Changing a sequence from the terminal

MR-05-0987

Music notation display

The music notation display allows you to edit a sequence in standard music notation.

Warning: The **music notation display** should not be used while performing any critical timing functions. These include transfer of sequences to tape, transfer to and from MIDI sequencers, and SMPTE applications. Timing errors may result.

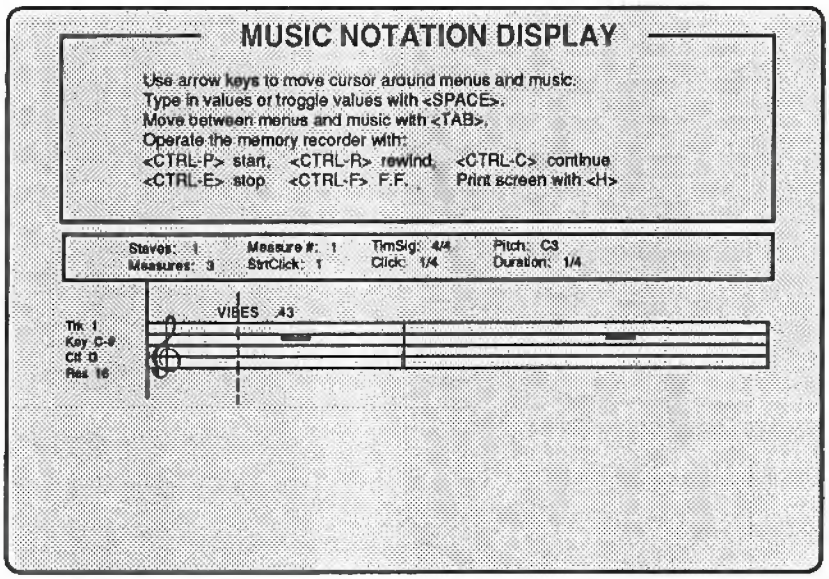
Viewing the music notation display

After setting a number of menu parameters to tell the computer how to display the sequence accurately, use commands shown on the screen to enter music and edit it much as you would on paper. These commands allow you to justify notes which have been recorded slightly out of time, move notes, change their duration and pitch or erase and add new notes.

The **music notation display** screen, activated from the **main menu**, is divided into three areas:

- instruction area at the top;
- menu area in the center and down the lower left margin;
- notation area at the bottom with up to eight staves.

Music notation display



Music notation display (con't)

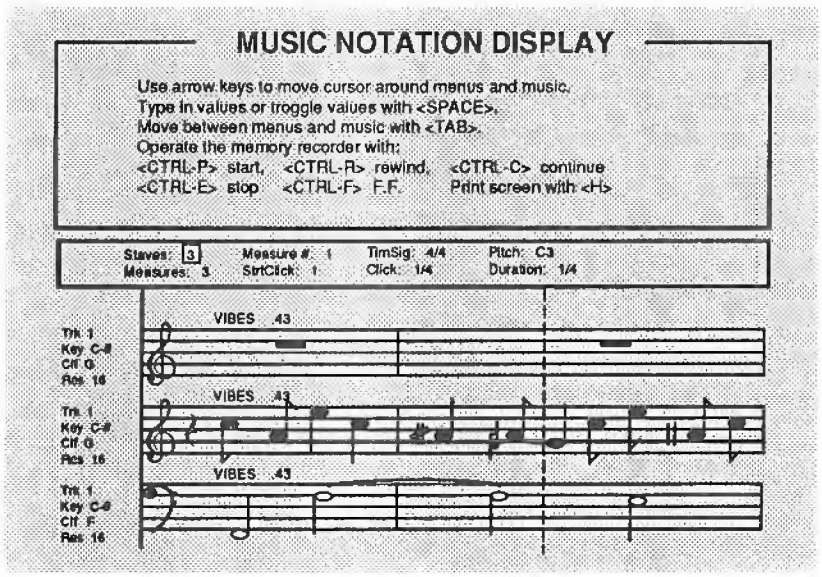
Changes in the music notation display

Both the cursor and the instruction area of the **music notation display** change depending on whether you are setting menu parameters or editing notation. Move from one area to the other by pressing <tab>.

