

2 RECORDING

The following will explain how to record performance data into the built-in Sequencer.

1. Preparation for Recording

The built-in Multi Track sequencer is ideal for use with the D-20's Multi Timbral mode.

*The performance data, except rhythm track data, you have recorded will be erased when the unit is turned off or a different data is recorded on the same track. To retain the data onto floppy disk, take the "Saving" procedure. (See page 180.)

*The Sequencer can also be used in the Performance mode, but the full effect cannot be obtained because of the structural difference of the sound sources. To use the Sequencer in the Performance mode, read "Using the Sequencer" on page 150, before recording performance data.

a. Performance Data

The Sequencer can record the following performance data.

→ Tracks 1 to 8

Key Messages : What key (→Key Number) is played, how strongly (=Velocity) and how much time (=Key On/Off)?

Sound Messages : What Timber or Patch is used (=Program Change Number)

Control Messages : Pitch Bender, Modulation, Hold, Volume and Pan

*The Timbres and Patches are numbered in exactly the same way, therefore, a Program Change number corresponds to both a Patch and Timbre. A Patch or Timbre is selected by a Program Change number depending on whether the Mutli Timbral or Performance mode is currently selected.

*The Internal or Memory Card modes can be selected only by operating the panel controls on the D-20. That is, the recorded Program Change numbers cannot change the memory modes. This means that even if a Timbre or Patch on a memory card is selected in recording, it cannot be played back unless you select the memory card mode by using the front panel controls on the D-20.

Normally, the Timbre or Patch needed for recording should be collected in the internal memory.

→ **Rhythm Track**

The rhythm patterns prepared in the internal memory can be recorded in the Rhythm Track.

Unlike a tape recorder, a sequencer does not record the sound itself but only the necessary messages (=performance data).

A sequencer plays the Timbre or Patch using the recorded performance data.

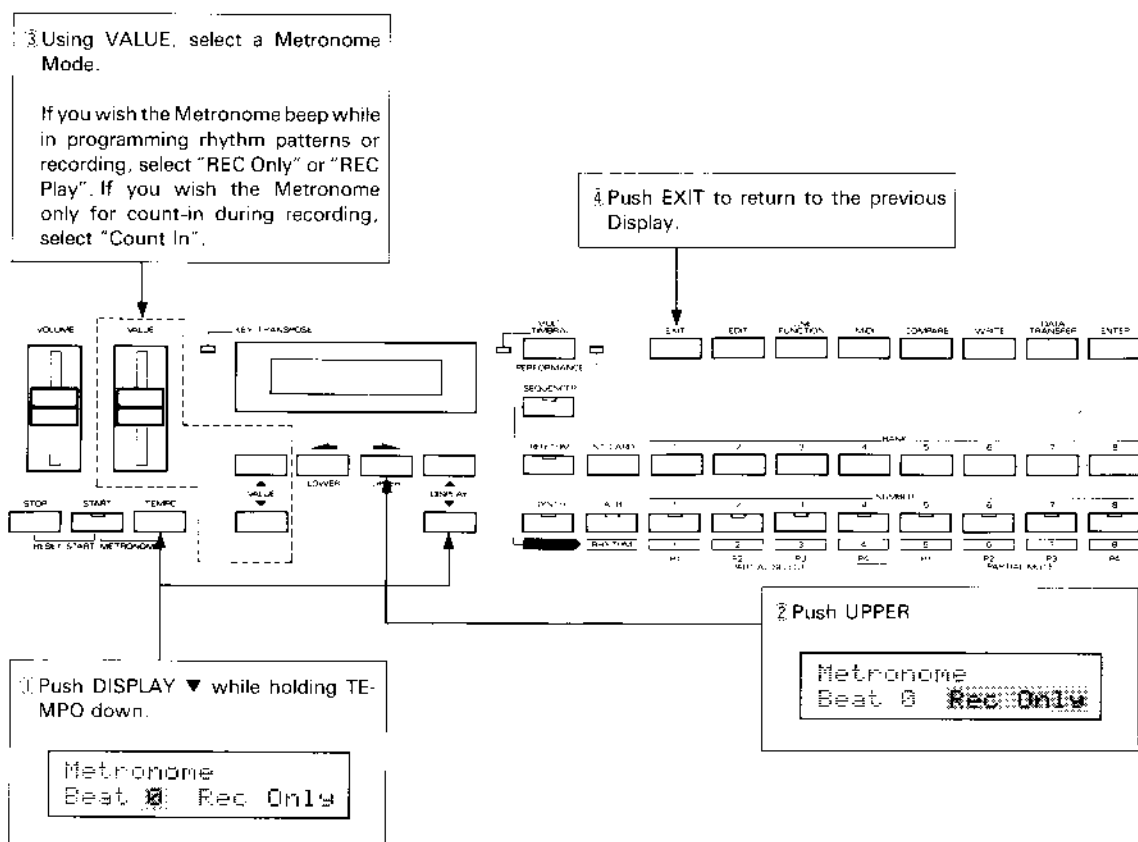
b. Setting the Metronome

The D-20 allows you to set how the Metronome should beep in rhythm pattern programming or sequencer recording.

1) Setting the Metronome Mode

This sets how to use the Metronome.

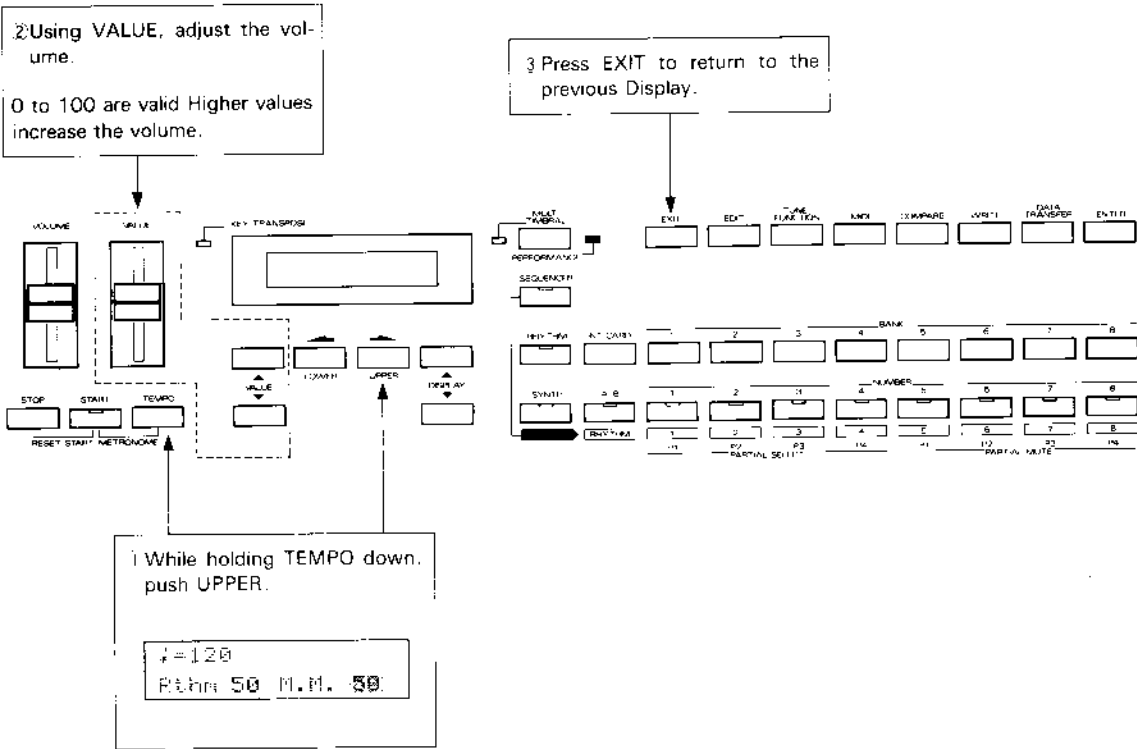
*The Metronome mode you have set will be retained even after the unit is turned off.



2) Volume Adjustment

The volume of the metronome can be adjusted as follows.

*The metronome volume you have set will be retained even after the unit is turned off.



c. Recording Procedure

Step 1 Making Rhythm Patterns

You should prepare all the Rhythm Patterns which are to be used for making a Rhythm Track. Up to 32 Rhythm Patterns are user-programmable in real time recording. If you have a MIDI device such as a rhythm machine, it is possible to make rhythm patterns using the performance data of the rhythm machine.

Step 2 Recording the Rhythm Track

Using any of the preprogrammed patterns (32) or your original (32) Rhythm Patterns, you can record a song (or tune) in the Rhythm Track. Real time recording can be used in Track 8, which is useful for creating variations such as fill-ins, etc..

Step 3 Recording in Tracks 1 to 8

As you play the recorded Rhythm Track, add bass, backing, melody, etc, one by one, again using real time recording.

***The control messages of pan and volume can be recorded by using the Overdubbing function.**

Step 4 Editing the recorded data

Data recorded in Tracks 1 to 8 can be edited using various editing functions.

○ Re-recording from any bar you like.

○ Editing a part of the recorded data by using the Punch In/Out function.

○ Adding some more performance data to the existing data using the Overdubbing function. The Overdubbing function also allows volume and pan controls.

○ The Clear function erases the entire performance data in each Track or all the Tracks including the Rhythm Track.

○ The Erase Function can erase only performance messages such as Program Change or Pan and Volume in each Track.

○ The Quantize function can correct timing differences of the key Message in each Track.

***The Quantize function may cause performance in correctness as Quantize function only adjust the Key Message. When the Program Change Message and Control Message is recorded into the track to be quantized, record these message using Overdubbing function after quantizeing.**

Step 5 Saving the recorded data

Data recorded in a Track (except for the Rhythm Track) is erased when the unit is turned off. If you wish to retain the data, save it onto a floppy disk as explained on page 175 "Data Transfer".

***The Data Transfer function of the D-20 allows you to copy a block of data in the internal memory onto a floppy disk. However, if the data in the internal memory is modified for some reason, the recorded data will not be played back faithfully. To avoid this, normally, copy the entire data in the memory onto a floppy disk.**

d. Making Rhythm Patterns *Zelf Ritme maken*

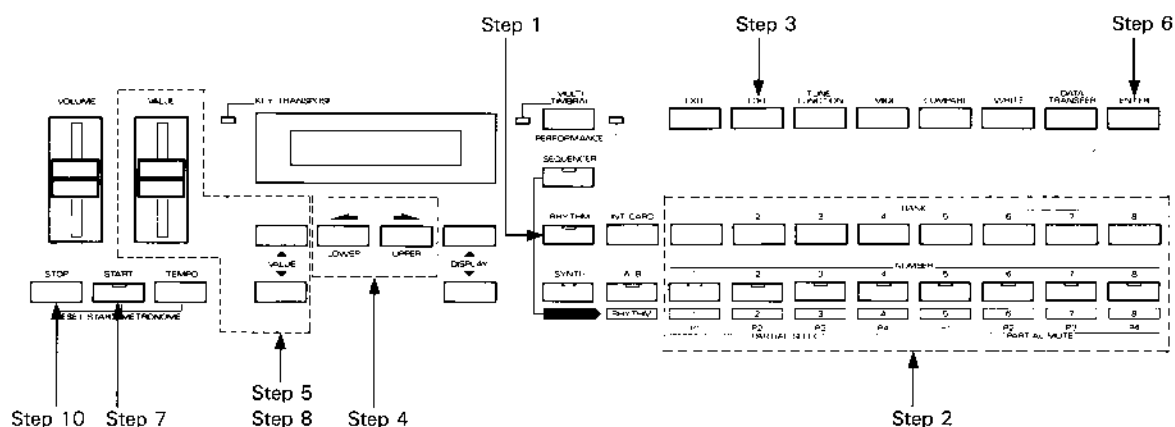
Preprogrammed Rhythm Patterns P-51 to 88 can be edited to make your original rhythm patterns. Before going to the rhythm track recording procedure, make your own rhythm patterns, if necessary. There are two methods for making rhythm patterns: by using the keyboard of the D-20 (Editing Procedure I), and by using performance data sent from an external device such as a rhythm machine (Editing Procedure II).

*If you wish to edit Rhythm Tones, see page 80 "Rhythm Setup".

1) Editing Procedure (I)

Rhythm patterns can be made by playing the keyboard of the D-20.

*The rhythm pattern you have made will be erased when a different rhythm pattern is selected or the unit is turned off. To retain the edited data, take the appropriate writing procedure as shown on page 32 "Writing Procedure".



Step 1

Push the RHYTHM button.(The indicator lights up.)

Pattern Play
P-56:UserPattern

→ kiezen op Dis play
→ nummer kiezen waar
het moet komen

Step 2

Select a rhythm pattern number using the BANK and NUMBER buttons.

If you wish to make a rhythm pattern from scratch, select a rhythm pattern from 51 to 88. (Note that the selected rhythm pattern will be replaced with new data.)

If you wish to make a rhythm pattern by editing an existing one, select a source pattern.

*To hear the rhythm pattern you have selected, simply press the START button. (Before going to the next procedure, be sure to stop the rhythm by pushing the STOP button.)

