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# SEQUEL

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Bonafide Systems  
SEQuel Sequencer  
Serial #SEQ1010
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This manual is divided into three sections, the Introduction, the Tour and the Reference section. We recommend that you read the Introduction, do the Tour and then use the Reference section to get answers to specific questions and problems that may come up later.

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## PROLOGUE

MIDI sequencing has revolutionized the way modern music is recorded and performed. Much of the music heard on the radio and TV today has been sequenced in some way using synthesizers and computers. MIDI sequencing has given amateur as well as professional musicians and composers the ability to work with their music the way a writer uses a word processor. The ability to "preview" your music and change it to you liking has become a necessity for the professional and just plain fun for the novice. We at Bonafide Systems are proud to offer this technology to ADAM users and we hope you will enjoy using it as much as we enjoyed creating it.

## INTRODUCTION TO MUSIC SEQUENCING

A MIDI sequencer is a computer program that allows you to record, edit and play back sequences of musical notes. Your physical actions when playing a MIDI keyboard (or other MIDI instrument) are stored, not as audio signals (as with a tape recorder) but as computer codes that define various characteristics of the music such as pitch, attack, release, pitch bend, etc. These "MIDI events", as they are called, can be viewed and edited on your computer. You can change, insert, move, copy or delete anything in your sequence, from a single event to a whole region of data. You can transpose whole sections of music to a different key. You can use a wide variety of MIDI events such as poly pressure, mono pressure, controllers and pitch bends to create various effects. You can use your sequencer as if it were a multi-track tape recorder. For example, you can record a drum part then, while listening to that part played back, you can record a bass part. You can listen to any combination of tracks you have by selecting only the ones you want to hear and you can instantly jump from one section to another without waiting for a tape to rewind. If you have a drum machine or some MIDI unit that supplies its own MIDI clock you can synchronize a sequence to the drum machine's own tempo. Sequencers that support the standard MIDI file, as defined by the International MIDI Association, can interchange their sequencer files. So you can share sequences with your poor, unenlightened IBM and MAC user friends! So let's get started.

## SEQUEL TOUR

This tour will cover the basics of using SEQuel. If you follow the procedures in order, you should soon be sequencing on your own. If you require more detail about each of SEQuel's individual features, see the reference section at the end of this manual.

### GETTING STARTED

Set up your MIDI-MITE interface and MIDI instrument as explained in the MIDI-MITE installation manual that came with your MIDI interface hardware.

Insert SEQuel into the appropriate drive (you've already made a back-up, right?) and pull the Reset button located at the top of your ADAM console..

While loading, SEQuel will display a title screen and copyright information. Then you'll see the main screen of the program.

### LOADING A SONG FILE

Let's start by loading a song we've already sequenced for you.

Press the Store/Get Key on your ADAM keyboard. The Smart Keys will change to:

	<b>IV</b> SAVE FMT0	<b>V</b> SAVE FMT1	<b>VI</b> GET
--	---------------------------	--------------------------	------------------

Press Smart Key VI "GET". The Smart Keys will change to reflect your current loaded drives:

SELECT DRIVE	<b>III</b> TAPE I	<b>IV</b> TAPE II	<b>V</b> DISK I	<b>VI</b> DISK II
-----------------	-------------------------	-------------------------	-----------------------	-------------------------

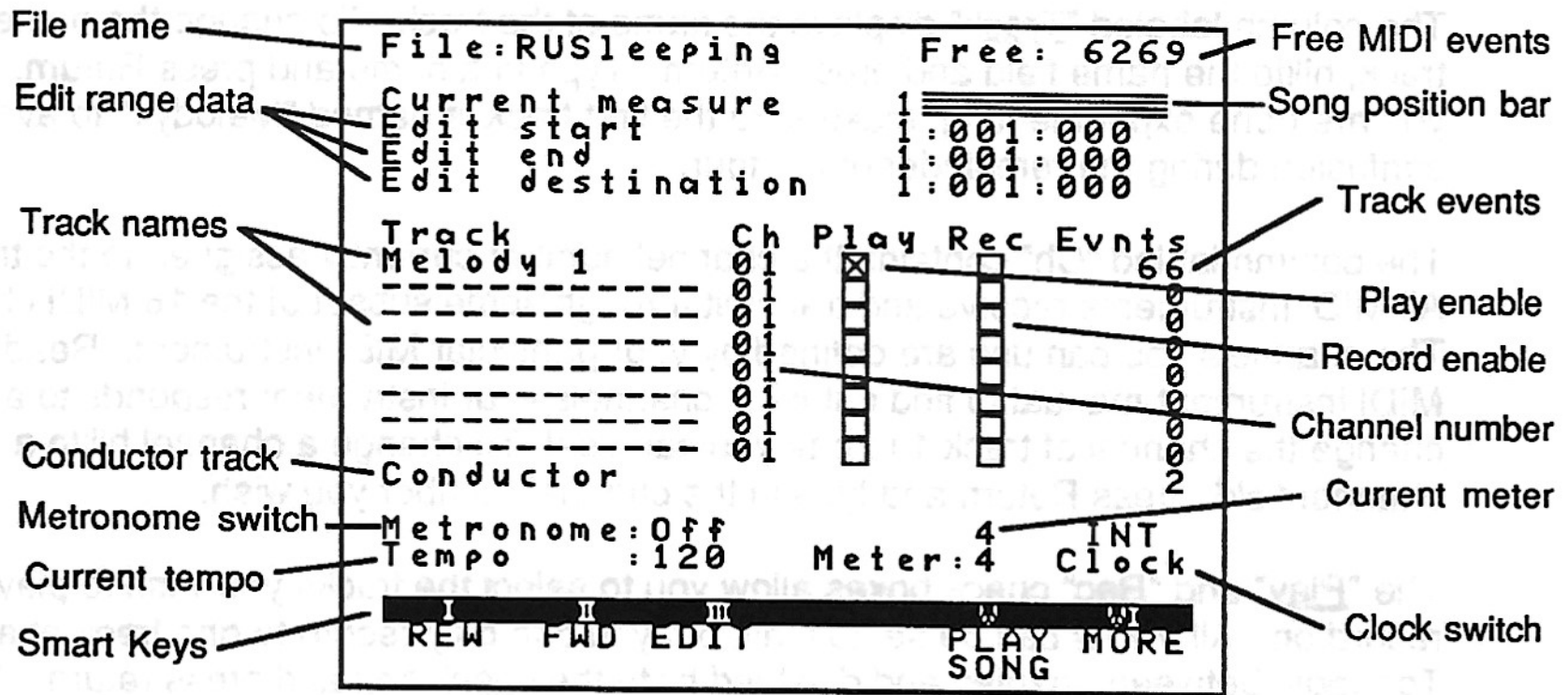
If you get a message that says "No loaded drive. Press Escape" then press the ESCAPE key and make sure a drive is loaded before you try again. Select the appropriate drive. The drive will spin and you will be presented with a list of files. The Smart keys will change to reflect your current options:

	<b>II</b> BACK DIR		<b>IV</b> SEND SYSX	<b>V</b> MERGE	<b>VI</b> GET
--	--------------------------	--	---------------------------	-------------------	------------------

Smart Key II, "BACK DIR", Smart Key IV, "SEND SYSX" and Smart Key V "MERGE" are explained in the reference section. **DO NOT USE "SEND SYSX" UNTIL YOU KNOW WHAT YOU'RE DOING!**

## LOADING A SONG FILE, cont.

Smart Key VI "GET" allows you to retrieve the hilited song file. You can select a song file by moving the hilite bar with the arrow keys. Hilite "RUSleeping" and press Smart Key VI "GET" to load the song. When the song is loaded your screen will look like this:



## THE MAIN SCREEN

The top section of the main screen shows the name of the song file, how many MIDI events are still free to use, the current song position and the edit range data.

You are currently in measure 1 which is the beginning of the song. You can verify this by observing that the little red note is all the way at the left of the song position bar. If you press Smart Key II "FWD" a couple of times, you will notice the current measure number advancing and the little red note moving to the right. Pressing Smart Key I "REW" a couple of times will take you back to measure 1. Pressing Shift/REW or Shift/FWD will move you ten measures at a time. You can also jump to any place in a song by entering a measure number into the "Current measure" field. To do this hilite the "Current measure" field, press Return, and enter the measure number you wish to jump to. After you're done experimenting make sure you get back to measure 1.