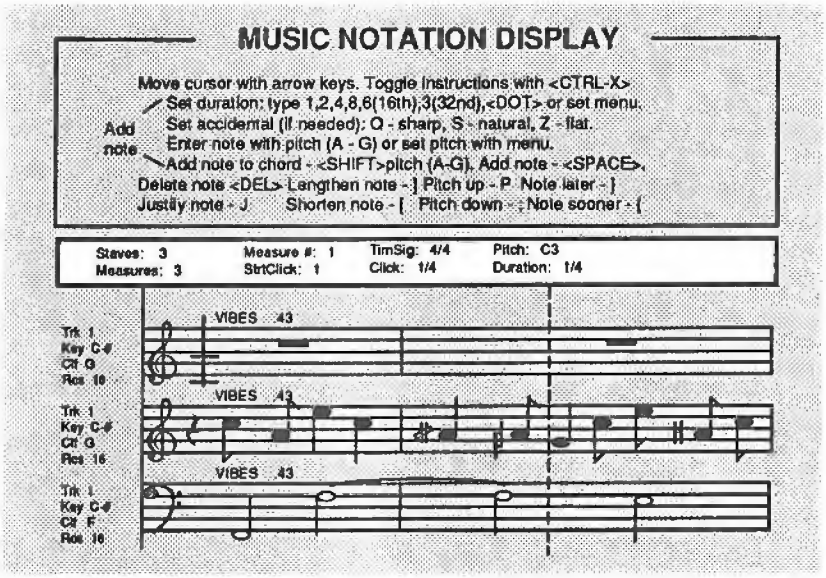
- When the cursor is in the menu area, it is a rectangle enclosing one of the parameter values. The instruction area then gives general directions for moving around the screen, setting menu values and operating the memory recorder.

- When the cursor is in the notation area, it is a vertical line with two shorter horizontal lines marking the location for editing. The instruction area then gives specific instructions for editing the notation.

If more than three staves appear in the notation area, the instruction area disappears altogether. You can also make it disappear by pressing <ctrl-x>. In either case, you can return the instruction area to the screen by press-



Music notation display with general instructions and menu cursor (after "Staves:")



Music notation display with editing instructions and edit cursor (at the beginning of the first staff)

Setting the display parameters

When your sequence is first displayed, the accuracy of the notation depends on how closely the default menu settings match the sequence.

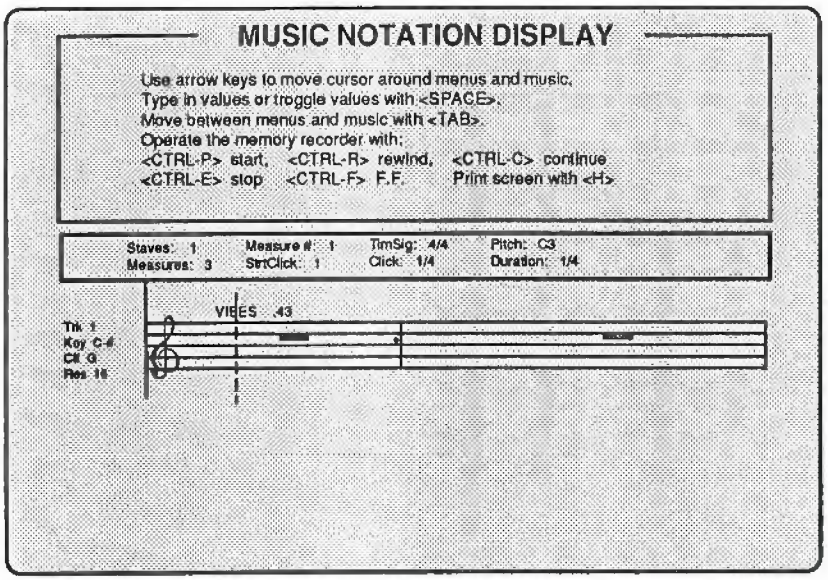
In order to display notation correctly, different sequences require different display parameters. Change the default settings by using the arrow keys to move the menu cursor from item to item for entering new values.

Values within the cursor rectangle are changed by stepping through default values with the **<spacebar>** or by entering them directly. Certain menu items do not respond to the **<spacebar>.**

Move the cursor or press **<return>** to enter the change.

Once you have set all relevant menu items, your sequence appears in the notation area correctly displayed.

Music notation display



Music notation display (con't)

The upper menu area

You use the upper menu area to set overall parameters and current note values.

Staves	Sets the number of staves to be displayed in the notation area. Up to three can be shown with the instruction area in view; four to eight can be shown in normal size without the instruction area or compressed with the instruction area.
Meas	Sets the number of measures shown on each staff. The more measures displayed per staff, the more densely packed the notes.
Meas #	Reflects the measure where the notation cursor is currently located. You can type in a measure number to move to any measure in the sequence. Whenever the notation cursor moves, the value automatically changes.
StrtClick	Reflects the exact click or beat where the notation cursor is currently located.
TimeSig	Sets the time signature for the display.
Click	Defines the click period as a standard notation value, such as 1/2 for a half note or 3/8 for dotted eighth note.
Pitch	Defines the pitch of the last note entered by letter and range (C3 = middle C).
Duration	Defines the duration of the last note entered as a standard notation value, such as 1/2 for a half note or 3/8 for a dotted eighth note.

Entering a note from the menu area

You can use the pitch and duration items on the upper menu to enter a note into the notation area.

