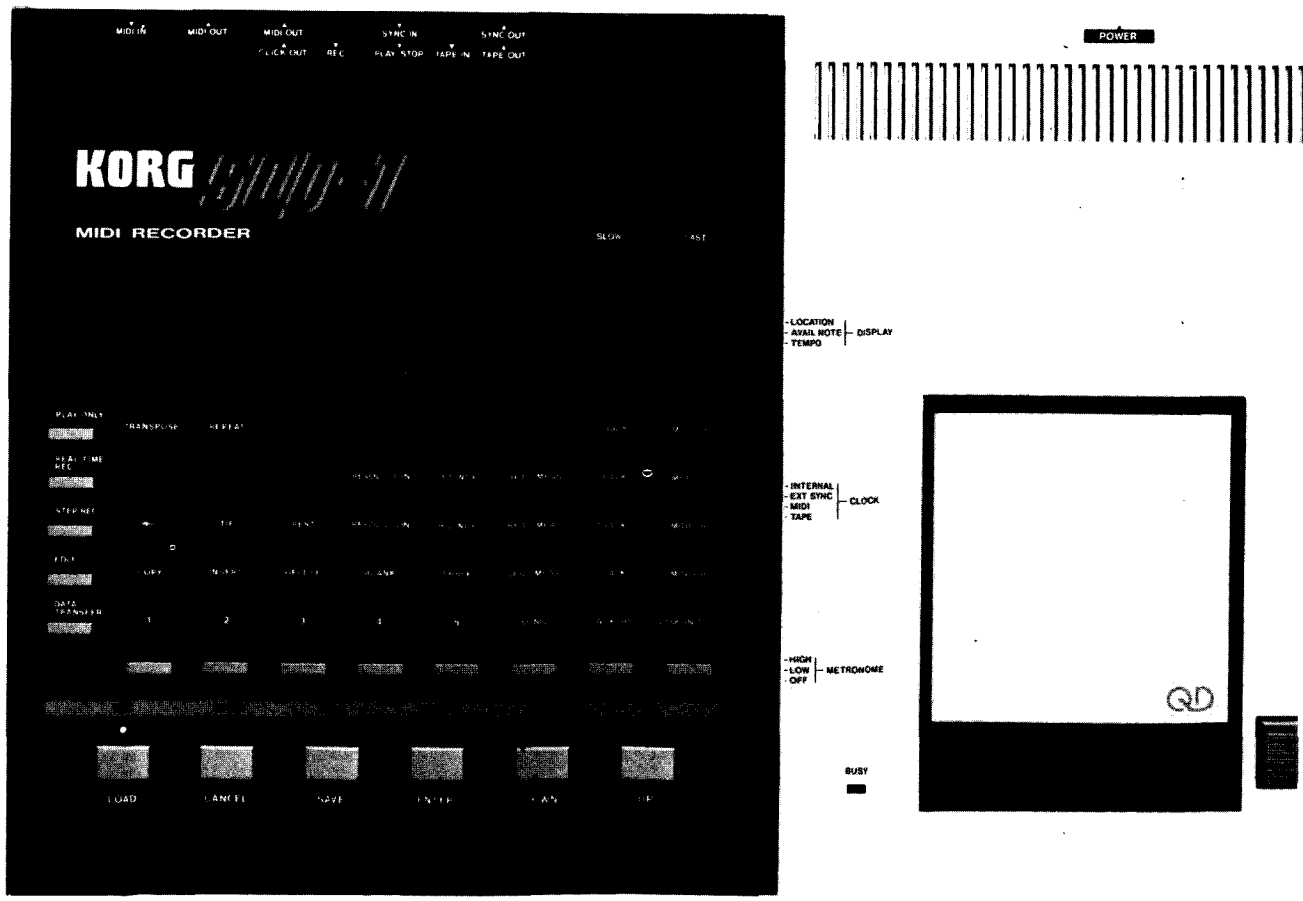
SQD-1

MIDI RECORDER
OWNER'S MANUAL



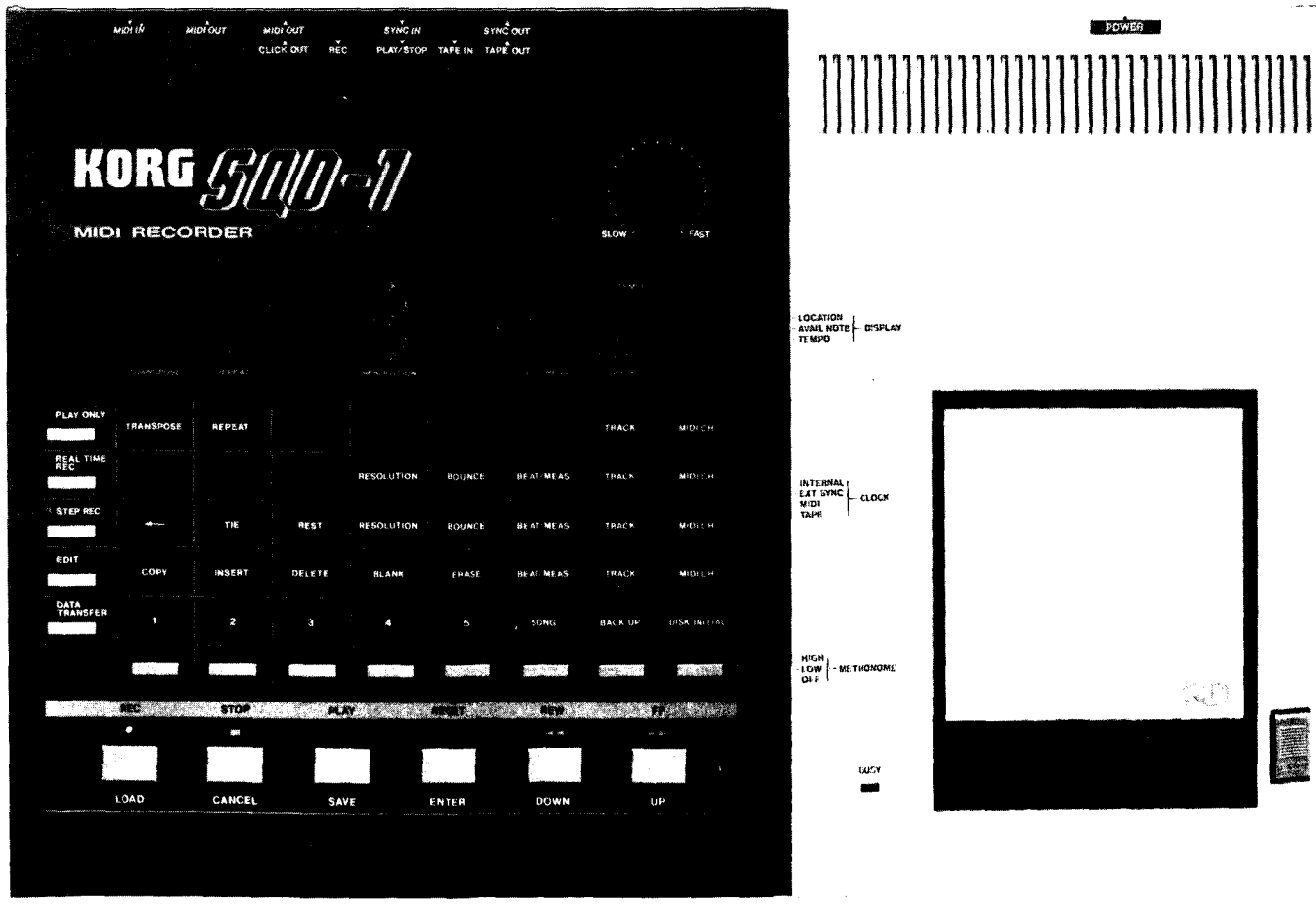
KORG

SQD-1

MIDI RECORDER
OWNER'S MANUAL

SQD-1

Congratulations and thank you for purchasing the Korg SQD-1. To assure optimum performance and long term reliability please read this manual carefully.



MAJOR FEATURES

1 The SQD-1 is a new kind of MIDI sequencer which uses quick disks (QD) to store performance data. Data saving and loading operations are faster and easier. The double-sided quick disk also has a huge storage capacity of about 30,000 notes.

2 SQD-1 internal memory has a capacity of about 15,000 notes and can simultaneously handle all 16 MIDI channels. This enables sequencing of long songs in a complex MIDI system.

3 One "main track" and one "sub track" are employed. (The main track can hold multiple MIDI channels.) Operation is similar to multi-track recording.

4 Recording can be performed in real time, allowing you to play your MIDI instrument as usual. Or it can be done in "step time" where you can specify notes, rests, and ties a step at a time. These two methods can be intermingled as is convenient.

5 Complete editing functions include Insert, Delete, Blank, Erase, and Copy. With these it is easy to correct mistakes and make changes or revisions in your work. Punch ins and punch outs can be performed on the sub track in one-bar units.

6 Songs can be repeated indefinitely (using the repeat function in the play only mode) and the key can be transposed as desired.

7 Besides MIDI (IN, OUT) jacks, the SQD-1 also has sync (in, out) and tape sync (in, out) terminals. These enable connection to, and synchronized operation with, other sequencers and rhythm machines as well as multi-track tape recorders.

IMPORTANT PRECAUTIONS

■ Place of Use

Do not use this unit for long periods of time where it is exposed to:

- direct sunlight.
- high temperature or humidity.
- sand or dust.

Also, quick disc operation requires that the unit be operated on a flat, horizontal surface.

■ Power Supply

Use only with rated AC voltage. If you will be using this unit in an area having a different voltage, be sure to use a proper voltage converter.

■ Interference

This unit uses microcomputer circuitry. Like all such devices it is subject to interference from nearby electrical devices like fluorescent lamps, appliances with motors, and so on. If operation becomes erratic or unpredictable, or if there is no response when you press a button on the unit, then interference may be the cause. If this occurs, try turning off the power, then turning it back on again. This resets (or initializes) the microcomputer chip.

■ Handle with Care

All controls are designed to provide positive operation with a gentle touch. Do not use force.

■ Keep this Manual

For future reference, please store this manual in a safe place.

CONTENTS

FIVE MODES OF OPERATION

Broadly speaking, the SQD-1 has five modes of operation. A general description of each mode is given below.

1. PLAY ONLY MODE

This is the mode that is normally used for playback when you have the SQD-1 connected to rhythm machines and MIDI synthesizers. In the play only mode you can transpose the key and use the repeat function.

2. REAL TIME RECORDING MODE

3. STEP RECORDING MODE

The SQD-1 can be "programmed" in two ways:

- With "real time recording," you play what you want on your MIDI keyboard (or other MIDI instrument) and the notes are recorded on the SQD-1.
- With "step recording," the shortest note (or rest) value is considered one step. You must specify the note, rest, or tie that you want recorded at each of these steps.

4. EDIT MODE

This lets you make revisions and corrections in data that have been recorded. You can copy part of a program from one point to another. You can insert new measures, and you can remove or erase data.

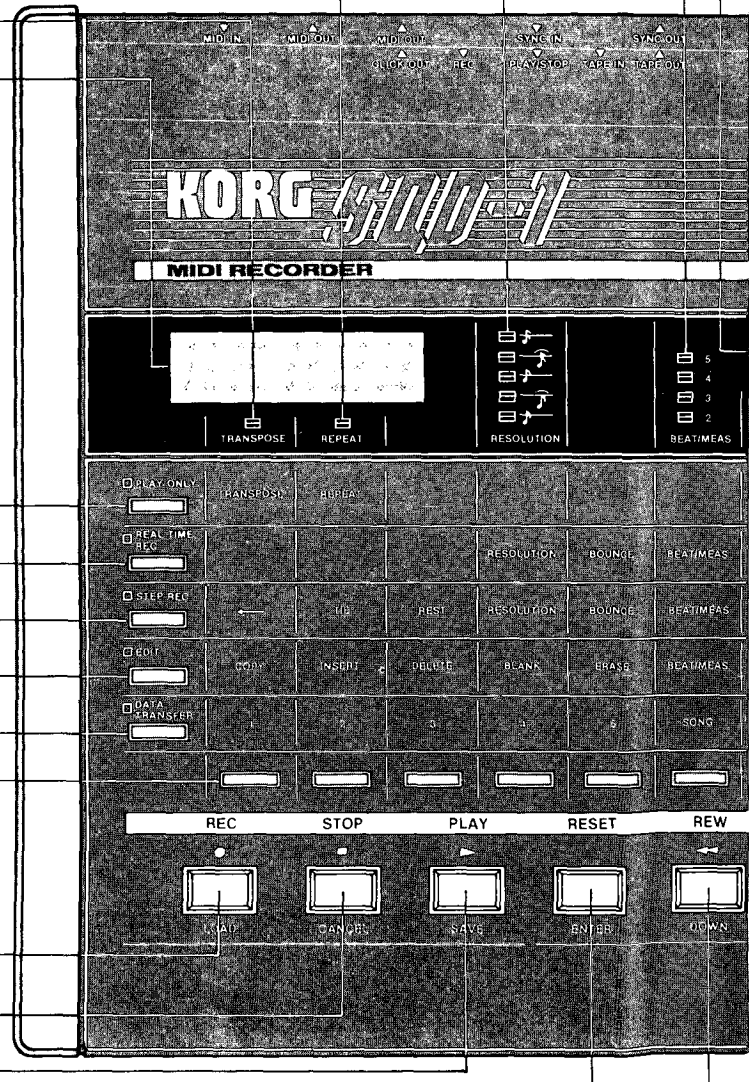
5. DATA TRANSFER MODE

Data stored in internal memory is erased when the power is turned off. The data transfer mode lets you preserve your data by saving it on a quick disk. This mode is also used (with a MIDI exclusive message) when you want to transfer data to another SQD-1.

With these modes you "program" the SQD-1, by storing MIDI data in its memory, then you edit the data if necessary. Finally you play back the data and use it to "drive" a MIDI synthesizer and/or rhythm unit.

1. FRONT PANEL

6 Track indicator
5 Beats per measure indicator
4 Resolution indicator
3 Repeat indicator
2 Transpose indicator
1 Display

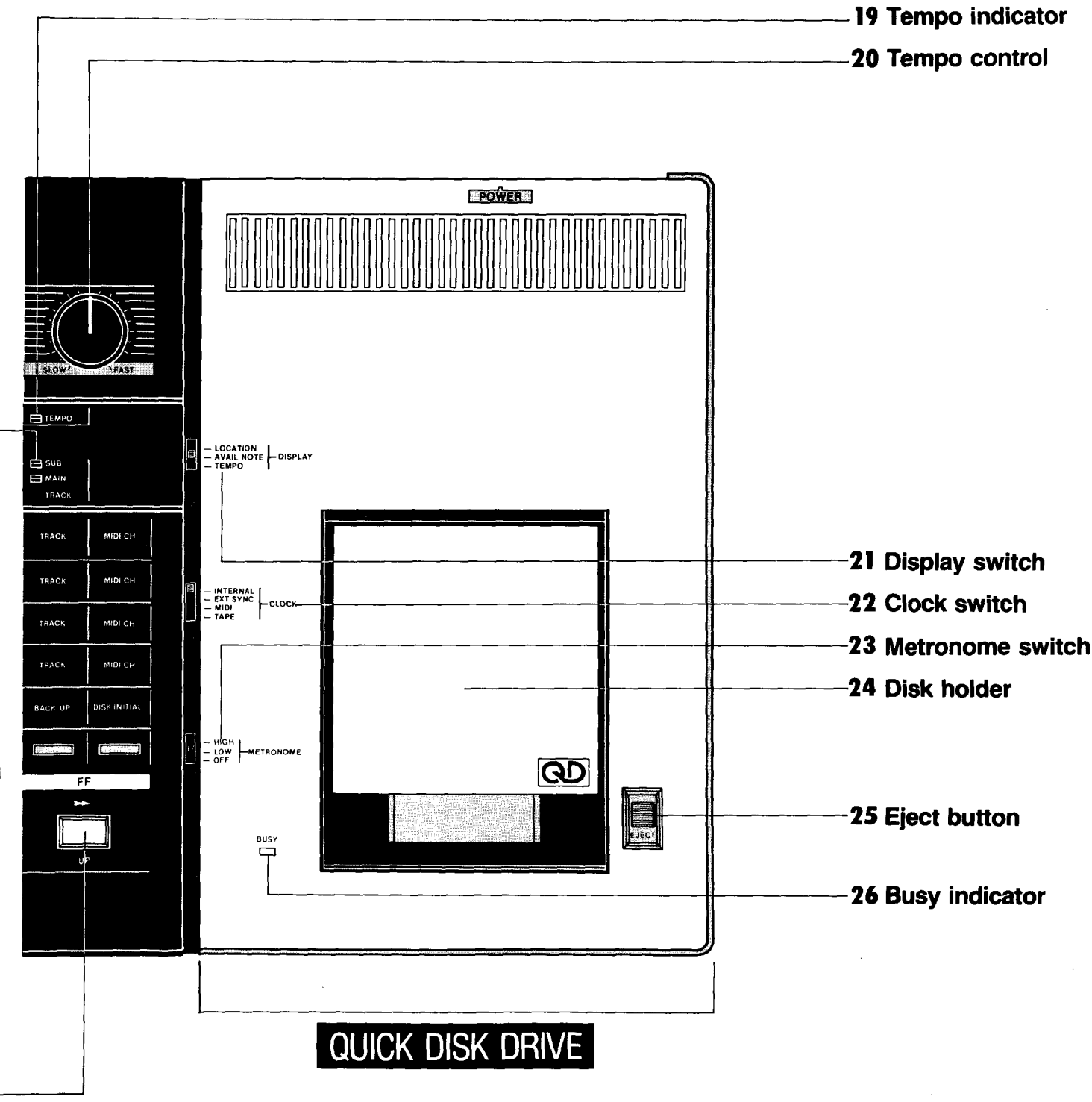


MODE SWITCHING KEYS

7 Play only key
8 Real time recording key
9 Step recording key
10 Edit key
11 Data transfer key
12 Multi-Function keys

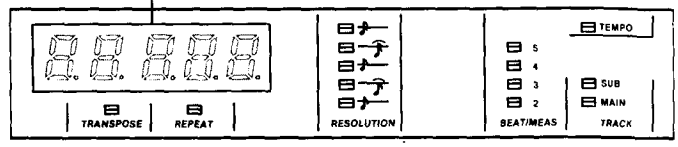
TRACK CONTROL KEYS

13 Rec/load key
14 Stop/cancel key
15 Play/save key
16 Reset/enter key
17 Rewind/down key
18 Fast-forward/up key

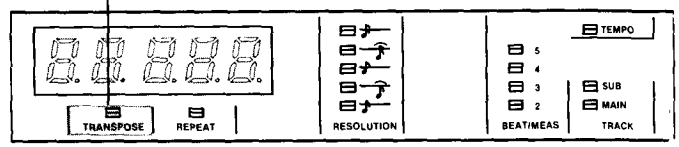

19 Tempo indicator
20 Tempo control
POWER
SLOW
FAST
TEMPO
SUB
MAIN
TRACK
TRACK
MIDI CH
BACK UP
DISK INITIAL
FF
UP
LOCATION
AVAIL NOTE
TEMPO
DISPLAY
INTERNAL
EXT SYNC
MIDI
TAPE
CLOCK
HIGH
LOW
OFF
METRONOME
BUSY
EJECT
21 Display switch
22 Clock switch
23 Metronome switch
24 Disk holder
25 Eject button
26 Busy indicator
QUICK DISK DRIVE

FEATURES AND FUNCTIONS

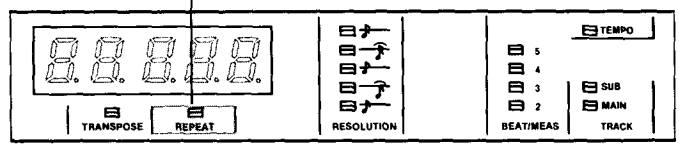
1 Display
Shows the bar (measure), beat, MIDI channel number, and other information.



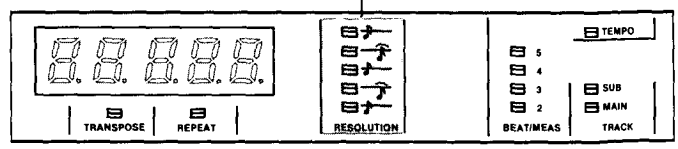
2 Transpose indicator
Illuminates when using the transpose function in the play only mode.



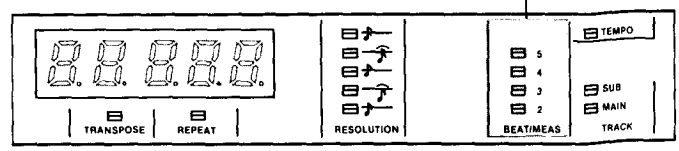
3 Repeat indicator
Illuminates when using the repeat function in the play only mode.



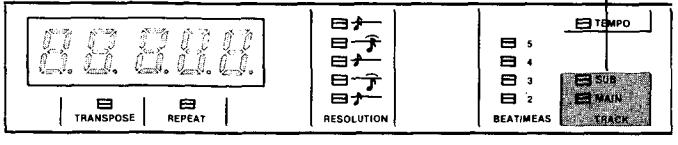
4 Resolution indicator
Shows resolution.



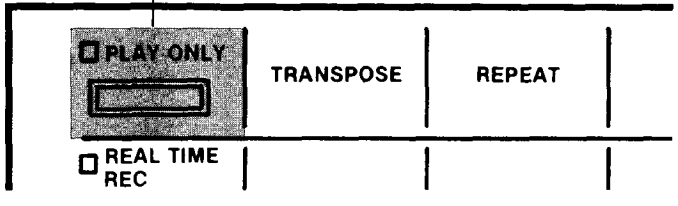
5 Beats per measure indicator
Shows beats per measure (bar). That is 3/4, 4/4, etc.



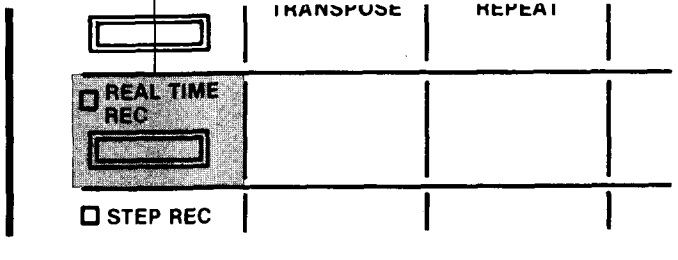
6 Track indicator
Shows which track is being used.



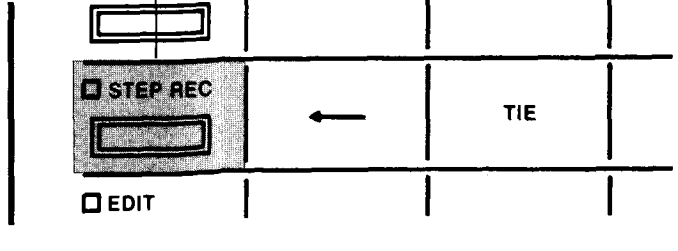
7 Play only key
Selects the play only mode.



8 Real time recording key
Selects the real time recording mode.

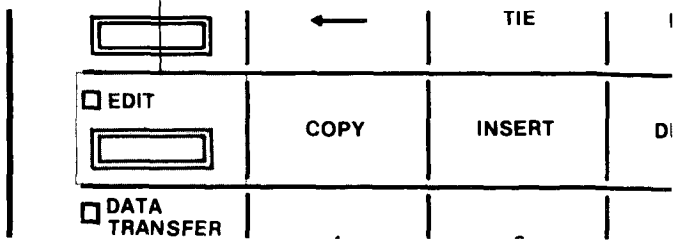


9 Step recording key
Selects the step recording mode.



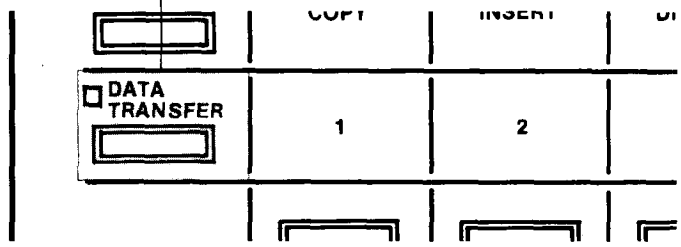
10 Edit key

Selects the edit mode.



11 Data transfer key

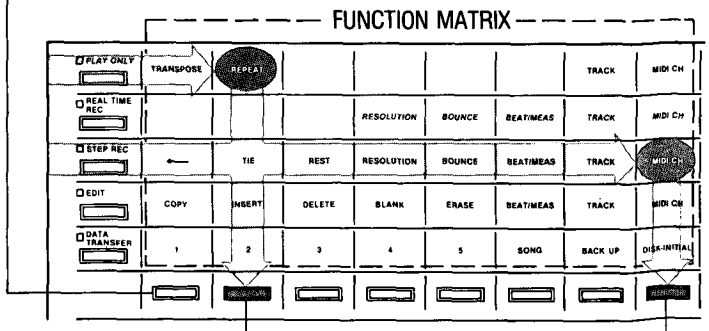
Selects the data transfer mode.



12 Multi-Function keys

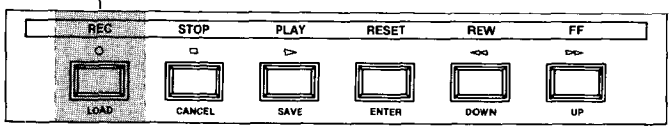
The functions of these keys depend on the mode currently selected.

The function of a multi-function key can be found by referring to the "function key matrix" chart on the panel. For example, the second function key selects the repeat function when in the play only mode; the key on the far right is used to select the MIDI channel number when in the step recording mode.



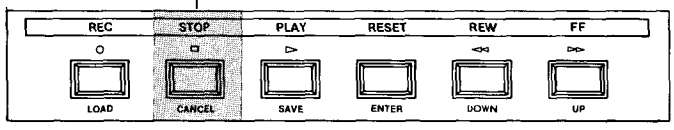
Press this key to select the repeat function when in the play only mode.

Press this key to select the MIDI channel number when in the step recording mode.



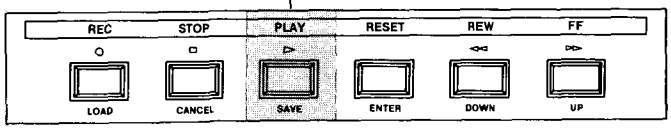
13 Rec/load key

Press this key to begin recording when in the real time recording mode or the step recording mode.
Press this key to load (read) data from a quick disk to internal memory when in the data transfer mode.



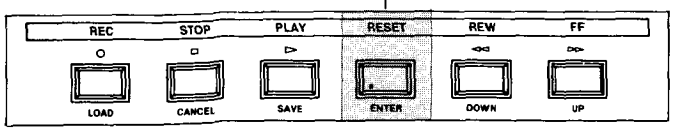
14 Stop/cancel key

This is used to stop recording and/or playback when in the real time recording mode, step recording mode, or edit mode.
It is likewise used to stop playback in the play only mode.
In the data transfer mode, this key is used to cancel save and load operations.



15 Play/save key

This is used to begin playback in the real time recording mode, step recording mode, and edit mode.
It is likewise used to begin playback in the play only mode.
In the data transfer mode, this key is used to save (write) data to a quick disk (from internal memory).

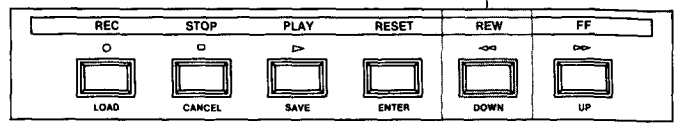


16 Reset/enter key

After interruption of recording or play, this key is used if you want to return to the beginning of the music. In the data transfer mode, this key is pressed to begin data transfer between the internal memory and a quick disk.

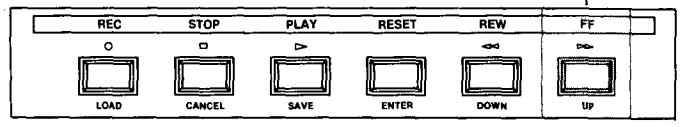
17 Rewind/down key

When pressed intermittently, this takes you back a beat at a time toward the beginning of the music. This key is also used to reduce the value of a number when making particular settings.



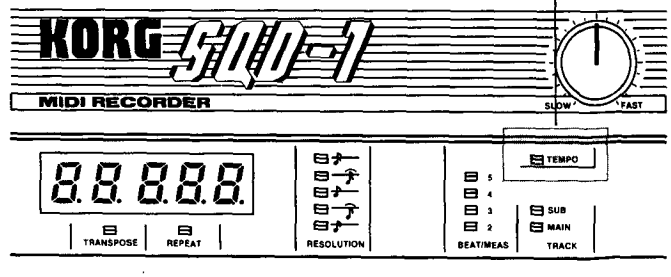
18 Fast-forward/up key

When pressed intermittently, this takes you forward a beat at a time toward the end of the music. This key is also used to increase the value of a number when making certain settings.



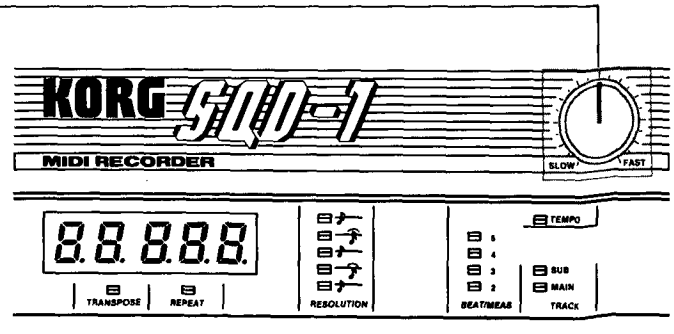
19 Tempo indicator

Flashes to indicate the tempo.



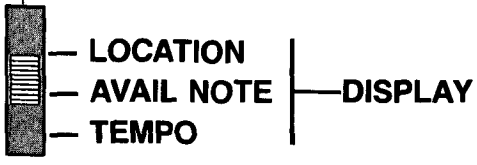
20 Tempo control

Adjusts tempo.
Tempo can be varied from about 35 to about 230 beats (quarter notes) per minute.



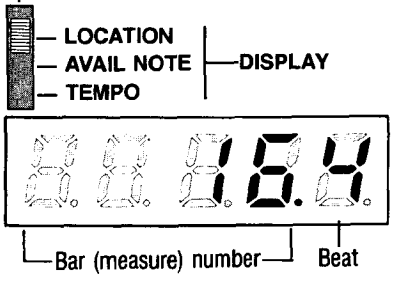
21 Display switch

The setting of this switch changes what is shown on the display.



① Location

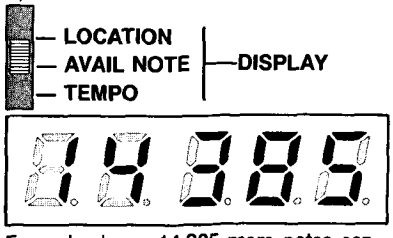
Shows the present location within the music.



Example shows 16th bar, 4th beat.

② Available note display

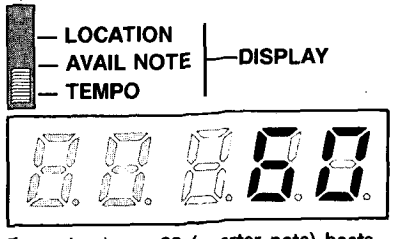
Shows how many more notes can be written before memory will become full.



Example shows 14,385 more notes can be recorded.

③ Tempo

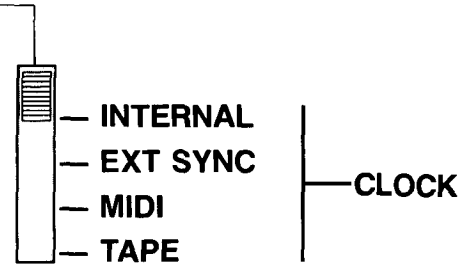
Indicates quarter notes per minute.



Example shows 60 (quarter note) beats per minute.

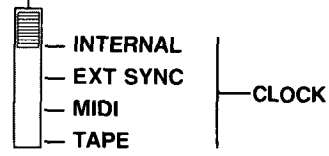
22 Clock switch

Something has to serve as a timing reference for sequencer operation. This switch lets you select the source of this "clock." There are four possibilities.



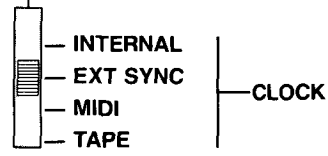
① Internal

Selects the SQD-1's internal clock as the basis for control of everything including start/stop timing and tempo.



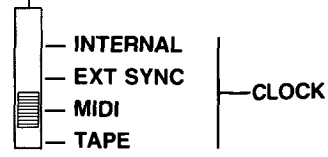
② External sync

Selects an external sync signal source from another sequencer or rhythm machine connected to the rear panel SYNC IN jack. Start and tempo are no longer controlled by the SQD-1 in this case.



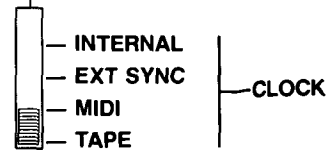
③ MIDI

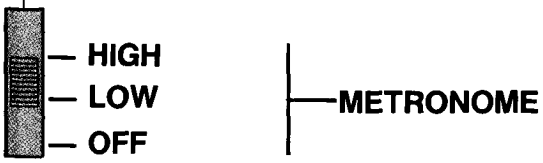
Selects the timing clock in the MIDI signal connected to the rear panel MIDI IN jack. This can come from a MIDI rhythm machine or sequencer. Start and tempo depend on the external MIDI unit.



④ Tape

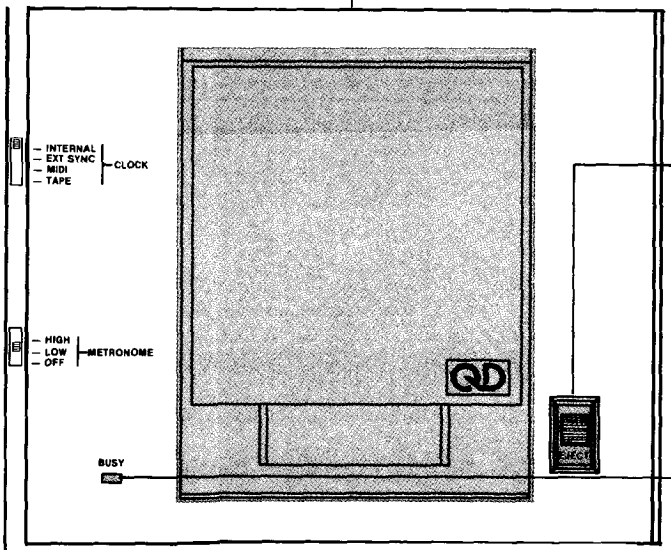
For synchronization with a tape recorder. Tempo and start are not controlled by the SQD-1 in this case.





23 Metronome switch
Produces a metronome sound. HIGH is louder than LOW.

24 Disk holder
Compartment for quick disk.

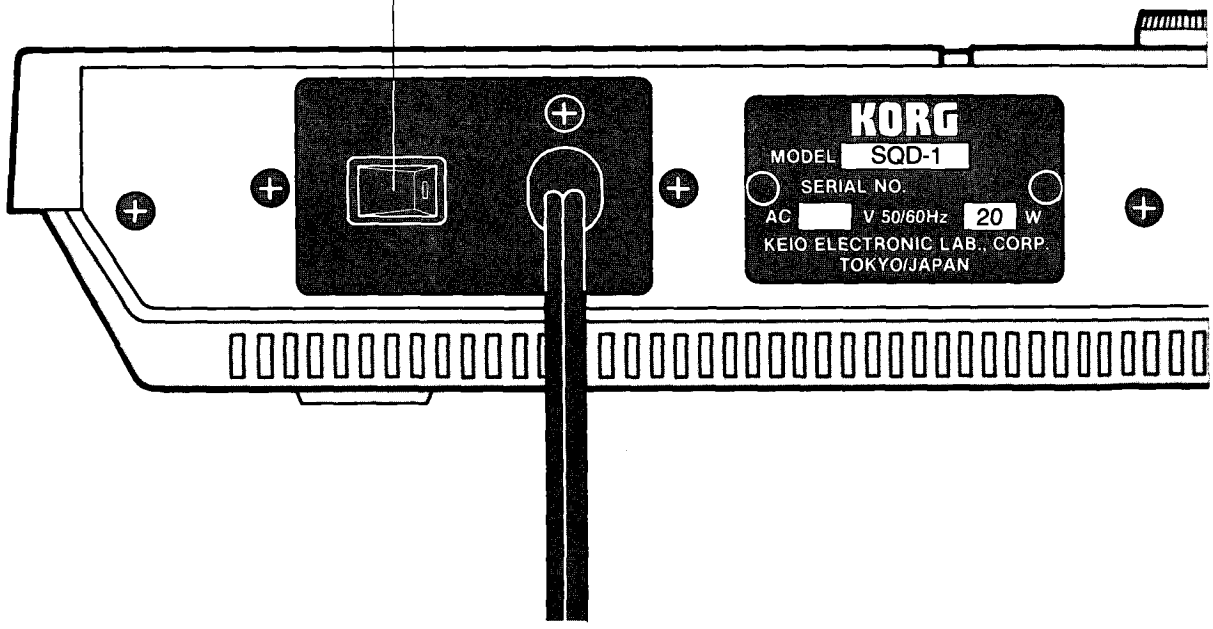


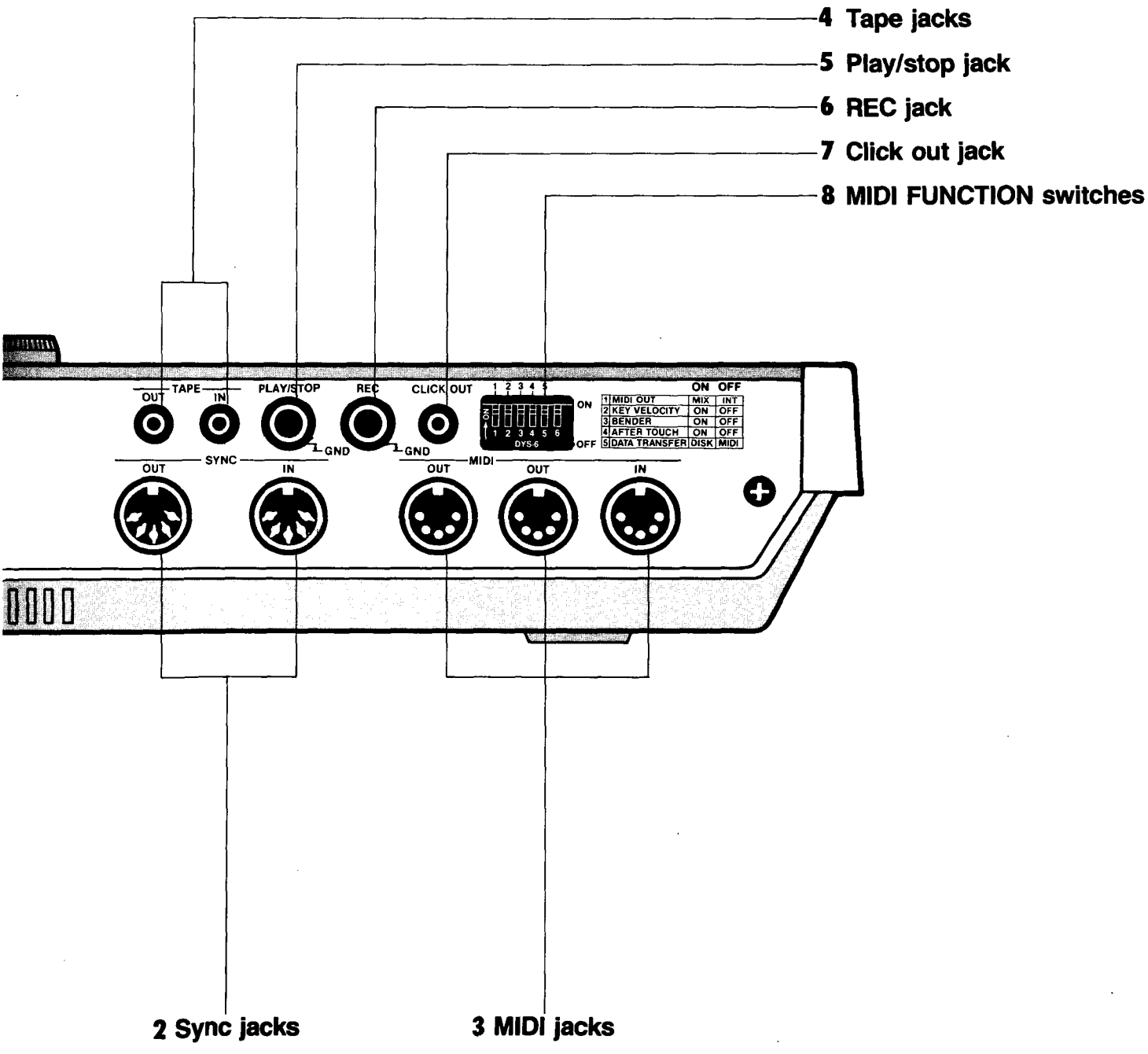
25 Eject button
Opens disk holder.

