



# ***Musician's Guide***

*Kurzweil MS-1A Micro Sequencer*

KURZWEIL MUSIC SYSTEMS  
AND Music Corp  
9501 Lakewood Drive, SW Ste. D  
Lakewood, Washington 98499  
(253)589-3200

---

---

# Table of Contents

<i>Section</i>	<i>Page</i>
<b>I. Getting Started .....</b>	<b>7</b>
Welcome to the MS-1! .....	8
An Overview of the Manual .....	8
A More Thorough Approach .....	9
Setting Up the MS-1 .....	9
Tutorial #1—Recording and Playback .....	10
Tutorial #2—Saving Your Song on a RAM Card .....	14
<b>II. Applications .....</b>	<b>19</b>
Introduction .....	20
What is the MS-1? .....	20
What is a Sequencer? .....	20
What is MIDI? .....	21
How the MS-1 Records and Plays Back Your Songs .....	23
The MS-1's Default Track and Channel Assignments .....	25
Some Common Applications .....	27
#1—Recording a Track .....	28
#2—Recording One Track While Listening to Another .....	29
#3—Merging Tracks .....	29
#4—Muting Tracks .....	34
#5—Saving a Song on a RAM Card .....	35
#6—Loading a Song From a RAM Card .....	36
#7—Setting Track Volume .....	37
#8—Adjusting Track Velocity .....	38
#9—Recording Program Changes .....	39
#10—Erasing a Track .....	39
#11—Patching Through to Other MIDI Devices .....	39
#12—Erasing a Song .....	40
#13—Changing the Initial Program Change .....	41
#14—Looping a Track .....	42
#15—Changing MIDI Channels .....	44
#16—Slowing Down the Tempo to Record Difficult Music .....	45
#17—Chaining Songs .....	45
#18—Changing the Tempo of a Song .....	46

---

---

---

---

**III. Reference .....49**

The MS-1 User Interface ..... 50

Two Modes ..... 50

Getting Around in Edit Mode ..... 51

Display Symbols in Play/Record Mode ..... 52

The Front Panel ..... 53

The Back Panel ..... 56

The Menus ..... 57

    1: Adjust Track ..... 57

        a: Trk Program ..... 58

        b: Trk Volume ..... 59

        c: Trk Velocities ..... 60

        d: Trk Transpose ..... 61

        e: Trk MIDI Chan ..... 61

        f: Trk Mute ..... 61

    2: Adjust Song ..... 62

        a: Set Song Tempo ..... 63

        b: Chain Song ..... 63

        c: Fade Song ..... 66

    3: Copy ..... 68

        a: Copy Song ..... 68

        b: Merge Tracks ..... 69

    4: Erase ..... 70

        a: Erase Song ..... 70

        b: Clear Memory [Soft Reset] ..... 71

        c: Clear RAM Card ..... 71

    5: Loop ..... 72

        a: Set T1 Loop ..... 72

        b: Times to Loop ..... 73

        c: Cutoff Loops ..... 74

    6: Metronome ..... 74

        a: Click Volume ..... 75

        b: Record Tempo ..... 75

---

---

---

---

---

---

---

<i>Section</i>	<i>Page</i>
7: MIDI .....	75
a: Base Channel .....	76
b: Patch Through .....	76
c: Record Filter .....	77
d: Play Filter .....	77
e: Program Chgs .....	78
f: System ID .....	78
g: Sync Mode .....	79
h: MIDIScope .....	80
i: Dump to MIDI .....	81
j: Load Song to # .....	82
8: Utilities .....	83
a: Show Free Note .....	83
b: Show Song Size .....	84
c: Play All Songs .....	84
<b>IV. Appendix .....</b>	<b>85</b>
Battery Replacement .....	86
MIDI Implementation Chart .....	87
The Edit Mode Menus .....	88
<b>V. Index .....</b>	<b>91</b>

---

---

---

---

*Getting Started  
With the MS-1*

1

*Section  
One*

## *Getting Started With the MS-1*

### **Welcome to the MS-1!**

Congratulations on your purchase of the MS-1 MicroSequencer. We know you're anxious to start working with the MS-1, so we'll get right to the tutorial sections in just a minute. Before we do, however, we want to take a few paragraphs to tell you how this manual is organized.

### **An Overview of the Manual**

This manual has been structured in such a way that virtually all of the information you need to have fun with the MS-1 is contained in the Tutorial and Applications sections. The Reference section is provided only for your reference. You don't need to read it page by page. It's just there to refer to when you need detailed information about a specific MS-1 function.

If you know a lot about MIDI sequencers you may just want to turn on the MS-1 and go to it. But even if you've worked with a MIDI sequencer before, there are two short sections of this manual that you should read before getting started. At the very least, make sure you read the section on *How the MS-1 Records and Plays Back Your Songs*. This part of the manual has some important information about how the MS-1 works and how its default track and channel assignments make sequencing fast and easy. We also recommend going through Tutorial

*Start with the tutorials, then  
move on to the Applications  
section.*

#1. This tutorial takes you through the basic operations of recording and playing back tracks.

### **A More Thorough Approach**

If you are new to the world of MIDI sequencing or if you just believe that it's always a good idea to read the manual then by all means do so. Follow the directions on setting up the MS-1 and then go right into the tutorials. After you've gone through the tutorials, the beginning of the Applications section should help to clear up any conceptual questions you might have about how the MS-1 works. There's also a short general discussion about MIDI that should be helpful.

*The information in the Applications section should cover about 90% of your interaction with the MS-1.*

### **Setting Up the MS-1**

Setting up the MS-1 is quick and easy. We'll assume that you have already taken it out of the box and have placed it on a desk or a table in front of you. To set up the MS-1 follow these steps:

- Plug the AC Power Supply into a wall outlet.

This power supply is designed specifically for the MS-1. Never plug it into another device, and never attempt to use a different power supply with the MS-1.

**NOTE TO INTERNATIONAL USERS:** If your voltage is higher than 110 (as used in the U.S. and Canada) you will need to use a transformer to reduce the voltage. Voltages higher than 110V will damage the MS-1.

- Connect the plug from the Power Supply to the jack on the far left side of the MS-1's rear panel (as you face the front).
- Connect a MIDI cable from the MIDI Out of your keyboard to the MIDI In of the MS-1.
- Connect another MIDI cable from the MIDI In of your keyboard to the

MIDI Out of the MS-1.

- Turn on your MIDI keyboard.
- Turn on the MS-1 (the power switch is on the rear panel).

That's all there is to it! You're ready to start sequencing. Now, please continue on with Tutorial #1.

### **Tutorial #1—Recording and Playback**

This tutorial is based on the Blues. If you are not familiar with the Blues we've prepared a short, 1-chorus arrangement for you. The music has been provided for you on the next page. You don't have to follow this arrangement exactly. If you can't or don't want to play the music as it is written, that's OK. But the tutorial shows you some useful features and techniques if you play the arrangement that we have provided for you. At least try to use the same instrument sounds if possible.

*Your MIDI keyboard must be transmitting on Channel 1 for the tutorial to work.*

Now that you've got everything set up we can start recording some music. Before we do, though, make one last check to see if your cables are connected properly, and make sure your keyboard is in its multi-timbral (Multi) mode, transmitting on MIDI channel 1.

NOTE: The MS-1 is designed to work best with a multi-timbral keyboard like the Kurzweil K1000 SE or Ensemble Grande. If the keyboard you have is not multi-timbral then put it in Omni Mode and call up a piano sound. Use the piano sound exclusively in both tutorials. And remember, YOU MUST BE TRANSMITTING ON MIDI CHANNEL 1.

### **Recording the First Track**

*If you feel like playing to a metronome press the metronome button and use the Tempo Knob to set the tempo to a comfortable setting.*

We'll start by putting the Bass part down on Track 1. If you'd like to record to a metronome, press the Metronome button and adjust the Tempo Knob to a comfortable setting. To begin recording all you need to do is press the RECORD button and call up a Bass sound on your keyboard.

NOTE: If you already have a Bass sound up on your keyboard call it



# Blues in C

C13 C13

Trumpet

Strings

Piano

Bass

Detailed description: This system contains the first two measures of the piece. The Trumpet part consists of two measures of rhythmic slashes. The Strings part plays sustained chords: C13 in the first measure and C13 in the second. The Piano part features a walking bass line with chords: C13, F13, C13, and F13. The Bass part plays a simple walking bass line: C2, D2, E2, F2, G2, A2, B2, C3, D3, E3, F3, G3, A3, B3, C4.

F13 C13

Trumpet

Strings

Piano

Bass

Detailed description: This system contains the next two measures. The Trumpet part continues with rhythmic slashes. The Strings part plays sustained chords: F13 in the first measure and C13 in the second. The Piano part continues the walking bass line with chords: F13, C13, F13, and C13. The Bass part continues the walking bass line: D3, E3, F3, G3, A3, B3, C4, D4, E4, F4, G4, A4, B4, C5.

G13 F13 C13 Dm7 G13 D♭13 C13

Trumpet

Strings

Piano

Bass

Detailed description: This system contains the final three measures. The Trumpet part continues with rhythmic slashes. The Strings part plays sustained chords: G13, F13, C13, Dm7, G13, D♭13, and C13. The Piano part continues the walking bass line with chords: G13, F13, C13, Dm7, G13, D♭13, and C13. The Bass part continues the walking bass line: D4, E4, F4, G4, A4, B4, C5, D5, E5, F5, G5, A5, B5, C6.