1. Enter the pitch name using both a letter and a range number. If you enter a letter only, the range 3 of the keyboard (middle C to B above middle C) is selected by default.

2. Enter the duration using fractions to designate a standard duration value.

3. Press **<tab>** to move the cursor into the notation area.

   If you have not edited previously, the notation cursor appears in the first measure displayed. If you have done previous editing, the notation cursor appears at the location where the last editing was done.

4. Use the arrow keys to move the notation cursor to the desired location for the new note.

5. Press the **<space bar>** to place the note in the display and in the sequence in the memory recorder.

The left menu area

Use the left menu area to set parameters for the staff immediately to the right of the selected parameter.

Trk — Selects the track to be displayed. The name of the track timbre appears automatically.

Key — Selects the key signature and accidental format for the track displayed. Major key signatures are entered by typing in the name or by pressing the **<spacebar>** repeatedly to step through the cycle of fifths. Minor keys are designated by their relative majors.

The accidental format is changed by moving the cursor to that item and pressing the **<spacebar>** to toggle between sharps (#) and flats (F).

Clf — Selects the clef for the track displayed. Type in the appropriate letter or use the **<spacebar>** to step through the available clefs.

- G treble
- A alto
- T tenor
- F bass
- P percussion, full staff
- S percussion, single line
- H high treble with octave marking

Res — Sets the resolution of the display. Any value up to 255 may be typed in, or you can press the **<spacebar>** repeatedly to step through the most common values (1, 2, 4, 8, 16, 32).

Setting the resolution

The resolution setting determines the smallest note value to be displayed. The cursor moves in increments equal to the resolution value.

If you set a resolution value of 16, for example, the smallest note displayed is the sixteenth note. When you move the cursor, it jumps across the screen in sixteenth notes.

With a resolution of 16, any notes smaller than a sixteenth (thirty-second notes or a sixty-fourth notes) are also displayed as sixteenth notes. A series of thirty-second notes appears as a chord. The resolution setting affects only the display, however. The actual value in the sequence of the smaller notes remains unchanged.

When adding notes, set the resolution to the smallest note you expect to add to the track, since a note smaller than the resolution setting cannot be added.

You can use the resolution setting to view the actual attacks of notes in a pre-recorded sequence. For example, a sixteenth note recorded slightly before or after the beat appears on the beat if a resolution of 16 is used. With a resolution of 32 or 64, the display shows the exact location of the attack.

Music notation display (con't)

Moving around the notation area

The notation area cursor is a vertical line with two horizontal lines, or **range indicators** about an octave apart. Notes added appear in the octave between the range indicators. When the cursor is on a note, crosshairs (four small lines radiating from the center) mark the note.

The right and left arrow keys move the cursor forward and backward. The up and down arrow keys move the range indicators up and down on each staff. They also move the cursor from staff to staff.

If you move the cursor beyond the end of a staff, the screen scrolls ahead one measure and the cursor appears on the last resolution block of the new measure. (If the resolution is 16, for example, this is the last 16th note position.)

To view the previous measure when you are at the beginning of the line, move the cursor to the left margin portion of the menu area and press the left arrow key again. The previous measure is scrolled on to the screen and the cursor remains in the menu area.

To view any specific measure in the sequence, use **<tab>** to move to the menu area and enter a measure number; or play the sequence and stop at the measure wanted.

Song position pointer

As you play the sequence, the **song position pointer** moves from left to right indicating the notes being played. When the song position pointer reaches the end of the line, the next group of measures is displayed and the dotted line again traces the notes across the screen as they are played. You can edit at any point by stopping the memory recorder.

The song position pointer marks the current click of the sequence in the memory recorder; that is, the point at which the memory recorder starts if you press **continue.** Moving the notation cursor does not affect the song position pointer.

When you play a sequence, the notation drawn on the screen sometimes falls behind the audio output. When you press **stop,** the screen catches up, and the song position pointer is placed exactly at the point at which you pressed **stop.**

Adding notes

You add notes by moving the cursor to the notation area. Be sure the shift is unlocked before adding notes.

1. Position the cursor so that the range indicators enclose the correct line or space where the note is to be added.

2. If the pitch and duration values of the desired note are shown in the pitch and duration items on the upper menu, press the <spacebar> to enter the note. Otherwise, go to the next step.

3. Use the number keys on the terminal keypad to enter a time value for the note as indicated in the table on the opposite page.

   The duration value on the upper menu changes to reflect the new duration.

4. If the note being entered falls outside the key signature, enter the appropriate accidental, as shown in the table on the opposite page. Note: the accidental must be entered before the pitch.

5. Use the letter keys on the terminal keyboard to enter the pitch. Type A-G to add a single note; type <shift> A-G to add a note to a chord.