26 Busy indicator
Illuminates during disk drive operation. Never open the disc holder while the BUSY indicator is on.

2. REAR PANEL

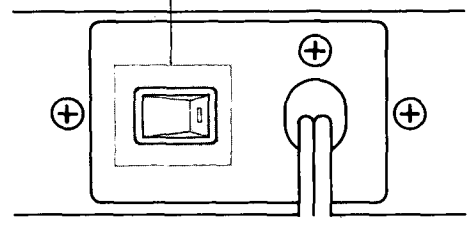
1 Power switch




4 Tape jacks
5 Play/stop jack
6 REC jack
7 Click out jack
8 MIDI FUNCTION switches
TAPE
OUT
IN
PLAY/STOP
REC
CLICK OUT
GND
GND
SYNC
OUT
IN
MIDI
OUT
OUT
IN
1 2 3 4 5 6
DYS:6
ON
OFF
ON OFF
1 MIDI OUT MIX INT
2 KEY VELOCITY ON OFF
3 BENDER ON OFF
4 AFTER TOUCH ON OFF
5 DATA TRANSFER DISK MIDI
2 Sync jacks
3 MIDI jacks

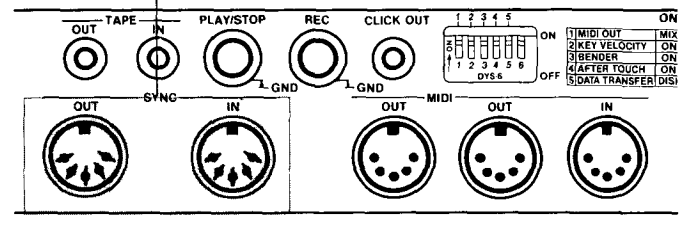
1 Power switch

This is the power switch of the SQD-1.



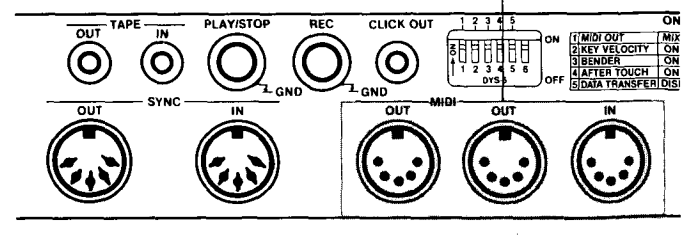
2 Sync jacks (IN, OUT)

For synchronized operation with a sequencer or rhythm machine that has sync jacks.



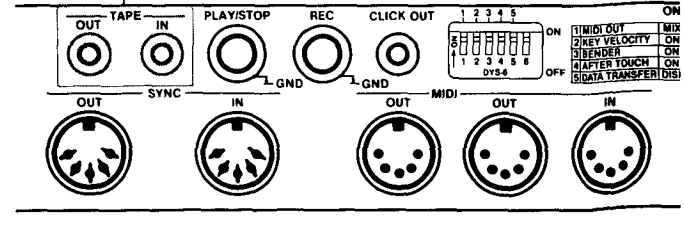
3 MIDI jacks (IN, OUT × 2)

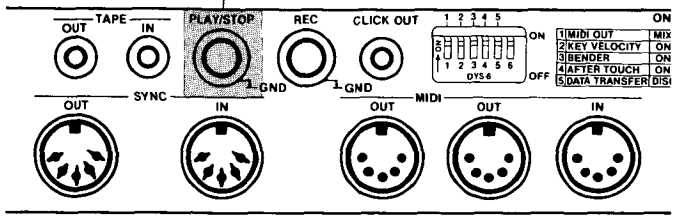
For connection to MIDI synthesizers, keyboards, rhythm machines, sequencers, and so on. The two OUT jacks provide the same data.



4 Tape jacks (IN, OUT)

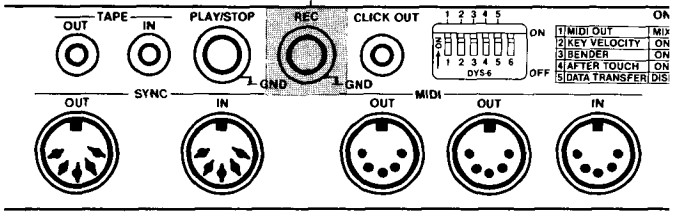
For synchronization with a tape recorder. The OUT jack provides a sync signal for recording on one track of a multi-track recorder. The IN jack takes a recorded sync signal to permit synchronized playback.





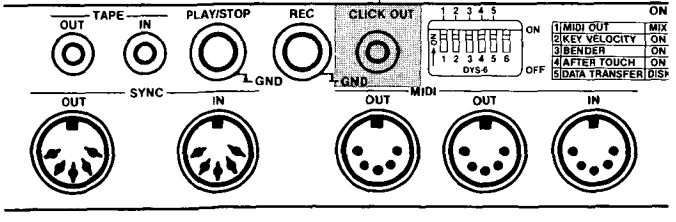
5 Play/stop jack

For foot switch (PS-1, etc.) control. Operation is switched to play, to stop, to play, and so on, with each press of the foot switch.



6 REC jack

For foot switch control. Has the same effect as pressing the REC key on the front panel.

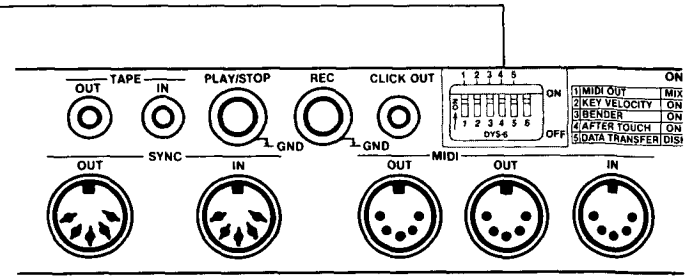


7 Click out jack

Provides a "click track" sound.

8 MIDI Function switches

These switches set MIDI send/receive parameters as shown in the chart here. Do not change switch positions during playback or recording. Switch number 6 is not used.

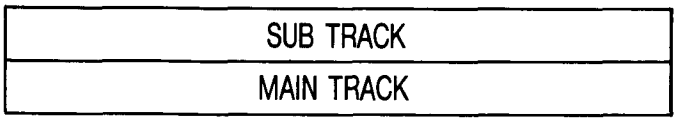


MIDI FUNCTION SWITCH SETTINGS

Switch No.	Name	Setting	Function
1	MIDI OUT	ON (MIX)	MIDI OUT signal will be a mix of the SQD-1 data and the signal received at the MIDI IN jack.
		OFF (INT)	Only the SQD-1 internal data is sent out the MIDI OUT jack.
2	KEY VELOCITY	ON	MIDI note velocity data will be recorded. (Velocity reflects how hard or loud you play on some keyboards.)
		OFF	Velocity data is not recorded. Set to OFF when you don't need velocity data. This will free memory so you can record more notes.
3	BENDER	ON	Pitch bender change and control change data (from joy stick or control wheel) will be recorded.
		OFF	Pitch bender change and control change data is not recorded. (Control number 64-121 controller data is always recorded.)
4	AFTER TOUCH	ON	After-touch data will be recorded. (After-touch means pressing down after depressing keys; this can change the volume or tone color on some keyboards.)
		OFF	After-touch data is not recorded.
5	DATA TRANSFER	ON (DISK)	For saving and loading data between quick disks and SQD-1 internal memory.
		OFF (MIDI)	For transfer of SQD-1 internal memory contents to another SQD-1 (or other device with equivalent storage capability) using a MIDI exclusive message.

1. ABOUT 2-TRACK RECORDING ON THE SQD-1

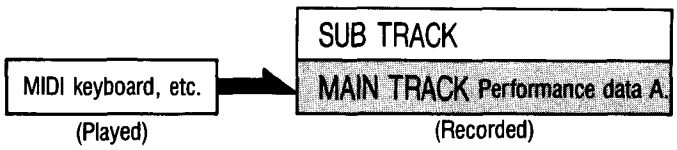
■The SQD-1 has two recording "tracks." These are called the main track and the sub track.



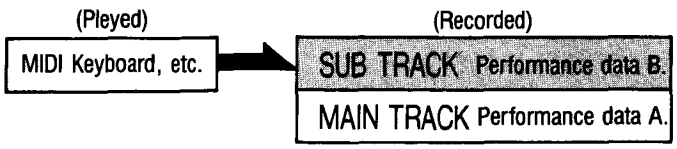
The main track can hold data for many different parts. The sub track can hold data for only one part at a time. But on the sub track you can write, edit, and delete the music data as you like.

■These two tracks are used in the following manner to create songs.

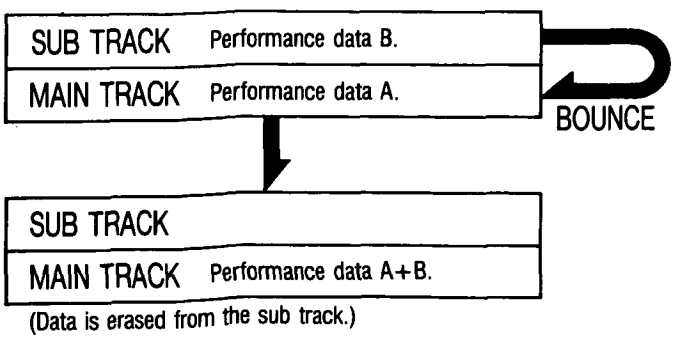
1 First, record the bass or rhythm part on the main track.
Note that the sub track is not used at the very beginning.



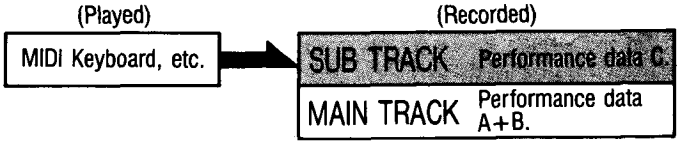
2 Record a different part B on the sub track.



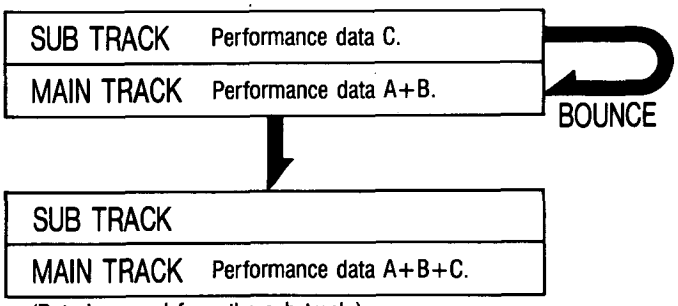
3 Play back the recorded performance B. If there are any mistakes, record the part again. If everything is as you want it, "bounce" part B onto the main track.
See page 36.



4 Record a different part C on the sub track.



5 Check recording of performance data C. If there are any mistakes, record the part again. If everything is satisfactory, bounce part C onto the main track.



This procedures is repeated as you record each part on the sub track, check it, and bounce it onto the main track. In the end, the main track contains all of the parts for a complete song.

2. ABOUT THE TWO RECORDING MODES

Tracks can be recorded in two ways. The use of these two "recording modes" is described below.

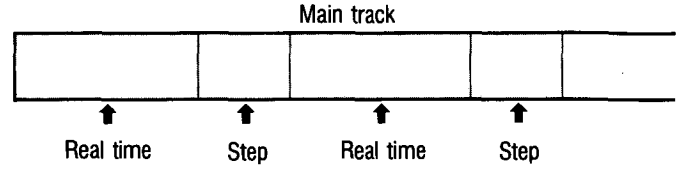
■Using the real time recording mode.
Here, you start the SQD-1, and listen to the metronome while playing a MIDI keyboard, the data from which is recorded on one of the two tracks. Or you can "overdub" by playing along to what has already been recorded on the main track while recording your performance on the sub track).

■Using the step recording mode.
Here, you use the SQD-1 in a "stopped" condition. You decide the value of the smallest note or rest value to be used (more about this later). This value will be one "step". Then you "write in" each note, rect, or tie, a step at a time. Unlike the real-time mode, this mode does not let you listen to what is recorded on the main track when overdubbing new data on the sub-track.

So you must use the metronome click or rhythm machine etc. as a guide for overdubbing.

■ Ordinarily you would use the real time mode to play the sections that are relatively easy to perform without making mistakes. Then you would use the step mode to record those sections that are difficult if not impossible to play in real time. You are free to switch back and forth between the two modes.

● You can switch between recording modes as you go.



3. BEATS PER MEASURE AND RESOLUTION

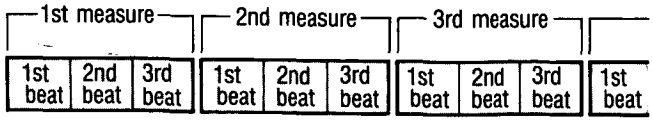
1 About Beats per Meausre

■On the SQD-1 a quarter note is always equal to one beat. Before recording, you must decide how many beats there will be in each measure (or bar). This gives you and the SQD-1 a way of keeping track of where you are in a song. You have a choice of seven "beats per measure" settings:

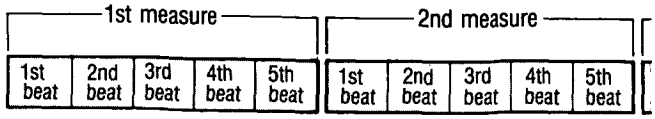
2/4 3/4 4/4 5/4 6/4 7/4 8/4

Below are two examples of how the recording would be counted by beats and measures.

3/4:



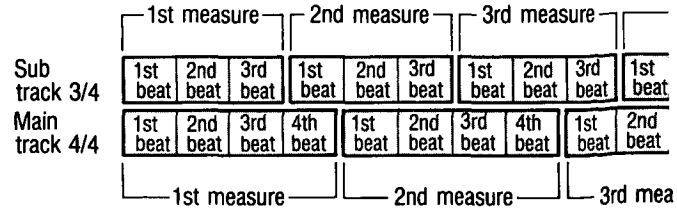
5/4:



You can change the beats per measure setting whenever you like if you stop recording. So you can easily write songs that contain more than one time signature.

■Beats per measure on the sub track follows the setting specified for the main track.

● The following example is impossible on the SQD-1.



2 About Resolution

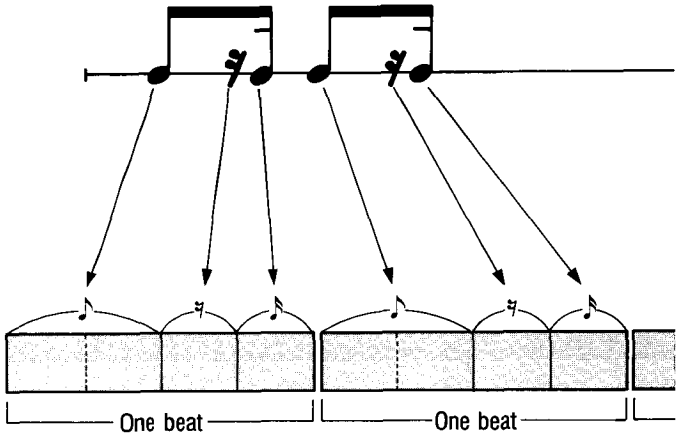
■On the SQD-1 you have a choice of how finely you want to divide each beat (which by convention is a quarter note on this unit). This will determine the shortest notes, rests, and ties that will be recorded for that beat. Your choice will depend on such things as the complexity of the rhythm and how you intend to record the music, in real time or a step at a time. This "degree of fineness" is called "resolution." You have a choice of six resolution settings, as shown on the chart here.

Resolution	Division of beat	Smallest note (or rest)
HIGH	One beat (♩) into 96 parts	Resolution is so fine that it cannot be written in ordinary musical notation.
	One beat (♩) into 8 parts	A thirty-second note (𝅘𝅥𝅯) or thirty-second rest (𝄿)
6	One beat (♩) into 6 parts	One note or rest in a sextuplet (^{6})
	One beat (♩) into 4 parts	A sexteenth note (𝅘𝅥𝅰) or secteenth rest (𝄾)
3	One beat (♩) into 3 parts	One note or rest in a triplet (^{3})
	One beat (♩) into 2 parts	An eighth note (♪) or eighth rest (𝄽)

● The HIGH resolution setting can not be used in the step recording mode.

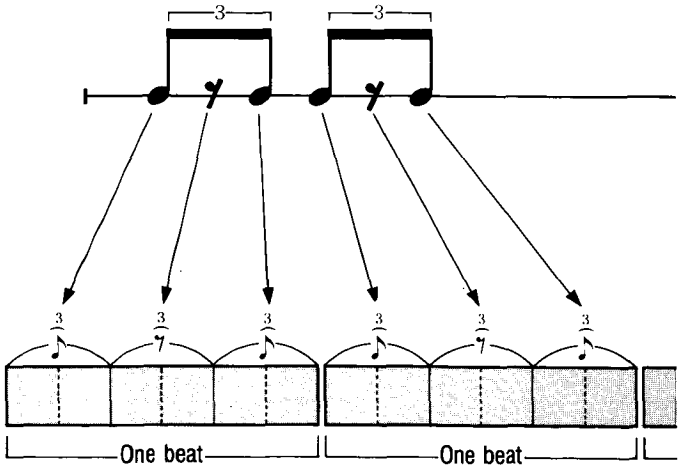
■Below are examples of how notes and rests are recorded within the beats according to the resolution setting.

① If resolution is set to "𝅘𝅥𝅯":
A rhythm such as 𝅘𝅥𝅯𝄾𝅘𝅥𝅯 will be recorded as shown below.



● A rhythm such as ^{3}𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯, ^{6}𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯 can not be written.

② If resolution is set to "^{6}𝅘𝅥𝅯":
A rhythm such as ^{3}𝅘𝅥𝅯𝄾𝅘𝅥𝅯 will be recorded as shown below.

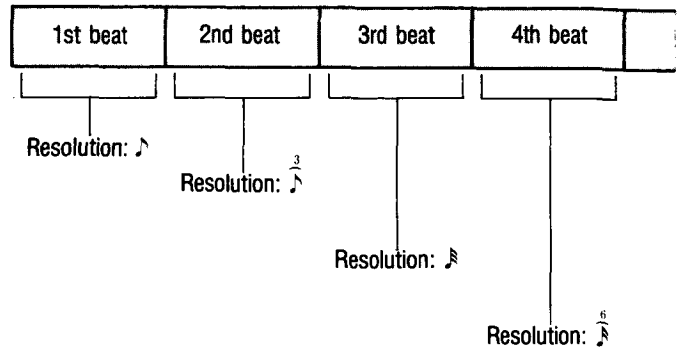


● A rhythm such as 𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯 can not be written.

■When recording in real time you can use a coarser resolution setting if you want automatic correction of slight timing deviations in your playing. On the other hand, the HIGH resolution setting will allow recording of the finest rhythmic nuances or "micro-rhythms" so you can create a truly "live" non-mechanical sound. You can change resolution whenever you like if you temporarily stop recording.

Note:
You can not expect to have a rhythm recorded correctly if the resolution setting is coarser than the rhythm that you play.

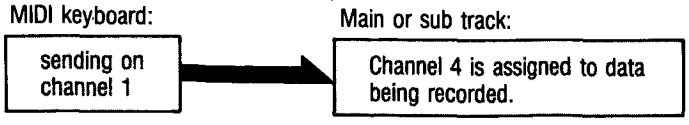
■In the step recording mode, your resolution setting determines how many steps there are in a beat. You then specify the note, rest, or tie to be used in each step.
Understandably, you can not use the HIGH resolution setting in the step recording mode.
However, you can use a different resolution for each beat.



4. MIDI RECEIVE CHANNEL NUMBER AND RECORDED CHANNEL NUMBER

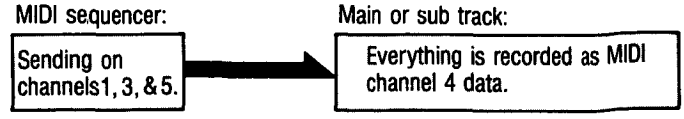
■The SQD-1 records received MIDI data together with a MIDI channel number whcih you assign. There are 16 possible MIDI channels. This MIDI channel setting is up to you; it does not matter what the actual MIDI channel number used for transmission (or reception) is. (This applies to recording on the sub track or the main track.)

Example: MIDI channel set to 4.



■Furthermore, even if the SQD-1 receives data on several MIDI channels at once, all data will be recorded with one and the same MIDI channel number assignment. (Again, this is true for either track.)

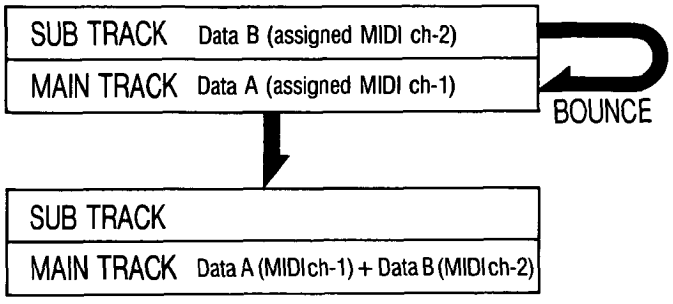
Example: MIDI channel set to 4.



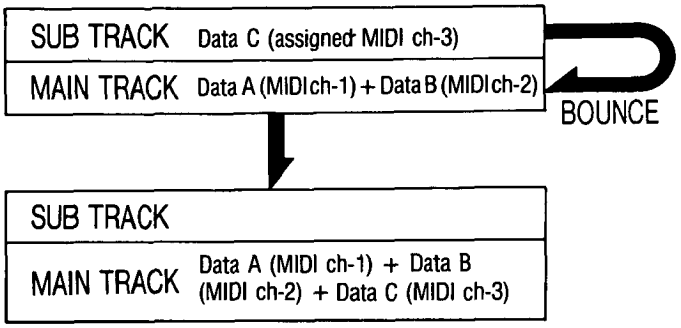
5. BOUNCING AND MULTI-CHANNEL RECORDING ON THE MAIN TRACK

■ The sub track can hold data for only one MIDI channel at a time. But by bouncing data from the sub track to the main track, you can record many different channels of MIDI data on the main track.

①Bouncing another channel onto the main track.



②Bouncing additional channels onto the main track.



You can keep adding channels to the main track by bouncing from the sub track. The maximum number of channels is 16.

6. KINDS OF MIDI DATA THAT CAN BE RECORDED

■ When the appropriate MIDI switches are on, the SQD-1 can record the following kinds of MIDI data (on either track).

1 NOTE ON:
Tells that a key has been played and includes data about which key has been played (the note number) and how hard it was played (velocity).

2 NOTE OFF:
Tells that a key has been released. Includes data about which keys was released (note number) and how rapidly it was released (velocity).

3 AFTER TOUCH:
Expresses how much pressure is applied to keys after they are completely depressed. Both polyphonic key pressure and channel pressure can be recorded.

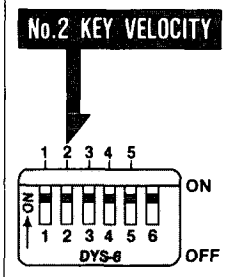
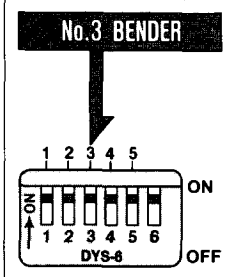
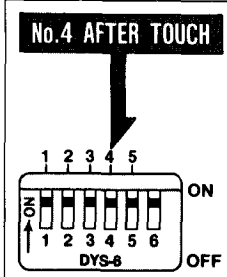
4 PROGRAM CHANGE:
Data to select a program (sound patch) number.

5 PITCH BENDER CHANGE:
Indicates pitch bends (from joy stick, control wheel, etc.)

6 CONTROL CHANGE:
Modulation data (from joy stick, control wheel, etc.) and damper pedal data.

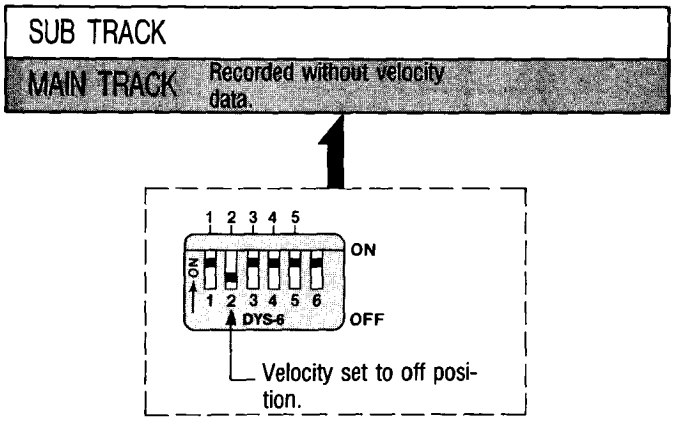
■Recording Mode and Data Types that Can Be Recorded
All data types listed can be recorded in the real time recording mode. However, if resolution is not set to HIGH then after-touch, program change, pitch bender change, and control change data can not be recorded.
In the step recording mode only note-on/off data can be recorded.

■The MIDI function switches on the rear panel give you the choice of whether or not record velocity data (contained in note on/off data), pitch bend and control change data, and after-touch data.

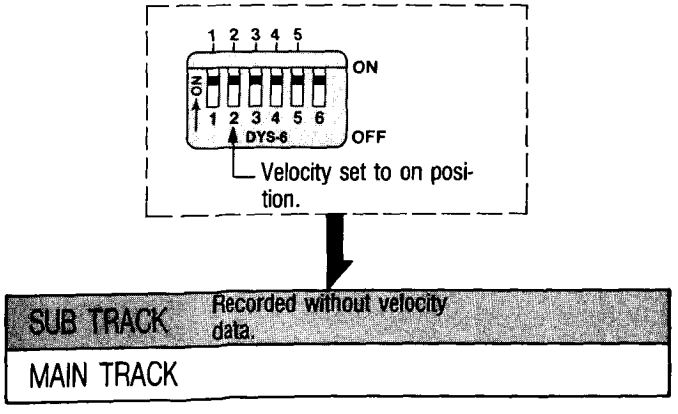
Switch	Setting	Function
	ON	Velocity data is recorded
	OFF	Velocity data is not recorded. If velocity data is not needed, set this switch to "off." This will free memory space so you can record more notes.
	ON	Pitch bender change and control change data is recorded.
	OFF	Pitch bender change and control change data is not recorded. (Control number 64-121 controller data is always recorded.)
	ON	After-touch data is recorded.
	OFF	After-touch data is not recorded.

■Always set the key velocity switch to your desired setting before beginning to record the main track. The key velocity switch setting at the time of the initial recording of the main track determines whether or not key velocity data will be recorded during all subsequent recordings. This is not affected by physically changing the switch setting after the initial recording of the main track.

Example 1: Main track is recorded with key velocity switch off.

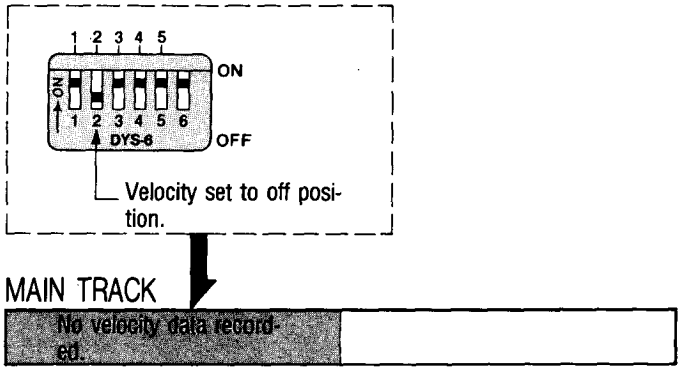


● Key velocity switch is turned on before recording on the sub-track.

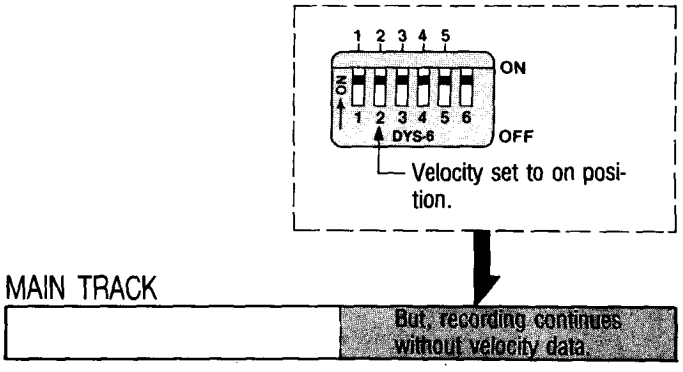


Example 2: Adding on to a recording on the main track.

● Recording is stopped after initially recording with the velocity switch off.



● Velocity switch is then turned on.

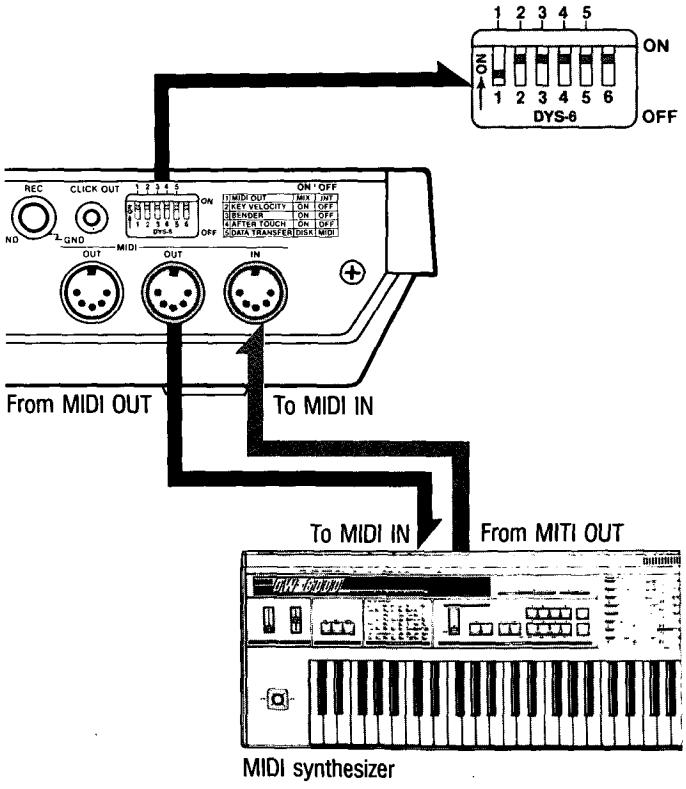


7. CONNECTIONS

The following section covers the basic connections needed for recording and playback with the SQD-1. Remember to turn off the power on all units before making connections.

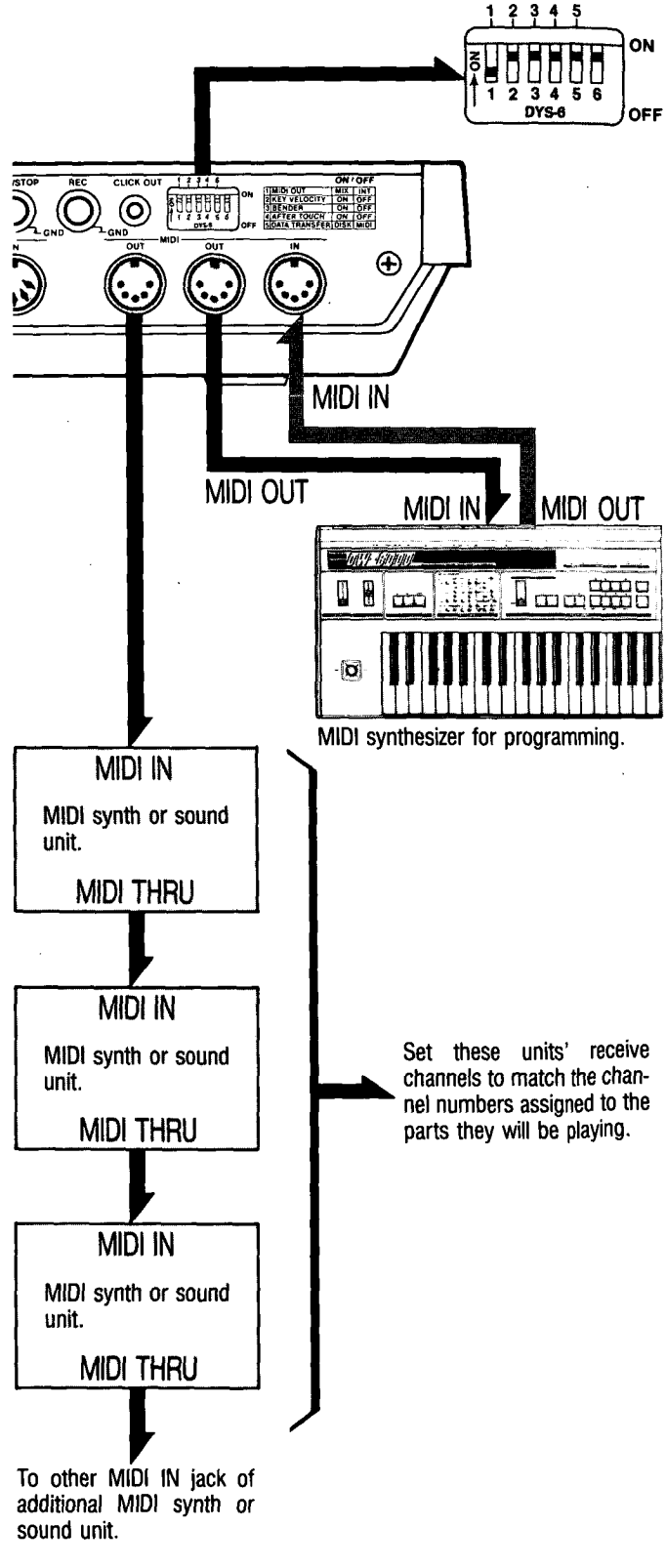
1 Using a single MIDI synthesizer with the SQD-1.

NOTE:
Connect MIDI OUT to MIDI IN and MIDI IN to MIDI OUT. Be sure to set function switch number 1 to the OFF position. So that the available number of voices are not reduced to half as many.

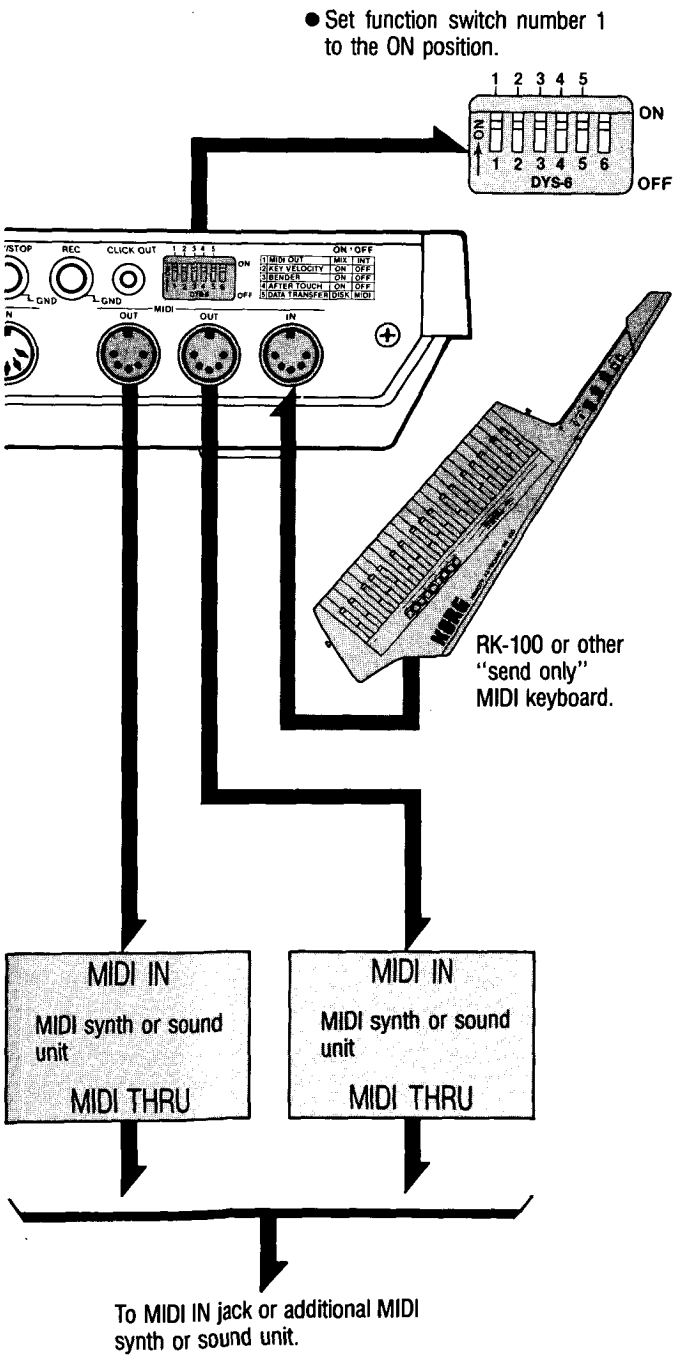


2 Using several MIDI synthesizers or sound units.

NOTE:
Connect MIDI OUT to MIDI IN and MIDI IN to MIDI OUT. Be sure to set function switch number 1 to the OFF position. So that the available number of voices are not reduced to half as many.



3 Using a remote keyboard (RK-100, for example) with several MIDI synthesizer or sound units (EX-800, etc.)



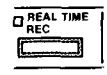
● Set these units' receive channels to match the channel numbers assigned to the parts they will be playing.

Many other kinds of systems are possible. In any case, connect the keyboard that you will use to program the sequencer to the MIDI IN jack on the SQD-1 and connect the SQD-1 MIDI OUT jack(s) to the units that will be producing the sound.

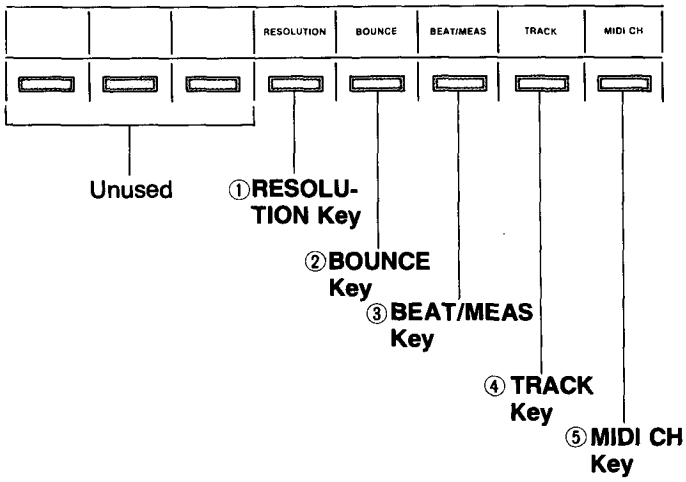
1. BASIC OPERATION.

1 Settings for real time recording mode.

Press the REAL TIME REC key to select the real time recording mode.



The multi-function keys then have the functions shown here.



① **RESOLUTION key**
Used to set resolution.

② **BOUNCE key**
Used when you want to transfer to "bounce" data from the sub-track to the main track.