*When you call up the Bass sound the MS-1 records the program change number and stores it as the first event in the track.*

up again. The MS-1 needs to be sent the program change corresponding to the Bass sound in order to play back correctly.

The display should look like this:

**SONG: 1 TRK: R---**

The "R" means that Track 1 is ready to be recorded on. Call up a Bass sound on your keyboard. Recording will be triggered by the first note you play. Start whenever you're ready. During recording the display will look like this:

**Recording 1 R---**

When you finish the Bass part press the STOP button. You've just recorded your first track with the MS-1! The display should look like this:

**SONG: 1 TRK: +---**

The "+" means that data was recorded on Track 1. If you're happy with your performance you can move on to the other parts. You can hear the track you just played by pressing the PLAY button and then pressing the START button. Press the STOP button when you are done listening.

If you want to go back and try the Bass part again, press the RECORD button and then press the TRK 1 button. Start playing any time you want. Anything you play will replace what you just recorded.

### **Recording the Second Track**

For the second track, let's record the Piano part. First, press the RECORD button. The display should look like this:

**SONG: 1 TRK: PR---**

*Remember, you must call up the sound after you press the Record button.*

The "P" means that Track 1 will be playing back while you record on Track 2. The "R" means that whatever you play will be recorded on Track 2. Now, call up a Piano sound on your keyboard. You can start playing at any time. Once again, the first note you play will trigger the recording process. The Bass part that you just played will also begin at exactly the same time. During recording the display will look like this:

**Recording 1 PR--**

When you finish the Piano part press the STOP button. The display should look like this:

**SONG: 1 TRK:++--**

The two "+" signs mean that both Tracks 1 and 2 have music on them. When recording and playing back sequences you'll see four different symbols in the display. A "P" means that a track is playing, an "R" means that a track is being recorded on, a "+" means that music has been recorded on a track, and a "-" means that no music has been recorded on a track.

To listen to all the parts you have recorded so far, including the part you just recorded, press the PLAY button and then press the START button. If you need to go back and record the Piano track again, press the RECORD button and then press the TRK 2 button. When you get it just right, move on to the Strings.

### **Recording the Third Track**

By now the recording process should be pretty familiar to you. To record the String part press the RECORD button, call up a String sound on your keyboard, and start playing.

When you finish playing press the STOP button. The display should look like this:

**SONG: 1 TRK:+++--**

You now have three tracks recorded—all you have to add is the solo! To listen to your three tracks press the PLAY button and then press the START button. If you need to go back and record the Strings again, by all means do so. To do that, press the RECORD button, then press the TRK 3 button, and then begin playing.

### **Recording the Fourth Track**

*Three tracks down, one to go!*

Now it's time to put a trumpet solo over those Blues changes. To record the fourth track press the RECORD button, call up a trumpet sound on your keyboard and give it a try. The MS-1 will begin recording with your first note.

When you finish your solo press the STOP button. The display should look like this:

**SONG: 1 TRK:++++**

Congratulations! You've just recorded your first song with the MS-1. Now, press the PLAY button and then press the START button to hear it all back. The display should look like this:

**Playing S1 PPPP**

When the song finishes the display should read:

**SONG: 1 TRK:++++**

### **Tutorial #2—Saving Your Song on a RAM Card**

If you have a RAM card for the MS-1 put it in the Card Slot now. A RAM card provides permanent storage for the songs you create on the MS-1. The songs in your MS-1 are always protected—even when the power goes off. But storing your songs on a RAM card insures that you will always have a backup copy. Having a RAM card also increases the number of songs you can have available at one time—from 24 to 99.

*Pressing the RECORD and PLAY buttons simultaneously takes you into Edit Mode.*

To save your new song to the RAM card, press the RECORD and PLAY buttons simultaneously. The display should look something like this:

```
1:Adjust Track
```

Press the right SELECT button until you see this in the display:

```
3:Copy
```

What we're about to do is copy Song 1 (the song you just recorded) onto the RAM card. We do this by copying Song 1 to any song location above Song 24. Songs 1-24 exist in the MS-1. Songs 25-99 exist on the RAM card.

At this point, press the YES button. The display should look something like this:

```
a:Copy Song
```

If the display looks different than this, don't panic. Just press either of the SELECT buttons until "a:Copy Song" shows up. Now, press the YES button. The display should look something like this:

```
Source S: 1 ++++
```

S:1 stands for Song 1. This means that the tracks in Song 1 will be the source data for the copy operation. The plusses mean that Song 1 has four tracks in it and that those four tracks are about to be copied.

Now, press the YES button again. The display will look like this:

```
Copy To S: 2 ----
```

The next available song is automatically selected as the destination. In this case, that's Song 2. But we don't want to copy Song 1 into Song 2, we want to copy it to the RAM card. That means copying it into Song

*Songs 1-24 exist in the MS-1.  
Songs 25-99 exist on the RAM  
card.*

25 or any song after that. To get to Song 25, press the right SELECT button until you see this in the display:

**COPY TO S:25 ----**

Now you have chosen Song 25 as the destination for the data in Song 1. Song 25 is the first song on the RAM card.

You'll notice that if you press and hold either of the SELECT buttons, the values will change rapidly (after a brief delay). This holds true for all functions where the SELECT buttons are used to change values.

Now, press the YES button. The display should look like this:

**COPY S1 TO S25?**

At this point you can still back out of the copy operation by hitting the NO button. The reason the MS-1 prompts you one more time is because copying a song from one location to another erases any data in the destination location. There shouldn't be anything on your RAM card yet so you don't have to worry about this now.

To make the copy press the YES button. The MS-1 will briefly display the message:

**4 tracks copied**

And then:

**CARD:25 TRK:++++**

Your copy operation should have been successful but let's check to make sure. Press the PLAY button and then press the START button to listen to your song.

*Any time you are working  
with a song on a RAM card  
the MS-1 will let you know.*

Notice that the MS-1 tells you that you are now looking at a song that is on the RAM card. Any time you are playing or recording a song that exists on a RAM card, the MS-1 will let you know. You can treat songs

on RAM cards the same way you would songs in the internal memory of the MS-1.

You'll find that using a RAM card is very easy. It also greatly expands the capabilities of the MS-1. Not only is it a convenient way to back up your songs but it also gives you the ability to work with as many as 99 songs in one session.

# *Applications*

# 2

*Section  
Two*



## Applications

*Be sure to read the section on  
How the MS-1 Records and  
Plays Your Songs.*

### Introduction

This section of the manual will cover specific sequencing applications. We'll take you step-by-step through all the basic sequencer functions and we'll even show you a few advanced applications that you might not have thought of. Before we do that, however, we would like to present a short, general explanation of MIDI sequencing. This section will also cover the way the MS-1 records and plays back your songs and how its default track and channel configuration makes sequencing with the MS-1 fast and easy.

### What is the MS-1?

The MS-1 is a MIDI sequencer. To understand what a MIDI sequencer is you have to be able to answer two questions: "What is a sequencer?" and "What is MIDI?"

### Question #1—What is a Sequencer?

A sequencer is a recording device similar to a tape recorder. In its simplest form a sequencer will let you play something into it and then will faithfully play it back, just like the cassette tape recorder that most people are familiar with. Most sequencers today offer multi-track recording. This means that, unlike the typical cassette recorder, you

can record extra “tracks” of music right along side of each other without erasing anything.

The term “sequencer” was coined in the early days of electronic instruments. Way back then (about 15 or 20 years ago) some synthesizers were capable of sending and receiving voltages that corresponded with notes on the keyboard. Early sequencers were designed to record these voltages and play them back. Unfortunately, this method of recording and playback was so primitive that recording could not be accomplished in real time. That is, you couldn’t really play into a sequencer. What you had to do was literally program it to send certain voltages at specific times. The term “sequencer” was developed to describe this programming and playback process. Notes could be entered and played back (usually only one note at a time) in *sequence*, one right after the other. So, the reason these early keyboard recording devices weren’t called recorders is because they really didn’t record anything. They could only be programmed to play back a sequence of electrical events.

*Early sequencers couldn't record in real time. They could only "record" and play back a pre-programmed sequence of voltages.*

Needless to say, the MS-1 is far more powerful than these original sequencers. It can record realtime polyphonic performances and play them back without any explicit “programming” by the user. And instead of recording a series of unwieldy electrical voltages, it records numbers which can be stored and manipulated far more efficiently.

Even though most sequencers have come to resemble digital multi-track recording devices, the word “sequencer” has persisted. So, too, have related terms like “sequencing” and “programming” which have now become synonymous with more common musical activities like playing and recording.

### **What is MIDI?**

The world of electronic musical instruments was forever changed in 1983 when MIDI was introduced. MIDI is an acronym that stands for Musical Instrument Digital Interface. Contrary to widely held misconceptions MIDI is not a cable or a 5-pin DIN plug or a keyboard or a drum machine or a piece of software. It’s just a piece of paper (several pieces actually), a written document that describes a set of conventions, a computer language, by which electronic musical instruments can communicate with each other. The Detailed MIDI Specification (or MIDI Spec as it is sometimes called) contains a list of computer com-

*MIDI is a very simple computer language that provides a way to describe musical events with numbers.*

mands with explicit instructions as to their form and use.

### **“M” is for Music**

In the last 10 or 15 years many standards have been developed to facilitate communication between computers and other micro-processor controlled devices. Because MIDI is a standard designed for musical instruments, its commands are geared toward various musical applications. There are MIDI commands for turning notes on and off, for selecting sounds, for setting the volume of a note, for activating sustain and sostenuto pedals, and so forth. The MIDI Specification is administered and updated by the MIDI Manufacturers Association.