   The note appears on the staff between the range indicators, and the pitch value on the upper menu changes to reflect the new pitch. The cursor advances the duration value of the note entered, and its range indicators center on the note entered.

number entered	note value
1	whole
2	half
4	quarter
8	eighth
6	sixteenth
3	thirty-second

A dot after the number produces the dotted note value. Double dotted time values may not be added.

letter entered	accidental
q	sharp
s	natural
z	flat

Adding notes (con't)

Because the pitch and duration values listed in the upper menu reflect the values of the last note entered, there are shortcuts you can use when entering notes with the same or similar values.

- If both the correct pitch and the correct duration values are reflected in the upper menu, press **<spacebar>** to enter the note at the cursor location.
- If the correct duration only is reflected on the upper menu, type the pitch letter or the accidental letter followed by the pitch letter.
- If the correct pitch only is reflected on the upper menu, type in the correct duration on the keypad and press the **<spacebar>.**

The notation cursor moves to four ledger lines above the staff (G5) and two ledger lines below (A2). To place a note above or below this range, enter the pitch in the upper menu area and press **<spacebar>.** Or, you can enter the note at the cursor limit and push it up or down using the "move" keys, as explained below.

The cursor can be pushed beyond the above limits if notes ascend or descend gradually.

If a note is entered twice at the same place, the second note is layered over the first. Although only one note is visible on the display, two notes exist in the sequence, and each must be deleted separately.

As you add the last note before the end of a staff, the screen scrolls ahead to display the next measure with the cursor on the first beat of the measure.

Deleting notes

The **<del>** key on the terminal keyboard is used to delete notes one by one.

1. Place the cursor and crosshairs on the note to be deleted.

2. Press **<del>.**

   If the deleted note is a single note, a rest of equal value takes its place.

As the cursor moves through a passage, it follows the top note of any chords it encounters. You delete the whole chord by pressing **<del>** repeatedly. The chord is deleted, note by note, from the top of the chord to the bottom.

Selectively delete notes from a chord by moving the cursor down the chord until the crosshairs are placed over the desired note, then press **<del>.**

Moving notes

You can move notes up and down, forward or backward in the notation.

To move a note up or down the staff:

1. Place the cursor on the desired note.
2. Type

   P

   to move the note up;

   ;

   to move the note down.

   The note moves up or down a half-step at a time.

To move a note forward or backward:

1. Place the cursor on the desired note.
2. Type

   }

   to move the note forward;

   {

   to move the note backward.

   The note moves in increments equal to the resolution value.

Justifying notes

At lower resolutions, a note recorded slightly early or late appears on the intended beat. At higher resolutions the same note may appear a 16th or 32nd off. You can justify such a note so that it begins exactly on the intended beat in any resolution.

1. Set the resolution to a value where the note appears on the intended beat.

2. Place the cursor on the note to be justified.

3. Type

   J

   The note is justified in the memory recorder to the precise starting time displayed. Its duration remains the same as played. Use the duration commands to change the duration, if needed (see below).

Changing the duration of a note

You can change the duration of a note in time increments equal to the resolution of the display.

To lengthen a note:

1. Place the cursor on the note to be lengthened.
2. Type

   ]

   The note is lengthened by a value equal to the resolution. Any notes following are not changed; a rest following is reduced.

To shorten a note:

1. Place the cursor on the note to be shortened.
2. Type

   [

   The note is shortened by a value equal to the resolution time value. Rests are added following the note.

Note: If you attempt to shorten a note to a time value smaller than the resolution setting, the note appears to have the time value determined by the resolution setting, but actually has a duration of zero and does not sound. Its duration remains the same as played. Use the duration commands to change the duration if needed (see below).

Adding or editing tuplets

The resolution item in the menu area can be used to allow accurate entry or editing of irregular note values such as triplets or quintuplets (called tuplets). Although tuplets cannot be displayed in context, they can be displayed and edited by using the proper resolution settings.

Locate the place where a tuplet is desired and set the resolution to the number of tuplet notes contained in a whole note.

6	triplet quarter notes
12	triplet eighth notes
24	triplet sixteenth notes
10	quintuplet eighth notes
20	quintuplet sixteenth notes

When you enter the resolution value for the tuplet, the rest of the notation is disturbed. If the tuplet has already been recorded, it is displayed properly. You can justify any or all the notes of the tuplet. If the tuplet has not been recorded, enter it using any of the methods previously described. Play the portion of the sequence containing the tuplet to verify correct entry.

When you switch back to the regular resolution, the rest of the notation returns to normal, but the tuplet is not shown correctly. The tuplet has, however, been entered accurately and sounds correctly.

The recorder display

The recorder display shows up to three tracks of the current sequence on the terminal screen. The starting time, pitch and duration of each note appear in computer music format. You can add, delete or edit notes and change real-time effects at the terminal.

Viewing the recorder display

You activate the **recorder display** from the **main menu** by moving the cursor to it and pressing **<return>** or by typing the letter displayed next to it.