③ **BEAT/MEAS key**
Used to the set the number of beats per measure.

④ **TRACK key**
Used to select which track is to be recorded on.

⑤ **MIDI CH key**
Used to select the MIDI channel number (to be assigned to the track to be recorded).

2 Beats per measure setting.

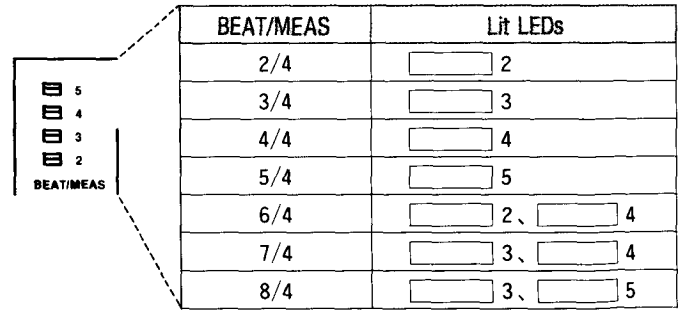
Hold down the BEAT/MEAS key and at the same time press the UP key or the DOWN key.

■Pressing the up key increases the number of beats per mesure. $\frac{2}{4} \rightarrow \frac{3}{4} \rightarrow \frac{4}{4} \rightarrow \frac{5}{4} \rightarrow \frac{6}{4} \rightarrow \frac{7}{4} \rightarrow \frac{8}{4}$

Pressing the down key decreases the number of beats per measure. $\frac{2}{4} \leftarrow \frac{3}{4} \leftarrow \frac{4}{4} \leftarrow \frac{5}{4} \leftarrow \frac{6}{4} \leftarrow \frac{7}{4} \leftarrow \frac{8}{4}$

(This setting always defaults to 4/4 after the power is turned on.)

■The number of beats per measure is indicated by BEAT/MEAS LEDs.



BEAT/MEAS	Lit LEDs
2/4	2
3/4	3
4/4	4
5/4	5
6/4	2、4
7/4	3、4
8/4	3、5

■Beats per measure can be changed at any time that recording is stopped.

■Beats per measure on the sub-track depend on the settings used during the initial recording of the main track. The use of different settings is not possible.

3 Resolution setting

Hold down the RESOLUTION key and at the same time press the UP or DOWN key.

Hold down [RESOLUTION] and press [UP] or [DOWN]

■Pressing the up key raises the resolution.

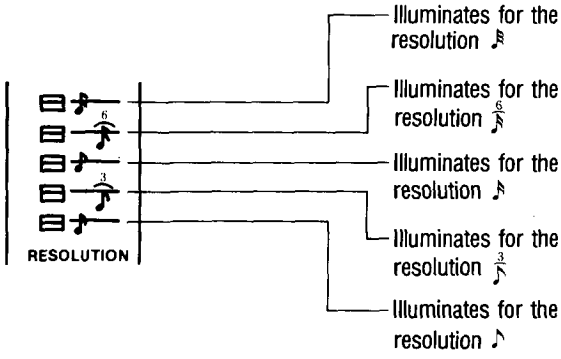
♪ ➡ $\overset{3}{♪}$ ➡ ♪ ➡ $\overset{6}{♪}$ ➡ 𝅘𝅥𝅯 ➡HIGH

Pressing the down key lowers the resolution.

♪ ⬅ $\overset{3}{♪}$ ⬅ ♪ ⬅ $\overset{6}{♪}$ ⬅ 𝅘𝅥𝅯 ⬅HIGH

(This setting always defaults to HIGH after the power is turned on.)

■The resolution is indicated by the RESOLUTION LEDs.



No LEDs illuminates at the HIGH setting.

■Resolution can be changed at any time that recording is stopped.

■At settings other than HIGH resolution, after-touch, program change, pitch bender change, and control change data can not be recorded.

4 MIDI channel selection.

This is the MIDI channel number that you assign to the data to be recorded. (It has nothing to do with received MIDI channel numbers.)

Hold down the MIDI CH key and at the same time press the UP or DOWN key.

Hold down [MIDI CH] and press [UP] or [DOWN]

■Pressing the up key raises the MIDI channel number.

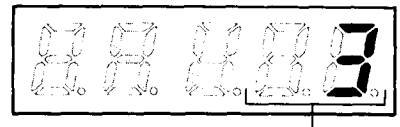
1ch➡2ch➡3ch➡·····➡14ch➡15ch➡16ch

Pressing the down key lowers the MIDI channel number.

1ch⬅2ch⬅3ch⬅·····⬅14ch⬅15ch⬅16ch

(This setting always defaults to channel 1 (1ch) after the power is turned on.)

■The display shows the selected MIDI channel number.



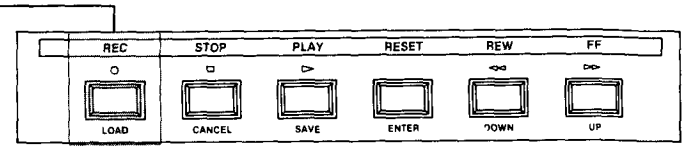
These two places are used to indicate the selected MIDI channel number. Channel 3 is indicated in this example.

■After beginning recording on a particular track, selecting a different channel number will not change the MIDI channel assigned to the data. When played back, the data will be sent over the MIDI channel that you assigned when you began recording.

5 Track control key operation.

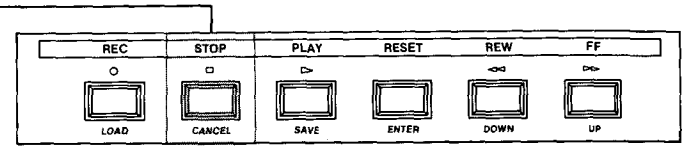
① REC key

Press this key to begin recording.



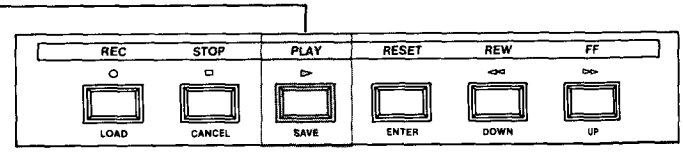
② STOP key

Press this key to halt recording or playback.



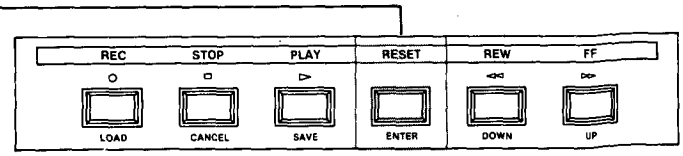
③ PLAY key

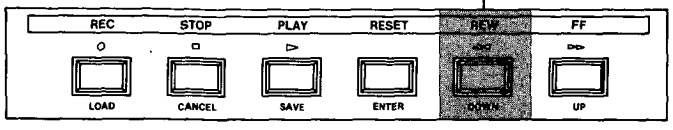
Press this key to play back the data after it has been recorded.



④ RESET key

After halting recording or playback, pressing this key returns your locations to the first beat of the first measure.

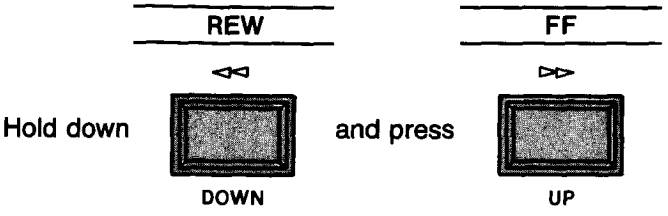




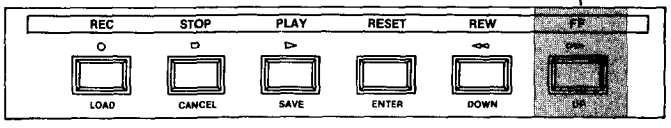
⑤ REWIND key

If this key is pressed intermittently then your location moves backward one beat at a time. If this key is kept depressed, then you will move backward at a constant speed.
To rewind faster, hold down the REW key and at the same time press the FF key.
This key is used after halting recording or playback.

● High-Speed Rewind



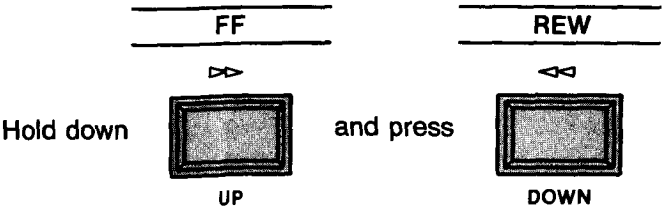
● If you rewind back past the first beat of the first measure, you will wrap back around to the end of the recording.



⑥ FF (fast-forward) key

If this key is pressed intermittently then your location moves forward one beat at a time. If this key is kept depressed, then you will advance at a constant speed.
To move forward faster, hold down the FF key and at the same time press the REW key.
This key is used after halting recording or playback.

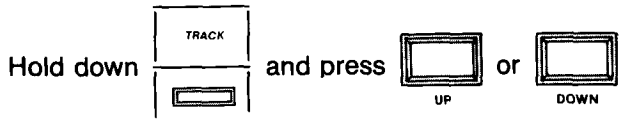
● High-Speed Fast-Forward



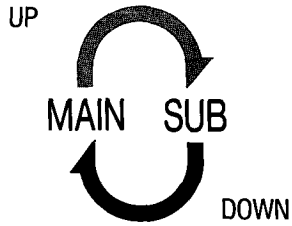
● If you advance past the last beat of the last measure, you will wrap back around to the beginning of the recording.

6 Selecting the recording track.

Hold down the TRACK key and at the same time press the UP or DOWN key.

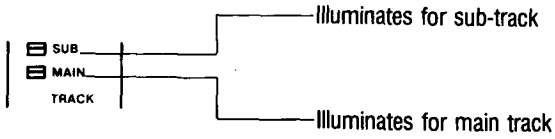


■Press either the up or down key to switch to the other track.



(The main track is selected as the default when the power is turned on.)

■The track currently selected for recording is indicated by the TRACK LEDs.

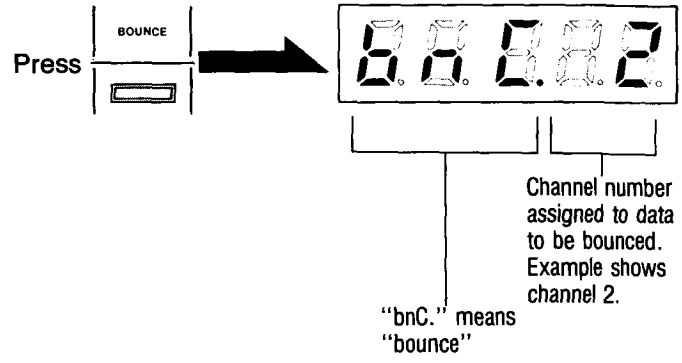


■You can not record on the sub-track until after you have recorded on the main track.

7 Bouncing.

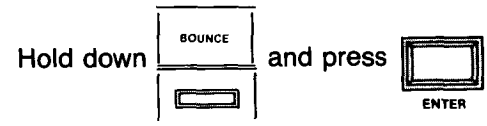
Procedure for moving data from the sub-track to the main track.

①Checking the MIDI channel.
When you press the BOUNCE key the display will show the currently assigned MIDI channel number for the data on the sub-track.



②Bounce procedure.
After checking the MIDI channel number, proceed as follows.

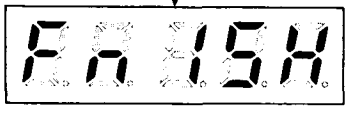
Hold down the BOUNCE key and at the same time press the ENTER key.



■The display will now appear as shown here.

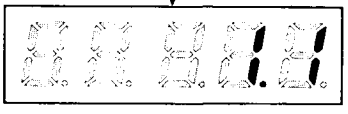
Display during bounce.

Bouncing data as channel 2.



Display upon completion.

Shows "FnISH"



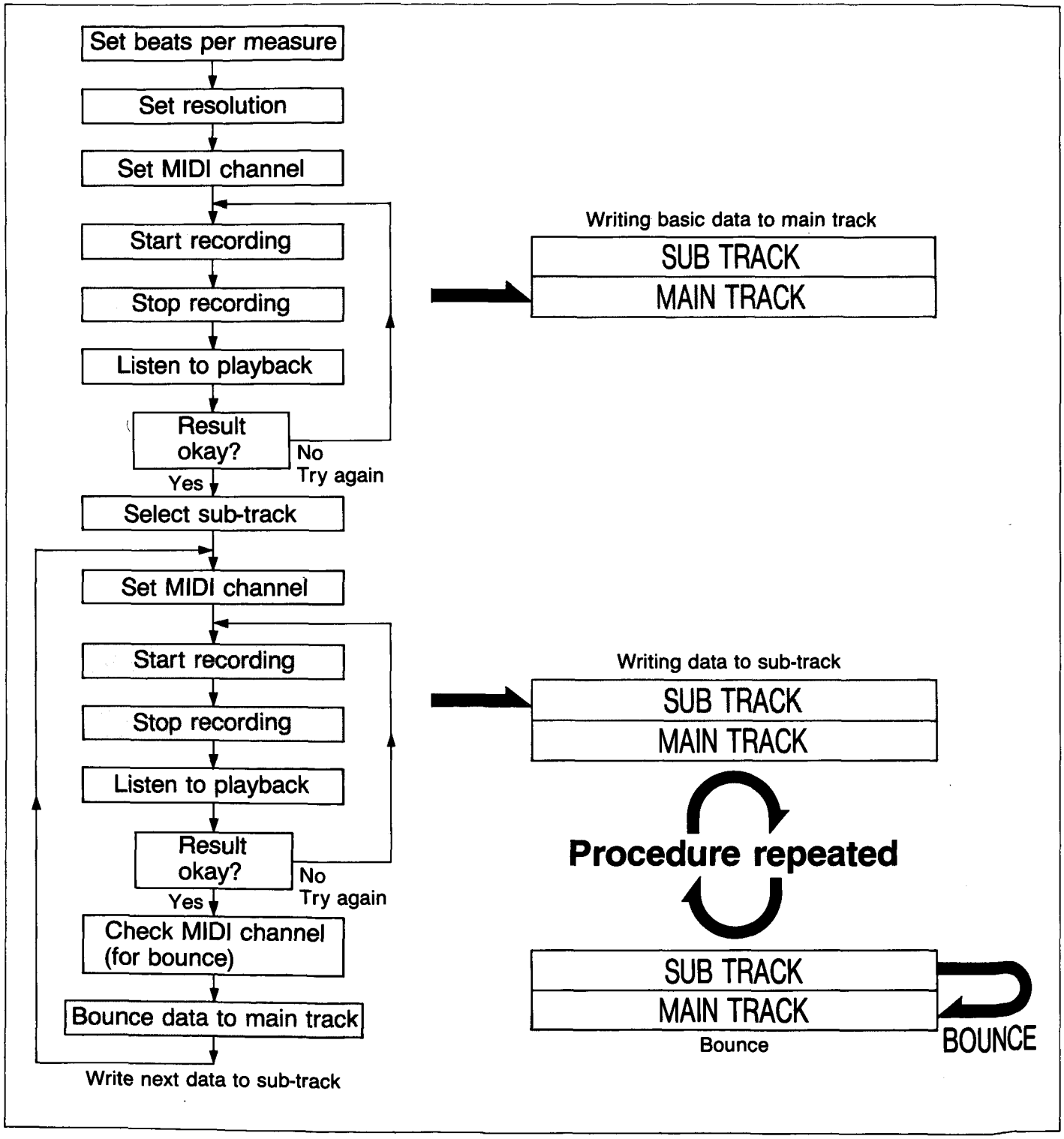
If the BOUNCE key has been released, then the display will return to the bar one, beat one indication.

The time it takes to complete a bounce depends on the amount of data to be transfered. It can take anywhere from a split second to about a minute.

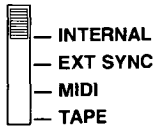
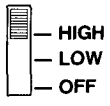
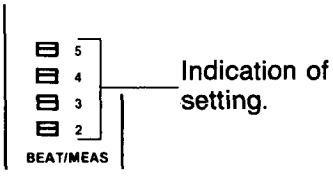
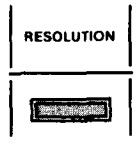
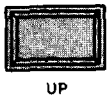
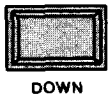
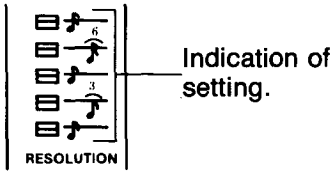
■ After bounding, all data is erased from the sub-track. And is now stored on the main track.

2. REAL TIME RECORDING PROCEDURE_

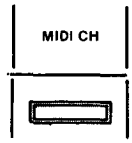
■This flow chart shows the steps taken to complete a song using the real time recording mode.

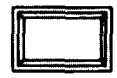


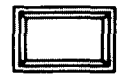
■A typical session with real time recording.

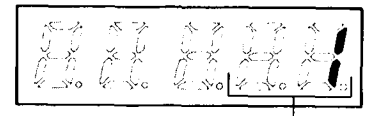
Procedure	Display & indicators
Set the display switch, clock switch, and metronome switch. ● Set the DISPLAY switch to LOCATION.  ● Set the CLOCK switch to INTERNAL.  ● Set the METRONOME switch to HIGH.  Also set rear panel MIDI function switches before starting to record.	Display as it appears after power is turned on. 
① Select real time recording mode. Press  ● Confirm that MAIN is selected as the recording track.	Display will be changed to "End."  
② Set beats per measure. Hold down  and press  or 	
③ If necessary, change resolution from HIGH to something else. Hold down  and press  or 	 (No LEDs illuminate at HIGH setting.)

④ Set MIDI channel.

Hold down 

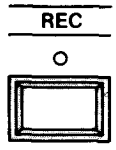
and press 

or 

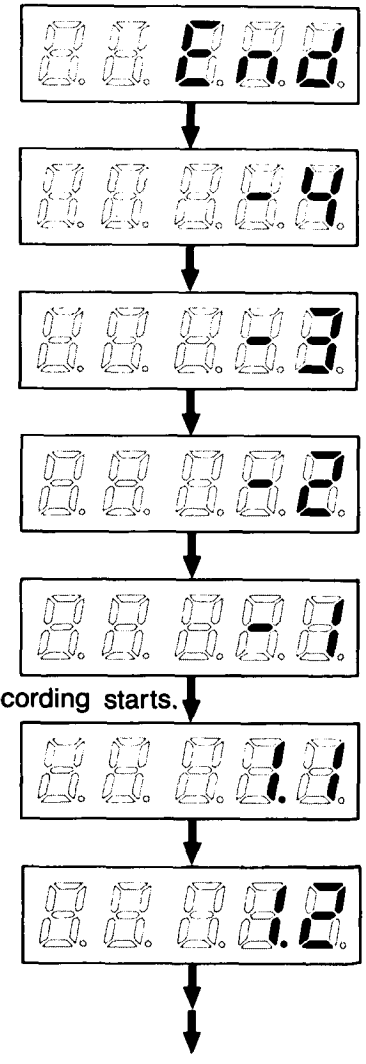


Shows channel number.
Example shows channel 1.

⑤ Begin recording.
Pr ess the REC key (or footswitch PS-1 etc.). The display will count down for one bar. (Anything played during the countdown will not be recorded.) "pick-up" phrases etc.

Press 

Example shows countdown for 4/4 beats per measure.

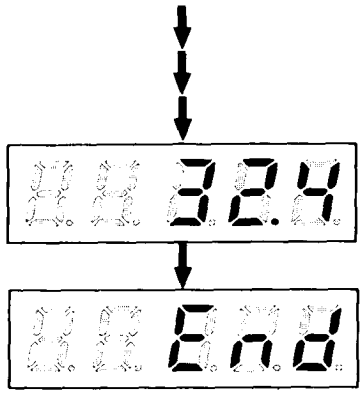


Recording starts.

Begin playing here.

⑥ Stop recording when you finish playing. Press the stop key; recording will stop after the current beat.

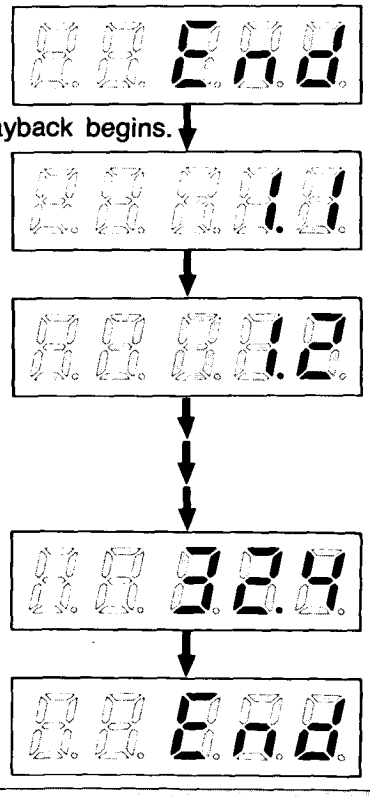
After playing. Press STOP



"End" indicates current end of song.

⑦ Check results.
Press the play key to instantly go back to the beginning and begin playback.

Press PLAY



Playback begins.

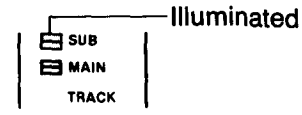
Playback ends automatically at the end of the song.

● If you are satisfied with what has been recorded, go on to step⑧.
● If you are not satisfied, record again. See section on recording again (page 64).

REAL TIME RECORDING MODE

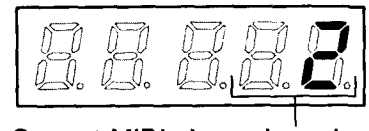
⑧ Switch to sub-track.

Hold down TRACK and press UP



⑨ Change MIDI channel number if desired.

Hold down MIDI CH and press UP or DOWN

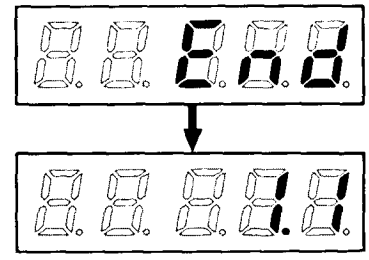


Current MIDI channel number.
Example shows channel 2.

⑩ Reset location to beginning of song.

Press RESET

(You can't record if the display shows the location to be the "End".)

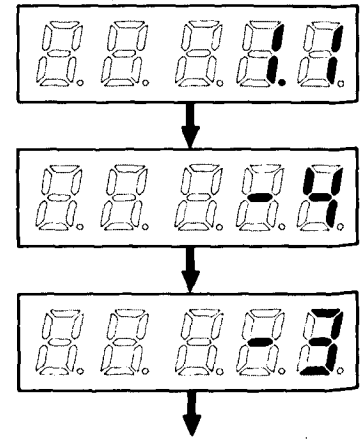


⑪ Begin recording.

Press the REC key. The display will count down for one bar. (Anything played during the countdown will not be recorded.)

Press REC

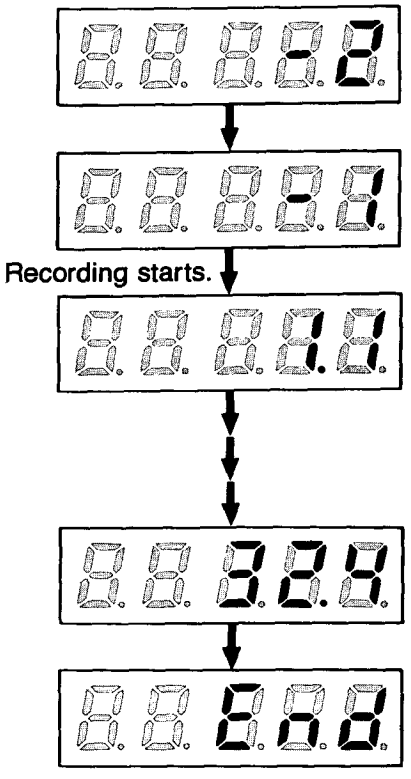
Example shows countdown for 4/4 beats per measure.



Begin playing here. ➡

● The data on the main track is played back while you are recording on the sub-track.

Recording stops automatically at the end of the song. ➡

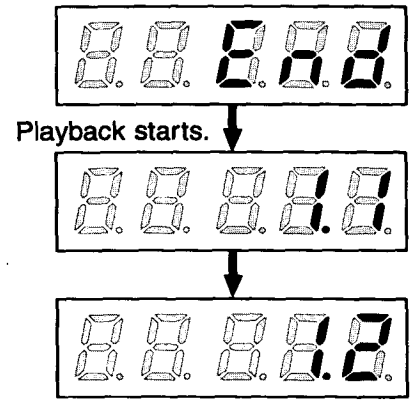


⑫ Check the results.

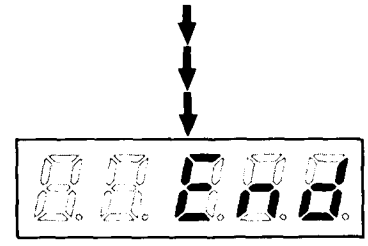
Pressing the play key takes you back to the beginning and begins playback.

Press PLAY ▷ ➡

● The main track and sub-track are played back together.



Playback stops automatically at the end of the song. ➡

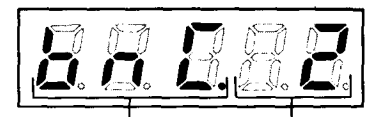


● If you are satisfied with the results, continue with step ⑬.
● Record again if you are not satisfied. See the section on recording again (on page 67).

⑬ Check MIDI channel number and bounce data to main track.

Check MIDI channel.

Press BOUNCE ➡



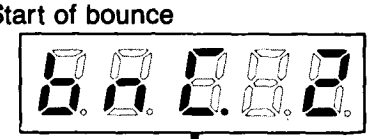
"bnC" stands for bounce.

Shows MIDI channel currently assigned to data. Example shows channel 2.

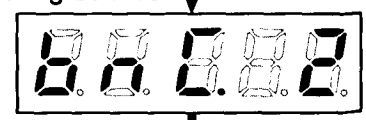
● Bounce after checking the MIDI channel.

Hold down BOUNCE and press ENTER ➡

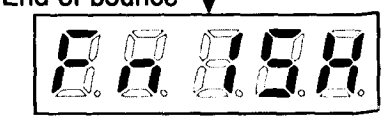
Start of bounce



During bounce



End of bounce



● After bouncing, all data is erased from the sub-track.

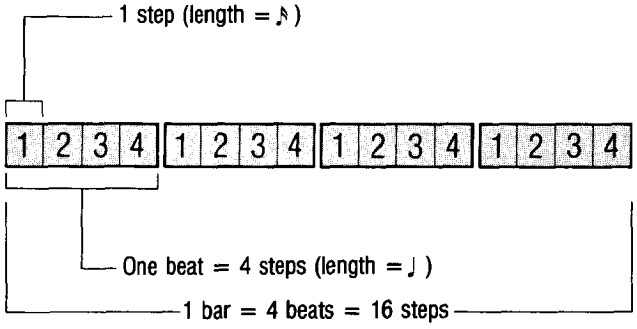
● Repeat from step ⑨

STEP RECORDING MODE

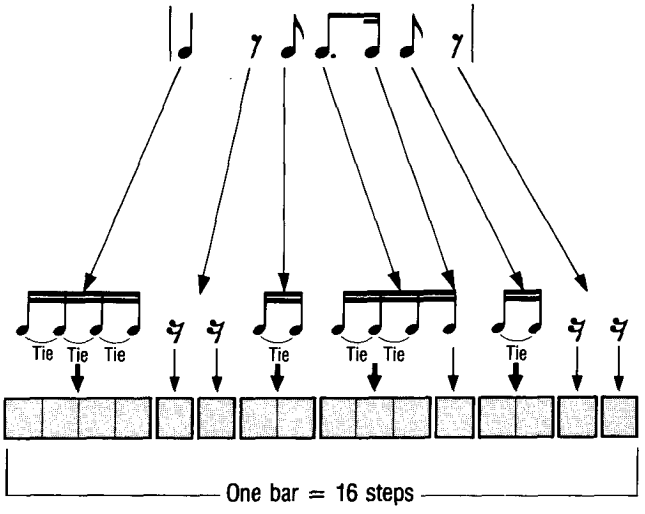
1. BASIC CONCEPT

■ On the SQD-1, the resolution setting determines the number of "steps" in each beat. (A beat is always a quarter note.) In the step recording mode you specify the note, tie, or rest for each of these steps.

Example: Resolution is "♪" (with 4/4 beats per measure).



Let's try writing this rhythm:



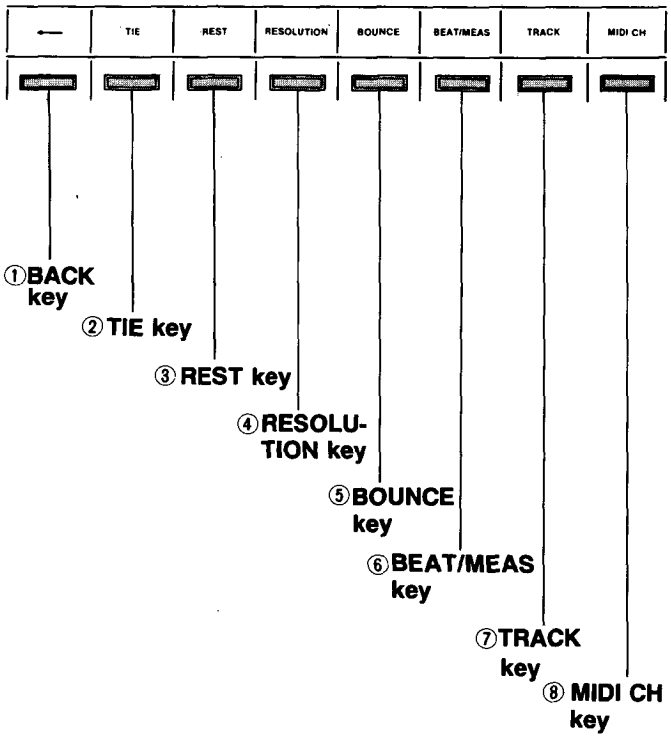
Which is written as shown above.

2. BASIC OPERATION

1 Setting for step recording mode.

Press the STEP REC key to select the step recording mode.

The multi-function keys then have the functions shown here.



STEP RECORDING MODE

① **BACK key:**
Moves your location back to the first step in the current beat.

② **TIE key:**
Writes a tie.

③ **REST key:**
Writes a rest.

④ **RESOLUTION key:**
Used to set resolution.

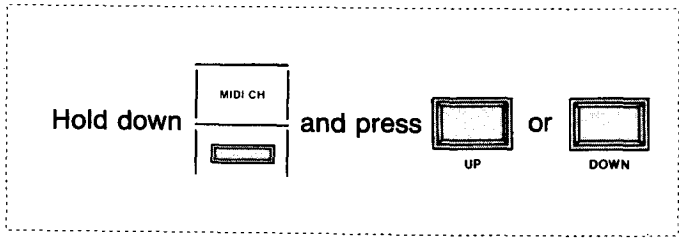
⑤ **BOUNCE key:**
Used when you want to transfer or "bounce" data from the sub-track to the main track.

⑥ **BEAT/MEAS key:**
Used to the set the number of beats per measure.

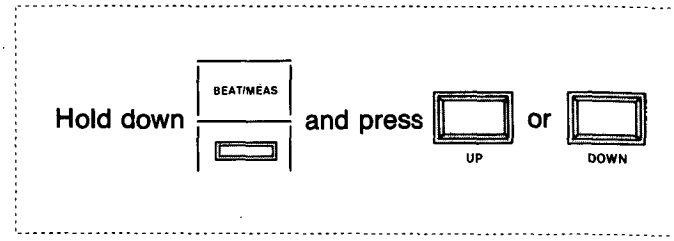
⑦ **TRACK key:**
Used to select which track is to be recorded on.

⑧ **MIDI CH key:**
Used to select the MIDI channel number (to be assigned to the track to be recorded).

2 MIDI channel selection.
Same as in real-time recording.

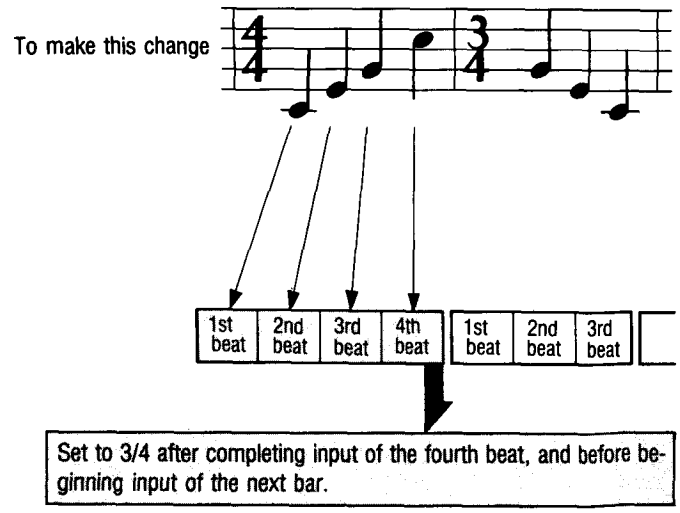


3 Beats per measure setting.
Same as in real-time recording mode.



■ The beats per measure setting can be changed for any particular bars while recording. But it can not be changed during legato input.
(Refer to section on legato input.)
Setting must be changed just before the input subsequent measure.

Example: Changing from 4/4 to 3/4.



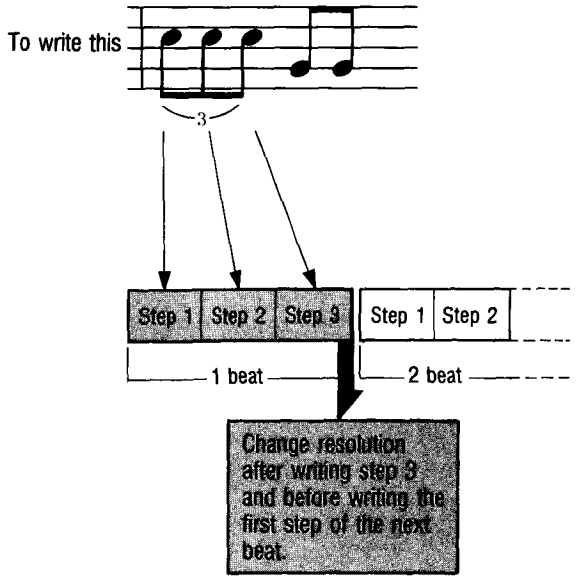
4 Resolution setting
Same as in real-time recording.

Hold down [RESOLUTION] and press [UP] or [DOWN]

(Resolution defaults to "♪" after the power is turned on.)

■ The resolution setting can be changed for any particular beats while recording. Simply change the resolution before starting to write the first step of the next beat. Otherwise it can not be changed.

Example:



5 Track control key operation
Same as in the real-time recording mode.

6 Recording track selection.
Same as real-time recording.

Hold down [TRACK] and press [UP] or [DOWN]

7 Bouncing from the sub-track to the main track.
Same as in the real-time recording mode.

①Check MIDI channel number.

Hold down [BOUNCE] → Display will show channel number assigned to data to be bounced.

②Executing the bounce.

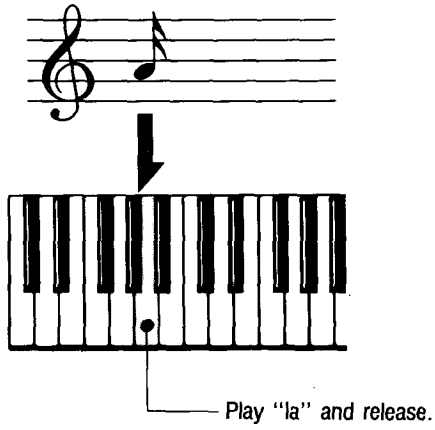
Hold down [BOUNCE] and press [ENTER]

3. DATA INPUT PROCEDURE

1 Pitch input

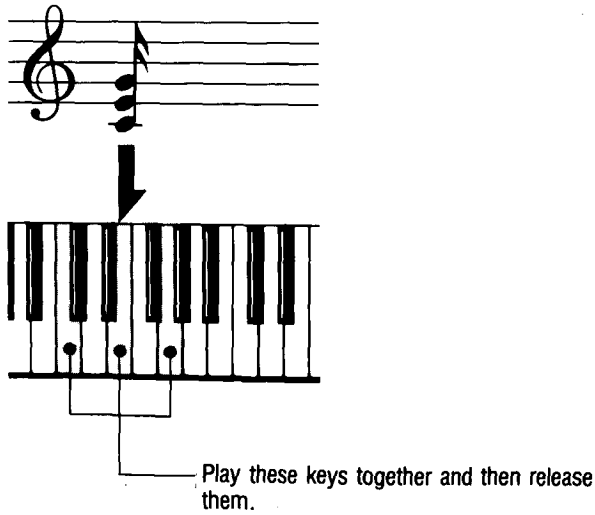
■ Individual notes are input by playing a MIDI keyboard connected to the SQD-1 MIDI IN jack. This is what determines the pitch of the step being written. The data is recorded when you release keys on the keyboard.

Example: To input the pitch of the note written here



■ Chords are input in the same way. Play the chord on the keyboard. In this case, the data is recorded when all the keys are released.

Example: To input chord shown here



2 Recording velocity data.

If your MIDI keyboard is velocity sensitive (that is if it sounds louder when you play harder) then you can record this velocity data along with the note on/off data. Simply play the notes harder when you want a louder sound.

For velocity information to be recorded, the rear panel MIDI function switch for velocity (number 2) must have been turned on before starting to record on the main track.

The speed at which you release keys (note off velocity) is also recorded.

NOTE:

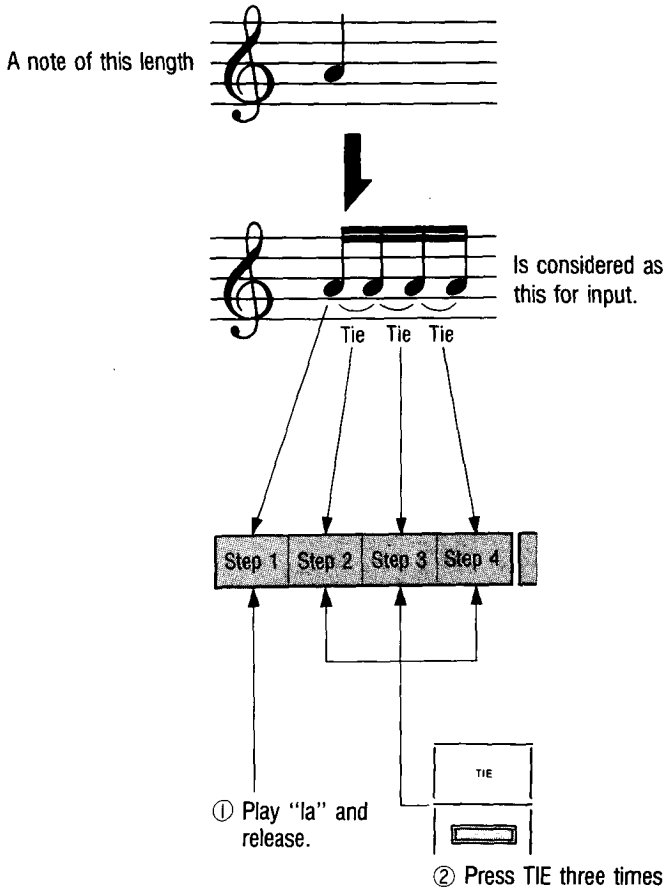
If you play legato style (smooth continuation from one note to the next) in the step recording mode, the SQD-1 will interpret notes held down at the same time as a chord. To obtain a legato effect see the section on legato input.

For normal step mode recording, be sure to release all keys for each step before starting to play notes for the next step.

3 Recording notes longer than one step.

■ The SQD-1 completes recording a step when you have pressed and released notes on the keyboard. It then waits for you to input data for the next step. To extend notes for longer than one step, you use the TIE key. Technically this moves the position of the note-off data.

Example: Writing a quarter note when resolution is set to 16th notes.