Step 3 Push the EDIT button. *dan yes drubken*

Edit P-56 Clear?
Yes No

Step 4 If you wish to clear the entire rhythm pattern data, push the Cursor Button on the left. If not, push the Cursor Button on the right.

Edit P-56 Clear?
Yes No

LOWER

UPPER

Clear

Not Clear

If you pushed the right Cursor Button, go to Step 7.

Step 5 Using the Value Control Knob, set the time signature of the rhythm pattern (from 1/4 to 8/4).

Edit P-56
Time 4/4 Enter

what Rhythme kiezen

Step 6 Push the ENTER button.

Edit P-56 4/4
On OFF EraseOFF

Step 7 Push the START button.

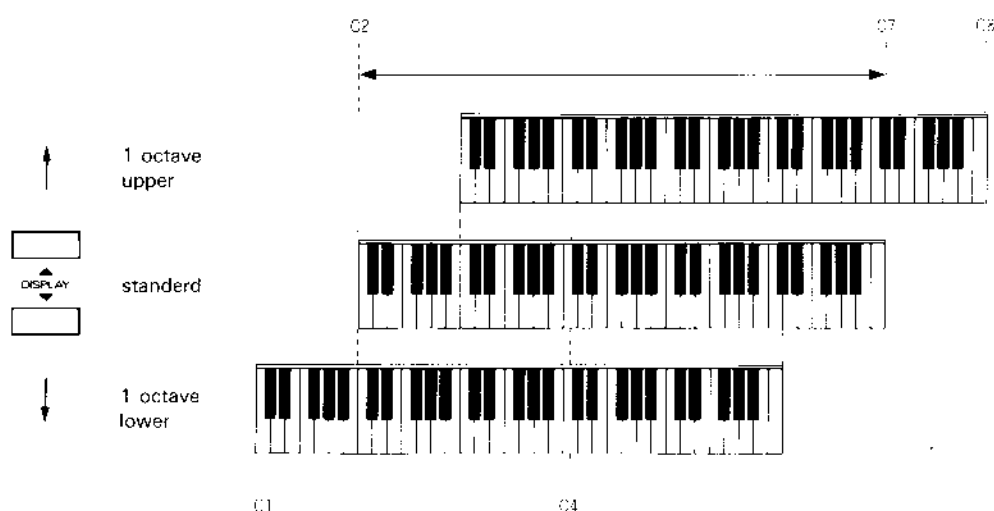
Rhythm Tones are assigned to the keyboard as set in the SETUP.

*The Rhythm Tones have been pre-assigned by the manufacturer as shown on page 84 "Rhythm Setup".

Step 8 Adjust the tempo with the Value Control Knob.

Step 9 Make a rhythm pattern by playing the keyboard. By changing how hard you play the keyboard, velocity can be added.

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.



*If you wish the timing to be exact, take the Quantize procedure. (See page 26.)

*If you wish to correct the rhythm pattern you have made, erase it. (See page 28.)

*The maximum number of voices played simultaneously is 8, so the 9th note will be ignored.

*When an Internal Tone is used as a rhythm tone for playing with rhythm patterns, the ENV mode (see page 124) of the Tone is automatically set to NO SUSTAIN (therefore it may sound different).

Step 10 To write the rhythm pattern you have made, first, stop the rhythm by pressing the STOP button, then take the appropriate writing procedure (page 32).

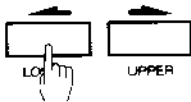
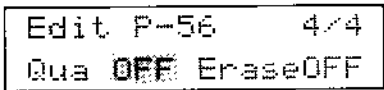
*If you do not want to write the rhythm pattern you have made, push the EXIT button.

【Quantize】

The Quantize function corrects the timing of the rhythm pattern so that it will become as accurate as a score. This is achieved by setting the number of steps which can be entered in a rhythm pattern. Quantizing can be done during the rhythm pattern editing mode, therefore it is possible to set a different value (the shortest note) for each Rhythm Tone. Quantizing can be set in the Step 6's Display even while a rhythm is running.

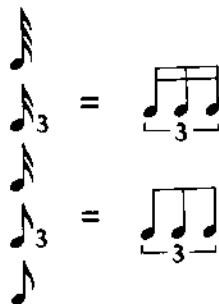
Step 1 Push the Cursor Button on the left.

The Quantize value flashes in the Display.

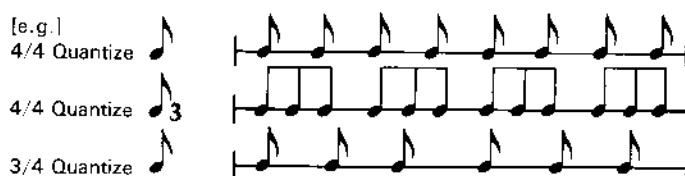


Step 2 Using the Value Control Knob select the timing value you like.

OFF : No correction



Depending on the time signature, the number of steps will vary.



*To change the tempo during the quantizing procedure, move the Value Control Knob while holding the TEMPO button down.

Step 3 Tap the key on the keyboard.

The rhythm will be played with the timing automatically corrected.

Step 4 To enter a different value for quantization, repeat Step 2 and Step 3.

Step 5 To return to the previous mode allows you to change the tempo with the Value Control Knob, push the Cursor Button on the left. (The flashing will stop.)

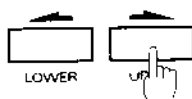
[Erase]

The Erase function is useful for correcting any mistakes you have made in a rhythm pattern. The Rhythm Tone used for the rhythm pattern is erased, and therefore new data can be entered. The Erase function can be set in the Step 6's Display even while a rhythm is being played.

Step 1 Push the Cursor Button on the right.

The Erase value flashes in the Display.

Edit P-56	4/4
Qua OFF	Erase OFF



Step 2 Select "ON" with the Value Control Knob.

Step 3 Press the key where the Rhythm Tone to be erased is assigned.

Holding the key down will continue to erase the relevant Rhythm Tone.

Step 4 Return to "Erase OFF" with the Value Control Knob.

Step 5 Play the keyboard to correct the mistake.

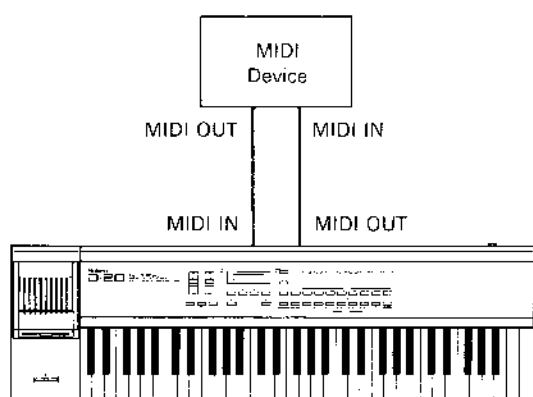
Step 6 Push the Cursor Button on the right, and "Erase" will stop flashing, and the Display will return to the previous condition which allows you to change the tempo with the Value Control Knob.

2) Editing Procedure (II)

This is making a rhythm pattern using the performance data of a MIDI device such as a rhythm machine.

*The rhythm pattern you have made will be erased when a different rhythm pattern is selected or the unit is turned off. To retain the edited data, take the appropriate writing procedure as shown on page 32 "Writing Procedure".

【Preparation】



①Set the MIDI channels of the D-20's Rhythm section and the external device to the same number.

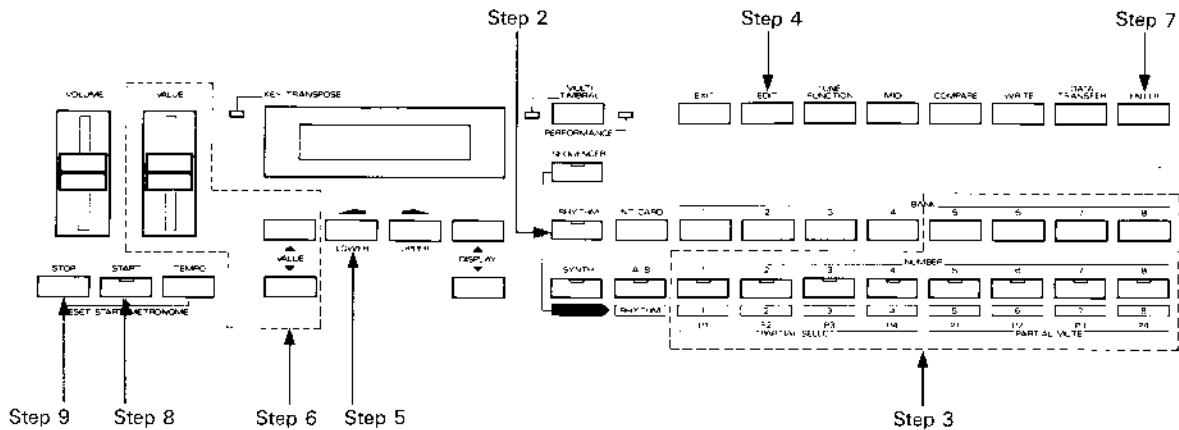
*In the Performance mode, see page 157 "MIDI Function Setting", and in the Multi Timbral mode, see page 9 "MIDI Function Setting".

②Match the Key Number—Rhythm Tone assignment of the external device to the D-20's Rhythm section.

*The Key Number—Rhythm Tone assignment of the D-20's Rhythm section is shown on page 80 "Rhythm Setup".

③Set the Sync mode of the external device so that it can receive the sync signal from the D-20.

[Procedure]



- Step 1

Stand by the external device to the rhythm pattern play mode.
- Step 2

Push the RHYTHM button on the D-20.(The indicator lights up.)

Pattern Play
P-56:UserPattern

- Step 3

Using the BANK and NUMBER buttons, select a rhythm pattern (destination pattern number), from P-51 to P-88, which is to be replaced with the new data.
- Step 4

Push the EDIT button.

Edit P-56 Clear?
Yes No

- Step 5

Push the Cursor Button on the left to clear the entire data of the selected rhythm pattern.
- Step 6

Using the Value Control Knob, set the time signature value (1/4 to 8/4) of the rhythm pattern.

Edit P-56
Time 4/4 Enter

Step 7 Push the ENTER button.

Edit P-56	4/4
Qwa OFF	EraseOFF

Step 8 Push the START button.

*The maximum number of notes which can be entered simultaneously is 8, so the 9th note will be ignored.

*The maximum number of notes which can be entered into rhythm patterns is 96.

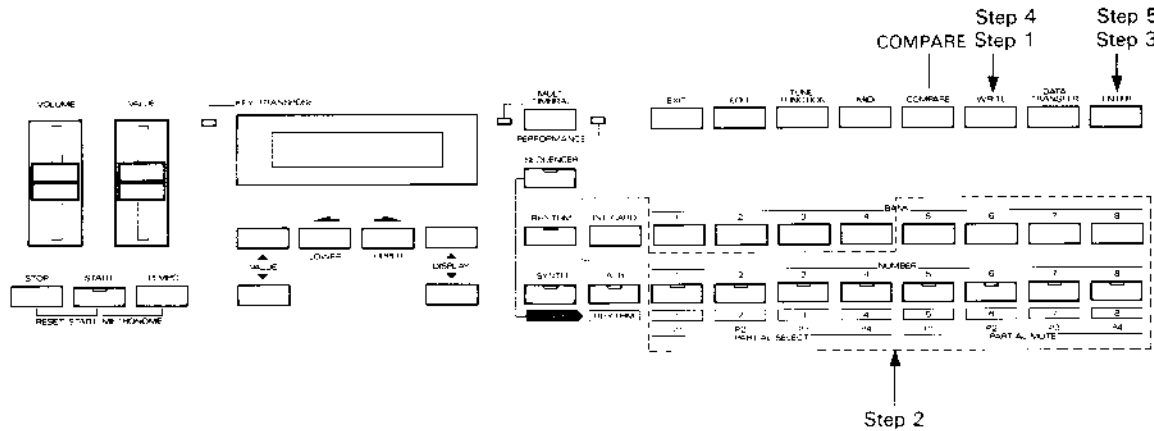
Step 9 Push the STOP button to stop the rhythm, then take the appropriate writing procedure shown in the following section.

*If you do not wish to write the rhythm pattern you have made, push the EXIT button.

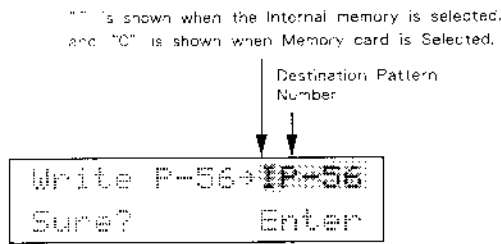
3) Writing Procedure

If you wish to retain the rhythm patterns you have programmed, write it into the internal memory (P51 to P88), erasing the existing data in memory or save it onto an optional memory card (M-256D).

[Writing into the internal memory]



Step 1 Push the WRITE button.



*When a Preset Rhythm Pattern (P11 to 48) has been edited, the destination Pattern Number is not shown in the Display.

Step 2 To change the destination Pattern Number, use the BANK (5 to 8) and NUMBER buttons.

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

① Push the COMPARE button.