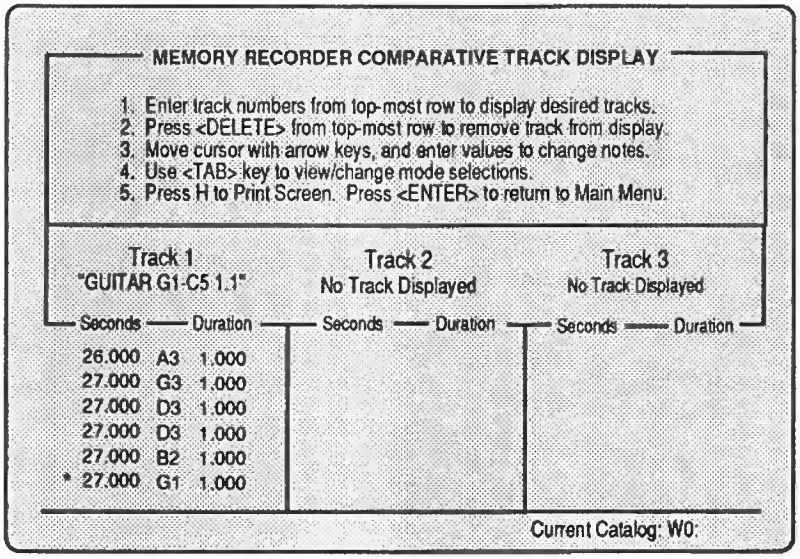
When the **recorder display** is activated, an instruction area appears at the top of the screen, and three notelists appear at the bottom.

Track 1 is displayed automatically in notelist 1, the left notelist. The headings of the center and right notelists are

No Track Displayed

As the sequence is recorded or played back, an asterisk appears to the left of each note as it sounds. This is the song position pointer. There is one **song position pointer** for each notelist.

Warning: The **recorder display** should not be used while performing any critical timing functions. These include transfer of sequences to tape, transfer to and from MIDI sequencers, and SMTE applications. Timing errors may result.


MEMORY RECORDER COMPARATIVE TRACK DISPLAY
1. Enter track numbers from top-most row to display desired tracks.
2. Press <DELETE> from top-most row to remove track from display.
3. Move cursor with arrow keys, and enter values to change notes.
4. Use <TAB> key to view/change mode selections.
5. Press H to Print Screen. Press <ENTER> to return to Main Menu.
Track 1
"GUITAR G1-C5 1.1"
Track 2
No Track Displayed
Track 3
No Track Displayed
Seconds Duration
Seconds Duration
Seconds Duration
26.000 A3 1.000
27.000 G3 1.000
27.000 D3 1.000
27.000 D3 1.000
27.000 B2 1.000
* 27.000 G1 1.000
Current Catalog: W0:

Viewing additional tracks

You can view up to three tracks of the sequence simultaneously.

1. Move the cursor to the top-most row of notelist 2, the center notelist.

   The cursor is on the "N" of the word "No". This is the track select area of notelist 2.

2. Enter the number of the track you want displayed and press **<return>.**

   If the track has already been recorded, the name of the track timbre appears directly under the track number. If the track is empty, the name of the keyboard timbre appears as soon as you press **record.**

Notation format

A noteline for each note recorded on a track appears in the notelist to which that track is assigned. Each noteline contains three values which define the note in computer music format.*

- The first column of the noteline displays the start time of the note in seconds. This is an absolute time; that is, it represents the length of time from the start of the sequence to the moment you played the note.
- The second column contains the pitch name. The pitch of each note is indicated by a standard pitch letter, followed by an accidental, if any, and the octave number. All accidentals are represented as sharps (#). The octave numbers are relative to middle C=C3.
- The third column represents the duration of the note.

All time values in the **recorder display** can be displayed in seconds, measures and beats, or SMPTE time code.

To step through the four time displays:

1. Move the cursor to the first column of a notelist.
2. Press the <spacebar> repeatedly.

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* For more information on the computer music format, see the manual *Script Reference Guide* available from N.E.D.

The recorder display (con't)

The song position pointer

Whether you are recording or playing back a sequence, the song position pointer is represented by an asterisk appearing beside the noteline of each note as it sounds. There is one asterisk for each assigned track, and each moves independently.

When you press **stop**, the display freezes. At this point, the asterisk location with the largest time value (the latest note played) indicates the true position of the song position pointer.

When the asterisk reaches the bottom of the screen, the notelines are replaced by the next set of notelines.

When the end of a recorded track is reached, the asterisk on that track stops on the last recorded note of the track, even though the sequence continues to play.

Scrolling the display

Use the up and down arrow keys to scroll the notelines of any notelist. Place the cursor anywhere on the noteline and press the arrow key repeatedly. When the arrow key reaches the top of a notelist, the entire display scrolls down one noteline at a time. When the arrow key reaches the bottom of a notelist, the entire display scrolls up five notelines to allow the next five notelines to appear.