We will explain the "Edit start", "Edit end" and "Edit destination" fields later. For now, it's enough to know that these fields define an area of the music that the range editing features will act upon.

In the center of the screen you will see information relating to each of the eight tracks. A track stores a series of MIDI events within a sequence. SEQuel allows you to create eight independant tracks, each holding a seperate stream of MIDI events.



## THE MAIN SCREEN, cont.

On SEQuel's main screen the individual track information reads horizontally and is divided into several columns. These columns are entitled "Track", "Ch" (Channel), "Play", "Rec" (Record) and "Evnts" (Events).

The column labeled "Track" displays the name of the track. To change the name of a track, hilite the name field and press Return. Type in a name and press Return. When you are done experimenting, make sure the first track is named "Melody1" to avoid confusion during the remainder of the tour.

The column labeled "Ch" contains the channel number currently assigned to the track. All MIDI instruments receive and transmit through some subset of the 16 MIDI channels. The channels you can use are defined by your particular MIDI instrument. Read your MIDI instrument manual to find out what channels your instrument responds to and change the channel of track 1 to one you can use! To change a channel hilite a channel field, press Return and type in the channel number you wish.

The "Play" and "Rec" check boxes allow you to select the tracks you wish to play or record on. All tracks can be set to play, but you can only record to one track at a time. To toggle between enabled and disabled hilite the check box and press return. Make sure track 1 is play-enabled.

The "Evnts" column displays the number of MIDI events recorded on each track. It is just there for your information.

Displayed at the bottom of the screen is the conductor track, metronome, current meter, current tempo and clock source. For information regarding these fields see the reference section.



## PLAYING A SONG

Make sure the first track is Play-enabled.

Set track 1's channel to one your synthesizer will respond to. Consult your synthesizer manual if you don't know what channels your synth uses.

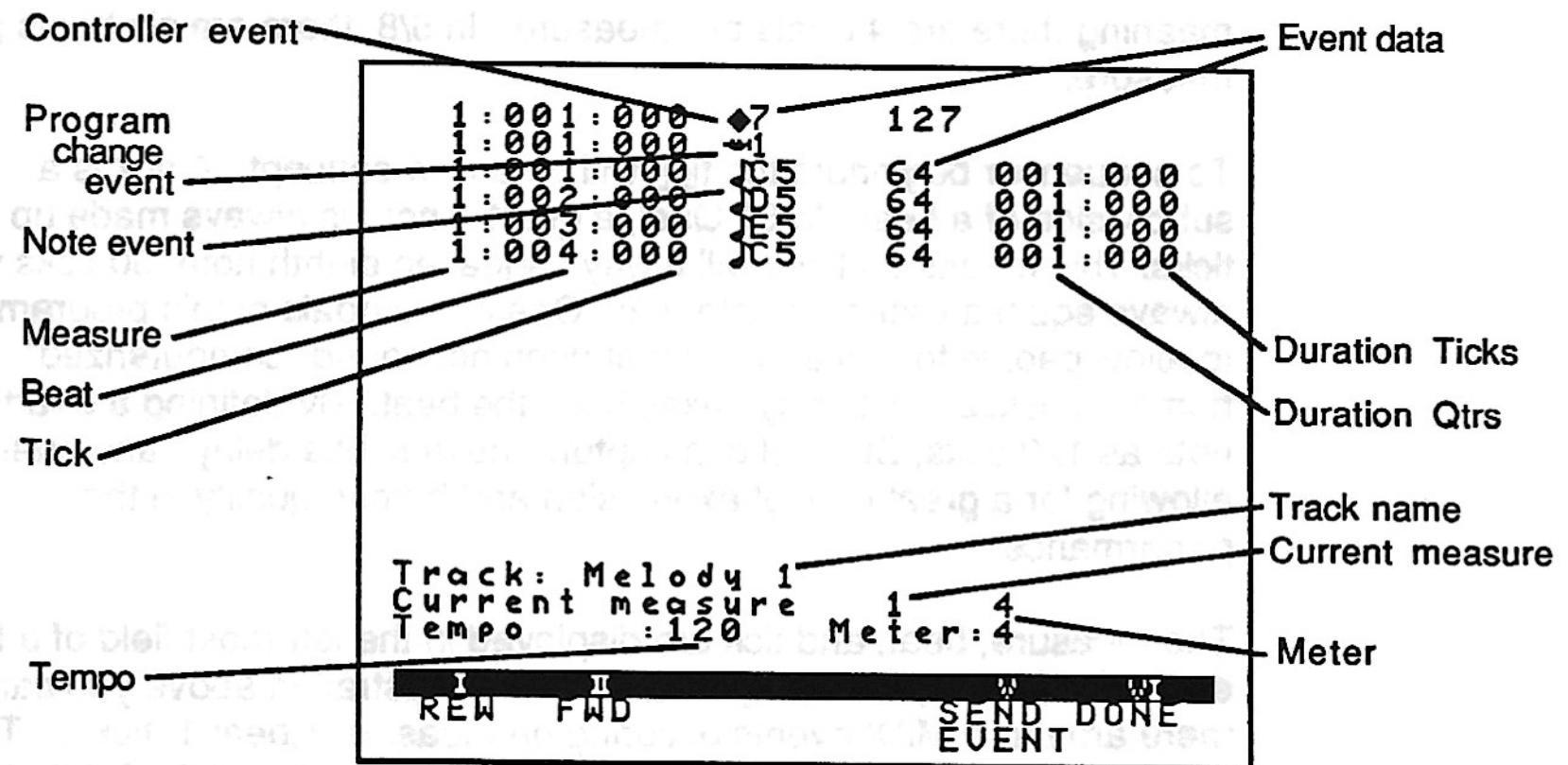
Press Smart Key V "Play Song". You should be able to hear the song playing. If you don't hear anything make sure you've set up your MIDI interface and instrument correctly.

As you listen to the song you will see the little red note advancing across the staff at the top of the screen indicating your approximate position in the song. You will also see the "Current measure" numbers advancing, indicating the exact measure being played.

## EDITING A SONG

Make sure your Current measure number is 1. If it isn't, rewind.

Next, hilite the first track name "Melody1" and press Smart Key III "EDIT". In a moment the screen will look like this:



This is called the Event List screen because each horizontal line represents a different MIDI event. This screen shows all the MIDI events in measure 1. Use your arrow keys to run the hilite bar down to one of the "note" events. Then press SEND EVENT. You should hear a single note play. SEND EVENT sends a single MIDI event to your keyboard.

MIDI EVENTS

A MIDI event is made up of several fields. All MIDI events have an "event time", an "event type" and one or two fields of "event data". Additionally, note events have a duration field.

Event Time

All MIDI events have an "event time" displayed as the left-most field of the event. This is the measure, beat and "tick" at which the event occurs in the music. Let's define these terms.

The base unit in music is the beat. The beat is the pulse at which the music proceeds in time. The duration of a beat is defined by the denominator of the time signature. For example, in a meter of 4/4, the denominator is four, meaning, a quarter note gets one beat. In a meter of 6/8, the denominator is eight, and an eighth note gets one beat.

A measure is composed of a certain number of beats, as defined by the numerator of the time signature. So, in a meter of 4/4, the numerator is 4, meaning there are 4 beats per measure. In 6/8, there are six beats per measure.

To sequencer beginners the tick will be a new concept. A tick is a subdivision of a beat. In SEQuel, a quarter note is always made up of 120 ticks. This means 60 ticks will always equal an eighth note, 30 ticks will always equal a sixteenth note, etc. One of the goals of this program was to allow people to make music that does not sound "computerized". No human musician ever plays exactly on the beat. By defining a quarter note as 120 ticks, SEQuel can capture these subtle delays and nuances allowing for a great deal of expression and human quality in the performance.

The measure, beat, and tick are displayed in the left-most field of a MIDI event and are separated by colons. In the illustration above you can see there are three MIDI events occurring on measure 1, beat 1, tick 0. There is also one MIDI event occurring on each of beats 2, 3 and 4. A little later in the tour we'll explain how to change the "event time".

## EDITING A SONG, cont.

### Event type

Every MIDI event has an "event type". The "event type" describes an action that produces a certain type of sound. A complete description of "event types" and their symbols can be found in the reference portion of this manual.