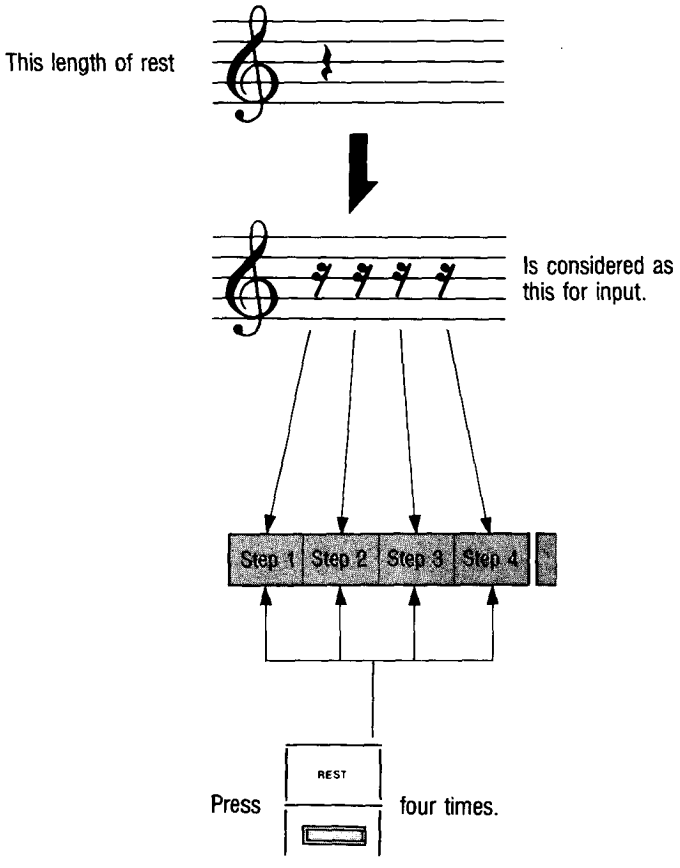
● Use the same method of record chords.

■ Don't go too fast at first. It is easy to make mistakes when alternately playing notes on the keyboard and pressing the tie key. Also be sure to release any notes on the keyboard before pressing the tie key.

4 Recording rests

■ Press the REST key to write rests. A one-step rest is recorded for each press and release of the REST key. To write a long rest, press the REST key as many times as needed to add up to the desired length.

Example: Writing a quarter-note rest with resolution at 16th notes.

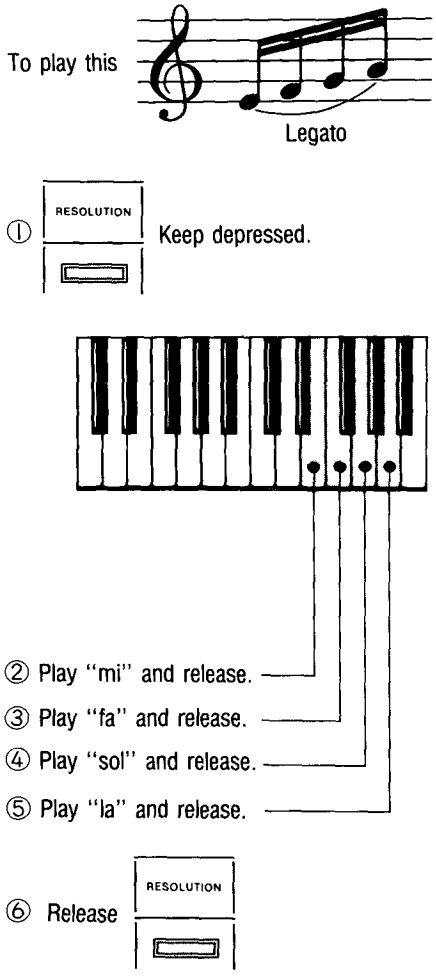


■ When alternately playing the keyboard and pressing the rest key, be careful not to go too fast at first or you may make mistakes.

5 Legato input

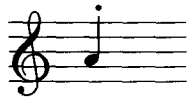
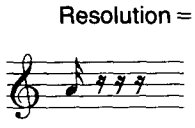
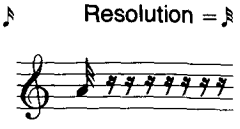
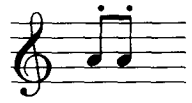
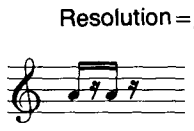
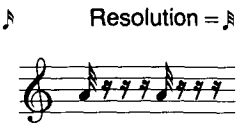
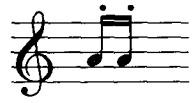
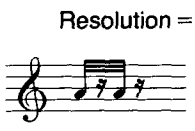
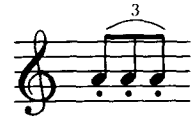
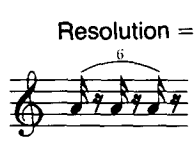
To record a legato passage, hold down the RESOLUTION key and play the notes separately.

Example: With resolution at 16th notes.



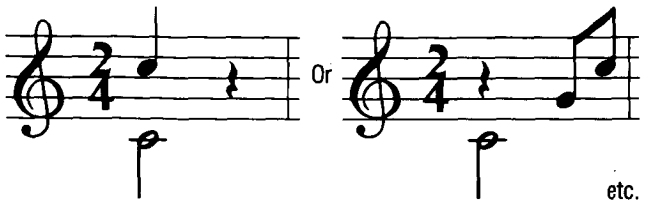
6 Staccato input

To obtain a staccato effect, use one of the finer resolution settings (𝅘𝅥𝅯 , 𝅘𝅥𝅰 , or 𝅘𝅥𝅱) and input the data in the manner shown here.

Actual Music	Input as... (Consider the music to be written as shown below)
	Resolution = 𝅘𝅥𝅯  Resolution = 𝅘𝅥𝅰  Or
	Resolution = 𝅘𝅥𝅯  Resolution = 𝅘𝅥𝅰  Or
	Resolution = 𝅘𝅥𝅰 
	Resolution = 𝅘𝅥𝅱 

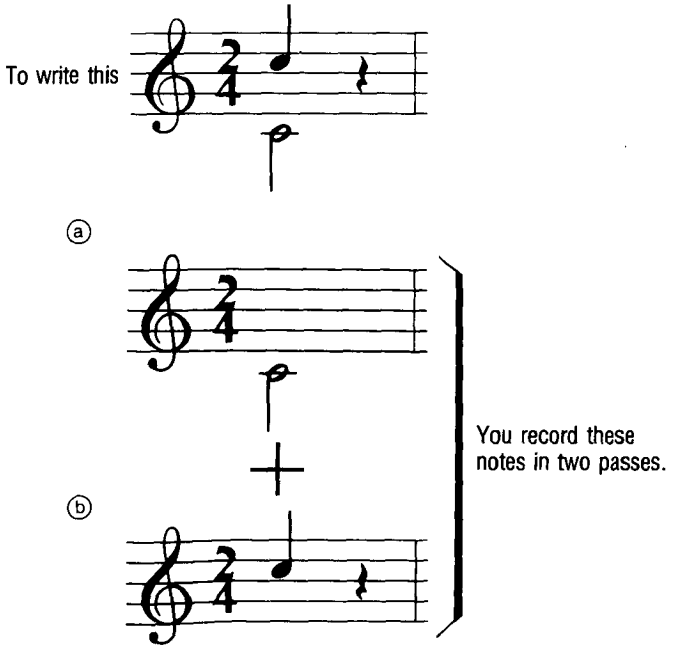
7 Recording simultaneous notes of different lengths.

For example



Notes that start at the same step but last a different number of steps can not be recorded at the same time. Each note of a different length must be recorded separately and bounced from the sub-track onto the main track.

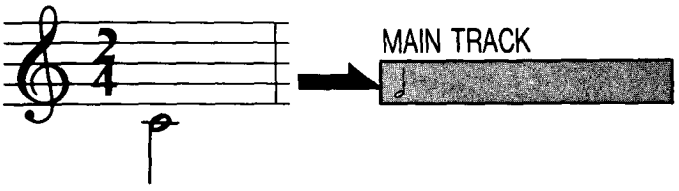
Example:



The procedure is as shown here.

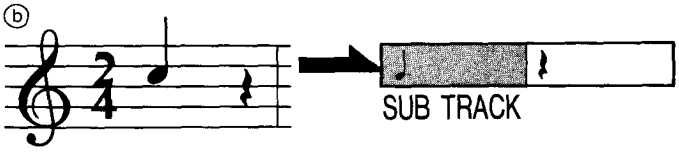
① Record one note on the main track initially.

ⓐ

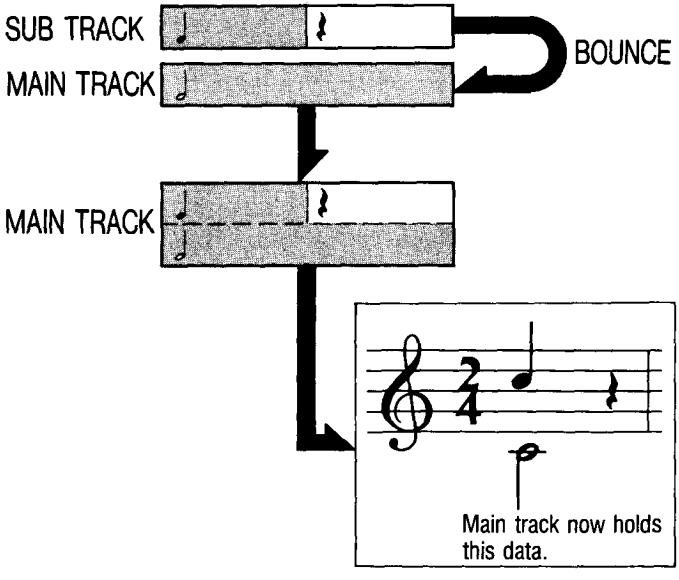


② Change to sub-track and record note of different length.

ⓑ



③ Bounce data from sub-track to main track.

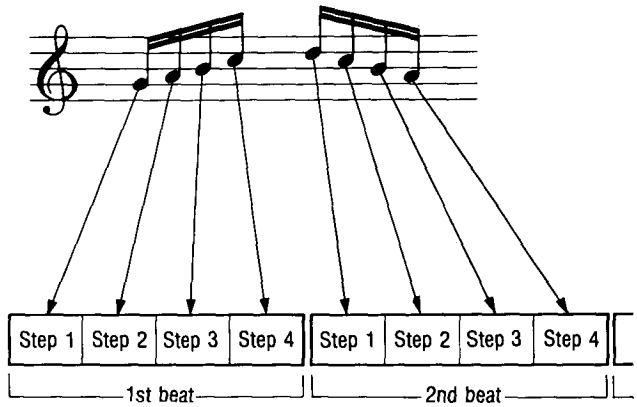


STEP RECORDING MODE

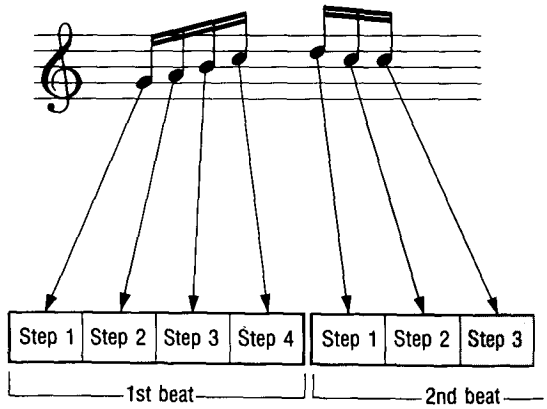
⑧ Editing while recording

If you make a mistake, press the BACK key to cancel data in the current beat and go back to the end of the previous beat. You can then record again from that position.

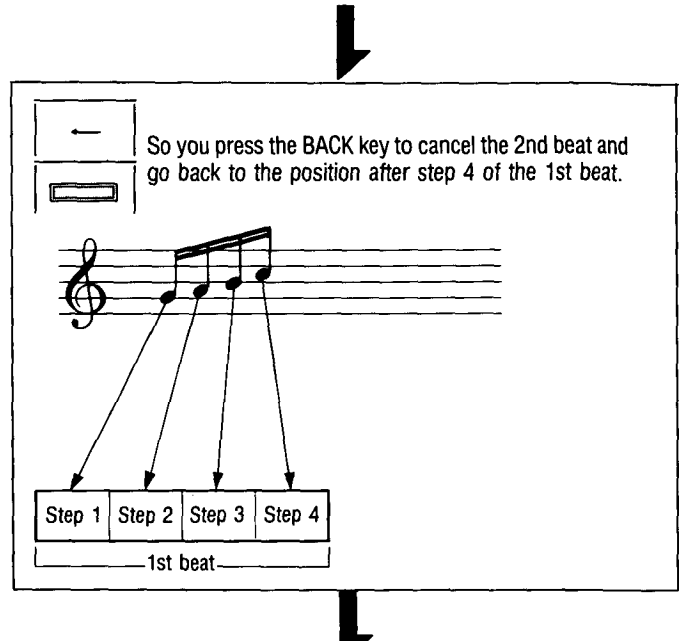
Example: With resolution set to 16th notes.



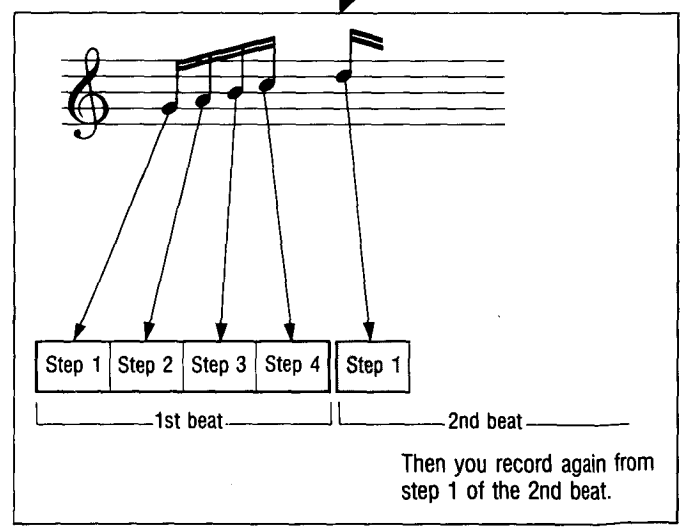
While writing the above.



You make a mistake on step 3 of the 2nd beat.



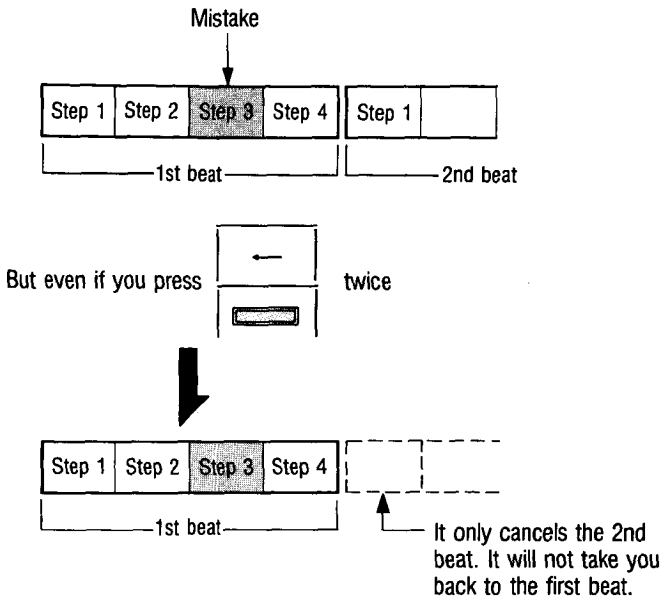
So you press the BACK key to cancel the 2nd beat and go back to the position after step 4 of the 1st beat.



Then you record again from step 1 of the 2nd beat.

■ The BACK key cancels only the data in the beat currently being recorded. It can not be used to make corrections in beats that you have already finished recording.

Example: Resolution set to 16th notes.
While recording the 2nd beat, you try to correct data in the 1st beat.



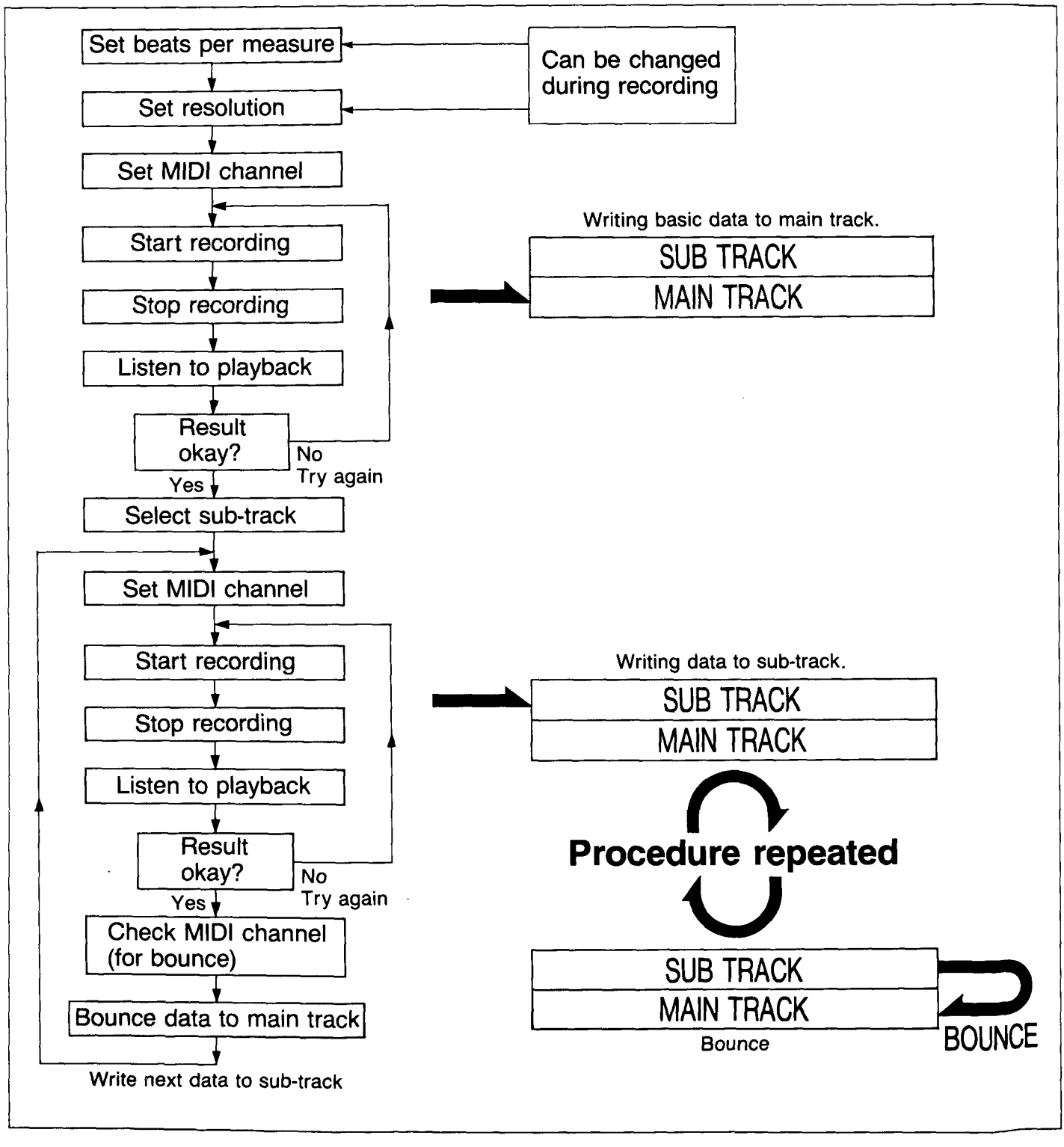
9 Data that can not be written in the step recording mode. (And how to add it.)

■ The following data types can not be written in the step recording mode.
- After-touch
- Program change
- Pitch bender change
- Control change

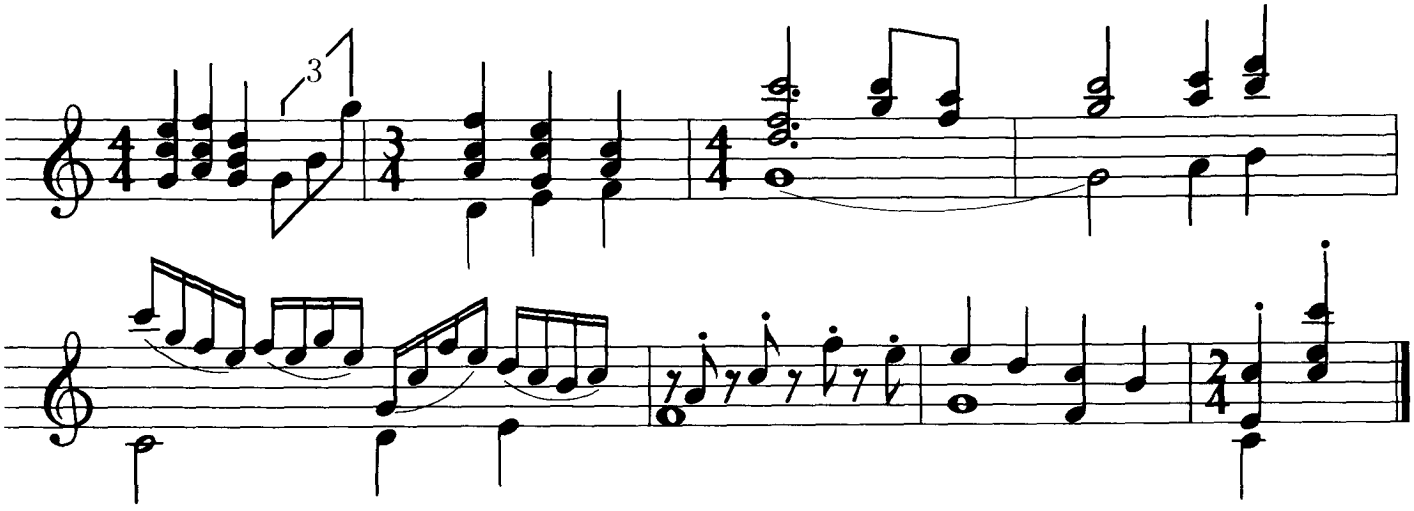
■ If you need these data types and you need to write in the step recording mode, first record just the notes and rests. Then switch to the real time recording mode and add just these data types. This procedure is described in the later section called "Advanced Recording Methods."

4. STEP RECORDING PROCEDURE

■ This flow chart shows the steps taken to complete a song using the step recording mode.

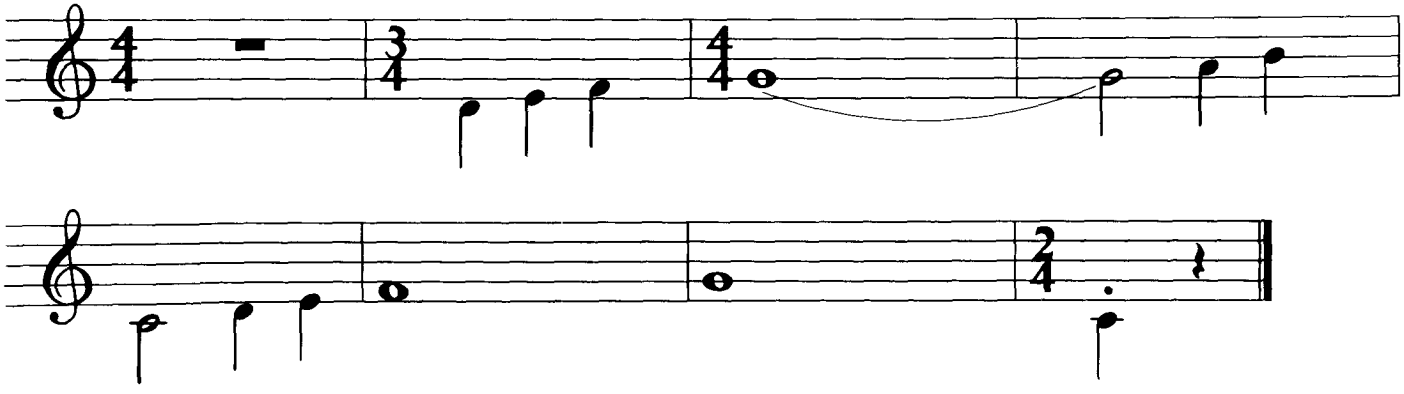


■ Let's try writing the following music using the step recording mode.

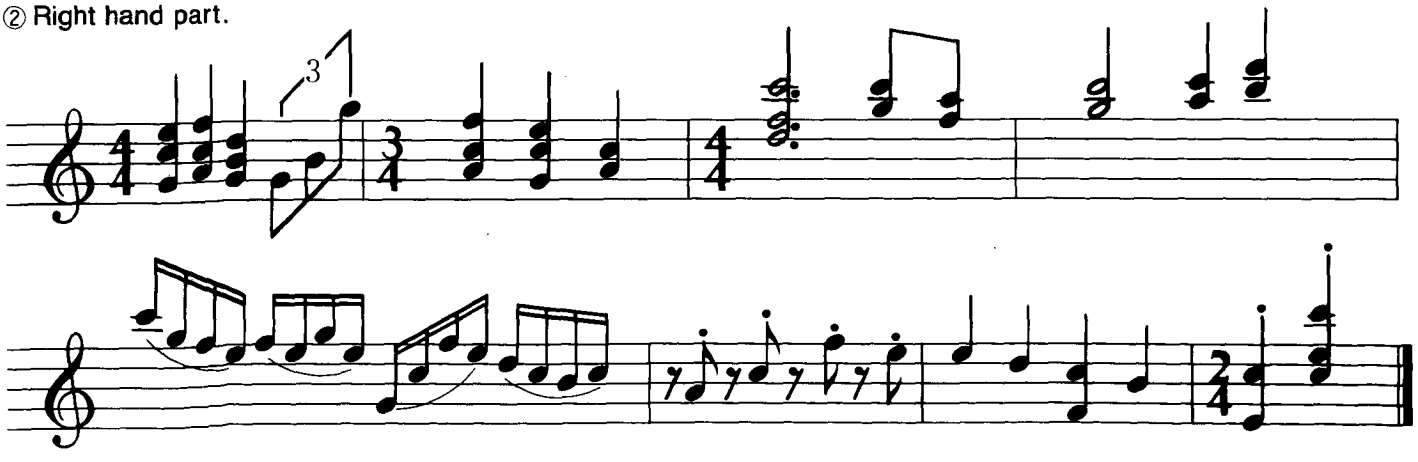


The third through seventh bars contain notes of different lengths. These must be written in two passes.

①Left hand part.

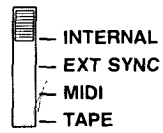
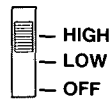
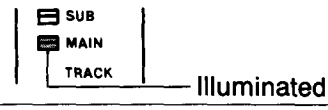
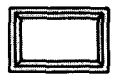
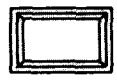
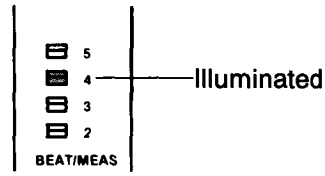
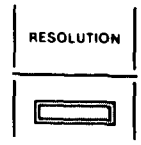
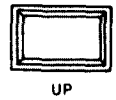
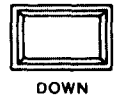
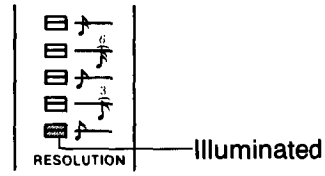


② Right hand part.

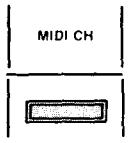


We'll record the left hand part first.

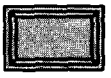
STEP RECORDING MODE

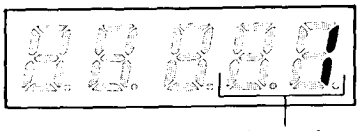
Procedure	Display & indicators
Set the display switch, clock switch, and metronome switch. ● Set the DISPLAY siwtch to LOCATION.  ● Set the CLOCK switch to INTERNAL.  ● Set the METRONOME switch to HIGH.  Also set the rear panel MIDI function switches before starting to record.	Display as it appears after power is turned on. 
① Select step recording mode. Press  ● Confirm that MAIN is selected as the recording track.	Display will be changed to "End."  
② Set beats per measure. Hold down  and press  or  ● For the example, set to 4/4.	 Defaults to 4/4 when power is turned on.
③ Set resolution. Hold down  and press  or  ● To start with, set to eighth notes for our example.	

④ Set MIDI channel.

Hold down 

and press 

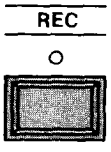
or 

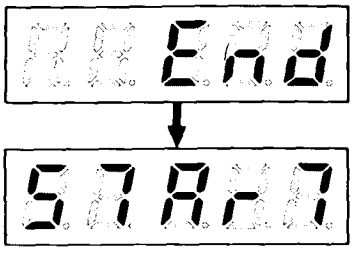


Shows channel number.
Example shows channel 1.

⑤ Begin recording.

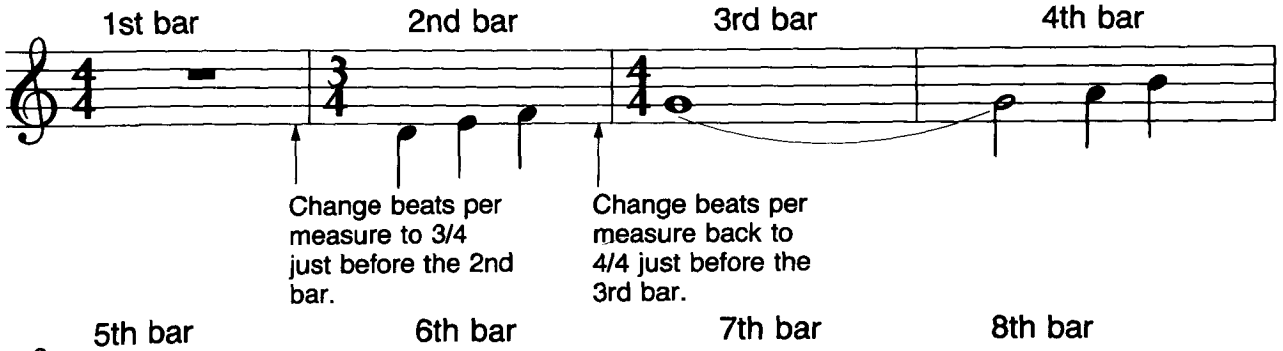
Press the REC key. The word "Start" will appear on the display.

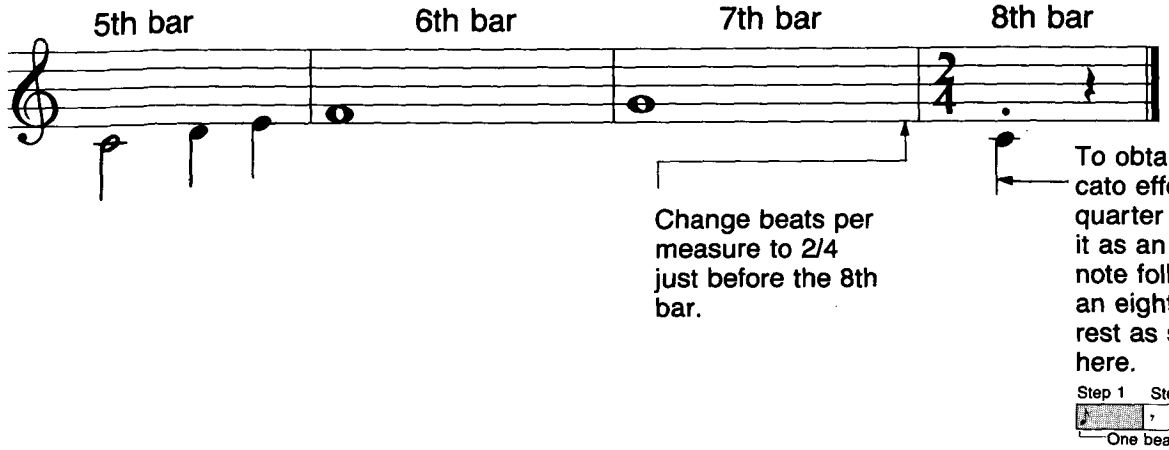
Press 



"Start" means that you can begin recording.

● First, we'll input the left hand part.

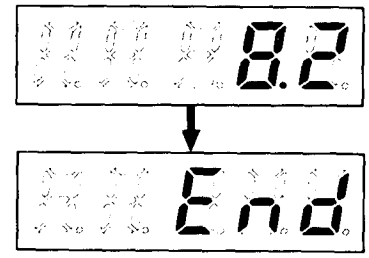




STEP RECORDING MODE

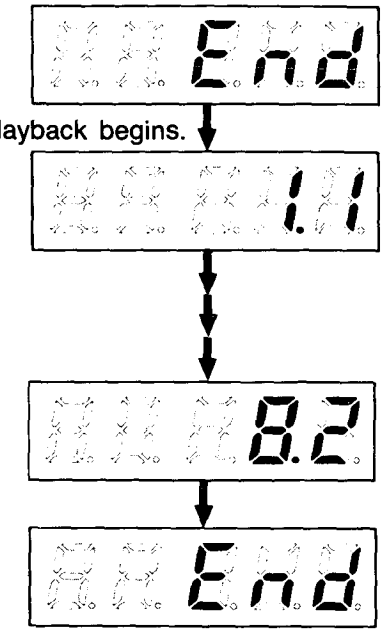
⑥Stop recording.

Press STOP



⑦Check results.

Press PLAY

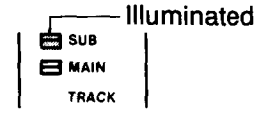


Playback ends automatically at the end of the song.

● If you are satisfied with what has been recorded, go on to step⑧.
● If you are not satisfied, record again. See section on recording again (page 64).

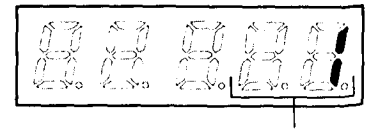
⑧Switch to sub-track.

Hold down TRACK and press UP



⑨Change MIDI channel number if desired.

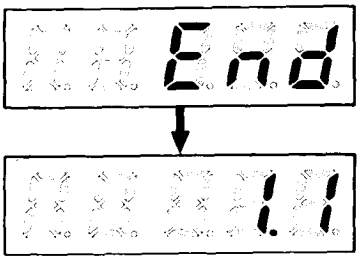
Hold down MIDI CH and press UP or DOWN



● For the example we want to stay with the same channel number as we used for the main track.

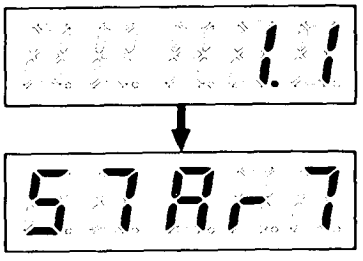
⑩ Reset location to beginning of song.

Press RESET

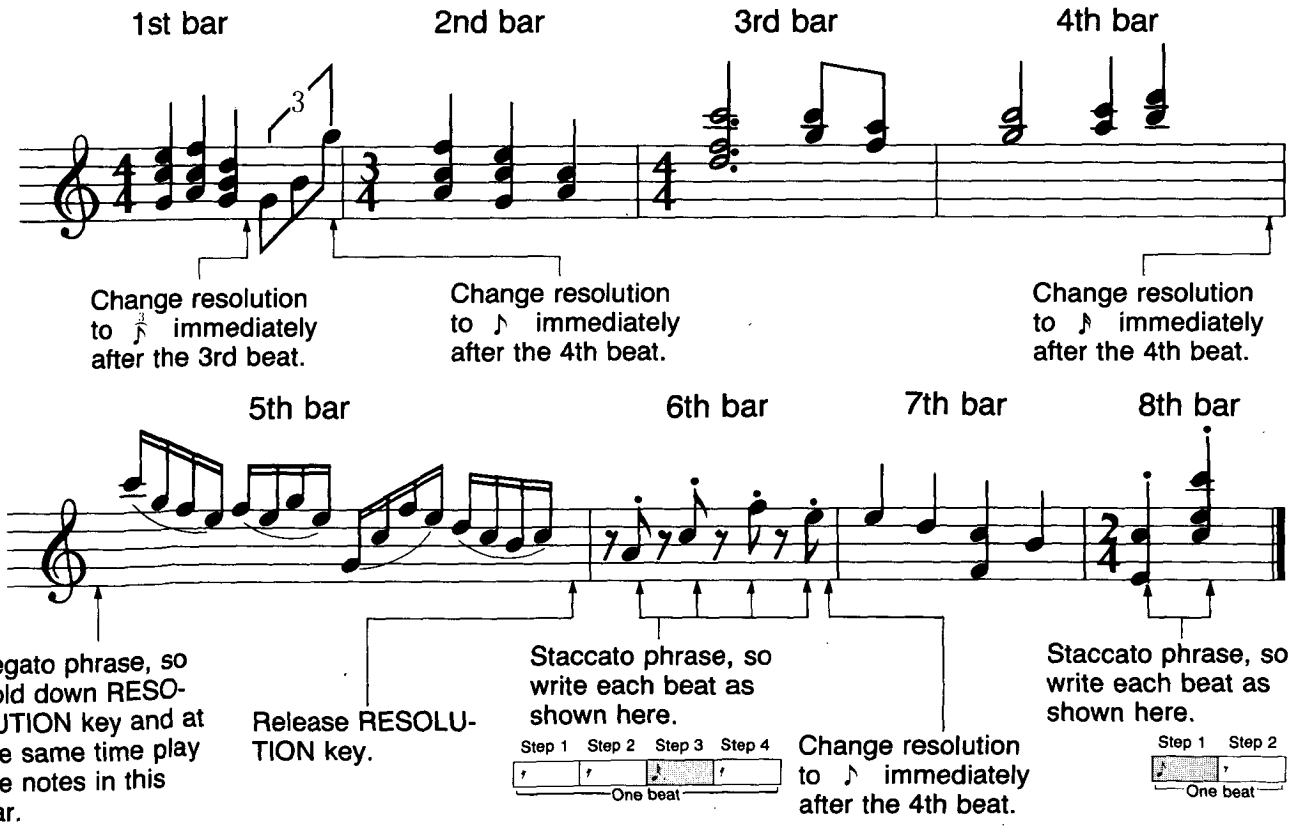


⑪ Begin recording.

Press REC

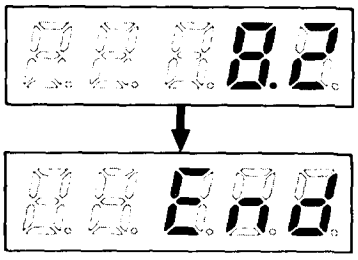


● Recording of right hand part. (Beats per measure follow the settings recorded on the main track so no changes are made.)



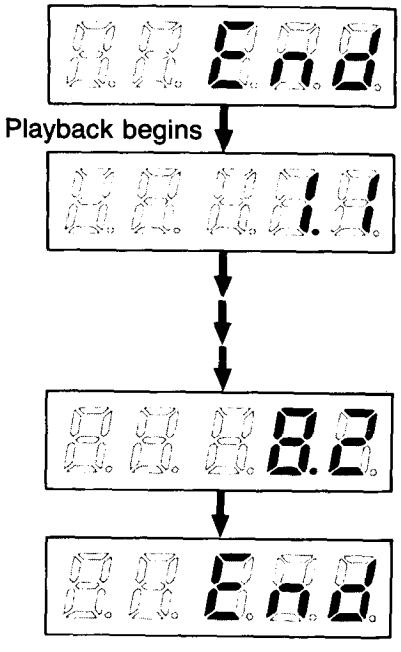
⑫Stop recording.

Press STOP



⑬Check results.

Press PLAY



●The main track and sub-track are played back together.

Playback stops automatically at the end of the song.

● If the results are satisfactory, continue from step ⑭.
● If unsatisfactory, record again. Refer to the section on recording again (page 67).

⑭ Check MIDI channel number and bounce data to main track.

● Check MIDI channel.

Press BOUNCE

"bnC" stands for bounce.