Scrolling the notelines or moving the cursor does not affect the song position pointer. It remains at the point where the sequence was last stopped.

The recorder display (con't)

Controlling the memory recorder from the terminal

When you are viewing the recorder display, you may find it useful to control the memory recorder from the terminal with control keys. Opposite is a table of terminal key commands which control the memory recorder song position pointer.

Note: If you accidentally use **<ctrl-s>** for either **start** or **stop**, the screen freezes. The operation of the memory recorder is unaffected. Press **<ctrl-q>** to unfreeze the screen.

Terminal keys controlling the memory recorder

terminal key	keyboard button
<ctrl-p>	start
<ctrl-e>	stop
<ctrl-c>	continue
<ctrl-r>	rewind
<ctrl-f>	fast forward

Display mode selection

Normally, each noteline displays the starting time, pitch and duration of the notes of the displayed track. The mode selection menu allows you to display and edit other recorded information.

- Press **<tab>** to toggle between the main recorder display and the mode selection menu.

At the top of the mode selection menu is a set of instructions plus a list of real-time effects controller abbreviations. Below this is a list of modes, each of which changes the information displayed.

To change the display mode:

1. Move the cursor to the selected item.
2. Press the **<spacebar>** to step through the different modes.

   The track display changes to reflect any new mode selections.

Once a display mode has been selected, you can edit any displayed value as described in "Editing the notelists." Leaving the display mode or the recorder display does not affect the changes.

item	change item	result
Show times	Press <space-bar> while cursor on item or in third column.	Time format displayed in seconds, measures or SMPTE time code.
Dur/End/ Name/Vel	Press <space-bar> while cursor on item or in third column.	Third column displays note duration, end time, sound file name or key velocity. Name: sound file name as in poly memory. Velocity: any value including half units between 1 and 100.
Show sound file offsets	Press <space-bard> while cursor on item.	Yes: sound file offset time displayed.
Show real-time effects	Press <space-bar> while cursor on item.	Yes: RTE records and MIDI program changes are displayed in notelist.
Note ripple	Press <space-bar> while cursor on item.	Yes: change in start time ripples through track, sliding each note by amount of change. Ver: verification message appears each time you edit a start time.

Editing the notelists

You can edit any noteline, independent loop, program change or RTE record on a track.

1. Select the appropriate display mode as described above.
2. Use the up or down arrow keys to scroll to the area of the notelist you want to edit.
3. Move the cursor to the value you want to change.
4. Enter a new value.
5. Press **<return>** or move the cursor.

The change is reflected in the notelist and can be heard when you play the sequence.

You can also delete an entire noteline, an RTE record or an independent loop by placing the cursor on the noteline and pressing **<delete>.**

The changes you make on the **recorder display** alter the sounds only in the memory recorder copy of your sequence. To change the sequence stored on disk, you must save the sequence.

Changing the starting times

When you make a change in the starting time of a note or RTE record, the cursor follows the position of the current noteline. A significant change may take you to another part of the sequence entirely, with notelines appearing on the screen when you entered the change replaced by notelines nearer the starting time entered.

When times are displayed in SMPTE format, the times may be entered without the colons. All digits of the address must be typed, however. For example, a SMPTE address of 01:23:45:23 is entered as:

01234523

In addition, SMPTE bits can be entered with the address. Although they do not appear on the screen, they are accepted and used by the memory recorder. You enter the SMPTE address 01:23:45:23.87 as:

01234523.87

Adding notelines

You can add a noteline to the notelist.

1. Place the cursor in the first or second column of the note line at the point where you want the new noteline added.

2. Type

   +

   to append a noteline directly below the noteline where the cursor is located.

   Alternatively, type

   -

   to insert a noteline directly above the noteline where the cursor is located.

   In either case, the new noteline has the same start time as the line next to the cursor, a pitch value of C1 and a duration value of 0.000. You can change these values as in "Editing the notelists."

If you add a note when the cursor is on a blank space, the new note has the start time of the corresponding noteline in the adjacent notelist.

If you add a note to an empty track, the keyboard timbre is placed on that track.

Adding independent loops

Independent loops can be created on a track directly from the **recorder display.**

1. Select and display the track to receive the loop by moving the cursor to the heading of one of the notelists.

2. Move the cursor to the first or second column of the noteline you wish to be the starting noteline of the loop.

3. Type a tilde (~).

   An independent loop four beats long is created on the selected track. The start time of the loop is the same as the note on which the cursor was placed when you typed the tilde (~).

4. Move the cursor to the line which displays the end of the loop. Enter a new end time if desired.

   The track contains an independent loop having the start and end times you defined. The start and end times of the loop can be edited from the terminal, or you can use the **start loop** button to edit the loop. (See the section "Looping sequences.")