Compare to IF-56

② Select a destination Pattern Number using the BANK (5 to 8) and NUMBER buttons.

③ Push the START button to listen to the rhythm pattern.

④ Push the STOP button to stop playing.

⑤ Push the COMPARE button to return to the original Display.

Step 3 Push the ENTER button.

Turn Protect off
once? Write/Exit

Step 4 Push the WRITE button.

The Memory Protect function is released and the Step 2's Display is recalled.

Step 5 Push the ENTER button.

When the writing is completed, the following Display is shown for a while, then returns to the Pattern Play Display.

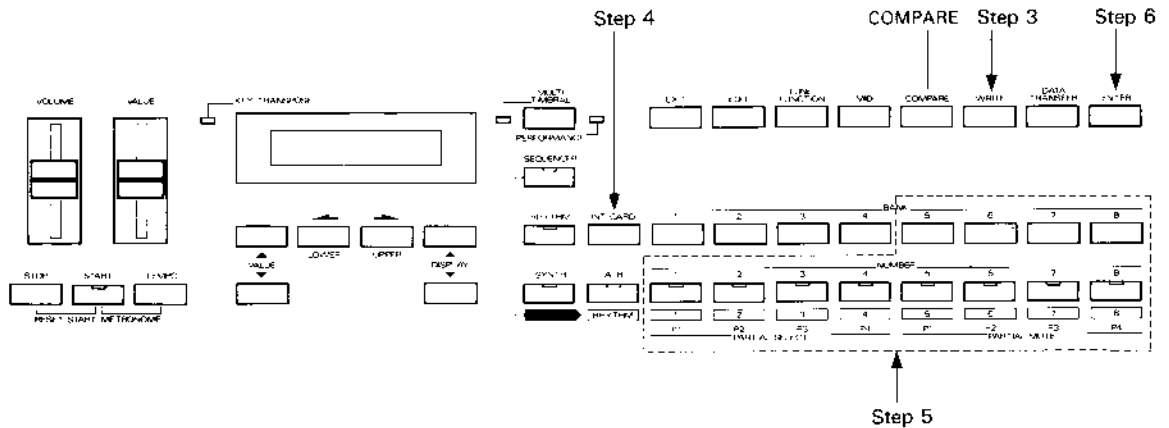
Complete

*If the writing is not properly done, an error message will be shown.
Resolve it as instructed on page 212 "Error Messages".

【Writing onto a Memory Card】

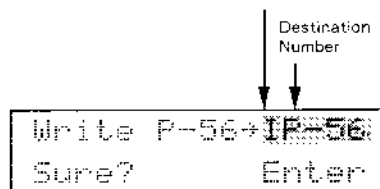
*When you use a brand new memory card, first save the entrie data in the internal memory onto the memory card as shown on page 189 "Saving", then take the writing procedure.

*The Rhythm Patterns saved on a memory card cannot be used unless copied into the internal memory, and therefore will be securely preserved.



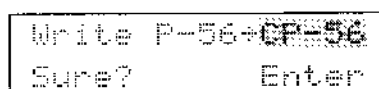
- Step 1 Insert a memory card into the Card Slot.
- Step 2 Set the Protect Switch on the memory card to the OFF position.
- Step 3 Push the WRITE button.

"I" is shown when the Internal memory is selected, and "C" is shown when Memory card is Selected.



*When a Preset Rhythm Pattern (P11 to P48) has been edited, the destination Pattern Number is not shown in the Display.

- Step 4** Select "C" by pushing the INT/CARD button.



- Step 5** **To change the destination Pattern Number, use the BANK (5 to 8) and NUMBER buttons.**

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

- ① **Push the COMPARE button.**

Compare to CP-56

- ② **Select a destination Pattern Number using the BANK (5 to 8) and NUMBER buttons.**

- ③ **Push the START button to listen to the rhythm pattern.**

- ④ **Push the STOP button to stop playing.**

- ⑤ **Push the COMPARE button to return to the original Display.**

- Step 6** **Push the ENTER button.**

When the writing is completed, the following Display is shown for a while, then returns to the Pattern Play Display.

Complete

***If the writing is not properly done, an error message will be shown.
Resolve it as instructed on page 212 "Error Messages".**

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

2. Recording

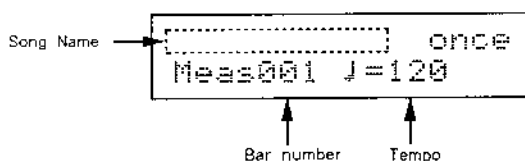
The following explains Track recording.

a. Basic Procedure

1) Sequencer Mode

The Sequencer mode switches the D-20 to a MIDI sequencer, which allows Track recording.

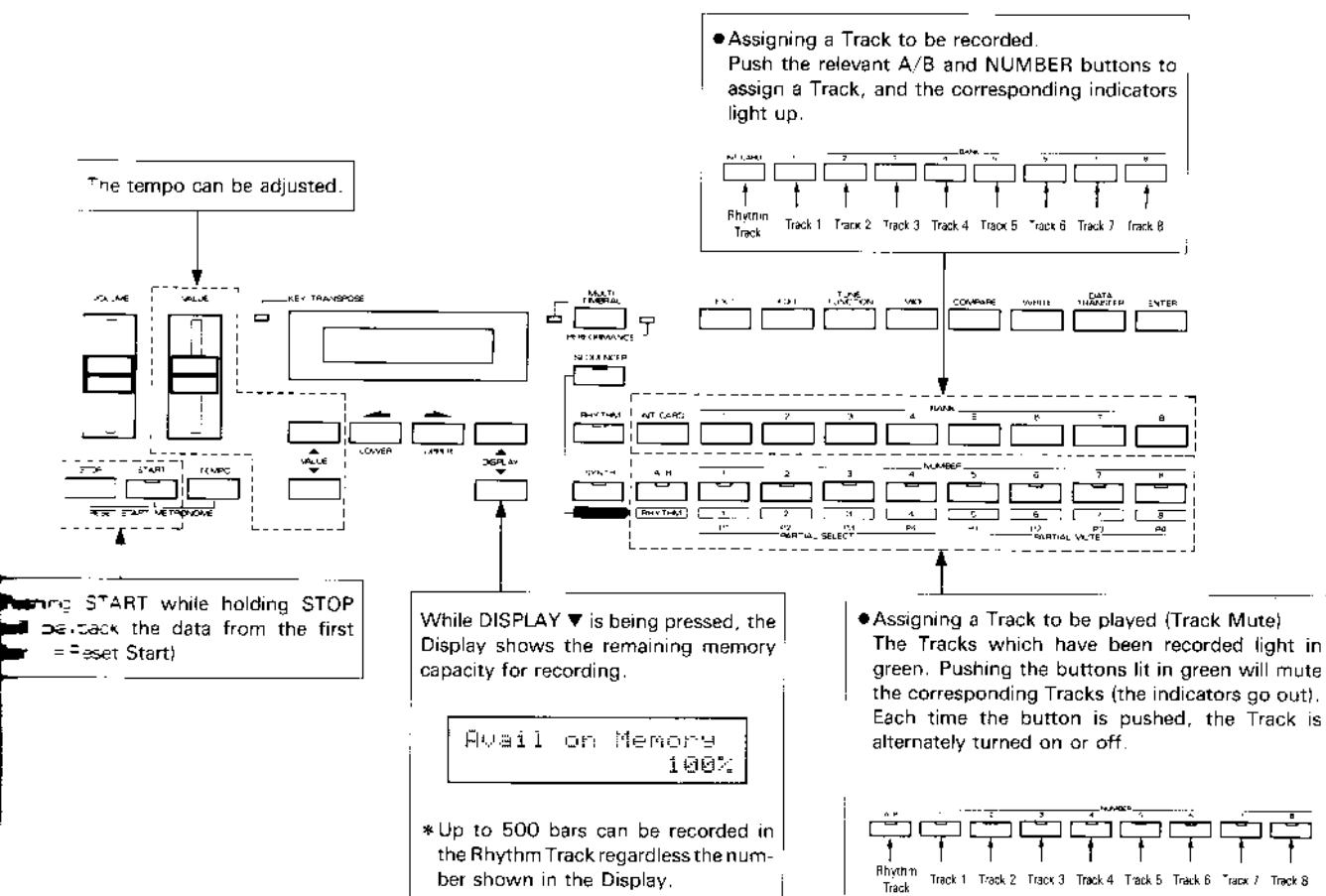
Pushing the **SEQUENCER** button will select the Sequencer mode. (The indicator lights up.)



*At this stage, Tracks do not have Song Names. If you wish to use a Song name, see page 76 "Song Name".

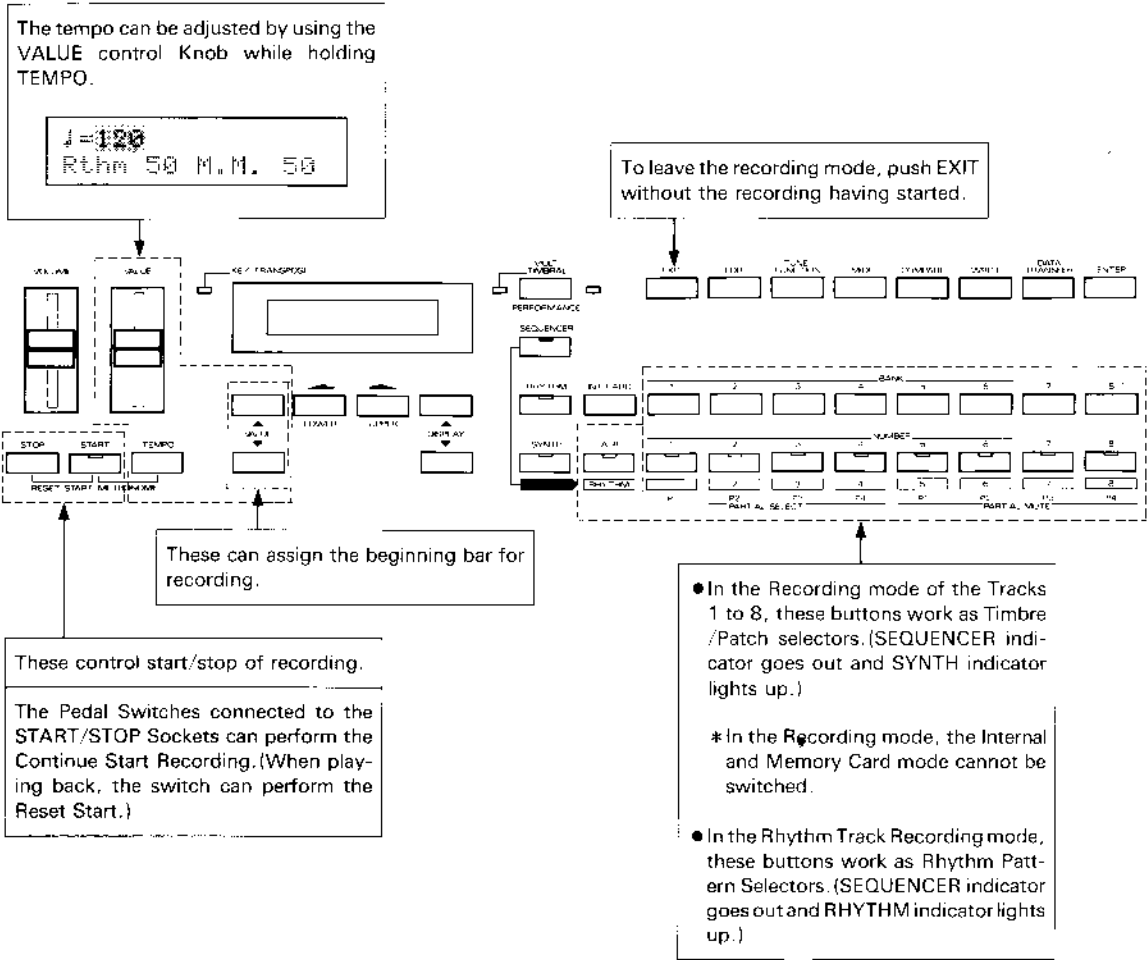
【Sequencer Mode】

In the Sequencer mode, the buttons and knobs on the control panel function as shown below.



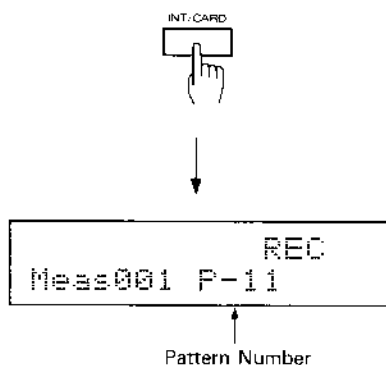
【Recording Mode】

Assigning a Track to be programmed by pushing the INT/CARD and BANK buttons will make the Sequencer unit ready for Track Recording. This is called Recording Mode. In the Recording Mode, the control panel functions as shown below.



2: Rhythm Track

Pushing the INT/CARD button will turn the Sequencer unit to the Rhythm Track Recording mode. (The indicator of the A/B button flashes in red.)



There are two methods for rhythm track recording: one is playing rhythm patterns in sequence (Recording 1), and the other is assigning a rhythm pattern to each bar (Recording 2).