In this example, the first MIDI event is a controller. On synthesizers that respond to it, controller number 7 controls the volume of the channel. Here we are setting the volume to the maximum which is 127.

The second MIDI event is a program change. A program change instructs the synthesizer to change the instrument assigned to a channel. Here we are selecting sound number 1. To change the instrument to one you prefer, hilite the number, press Return, and enter the new instrument number. If you want to hear the song played on the new instrument, press Smart Key VI "DONE", and then play the song. When you're done experimenting, return to measure 1, and get back into the edit screen.

The remaining MIDI events are note events. The notes are represented by their note names, octave numbers, velocities and durations. The first note event is C5, which happens to be "middle C". To change a note, hilite the note name, press Return and type in the new note name. The pound sign ("#") is used to indicate a sharp, and lower case "b" is used to indicate a flat. SEQuel will rename the notes that you enter to correspond with the key signature in the conductor track. Try changing some of the notes and playing the song back. When you are through, make sure you change the notes back to how they were (see screen illustration above).

The event data in the next column of a note event is the "velocity" with which the note is to be struck. If you hit a piano keyboard softly, the note will play softly and the velocity number will be lower. If you hit a key hard, the note will play loudly and the velocity number will be higher. Some synthesizers do not respond to key velocity. If your synthesizer does respond to velocity you can experiment with this field. Simply hilite the number, press Return, and enter the new velocity.

The final field of a note event is the note's duration. The duration of a note is expressed in quarter notes and ticks. The notes in measure 1 are each one quarter note long. Let's make the first note a short one. Hilite the duration field, press Return, then type "0:30". This makes the note 30 ticks in duration which is equivalent to a sixteenth note. Play the song and listen for the short note. Return to the edit screen and change the duration back to its original length by entering "1:0" into the duration field.



### EDITING A SONG, cont.

Now that you know what you're looking at, let's experiment with changing the "event time" (moving the notes around). Let's change the music so the second note plays earlier.

Begin by highlighting the event time 1:002:000. Press return and enter "1:1:60". This causes the D5 to play a half beat earlier. Play the song back and listen for the difference. Then go back to the edit screen and change the event time of the D5 note event back to its original position by entering "1:2:0" into its "event time".

When you are done experimenting with the Event List screen, press Smart Key VI "DONE" to return to the main screen.

### INSERTING EVENTS

The last two measures of this song have been left off so you can learn how to insert events.

Change the current measure to 7 and enter the edit screen for the track named "Melody 1". We want to enter 3 notes into this measure so press the INSERT key on your keyboard. The Smart Keys change to reflect the types of events you may insert:

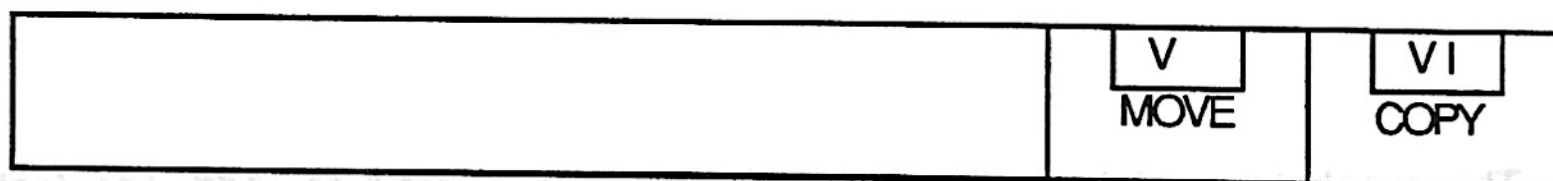
I	II	III	IV	V	VI
NOTE	POLY PRES	CON TROL	PGM CHG	CHAN PRES	PITCH BEND

Since we want to insert notes, press Smart Key I "NOTE". Repeat this two more times to get all three notes. What you see on the screen is the default settings for the newly created notes. Now you must alter these events so that the correct notes are played. Change the first note to C5, the second note to G4 and the third note to C5. Now we have to adjust the event time for these notes. The last C5 needs to be set to 7:3:0. (Hint: you don't need to specify the fields that will stay the same. Since all we are changing is the beat, you can type ":3:" which will leave the measure and tick fields as they were.) Now set the G4 to 7:2:0. All that remains to be done is changing the note durations. The first two notes are quarter notes and need to be given a value of 1:0. The third note is a half note, and therefore needs to be given a value of 2:0. Now, play the song back and listen for the new measure.

### COPYING TRACKS

That takes care of the first missing measure, but measure eight is still missing. Measure eight is exactly the same as measure seven, so we could repeat the procedure we used to create measure seven, however there is an easier way. We can simply copy measure seven to measure eight. Go to the main screen and run your cursor up to the "Edit start" field. Press Return and enter the event time from which you want to begin copying. This is measure 7, beat 1, tick 0 (7:1:0). Then hilite the "edit end" field and enter the event time at which you want the copying to end. This is measure 8, beat 1, tick 0 (8:1:0). Since we are copying to a new destination, hilite the "Edit destination" field. Enter the event time to which you want the copied data to be placed. This would be 8:1:0. Check to make sure your numbers are correct. Then hilite the track name Melody 1 and press the MOVE/COPY button. The computer asks you to select the destination track. Since we are copying to the same track, leave your cursor on Melody 1 and press Return again.

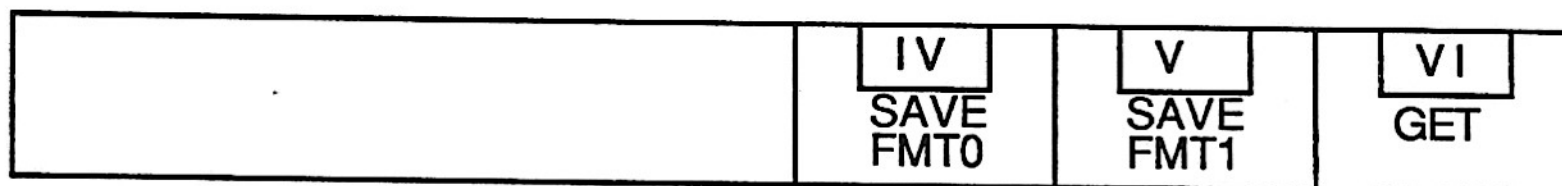
The Smart Keys now change offering you the option of either moving or copying:



Press Smart Key VI "COPY" to copy measure 7 to measure 8. Now play the song and listen for the new measure.

### STORING

You might want to store your masterpiece at this time. Press the STORE/GET Key. Your Smart Key options are now:



Press Smart Key V "SAVE FMT1". Then select the appropriate drive. Enter a new file name and press Return.



## CREATING MORE TRACKS

Let's try using some more fancy copying techniques to create a "round". We want to copy the entire track "Melody 1" to a new track starting two measures later. Set your "Edit start" to 1:1:0 and your "Edit end" to 9:1:0. Your "Edit destination" should be 3:1:0. Now hilite the source track "Melody 1" and press MOVE/COPY. Hilite the destination track by moving the cursor to the next track down and press Return. Press Smart Key VI "COPY". You should now have the same number of events in both tracks. Give your new track a name, then play-enable it, and set the channel. Play the song. WOW! A two part round!

Let's add a third track. We will keep the same "Edit start" and "Edit end" but change the "Edit destination" to 5:1:0. Hilite the source track "Melody 1" and press MOVE/COPY. Select the destination track by moving the cursor to the next track available and press Return. Press Smart Key VI "COPY". Name it, play-enable it and take a listen. Now RUSleeping is complete so you can save it again if you like.

This concludes our introductory tour of SEQuel. There are many additional features of SEQuel that are discussed in the reference section. There are also many demo songs included on your SEQuel disk that you can listen to and play with. Have fun!

## REFERENCE

In this section you'll find detailed explanations of all of SEQuel's features. These features are grouped by function. Check the Table of Contents when you want specific information about how to do something or read through this entire section to become a SEQuel "power user".

## FUNDAMENTALS

All MIDI events have an "event time". This is the measure, beat and "tick" at which the event occurs in the music. Let's define these terms.

The base unit in music is the beat. The beat is the pulse at which the music proceeds in time. The duration of a beat is defined by the denominator of the time signature. For example, in a meter of 4/4, the denominator is four, meaning, a quarter note gets one beat. In a meter of 6/8, the denominator is eight, and an eighth note gets one beat.