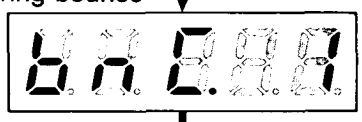
Shows MIDI channel currently assigned to data. Example shows channel 1.

● Bounce after checking the MIDI channel.

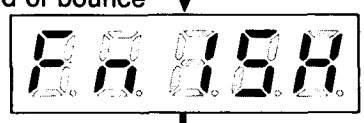
Hold down BOUNCE and press ENTER

Start of bounce

During bounce



End of bounce



If bounce key has been released then the display will show bar 1, beat 1.

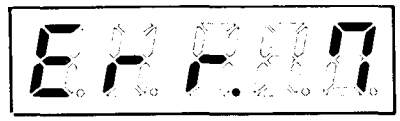
● Data is erased from the sub-track after bouncing.

● This completes our example. When writing songs with more parts, repeat the above procedure from step ⑨.

IMPORTANT NOTES ABOUT RECORDING

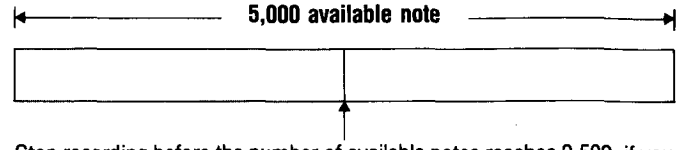
1. RELATIONSHIP BETWEEN AVAILABLE NOTES AND RECORDING AND BOUNCING

■ Recording stops automatically if the number of available notes reaches zero.
You can not start recording on the sub-track if the number of available notes is 18 or less. If you try to start recording, the message "Err.7" will appear on the display.



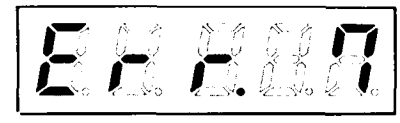
■ In order to be able to bounce to the main track, the number of available notes left after recording the sub-track must be at least half of the number of notes that were available before beginning to record the sub-track. (So you must stop recording before you have used about half of the notes that were available.)

Example: Recording begins with 5,000 notes available.



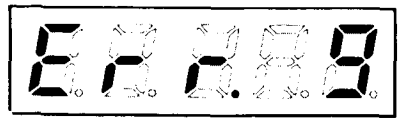
Stop recording before the number of available notes reaches 2,500, if you want to be able to bounce.

If there are not enough notes available after recording the sub-track, then "Err.7" will appear on the display if you try to bounce.

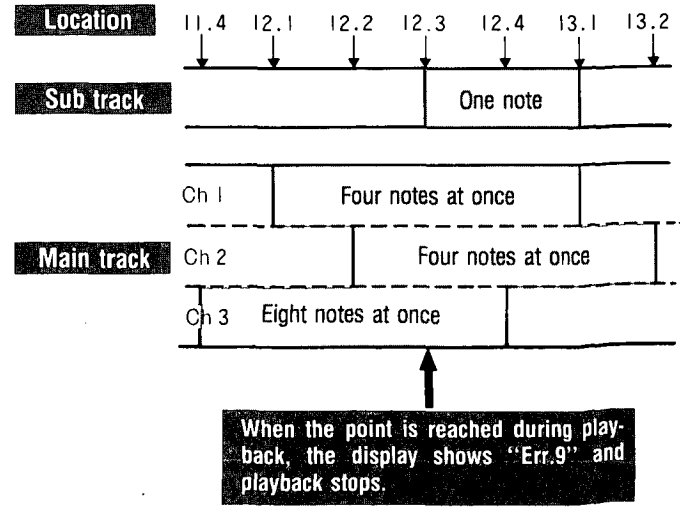


2. NUMBER OF SIMULTANEOUSLY SOUNDED NOTES

■ The SQD-1 can sound up to 16 notes at once. If you record more than 16 notes then when that data is reached during playback, the display will show "Err.9" and playback will stop.



Example: More than 16 notes are recorded and the SQD-1 is switched to the play mode.



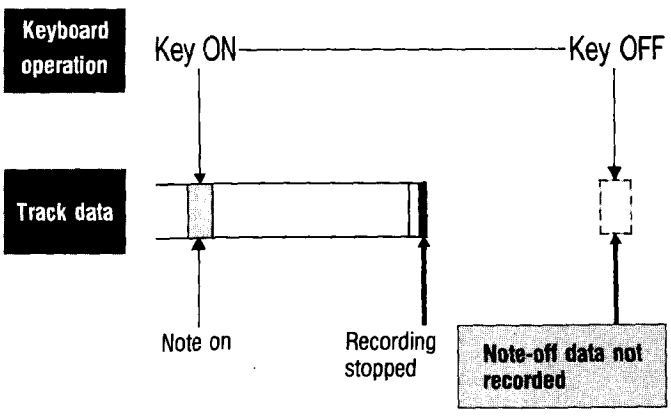
■ If you are recording music that has many parts and repeatedly bouncing data from the sub-track to the main track then there is a chance of accidentaly exceeding the 16-note limit. To avoid this, it is a good idea to play back the data on the sub-track each time after recording and before bouncing. Bounce only after confirming that you do not get an "Err.9" message.

■ There is a special case for the simultaneous sounding of 16th notes in 16 parts. If this kind of data is continuous, then to have it play back properly it is necessary to set the tempo to around 150.

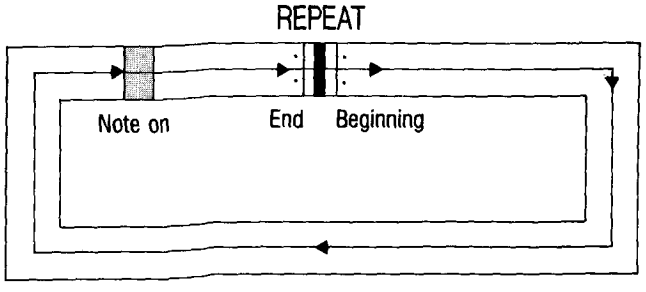
3. STOPPING RECORDING

■ When recording do not press the STOP button while keys are depressed on the keyboard or while using the modulation wheel, damper pedal, or other control device. This can lead to the kinds of undesirable situations shown here.

Example 1: Recording stopped before releasing all keys on the keyboard.

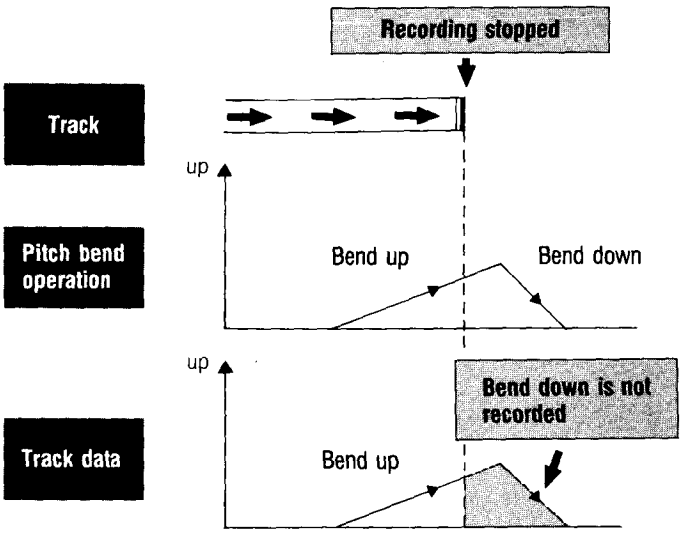


● If this data is played back with the repeat function on in the play only mode, then the final note keeps sounding after the end.

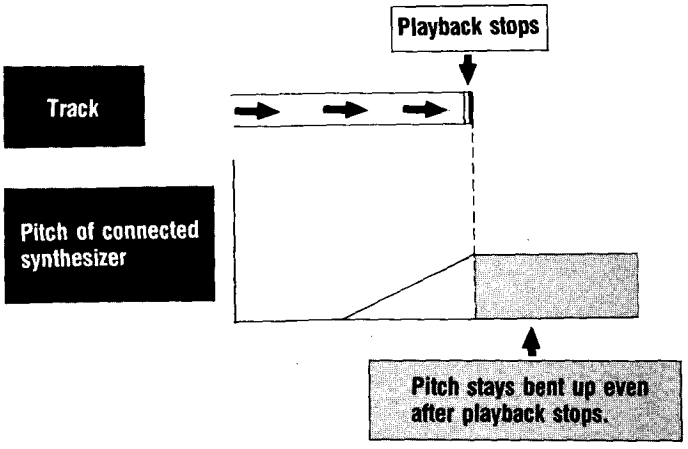


The note keeps sounding because there is no note-off data to match the note-on data.

Example 2: Recording stopped with pitch bent up.



● When bend down data is not recorded you get the following kind of problem.



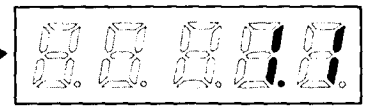
4. RECORDING AGAIN (CONCERNING THE

1 Recording again on the main track

■ Recording the song again from the begining.

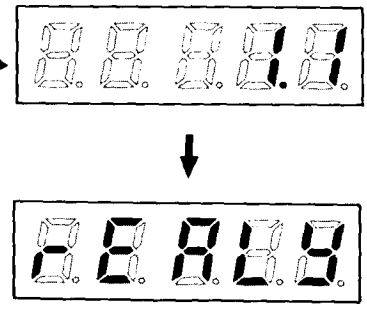
① Press the RESET key to return your "location" to bar 1, beat 1.

Press RESET



② Press the REC key.

Press REC

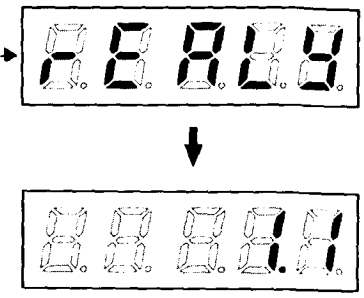


Display shows "rEALY"

● All data following the location from which you begin recording again will be erased. Anything recorded on the sub-track will be erased too.
Therefore, the display shows "rEALY," meaning "really?"

● Press the STOP key if you do not want to erase all your data and record again.

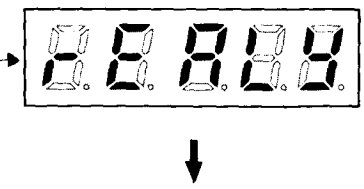
Press STOP



Display returns to indication before REC key was pressed.

③ Press the REC key a second time if you are sure that you want to begin recording again.

Press REC

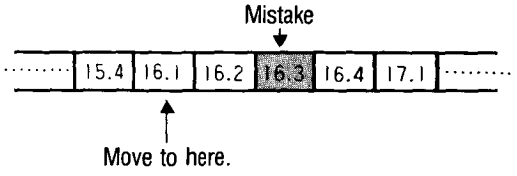


In the real-time recording mode the display starts to count down. In the step recording mode it shows "STArT."

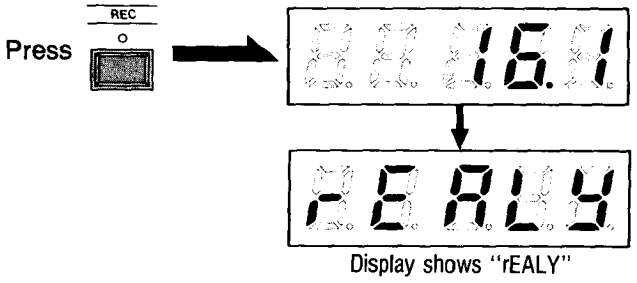
DIFFERENCE BETWEEN TRACKS)

■ Correcting data in the middle of the song.

① Press the FF or REW key to move your location to the first beat of the bar which contains the mistake.

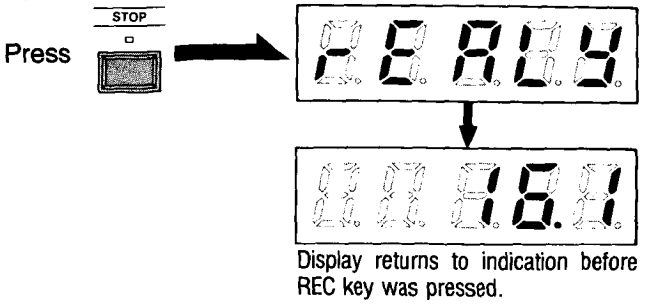


② Press the REC key.

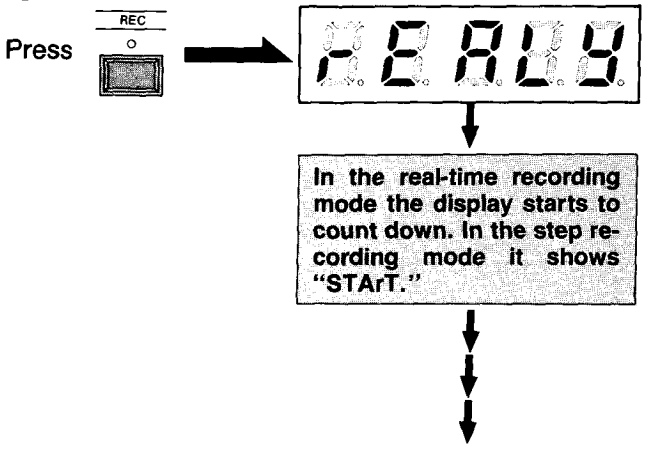


- All data following the location from which you begin recording again will be erased. Anything and everything recorded on the sub-track will be erased too, regardless or whether it is before or beyond the "location" from which you record again.
  Therefore, the display shows "rEALY," meaning "really?"

- Press the STOP key if you do not want to record again.



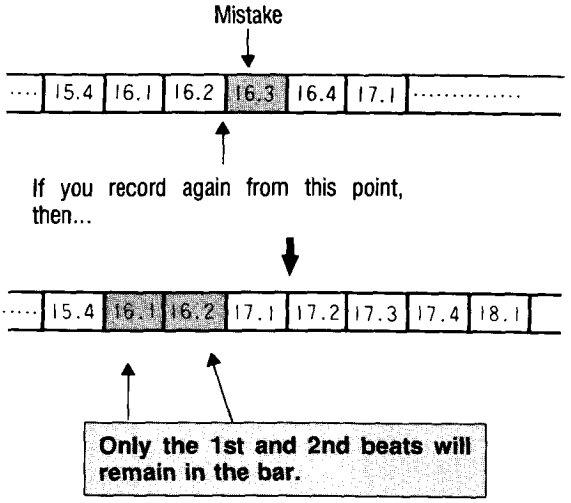
③ Press the REC key a second time to start recording again.



Notes:

1 When recording again, begin from the first beat of the bar that contains the mistake. Otherwise, problems can occur as shown in the example here.

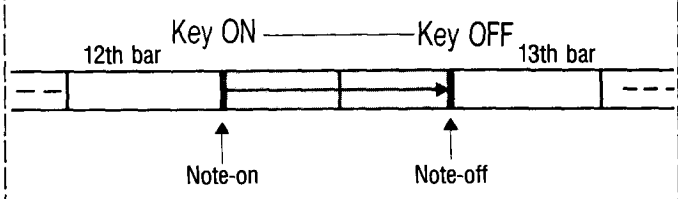
Example: Mistake in 3rd beat of 16th bar (with beats per measure at 4/4).



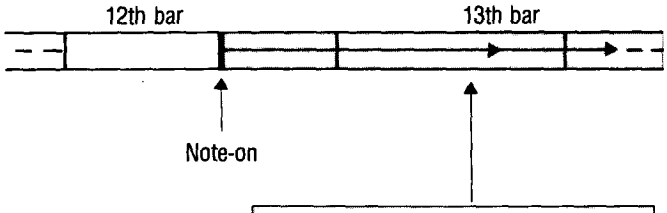
IMPORTANT NOTES ABOUT RECORDING

2 Be careful of notes that tie over from the previous measure. Only begin recording again in a bar that does not have anything that is continued from the previous bar.(This includes pitch bender change, control change, and other data.) Otherwise, problems can occur as shown in the example here.

Example: Note continues from one bar to the next.



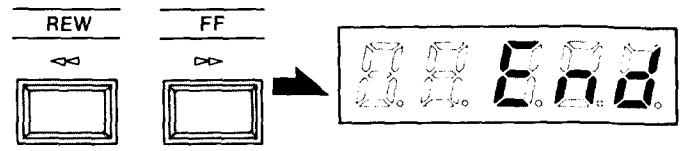
If you record again from the beginning of the 13th bar, then...



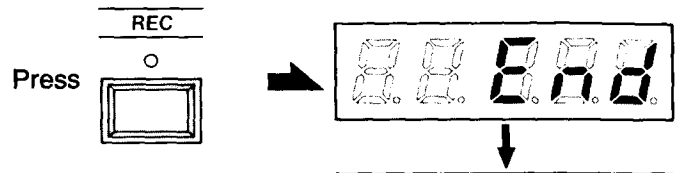
The original note-off data has been erased so the note continues to sound.

■ Additional recording after the end of the last bar.

① Use the FF and REW keys to find the end of the song.



② Press the REC key to start recording.

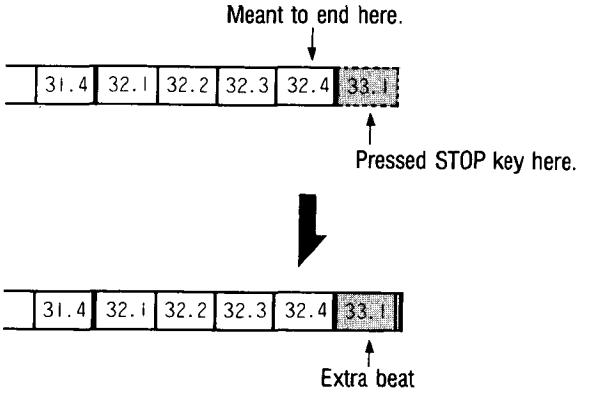


In the real-time recording mode there is a count-down before recording begins. In the step mode the display shows "STArT."

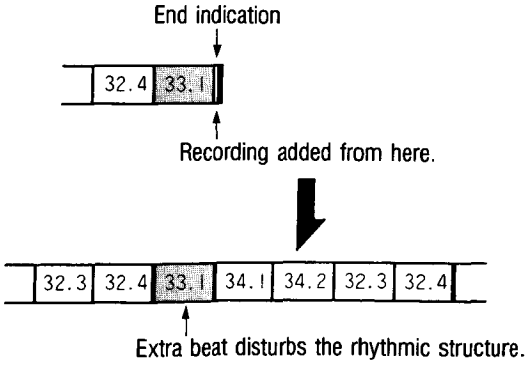
- Any and all data on the sub-track will be erased if you record. Therefore, the display will ask "rEALY" (really?) to confirm your intentions. Press the REC key once more if you wish to record.

Notes:
Particularly in the real-time mode, you might not always stop quickly enough to prevent recording of unwanted beats.

Example: You meant to stop recording at the end of the 4th beat of the 32nd bar but you pressed the STOP key too late. (With beats per measure at 4/4.)



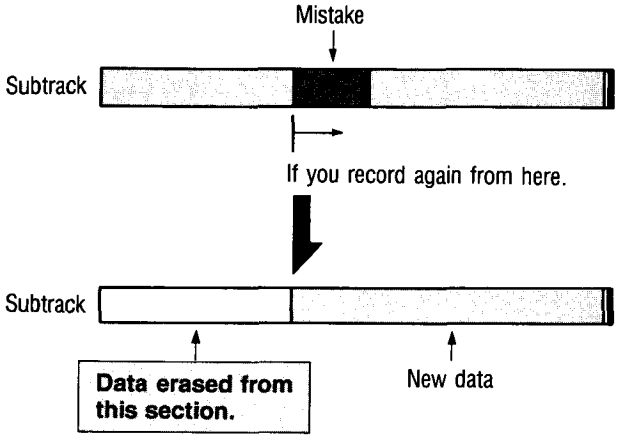
There is now a bar with a single beat at the end of the song. Now if you add to the end of the song, the rhythm will be confused because of this superfluous beat.



2 Making Corrections on the Sub-track

■ All previous data is erased from the sub-track when you record again. However, the display does not show "rEALY" to verify your intentions.

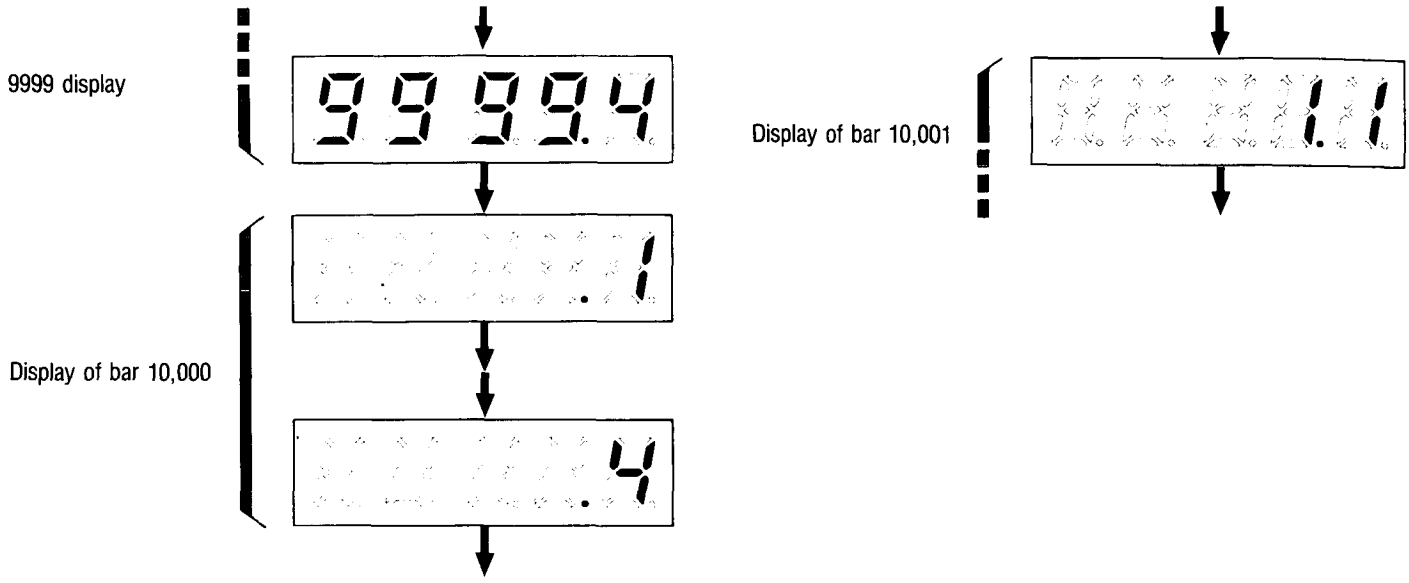
■ If you start recording again from the middle of the sub-track, all data before that point will be erased. (Ordinarily, you always record again from the beginning of the sub-track.)



■ You can not make the sub-track longer than the main track. That is, the track can not have more bars than the main track. (Unlike the main track, the sub-track can not be extended.)

5. BAR INDICATION

After reaching 9999, the display shows bar 10,000 and following bars like this:



6. ADVANCED RECORDING METHODS

After recording in the step mode or in the real-time mode with resolution at settings other than HIGH, there is a way to add pitch bender change, control change data, program change data, and so on.

① Record the keyboard data and bounce it onto the main track.

SUB TRACK	
MAIN TRACK	Keyboard data only.

② Set resolution to HIGH and use the real-time recording mode. Record on the subtrack while performing just the required pitch bender change, control change, and program change operations.
Use the same MIDI channel number as in the previous step.

SUB TRACK	Pitch bends, etc.
MAIN TRACK	Keyboard data only.

③ Bounce the additional data. The pitch bend and other data will then be added to the keyboard data.

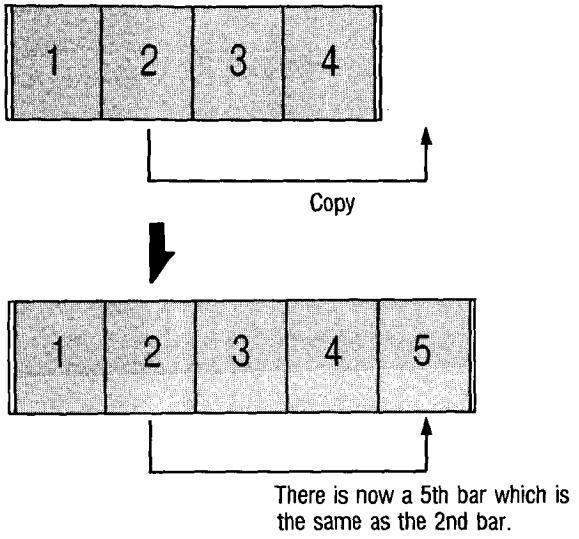
SUB TRACK		
MAIN TRACK	Keyboard data plus pitch bend and other data.	BOUNCE

1. THERE ARE FIVE EDIT MODE FUNCTIONS

1 Copy

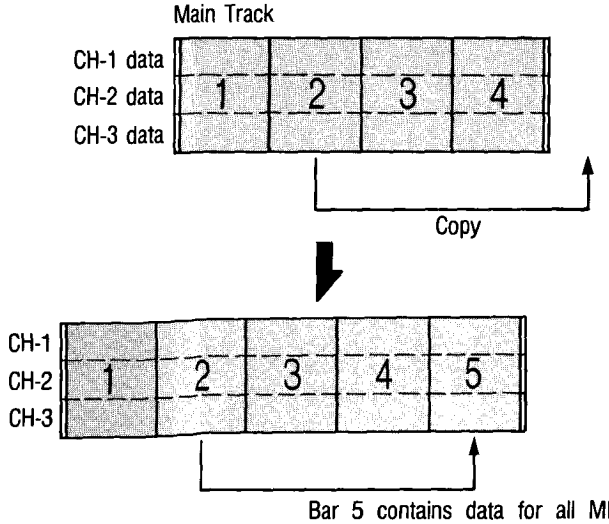
■ This is used to copy the contents of one bar to the end of the song.

Example: You have recorded four bars. Now you copy the 2nd bar to the end.



■ All MIDI channel data is copied.

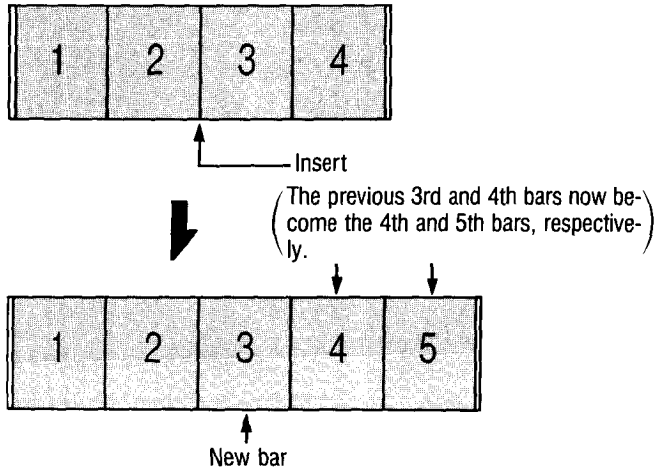
Example: Four bars are recorded. 2nd bar is copied to end.



2 Insert

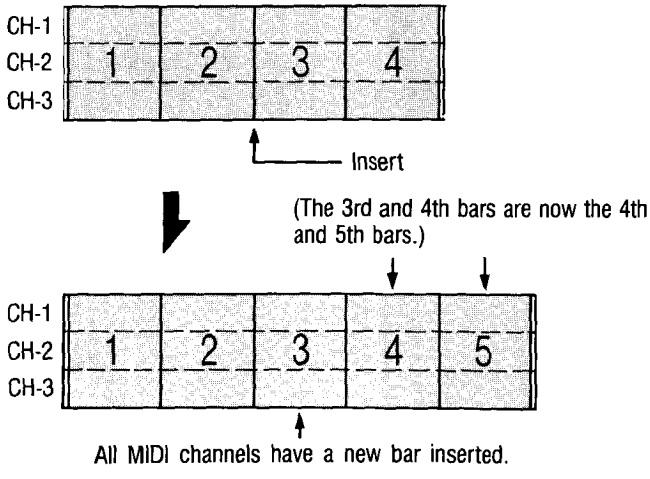
■ This lets you put a new bar with nothing written in it (all rests) in between old bars.

Example: Insert new bar between 2nd and 3rd bars.



■ A new bar is added to all MIDI channels on the main track.

Example: New bar inserted between 2nd and 3rd bar.

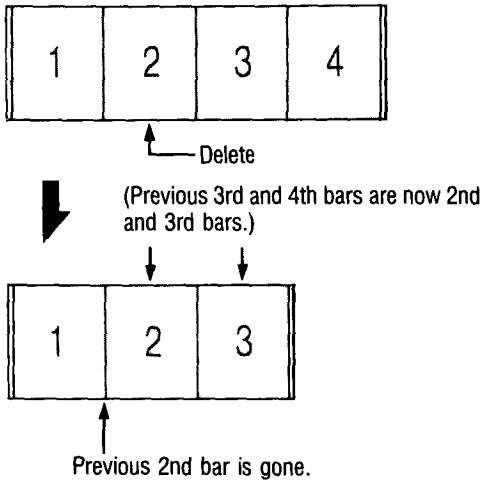


■ Beats per measure settings of from 2 to 8 can be selected for bars to be inserted.

3 Delete

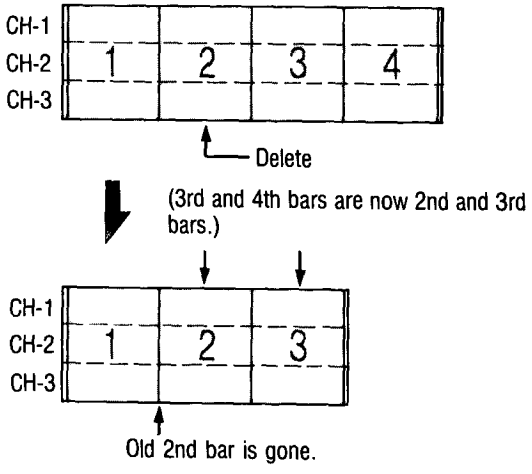
■ Removes a bar.

Example: Delete 2nd bar.



■ The bar deleted for all MIDI channels on the main track.

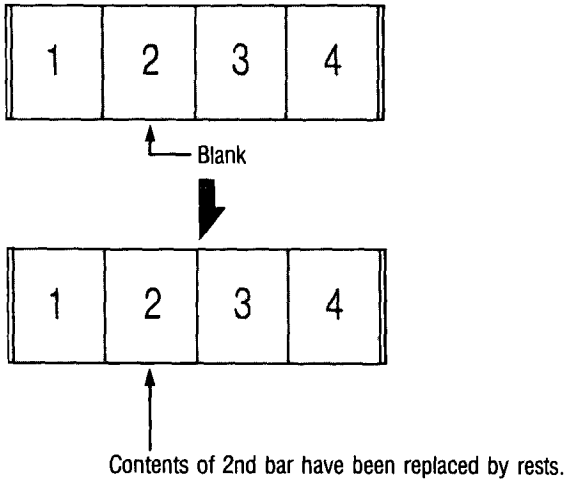
Example: 2nd bar is to be deleted.



4 Blank

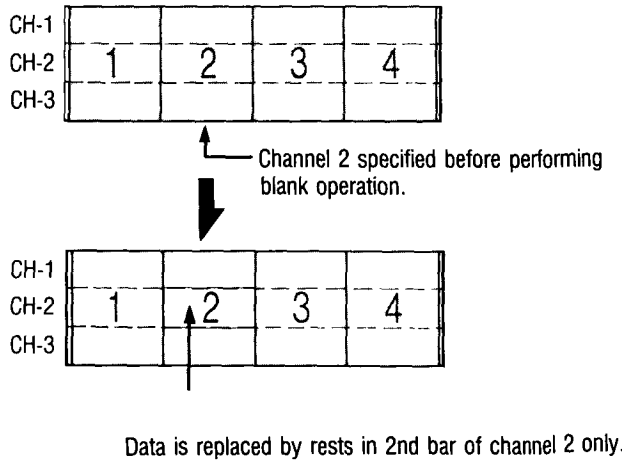
■ Replaces bar's data with rests.

Example: Blank 2nd bar.



■ By specifying a particular MIDI channel on the main track, you can "blank" a bar in that channel only.

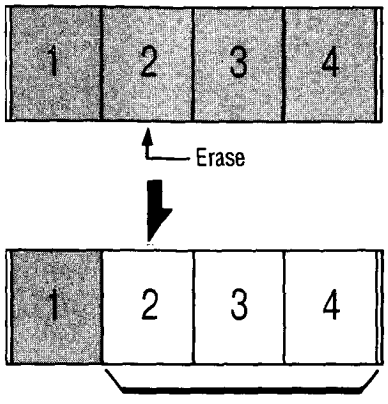
Example: Blank 2nd bar of channel 2.



5 Erase

■ Erases all bars from a specified bar number to the end of the song.

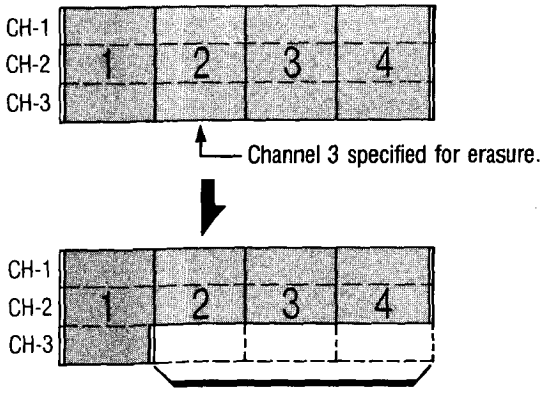
Example: Erase from 2nd bar.



All bars from 2nd through end are erased.

■ By specifying a particular MIDI channel on the main track, you can erase bars in that channel only.

Example: Erase from 2nd bar of channel 3.

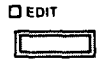


Channel 3 data is erased from 2nd bar through end of song.

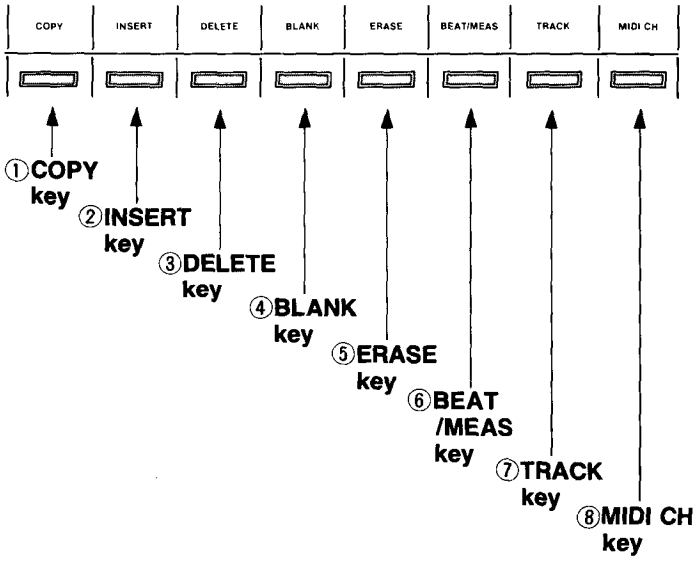
2. BASIC EDITING PROCEDURES

[1] Entering the edit mode.

Press the EDIT key to select the edit mode.



The multi-function keys then have the following functions.



① **COPY key**
Copies bar contents to new bar to the end.

② **INSERT key**
Insert new empty bar between old bars.

③ **DELETE key**
Removes bar.

④ **BLANK key**
Replaces contents of bar with rests.

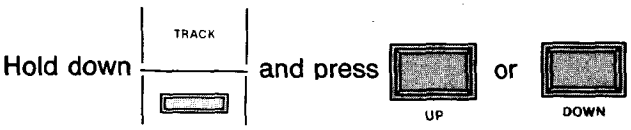
⑤ **ERASE key**
Erases from bar to end.

⑥ **BEAT/MEAS key**
Selects beats per measure for bar to be inserted.

⑦ **TRACK key**
Selects track for editing.

⑧ **MIDI CH key**
Selects MIDI channel when a particular channel on the main track is to be the object of blank or erase functions.

2 Track selection
Same as in the real-time and step recording modes.



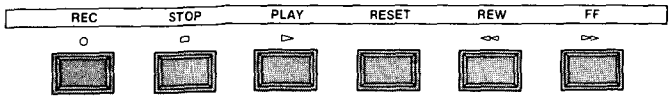
3 MIDI channel selection
Same as in the real-time and step recording modes.

- Used when performing blank and erase operations on the main track (if there is more than one MIDI channel on the main track.)

4 Beats per measure selection
Same as in the real-time and step recording modes.

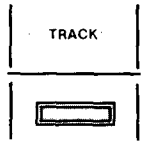
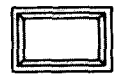
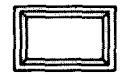
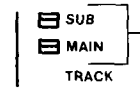
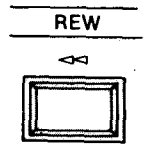
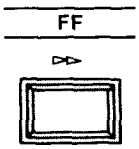
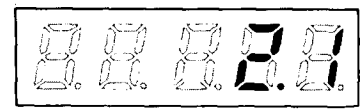
- Used with the insert function.

5 Track Control keys
These keys work the same as in the real-time and step recording modes. However, the REC key is not used in the edit mode.



3. ACTUAL OPERATION

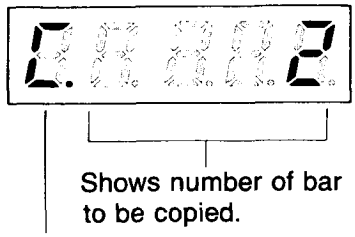
1 Copy

Operation	Display and indicators
① Select edit mode. Press 	
② Specify track. Hold down  and press  or 	 Shows selected track.
③ Specify bar to be copied. Press  or  to go to desired bar. ● The beat indication is irrelevant. Just specify the bar.	Example: copying the 2nd bar.  Shows bar 2. Any beat indication is okay.

④ Copy.

- Press the COPY key to confirm the bar to be copied.

Press [COPY] →

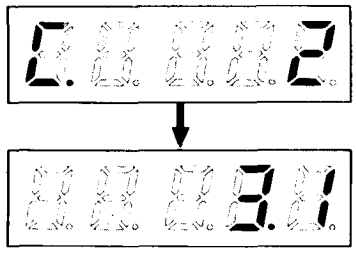


Shows number of bar to be copied.

"C" stands for copy.

- When copying on the subtrack, the display will not change if nothing is recorded at or after the beat indicated in the previous step. (Copying is not possible in this kind of situation.)
- Hold down the COPY key and at the same time press the ENTER key.

Hold down [COPY] and press [ENTER] →

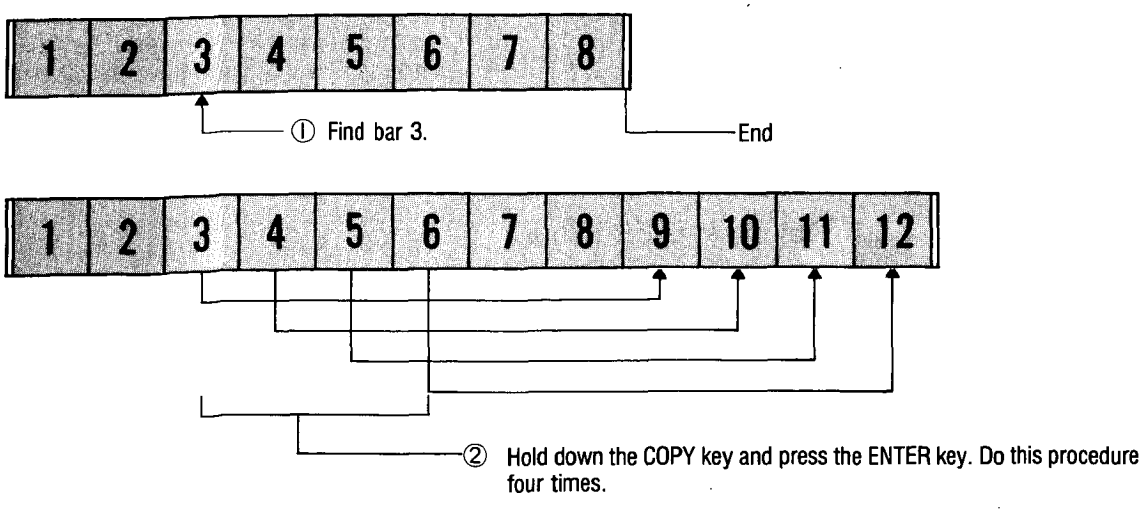


Displays bar 3, beat 1.