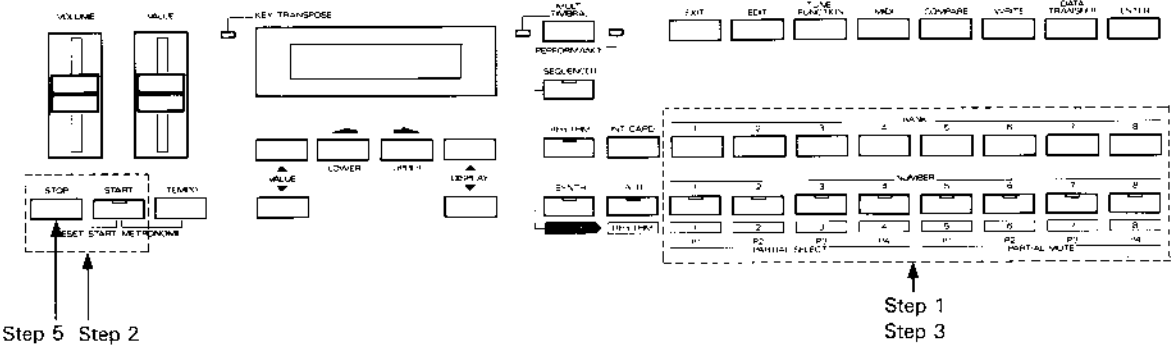
*Recording rhythm data in a rhythm track will automatically rewrite any previous data. However, if you wish to erase the entire existing data, or a bar of data, use the "Erase" procedure explained on page 44.

*Note that if you rewrite a rhythm pattern in the Rhythm Track with a rhythm pattern of a different beat after programming Tracks 1 to 8, the rhythm performance will be incorrect. •

[Recording 1]

This method programs a rhythm track by playing rhythm patterns in sequence, and therefore, is quicker than Recording 2.

<Recording from the first bar>



Step 1 Select a rhythm pattern for the first bar using the **BANK** and **NUMBER** buttons. (If you want the pattern number shown in the Display for the first bar, skip this step.)

When a rhythm pattern is selected, the number flashes.

*The bar number shown in the Display is irrelevant.

Step 2 While holding the **STOP** button down, press the **START** button. (The indicator of the A/B button stops flashing and lights steadily.)

The Display shows bar number 001.

Step 3 While the rhythm pattern of the first bar is being played, assign a rhythm pattern for the second bar.

*If you want the same rhythm pattern for the second bar, skip Step 3.

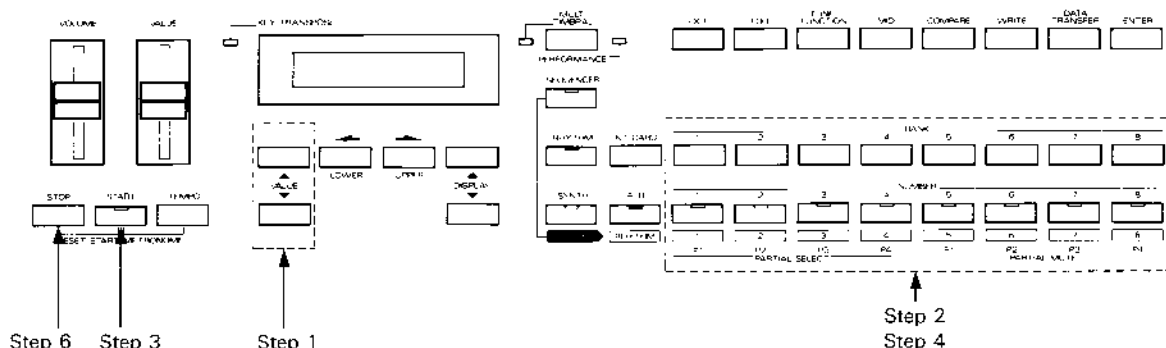
Step 4 Repeat Step 3 for the following bars.

Step 5 When you finish the rhythm track recording, push the STOP button.

The indicator of the A/B button changes from red to green, and the unit returned to the Sequencer Mode.

<Recording from any bar>

It is possible to start recording from any bar you like.



Step 1 Select the bar where you wish to start recording with the **VALUE** Buttons.

Step 2 Select a rhythm pattern to be assigned to the bar using the **BANK** and **NUMBER** buttons.(If you want to assign the pattern number shown in the Display, skip this step.)

When the rhythm pattern is selected, the number flashes.

Step 3 Press the **START** button.

The rhythm pattern you have selected will be played.

Step 4 To select a different rhythm pattern for the next bar, assign it while the rhythm is still playing, using the **BANK** and **NUMBER** buttons.

*If you want the same rhythm pattern for the next bar, skip Step 4.

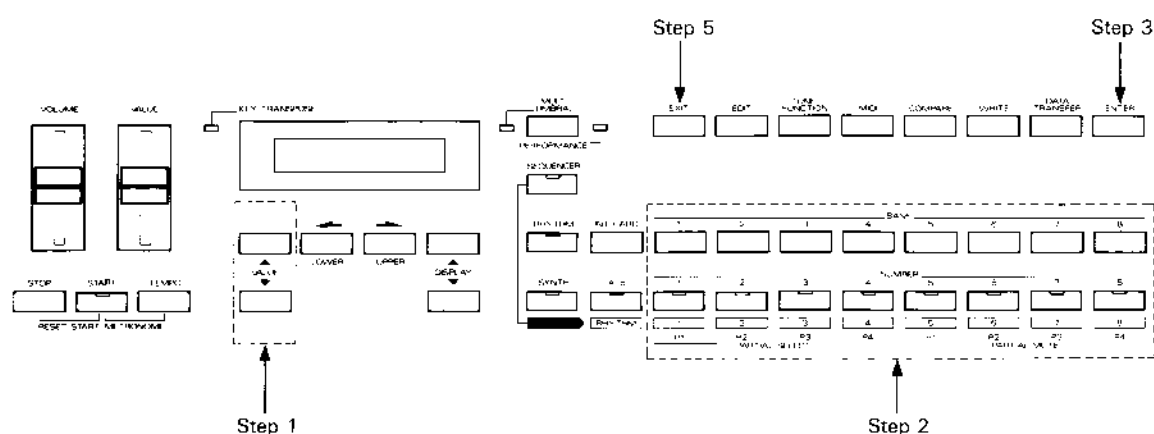
Step 5 Repeat Step 4 for the following bars.

Step 6 When you finish the rhythm track recording, push the **STOP** button.

The indicator of the A/B from red to green, and the unit is returned to the Sequencer Mode.

[Recording 2]

This method is achieved by assigning a rhythm pattern to each bar in sequence.



Step 1 Select the bar where you wish to start recording with the **VALUE** buttons.

Step 2 Select a rhythm pattern to be assigned to the bar using the **BANK** and **NUMBER** buttons. (If you want to assign the pattern number shown in the Display, skip this step.)

When the rhythm pattern is selected, the number flashes.

Step 3 Push the **ENTER** button.

The selected rhythm pattern is recorded, and the bar number is advanced.

Step 4 Repeat Steps 2 and 3 as many times as necessary for the following bars.

Step 5 When you finish the rhythm track recording, push the **EXIT** button.

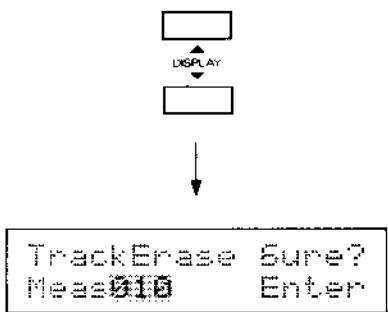
The indicator of the A/B changes from red to green, and the unit is returned to the Sequencer Mode.

【Erase】

The Erase function allows you to erase rhythm track data from any bar you assign to the end. If you wish to use this function, do as follows in the Recording mode.

***If you erase bars of performance data in the Rhythm Track after recording Tracks 1 to 8, the bars that corresponding bars in the other Tracks will not play. If this happens, record the erased bars again in any of the Tracks.**

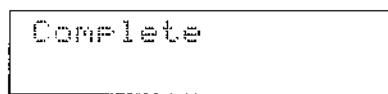
Step 1 Push either of the **DISPLAY** buttons.



Step 2 Select the bar from which you wish to erase with **VALUE** buttons.

Step 3 Push the **ENTER** button.

When the data is erased, the Display responds as below for a while, then returns to the previous Display (=before the above procedure was performed).



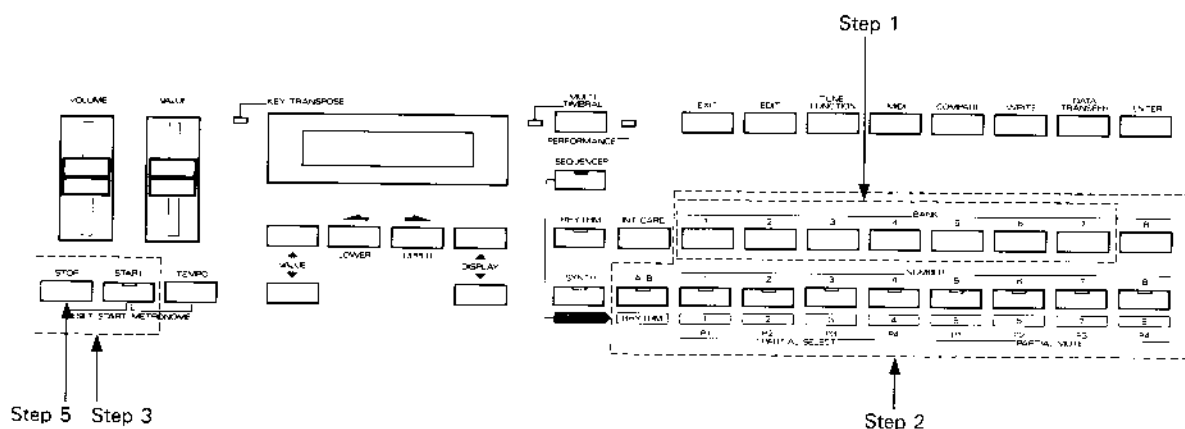
3) Tracks 1 to 7

Tracks 1 to 7 can be recorded similarly.

There are two methods for recording Tracks 1 to 7, one is recording after a metronome count-in (=Count-in Recording), and the other is recording in the same timing as playing the keys.

【Count-in Recording】

Two bars of a metronome count in are played before recording actually begins.



Step 1

Select a Track to be recorded with the corresponding **BANK** buttons 1 to 7.

The corresponding **NUMBER** indicator flashes in red, and the Display shows as below.



The **SEQUENCER** Indicator goes out and the **SYNTH** Indicator lights up. The **A/B**, **BANK** and **NUMBER** buttons work as **Timbre/Patch** selection buttons.

*In the Display the **Timbre/Patch** Number is shown only when the bar number is 001.

Step 2 **Select a Timbre or Patch using the A/B, BANK and NUMBER buttons.**

***A Timbre or Patch cannot be selected until the NUMBER button is pressed. If the Number is not yet assigned, the number flashes and the Timbre or Patch currently assigned to the Part will be selected instead.**

Step 3 **Push the START button while holding the STOP button.**

● **Count-in**

The bar number in the Display counts down like -2, -1...

Count
Meas -2 I-A11



● **Recording**

The NUMBER Indicators stop flashing and light steadily, then recording start.

REC
Meas001 I-A11

Step 4 **Play the keyboard.**

***Even if you start playing the keyboard before the two bar count-in is completed, only the information after the count-in will be recorded.**

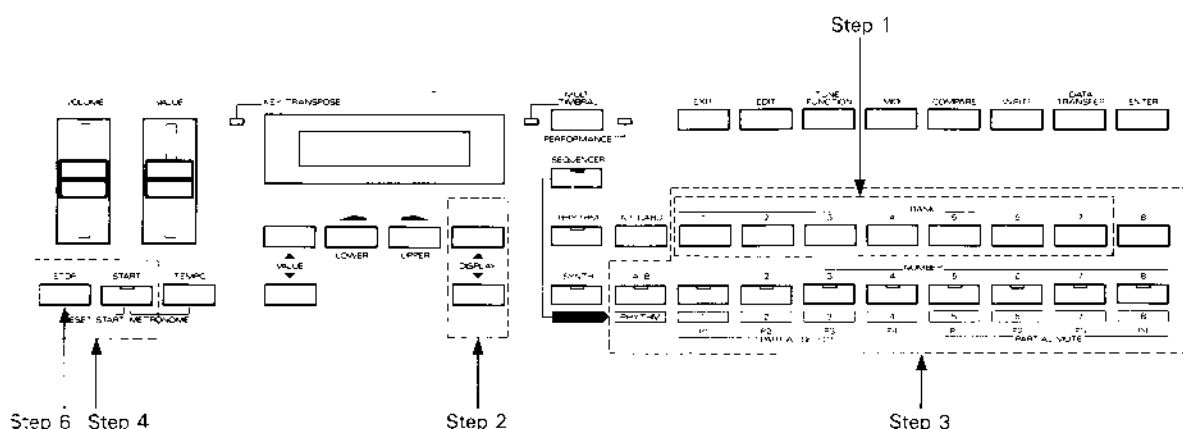
Step 5 **When you have finished, push the STOP button.**

The NUMBER indicator changes from red to green and the unit is returned to the Sequencer mode.