### **“I” is for Instrument**

As it was originally conceived, MIDI was created to be used by electronic musical instruments. But other devices can utilize MIDI as well. Today MIDI is an integral part of some effects processors, lighting consoles, mixing boards, and a whole range of extra-musical and even non-musical devices. To say that computers use MIDI is merely to state the obvious. Virtually every electronic keyboard manufactured today is really a computer because almost every instrument contains a micro-processor of some kind. The MS-1 is a computer, too. But unlike the typical personal computer, it was developed and optimized to perform one specific application—recording and playing back music.

### **“D” is for Digital**

With MIDI, the medium for communication is digital. MIDI devices pass information to each other as streams of numbers. A common misconception about MIDI is that MIDI instruments are somehow cognizant of music itself. That's not true. MIDI instruments understand only numbers—things like which note on a keyboard was played, how hard that note was played, if the sustain pedal was depressed, etc.

Let's say you play middle C on a Kurzweil Ensemble Grande with the Grand Piano selected. You should hear a fairly loud, fairly bright piano. The MIDI message associated with that event has a number that means “a note was played” (144, for example) and another number that represents how hard your finger hit the keyboard (maybe 127 if

*When the MS-1 records a MIDI performance it isn't really recording music, it's just recording numbers.*

you hit it really hard) and a third number describing the key you played (in this case, 60 for middle C). And that's it. MIDI can fully describe the physical action that takes place (a certain key being depressed with a certain amount of force) but there is nothing in the MIDI Specification which describes the actual sound that results from this action—whether the note was a piano or a trumpet, whether it was loud or soft, dull or bright, and so forth.

We can achieve these kinds of effects through MIDI but there is nothing explicit in the MIDI Spec that defines them. Rather, these kinds of effects (like timbre or volume changes) must be programmed individually for each sound on each MIDI instrument. Fortunately, most manufacturers of MIDI keyboards do this programming for you in a way that is usually logical and musically useful. For instance, you can call up almost any acoustic instrument sound on almost any MIDI keyboard made today and find that the sound gets louder and brighter the harder you hit the keys.

### **"I" is for Interface**

The word interface, in this context, means something that acts as a bridge across which two or more devices can communicate. Because MIDI is just a bunch of pieces of paper describing a computer language it can't physically create the link between two microprocessor-controlled devices. But if each device has been programmed to understand the commands outlined in the MIDI Spec they can communicate by passing MIDI messages (streams of numbers) back and forth along a MIDI cable.

*This section is really important. Make sure you read the next few pages very carefully.*

### **How the MS-1 Records and Plays Back Your Songs**

Your MIDI keyboard connects to the MS-1 via two MIDI cables. One cable connects the MIDI output of your keyboard to the MIDI input of the MS-1. The other cable connects the MIDI input of your keyboard to the MIDI output of the MS-1.

When you play on your keyboard into the MS-1, MIDI messages (streams of numbers) travel from the MIDI output of your keyboard, through the MIDI cable, and into the MS-1 via its MIDI input. During recording, the MS-1 keeps track of the MIDI messages that your keyboard is sending out. Each time a MIDI message comes down the

cable, the MS-1 records the type of message and the time at which it was received.

During playback the MS-1 sends the MIDI messages it has recorded back to your keyboard. Because the MS-1 has recorded the timing of each message (when that message was received) in addition to the message itself, it can play back your performance exactly as you played it in.

Playback and recording can occur simultaneously. Both the MS-1 and your MIDI keyboard are well-equipped to send and receive MIDI information at the same time. But in order to accomplish this, two MIDI cables (not just one!) must be connected in the manner described above—one cable carries information from your keyboard to the MS-1, and the other carries information from the MS-1 to your keyboard.

### Tracks

*The MS-1's four tracks are like four pieces of recording tape running side by side in perfect synchronization.*

MIDI information can be recorded on any of the MS-1's four tracks. You can think of these tracks as four long pieces of recording tape running side by side. You can record on one track and then record on another while listening to what you played on the first one.

Many of the MS-1's editing operations can be applied to specific tracks. To perform volume adjustments, looping, and other functions you will want to tell the MS-1 which of the four tracks you want your edit to affect. Because the four tracks are essentially independent of each other you can make a volume adjustment or set a loop point on Track 1 without affecting any of the other tracks. In situations when you need to select a specific track for editing you can do so just by pressing the appropriate TRK button.

### Channels

Defined in the MIDI Specification are 16 MIDI channels. When you play a note on your keyboard the information for that note passes down the MIDI cable on one of these 16 available MIDI channels. Only devices that are "listening" to that channel will respond. The 16 different MIDI channels make it possible to address up to 16 different devices independently over the same MIDI cable. These channels are not physical entities like the different channels on a mixing board.

*Improperly connected cables and mismatched MIDI channels are the two most common sources of MIDI problems.*

They are merely numeric designations that are part of virtually every MIDI message sent out or received by your MIDI keyboard. In order for a MIDI device to determine if a particular MIDI message is intended for it all the receiving device has to do is look at the first number in the message where the channel information is encoded.

Perhaps the simplest MIDI application is playing one MIDI instrument from the keyboard of another. In order for this to work the two instruments have to be properly connected and assigned to the same MIDI channel. The MS-1 works the same way. In order for the MS-1 to record your performances, its MIDI receive channel must match the MIDI transmit channel of your keyboard. If you find that the MS-1 is not recording the data you are playing into it, check to see that your keyboard's MIDI transmit channel matches the MS-1's MIDI base channel. Mismatched channel assignment is probably the single most frequent cause of problems with MIDI instruments. The MS-1's default MIDI receive channel is MIDI Channel 1. So, always make sure you are sending information to the MS-1 on that channel.

For playback, each track on the MS-1 can be assigned its own MIDI channel independently of any other track. This allows you to send each track out to a different MIDI instrument or to different sounds of a single multi-timbral MIDI instrument. If you are using the MS-1 with a keyboard like Kurzweil's K1000 SE or Ensemble Grande, which has a multi-channel MIDI implementation, you can hear up to four different sounds simultaneously.

### **The MS-1's Default Track and Channel Assignments**

The tracks and their associated MIDI playback channels have been configured on the MS-1 to make life as easy as possible. If you are using the MS-1 with a single multi-timbral MIDI keyboard chances are you won't ever have to change your keyboard's MIDI transmit channel or any of the MS-1's playback channels.

When you turn on the MS-1 for the first time its MIDI receive channel defaults to MIDI Channel 1. Almost every MIDI keyboard also defaults to MIDI Channel 1. So, all you will probably have to do to begin recording is to turn on the MS-1 and your MIDI keyboard and cable them up.

For playback, the MS-1's four tracks default to these channel assignments:

- Track 1 transmits on MIDI Channel 2
- Track 2 transmits on MIDI Channel 3
- Track 3 transmits on MIDI Channel 4
- Track 4 transmits on MIDI Channel 5

Notice that the MS-1's receive channel is completely independent of the MIDI playback channels for the four tracks.

### An Example

Let's say you're using the MS-1 with a multi-timbral keyboard like the Kurzweil Ensemble Grande. If you've just taken both devices out of their boxes, turned them on, and cabled them up properly, you can begin recording on Track 1 immediately! By pressing the MODE button twice on your Ensemble Grande (Mark III or Mark IV) you can put your keyboard into its multi-timbral mode so you can hear different sounds on different MIDI channels. If you put the MS-1 into record and start playing the Grand Piano onto Track 1 everything works great. The MS-1 is receiving on MIDI channel 1 and your Ensemble Grande is sending on MIDI channel 1. But when you try to play back what you have just recorded you won't hear a thing. That's because the MS-1 will be sending your performance out on MIDI channel 2, the default playback channel for Track 1. If you press the Channel Up button on your Ensemble Grande you'll see that no program has been assigned to that channel. You could continue to record three more piano parts on Tracks 2, 3, and 4, but you wouldn't hear anything when you played it back. This is because the Ensemble Grande will only be looking for MIDI information on channel 1 and the MS-1 will be sending MIDI information on channels 2, 3, 4, and 5.

To make sure this scenario never occurs, the people who created the MS-1 devised a very simple way for you to always be sure that the right sound will be played back on the right channel. Every time you select a sound on a keyboard like the Ensemble Grande a MIDI message called a program change is sent out. A program change command contains a number that corresponds to a program (a sound) on your MIDI keyboard. When your keyboard receives a program change command it instantly calls up the assigned sound. So, by recording program change commands at the beginning of each track you can

*Don't let this happen to you.*

*Don't forget to record a program change every time you record a track.*

always be sure that the correct sound will be called up on your MIDI keyboard. Here's how it works.

If, just before recording begins, you send the MS-1 a program change command corresponding to the sound you want to hear, the sequencer will record that program change as the first MIDI event in the track. Then, when you go to play that track back, regardless of the sound you have called up on your keyboard at that time, the program change you recorded will automatically call up the sound you recorded with. By always making sure you send the MS-1 a program change command just before recording on a track you'll never have the problem we described above. Just follow these simple steps and you'll be all set.

*If you follow these four steps  
you will never have a  
problem.*

- Place the MS-1 in Record by pressing the RECORD button.
- Select a Track to record on by pressing one of the four TRK buttons.
- Call up the sound you want to use for playing on your keyboard. This will automatically send the correct program change to the MS-1.
- Press the START button or hit a key on your keyboard to begin recording.