A measure is composed of a certain number of beats, as defined by the numerator of the time signature. So, in a meter of 4/4, the numerator is 4, meaning there are 4 beats per measure. In 6/8, there are six beats per measure.

To sequencer beginners the tick will be a new concept. A tick is a subdivision of a beat. In SEQuel, a quarter note is always made up of 120 ticks. This means 60 ticks will always equal an eighth note, 30 ticks will always equal a sixteenth note, etc. One of the goals of this program was to allow people to make music that does not sound "computerized". No human musician ever plays exactly on the beat. By defining a quarter note as 120 ticks, SEQuel can capture these subtle delays and nuances allowing for a great deal of expression and human quality in the performance.

## USER INTERFACE INFORMATION

SEQuel uses a combination of Smart Keys and a hilited cursor bar to allow the user to communicate with the program.

SmartKeys are a familiar sight to most ADAM users. Pressing a Smart Key either carries out some action or presents the user with a new set of Smart Keys from which to choose. A Smart Key sub-menu can usually be escaped from by pressing the ESCAPE key.

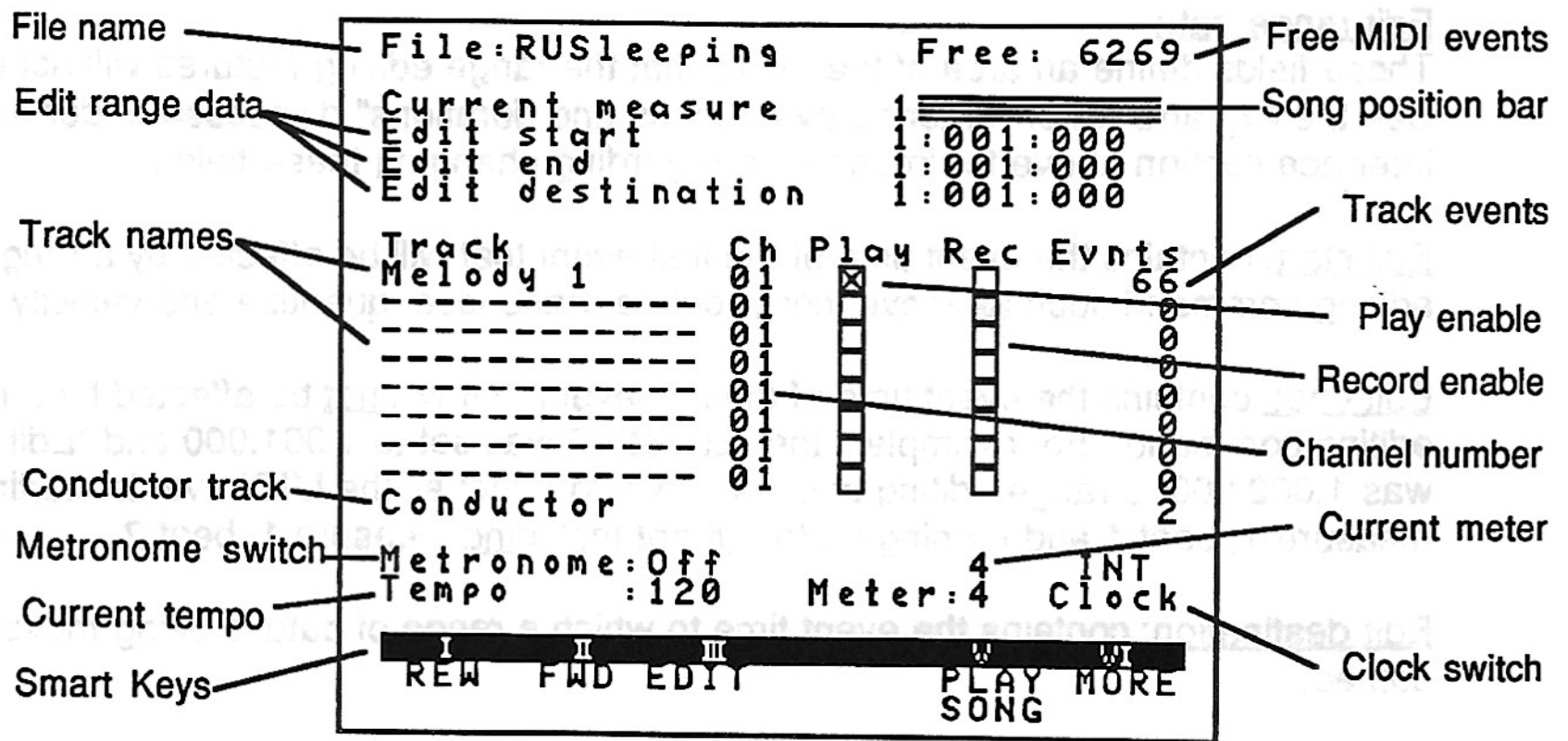
The hilited cursor bar may be moved about the screen by using the arrow keys. All hiliteable fields can be altered in one of two ways:

"Round Robin": by hiliting certain fields and pressing Return you will advance to the next value in a list of possible values. At the end of the list you will automatically wrap around to the beginning again. The metronome and key signature are two examples of this type of field.

Keyboard input: by hiliting a field and pressing Return you'll be prompted to type in a new value for the field. A cursor will appear just above the Smart Keys. The characters you type will appear there. You may use the Backspace key to edit the input. After typing the new value, press Return to enter it into the field. The new value will appear in the hilited field. If the value you type is out of the range of acceptable values SEQuel will give you an error message and warning buzz and the original value will remain unchanged. You may press the ESCAPE key at any time to abort changing a value. Also if you do not type anything and press Return, the original value will remain unchanged.

Entering event times and durations: these are special types of keyboard input fields. An event time field actually contains three separate fields separated by colons. A duration field actually contains 2 separate fields separated by a colon. To enter a new event time, you must separate the three values with colons. If any of the values are to remain the same, you may omit the value but not the colon. For example, if you want to change 1:001:000 to 1:002:000, simply type ":2:" to change only the beats subfield. If you want to change 1:001:000 to 1:001:060, you can type "":60" to change only the "ticks" subfield.

## THE MAIN SCREEN



### File name

Shows you the file that is currently loaded into SEQuel. If you save the file under a different name, this field will be updated to show the new file name.

### Free MIDI events

Indicates the number of MIDI events remaining available for use. Each MIDI event is 10 bytes long. SEQuel will detect and use a portion of any memory expansion you have installed. For each 64k of memory expansion, you will gain 3,276 MIDI events.

### Current measure

Shows your current position in the sequence. The number indicates the specific measure SEQuel will next begin playing or recording from. You may jump to any specific measure by entering a new number in this field.

### Song position bar

Gives you a graphic representation of your current position in the song. You can change your current position by entering a new number in the current measure field or by using the Smart keys to rewind or move forward.



## THE MAIN SCREEN, cont.

### Edit range data

These fields define an area of the music that the range editing features will act upon. See the explanation of "entering event times and durations" discussed under the user interface section above for information regarding changing these fields.

Edit start: contains the event time of the first event that will be affected by a range editing command such as move, copy, delete, transpose, quantize and velocity scale.

Edit end: contains the event time of the first event that will not be affected by a range editing command. For example if the "Edit start" was set to 1:001:000 and "Edit end" was 1:002:000, a range editing command would affect all the MIDI events starting at measure 1, beat 1 and running up to but not including measure 1, beat 2.

Edit destination: contains the event time to which a range of data is being moved or copied.



## THE MAIN SCREEN, cont.

### Tracks

A track stores a series of MIDI events within a sequence. SEQuel allows you to create eight independent tracks, each holding a separate stream of MIDI events.

The individual track information reads horizontally and is divided into several columns. These columns are entitled "Track", "Ch" (Channel), "Play", "Rec" (Record) and "Evnts" (Events).

Track: displays the name of the track. You can change the name of a track by highlighting it and pressing Return. In order to tell SEQuel's editing features (Move Copy, Edit, Transpose, etc.) which track you wish to affect, your cursor must be on the appropriate track name.