Step 6 **Similarly, continue recording the other Tracks.**

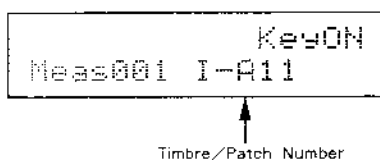
【Key On Recording】

Key On recording starts recording the moment you start playing the keyboard.

**Step 1**

Select a Track to be recorded with the corresponding BANK buttons 1 to 7.

The corresponding NUMBER indicator flashes in red, and the Display shows as below.

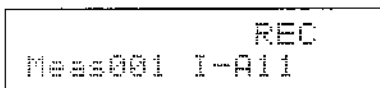


The SEQUENCER indicator goes out and the SYNTH indicator lights up. The A/B, BANK and NUMBER buttons work as Timbre/Patch selection buttons.

*In the Display the Timbre/Patch Number is shown only when the bar number is 001.

Step 2

Select the following Display with the DISPLAY buttons.

**Step 3**

Select a Timbre or Patch using the A/B, BANK and NUMBER buttons.

*A Timbre or Patch cannot be selected until the NUMBER button is pressed. If the Number is not yet assigned, the number flashes and the Timbre or Patch currently assigned to the Part will be selected instead.

Step 4 **Push the START button while holding the STOP button.**

Bar number 001 is shown in the Display, and the metronome will play in the tempo currently set.

Step 5 **Play the keyboard.**

***As soon as you start playing the keyboard, recording will begin. (The NUMBER indicator stops flashing and remains alight.)**

Step 6 **When you have finished, push the STOP button.**

The NUMBER indicator changes from red to green and the unit is returned to the Sequencer mode.

Step 7 **Similarly, continue recording the other Tracks.**

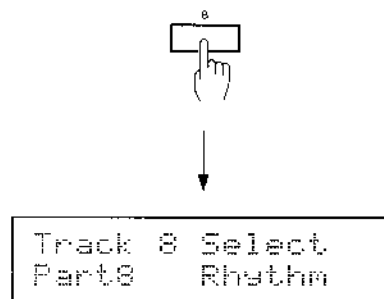
4) Track 8

In case of first recording into Track 8, this Track can be used either for recording a Synth Part like Tracks 1 to 7, or for recording rhythm performance in real time.

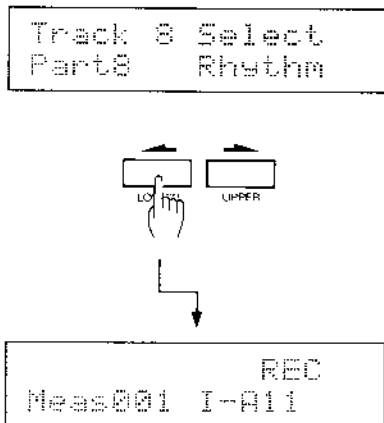
【Synth Part Recording】

Step 1 Push the **BANK 8** button.

The **NUMBER 8** indicator flashes in red, and the Display responds with :

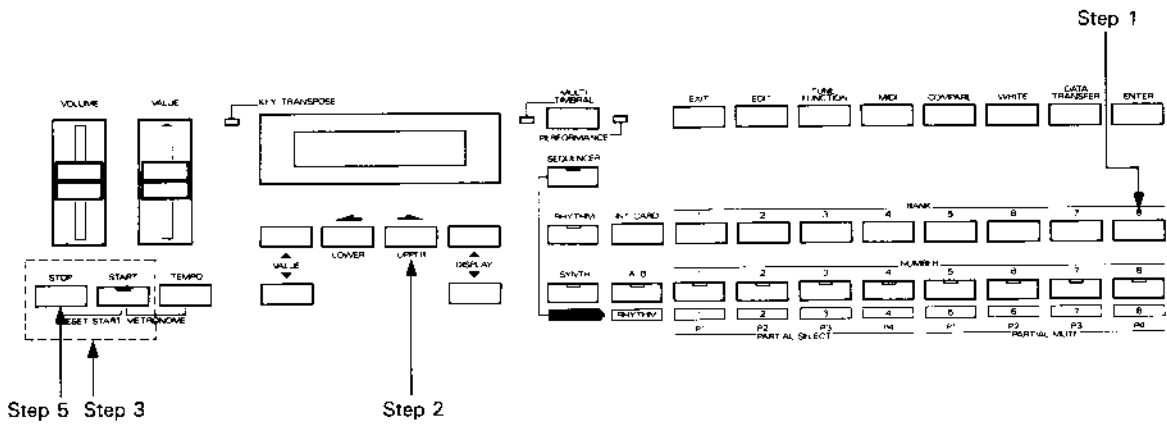


Step 2 Push the **left Cursor Button**.



Then, take exactly the same procedure as in recording Tracks 1 to 7.

[Rhythm Recording]



Step 1 Push the BANK 8 button.

The NUMBER 8 indicator flashes in red, and the Display responds with :

Track 8 Select
Part8 Rhythm

Step 2 Push the right Cursor Button.

REC
Meas001 Rhythm

The SEQUENCER indicator goes out, and the RHYTHM indicator lights up. Rhythm Tones are now assigned to keys on the keyboard.

If you wish to do Key On Recording , call the following display.

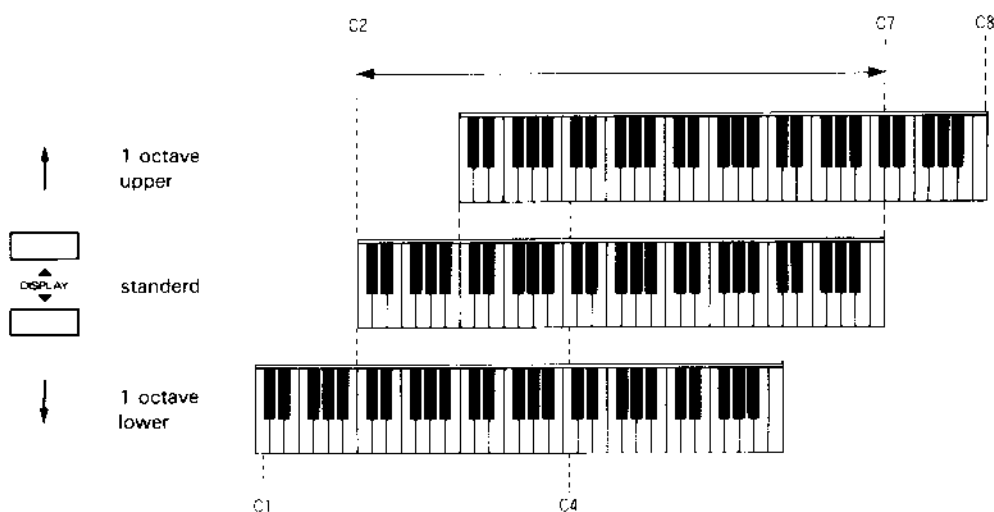
KeyON
Meas001 Rhythm

Step 3 **Push the START button while holding the STOP button.**

When Count In Recording is done, the recording will start after the bar number in the Display counts down like -2 -1.....

When Key On Recording is done, the recording will start at the same time that you start playing the keyboard.

***To record Rhythm Tones which exceed the keyboard range, transpose the keyboard range using the DISPLAY buttons.**



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

Step 4 **Play the key that corresponds to the Rhythm Tone to be assigned. How you play the keyboard will control the velocity.**

***Even if you start playing the keyboard before the two bar count-in is completed, only the information after the count-in will be recorded.**

Step 5 **When you have finished, push the STOP button.**

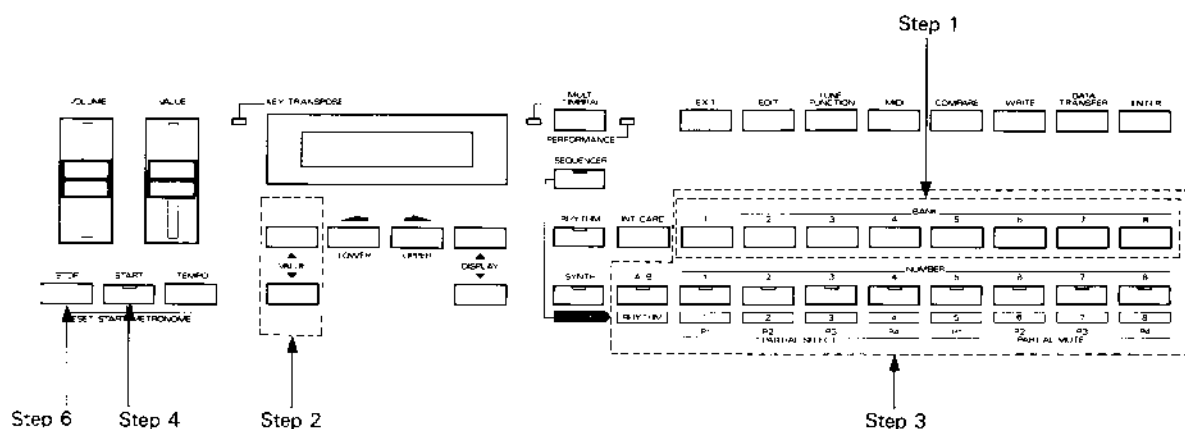
The NUMBER indicator changes from red to green and the unit is returned to the Sequencer mode.

b. Editing Performance Data

1) Recording from any bar

The D-20 allows you to re-record from any bar you like.

[Count-in Recording]



Step 1 Select a Track to be re-recorded with the relevant **BANK** button.

The corresponding **NUMBER** indicator will flash in red.

*Since the performance data for keyboard is played using the **Timbre/Patch** and **Pan/Volume** setting selected previously, the current performance is recorded faithfully.

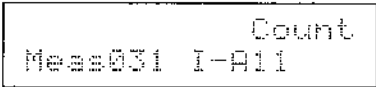
Step 2 Assign a bar with the **VALUE** button.

Step 3 If you wish to change the **Timbre** or **Patch** at the re-recording position, select a new **Patch** or **Timbre** with the **A/B**, **BANK** and **NUMBER** buttons.

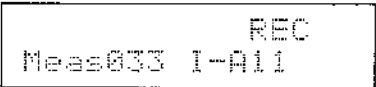
A **Timbre** or **Patch** cannot be selected unless the **Number** is assigned. If you fail to assign a **Number**, the number will flash and the **Timbre** or **Patch** is not recorded.

Step 4 Push the START button.

- Count-in
Two bars of count-in is heard from two bars before the assigned bar number. During the Count-in, data is being played.



- Recording
NUMBER Indicators stop flashing and light Steadily, and recording starts from the assigned bar.

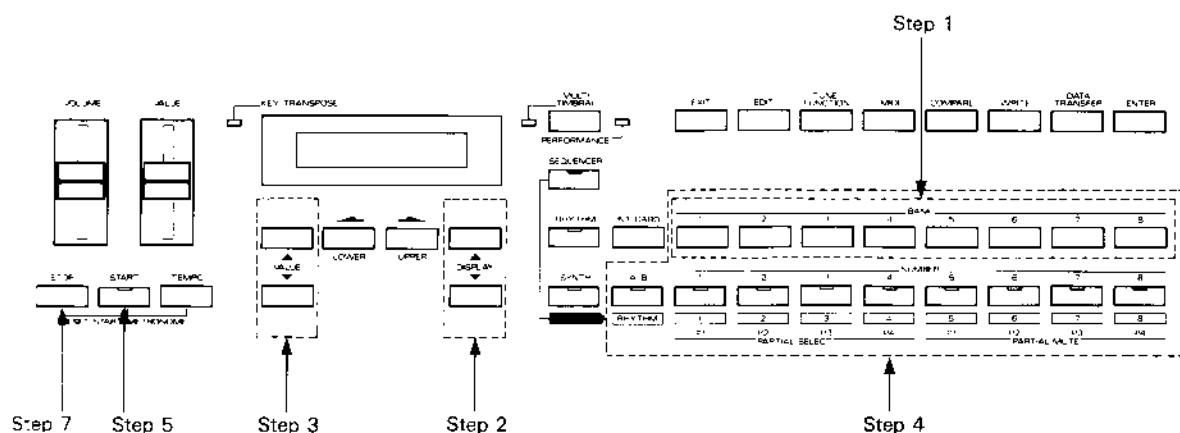


Step 5 Play the keyboard.

Step 6 When finished recording, push the STOP button.

The NUMBER indicator changes from red to green, and the unit is returned to the Sequencer mode.

【Key On Recording】



Step 1 Select a Track to be re-recorded with the relevant **BANK** button.

The corresponding **NUMBER** indicator will glow (red).

Step 2 Using the **DISPLAY** buttons, call the following display.



Step 3 Assign a bar with the **VALUE** button.

*Since the performance data for keyboard is played using the **Timbre/Patch** and **Pan/Volume** setting selected previously, the current performance is recorded faithfully.