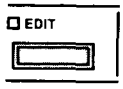
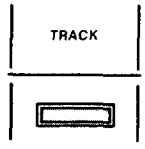
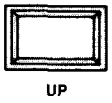
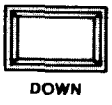
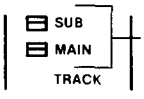
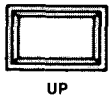
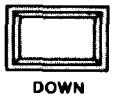
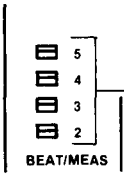
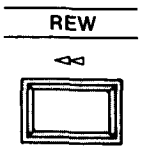
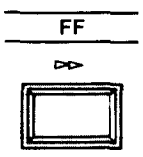
- After copying, the location moves to the next bar.

- Since the location moves to the next bar, it is easy to copy a section that is several bars long. Just repeat from step ④, above.

Example: Copying bars 3 through 6.

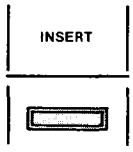


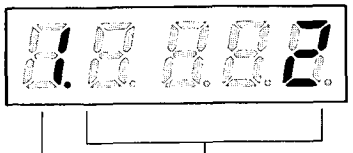
2 Insert

Operation	Display and indicators
① Select edit mode. Press 	
② Specify track. Hold down  and press  or 	 Shows selected track.
③ Select beats per measure for bar to be inserted. Hold down  and press  or 	 Shows setting.
④ Specify bar for insert. ● The new bar is inserted "before" the specified bar. Press  or  to go to desired bar. ● The beat indication is irrelevant. Just specify the bar.	Example: Inserting between the 1st and 2nd bar. Set to show bar 2.  Any beat indication is okay.

⑤ Insert.

- Press the INSERT key to confirm the location for insertion.

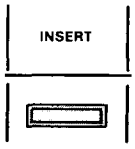
Press 



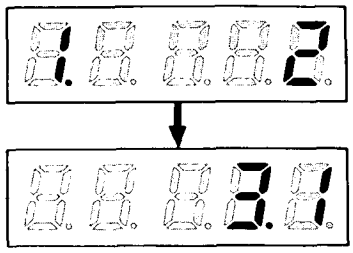
"I" stands for insert.

Shows number of bar for insertion. (New bar will go before this bar.)

- When inserting on the sub-track, the display will not change if nothing is recorded at or after the beat indicated in the previous step. (Inserting is not possible in this kind of situation.)
- Hold down the INSERT key and at the same time press the ENTER key.

Hold down 

and press 

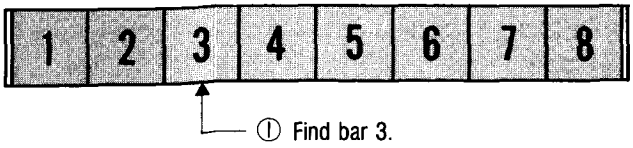


Display bar 3, beat 1.

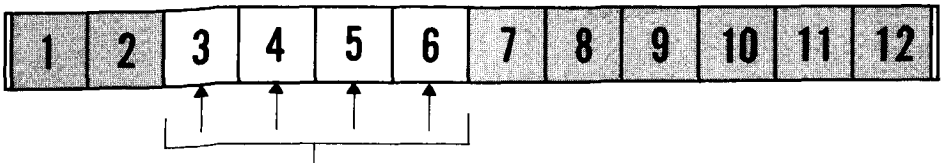
- After insertion the location moves to the next bar.

■ Since the location moves to the next bar, it is easy to insert a section that is several bars long. Just repeat from step ⑤, above.

Example: Inserting four new bars between old bars 2 and 3.

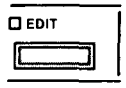
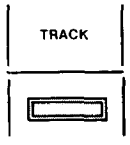
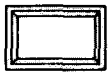
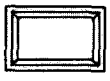
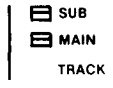
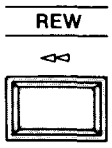
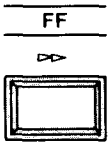
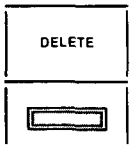
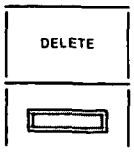
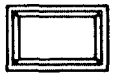
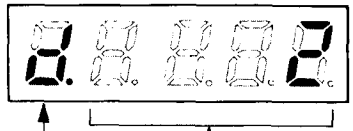
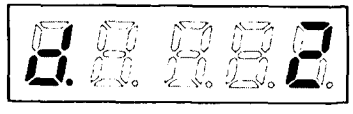


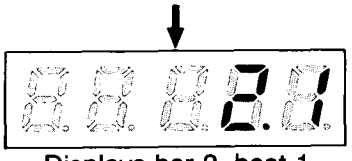
① Find bar 3.



② Hold down the INSERT key and press the ENTER key. Do this procedure four times.

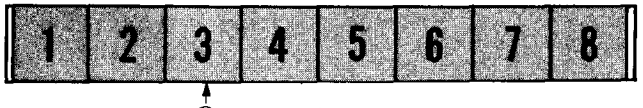
3 Delete

Operation	Display and indicators
①Select edit mode. Press 	
②Specify track. Hold down  and press  or 	 Shows selected track
③Specify bar to be deleted. Press  or  to go to desired bar. ● The beat indication is irrelevant. Just specify the bar.	Example: Deleting the 2nd bar.  Shows bar 2. Any beat indication is okay.
④Delete. ● Press the DELETE key to confirm the bar to be deleted. Press   ● When deleting on the subtrack, the display will not change if nothing is recorded at or after the beat indicated in the previous step. (Deletion is not possible in this kind of situation.) ● Hold down the DELETE key and at the same time press the ENTER key. Hold down  and press  	 "d" stands for delete. Shows number of bar to be deleted. 

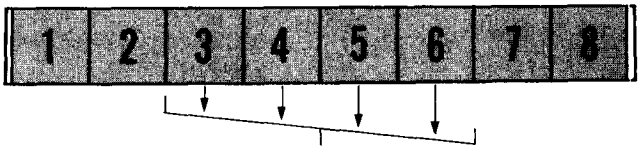
● After deleting, the display indicates the same bar number (and beat 1). (But that bar is the one that followed the deleted bar. Bar 3 is now bar 2.)	 Displays bar 2, beat 1.

■ The location stays at the same bar, but that bar contains the data of the bar that followed the deleted bar. So you can easily delete a section that is several bars long. Just repeat from step 4, above.

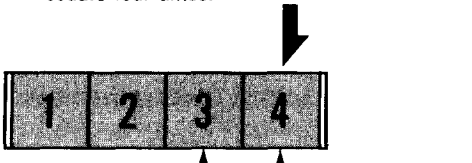
Example: Deleting bars 3 through 6.



① Find bar 3.



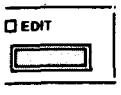
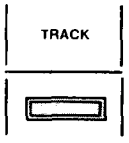
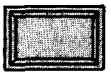
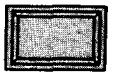
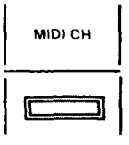
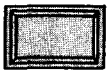
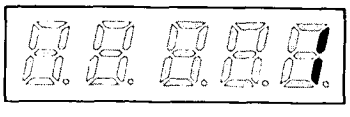
② Hold down the DELETE key and press the ENTER key. Do this procedure four times.



Formerly the 8th bar

Formerly the 7th bar

4 Blank

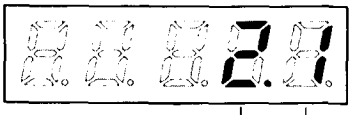
Operation	Display and indicators
① Select edit mode. Press 	
② Specify track. Hold down  and press  and 	 Shows selected track
③ Select MIDI channel. Hold down  and press  or  ● If on the subtrack, you must specify the channel assigned to the current data.	Example: shows channel 1. 

④Specify bar to be made blank.

Press REW ◁◁ or FF ▷▷ to go to desired bar.

- The beat indication is irrelevant. Just specify the bar.

Example: To make 2nd bar blank.



Set to show bar 2.

Any beat indication is okay.

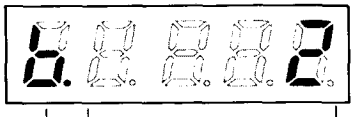
⑤Press BLANK.

- Press the BLANK key to confirm the location.

Press BLANK

- When making blank on the sub-track, the display will not change if nothing is recorded at or after the beat indicated in the previous step. (The blank function is not possible in this case.)

Example: To make 2nd bar blank.

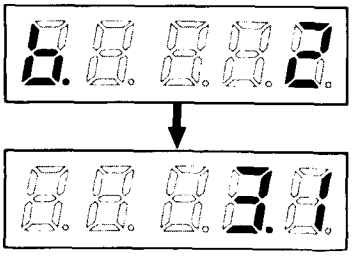


Shows number of bar.

"b" stands for blank.

- Hold down the BLANK key and at the same time press the ENTER key.

Hold down BLANK and press ENTER

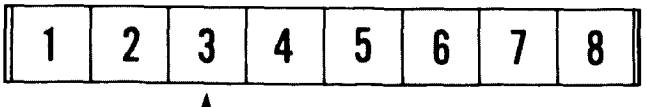


Displays bar 3, beat 1.

- Afterwards, the location moves to the next bar.

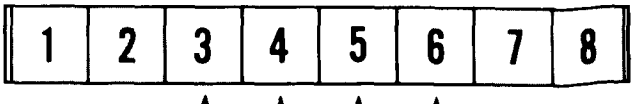
■ Since the location moves to the next bar, it is easy to use the blank function on a section that is several bars long. Just repeat from step 5, above.

Example: Using the blank function on bars 3 through 6.



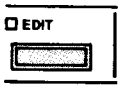
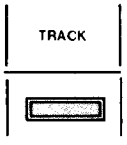
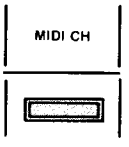
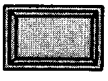
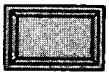
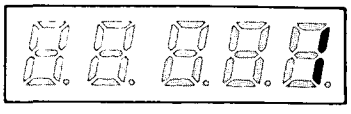
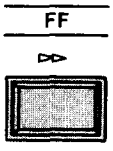
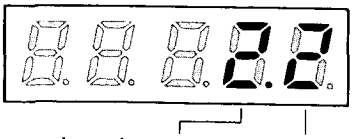
① Find bar 3.

Data contents replaced with rests.



② Hold down the BLANK key and press the ENTER Key. Do this procedure four times.

5 Erase

Operation	Display and indicators
①Select edit mode. Press 	
②Specify track. Hold down  and press  or 	
③Select MIDI channel. Hold down  and press  or  ● If on the subtrack, you must specify the same channel that you assigned to the recorded data.	Example: shows channel 1. 
④Specify bar from which to erase. Press  or  to go to desired bar. ● The beat indication is irrelevant. Just specify the bar.	Example: To erase from 2nd bar to the end.  Set to show bar 2. Any beat indication is okay.

⑤ Erase.

● Press the BLANK key to confirm the location.

Press [ERASE]

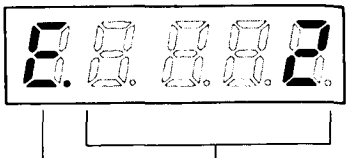
● When erasing on the subtrack, the display will not change if on the sub-track nothing is recorded at or after the beat indicated in the previous step. (Erasure is not possible in this case.)

● Hold down the ERASE key and at the same time press the ENTER key.

Hold down [ERASE] and press [ENTER]

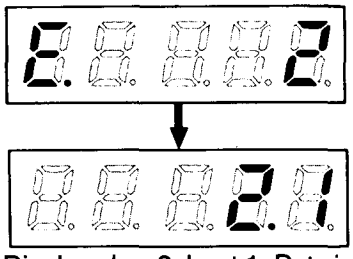
● The bar indication does not change after erasure. Beat 1 is indicated.

Example: To erase from 2nd bar.



"E" stands for erase.

Shows number of bar.

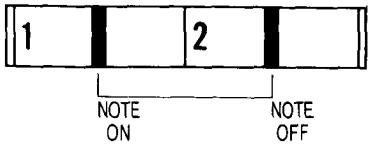


Displays bar 2, beat 1. Data is erased from bar 2 to end.

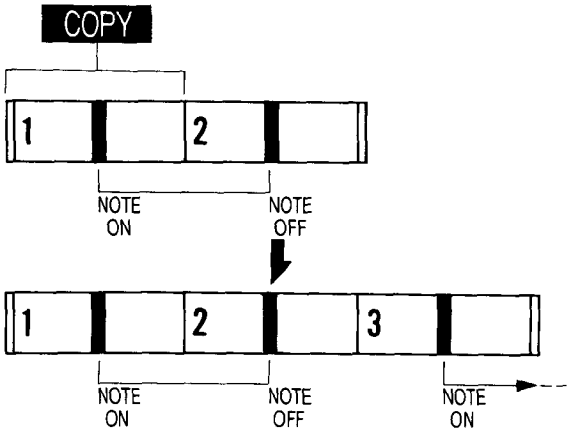
4. OTHER EDIT MODE PROCEDURES

1 Editing in cases where data continues from one bar to the next.

■ Let's consider a case where there is a "note-on" in the 1st bar but the "note-off" comes in the 2nd bar.

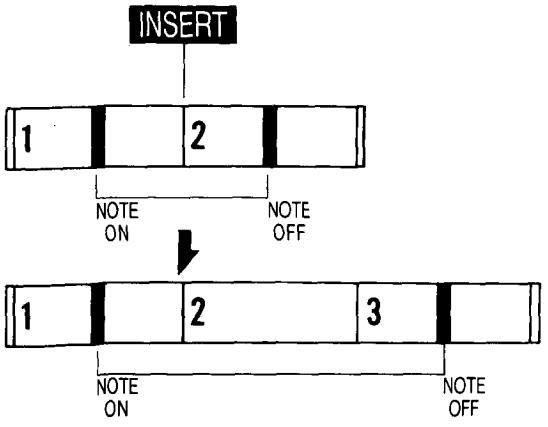


① What if we copy the 1st bar?



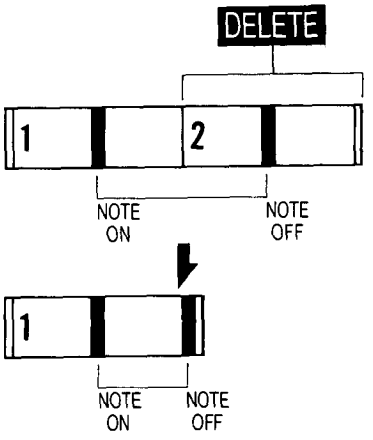
The sound will continue since only note-on data is recorded at the end of the song. This will be a problem if you use the play only mode with the repeat function.

② What if we insert a new bar between the 1st and 2nd bars?



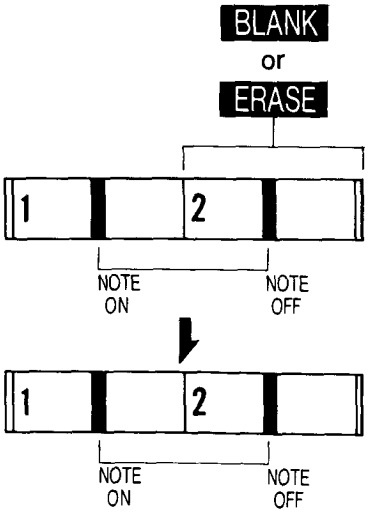
The sound continues through the new bar. The note is extended by the length of the new bar.

③ What if we delete the 2nd bar?



Note-off data from bar 2 is moved to the end of bar 1. This prevents the problem of a note-on being left without a note-off.

④ What if we make the 2nd bar blank or erase from the 2nd bar?



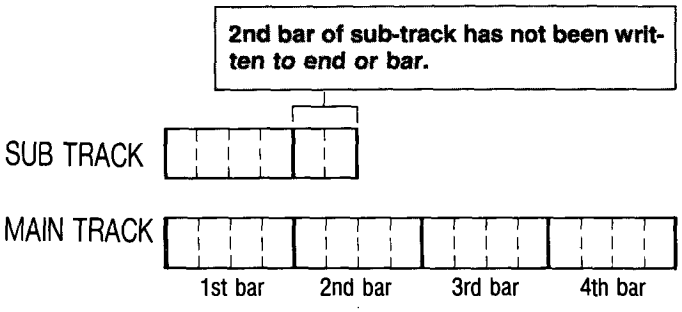
Note-off data is not removed if it is needed to match note-on data in previous bars. This prevents the problem of solitary note-on events. (So notes that continue from previous bars are not affected by blank or erase functions.)

■ As the examples reveal, it is best to avoid bars that contain data carried over from previous bars. Instead, start editing at an earlier location.

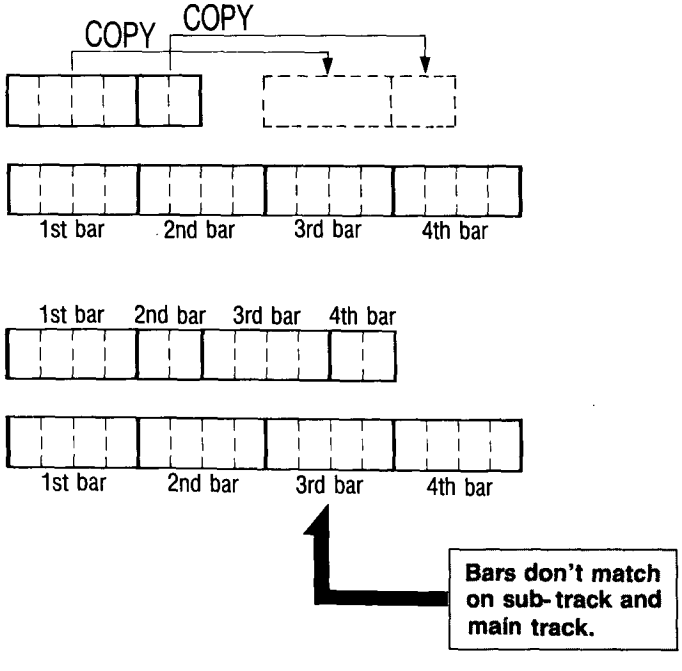
2 How edit functions can affect bar arrangement of the main track and sub-track.

■ Consider the case shown here.

Beats per measure is 4/4.



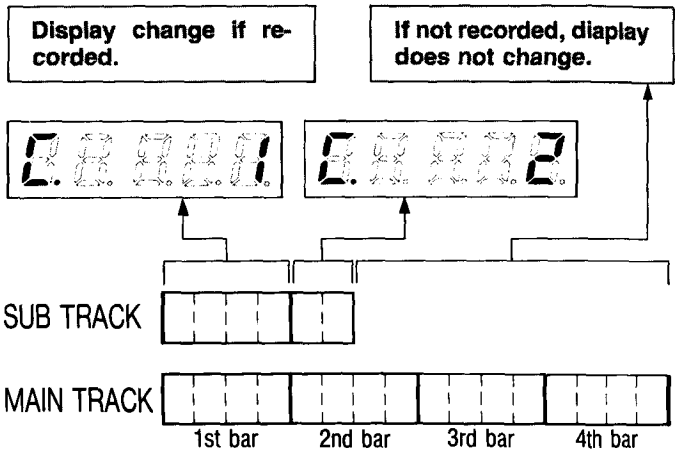
■ Now if you try to copy the 1st and 2nd bars (to create 3rd and 4th bars) you end up with the situation shown here.



■ To avoid this kind of problem, it is necessary to keep in mind how far you have recorded on the sub-track. Here is a way of checking on this.

① Select sub-track then press FF or REW to move your location.

② Press the COPY key (or any edit function key). The display will change if that location has been recorded.



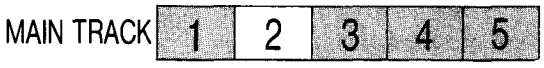
■ For this reason it is advisable to use only the blank and erase edit functions on the sub-track since these do not affect the bar structure. (Copy and other modes may not be possible in some cases.)

3 Making corrections in recorded data.

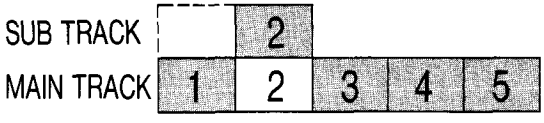
■ The following procedure is used to make corrections in recorded data.

Example: To revise data in the 2nd bar on a particular MIDI channel.

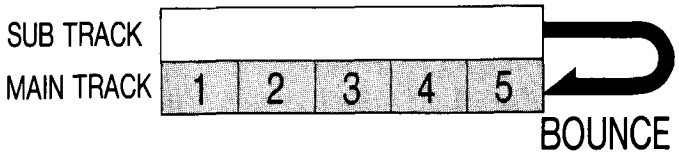
① Specify channel and 2nd bar then use BLANK function.



② Record just the 2nd bar on the sub-track using either the step or real-time mode.

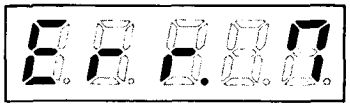


③ Specify the same channel and bounce to the main track.



4 Available note display and the copy and insert functions.

Copy and insert functions are not possible if the available note indication is around 18 or less. If you try to perform the function the display will show a "Err.7" message.



PLAY ONLY MODE

1. ABOUT THE PLAY ONLY MODE

This is used to reproduce recorded data. It provides the following additional functions. (The play functions that you have used in the other modes also remain available.)

■ **Key Transpose:**
This is used to change the key (pitch) of data for playback.

■ **Repeat:**
Provides repeated playback.

■ **Playback track selection:**
You can specify just the sub-track or just the main track for playback. (In the other modes both tracks are always played back together.)

■ **MIDI channel check:**
Lets you see which channels are recorded on the main track and sub-track.

■ **Send "OMNI mode off":**
This sends a MIDI channel message that turns off the omni reception mode on connected MIDI synths and other MIDI units. (When this message is received each synth responds only to MIDI data on the channel to which it has been set.)

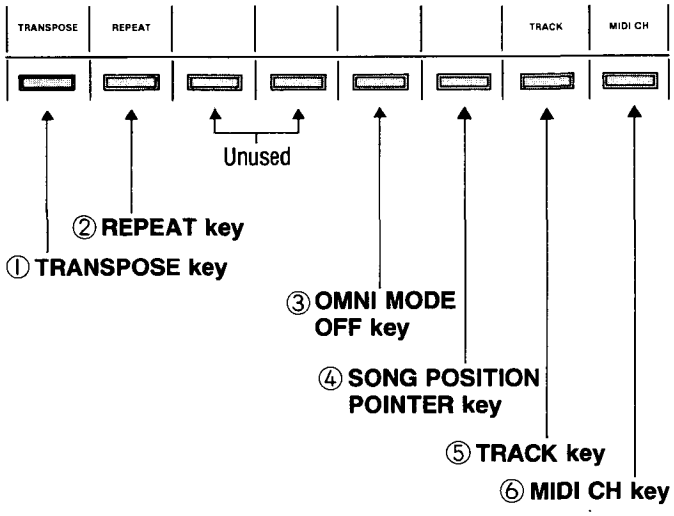
■ **Send/receive "Song position pointer":**
This is used for synchronized playback with other MIDI units such as programmable rhythm machines. It allows transmission and reception of a MIDI system common message carrying the song position pointer. With MIDI equipment that has this capability, this assures that all units start playback from the same location.

2. PROCEDURE

1 Entering the play only mode.

Press the PLAY ONLY key.

The multi-function keys now have these functions.



① TRANSPOSE key
Changes the key for playback.

② REPEAT key
For repeated play.

③ OMNI MODE OFF key
Transmits an omni mode off command. (Not marked on function matrix.)

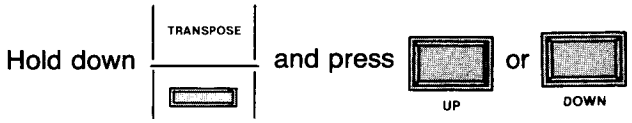
④ SONG POSITION POINTER key
Used for transmission of song position pointer. (Not marked on function matrix.)

⑤ TRACK key
Used to select which track to play.

⑥ MIDI CH key
Used to check which MIDI channels are recorded.

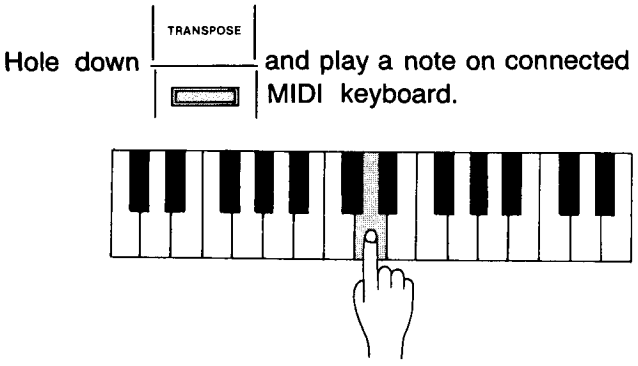
2 Using the key transpose function.

Hold down the TRANSPOSE key and at the same time press the UP or DOWN key.

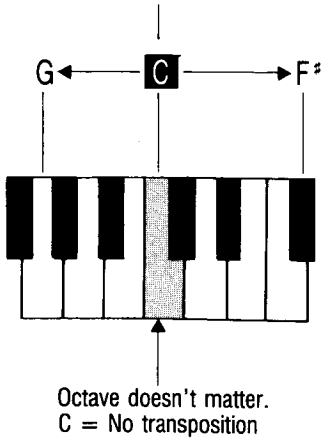


Or

Hold down the TRANSPOSE key and at the same time play a key on a keyboard connected to the MIDI IN jack.

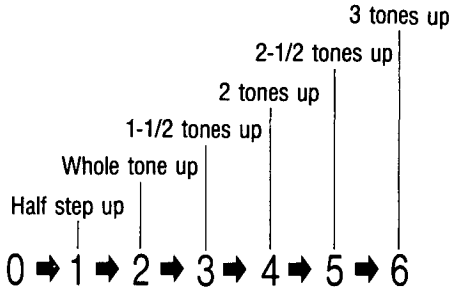


■ With a MIDI keyboard, specify the key by playing notes from G below C to F# above.

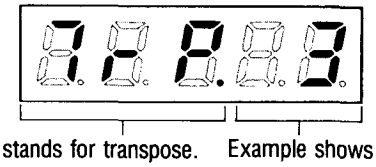


PLAY ONLY MODE

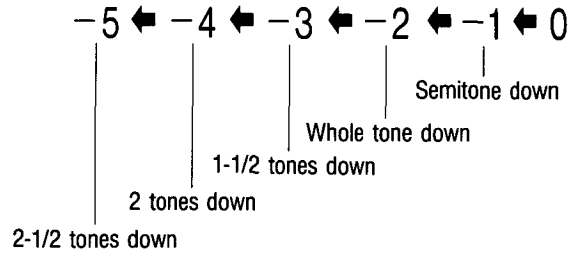
■ By pressing the UP key (or playing the keyboard), you can raise the key in semitone steps.



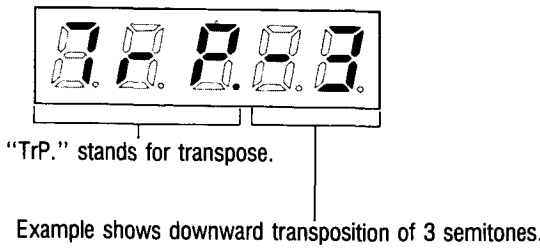
Display shows number of semitones transposed upward.



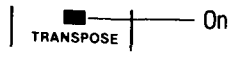
■ Press the DOWN key (or play the keyboard) to lower the key in semitone steps.



Display shows number of semitones transposed downward.

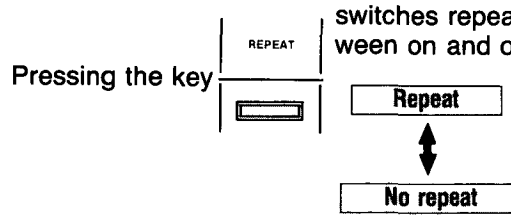


■ The transpose indicator illuminates when the transpose function is used.

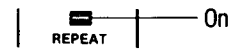


3 Using the repeat function.

Press once to turn on the repeat function. Press again to turn it off.

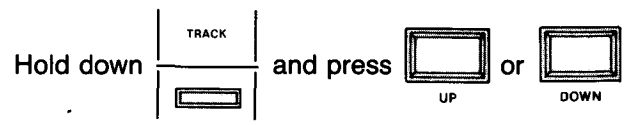


■ The repeat indicator illuminates when the repeat function is on.

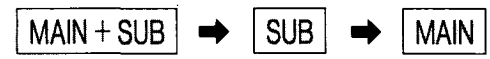


4 Selecting the playback track.

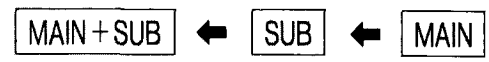
Hold down the TRACK key and press the UP or DOWN key.



■ Initially (after the power is turned on) this is automatically set so that both tracks play back together. If you then hold down the TRACK key and press the DOWN key, the setting changes as shown here.



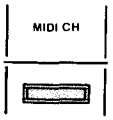
You can then change back by holding down the TRACK key and pressing the UP key.



■ The track indicators show which track(s) will be played.

5 Checking which MIDI channels are recorded.
This lets you find out which channel or channels have been recorded on a track. First select either the sub-track or the main track. (See previous step.)

Hold down the MIDI CH key and at the same time press the UP or DOWN key.

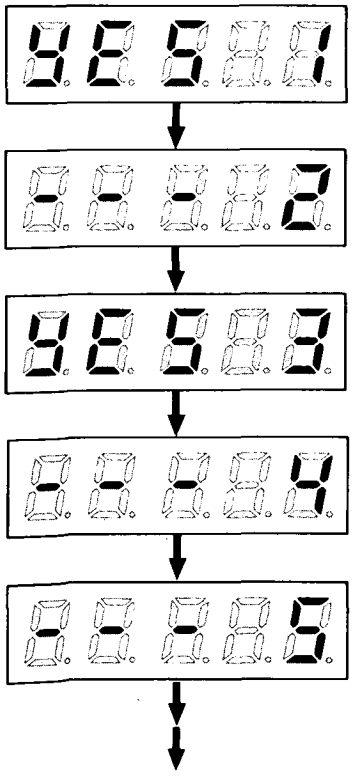
Hold down 

and press 

or 

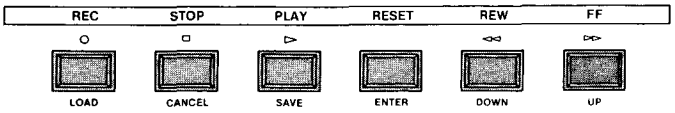
■ The display will show each MIDI channel number. "YES" will appear if that MIDI channel has been used.

Example: Shows that MIDI channels 1 and 3 have been used. (Pressing UP key with MIDI CH key depressed.)



■ If both the main and sub-track are specified for playback then the display will show only the channels used on the MAIN track.

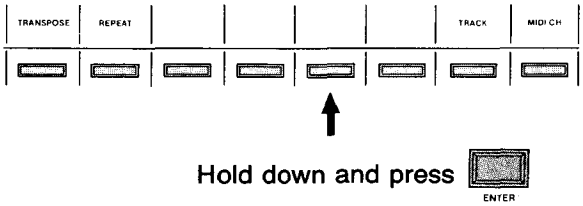
6 Track control keys.



These work the same as usual, except that the REC key is not used.

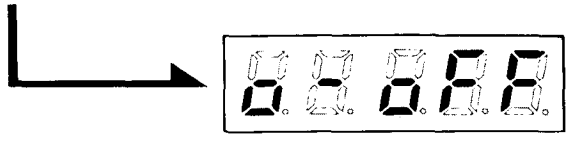
7 Sending "Omni mode off" message.

Hold down the OMNI MODE OFF key (4th multi-function key from right) and press the ENTER key.

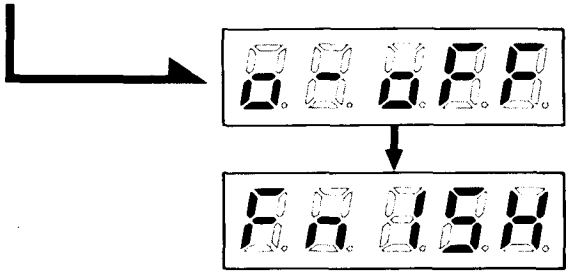


■ During this procedure, the display changes as shown here.

① When OMNI MODE OFF key is pressed, the display shows "o-oFF" meaning omni mode off.



② When you press ENTER while depressing the OMNI MODE OFF key then you get this indication.



"FnISH" means that transmission has been completed.

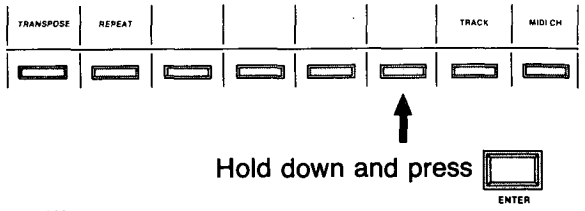
■ The message is sent for all 16 channels, one after the other.

8 Transmission of "Song position pointer."

■ First set the SQD-1 to the location (bar and beat) from which you wish to begin synchronized playback. Then send the song position pointer. The other MIDI sequencer (or rhythm machine, etc.) will then shift to the same bar and beat location.
Likewise, if playback has been stopped then the SQD-1 can receive a song position pointer from another unit. Here, the SQD-1 moves its location to match the bar and beat data received from the controlling MIDI unit.

■ The procedure for sending is described below.

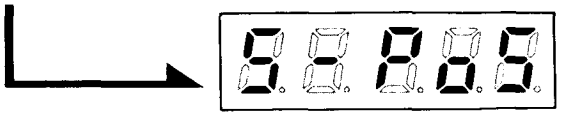
Find the location (bar and beat) from which you wish to begin synchronized playback. Then hold down the SONG POSITION POINTER key (3rd multi-function key from right) and at the same time press the ENTER key.



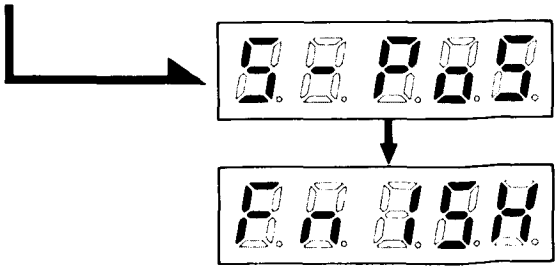
■ During this procedure, the display changes as shown here.

① Display shows position from which synchronized playback is to begin. Example shows bar 33, beat 1.

② When key is pressed, the display shows "S-PoS" meaning song position.



③ Press ENTER while depressing the SONG POSITION POINTER key then you get this indication.



"FnISH" means that transmission has been completed.

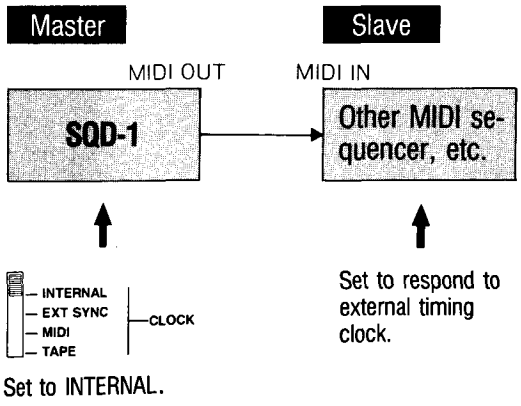
1. SYNCHRONIZATION WITH OTHER MIDI SEQUENCERS OR MIDI RHYTHM MACHINES

The SQD-1 can be synchronized with other MIDI equipment by means of "timing clock," start," "stop," "continue," and other MIDI messages.

1 Using the SQD-1 to control another MIDI sequencer.
(Using the SQD-1 as the master.)

■ Connect the SQD-1 MIDI OUT jack to the MIDI IN Jack of the other sequencer or rhythm machine.

Set the SQD-1 clock switch to INTERNAL. Set the other unit for synchronization with an external timing clock.



■ When you press the play key on the SQD-1, it sends a "start" message, causing the other MIDI unit to start at the same time. (Of course, the other MIDI unit must be in a "standby for start" mode for this to work. The actual procedure will depend on the unit being used.)

When you change the tempo on the SQD-1 then the tempo on the connected unit will change accordingly.

If you press the stop key on the SQD-1 or when playback stops automatically at the end of the song then a "stop" message is sent to the other unit so that it stops at the same time.

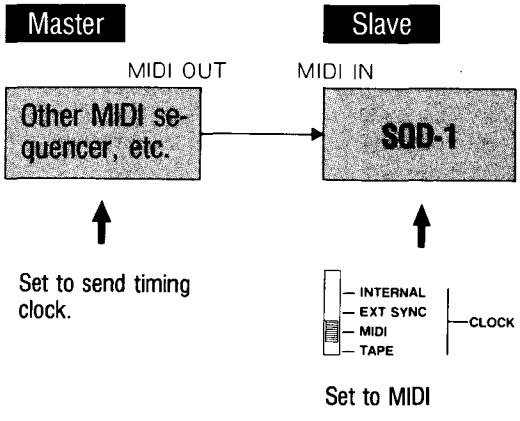
■ If play has been stopped in the middle of a song and you press the SQD-1's play key to resume play, then a "continue" message is sent to the other unit to make it resume play from the same point.

However, there is a chance that (because of processing errors) sync will not resume at exactly the same time. This kind of problem is prevented by sending a "song position pointer" from the SQD-1 to the other unit immediately afer interrupting play. Then when play is resumed on the SQD-1, the other unit will resume in complete sync. (See section on Transmission of "Song position pointer.")

2 Using another MIDI sequencer to control the SQD-1.
(Using the SQD-1 as the slave.)

■ Connect the SQD-1's MIDI IN jack to the MIDI OUT jack of the other sequencer or rhythm machine.

Set the SQD-1 clock switch to MIDI. Set the other unit so that it will send timing clock data.



■ When you press the SQD-1 play key, the SQD-1 will switch to a "standby for start" mode. The display will show "STArT."

"STArT" means standby for start.

Then when you start the other MIDI unit, the SQD-1 will start at the same time.

■ When you wish to resume play after stopping in the middle of a song, you can assure that both units will resume in sync if you send a "song position pointer" message from the controlling unit to the SQD-1 before sending the "continue start" message. (Refer to the other unit's manual for details.)

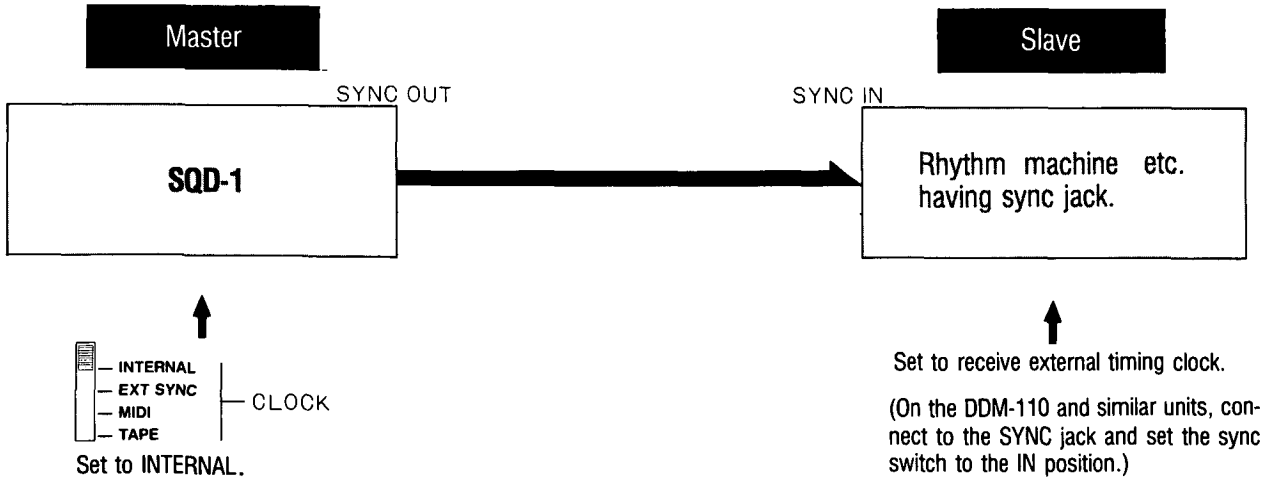
2. SYNCHRONIZATION WITH NON-MIDI RHYTHM MACHINES (OR OTHER UNITS) THAT HAVE SYNC JACKS

Sync with the DDM-110/220 or other unit having 48 clock pulses per beat (per quarter note).