Channel: contains the channel number currently assigned to the track. A channel is a path through which MIDI data passes. There are 16 of them numbered 1 through 16. All MIDI instruments receive and transmit through a subset of these 16 channels. The channels you can use are limited by your particular MIDI instrument. Read your MIDI instrument manual to find out what channels your instrument responds to. You may set all the tracks in a sequence to play through one channel, or you may set each track to a different channel. To change a channel highlight a channel field, press Return and type in the channel number you wish.

Play: in order for a track to be played the track must be play enabled. To toggle Play enable on or off, highlight the corresponding box and press Return. You can play all eight tracks simultaneously or you can listen to a single track by itself (solo).

Record: allows you to select the track to be recorded on. You can only record to one track at a time. Smart Key IV "RECRD" will only appear when there is a track that has been Record enabled. To toggle Record enable on or off, highlight the corresponding box and press Return.

Overdub: This allows you to toggle between recording and overdubbing modes. In normal recording, all track data from the recording point to the end of the track is erased. Overdub mode does not erase the data, but, rather, merges newly recorded data with existing data. To toggle between "Rec" and "O/D", highlight the column title and press Return.

Events: displays the number of MIDI events recorded on each track. It is just there for your information.

## THE MAIN SCREEN, cont.

### Conductor track information

The Conductor track is a special track that is used to control meter, tempo, key signature and metronome clicks. You cannot use any range editing commands with this track. The tempo and meter fields simply show the current tempo and meter as it is set in the Conductor track. They can not be modified from the main screen, but only through editing the Conductor track. For information regarding editing this track see "CONDUCTOR TRACK EVENT LIST SCREEN" below.

### Metronome

The metronome is an audible click that helps you keep time with the music you are recording or playing back. How many times the metronome clicks per beat is controlled by the time signature set in the conductor track. To turn the metronome on or off, hilite the field and press Return. The "click" will be heard out of your TV or monitor speaker.

### Clock

In order for SEQuel to play back or record music in time it needs to be guided by a clock. SEQuel can either supply its own internal clock or it can "sync" to the clock of an external MIDI device such as a drum machine. These devices transmit a "MIDI clock" command 24 times per beat. When you change the tempo on the drum machine, the "MIDI clocks" slow down or speed up accordingly and any synched device will follow this tempo change. If you turn the external clock on and there is no external device sending MIDI clocks, the sequencer will not advance and nothing will play or record. You can change the clock to either INT (internal) or EXT (external) by hiliting the field and pressing Return.

In order to synch to external clock, set the clock field to EXT then press PLAY or RECORD on SEQuel. Nothing will happen until your external device sends a START event. This is usually accomplished by pressing a START button on your external MIDI device. After SEQ receives the START event it will begin synching to the clock events being sent by your external MIDI device. SEQuel will continue to record or play back until you press the STOP Smart Key or until it receives a STOP event from your external MIDI device. This is usually accomplished by pressing the STOP button on your external MIDI device.

## MAIN SCREEN SMART KEYS

I REW	II FWD	III EDIT	IV RECRD	V PLAY SONG	VI MORE
----------	-----------	-------------	-------------	-------------------	------------

I TRANS POSE	II VELO SCALE	III QUAN TIZE		VI MORE
--------------------	---------------------	---------------------	--	------------

### Rewind

REW moves your current position in the song file 1 measure back. Pressing Shift/REW moves your current position in the song 10 measures back.

### Forward

FWD moves your current position in the song file 1 measure forward. Pressing Shift/FWD moves your current position in the song 10 measures forward.

### Edit

EDIT takes you into the Event List screen for the current measure in the hilited track. EDIT will not function if your cursor is not on a track name. See the explanation of the Event List screen later.

### Record

Shift/RECRD begins recording at the current measure on the record-enabled track. IT AUTOMATICALLY ERASES ALL EXISTING DATA ON THE RECORD-ENABLED TRACK FROM THE CURRENT POSITION FORWARD! (If you don't want to lose existing data, record on a different track or use Overdub instead of Record.) The Record Smart Key will not appear unless a track is record-enabled. To stop recording press Smart Key VI "STOP". If you recorded a large amount of data it may take some time after you press STOP to merge it all in. All tracks that are play-enabled will play while you are recording.

### Overdub

Shift/OVERDUB performs all the same functions as RECORD, except it does not erase all the existing data on the record-enabled track. The OVERDUB Smart Key will only appear if there is a record-enabled track and you have changed the record-enable column title from REC to O/D.

### Play Song

PLAY SONG will start playing back the play-enabled tracks at the current position. Tracks that are not play-enabled will not be heard. The song will automatically end at the end of the sequence. If you want to stop the play-back press Smart Key VI "STOP".

### More

There are two sets of Smart Keys on the main screen. MORE will toggle between the two sets.



Transpose

TRANSPOSE allows you to shift all of the pitch values in the edit range by up to an octave up or down. This can be used to change keys or create parallel harmonies. First define an edit range. Then hilite the name of the track that you wish to affect and press TRANSPOSE. You'll be prompted to enter a transpose factor. Each half-step is a factor of 1, so to transpose up one octave (12 half-steps), enter a 12. To transpose down a perfect 5th (7 half-steps) enter a -7. TRANSPOSE will not transpose above or below the MIDI note range of C0 to G10.

Velocity Scale

VELO SCALE allows you to shift all the note velocities in the edit range. Velocity is the measure of the strength with which the synthesizer key was pressed. This can be used to change the volume of an edit range. First define an edit range. Then hilite the name of the track that you wish to affect and press VELO SCALE. You'll be prompted to enter a velocity scaling factor. This is the number that will be added to the current velocity of each note in your edit range. Positive numbers will increase the velocity and negative numbers will decrease the velocity. VELO SCALE will not create velocities higher than 127 or lower than 1. Some synthesizers do not respond to changes in velocity. Consult your synth manual.

## MAIN SCREEN SMART KEYS, cont.

### Quantize

QUANTIZE changes the attack times of note events to make them more rhythmically precise. It is useful in correcting rhythmic inaccuracies in your sequence. Quantizing will cause the attack times of all the notes in the edit range to occur on a beat or one of its subdivisions. While sometimes this may be desirable, it can cause the music to sound too precise or "computerized". QUANTIZE will only alter the locations of note events, all other data will be unmodified. To quantize, define an edit range, hilite the name of the track you wish to affect and press QUANTIZE. You will then need to select a quantize factor from the following Smart Keys:

I	II	III	IV	V	VI
32nd (15)	16th (30)	8T (40)	8th (60)	4T (80)	4tr (120)

The quantize factor is a set of equally spaced locations to which your notes will be moved. If you choose a quantizing factor of a quarter note (Smart Key VI) all notes in the selected area will be moved to the nearest quarter note subdivision. Your quantizing options from left to right are: 32nd note, 16th note, 8th note triplets, 8th note, 1/4 note triplets and 1/4 note. The parenthetical numbers indicate the tick grid that is set up for each factor. In other words, for the 1/4 note quantize factor, all the notes in the edit range will be moved to an event time that is a multiple of 120 ticks. Once you quantize you can NOT UNDO so consider saving your sequence before using this edit feature!



## MOVING AND COPYING

Use the MOVE/COPY key to move or copy an edit range from one location to another. Move removes the data in the edit range and places it at the Edit destination. The data no longer exists at the original location. Copy makes a copy of the data in the edit range then moves the copy to the Edit destination. Now the data exists in both the original location and the new location. Because copying creates new data, you may run out of memory. If you do you will get the error message "Memory full" and nothing will have been copied.

Before pressing the MOVE/COPY key, make sure you have defined an edit range and destination time. After pressing MOVE/COPY you will be asked to select a destination track. The destination track is the track you want the data to move or copy to. Select a destination track by hilighting the name of the destination track and pressing Return. Your Smart Key options will change to:

	V MOVE	VI COPY
--	-----------	------------

Press Smart Key V "MOVE" to move the data to the destination track. Press Smart Key VI "COPY" to copy the data to the destination track. If there is a large amount of data to move or copy it may take some time. Once you select either of these two Smart Keys you will not be able to UNDO your work, so be sure to save your sequence!

### CLEARING SONG FILES AND TRACKS

Pressing CLEAR will allow you to clear either a single track or an entire song from memory:

Clear	V TRACK	VI SONG
-------	------------	------------

You will get the CLEAR TRACK option only when your cursor is hiliting a track name. Otherwise you will get the CLEAR SONG Smart Key alone. CLEAR TRACK will delete all the events in the hilited track. CLEAR SONG will clear SEQuel's entire work space and will reset SEQuel to its start-up condition.

