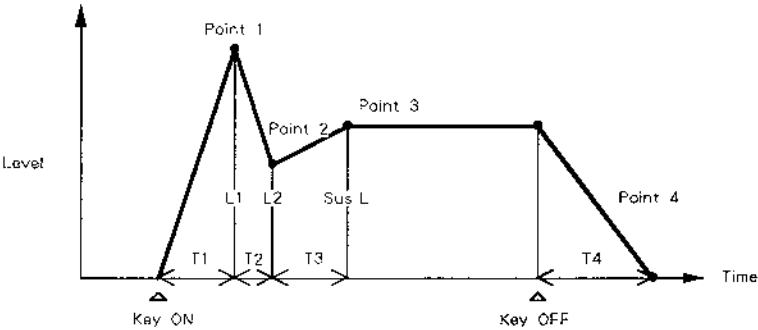
This sets the time of the TVA ENV depending on the key played, from 0 to 4. Higher values change the time more drastically.



●ENV Time/Level

PCM

These parameters are the time needed for a volume curve to move from one point to another, and the volume of a certain point.



Time 1/Time 2/Time 3/Time 4

TVA	ENV	Time	1
50	50	50	50

TVA	ENV	Time	2
50	50	50	50

TVA	ENV	Time	3
50	50	50	50

TVA	ENV	Time	4
50	50	50	50

This sets the time needed for the curve to move from one point to another, from 0 to 100.

Level 1/Level 2/Sustain Level

TVA	ENV	Level	1
50	50	50	50

TVA	ENV	Level	2
50	50	50	50

TVA	ENV	Sus	Levl
50	50	50	50

This sets the volume of a certain point from 0 to 100.

*If the level of two adjacent points are set to similar values, the time between these two points may prove to be shorter than what is actually set, or even zero.

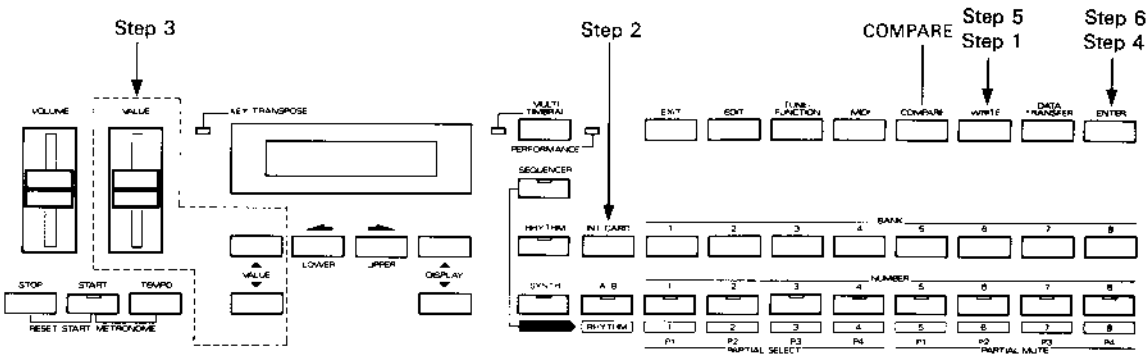
d. Writing Procedure

The edited data does not rewrite the previous data, and therefore will be erased when a different Tone is selected or the unit is turned off. To retain the edited data, take the following writing procedure, either into the internal memory or onto a memory card.

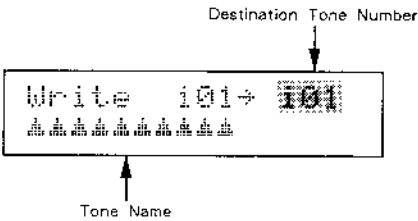
***Writing a new Tone will replace the corresponding Tone in each Patch and Timbre, therefore, the sound will change.**

1) Writing into the internal memory

To write the edited Tone into a location in the internal memory, do as follows.



Step 1 Push the WRITE button.



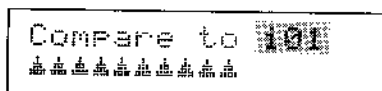
***When you have edited a Preset Tone, the destination Tone number is not indicated.**

Step 2 If you have edited a Tone on a memory card, select " i " by pushing the INT/CARD button.

Step 3 To change the destination Tone number, use the Value Control Knob.

If you wish to listen to the destination Tone before rewriting it, do as follows.