By recording the program change command at the beginning of each track you can always be sure that your song will play back correctly no matter how your keyboard is configured.

### **Some Common Applications**

In this section of the manual we will take you step-by-step through some common applications. This is not intended as an exhaustive treatment covering all the features of the MS-1, but it should cover about 90% of your interaction with the unit. For complete information on specific functions see the Reference section of this manual. The Reference section covers every function of the MS-1 in complete detail.

You have probably already discovered, either through the tutorials or



through your own experimenting, that the MS-1 is incredibly easy to use. Many of the things on this list of common applications you will have probably figured out on your own. So don't feel compelled to read this section all the way through from start to finish. Browse it until you see something you don't know how to do. Work through the example a few times. And then get back to having fun with the MS-1.

### #1—Recording a Track

*Don't forget to record a program change!*

To record a track all you have to do is press the RECORD button. When you do this the MS-1 will indicate which track you are recording on by displaying the letter "R." The display should look something like this:

SONG: 1 TRK: R ---

When you hit the record button the MS-1 will automatically place one of the four tracks in record mode. If you want to record on a different track just hit any of the four TRK buttons and the "R" will move to indicate the track that you will be recording on.

Just before recording, don't forget to call up the sound you will be recording with. Remember, the order is very important here. If you call up the sound before putting the MS-1 into record, the program change command will not get recorded.

To begin recording just play a note on your MIDI keyboard. This is the best way to trigger recording because it insures that anything you play will start exactly at the beginning of the song. If you don't want to play anything at the beginning of the track you can start recording by pressing the start button. Whenever recording is in progress the MS-1 displays:

Recording 1 R ---

In addition to indicating the fact that recording is in progress, the MS-1 will also tell you the song you are recording on (in this case Song 1) and the status of all four tracks ("R"=recording, "P"=playing, "-"=empty).

To stop recording press the STOP button. When you have finished recording the display should look something like this:

SONG: 1 TRK: +---

The "+" means that data has been recorded on that track. If a "+" does not appear no data was recorded. If you are unable to record a track there is probably a simple reason for it. Here are the two most common problems:

- The MIDI out of your keyboard is not connected to the MS-1's MIDI in.
- The MIDI transmit channel on your keyboard does not match the MS-1's MIDI receive channel.

*If you are having problems,  
check your cables and your  
channels.*

## #2—Recording One Track While Listening to Another

Whenever you hit the RECORD button the MS-1 automatically places one track in record and sets up all other tracks to play back. So, adding a track to an existing sequence is very easy.

With at least one track recorded press the RECORD button. The display should look something like this:

SONG: 1 TRK: PR--

The "P" means that Track 1 is set to play back. The "R" means that you will be recording on Track 2.

To begin recording, play a note on your MIDI keyboard or press the START button. When you finish recording press the STOP button.

## #3—Merging Tracks

The MS-1 is a 4-track sequencer but there may be times when you want to create a song that actually has more than four parts. If you already have four independent parts recorded and you want to add a

fifth part, you will want to merge one of the four tracks into another track. This creates one track (the destination track) that has its own part plus the merged part and erases the data that was on the original track (the source track) thereby freeing it up for more recording.

Merging tracks is easy. For this example, we will use a very simple test sequence that will help to illustrate how merging works. What we're going to do is create three short tracks and merge them all into one track containing all three parts. To create the test sequence select an empty song (Song 2 will be used in this example). Record a few quarter notes on middle C on Track 1. Record a few quarter notes of the E above middle C on Track 2. And finally, record a few quarter notes of the G above middle C on Track 3. Now play it all back. You should hear a C major triad (C, E, and G). The C is on Track 1, the E is on Track 2, and the G is on Track 3.

What we're going to do is merge Track 1 into Track 2 and then merge Track 2 (which will contain the data on both tracks 1 and 2) into Track 3. To do this enter Edit Mode by pressing RECORD and PLAY simultaneously. Use the SELECT buttons to scroll until you see this display:

3:Copy

*Merging tracks is really a cut and merge operation. During the merge, the source track gets erased after its notes are combined with destination track.*

Press the YES button. Use the SELECT buttons to scroll until you see this display:

6:Merge Tracks

Press the YES button. Press the TRK 1 button. The display should look something like this:

T:1 is source

This means that Track 1 is the source track for the merge operation. We want to merge its data into Track 2 so press the YES button and then press the TRK 2 button. The display should look like this:

T:2 is dest

This means that Track 2 will be the destination track for the merge operation. That is, once the merge is completed Track 2 will contain the data on both Track 1 and Track 2 (C and E) and Track 1 will be empty.

To initiate the merge, press the YES button. The MS-1 will prompt you with the question:

```
Merge T1 to T2?
```

Press the YES button. If program changes have been recorded onto Track 1 or Track 2 you may get the message:

```
Programs differ
```

Followed by:

```
merge anyway?
```

For now, just press the YES button. We will explain the significance of this message at the end of this example.

As soon as you initiate the merge operation, the MS-1 will flash a couple of quick messages to you. You should see something like this:

```
Merging...
```

Followed by:

```
T1 merged to T2
```

Followed by:

```
8 events merged
```

*You can't have two initial program changes on the same track. So, when merging tracks, the program change from the destination track is kept while the program change from the source track is discarded.*

*Track 1 has been erased.*

And then:

SONG: 2 TRK: -++-

Press the PLAY button and then press the START button to hear the results of the merge. You should still hear three notes (C, E, and G) even though there are only two tracks playing.

Now we'll merge Track 2 into Track 3. Enter Edit Mode by pressing the RECORD and PLAY buttons simultaneously. You should end up right back at:

3: COPY

Press the YES button. Your display should look like this:

6: Merge Tracks

Press the YES button and then press the TRK 2 button. The display should read:

T:2 is source

Press the YES button and then press the TRK 3 button. The display should read:

T:3 is dest

*This time Track 2 will be merged into Track 3.*

Press the YES button. The MS-1 will ask if you want to merge Track 2 into Track 3. Press the YES button again. If you get the message about differing program changes just press the YES button. You should then see the three quick messages about the merge operation. They should look something like this:

Merging...

Followed by:

```
T2 merged to T3
```

Followed by:

```
22 events merged
```

And then:

```
SONG: 2 TRK: --+-
```

*Now, Track 3 has all the notes. Tracks 1 and 2 have been erased.*

Press the PLAY button and then press the START button to hear the results of the merge. You should still hear all three notes even though only one track is left in this song. Track 3 now contains all the notes that were originally in Track 1 and Track 2 as well as the notes that have always been in Track 3.

Now, about that message concerning differing program changes among tracks. Remember that when you record a new track on the MS-1 you need to call up the sound you want on your keyboard. That sends a program change corresponding to the sound that gets recorded by the MS-1. When two tracks are merged, notes on the source and destination tracks are combined into one track. But the program changes are not combined. A track can only have one program change on it at any given moment. The MS-1 assumes that it should keep the program change from the destination track and throw the other program change away. This means that if you merge a piano track into a string track all the notes will play back with the string sound.

When merging tracks keep in mind that the destination track takes control of most of the source track's events. We mentioned that if the merged tracks' program changes differ, the program change will be determined by the destination track. Similarly, any loop information contained on a source track will be lost when merged to the destination track. Only the destination track will retain loop information. This loop information also will affect notes merged into the destination track.

#### #4—Muting Tracks

Sometimes it can be helpful to mute one or more tracks in order to listen more closely to others. Each track on the MS-1 can be muted very easily. Each track has its own mute. Each mute is initially set to OFF so that all four tracks will play. To mute a track all you have to do is turn its mute ON.

In this example we will mute Track 1. Start by calling up a song with at least one track in it. Then, enter Edit Mode by pressing the RECORD and PLAY buttons simultaneously. Use the SELECT buttons to find the Adjust Track menu. The display should look like this:

```
1:Adjust Track
```

Press the YES button and then use the SELECT buttons to find:

```
f:Trk Mute
```

Now, press the YES button again. The display should look something like this (if the MS-1 displays the mute status of a different track, press the TRK 1 button):

```
T1 mute: OFF
```

Track 1's mute is OFF. To turn Track 1's mute ON (thus muting the track) press either SELECT button. The display should look like this:

```
T1 mute: ON
```

Now that the mute is ON for Track 1 go back to Play/Record Mode (by pressing the PLAY button one or more times) and give the song a listen. Because Track 1 is muted you won't hear it play. The display should look something like this:

```
Playing S1 *PPP
```

*You can also mute tracks in Play/Record Mode by pressing the appropriate TRK button during recording or playback.*

The asterisk "\*" indicates that Track 1 is muted.

### #5—Saving a Song on a RAM Card

Even though the MS-1's song memory is completely non-volatile you should probably use RAM cards to store your songs permanently. Saving a song to a RAM card is very easy. Songs 1 to 24 exist in the MS-1's memory. When you insert a RAM card the number of available song locations increases to 99. Songs 25 through 99 exist on the RAM card. As far as your interaction with the MS-1 is concerned saving a song to a RAM card is identical to saving a song to any location in the MS-1.