When you play a track containing an independent loop, the start times of the notes in the loop increase as the loop is repeated. When the sequence has played past the end of the loop, the loop start and end times cannot be edited. In order to edit the loop times, you must restart the sequence from the beginning or rewind until you are in the first performance of the loop.

Adding real-time effects (RTE) records

You can add RTE records, which control changes to real-time effects, from the terminal. The abbreviations, controllers and their ranges are listed on the opposite page.

1. Move the cursor to the first or second column of the noteline after which you want to add an RTE record.

2. Type an asterisk (*).

   An RTE record having the same start time as the note on which the cursor was placed is added to the track. If the Show Real-time Effects selection is set to "No," adding an RTE record changes it to "Yes." The controller and value defined by the RTE record are the same as the last RTE record edited. If no RTE record has been added previously, a mod wheel (ModW) record with a value of 100 is entered.

3. If the real-time effect added is not the one wanted, move the cursor to the middle column and type the name of the desired real-time effects controller and press **<return>**.

Real-time effects controllers and ranges

abbre-viation	controller	range
Ped1	Pedal 1	0–100 in .5 increments
Ped2	Pedal 2	0–100 in .5 increments
ModW	Mod Wheel	0–100 in .5 increments
RibF	Ribbon Filter	±100 in .5 increments
Brth	Breath controller	0–100 in .5 increments
Ptch	Pitch Wheel	±12 semitones
MiPgm	MIDI program change	1–128
Pr[pitch]*	Key pressure	0–100 in .5 increments

* Pitch name is given in script notation. For example, a key pressure record for the c#2 key appears as "PrC#2."

Adding MIDI program changes

MIDI program changes are added and edited as RTE records. When adding a MIDI program change to a sequence, it is advisable to set the start time at least 100 milliseconds (.1 second) before the first note using the new program. Additionally, on many MIDI synthesizers, any notes being held when the program change message is received are cut off.

Using sound file offsets

The sound file offset is a point in a sound file which is marked using the **sound editor display.**

For example, a sound file might contain a sample of a bomb whistling as it falls toward the ground, followed by an explosion. An offset point might be marked at the moment the bomb explodes.

With such a sound file, the actual start time of the note is adjusted so that the offset point occurs at the specified time. You can then control the occurrence of the explosion in the sequence very precisely. With SMPTE time code, you can synchronize the explosion to an event on film.

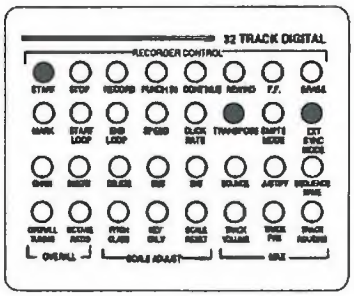
If a note plays a sound file containing an offset mark, the offset time is displayed in the first column whenever "Show Soundfile Offset" is selected from the Mode Selection menu. Notes which contain offsets are marked with a caret (^).

The playback rate of a sound file varies with the playback sampling rate which in turn varies with the pitch of the note in the memory recorder. Thus the offset time may change if you change the pitch of the note. Also, the offset time of one note may occur after the start time of the following note. Thus the times listed in the first column may not be in order.

Stepping and step editing

The keyboard triggering feature steps you through your sequence one beat or even one note at a time. Stepping and step editing can be done with either the **music notation** or the **recorder** display.

When step editing, be sure there is no input to the **ext clock input** jack on the computer control panel.



start, transpose, ext sync mode panel 2

Stepping through a sequence

1. With a sequence in the memory recorder, press the **ext sync mode** button twice so that it is blinking. The display window shows

   0 MILLISEC
   EXT BEAT SYNC

2. Press **transpose.**

   The step mode is established.

3. Press **start** once or twice.

   The display window shows

   0 MILLISEC
   M 0 : 0

   Since the memory recorder is in the external sync mode, it is waiting for a trigger pulse.

4. Press C3 (middle C) on the keyboard to step through the sequence.

   Each time C3 is pressed, a trigger pulse is sent to the external sync input and the next note of the sequence sounds.

While in the keyboard triggering mode you can use **f.f.** and **rewind** to move about your sequence as usual.

Note: Since the transpose function is active, pressing any key other than C3 tranposes the sequence or any soloed track in addition to the stepping process. Should this happen, press C3 again to return the sequence normal.

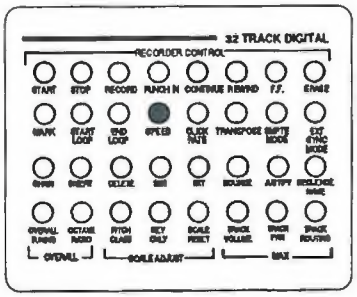
Changing the speed of a step

The sequence proceeds from one step to the next at the tempo set using the speed control setting. You can vary this tempo using the **speed** button.