① Push the COMPARE button.

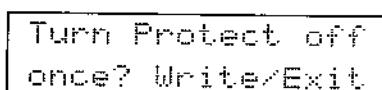


② Select the destination Tone using the Value Control Knob.

Now, the destination Tone can be heard by playing the keyboard.

③ Push the COMPARE button to return to the previous Display.

Step 4 Push the ENTER button.

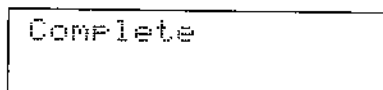


Step 5 Push the WRITE button.

The Memory Protect is released, and the Display returns to that of Step 3.

Step 6 Push the ENTER button.

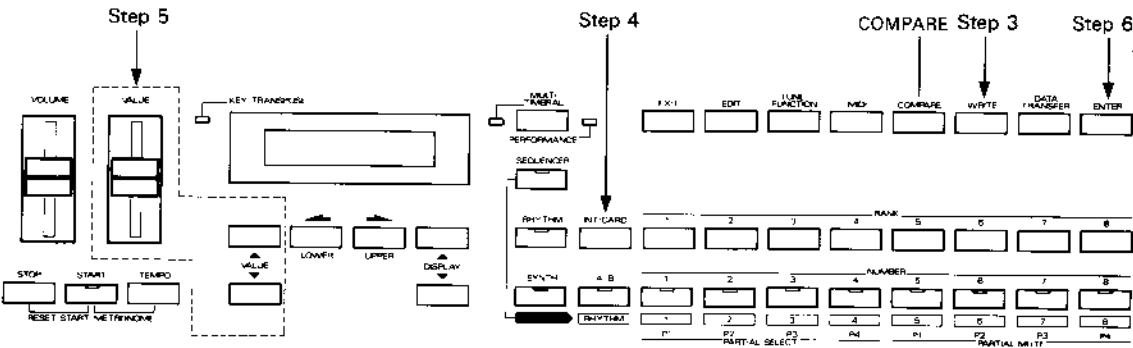
When writing is completed, the Display responds as shown below, then returns to the Play Mode Display.



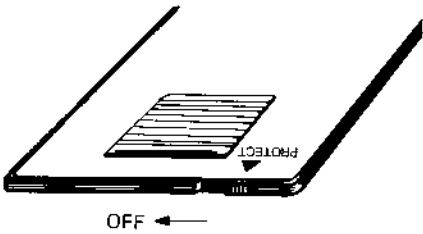
*If the writing procedure is not properly completed, the Display shows an Error Message. If this happens, resolve it as explained on page 212 "Error Messages".

2) Writing onto a memory card

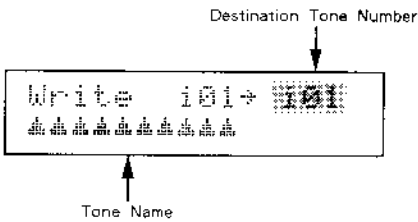
*When using a brand new memory card, be sure to copy the entire data in the internal memory onto the card as explained on page 189 "Saving".



- Step 1 Insert a memory card into the Card Slot.
- Step 2 Set the Protect Switch on the memory card to OFF.



- Step 3 Push the WRITE button.



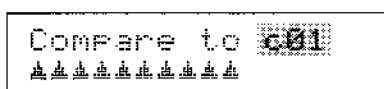
*When you have edited a Preset Tone, the destination Tone number is not indicated.

Step 4 If you have edited a Tone in the internal memory, select "c" by pushing the INT/CARD button.

Step 5 To change the destination Tone number, use the Value Control Knob.

If you wish to listen to the destination Tone before rewriting it, do as follows.

① Push the COMPARE button.



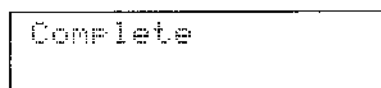
② Select the destination Tone using the Value Control Knob.

Now, the destination Tone can be heard by playing the keyboard.

③ Push the COMPARE button to return to the previous Display.

Step 6 Push the ENTER button.

When writing is completed, the Display responds as shown below, then returns to the Play Mode Display.



*If the writing procedure is not properly completed, the Display shows an Error Message. If this happens, resolve it as explained on page 212 "Error Messages".

Step 7 Set the Protect Switch on the memory card back to the ON position.