Step 4 If you wish to change the **Timbre** or **Patch** at the re-recording position, select a new **Patch** or **Timbre** with the **A/B**, **BANK** and **NUMBER** buttons.

A **Timbre** or **Patch** cannot be selected unless the **Number** is assigned. If you fail to assign a **Number**, the number will flash and the **Timbre** or **Patch** is not recorded.

Step 5 Push the **START** button.

The metronome will play at the tempo currently set.

Step 6 **Play the keyboard.**

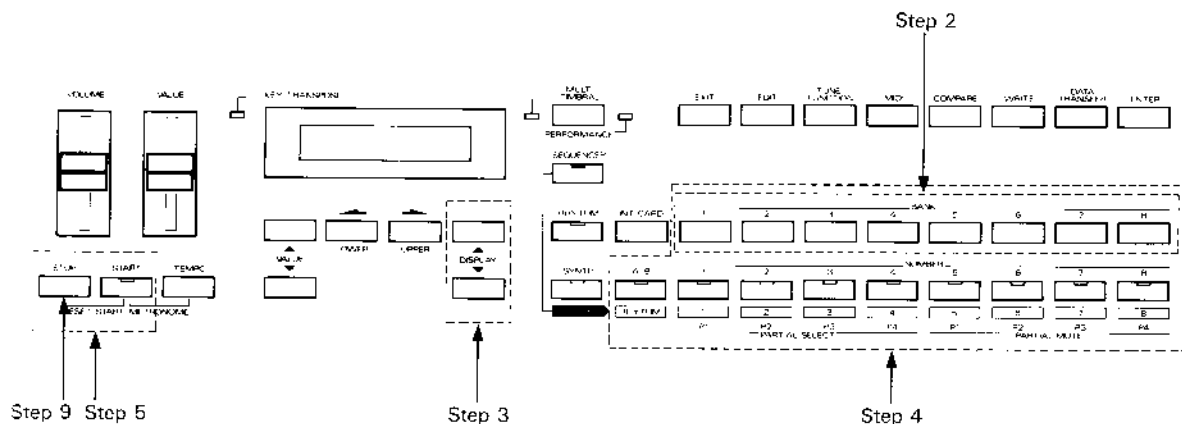
Playing the keyboard will automatically start recording. (The NUMBER indicator stops flashing, remaining alight.)

Step 7 **When finished recording, push the STOP button.**

The NUMBER indicator changes from red to green, and the unit is returned to the Sequencer mode.

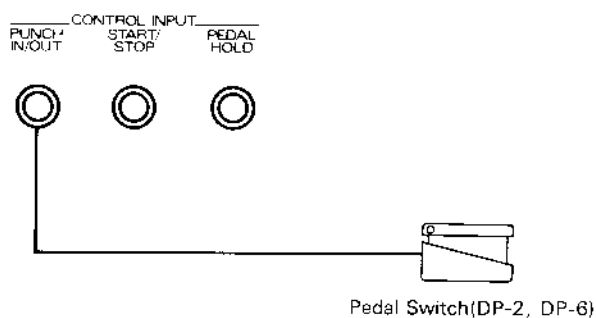
2 Punch In/Punch Out

The Punch In/Punch Out function allows you to re-record a part of the data while listening to the recorded performance data. Starting to re-record is called Punch In, and leaving re-recording is called Punch Out. You can use this function repeatedly. The Punch In/Punch Out function is usually performed with a Pedal Switch (DP-2 or DP-6), and it is also available with the panel operation.



Step 1

Connect the Pedal Switches to the Punch In/Out Sockets on the rear panel.



Step 2

Select a Track to be re-recorded with the relevant BANK button.

The corresponding NUMBER indicator will light (red).

Step 3

Using the DISPLAY buttons, call the following display.

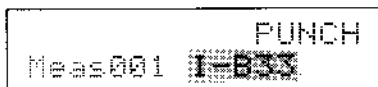
```

PUNCH
Meas001 I-A11

```

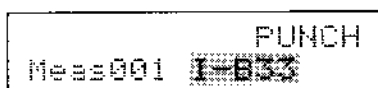
- Step 4** If you wish to change the Timbre or Patch at the re-recording position, select a new Patch or Timbre with the A/B, BANK and NUMBER buttons.

The selected Timber or Patch number will flash in the Display.

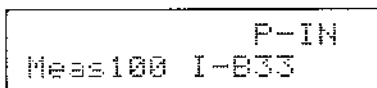


- Step 5** Push the START button while holding the STOP down.

After the count-in metronome, the Track is played back.

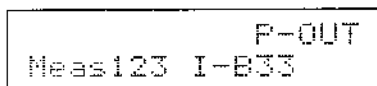


- Step 6** Play the keyboard, and press the pedal at the Punch-in position.
(The NUMBER indicator stops flashing and remains alight.)



*The Punch In/Punch Out function is also performed with the ENTER button. Each time this button is pressed, the alternately functions the Punch In or the Punch Out.

- Step 7** Keep playing the keyboard, and press the pedal at the Punch-out position.
(The NUMBER indicator stops lighting and flashes again.)



- Step 8** If you wish to continue to correct data, repeat Steps 6 and 7.
- Step 9** When finished correcting data, push the STOP button.

The NUMBER indicator changes from red to green, and the unit is returned to the Sequencer mode.

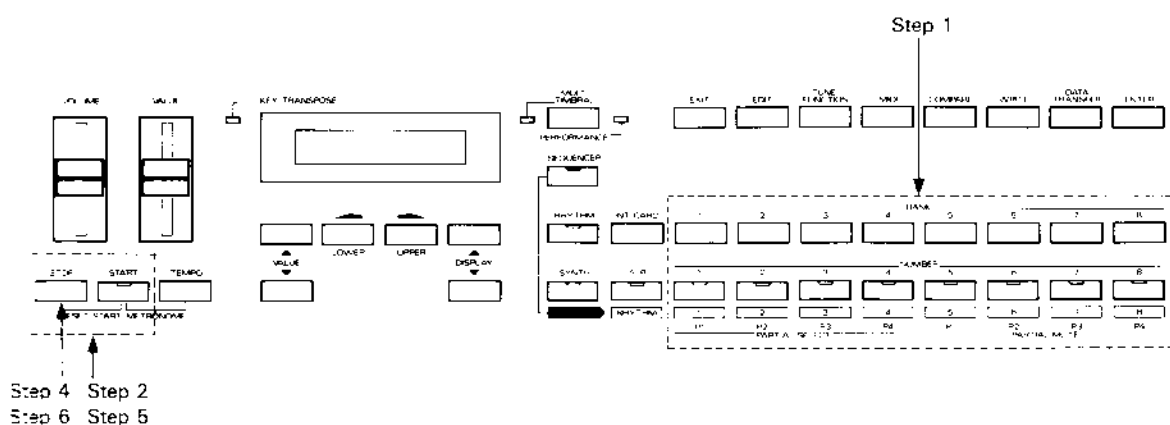
3 Overdubbing

Overdubbing is recording data on existing tracks. This function is useful for adding more performance data within a Track. The Overdub function allows to record the Control messages such as Pan and Volume.

There are two methods for overdubbing, Count In Overdubbing and Key On Overdubbing. (Another different method is used for overdubbing Control messages such as Pan and Volume.)

*If you do not like the overdubbed data, you can erase it.

【Count-in Overdubbing】



Step 1

While holding the BANK button down (the one that corresponds to the Track to be overdubbed), push the NUMBER button of the Track.

The NUMBER indicator flashes (orange), then the Display responds with :

```

      DUB
Meas001 I-A11
  
```

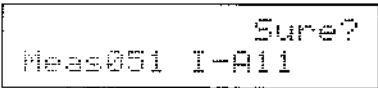
Step 2 Push the START button while holding the STOP button down.

After the metronome count-in, overdubbing starts. (The NUMBER indicator stops flashing and remains alight.)

Step 3 Play the keyboard.

Step 4 When completed, push the STOP button.

The NUMBER indicator turns to green. At this stage, the overdub is not yet complete.



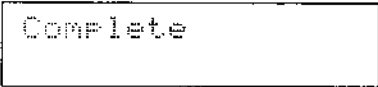
Step 5 While holding the STOP button down, push the START button to monitor the performance data you have played.

Step 6 Push the STOP button.

Step 7 Now, you can either execute the overdub or retrieve the previous data.

☐ If you wish to execute the overdub, push the ENTER button.

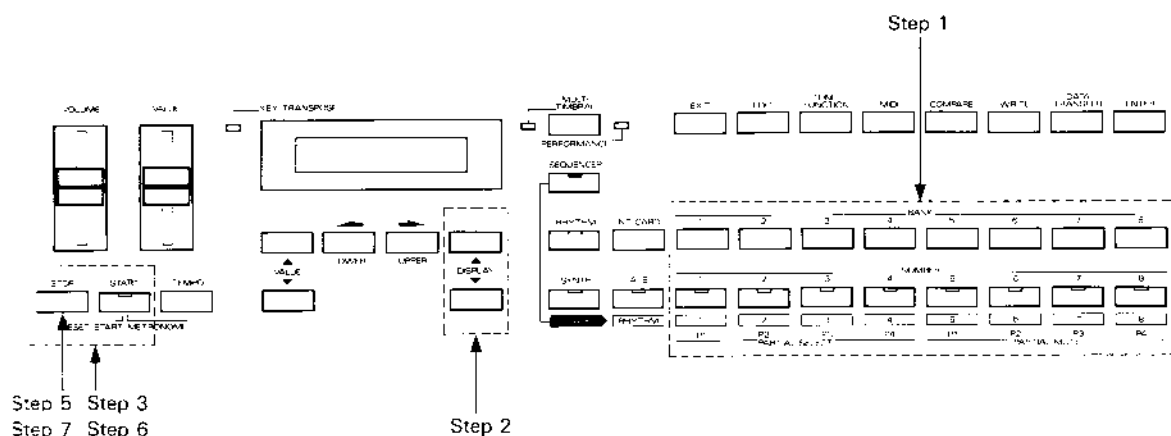
The Display is shown as below, then returns to the previous display.



☐ If you wish to retrieve the previous performance data, push the EXIT button.

The Display is shown as below, then returns to the previous display.



Key-on Overdubbing

- Step 1** While holding the **BANK** button down (the one that corresponds to the Track to be overdubbed), push the **NUMBER** button of the Track.

The **NUMBER** indicator flashes (orange), then the Display responds with:

```

                                DUB
Meas001 I-A11
  
```

- Step 2** Using the **DISPLAY** button, call the following Display.

```

                                KeyON
Meas001 I-A11
  
```

- Step 3** Push the **START** button while holding the **STOP** button down.

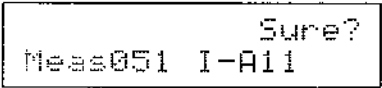
Bar number 001 is shown in the Display, and the metronome will play in the tempo currently set.

- Step 4** Play the keyboard.

Playing the keyboard will automatically start recording. (The **NUMBER** indicator stops flashing and remains alight.)

Step 5 **When finished overdubbing, push the STOP button.**

The NUMBER indicator turns to green. At this stage, the overdub is not yet complete.



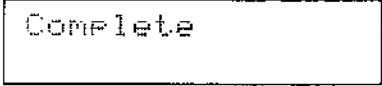
Step 6 **While holding the STOP button down, push the START button to monitor the performance data you have played.**

Step 7 **Push the STOP button.**

Step 8 **Now, you can either execute the overdub or retrieve the previous data.**

○ **If you wish to execute the overdub, push the ENTER button.**

The Display changes as shown below, then returns to the previous display.

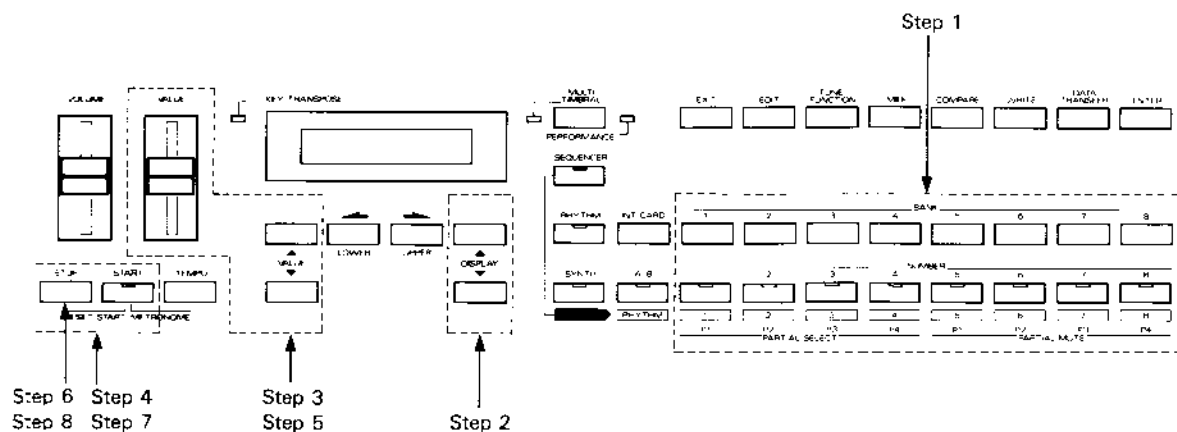


○ **If you wish to retrieve the previous performance data, push the EXIT button.**

The Display is shown as below, then returns to the previous display.