### DELETING TRACKS

Pressing DELETE will cause the data in the edit range of the hilited track to be deleted from memory. You will be given a chance to respond YES or NO after you select DELETE:

Delete range?	V YES	VI NO
---------------	----------	----------

You cannot UNDO a DELETE!

## SAVING AND LOADING SONG FILES

Use the STORE/GET key to store or retrieve song files. When you press the STORE/GET key, your Smart Keys will change to reflect your storing and getting options:

	<b>IV</b> SAVE FMT0	<b>V</b> SAVE FMT1	<b>VI</b> GET
--	---------------------------	--------------------------	------------------

### Storing a song file

There are two formats in which song files can be saved. These are standard MIDI formats and are interchangeable with sequencers for many other computers.

Format 0 is the less common MIDI file format. It saves sequences as a single track of multi-channel data. This format will not save your track names. It is the format that MINI RECORDER recognizes, so if you want to save something to use with MINI RECORDER, use this Smart Key. Also, if you have multiple tracks assigned to the same channel, they will be merged as they are written to the file. When you load the file later, you will not be able to separate the formerly separated tracks!

Format 1 is the more common MIDI file format. It saves sequences as multiple tracks of single-channel data. This format will save your track names and preserve multiple tracks assigned to the same channel.

Whenever you press either SAVE Smart Key you will be asked to select the drive you wish to store to:

SELECT DRIVE	<b>III</b> TAPE I	<b>IV</b> TAPE II	<b>V</b> DISK I	<b>VI</b> DISK II
-----------------	-------------------------	-------------------------	-----------------------	-------------------------

Only the drives that are available and loaded will appear. Select a drive. You will then be asked to name the file to be stored. Type in a name for the file and press Return. If the name you type has already been used, you will get a message that reads:

Replace Existing File?	<b>V</b> YES	<b>VI</b> NO
---------------------------	-----------------	-----------------

If you choose to replace an existing file, the existing file will be turned into a backup file and a new file will be created.

## SAVING AND LOADING SONG FILES, cont.

### Loading a song file

Smart Key VI "GET" allows you to load a sequence file into SEQuel. This file can either be a Standard MIDI Format 0 or Format 1 file. After pressing GET the Smart Keys will show your currently loaded drives:

SELECT DRIVE	III TAPE I	IV TAPE II	V DISK I	VI DISK II
-----------------	------------------	------------------	----------------	------------------

Select the drive you wish to load from. The drive will spin and you will be presented with a list of files. From this screen you can move your cursor around to the file names. If there is another page of file names a little red right-pointing arrow will appear and if you run your cursor past the last file name on this page you will get to the next file page. To get back to the first file page run your cursor up above the first file name on the page. The Smart keys reflect your current options:

	II BACK DIR		IV SEND SYSX	V MERGE	VI GET
--	-------------------	--	--------------------	------------	-----------

### Backup Directory

Press Smart Key II, "BACK DIR" to view the directory of backup files. To return to the file directory press Smart Key II "FILE DIR".

### Send System Exclusive

A System Exclusive file is a special type of file that contains commands to load new sounds into specific types of synthesizers. Often referred to as "bulk dump format" these files may be created using another utility or may be found on BBS's. When you select SEND SYSX SEQuel will send the hilited file to your MIDI instrument exactly as it is with no Error checking! For this reason do not select word processing files or sequence files with SEND SYSX, only send System Exclusive files.

### Merge

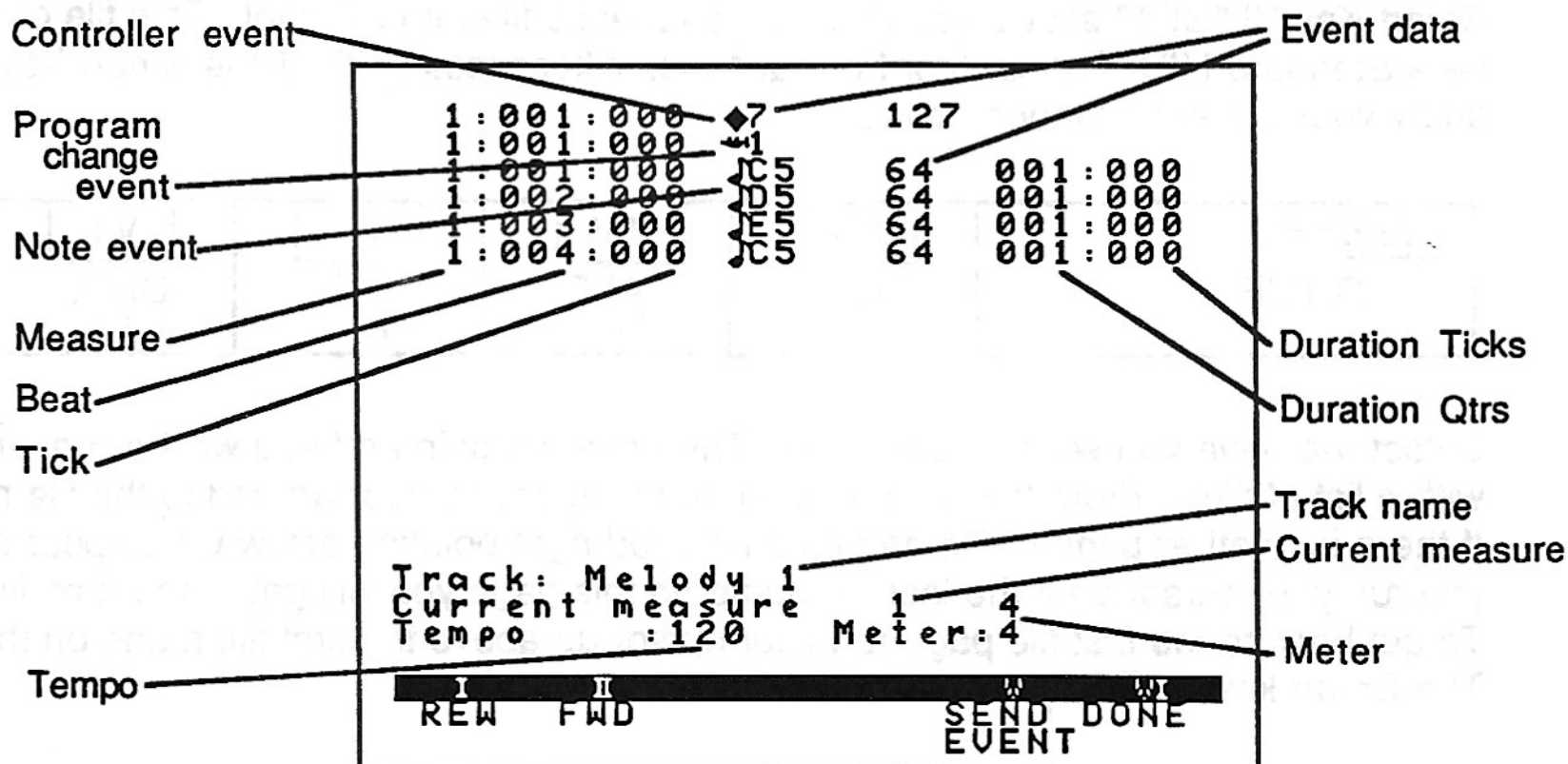
Smart Key V "MERGE" allows you to merge the hilited song file with one that has already been loaded into SEQuel. SEQuel will attempt to find an empty track to put each merged track into. It will only merge as many tracks as are available. The conductor information (tempo, time signature, etc.) cannot be merged. This feature is designed so you can bring in pieces of other sequences, such as a drum track, to the sequence you are working on.

### Get

Smart Key VI "GET" will load the hilited song file. It will clear any previously loaded sequence.



## THE EVENT LIST SCREEN



This is called the Event List screen . It displays one measure of MIDI data on one of the eight tracks. Each horizontal line represents one MIDI event. To view this screen you must hilite a track name on the Main screen and press Smart Key III "EDIT."

### MIDI Events

A MIDI event is made up of several fields. All MIDI events have an "event time", an "event type" and one or two fields of "event data". Additionally, note events have a duration field. MIDI events are created either by playing them on your MIDI instrument or by inserting them using the INSERT KEY.