1 Using the SQD-1 to control a rhythm machine or *other unit that is equipped with a sync jack.* (Using the SQD-1 as the master.)

■ Use a sync signal cable to connect the SQD-1's SYNC OUT jack to the other unit's SYNC IN jack (or the SYNC jack with the sync switch at the IN position). (A MIDI cable can not be used here for synchronization, unless it is a MIDI/SYNC cable.)

Next, set the SQD-1 clock switch to INTERNAL. Set the other unit to respond to an external timing clock.

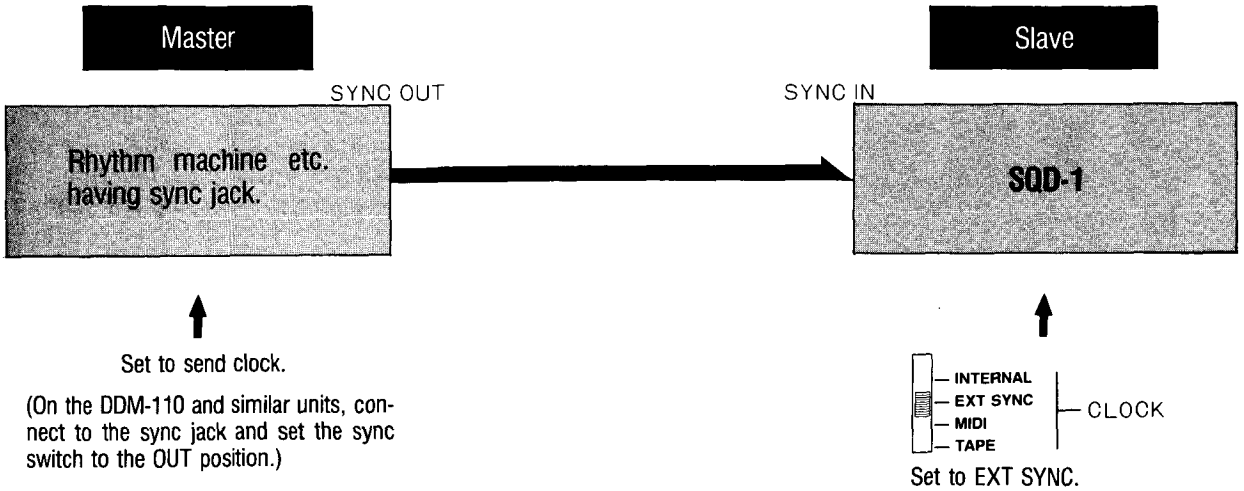


■ The connected rhythm machine's tempo and start-stop timing will be controlled from the SQD-1.

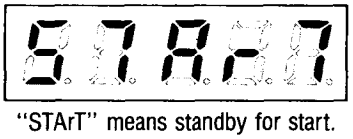
2 Using a rhythm machine or other unit with a sync jack to control the SQD-1. (Using the SQD-1 as the slave.)-for playback

■ Use a sync signal cable to connect the SQD-1's SYNC IN jack to the other unit's SYNC OUT jack. (A MIDI cable can not be used here for synchronization unless it is a MIDI/SYNC cable.)

Next, set the SQD-1 clock switch to EXT SYNC. Set the other unit to send a clock signal.



■ When you press the SQD-1 play key, the SQD-1 will switch to a "standby for start" mode. The display will show "STArT."



"STArT" means standby for start.

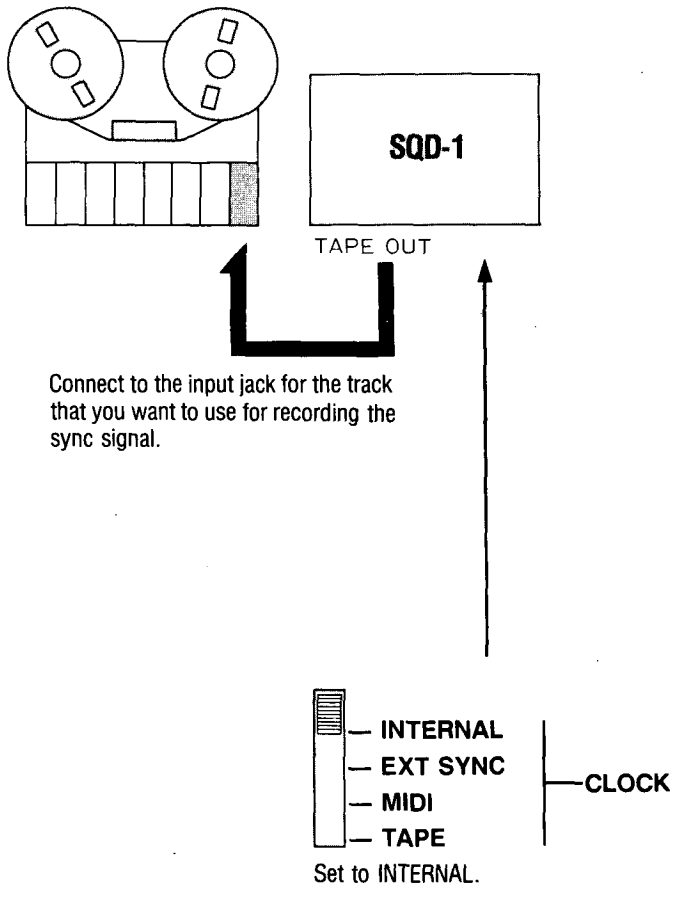
Now whenever you start the rhythm machine or other unit, the SQD-1 will start at the first beat of the first bar.

3. TAPE SYNC

This procedure is useful for multi-track recording. First you record the SQD-1's sync signal on the tape. Then you play back the tape, synchronizing the SQD-1 with the reproduced sync signal (while simultaneously recording a synth or other unit controlled by the SQD-1).

1 Recording the tape sync signal.

① Connect the SQD-1's TAPE OUT jack to one of the tape recorder's input jacks. Set the SQD-1 clock switch to INTERNAL. (Avoid using noise reduction if possible.)



② Set up the recorder so it is ready to begin recording (with "pause" on).
The SQD-1 will be transmitting a leader tone (high pitched "ee" sound) which you can use as a reference for setting the recorder's recording level. Recording level should be set fairly high, but not so high as to cause distortion. (Around 0dB on the recorder's meter should be okay.)

③ Start the SQD-1 and adjust the tempo (but don't start the recorder yet). (The tempo cannot be changed after it is recorded, so adjust it now before you start recording.)

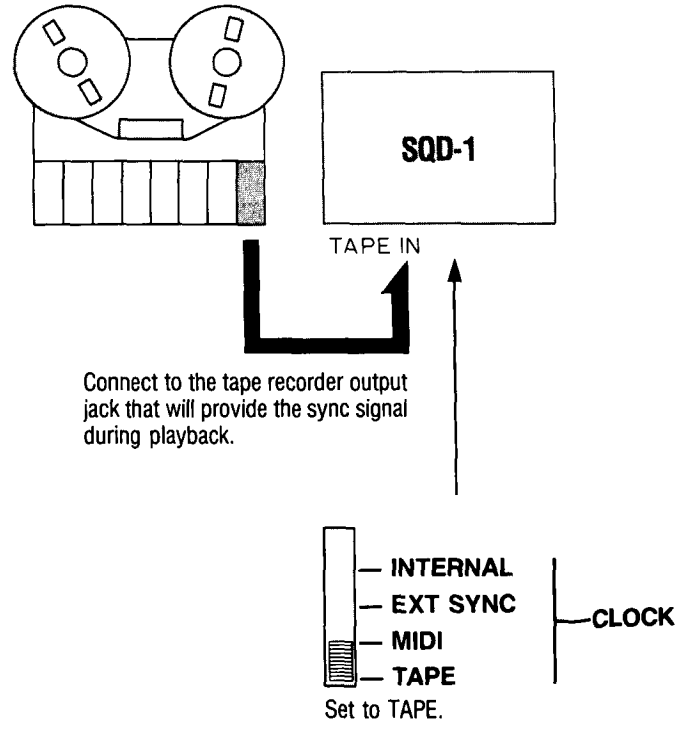
Note:
To assure playback synchronization reliability, do not set the SQD-1 tempo faster than 200.

④ Start the tape recorder, wait two or three seconds, then start the SQD-1. When you start the SQD-1, it will switch from leader tone to clock signal output (an "aaaa" sound).

⑤ Stop the SQD-1 after recording the clock signal for a sufficient length of time. (The SQD-1 will then switch back to leader tone output.) Continue recording for another two or three seconds, then stop the tape recorder.

2 Using tape sync (recorded clock signal) to control the SQD-1.

① Connect the SQD-1 TAPE IN jack to the tape recorder's appropriate output jack. Set the SQD-1 clock switch to TAPE.



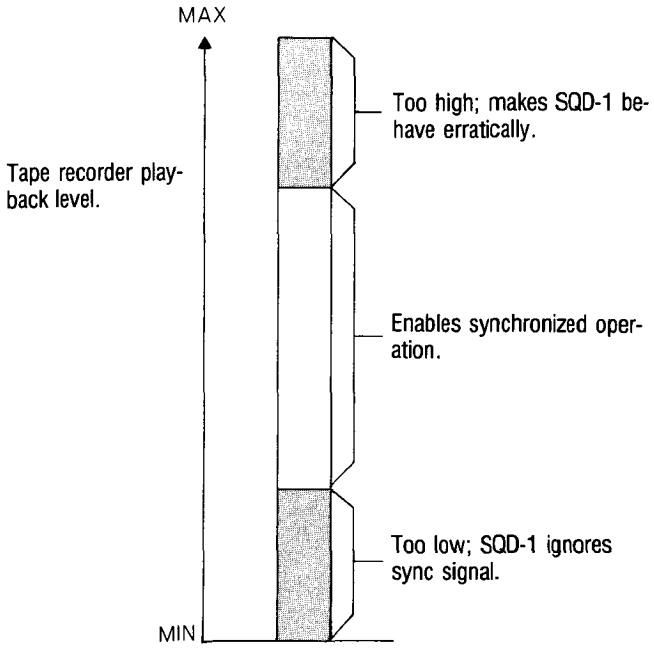
② Begin playback of the tape deck's sync track. As soon as you hear the leader tone, press the PLAY key (or REC key) on the SQD-1. The display will show "STArT" as the SQD-1 stands by to start.

Shows "STArT" for start.

When the clock signal ("aaa" sound) starts, the SQD-1 will start from the first beat of the first bar.

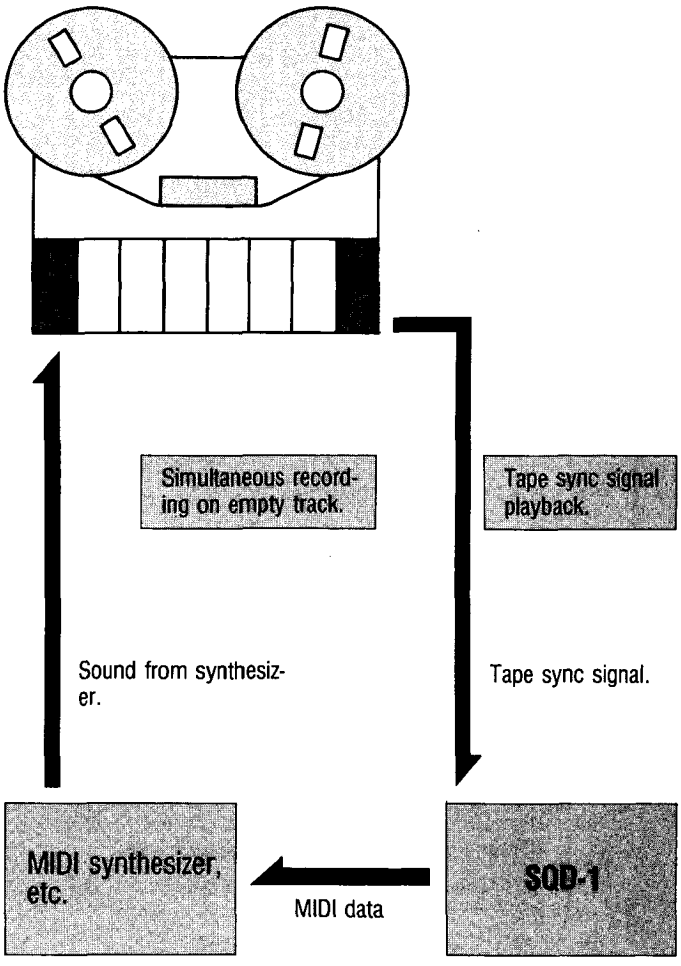
③ The SQD-1 will stop when the clock signal ends and the leader tone ("eee" sound) resumes.

*If the SQD-1 fails to start at the sync signal or if the tempo is unsteady, then the recording level was probably too low or too high when the sync signal was recorded. Try recording again.



If the tape recorder has tone controls, set them for flat response.

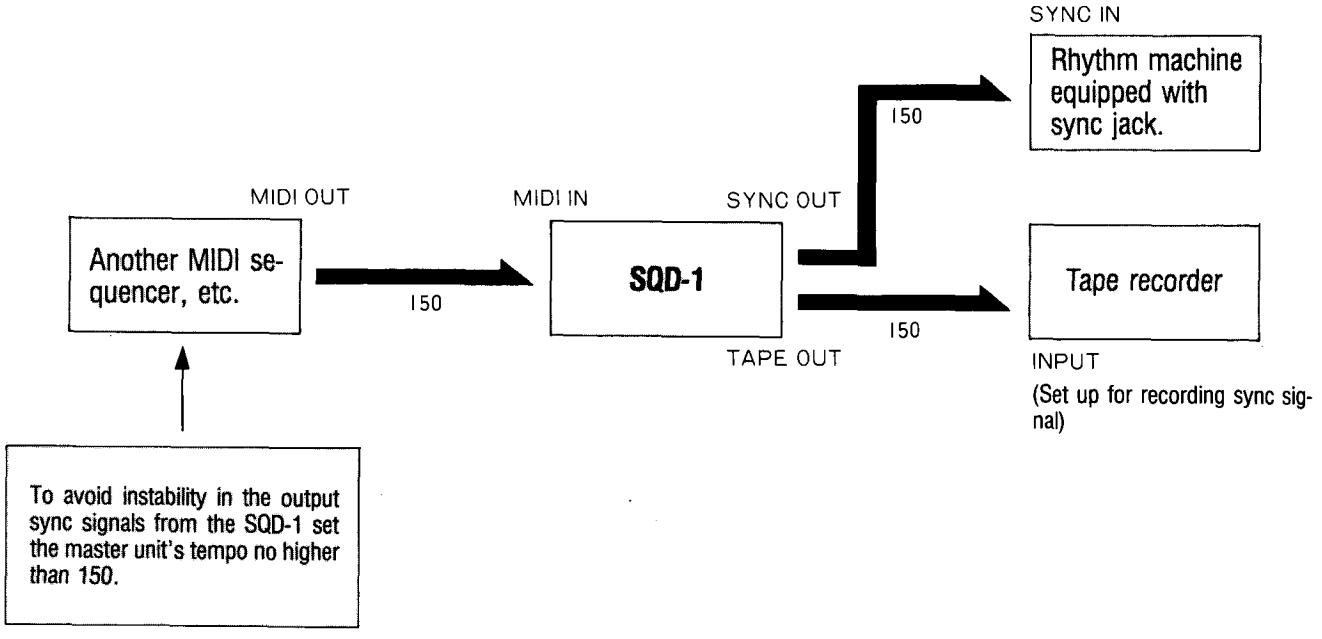
■ When you have a multi-track tape recorder controlling the SQD-1, then a synthesizer controlled by the SQD-1 can be recorded on empty tape tracks while maintaining perfect sync. The complete hook-up is shown here.



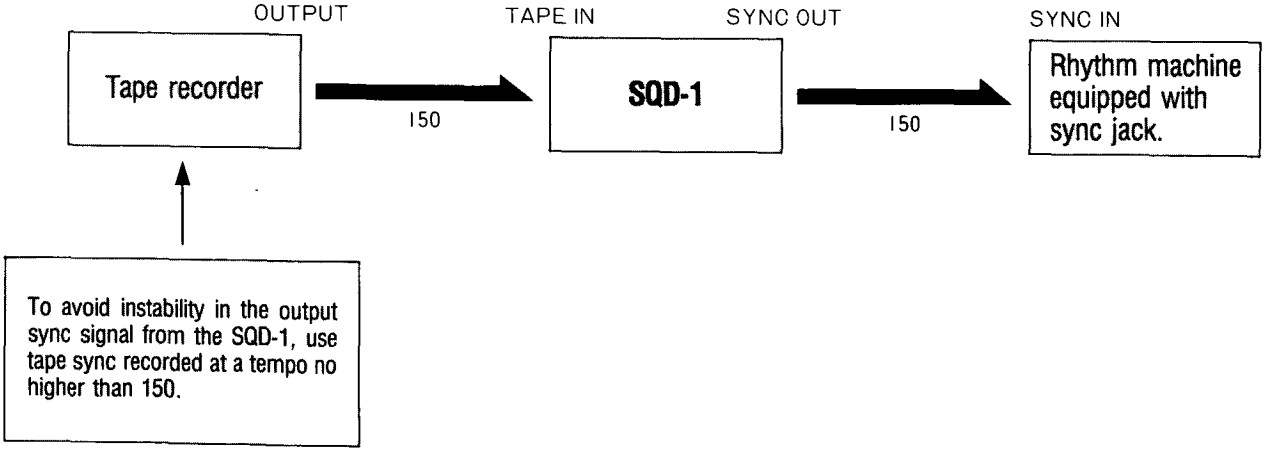
4. SYNC WITH MORE THAN ONE OTHER

■ When using the SQD-1 for sync conversion in a synchronized system which includes different kinds of clock signals. It is necessary to keep the tempo below about 150 to assure proper sync. Examples are shown here.

① Driving the SQD-1 with a MIDI timing clock



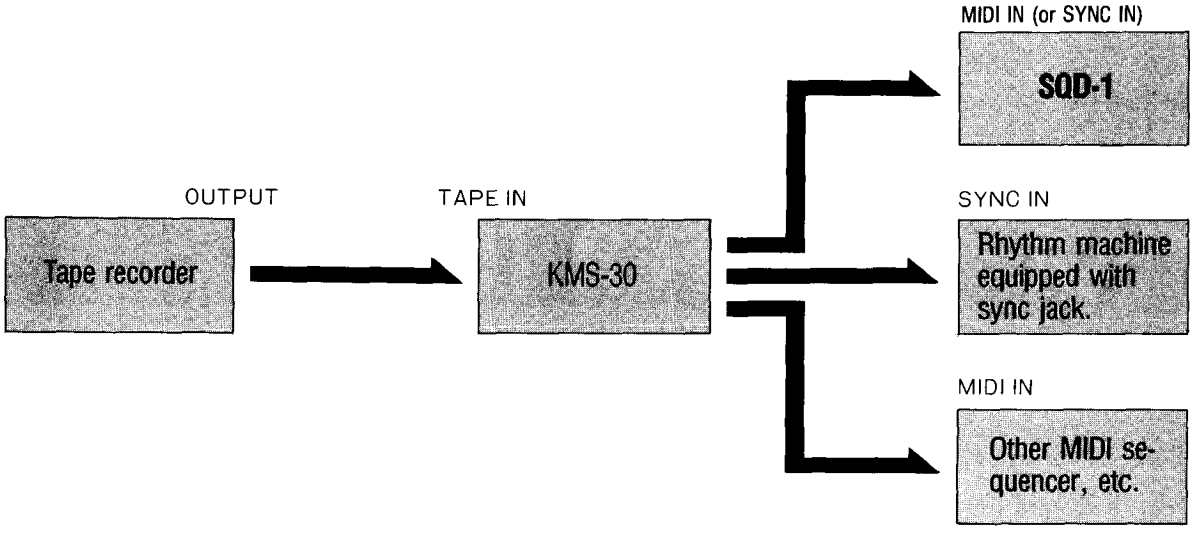
② Diving the SQD-1 with tape sync



UNIT. (TEMPO RESTRICTIONS)

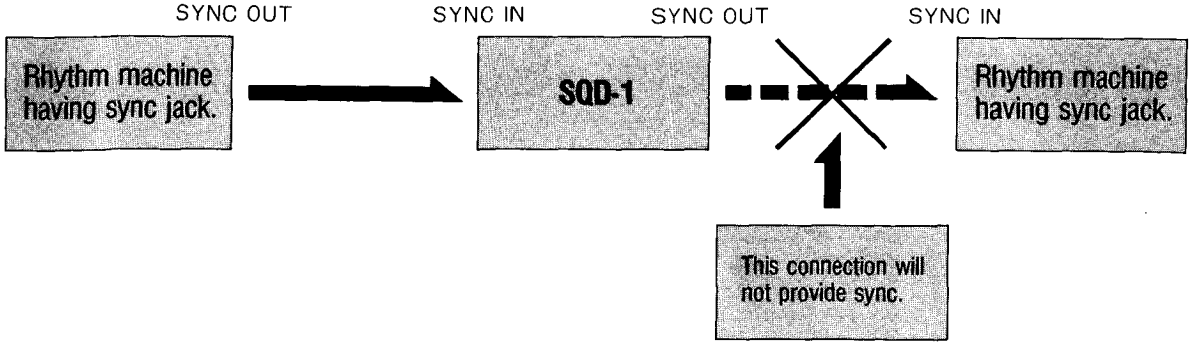
■ If you do need a tempo higher than 150 in a system that employs different kinds of sync, then use a special clock converter interface such as the Korg KMS-30 and drive the slave units in parallel as shown here.

Example: Using tape sync as the master clock for three slave units.



■ Note that you can not loop through the sync or tape jacks of the SQD-1. A signal applied to the SQD-1 SYNC IN jack will not be sent out the SQD-1 SYNC OUT jack. The same is true for the TAPE IN and TAPE OUT jacks.

Example: You can not sync two rhythm machines with the SQD-1 using this connection scheme.



DATA TRANSFER MODE

The data transfer mode is used for disk operations and for transfer of data to other equipment.

A. "QUICK DISK" DATA TRANSFERS

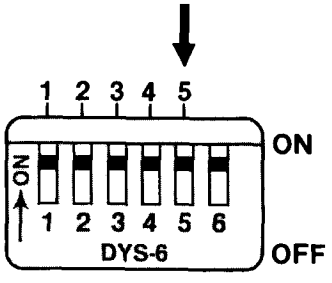
The data transfer mode is used to save (write) data to disks and to load (read) data from disks.

B. DATA TRANSFER TO MIDI

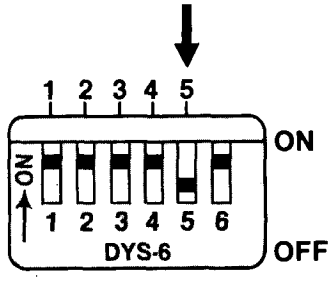
The data transfer mode is used for data transmission with another SQD-1 (or other specialized equipment such as a computer with a MIDI interface).

The setting of MIDI function switch number five (on the rear panel) determines which of the two kinds of data transfer will be performed.

Set switch 5 to ON (DISK) for disk operations.



Set switch 5 to OFF (MIDI) for data transmission with another SQD-1 or other specialized unit.



A. "QUICK DISK" DATA TRANSFERS

1. BEFORE USING QUICK DISKS

1 Precautions

■ Make sure that the SQD-1 is horizontally positioned on a stable support. Do not put anything on top of the SQD-1. Do not wrap anything around the SQD-1.

■ Do not open the disk holder or press down on the disk holder while the BUSY lamp is on. Doing so may cause data loss.

■ Do not operate the quick disk drive many times in rapid succession. Malfunction may result if the drive is operated repeatedly twenty or more times in a row.

2 About the disks

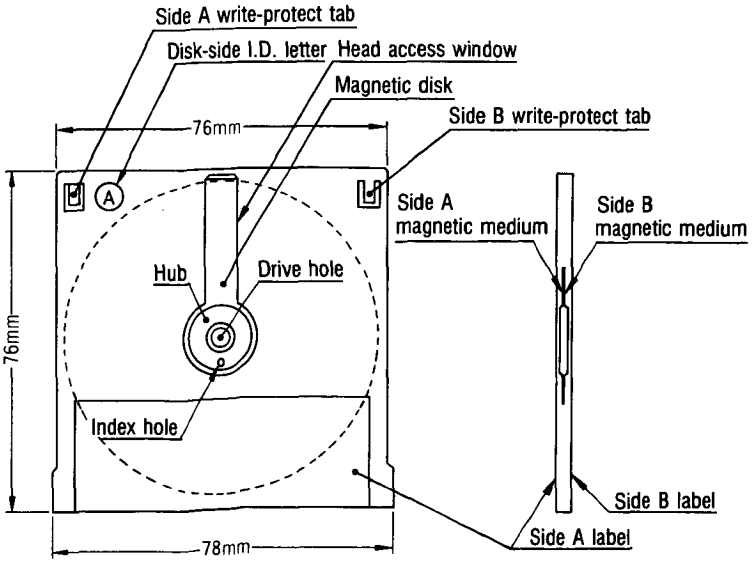
■ The SQD-1 uses 2.8-inch double sided quick disks for data storage.
The disk comprises a thin plastic sheet coated with magnetic material and permanently packaged in a tough, protective jacket, as shown in the diagram.

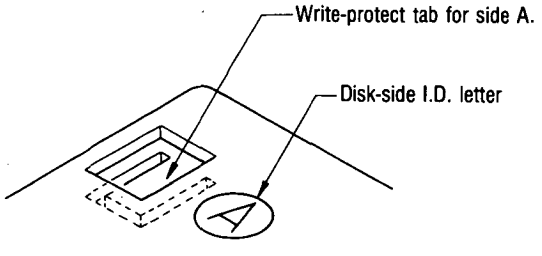
■ The following precautions must be observed when using disks.

① Never touch the exposed magnetic material (in the head access window). Doing so will cause read and write errors that will render the disk useless.
② Never bend or fold a disk.
③ Return disks to their envelopes after use and store them standing up verialy Quedgewise) in a disk storage box or case. Do not store disks stacked up one on top of the other or leaning at an angle without support. Do not leave disks in direct sunlight; they will warp.
④ Keep disks away from sources of magnetism such as speakers, headphones, guitar pickups, electric motors, ringing telephones, etc. Magnetic fields corrupt and erase magnetic disk data.

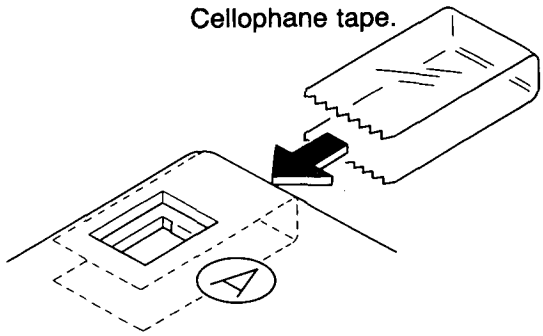
3 Write-protect tabs

■ Disks have tabs that can be removed to prevent accidentally overwriting or deleting recorded data. If a tab is broken off, then the disk drive will be able to read (load data from) that side of the disk but it will not be able to write (save new data).
Quick disks have separate write protect tabs for each side, A and B.
To protect a particular side, break off the tab to the left of the I.D. letter for that side.



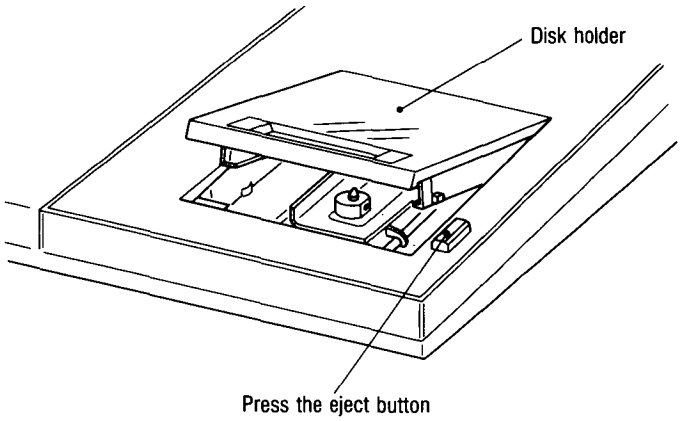


■ If you do want to write a disk that has had its write-protect tab removed, cover both sides of the hole with tape, as shown here.



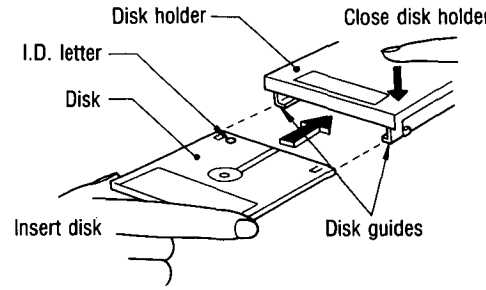
4 Inserting a disk into the compartment.

① Press the eject button so the disk holder opens.



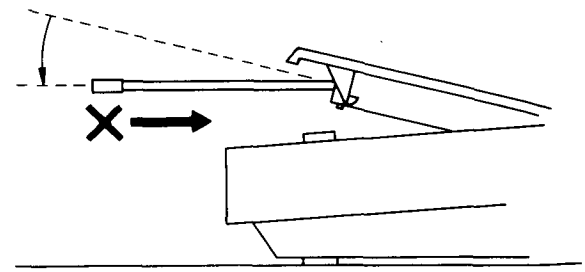
(A protective sheet is inserted when the unit is shipped from the factory. Remove this sheet before use.)

② Insert the disk with the I.D. letter of the desired side facing up.
Slip in the disk until it stops. It should slide in easily.
Close the disk holder.



(Hold the disk between thumb and forefinger; insert as shown.)

Caution:
Do not put the disk in under the disk guides or close the holder without the disk being fully inserted. Doing so will damage the disk.
Also, never insert the disk at an angle like that shown here. Damage will result.



2. SIX DISK OPERATIONS

There are six things that you can do with disks when in the data transfer mode.

1 Disk initialization

- Disks must be initialized once before they are used. This creates a basic pattern for storage of data.
- The initialization process also erases any data that was previously recorded on the disk. Be careful not to accidentally initialize disks on which you have stored irreplacable data.

2 Save

- When data is saved, it is copied from internal memory to the disk. A magnetic head "writes" (records) the data onto the disk.
- The data for up to five songs can be recorded on one side of a disk.
  When you save a song, you must give it a number from one to five as its "song name."
- Data from the main track and the sub-track is saved simultaneously.

3 Load

- When data is loaded, it is copied from the disk to the internal memory. A magnetic head "reads" the data that has been stored on the disk.
- You must specify the song name (number from 1 to 5) of the song data that you want to load.

4 Song List

- This operation gives you a list of the songs on the disk side currently accessed.
- The display shows the song number from the left, in the order that the songs were saved.

5 Song Delete

- This operation deletes the most recently saved song. (You can not specify particular songs by song name for erasure.)

6 Disk Backup

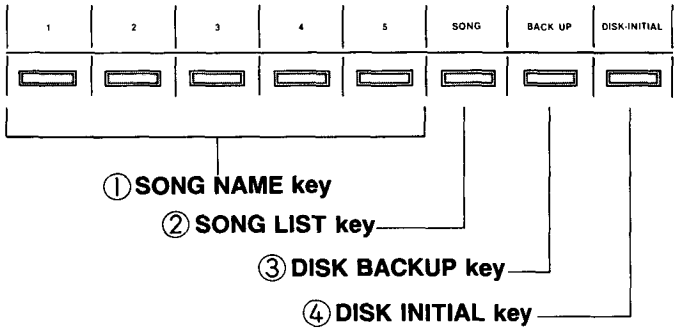
- This copies all data from one disk to another. This lets you create a backup copy which you can use if your original is damaged.
- Since the disk backup requires memory for temporary data storage, any data in internal memory is erased during this operation.

3. ACTUAL OPERATION

1 Selecting the data transfer mode

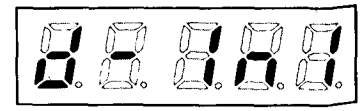
Press the DATA TRANSFER key. 

The multi-function keys then take on the following functions.

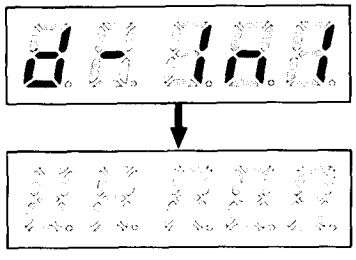


① **SONG NAME key**
Used to specify song name for save and load operations.
② **SONG LIST key**
Provides a list of saved songs.
③ **DISK BACKUP key**
For making backup copies of disks.
④ **DISK INITIAL key**
For initializing disks.

2 Disk Initialization

Procedure	Display & indicators
① Select the data transfer mode. Press DATA TRANSFER →	Display shows "TrAnS" 
② Initialize. Hold down the DISK INITIAL key and at the same time press the ENTER key. Hold down DISK-INITIAL and →	Display shows "d-InI" 

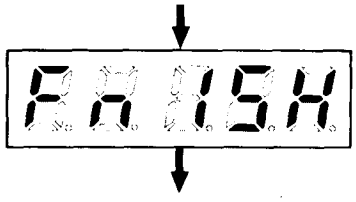
Press  ENTER



★When initialization begins, the display goes out and the BUSY lamp illuminates.

BUSY On

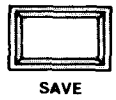
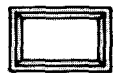
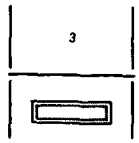
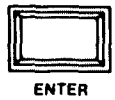
★When initialization ends, the display shows "FnISH"



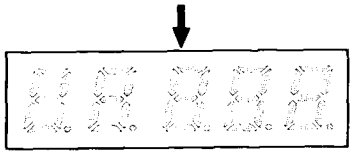
★The BUSY lamp goes out when disk access has ended.

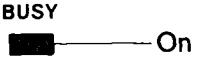
BUSY Off

3 Saving Data to Disk

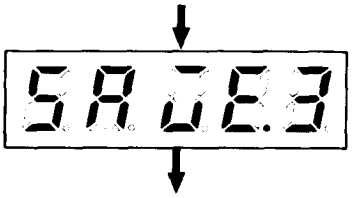
Procedure	Display & Indicators
①Select the data transfer mode. Press  →	Display shows "TrAnS" 
②Save. ● Press the SAVE key. Press  → If you want to cancel the save operation, press the CANCEL key.  ● Hold down one of the song name keys and at the same time press the ENTER key. Here we have given the name "3" to the song. Hold down  and ▬▬▬▬▬▬▬▬▶ Press  →	Display shows "SAvE."  Shows song name "3"  

★When saving begins, the display goes out and the BUSY lamp illuminates.



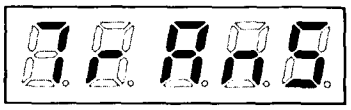
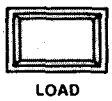
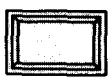
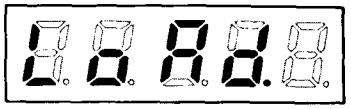
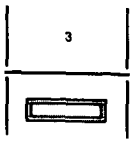
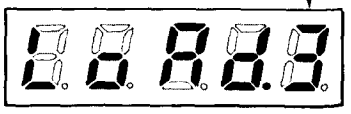


★When saving ends, the display shows "SAvE.3"

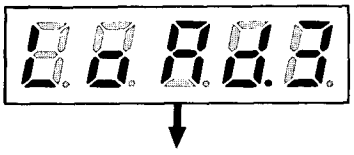


★The BUSY lamp goes out when disk access has ended.

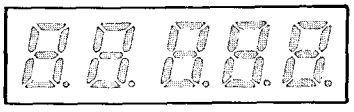
4 Loading Data from Disk

Procedure	Display & Indicators
① Select the data transfer mode. Press  →	Display shows "TrAnS" 
② Load ● Press the LOAD key. Press  → If you want to cancel the load operation, press the CANCEL key. 	Display shows "LoAd." 
● Hold down one of the song name keys and at the same time press the ENTER Key. Here we have selected the song named "3" for loading. Hold down  and ⇢	Shows song name "3" ↓ 

Press ENTER



★When loading begins, the display goes out and the BUSY lamp illuminates.



BUSY On

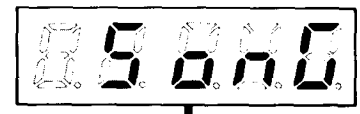
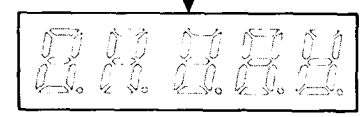
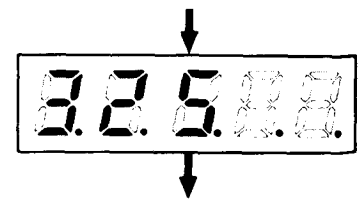
★When loading ends, the display shows "LoAd.3"

★The BUSY lamp goes out when disk access has ended.

BUSY Off

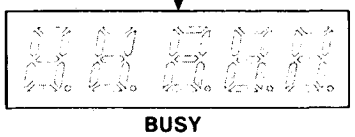
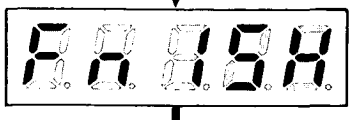
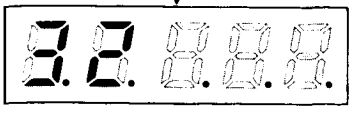
DATA TRANSFER MODE

5 Listing the Songs on a Disk

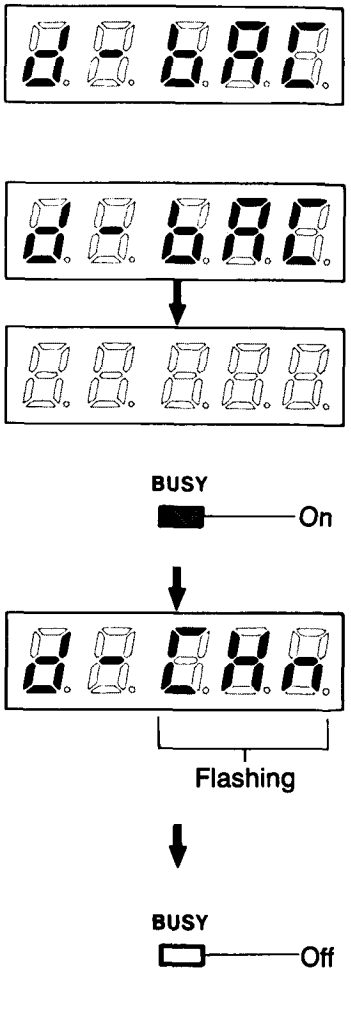
Procedure	Display & Indicators
①Select the data transfer mode. Press DATA TRANSFER	Display shows "TrAnS" 
②Press SONG and ENTER keys. ● Hold down the SONG key and at the same time press the ENTER key. Hold down SONG and Press ENTER	Display shows "SonG"   
★When disk access begins, the display goes out and the BUSY lamp illuminates.	BUSY On
★The display will then show the song name numbers in the order that they were saved, starting from the left. Here, songs named "2," "3," and "5," were saved in that order.	
★The BUSY lamp goes out when disk access has ended.	BUSY Off

6 Deleting a Song

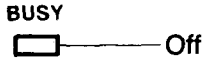
You can delete the most recently saved song on a side of a disk. To avoid accidentally erasing desired songs, check the order of songs on the song list before deleting.