[Overdubbing of Pan/Volume]



Step 1 While holding the **BANK** button down (the one that corresponds to the Track to be overdubbed), push the **NUMBER** button of the Track.

The **NUMBER** indicator flashes (orange), then the Display responds with :

```

                                DUB
Meas001 I-A11
  
```

Step 2 Using the **DISPLAY** button, call the following Display.

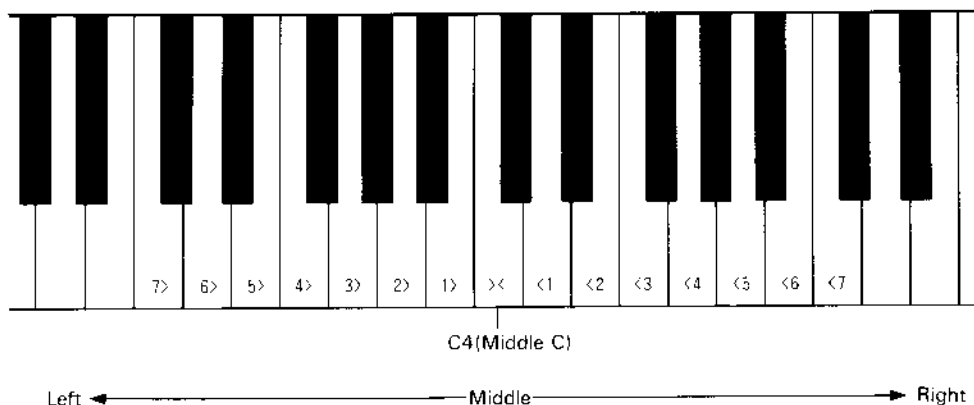
```

                                Pan/U
Meas001 >< 100
          ^      ^
        Pan  Volume
  
```

Step 3 Set the initial values of the **Pan** and **Volume**.

○The **Value Control Knob** changes the value for the **Volume** from 0 to 100. Higher values increase the volume.

○ The keyboard changes the value for the Pan as shown below.



*If a rhythm performance has been recorded in Track 8, Pan Overdubbing cannot be done in track 8.

Step 4 Push the **START** button while holding the **STOP** button down.

After the metronome count-in, overdubbing starts. (The **NUMBER** indicator stops flashing and remains alight.)

Step 5 Using the **Value Control Knob** and the keyboard, change the values of the **Pan** and **Volume** you have set.

Step 6 When finished overdubbing, push the **STOP** button.

The **NUMBER** indicator turns to green. At this stage, the overdub is not yet complete.

```

      Sure?
Meas051  X  100
  
```

Step 7 While holding the **STOP** button down, push the **START** button to monitor the performance data you have played.

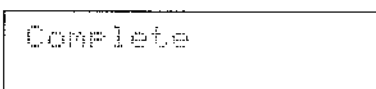
Step 8 Push the **STOP** button and stop playing the keyboard.

Step 9

Now, you can either execute the overdub or retrieve the previous data.

○If you wish to execute the overdub, push the **ENTER** button.

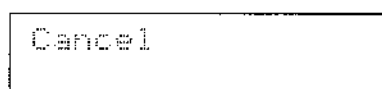
The Display is shown as below, then returns to the previous display.



Complete

○If you wish to retrieve the previous performance data, push the **EXIT** button.

The Display is shown as below, then returns to the previous display.



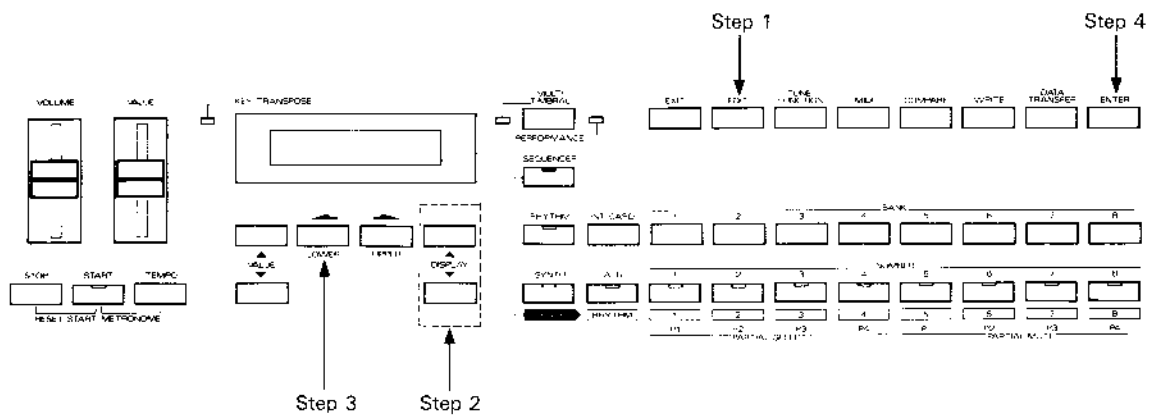
Cancel

4) Clear

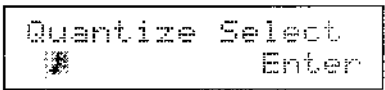
The D-20 allows you to clear the entire performance data you have recorded (=All Clear) or the data in each Track (=Track Clear).

[ALL Clear]

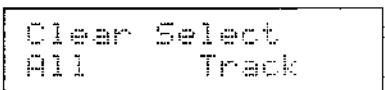
The All Clear function can erase the performance data recorded in all the Tracks (including the Rhythm Track).



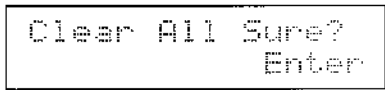
Step 1 Push the EDIT button.



Step 2 Call the following Display using the DISPLAY buttons.

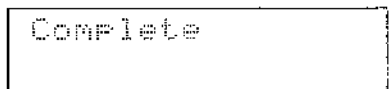


Step 3 Push the left Cursor Button.



Step 4 Push the ENTER button.

When data is cleared, the following Display is shown for a while then returned to the previous Display.



Beat Setting >

After the All Clear procedure, if you try to record data in Tracks 1 to 8 without recording the Rhythm Track, the Display responds with :



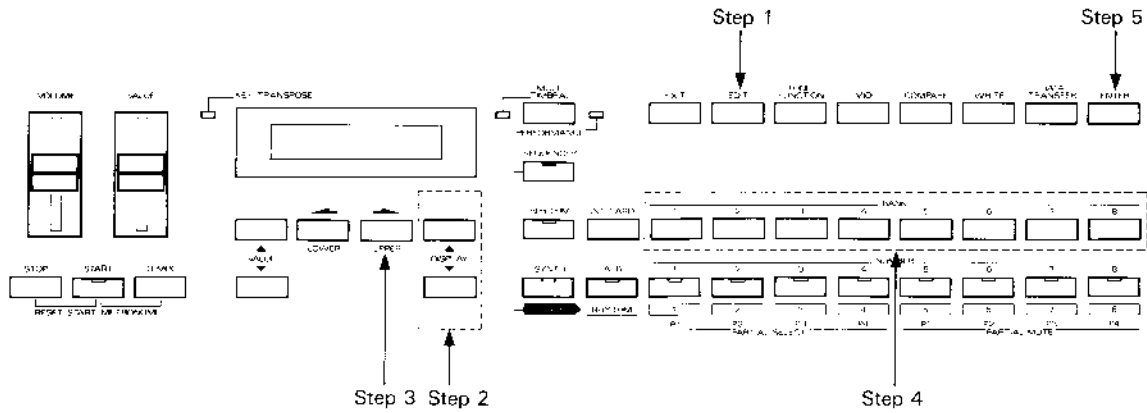
REC
Time 0000 Enter

Set the desired time signature ($1/4$ to $8/4$) with the Value Control Knob, then push the ENTER button. For the other Tracks, take the same procedure.

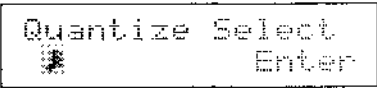
[Track Clear]

The Track Clear function erases each Track you like.

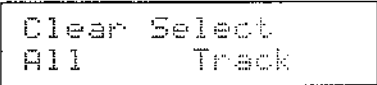
***The Rhythm Track data cannot be erased using the Track Clear function.**
If you wish to erase the Rhythm Track, take the All Clear procedure, or the erase procedure in the Rhythm Track Recording section.



Step 1 Push the EDIT button.

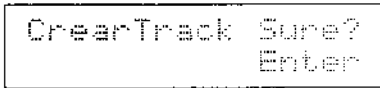


Step 2 Call the following Display using the DISPLAY buttons.



Step 3 Push the right Cursor Button.

The Display responds as below, and meanwhile, the indicator of the recorded Tracks will flash (red).



Step 4 **Select the Track to be cleared with the relevant BANK button.**

The indicator of the selected Track stops flashing, remaining alight.
(The Tracks which are flashing can still be selected by pushing the corresponding BANK buttons.)

Each time a BANK button is pressed, it alternately flashes or remains alight.

Step 5 **Push the ENTER button.**

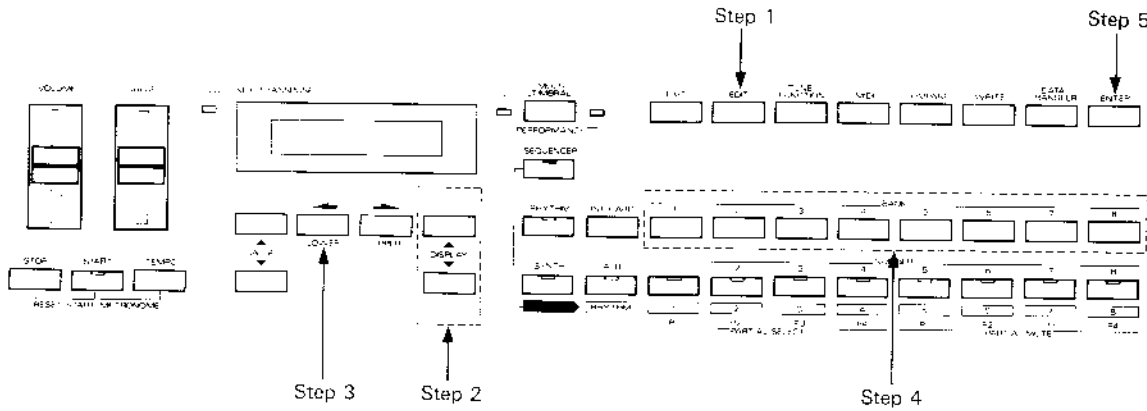
When the data is cleared, the Display responds as below, then returns to the previous display.

Complete

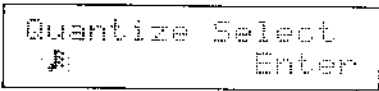
5) Erase

The Erase function allows you to erase only the Program Change messages or Pan/Volume messages of recorded performance data in each Track.

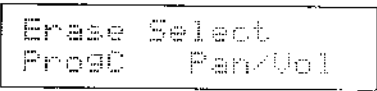
[Erasing Program Change Messages]



Step 1 Push the EDIT button.



Step 2 Change to the following Display using the DISPLAY buttons.



Step 3 Push the left Cursor Button.

The Display responds as below, and meanwhile, the indicator of the recorded Tracks will flash (red).



- Step 4** **Select the Track whose Program Change Messages are to be erased, using the relevant BANK button.**

The indicator of the selected Track stops flashing, remaining alight. (The Tracks which are flashing can still be selected by pushing the corresponding BANK buttons.)

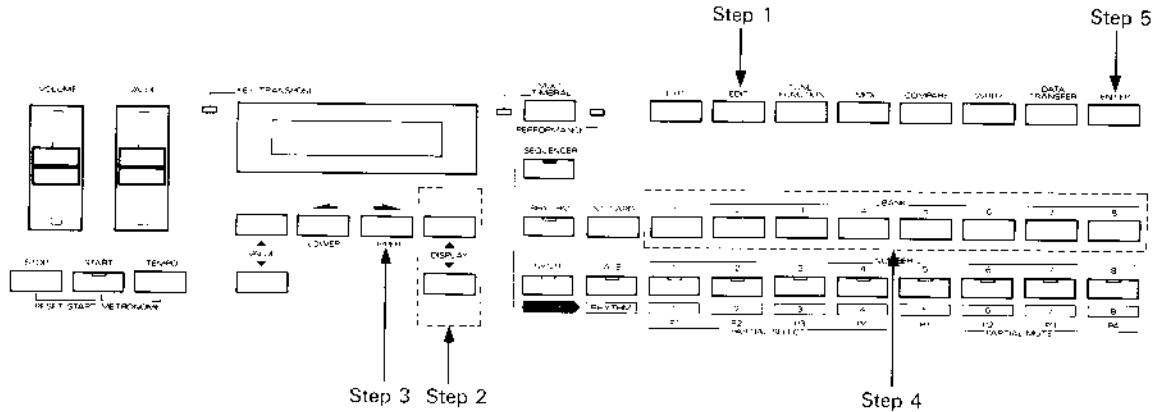
Each time a BANK button is pressed, it alternately flashes or remains alight.