What you want to do is copy any song in the MS-1 to another song location above 24. Here's how you do it:

First, make sure the Memory Protect switch is set to OFF. Then, find the song you want to store by using the SELECT buttons while in Play/Record Mode (we'll use Song 4 for this example). Then, press the RECORD and PLAY buttons simultaneously (use one finger) to get into Edit Mode. Now, press either SELECT button until you see this in the display:

```
3: COPY ██████████
```

This is the Copy menu. To enter it press the YES button and use the SELECT buttons to find this display:

```
a: COPY Song ██████
```

Now, press the YES button again. You should see a message telling you that the song you originally selected will be the source for the copy operation.

```
Source S: 4 +++++
```

Press the YES button again. To choose the destination location use the SELECT buttons. To save the song on the RAM card you must choose a song location higher than 24. Press and hold the right SELECT button

*A RAM card gives you a lot more memory to work with.*



*If you ever change the MS-1's battery, backing up your songs on a RAM card is the best way to make sure you don't lose them.*

(or press both SELECT buttons together) until the display reads:

COPY TO S:25 ----

Press the YES button. The MS-1 will ask if you want to copy Song 4 to location 25.

COPY S4 to S25?

Press the YES button. If Song 25 already has something in it the MS-1 will prompt you with this message:

Erase Prev S25?

Pressing the YES button will erase the song currently in S25. Pressing the NO button will cancel the copy operation, and will return you Play/Record Mode.

Once the copy operation has been performed the MS-1 will acknowledge it by briefly displaying the number of tracks copied and then returning you to Play/Record Mode. To check on the results of this operation press the PLAY button and then the START button.

Once a song has been copied to a RAM card you can safely remove it from the internal memory of the MS-1. A RAM card provides convenient non-volatile storage. Any data saved in the card will be safe for approximately 10 years.

### **#6—Loading a Song From a RAM Card**

Because the MS-1's RAM card is so closely integrated with the rest of the machine you may never actually need to load a song from a card into the internal memory of the MS-1. When you use the MS-1 with a RAM card the number of sequences you have available at any time increases from 24 to 99. All songs above 24 are stored on the RAM card. Any song (even those on the card) can be played or edited at any time.

The only reason you might have to move a song from a RAM card into the MS-1 is for library purposes. If you wanted all your classical music on one RAM card and all your jazz on another it would be simple to load a song from one card into the MS-1, remove the first card, insert the second card, and then copy that song onto the second RAM card. Copying a song from a card into the MS-1 is essentially the same as copying a song from the MS-1 onto a card. But this time, the source song will be somewhere between Song 25 and Song 99 and the destination song will be somewhere between Song 1 and Song 24.

### #7—Setting Track Volume

With this operation you can adjust the overall volume of any track in a song. Select a song with at least one track in it and go into Edit Mode. To enter Edit Mode, press the RECORD and PLAY buttons simultaneously. Use the SELECT buttons to scroll until you see this display:

```
1:Adjust Track
```

Press the YES button. Press the right SELECT button until you see this display:

```
6:Trk Volume
```

Let's set the volume of Track 1 to 90. To do that, press the YES button and then press the TRK 1 button. The MS-1 will tell you which track you have selected by briefly flashing its number in the display. The display should look something like this:

```
T1 Volume: 127
```

To set the volume to 90 press and hold the left SELECT button until the display reads:

```
T1 Volume: 90
```

Now, press the PLAY button three times and then press the START

*This is a MIDI volume adjustment. It is not the same as a velocity adjustment.*

button to listen to the volume change that you have made. On play-back, the MS-1 will set the volume of Track 1 to 90. This should make Track 1 fairly quiet.

The MS-1 accomplishes this reduction in volume by sending a MIDI Volume command with a value of 90. Initially, all tracks are set to the maximum MIDI Volume of 127. Therefore, it is only possible to lower the volume of a track relative to other tracks in a sequence. You can't raise the volume above 127.

### #8—Adjusting Track Velocity

With this operation you can adjust the velocities of notes on any track in a song. Select a song with at least one track in it and go into Edit Mode. To enter Edit Mode, press the RECORD and PLAY buttons simultaneously. Use the SELECT buttons to scroll until you see this display:

**1:Adjust Track**

Press the YES button. Press the right SELECT button until you see this display:

**C:Trk Velocities**

Let's adjust the velocities on Track 1 by -40. To do that, press the YES button and then press the TRK 1 button. The MS-1 will tell you which track you have selected by briefly flashing its number in the display. The display should look something like this:

**T1 vel adj: 0**

To set the velocity adjustment to -40 press and hold the left SELECT button until the display reads:

**T1 vel adj: -40**

*Some sounds, like Organs, will not respond to velocity adjustments.*

Now, press the PLAY button three times and then press the START button to listen to the volume change that you have made. On playback, the MS-1 will subtract 40 from every attack velocity on Track 1. This should make Track 1 very quiet. Remember, this is a velocity adjustment so certain instruments (like Organ sounds) may not respond as much as others. To restore the original velocities go back in and set the velocity adjustment to 0.

### **#9—Recording Program Changes**

A program change can be recorded onto a track just like a note or a sustain pedal. All you have to do is perform the change in real time as you record your performance. To do this, begin recording on a track. When you get to the point where you want to switch to another sound just call that sound up on your keyboard. This will cause the appropriate program change command to be sent and the MS-1 will record it as part of your performance. (If you are using a K1000 SE or an Ensemble Grande Mark III or Mark IV, use one of the Bin locations for your program change so you will only have to press one button to make the change. If you scroll through several program numbers, every program number you scroll through will be recorded, which could slow things down). When you play back the track, the program change will occur in exactly the same place it was recorded. Unlike the initial program change on a track, program changes recorded this way cannot be edited.

*You can record program changes in real time but you cannot edit them later.*

### **#10—Erasing a Track**

Single tracks can be erased easily. When in Play/Record Mode, simply press the RECORD button as if you were going to record a new track. Then press one of the TRK buttons to select the track to be erased. Press START, then press STOP right away. This tells the MS-1 that no information is to be saved for the selected track.

### **#11—Patching Through to Other MIDI Devices**

If you are using the MS-1 with a larger MIDI setup that includes MIDI expander modules or drum machines you may find it necessary to use the MS-1's Patch Through feature so you can play them from your master keyboard without re-patching MIDI cables.

Patch Through is turned OFF by default. To turn it ON, press the RECORD and PLAY buttons simultaneously to enter Edit Mode. Use the SELECT buttons to scroll until you see:

7: MIDI

Press the YES button and then use the SELECT buttons to scroll through the menu items until you see this display:

6: Patch Through

Press the YES button and then press either SELECT button to turn Patch Through ON. As soon as Patch Through is turned ON you should be able to play through the MS-1 to control other MIDI devices in your system.

The MS-1's Patch Through does not re-channelize MIDI data. So, in order to address other MIDI devices it may be necessary to change the MIDI transmit channel on your Master keyboard.

## #12—Erasing a Song

Use the SELECT buttons to call up the song you want to erase (Song 4 in this example). To erase an entire song press the RECORD and PLAY buttons simultaneously to enter Edit Mode. Use the SELECT buttons to scroll until you see this in the display:

4: Erase

Press the YES button and then use the SELECT buttons to find this display:

a: Erase Song

Press the YES button again. The display should look something like this:

*Be careful! Erasing a song is not undoable.*



hear the change you have made.

### #14—Looping a Track

The MS-1's track looping feature allows you to create one loop at any point in each of the four tracks. When a section of a track is looped, the music between the start of the loop and the end of the loop will play over and over as many times as you want it to.

To loop a track, all you have to do is select a track to be looped and mark the loop start and loop end points by playing notes on your MIDI keyboard as the MS-1 plays back your song. Here's an example.

Start by recording a few notes on Track 1 of an empty sequence. A C major scale up and down in quarter notes will be fine. Enter Edit Mode by pressing the RECORD and PLAY buttons simultaneously. Use the SELECT buttons to find this display:

5: LOOP

Press the YES button and then use the SELECT buttons to find this display:

a: Set T1 LOOP

Pressing the YES button brings up this display:

Start. No or Key

The easiest way to mark your loop points is to strike keys on your MIDI keyboard. For this example we will mark a loop that goes from the beginning of the track to fifth note of the track. To do that, play a single note on your keyboard and then play another note 5 notes later. The first note will mark the beginning of the loop and begin playback of the track. The second note will mark the end of the loop and stop playback.

Play the first note. The display will look like this:

*You can only loop a track within the first 540 beats. Loop points cannot be set after the 540th beat.*

**Mark End.....**

Play the second note. The display will look like this:

**Round to beat?**

This allows you to move the loop end to the nearest beat. We won't use this feature here so press the NO button. The MS-1 will briefly display the message:

**Loop set.....**

You will end up back in Play/Record Mode where you can listen to your loop. To do that, press the PLAY button and then press the START button. You'll notice that the short section you looped plays over and over. That's because the MS-1's default setting creates an endless loop. To loop your track a specific number of times you need to go back into Edit Mode.

Press the STOP button and then enter Edit Mode by pressing the RECORD and PLAY buttons simultaneously. You should see this display:

**5: Loop**

Press the YES button and then use the SELECT buttons to find this display:

**6: Times to Loop**

Press the YES button. The display should look something like this:

**Endless loop**

Press the Right SELECT button three times. The display should look like this:

*The MS-1 defaults to creating an endless loop.*



T1 Play Loop: 3

That's all there is to it. This tells the MS-1 that we want that section to loop three times and then continue on from there. Now, press the PLAY button twice and then press the START button to hear the results of the change you just made.

### #15—Changing MIDI Channels

Each track is assigned to its own MIDI channel. For most of your work with the MS-1 the default channel assignments will work just fine. But there may be times when you need to change the playback channel for a track. Here's how you do it.