### Event time

All MIDI events have an "event time" displayed as the left-most field of the event. This is the measure, beat and "tick" at which the event occurs in the music. For an introduction to these terms see the "Fundamentals" part of this manual.

### Event type

Every MIDI event has an "event type". The "event type" describes an action that produces a certain type of sound. SEQuel supports the entire range of MIDI events defined by the official MIDI specifications with the exception of SYSEX events. The following is a list of the different types of events supported by SEQuel.

♪	_____	Note
⇓	_____	Poly Pressure
◆	_____	Controller
⏏	_____	Program Change
↓	_____	Channel Pressure
^	_____	Pitch Bend

## THE EVENT LIST SCREEN, cont.

### Controllers

Foot pedals, wheels, sliders and breath controllers are common types of controllers. Controllers are used to control such effects as vibrato and volume. In SEQuel a controller is represented by a diamond symbol and is identified by a number. The number assigned to a specific controller depends on the MIDI instrument you are using. Check your synthesizer manual for a list of controllers your synthesizer responds to. Below are a few samples of how controllers appear on SEQuel's Event List Screen:

1:001:000 ◆7 100

This is controller number 7, which, on synthesizers that respond to it, controls channel volume. The volume in the above example is set to 100 in a range of 0-127.

1:002:000 ◆64 127

1:004:000 ◆64 0

This is controller number 64, which controls the sustain pedal. This is an example of a "switch" type controller. The switch is "on" (meaning, the pedal is down) when the number is 127 and "off" (pedal up) when it is 0. Other common controllers are Modulation (Controller 1) and Pan (Controller 10).

### Channel Pressure

This effect is also known as "aftertouch" or "mono key pressure". On synthesizers that support it, if you continue to press down a key after you play a note, channel pressure values are sent in a range between 0 and 127. The harder you press, the higher the value that is sent. Mono Pressure is useful for things like changing the tone quality of a sound or controlling the amount and depth of vibrato during performance. Unlike poly pressure, below, channel pressure affects all the notes on a single channel. SEQuel's representation of channel pressure is a single down-pointing arrow. The following is an example of how channel pressure appears on SEQuel's Event List Screen:

1:002:060 ↓0

## THE EVENT LIST SCREEN, cont.

### Poly Key Pressure

This is similar to channel pressure except that each key can generate its own pressure information, instead of one pressure level for the whole channel. Poly pressure allows for subtle and complicated aftertouch effects. Since each key can have its own set of key pressure data, the first data field is the name of the note to be affected, the second data field is a pressure value of 0 to 127. In SEQuel, poly pressure is represented by two down-pointing arrows. The following is an example of how poly pressure appears on SEQuel's Event List Screen:

1 : 002 : 070  $\Downarrow$ C5 0

### Pitch Bend

Pitch bend data causes the pitch of notes being played to change. On some synthesizers you can control pitch bend with a wheel or joystick. When you move the controller it "bends" or varies the pitch up or down. A value of 0 signifies no bend, positive values bend the pitch up, and negative values bend it down. Values are in the range -8192 to 8191. In SEQuel, pitch bend is represented by a wavy line followed by a number indicating pitch bend value. The following is an example of how pitch bend appears on SEQuel's Event List Screen:

1 : 003 : 000  $\sim$ -600

1 : 003 : 040  $\sim$  0

1 : 003 : 060  $\sim$ +300

### Program Change

A program change instructs the synthesizer to change the instrument assigned to a channel. Program changes are generally in the range 0 to 127. Some MIDI devices use the range 1 to 128. In such cases, the program change number displayed in SEQuel will be one less than the number on the MIDI instrument. In SEQuel, a program change is represented by a little trumpet followed by a program change number. The following is an example of how a program change appears on SEQuel's Event List Screen:

1 : 001 : 000  $\rightarrow$ 35

Note that in MINI RECORDER and VT PLAYER you had control over program change events from the front panel. This is not the case with SEQuel. The only way to change the instrument on a channel is to insert or change a program change event in the Event List screen.

## THE EVENT LIST SCREEN, cont.

### Notes

A Note Event comprises a start time, a pitch, a velocity and a duration. A pitch is expressed as a note name and octave number. The range of notes is C0 to G10. C5 is middle C on a keyboard, although this may vary depending on your MIDI instrument. When entering notes in the note field, a flat may be specified by typing a lower case "b", and a sharp may be specified by typing a "#" as in Ab5 or F#3. SEQuel will change the spelling of the notes that you enter to conform to the key signature set in the conductor track.

Velocity is a value that represents how hard a note is struck. If you strike a note on a keyboard softly, the note will play softly and the velocity number will be lower. If you strike a key hard, the note will play loudly and the velocity number will be higher. Some synthesizers do not respond to key velocity. Check your synthesizer manual to see if your synthesizer responds to velocity.

Duration is the time between the attack and release of the note. In SEQuel, duration is expressed in quarter notes and ticks. Note that this is different from measure time, displayed in measures, beats and ticks. There are 120 ticks per quarter note. A note must have a minimum duration of one tick.

The following is an example of how Notes appear on SEQuel's Event List Screen:

1:001:000 ♩C5 64 004:000

1:001:000 ♩E5 110 002:060



## EVENT LIST SCREEN SMART KEYS

I REW	II FWD	III PREV PAGE	IV NEXT PAGE	V SEND EVENT	VI DONE
----------	-----------	---------------------	--------------------	--------------------	------------

### Rewind

REW moves your current position in the song file 1 measure back. Pressing Shift/REW moves your current position in the song 10 measures back.

### Foward

FWD moves your current position in the song file 1 measure forward. Pressing Shift/FWD moves your current position in the song 10 measures forward.

### Previous page

PREV PAGE only appears when the MIDI events for one measure spill over to another screen. This will let you see the previous page of your current measure.

### Next page

NEXT PAGE only appears when the MIDI events for one measure spill over to another screen. This will let you see the next page of your current measure.

### Send Event

SEND EVENT will send the hilited event to your MIDI instrument. It's designed to let you hear the notes one at a time but it may also be used to send program changes, volume control, etc.

### Done

Press DONE when you are through with the Event List Screen and you want to get back to the Main Screen.

## INSERTING MIDI EVENTS

When you want to insert an event into the Event List press the INSERT key on the ADAM keyboard. The Smart Keys change to reflect the types of events you may insert:

I	II	III	IV	V	VI
NOTE	POLY PRES	CON TROL	PGM CHG	CHAN PRES	PITCH BEND

The event you insert will be placed at the same event time as the hilited event. Each event has a default value that you will need to modify to your liking. For example, if you insert a note SEQuel will insert a C0 with a velocity of 64 and a duration of 1 tick. You may then modify the pitch, velocity and duration to be whatever you want. For a detailed description of Event Types, see the section called "Event Types" above.

## DELETING MIDI EVENTS

Pressing DELETE will cause the hilited event to be deleted from the sequence. This command is immediate and is not UNDOable.

## THE CONDUCTOR TRACK EVENT LIST SCREEN

The screenshot shows a window titled "THE CONDUCTOR TRACK EVENT LIST SCREEN". Inside the window, there are three lines of conductor event data:

```
1 : 001 : 000  ♯12 : 8  
1 : 001 : 000  ♯12 : 8  
1 : 001 : 000  ♯12 : 8
```

Annotations on the right side of the window point to specific parts of the data:

- Time Signature (points to "♯12 : 8")
- Metronome Click (points to "♯12 : 8")
- Key Signature (points to "♯12 : 8")
- Tempo (points to "♯12 : 8")

Below the event list, there is a status bar with the following text:

```
Track: Conductor  
Current measure 1 12  
Tempo : 55 Meter : 8
```

At the bottom of the window, there is a control bar with the following text:

```
I II III IV  
REW FWD SEND DONE  
EVENT
```

This is called the Conductor Track Event List screen . It displays one measure of Conductor data in the Conductor track. Each horizontal line represents one Conductor event. To view this screen you must hilite the Conductor track on the Main screen and press Smart Key III "EDIT."

### Conductor events

A Conductor event is made up of several fields. All Conductor events have an "event time", an "event type" and one or two fields of "event data". Unlike MIDI events, Conductor events cannot be created by playing them on your MIDI instrument. You can only create them by inserting them with the INSERT key.