- Step 5** **Push the ENTER button.**

When the data is cleared, the Display responds as below, then returns to the previous display.

Complete

[Erasing Pan/Volume Messages]



Step 1 Push the EDIT button.

```
Quantize Select
$ Enter
```

Step 2 Change to the following Display using the DISPLAY buttons.

```
Erase Select
Progc Pan/Vol
```

Step 3 Push the right Cursor Button.

The Display responds as below, and meanwhile, the indicator of the recorded Tracks will flash (red).

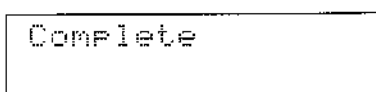
```
ErasePan/V Track
Sure? Enter
```

Step 4 Select the Track whose Pan and Volume are to be erased, using the relevant BANK button.

The indicator of the selected Track stops flashing, remaining alight. (The Tracks which are flashing can still be selected by pushing the corresponding BANK buttons.) Each time a BANK button is pressed, it alternately flashes or remains alight.

Step 5 **Push the ENTER button.**

When the data is cleared, the Display responds as below, then returns to the previous display.



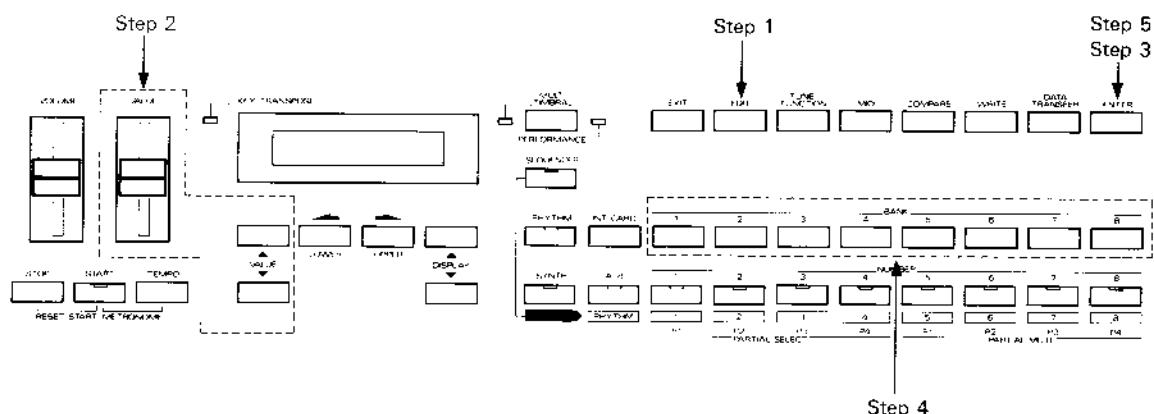
Complete

6) Quantize

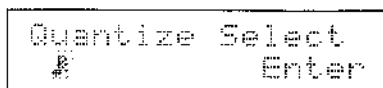
The Quantize function corrects the timing of the key message so that it will conform to a set timing. This function is available in each Track of data.

*The quantized data cannot be returned to its previous condition.

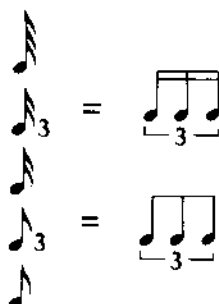
*The Quantize function may cause performance in correctness as Quantize function only adjust the key Messages. When the Program Change Message and the Control Message is recorded using Overdubbing function after quantizing.



Step 1 Push the EDIT button.



Step 2 The value for quantization is represented as a time signature. Using the Value Control Knob select the value (the shortest note) for the recorded data.



Step 3 **Push the ENTER button.**

The Display responds as below, and meanwhile, the indicator of the recorded Tracks will flash (red).

Quantize ↓ Track Enter

Step 4 **Select the Track to be quantized using the relevant BANK button.**

The indicator of the selected Track stops flashing, remaining alight. (The Tracks which are flashing can still be selected by pushing the corresponding BANK buttons.)

Each time a BANK button is pressed, it alternately flashes or remains alight.

Step 5 **Push the ENTER button.**

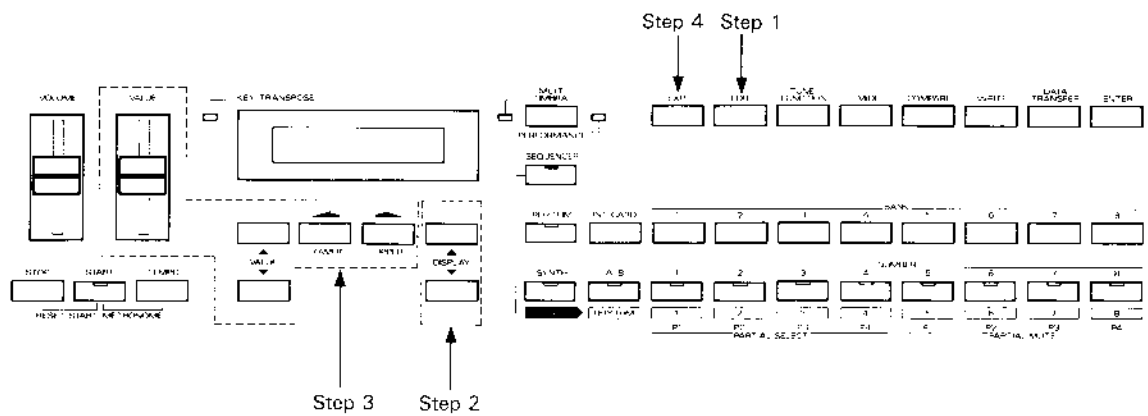
When the data is quantized, the Display responds as below, then returns to the previous display.

Complete

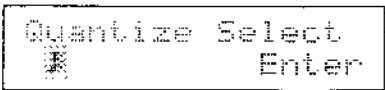
c. Song Name

The recorded performance data can be named using up to 10 letters.

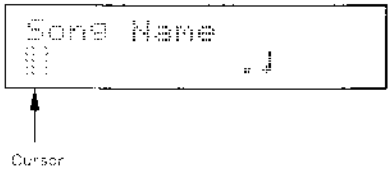
*The Song Name you put here can be used as a file name for saving onto a floppy disk.



Step 1 Push the **EDIT** button.

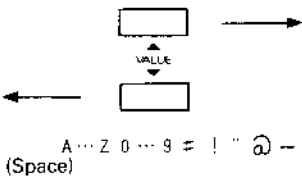


Step 2 Select the following Display using the **DISPLAY** buttons.



Step 3 Using the **Cursour Buttons**, move the cursor to the position where the selected letter is to be written, then choose the letter with the **Value Control Knob**.

The available letters for a Song Name are as shown below.



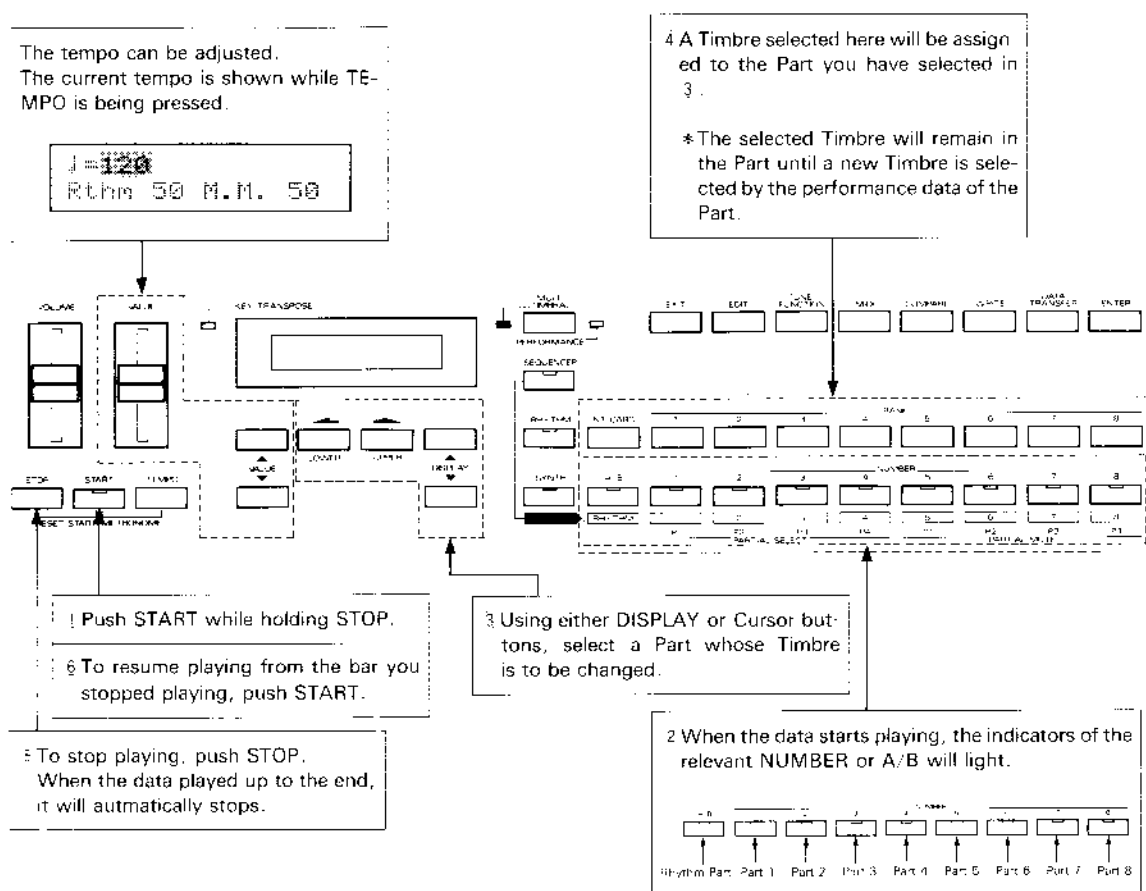
Step 4 Push the **EXIT** button to return to the previous Display.

3. Sequencer Play

This section describes how to play the recorded performance data in the Multi Timbral mode.

a. Play Mode

In the Play mode, you can call any Timbre you like while playing back the performance data.

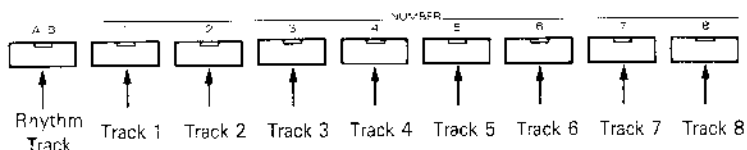


b. Sequencer Mode

The Sequencer mode includes the following procedures.

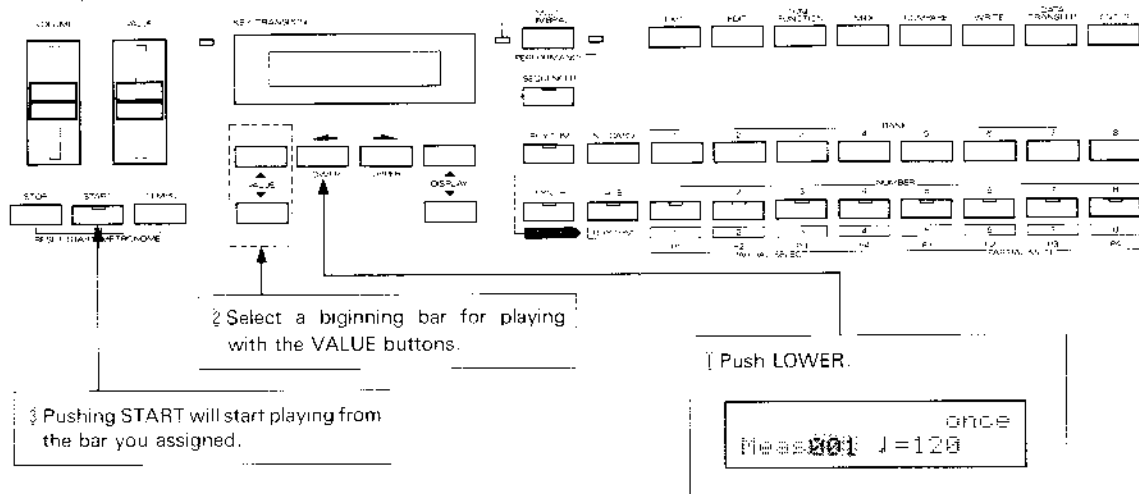
【Selecting Tracks to be played】

By pressing the A/B or NUMBER buttons lit in green, you can mute the corresponding Tracks. In this way, you can playback only the Tracks you want. Pressing the button alternately turns ON or OFF the Muting function.



【Playback from any bar】

It is possible to playback data from any bar you like.



* The data played back uses a Timbre/Patch or Pan/Volume setting selected before assigning the bar, and therefore may sound different from the data actually recorded.

【Repeat Play】

It is possible to playback the recorded performance data repeatedly.

*The Repeat function you have turned on will return to "once" when the unit is switched off.