Select the song you want to edit and enter Edit Mode by pressing the RECORD and PLAY buttons simultaneously. Use the SELECT buttons to scroll until you see this display:

*You will probably never need to change the MS-1's default channel assignments. But if you do, here's how you do it.*

1: Adjust Track

Press the YES button. Use the SELECT buttons to scroll until you see this display:

e: TRK MIDI Chan

Press the YES button again. Now, press the TRK button for the track whose MIDI channel you want to change (Track 2 in this example). The display will look something like this:

T:2 channel: 3

Use the SELECT buttons to assign Track 2 to the desired MIDI playback channel.

NOTE: Until you have recorded data on a track, you will not be able to make any of the changes available in the Adjust Track menu.

## #16—Slowing Down the Tempo to Record Difficult Music

No matter how much you practice there will always be music that you just can't play quite perfectly. Fortunately, sequencers like the MS-1 offer something that no other recording medium can boast of—the ability to vary the tempo of a song without varying the pitch.

Because the MS-1 is recording numbers and not sounds you can change the speed at which your sequence plays back without raising or lowering the pitch. This means that you can record something at one tempo and play it back 2, 3, or 4 times faster. Becoming a MIDI keyboard virtuoso becomes a simple matter of recording things very slowly and then just turning them up to normal tempo for playback. If you have already recorded one or more tracks of a song, you can record a new track at a slower tempo simply by adjusting the Tempo Knob when the new track is selected for recording (the display shows an "R" for the selected track). While recording, the MS-1 will play back the previously recorded tracks at the tempo you set with the Tempo Knob. When you finish recording, the tempo will revert to the original setting for the song. Remember, that if you adjust the Tempo Knob when the first track of a new song is selected for recording, the adjusted tempo will be recorded as the original tempo for the song.

*With this trick you'll sound like a virtuoso even if you can hardly play a scale.*

## #17—Chaining Songs

Chaining songs is fun and easy. When one song is chained to another the second one starts as soon as the first one ends. You can chain any number of songs together. You can even chain a song in the MS-1 to a song on a RAM card.

In this example, we'll create a song chain with Songs 1 and 3 so that as soon as Song 1 finishes, Song 3 will begin to play. Make sure you have at least one track recorded in each song. Start by calling up Song 1 in Play/Record Mode and then press the RECORD and PLAY buttons simultaneously to enter Edit Mode. Use the SELECT buttons to scroll until you see this display:

2: Adjust Song

Press the YES button. Use the SELECT buttons to scroll until you see

this display:

**6:Chain Song**

Press the YES button. The display will look something like this:

**No Song Chain**

This means that Song 1 has not been chained to any other song. Press the right SELECT button three times. The display should now read:

**S:1 chain to:3**

Press the YES button. The display should look like this:

**Start, No or Key**

*Marking the chain time actually inserts a chain event that tells the MS-1 when to jump to the next song.*

Strike a key on your MIDI keyboard. This will automatically mark the chain time at the end of the current song. If you want the chain time to be set somewhere within the song, press START instead of striking a key. The display will show "Mark Chain Time." At any time during the playback, you can strike a key to set the chain time. Pressing NO at any time during this process will remove the chain.

"Mark chain time" means that the MS-1 is waiting for you to mark the point at which the new song will begin (Song 3 in this case) by hitting a note on your MIDI keyboard. To hear your new song chain press the PLAY button and then press the START button.

### **#18—Changing the Tempo of a Song**

To change the starting tempo of a song call up the song in Play/Record Mode and then press the RECORD and PLAY buttons simultaneously to enter Edit Mode. Use the SELECT buttons to scroll until you see this display:

2:Adjust Song

Press the YES button. Use the SELECT button to find this display:

a:Set Song Tempo

Press the YES button again. The display will look something like this:

S:1 Tempo:84

Grab the Tempo Knob (you can also use the SELECT buttons, which provide a wider range of values than the Tempo Knob) and use it to change the tempo of the song. The display will look something like this:

S:1 Tempo:113

Press the PLAY button three times and then press the START button to listen to your change. The tempo you set here is the starting tempo that will be saved with your song.

You may temporarily override the assigned tempo of a song simply by adjusting the Tempo Knob when the song is ready to be played (the display shows a "P" for each playback track). The display will show you the tempo value as you adjust it. The song will play back at the new tempo, but the original recording tempo will still be saved. The next time you play back the song, the original tempo will be used.

You can set the recording tempo in advance using the Tempo Knob, as well. This is best done before recording the first track in a new song. When Track 1 is set to record (the letter "R" is showing for Track 1), adjust the Tempo Knob until the display shows the desired tempo. This will become the fixed tempo for the song, and will remain in effect unless you change it. If you have disabled the Record Tempo parameter (see the reference section), you will not be able to adjust the recording tempo from the Tempo Knob.

*See the paragraphs on the Record Tempo parameter in the Reference sections for more information on songs and tempi.*



# *Reference*

# 3

---

*Section  
Three*

---

## Reference

### The MS-1 User Interface

The term “User Interface” is one of those popular hightech buzz words that make non-technical users break out in a cold sweat. Don't let it bother you. A device's user interface is simply the set of conventions which you (the *user*) use to communicate (to *interface*) with a machine to tell it what you want it to do. In the case of the MS-1, the user interface comprises all the button pushing and knob turning that you do in the course of recording, playing, and editing your songs.

### Two Modes

The MS-1 has two very distinct modes of operation. When you first power up the MS-1, you're all set to either record a song or play back a song that you have already recorded. This mode is called Play/Record Mode. When you need to make adjustments to a song like changing the volume of a track or setting up loop points, pressing the PLAY and RECORD buttons simultaneously takes you into Edit Mode (pressing PLAY *then* RECORD also works). In Edit Mode you have access to a wide variety of features organized as a series of menus. The distinction between the two modes is fairly obvious. In Play/Record Mode you can play back existing songs or record new ones, but (aside from erasing a track by recording over it) you can't modify or edit any of the material you have created. Conversely, in Edit Mode you can make use of the MS-1's eight edit menus to alter the songs you have recorded in

*The next couple of pages will give you a good overview of how to get around on the MS-1 with the front panel buttons.*

many ways. The only things you can't do are record new songs and play back existing ones. To do that you need to go back to Play/Record Mode.

## Buttons

The two rows of buttons on the MS-1's front panel are your primary means of communication with the unit. Each of the six buttons in the top row has a dual function depending on whether you are in Play/Record Mode or Edit Mode. The labels on top of these buttons (RECORD, PLAY, STOP, START, SONG) refer primarily to their operation in Play/Record Mode. The labels on the bottom (EDIT, NO, YES, SELECT) refer to their operation in Edit Mode.

*There is a complete description of the front panel buttons later in this section.*

The four TRK buttons on the bottom row are used to select any of the MS-1's four tracks whenever selecting a track is necessary to complete an operation. The METRONOME button is used to activate and deactivate the MS-1's metronome. All five of these buttons on the bottom row function identically no matter what mode you are in, as does the Tempo Knob which you can use at any time to change the tempo of the song you are working on.

## The Double Press

When editing certain parameters in Edit Mode a technique called a "double press" can sometimes be used to move quickly to certain values. A double press just means that you press both SELECT buttons at the same time.

## Getting Around in Edit Mode

Pressing the PLAY and RECORD buttons simultaneously takes you into Edit Mode. Once in Edit Mode you have access to a large number of features organized under eight menus. The menus and the menu items are organized in a hierarchical fashion that makes it easy to find what you need.

*There is an illustration in the Appendix that shows you all the MS-1's menus.*

Every time you enter Edit Mode the first thing you see will be the title of one of the MS-1's menus. Pressing either the left or right SELECT buttons scrolls you through the other menu titles. All the menu titles



are on the same level of the hierarchy. All of the commands are under their respective menus. Once you have found the menu you are looking for, pressing the YES button takes you to the list of items under that menu. To find other commands at this same level you would use the left and right SELECT buttons just as you used them to select the menu you were looking for. To enter a menu item to change a particular parameter you would again press the YES button. To back out of the menu hierarchy you have a choice of buttons. Pressing the NO button will bring you one level back (up) in the hierarchy; pressing PLAY or RECORD will bring you all the way back to Play/Record Mode.

Here's a quick summary of what we've just gone through:

- Pressing the PLAY and RECORD buttons simultaneously takes you into Edit Mode.
- Pressing the Left and Right SELECT buttons scrolls you through the available commands on any given level of the menu hierarchy.
- Pressing the YES button takes you one level deeper into the menu hierarchy pressing NO backs you up one level.
- Pressing the PLAY or RECORD buttons takes you all the way back to Play/Record Mode.

*The MS-1 user interface in a nutshell...*

### **Display Symbols in Play/Record Mode**

To make efficient use of the 16-character display, the MS-1 uses seven very simple symbols to indicate the status of a sequence track any time you are in Play/Record Mode. The four main symbols used are the letter "P", the letter "R", the plus sign "+", and the minus sign "-". The fifth symbol is the asterisk "\*." It is only shown during playback when a track is muted. Two other symbols you may see are "S" and "B." The character "S" appears when System Exclusive data has been recorded into a track. The "B" appears only when some or all of the data on a

track has been corrupted. This will occur only rarely, if ever.

In Play/Record Mode each of the last four characters in the display corresponds to one of the four sequence tracks. The letter "P" indicates that a track is ready to be played back. The letter "R" indicates that a track is ready to be recorded on. Take a look at this display:

SONG: 1 TRK: P P P R

This display indicates that Tracks 1, 2, and 3 are ready for playback and that Track 4 is about to be recorded on.