### Event time

All Conductor events have an "event time" displayed as the left-most field of the event. This is the measure, beat and "tick" at which the event occurs in the music. In the example above, all three Conductor events begin at measure 1, beat 1, tick 0 of the sequence. (For an introduction to measures, beats and ticks see the "Fundamentals of Music" portion of this manual.)

## THE CONDUCTOR TRACK EVENT LIST SCREEN. cont.

### Event type

Every Conductor event has an "event type". There are three different Conductor event types:

### Time signature

Time signature events (or meter change, if you prefer) display the time signature. The symbol for a time signature is a strange division sign. In the example above, the meter is set to 12/8 time, i.e. 12 beats to a measure, an 8th note gets one beat. Meter change events can only occur at the beginning of a measure and can only occur once in a measure. To change the meter, hilite the time signature, then enter new values, seperated by a colon. The Metronome click, that little note to the right of the time signature, tells you how often the metronome will click. In the above example, it will click on every eighth note. To change the value, hilite the note and press Return until you arrive at the desired click value.

### Key signature

Key change events are relatively useless. They display the name of the key that you have assigned to the key change event. Modifying the key change event will not transpose your sequences nor cause any notes to play differently than they already play. The only thing it will change is the "spelling" of notes in a track event list. Sharp keys will spell the notes with sharps, flat keys with flats. The symbol for a key change is a small skeleton key, followed by the key signature name and the mode (Major or Minor). When you change the mode it will change the key signature name to its relative mode (e.g. C major = A minor, etc). In the example above, the notes in the track event list will be "spelled" with flats. To change a key signature, hilite the mode and press Return to toggle between Major and Minor, then hilite the note name and press Return until you arrive at the desired key name.

### Tempo

Tempo events allow you to change the speed at which a sequence will be played back. This is displayed as the number of quarter notes per minute. The symbol for a tempo change is a small clock. In the example above, the tempo is set to 55 quarter notes per minute. To change the tempo hilite the number and enter a new value. You may use these events to create complex "rubato" effects in your music. A "ritardando" (gradual slowing) at the end of a piece is frequently a nice touch and can be created by entering several gradually decreasing tempo changes in the last couple of bars.



## CONDUCTOR TRACK SCREEN SMART KEYS

I REW	II FWD	III PREV PAGE	IV NEXT PAGE	V SEND EVENT	VI DONE
----------	-----------	---------------------	--------------------	--------------------	------------

### Rewind

REW moves your current position in the song file 1 measure back. Pressing Shift/REW moves your current position in the song 10 measures back.

### Foward

FWD moves your current position in the song file 1 measure foreward. Pressing Shift/FWD moves your current position in the song 10 measures forward.

### Previous page

PREV PAGE only appears when the Conductor events for one measure spill over to another screen. This will let you see the previous page of your current measure.

### Next page

NEXT PAGE only appears when the Conductor events for one measure spill over to another screen. This will let you see the next page of your current measure.

### Send Event

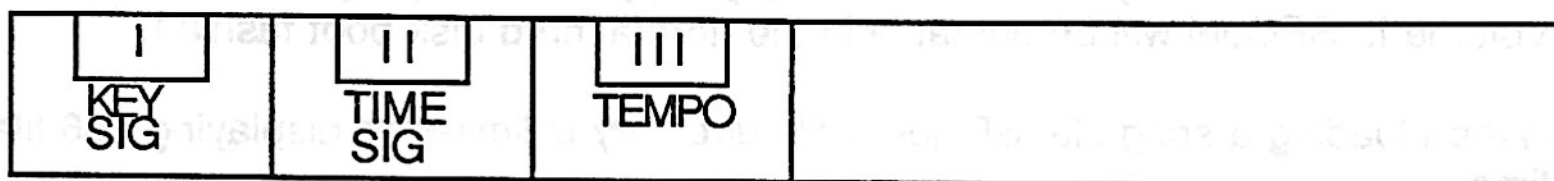
SEND EVENT has no function on the Conductor Track Event List Screen.

### Done

Press DONE when you are through with the Conductor Track Events List Screen and you want to get back to the Main Screen.

## INSERTING CONDUCTOR TRACK EVENTS

When you want to insert a Conductor Track event press the INSERT key on the ADAM keyboard. The Smart Keys change to reflect the types of events you may insert:



### Key Signature

Inserts a key signature event.

### Time Signature

Inserts a time signature event and metronome click. Since you can only do this once per measure, once a time signature has been inserted, you will no longer see this smart key. Inserting a time signature event will **NOT** move existing data in time. It simply "re-measures" the sequence. For instance, if you had a note on beat 1 of measure 2 and then changed measure 1 from 4/4 time to 2/4 time, the note that was on beat 1 of measure 2 will NOT move up in time in order to remain on beat 1 of measure 2. Rather it will remain exactly where it was in time, but now appears on beat 3 of measure 2, still 4 beats from the beginning of the song!

### Tempo

Inserts a tempo event.

## DELETING CONDUCTOR TRACK EVENTS

Pressing the DELETE key will cause the hilited event to be deleted from the sequence. This command is immediate and is not UNDOable. Deleting a time signature event will cause the affected bar to assume the time signature of the previous measure. Deleting a time signature event from measure 1 will cause the measure to default to 4/4 time.

## MISCELLANEOUS NOTES

### Hard disk users

-To run SEQuel from your hard disk simply copy the SEQ program to your hard disk Volume I. SEQuel will be bootable in the normal hard disk boot fashion.

-When loading a song file, SEQuel's file directory is limited to displaying 156 files at a time.

-While SEQuel will boot and run from your hard disk you will not be able to get back to your hard disk menu screen by pressing Shift/UNDO as usual. This is because SEQuel relocates the PCBs and DCBs, and the hard disk menu programs that I have seen fail to take this into account when initializing EOS. Contact the manufacturer of your hard disk if this seriously bothers you.

### Speed of program and cause for delays

When copying or moving MIDI events SEQuel must do an enormous amount of sorting. For this reason, if you copy or move large quantities of data, it can take SEQuel a very long time to complete its task. If you have a large amount of data to copy, try to break it into chunks of 2000 events or less. This will speed up the process somewhat.

When you record a track SEQuel must merge all that data into the destination track. This can take a long time if you have recorded a large amount of data.

## ERROR MESSAGES

Most of SEQuel's error messages appear just above the Smart Keys and are accompanied by a "warning buzz." They remain on the screen until the user dismisses them by pressing a key. The following is a comprehensive list of possible error messages and their causes:

Can not access directory	The tape or disk you are trying to access does not have a valid EOS directory on it. It is probably a CP/M disk or something.
Error creating file	SEQuel encountered a problem while attempting to create a file. The directory may not be valid, try saving to a different disk or data pack.
Error: data out of bounds!	The data you entered is not within the range SEQuel expects.
Error deleting file	You are probably trying to delete a locked file. You will need to unlock the file from SmartBASIC before you can delete it.
Error opening file	The file you are trying to load does not exist on the tape or disk. This may happen if you change media while selecting a file to load.
Error reading file	The file you are trying to load is corrupt. The information in the header about the file may be incorrect, the file's data may have been truncated, or there is a bad block in the file.
Error writing file	An error occurred while writing the file. The disk or data pack may have a bad block. Try saving to a new disk.
Memory full!	While loading a file, recording, copying or inserting you have exceeded the number of MIDI events available. Any additional events will be discarded.
No files	There are no files in the directory.
No loaded drives	There are no drives loaded.
No MIDI	SEQuel requires a MIDI interface to operate. If you boot the program without a MIDI interface properly installed you will get this message and the program will halt.
No more room on tape or disk	The tape or disk is too full to store the file you are trying to store. Try storing on a new tape or disk.



## ERROR MESSAGES, cont.

**Not a standard MIDI file!**

You are trying to load a file that is not a standard MIDI format 0 or format 1 file.

**Out of tracks**

You are trying to load or merge a file and you have already used all eight tracks.

## FINDING SEQUENCER FILES

Since SEQuel, like most sequencers for other computers, reads and writes standard MIDI files, you can read song files created on other computers such as the Macintosh, IBM, Amiga, Atari, etc. These song files are actively traded on bulletin boards and information services such as CompuServe and Genie. In addition, Bonafide Systems and many other ADAM dealers have collections of public domain songs for you to purchase.