1. Press **speed.**

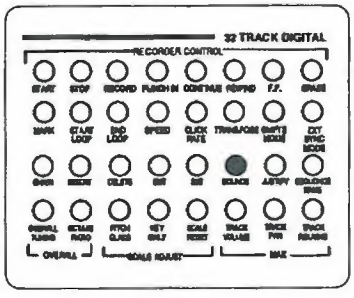
2. Dial in a new speed setting with the control knob.

Return the speed to the default setting of 1.000 by pressing the **speed** button when it is lit.



speed
panel 2

Stepping and step editing (con't)



bounce panel 2

Changing the size of a step

The size of a step is determined by the setting of the click-rate multiplier.

To change the click-rate multiplier:

1. Press and hold the **bounce** button.

   The display window shows the current click-rate multiplier setting.

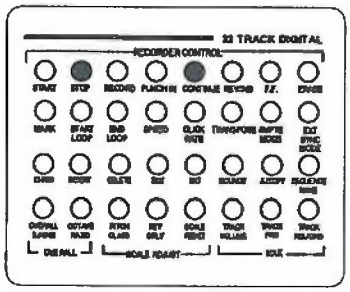
2. Use the control knob to set the click-rate multiplier to any value between 1 and 16.

If the click-rate multiplier is set to 1, the size of a step is one beat. Larger multiplier settings yield smaller steps.

The value of the click-rate multiplier is the number of keystrokes required to step from one click to the next.

Click-rate multipliers and step size

click-rate multiplier	step size
1	one beat
2	1/2 beat
3	1/3 beat
4	1/4 beat
12	1/12 beat
16	1/16 beat



stop, continue panel 2

Stuck notes

Notes which are held for periods longer than one step (keystroke) sound until the step containing the end of the note is reached.

To continue beyond a stuck note:

1. Press **stop.**

   The stuck note stops sounding.

2. Press **continue.**

3. Play a note on the keyboard.

   The next note sounds.

The stepping function with the terminal displays

The stepping function responds identically with both the **music notation** and **recorder** displays.

1. With a sequence in the memory recorder, press **transpose**, then **ext sync mode** twice.

   The **transpose** button lights, the **ext sync mode** button blinks, and the display window shows

   0.0 MILLISEC
   EXT BEAT SYNC

2. From the **main menu**, select the **music notation** or **recorder** display.

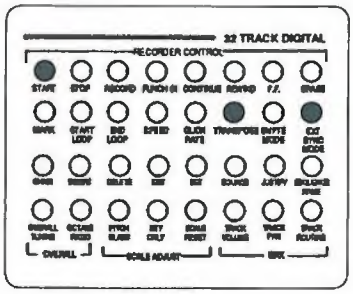
3. Set the display parameters so that the sequence is displayed properly.

4. Press **start** on the keyboard control panel or **<ctrl-p>** on the terminal keyboard to start the sequence.

5. Press C3 on the keyboard to trigger each step.

   The song position pointer (the vertical bar in the **music notation** display, the asterisk in the **recorder** display) moves from note to note.

   When the end of a recorded track is reached, the song position pointer on that track stops on the last recorded note of the track, even though the sequence continues to play. The true position of the song position pointer is the song position pointer having the largest starting time value.



start, transpose, ext sync mode panel 2

Stepping and step editing (con't)

Moving the song position pointer

All terminal commands in the **music notation** and **recorder** displays which control movement of the song position pointer respond to the stepping function. You may use the following commands:

start	<ctrl-p>
stop	<ctrl-e>
continue	<ctrl-c>
rewind	<ctrl-r>
fast forward	<ctrl-f>

The **rewind** or **f.f.** buttons on the keyboard control panel do not respond to the stepping function. These buttons operate at their normal speeds. Stepping backward or forward in these modes can only be achieved using the terminal commands **<ctrl-r>** and **<ctrl-f>**.

Turning the stepping function on and off

Sometimes it is desirable to perform a transpose while in the external beat sync mode. In order to do this, you must turn the stepping function off.

1. Press and hold the **transpose** button.
2. Press **stop.**

   The display window shows

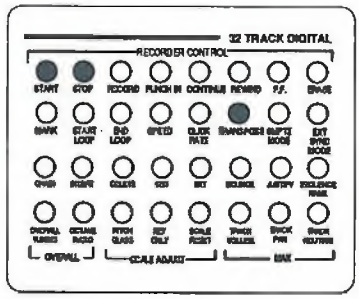
   TRANSPOSE
   TRIGGER: OFF

To turn the stepping function back on:

1. Press and hold the **transpose** button.
2. Press **start.**

   The display window shows

   TRANSPOSE
   TRIGGER: ON



start, stop, transpose panel 2