When you see a plus sign "+" in the display that indicates that a particular track has MIDI data on it. When you see a minus sign "-" that indicates that a particular track is empty. Take a look at this display:

SONG: 1 TRK: + + - -

This display indicates that Tracks 1 and 2 contain MIDI data, although the song is not selected for playback or recording. Tracks 3 and 4 are empty.

## The Front Panel

### LCD Display

The 16-character LCD Display is your window into the world of the MS-1. All communications between the user and the sequencer take place here.

### Record Button

Pressing the RECORD button sets up the MS-1 to begin recording. The MS-1 will display an "R" to indicate the track you are about to record on. Pressing the START button or hitting any key on your MIDI keyboard will initiate recording.

Remember that the current setting of the Tempo Knob will set the tempo for new songs (unless you have disabled the Record Tempo parameter).

### **Play Button**

Pressing the PLAY button sets up the MS-1 to begin playback. The MS-1 will display a "P" to indicate all the tracks that are about to be played back. Pressing the START button will initiate playback.

Remember that you can temporarily adjust the playback tempo by adjusting the Tempo Knob before starting playback (or during playback). The tempo will revert to its initial setting when playback is completed.

### **Stop/No Button**

This button has different functions depending on the mode you are in. In Play/Record Mode pressing this button stops playback or recording (the STOP button). In Edit Mode, this button can be used to cancel an operation (the NO button). See the section on the MS-1 User Interface for more details.

### **Start/Yes Button**

This button has different functions depending on the mode you are in. In Play/Record Mode pressing this button starts playback or recording (the START button). In Edit Mode, this button can be used to initiate an operation (the YES button). See the section on the MS-1 User Interface for more details.

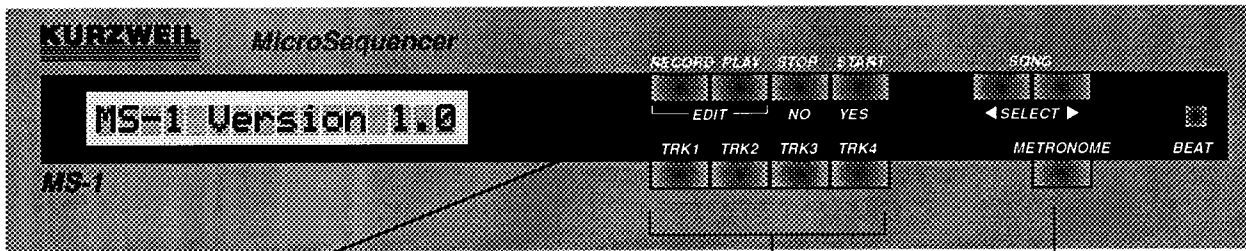
### **Trk Buttons (TRK1, TRK2, TRK3, and TRK4)**

These buttons are used to select one of the MS-1's four tracks. Many operations on the MS-1 (recording, volume adjustment, MIDI channel assignment, etc.) require you to select a track. Pressing the TRK1 button selects Track 1, pressing the TRK2 buttons selects Track 2, and so on. See the section on the MS-1 User Interface for more details.

### **Song/Select Buttons**

In Play/Record Mode, pressing these buttons scrolls through the MS-1's 24 songs (99 if you have a RAM card inserted in the Card Slot).

## The Front Panel Buttons of the MS-1 MicroSequencer

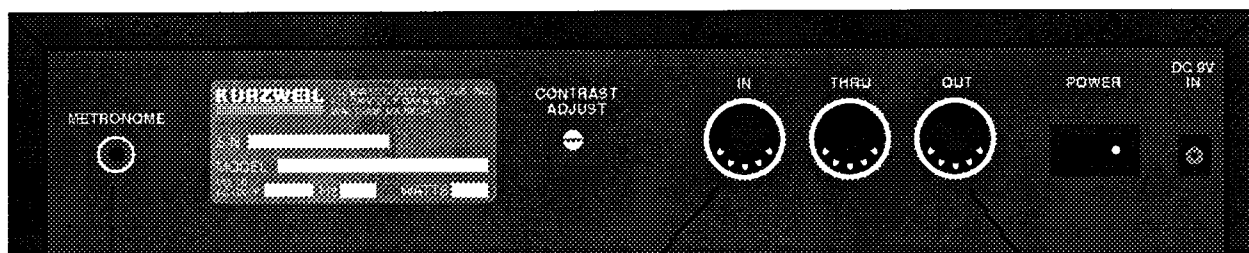


Press the PLAY and RECORD buttons simultaneously to enter Edit Mode

Press the Metronome button to activate the MS-1's metronome

Use the TRK buttons to select tracks for recording and editing.

## The Back Panel of the MS-1 MicroSequencer



Connect this to your stereo, a mixing board, or an instrument amplifier.

Connect this to the MIDI Out of your MIDI keyboard.

Connect this to the MIDI In of your MIDI keyboard.

*For more information on the MS-1's built-in metronome see the section on the Metronome menu later on.*

## The Back Panel

In Edit Mode, these buttons are used to move horizontally through the MS-1's menu structure and to increment and decrement the value of a parameter. See the section on the MS-1 User Interface for more details.

### Metronome Button

Pressing this button enables and disables the MS-1's built-in metronome.

### Metronome LED

This LED will flash when the MS-1's metronome is in use. This gives you a chance to monitor the tempo of a sequence even if you don't want to listen to the sound of the metronome.

### Card Slot

RAM and ROM cards for the MS-1 can be inserted into this slot. These cards can be used to load and save songs for use with the MS-1.

### Tempo Knob

The Tempo Knob is used to adjust the tempo of a song while it is playing. Any time you grab the knob the MS-1's display will change to show you the song's new tempo. The range of the MS-1 is from 20 bpm to 640 beats per minute when the front panel buttons are used, and 40 to 320 beats per minute when the Tempo Knob is used.

### Power Jack

This is a 9V AC power jack. Remember, the MS-1 uses a special power supply. Never substitute another type.

### Power Switch

Flip this switch to turn your MS-1 on and off.

## **MIDI IN, OUT, THRU**

These 5-pin female DIN jacks allow the MS-1 to be connected to other MIDI instruments. The MIDI In jack receives MIDI information from other MIDI instruments. The MIDI Out jack sends MIDI information out to other MIDI instruments. The MIDI Thru jack echoes MIDI information present at the MIDI In jack to other MIDI instruments.

For information on connecting your MS-1 to other MIDI instruments see the section on setting up the MS-1 at the beginning of this manual.

## **Display Contrast Control**

Use this knob to adjust the contrast of the MS-1's LCD Display.

## **Metronome Jack**

This RCA jack can be connected to a mixing board, instrument amplifier, or home stereo amplifier to allow you to hear the MS-1's metronome. If you find that the music you are making is so loud that you cannot hear the internal metronome, a little amplification may be in order. You can connect this jack to the AUX or CD inputs on your home stereo, or to the line inputs of a mixing console or electronic instrument amplifier.

There is an editing parameter which enables you to change the volume of the internal metronome. See the Reference section under the heading "Metronome."

## **The Menus**

### **1: Adjust Track**

Under this menu you will find menu items that allow you to make adjustments to the MIDI data on any of the four tracks of the current sequence. To enter the Adjust Track menu press the YES button. Then, use the SELECT buttons to scroll through the various menu items.

NOTE: You cannot enter this menu unless you have recorded MIDI data into at least one track of the currently selected song.

**a: Trk Program**

Pressing the YES button when this item is in the MS-1 display allows you to edit the MIDI program change associated with the current track. The display should look like this:

**T1 Program: 5**

T1 means Track 1. 5 is the current program change value.

To edit the program change for a track press the appropriate track button and then enter the value using the left and right SELECT buttons (or enter the program change from your MIDI keyboard). A double press sets this parameter to OFF, in which case no program change is sent at the beginning of the track.

NOTE: You cannot edit a track's initial program change until something has been recorded into that track. If, for example, you press the TRK 3 button but you end up looking at the program change for Track 1, this means that nothing has been recorded on Track 3.

Each track of the MS-1 can be given an initial MIDI program change with this menu item. When you begin playback the MS-1 will send out the selected program change command over the MIDI channel assigned to each track. This program change is, in effect, the first MIDI event in the track. It can be edited directly here in this menu item by entering a number from 1 to 128 with the SELECT buttons, or by sending a program change from your MIDI keyboard. Remember, you can also record program change commands at the beginning of a track simply by sending the program change from your keyboard when then MS-1 is set to record. If you don't remember how to record a program change at the beginning of a track, see the tutorial at the beginning of this manual.

The MS-1 assumes you want to keep your original program selection permanently. Therefore, it is preserved even if you erase the track. The only way to change it without entering Edit Mode is to send another program change at the beginning of the track, when the track is set to record. It is always a good idea to send the MS-1 the correct program change every time you record a new track. By calling up the appropriate program on your keyboard you can always be sure that the sound you hear during playback will be the same sound you recorded with.

*Remember, you can always set the program change by sending it from your MIDI keyboard.*

If, by accident, you succeed in erasing this initial program change, the Trk Program parameter will have a value of OFF. This means that the MS-1 will not send an initial program change when playback is initiated.

If you erase a track by pressing RECORD, selecting the track with a TRK button, and then pressing START and STOP, the initial program change will be remembered.

Subsequent program changes can be inserted into a track by recording them in real time as you play. These program changes, however, cannot be edited.