Procedure	Display & Indicators
① Show the song list to check the order in which the songs were saved.	Example: Song named "2," "3," and "5," were saved in that order. 
② Delete ● Hold down the CANCEL key and at the same time press the ENTER key. Hold down [CANCEL] and Press [ENTER]	Shows "dELT." for delete.    BUSY On
★ When deleting begins, the display goes out and the BUSY lamp illuminates.	
★ After the song has been deleted the display will show "FnISH".	
★ The BUSY lamp goes out after disk access has ended.	BUSY Off
	The last saved song will be gone.
● If you check the song list after deletion...	

7 Making Backup Copies of Disks

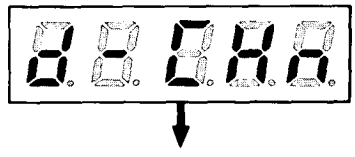
Procedure	Display & Indicators
① Select the data transfer mode. Press DATA TRANSFER →	Display shows "TrAnS"
② All data on the accessed disk side is copied into internal memory. Hold down BACK UP and → Press ENTER → ★As data starts to be copied to internal memory, the display goes out and the BUSY lamp illuminates. ★Once all the data from that side of the disk is in internal memory, the display flashes the message "d-CHn," meaning "disk change." → ★The BUSY lamp goes out after disk access is over. →	Display shows "d-bAC" for disk backup. 

③Make sure that the BUSY lamp is off. Then take out the original disk and put in the disk onto which you want the data copied. (It must have been initialized before hand.)

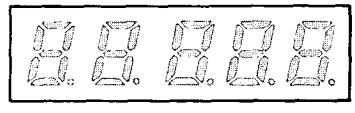


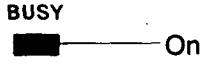
④Press the BACKUP key to transfer the data from internal memory to the new disk.

Press 

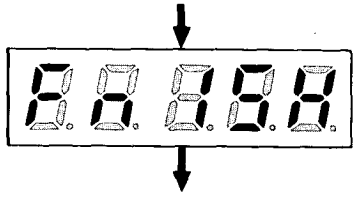


★As data starts to be transferred from internal memory, the display goes out and the BUSY lamp illuminates.

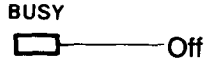




★After data transfer has been completed, the display shows "FnISH" (meaning finished).

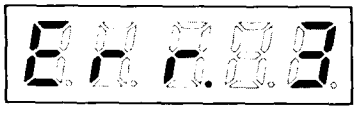


★The BUSY lamp goes out after disk access is over.



4. ERROR MESSAGES

■ Error messages will appear on the display when there are problems with disk operations. When you see an error message, press the CANCEL key and follow the directions listed below for that particular message.

Message	Meaning & Directions
	**Means:** The song selected for loading has not been saved to the disk. ↓ **Do:** Display the song list to check which songs have been saved.
	**Means:** The song name (number) specified for loading has already been used on the disk side being accessed. ↓ **Do:** Display the song list to see which song names (numbers) have been used.
	**Means:** Disk side has write-protect tabs removed. (Disk is read-only.) ↓ **Do:** If you do want to save to that disk side, then put tape over the hole left by the write protect tab for that side.
	**First Meaning:** Exceeded disk capacity for save operation. ↓ **Do:** Try again with a new disk. --- **Second meaning:** Attempted to load, save, or do other operation with non-initialized disk. ↓ **Do:** Use initialized disk.

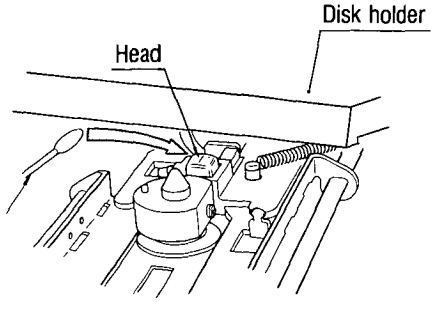
Err. 5	**First meaning:**	Disk read or write error during load, save, or other operation.
	⬇	
	Do:	Clean disk head. (See head cleaning instructions.)
	Second meaning:	When attempting to make a backup copy, this message can indicate that the amount of data saved on the disk exceeds internal memory capacity.
	⬇	
	Do:	① Load last song saved. ② Save loaded song onto a second disk. ③ Delete last song saved from original disk. ④ Try backup procedure again. (If you still get the error message, repeat from step①.) ⑤ Load song from second disk (if you want the backup to contain all the songs that the original did). ⑥ Save song to backup disk. ⑦ Save song to original disk.
Err. 6	**Means:**	No disk in the drive.
	⬇	
	Do:	Insert disk.

■ Head Cleaning

① Press the eject button to open the disk holder.

② Use a cotton swab moistened with tape head cleaning fluid to wipe the head surface.

Caution: Do not touch the head with anything other than a cotton swab suitable for head cleaning.

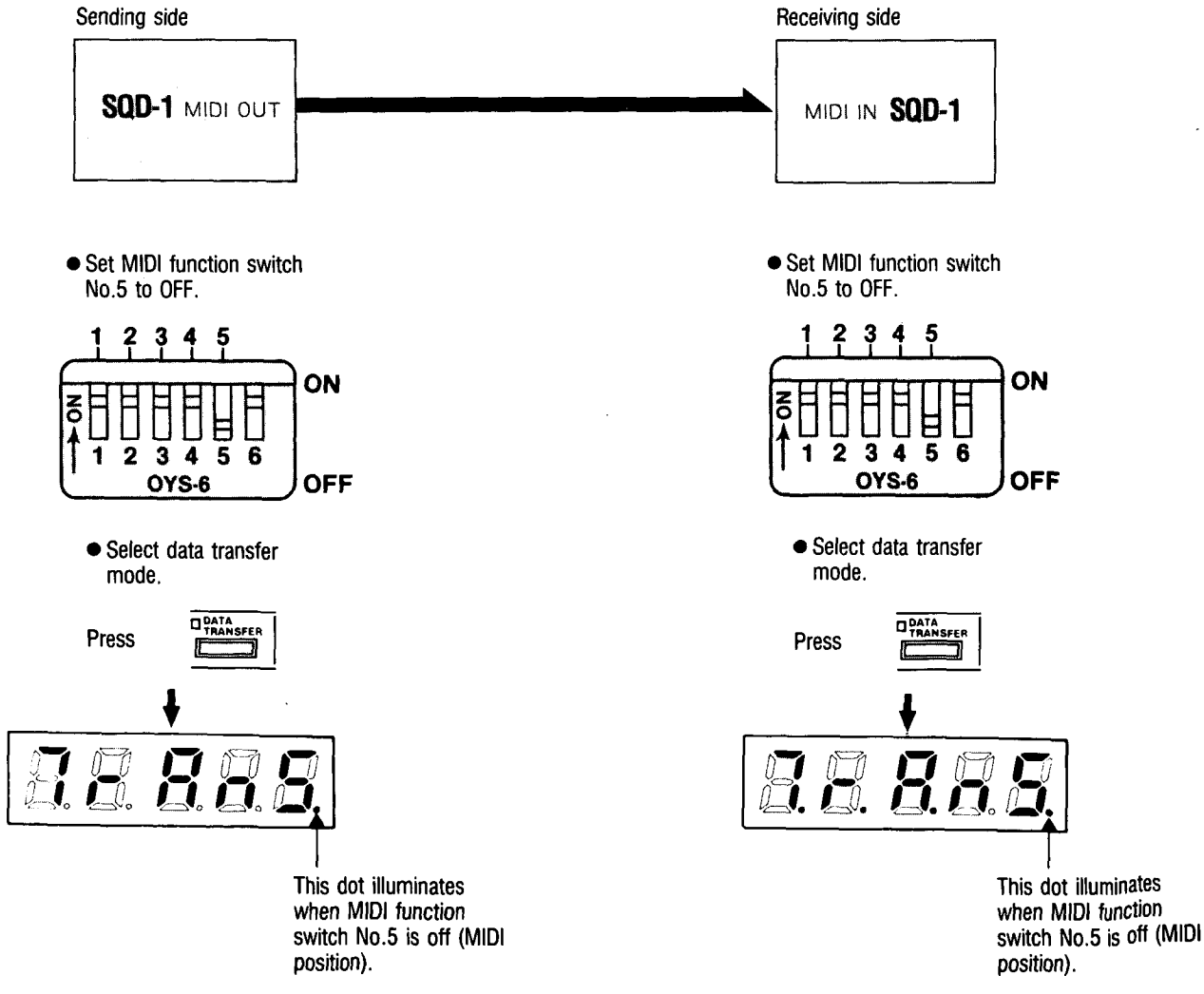


B. DATA TRANSFER TO MIDI

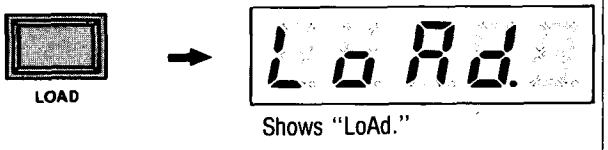
The data transfer mode is also used for data transmission with other MIDI sequencers or MIDI interface equipped computers. In this section we will assume that both units are SQD-1 MIDI recorders.
For computer communications, refer to the MIDI implementation notes.

1. SETUP

Connect one SQD-1 to the other as shown here. Set MIDI function switch number 5 to OFF (MIDI) on both units.



2. ACTUAL PROCEDURE

Sending Side	Receiving Side
	① Press the LOAD to enable reception of data.  LOAD Shows "LoAd." (If you want to cancel the operation, press the CANCEL key.)
② Press the SAVE key to initiate data transmission.  SAVE Shows "SAvE." ★If you want to cancel the operation, press the CANCEL key. The display will show "Err.8."	★If the sending side cancels, then the receiving side will show "FnISH." and will abort the reception mode. ★If you want to cancel data reception, press the CANCEL key. The display will then show "TrAnS."
★After data has been sent, the display shows "FnISH." 	★After data has been received, the display shows "FnISH." 

MIDI IMPLEMENTATION

1. RECOGNIZED RECEIVE DATA

1 CHANNEL MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION	
1 0 0 0 n n n n	0 k k k k k k k	0 v v v v v v v	Note Off	(NOTE1, 2)
1 0 0 1 n n n n	0 k k k k k k k	0 0 0 0 0 0 0 0	Note Off	(NOTE1)
1 0 0 1 n n n n	0 k k k k k k k	0 v v v v v v v	Note On	(NOTE1, 2)
1 0 1 0 n n n n	0 k k k k k k k	0 v v v v v v v	Polyphonic Key Pressure	(NOTE3, 6)
1 0 1 1 n n n n	0 c c c c c c c	0 v v v v v v v	Control Change	(NOTE4, 6)
1 1 0 0 n n n n	0 p p p p p p p	———	Program Change	(NOTE6)
1 1 0 1 n n n n	0 v v v v v v v	———	Channel Pressure	(NOTE3, 6)
1 1 1 0 n n n n	0 v v v v v v v	0 v v v v v v v	Pitch Bender	(NOTE5, 6)

★ Recorded with selected channel assignment regardless of nnnn value.

NOTES:
1. Recorded in the real time recording mode and step recording mode.
2. When KEY VELOCITY MIDI function switch is off then vvv vvvv = 64.
3. Recorded when AFTER TOUCH MIDI function switch is on.
4. When BENDER MIDI function switch is on, then ccc cccc = 0~121 control values are recorded. If off, then ccc cccc = 64 ~ 121 control values are recorded.
5. Recorded when BENDER MIDI function switch is on.
6. Recorded when resolution is set to HIGH in the real time recording mode.

2 SYSTEM MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION	
1 1 1 1 0 0 0 0	0 1 0 0 0 0 1 0	0 x x x x x x x	Exclusive Messages	(NOTE1)
1 1 1 1 0 1 1 1	———	———	EOX	(NOTE1)
1 1 1 1 0 0 1 0	0 ℓ ℓ ℓ ℓ ℓ ℓ ℓ	0 h h h h h h h	Song Position Pointer	(NOTE2)
1 1 1 1 1 0 0 0	———	———	Timing Clock	(NOTE3)
1 1 1 1 1 0 1 0	———	———	Start	(NOTE3)
1 1 1 1 1 0 1 1	———	———	Continue	(NOTE3)
1 1 1 1 1 1 0 0	———	———	Stop	(NOTE3)

NOTES:
1. Recognized when the DATA TRANSFER MIDI function switch (No.5) is set to the MIDI (off) position in the data transfer mode.
2. Recognized in the PLAY ONLY mode when nothing is being played.
3. Ignored when the clock switch is not set to MIDI.

3 SYSTEM EXCLUSIVE MESSAGES

①DATA DUMP REQUEST

BYTE	DESCRIPTION	
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS	
0 1 0 0 0 0 1 0	KORG ID	42H
0 0 1 1 0 0 0 0	FORMAT ID	30H
0 0 0 0 0 1 1 1	SQD-1 ID	07H
0 0 0 1 0 0 0 0	DATA DUMP REQUEST	10H
1 1 1 1 0 1 1 1	EOX	

②SEQUENCE DATA

BYTE	DESCRIPTION	
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS	
0 1 0 0 0 0 1 0	KORG ID	42H
0 0 1 1 0 0 0 0	FORMAT ID	30H
0 0 0 0 0 1 1 1	SQD-1 ID	07H
0 1 0 0 1 0 0 0	SEQUENCE DATA	48H
0 d d d d d d d	DATA	Data up to 64 bytes
⋮		
0 d d d d d d d	DATA	
1 1 1 1 0 1 1 1	EOX	

③DATA END BLOCK

BYTE	DESCRIPTION	
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS	
0 1 0 0 0 0 1 0	KORG ID	42H
0 0 1 1 0 0 0 0	FORMAT ID	30H
0 0 0 0 0 1 1 1	SQD-1 ID	07H
0 1 0 0 1 1 1 1	DATA END BLOCK	4FH
1 1 1 1 0 1 1 1	EOX	

④DATA DUMP ERROR

BYTE	DESCRIPTION	
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS	
0 1 0 0 0 0 1 0	KORG ID	42H
0 0 1 1 0 0 0 0	FORMAT ID	30H
0 0 0 0 0 1 1 1	SQD-1 ID	07H
0 0 1 0 0 0 0 0	DATA DUMP ERROR	20H
1 1 1 1 0 1 1 1	EOX	

⑤DEVICE ID REQUEST

BYTE	DESCRIPTION	
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS	
0 1 0 0 0 0 1 0	KORG ID	42H
0 1 0 0 0 0 0 0	FORMAT ID	40H
1 1 1 1 0 1 1 1	EOX	

2. TRANSMITTED DATA

1 CHANNEL MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION	
1000 nnnn	0kkk kkkk	0vvv vvvv	Note Off	(NOTE 1)
1001 nnnn	0kkk kkkk	0000 0000	Note Off	(NOTE 1)
1001 nnnn	0kkk kkkk	0vvv vvvv	Note On	(NOTE 1)
1010 nnnn	0kkk kkkk	0vvv vvvv	Polyphonic Key Pressure	(NOTE 1)
1011 nnnn	0ccc cccc	0vvv vvvv	Control Change	(NOTE 1, 2)
1100 nnnn	0ppp pppp	———	Program Change	(NOTE 1)
1101 nnnn	0vvv vvvv	———	Channel Pressure	(NOTE 1)
1110 nnnn	0vvv vvvv	0vvv vvvv	Pitch Bender	(NOTE 1)
1011 nnnn	0111 1100	0000 0000	Omni Mode Off	(NOTE3)

NOTES:
1. Sends recorded data.
2. Control number ccc cccc = 0~121.
3. Can be sent in the PLAY ONLY mode when nothing is being played. Sent for channels 1~16.

2 SYSTEM MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION	
1111 0000	0100 0010	0xxx xxxx	Exclusive Messages	(NOTE1)
1111 0111	———	———	EOX	(NOTE1)
1111 0010	0lll llll	0hhh hhhh	Song Position Pointer	(NOTE2)
1111 1000	———	———	Timing Clock	(NOTE3)
1111 1010	———	———	Start	(NOTE3)
1111 1011	———	———	Continue	(NOTE3)
1111 1100	———	———	Stop	(NOTE3)

NOTES:
1. Can be sent when the DATA TRANSFER MIDI function switch (No.5) is set to the MIDI (off) position in the data transfer mode.
   (See SYSTEM EXCLUSIVE MESSAGES)
2. Can be sent in the PLAY ONLY mode when nothing is being played.
3. Sent when the clock switch is at a position other than MIDI.

3 SYSTEM EXCLUSIVE MESSAGES

①SEQUENCE DATA

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 0 0 0 0	FORMAT ID 30H
0 0 0 0 0 1 1 1	SQD-1 ID 07H
0 1 0 0 1 0 0 0	SEQUENCE DATA 48H
0 d d d d d d d	DATA } Data up to 64 bytes
⋮	⋮
0 d d d d d d d	DATA }
1 1 1 1 0 1 1 1	EOX

②DATA END BLOCK

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 0 0 0 0	FORMAT ID 30H
0 0 0 0 0 1 0 0	SQD-1 ID 07H
0 1 0 0 1 1 1 1	DATA END BLOCK 4FH
1 1 1 1 0 1 1 1	EOX

③DEVICE ID

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	EXCLUSIVE STATUS
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 0 0 0 0	FORMAT ID 30H
0 0 0 0 0 1 1 1	SQD-1 07H
1 1 1 1 0 1 1 1	EOX

4 ALL RECEIVED MESSAGES

★ Sent when "MIDI OUT" function switch is set to MIX position.

3. USING SYSTEM EXCLUSIVE MESSAGES

■ The SQD-1 can send and receive the following types of information via system exclusive messages.

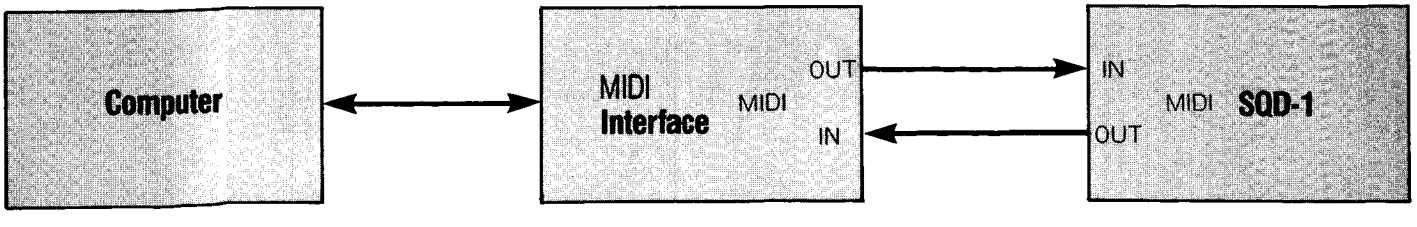
Sending

SEQUENCE DATA	: Refers to the data stored in internal memory. This is sent as a series of 64-byte blocks, the number of which depends on the amount of data recorded in internal memory. This data is sent when the sending unit's PLAY key is pressed or when a DATA DUMP REQUEST is received.
DATA END BLOCK	: Marks the end of SEQUENCE DATA transmission. This is send after the last SEQUENCE DATA block is sent or when the CANCEL key is pressed.
DEVICE ID	: Identifies equipment. Sent when a DEVICE ID REQUEST is received.

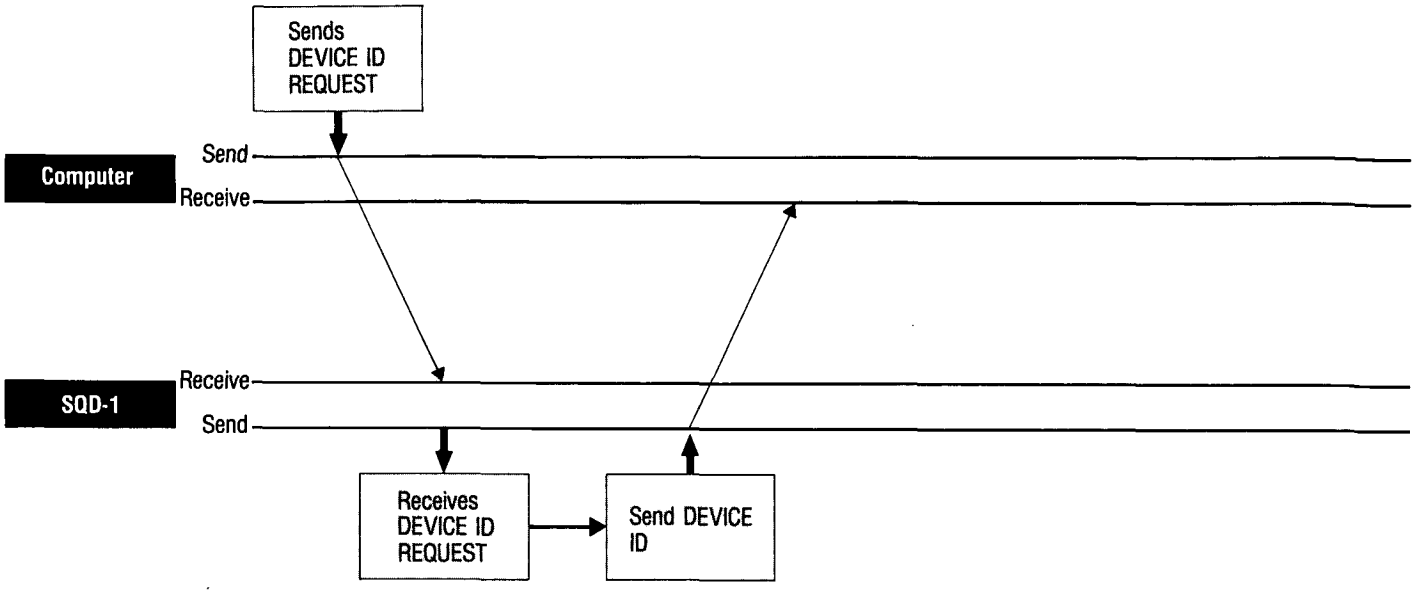
Receiving

DATA DUMP REQUEST	: A request to send SEQUENCE DATA. SEQUENCE DATA starts to be send when a DATA DUMP REQUEST is received.
SEQUENCE DATA	: Internal memory data.
DATA END BLOCK	: Marks the end of SEQUENCE DATA transmission. Reception is terminated when this is received.
DATA DUMP ERROR	: Indicates that something has gone wrong on the receiving side during transmission of SEQUENCE DATA from the SQD-1. If a DATA DUMP ERROR message is received then "Err.8" will be displayed upon completion of data transmission.
DEVICE ID REQUEST	: A request to send the DEVICE ID. The DEVICE ID is sent when a DEVICE ID REQUEST is received.

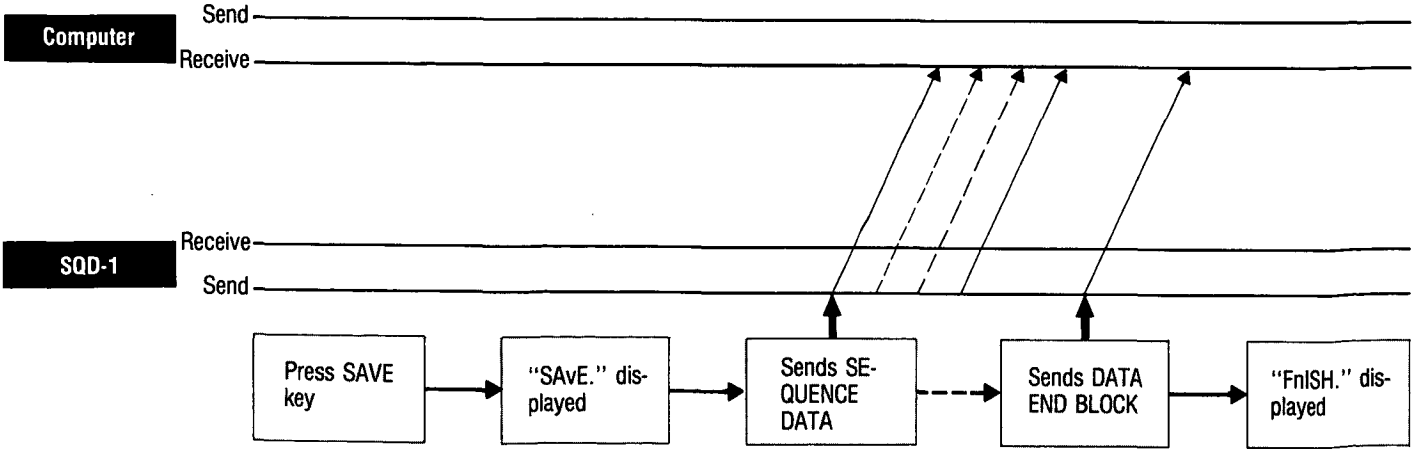
■ These messages can be used for data transmission between the SQD-1 and a computer equipped with a MIDI interface and software that handles these system exclusive messages. Setup and examples are shown below:



①To find out what equipment is connected to the computer.

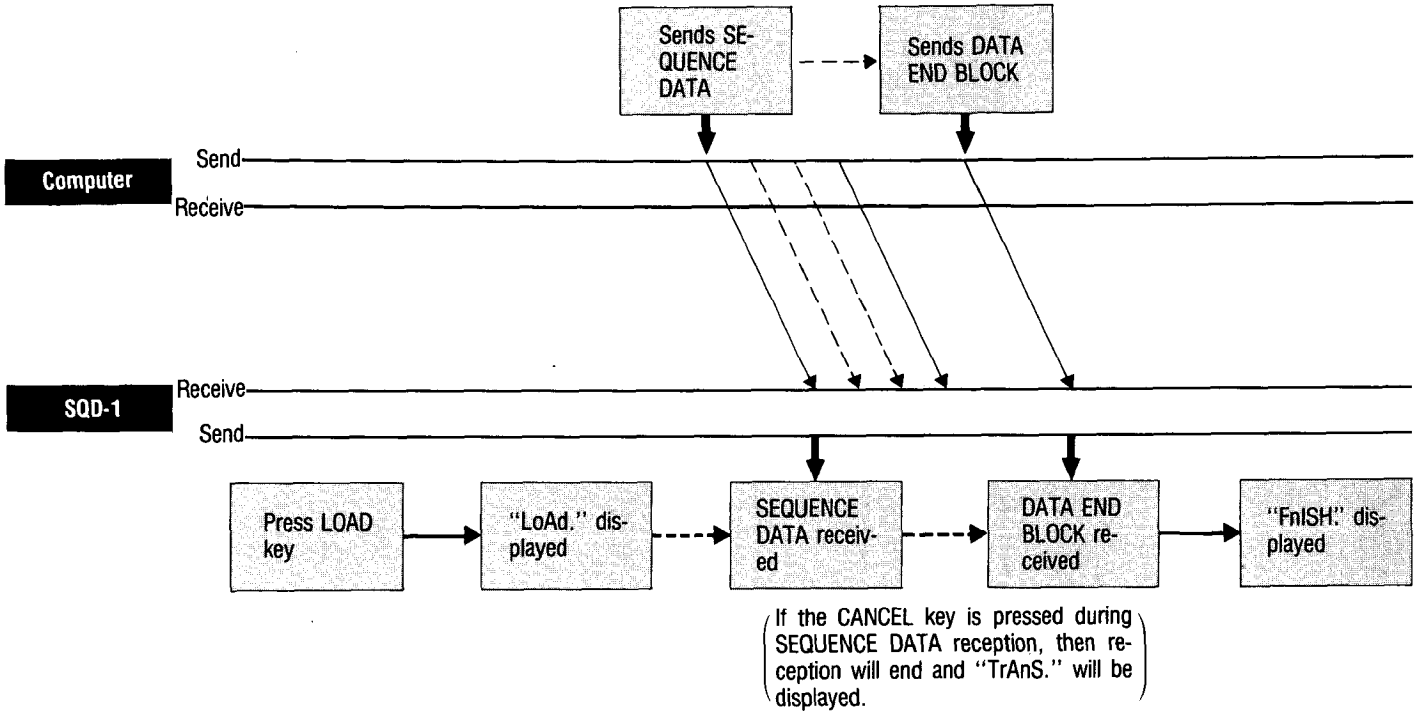


② To send data from the SQD-1 to the computer.

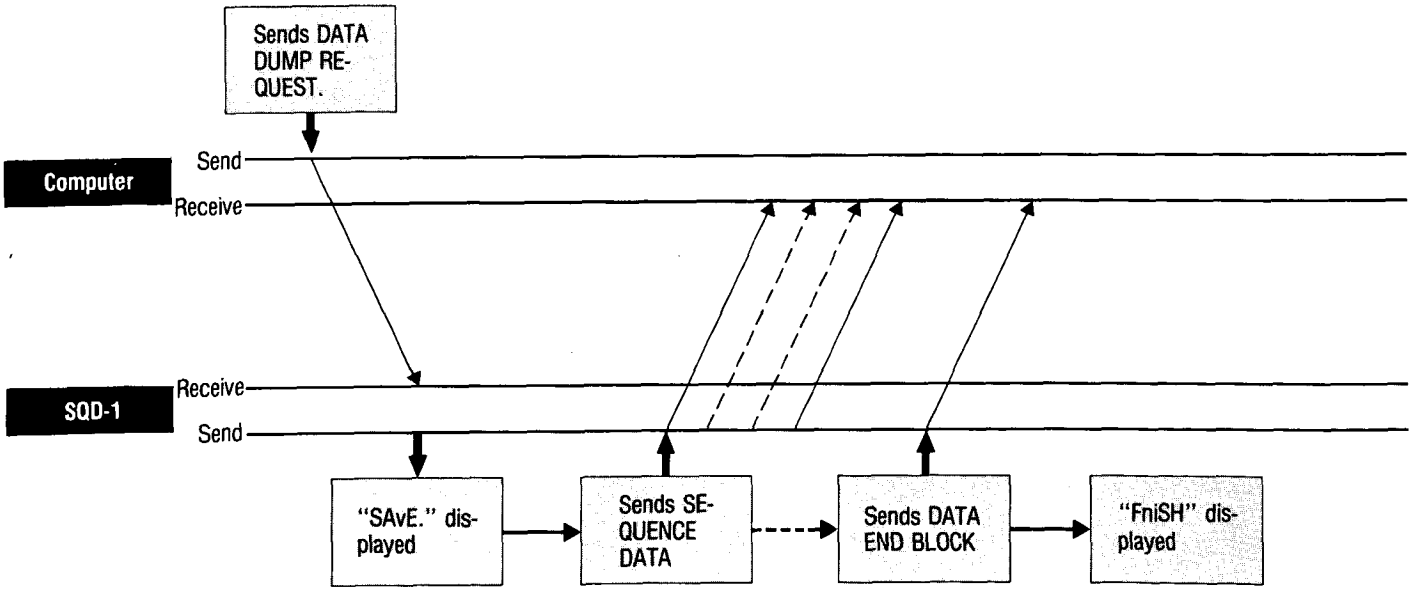


If the CANCEL key is pressed during SEQUENCE DATA transmission, then a DATA END BLOCK is sent and "Err.8" is displayed.

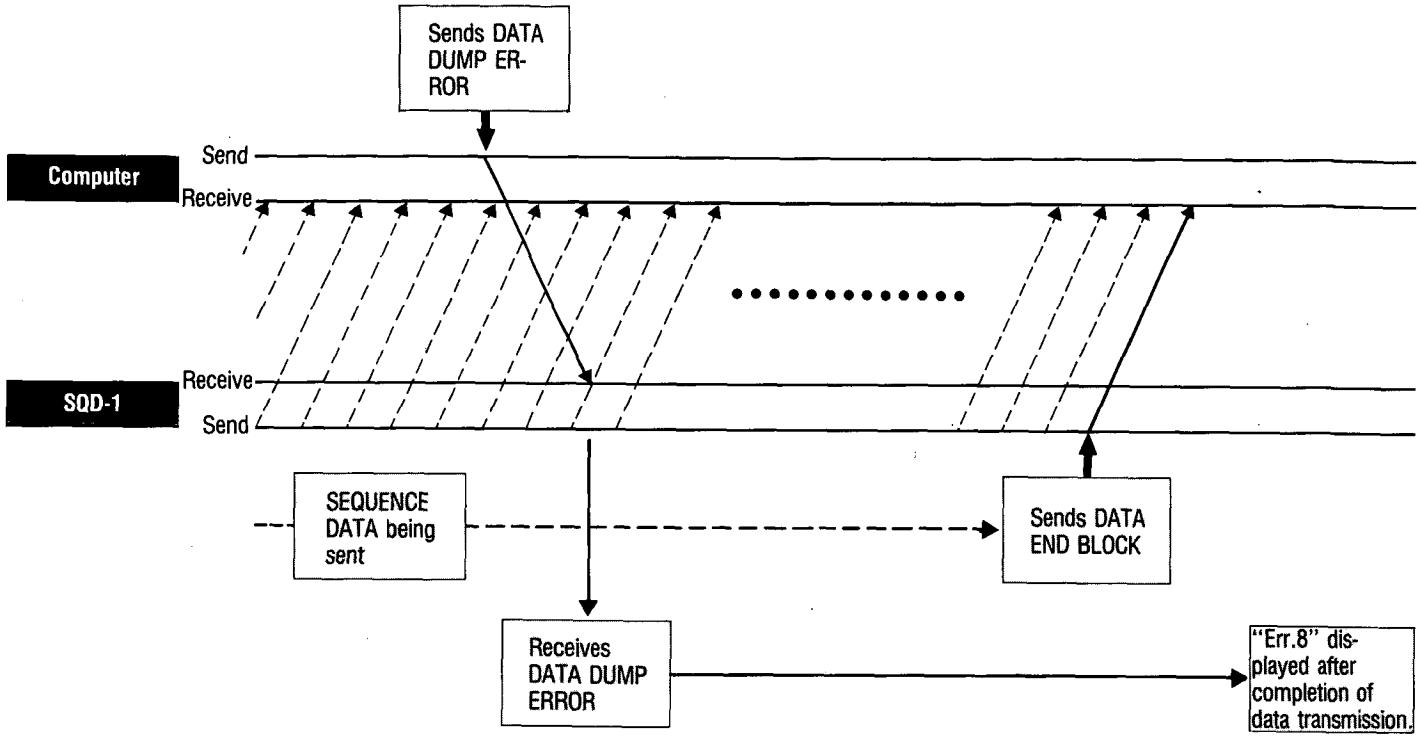
③ To send data from the computer to the SQD-1.



④ Using the Computer to make the SQD-1 send its data.



⑤ If a DATA DUMP ERROR is received during data transmission.



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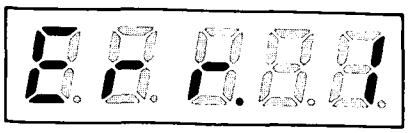
SPECIFICATIONS AND OPTIONS

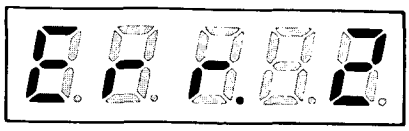
1 **MEMORY CAPACITY**	: About 15,000 notes (about 7,500 notes when velocity is recorded).
2 **QUICK DISK STORAGE CAPACITY**	: 30,000 notes or more (using both sides).
3 **RECORDING TRACKS**	: 2-Track system (Main track has multi-channel recording capability).
4 **RECORDING METHODS**	: Real time, Step.
5 **CONTROL PANEL**	: 5-column LED display; Track indicator (MAIN, SUB); Beats/measure indicator (2 ~ 5: 2/4 ~ 8/4); Resolution indicator (♪, $\overset{3}{♪}$, ♪, $\overset{6}{♪}$, ♪, HIGH); Repeat indicator (ON, OFF); Transpose indicator (ON, OFF); Tempo control (♩ = 35 ~ 230, adjustable); Tempo indicator; Display selector (Location, Available notes, Tempo); Clock selector (Internal, External sync, MIDI, Tape); Metronome switch (High, Low, Off); Mode selector keys (Play only, Real time recording, Step recording, Edit, Data transfer); Record/load key; Stop/cancel key; Play/save key; Reset/enter key; Rewind/down key; Fast-forward/up key; Multi-function keys × 8; Recording indicator; Play indicator; Mode indicator; Quick Disk Busy indicator; Quick Disk eject button.
6 **REAT PANEL**	: MIDI Function switches (DIP switches for 1. MIDI out: Mix/internal; 2. Key velocity: On/off; 3. Pitch bend control change: On/off; 4. After-touch: On/off; 5. Data transfer: Disk/MIDI). Connectors for MIDI IN; MIDI OUT/MIX × 2; DIN SYNC IN; DIN SYNC OUT; TAPE SYNC IN; TAPE SYNC OUT; CLICK OUT; PLAY/STOP; REC.
7 **DIMENSIONS**	: 403(W) × 74(H) × 260(D) mm.
8 **WEIGHT**	: 3.6 kg.
9 **POWER CONSUMPTION**	: 20W.
10 **SUPPLIED ACCESSORIES**	: Sync/midi cables × 2; Quick Disks × 5.
11 **OPTIONAL ACCESSORIES**	: PS-1 Pedal switch; S-2 Dual foot switch; QD-10 Quick Disk 10-pack; MIDI cables (7m, 10m, 12m); SYNC/MIDI cables (1.5m, 3m, 5m); Mini plug cord; Mini connection plug; HC-1 Hard case.

★Specifications subject to change without notice.

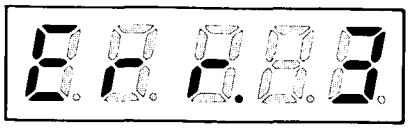
ERROR MESSAGE CHART



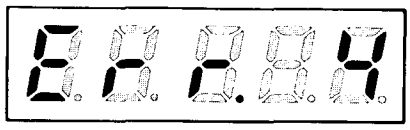
- The song selected for loading has not been saved to the disk.
  See Error Message section. (P. 112)



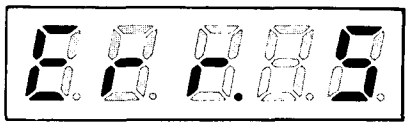
- The song name (number) specified for loading has already been used on the disk side being accesed.
  See Error Message section. (P. 112)



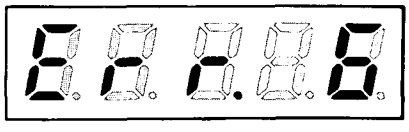
- Disk side has write-protect tabs removed. (Disk is read-only.)
  See Error Message section. (P. 112)



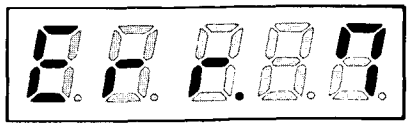
- Exceeded disk capacity for save operation.
- Attempted to load, save, or do other operation with non-initialized disk.
  See Error Message section. (P. 112)



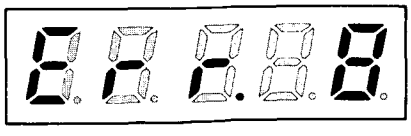
- Disk read or write error during load, save, or other operation.
- When attempting to make a backup copy, this message can indicate that the amount of data saved on the disk exceeds internal memory capacity.
  See Error Message section. (P. 113)



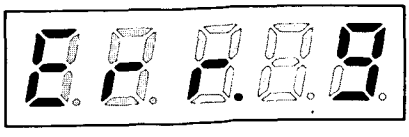
- No disk in the drive.
  See Error Message section. (P.113)



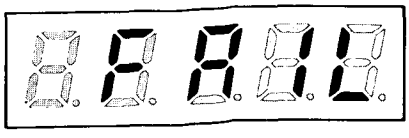
- Not enough available notes for recording on sub-track, for copy, for insert, or for bounce.
  See section on available notes and recording and bounce operations. (P.62)
  See section on available notes and copy and insert operations.(P.85)



- Error during operation using MIDI exclusive messages.
  See section on data transfer to MIDI. (P.115)



- 17 notes or more are on at once.
  See section on number of notes that can be sounded simultaneously. (P.62)



- Problem detected in memory test performed immediately after power is turned on.

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