To exit this menu item press the STOP, PLAY, or RECORD buttons.

### **b:Trk Volume**

Pressing the YES button when this item is in the MS-1 display allows you to adjust the volume level of any of the four sequence tracks in the current song. To edit the volume for a track press the appropriate track button and then enter the value using the left and right SELECT buttons. A double press returns the value to 127. The display will look something like this:

**T1 Volume: 127**

T1 means Track 1. 127 is the current volume setting.

The volume of a track can be set to anything from 0 to 127. The default value is 127. This is the highest value possible. Therefore, you can only lower the volume of a track relative to all others. This is a limitation of MIDI not the MS-1. If you need more mixing flexibility set all tracks to something like 100, and then raise the level of the tracks you want to make louder. That way you'll have some "head room" with which to work when you want to raise the volume a bit. Be aware, however, that what you gain in flexibility you give up in signal-to-noise ratio. Your MIDI instrument will have to be turned up louder than normal to produce "normal" volume and this will undoubtedly introduce an increased amount of noise into your system.

Though it may seem to accomplish the same function, this parameter is quite different from c:Trk Velocities. Because you are affecting MIDI

*Initially, all values are set to 127 (the maximum level) so you can only lower the volume of one track relative to the others. You cannot raise it above 127.*



volume with this command (as opposed to MIDI velocity) try to think of this as a fader setting on a traditional mixing console, and velocity adjustment as the fluctuating input signal coming into that fader. This volume command affects the loudness of a track after the velocities have been taken into account.

As stated previously, the volume of a track can be set from 0 to 127. This is not a linear scale, however. You will find that greater volume changes generally occur between 90 and 127. And that below 60 most tracks will be almost inaudible relative to other tracks at 127.

### **c: Trk Velocities**

Pressing the YES button when this item is in the MS-1 display allows you to adjust the attack velocities of all notes in any of the four tracks of the current sequence. The display will look something like this:

**T1 vel adj: 0**

T1 means Track 1. 0 means that no velocity adjustment has been applied to this track.

This adjustment is made by adding or subtracting an amount from the velocities of notes recorded on a particular track. The number you enter here (from -127 to +127) is added to all the velocity values on the selected track. To select the track you want to adjust press the appropriate TRK button. You enter the amount of velocity adjustment by using the SELECT buttons. A double press returns the value to 0.

*127 is the maximum MIDI velocity so adding extremely large or extremely small (negative) numbers may make all notes sound the same.*

Positive numbers make a track louder and will brighten the timbre of many sounds. Negative numbers make a track softer and will darken the timbre of many sounds. The actual amount of the volume increase, however, depends on the particular sound you are using. Sounds with a lot of velocity sensitivity like Piano, Strings, Woodwinds, or Brass will be very responsive to this kind of volume adjustment. Sounds with little or no velocity sensitivity, like Organ sounds, will not be affected by velocity adjustments. Similarly, if a track has been recorded with very high velocities adding a positive velocity adjustment will have very little effect on that track's volume. Once a note's velocity reaches the maximum amount it just can't get any louder. The reverse may also be true—if a track has been recorded with very low velocities negative

velocity adjustments may have little effect.

As noted above, this parameter is not the same as b:Trk Volume. In fact, the two parameters can be used in conjunction with each other very effectively.

### **d: Trk Transpose**

Pressing the YES button when this item is in the MS-1 display allows you to edit the transposition for any of the MS-1's four sequence tracks. The display will look something like this:

**T1 Transpos: 0ST**

T1 is Track 1. Transpos: 0ST means that all notes on Track 1 will be transposed by 0 semitones—no transposition. Use the SELECT buttons to set the amount of transposition in half step increments. To set the transposition for another track press the appropriate TRK button. The range of values is -88 to +88. A double press sets the transposition amount to 0.

*Be careful not to transpose your sounds out of range!*

Certain sounds (Bass sounds in particular) may have limited ranges. It is entirely possible, then, that you might accidentally transpose a track right out of the range of a particular sound. If, after transposing a track, certain notes no longer play you have probably transposed that track out of the range of the sound it is playing.

### **e: Trk MIDI Chan**

Pressing the YES button when this item is in the MS-1 display allows you to edit the playback MIDI channel for any of the MS-1's four sequence tracks. The display will look something like this:

**T:1 Channel:2**

T:1 is track 1. Channel:2 means that all data on track 1 will be played back over MIDI channel 2. MIDI channel 2 is the default assignment for track 1. For a complete explanation of the default channel assignments see *How the MS-1 Records and Plays Back Your Songs*.

To edit the playback channel for a particular track, press the appropriate TRK button and use the SELECT buttons to change the MIDI channel. You can set each track to any MIDI channel from 1 to 16. You can even set more than one track to the same channel.

**f: Trk Mute**

Pressing the YES button when this item is in the MS-1 display allows you to turn on a mute for any of the MS-1's four sequence tracks. The display will look something like this:

T1 mute: OFF

T1 is Track 1. OFF means that the mute for Track 1 is off. This is the default setting for all tracks. Use the SELECT buttons to turn the mute ON and OFF.

When a track is muted it will not play. During playback, muted tracks are indicated in the display by an asterisk "\*." The display will look something like this:

Playing S4 \*PPP

This indicates that Track 1 is muted while Tracks 2, 3, and 4 are playing back.

You can mute tracks temporarily, without entering Edit Mode, simply by pressing the TRK buttons during song playback. Pressing a TRK button during playback will mute that track, changing the "P" to a "+." Pressing the TRK button again will bring the track back. If a track is left muted in this fashion until the end of a song, it will revert to normal playback when the song is selected for playback another time.

*You can mute tracks from Play/Record Mode by pressing the TRK buttons during playback or recording.*

**2: Adjust Song**

Under this menu you will find menu items that allow you to chain songs together into longer pieces of music, to change the tempo of a song, and to create automatic fade outs. To scroll through the items under the Adjust Song menu use the SELECT buttons.

### **a: Set Song Tempo**

Pressing the YES button when this item is in the MS-1 display allows you to edit the starting tempo for any MS-1 song. The display will look like this:

S:1 Tempo:40

S:1 means that you are setting the tempo for Song 1. To set the tempo for a different song use the left and right SELECT buttons. Tempo:40 means that the tempo of the current song is 40 beats per minute (bpm). To change the tempo use the Tempo Knob or the Left and Right SELECT buttons. The range of available tempi is from 20 beats per minute to 640 beats per minute when the SELECT buttons are used and 40 to 320 beats per minute when the Tempo Knob is used.

If no tempo has been recorded with the song, the display will look like this:

No Fixed Tempo

No Fixed Tempo means that no tempo has been assigned to the current song. Normally, when you record a song the current setting of the Tempo Knob is also recorded. This setting is then saved with your song so that when you recall the song later it will play back at the same tempo at which you recorded it regardless of the position of the Tempo Knob at that time.

There is, however, a way to record a song without a fixed tempo. That's where the message No Fixed Tempo comes from. For a complete discussion of this feature see the description of the Record Tempo parameter, under the Metronome heading later in this section.

### **b: Chain Song**

Pressing the YES button when this item is in the MS-1 display allows you to chain one song to another. Chaining means that as soon as one song finishes another will begin. When one song is chained to another the second one starts as soon as the first one ends. You can chain any number of songs together. You can even chain a song in the MS-1 to a

*For a complete discussion of this feature, see the discussion in the Reference section on the Record Tempo parameter.*

*The MS-1 always moves the chain event to the nearest beat.*

song on a RAM card.

In order to chain two songs together, the MS-1 needs to know the first song, the song you want to follow that song, and the point in the first song where you want the second song to start. You select the first song in Play/Record Mode. Then, you enter Edit Mode, find the Chain Song menu item, and select the second song. Once both songs have been selected the MS-1 prompts you to start playback and mark the spot at which you want the chain to occur by playing a note on your MIDI keyboard. Once the chain has been established in this manner you can go in and edit the chain location moving it to any beat in the song.

If a song chain has not yet been created the display will look like this:

**No Song Chain**

No Song Chain means that no other songs are chained to the current song. To create a song chain press either SELECT button. The display will look something like this:

**S:1 chain to:3**

When you find the song you want to chain to press the YES button. The display should look like this:

**Start, No or Key**

Press the START button and your song will start to play. As your song plays you can mark the chain point by playing any note on your MIDI keyboard. While you are listening the display will look like this:

**Mark chain time**

“Mark chain time” means that the MS-1 is waiting for you to mark the point at which the new song will begin (Song 3 in this case) by hitting a note on your MIDI keyboard. To chain the end of the first song to the beginning of the other, wait until your song ends and mark the chain point whenever you want the next song to start.

Once the chain has been made it can be modified by re-entering the Chain Song menu item. When you enter the menu item, the display will look like this:

**S:1 Chain to:3**

In this case, S:1 is current song you are working on. Chain to:3 means that Song 1 is chained to Song 3. To edit the chain point press the YES button. The display will look something like this:

**Chain atBeat: 14**

This means that the chain point is currently set at beat 14 of Song 1. To move the chain point to a different beat use the SELECT buttons. To re-mark the chain press the NO button. The display will return to:

**Start, No or Key**

To re-mark the chain, press the START button, then strike a key on your keyboard to mark the chain time (or strike a key instead of the START button to mark the chain at the end of the song). To remove the chain press the NO button. The MS-1 will respond with the message:

**Chain removed.**

If you are chaining to a song which also has a fade, make sure to mark the chain time before the end of the fade. If the end of the fade occurs before the chain time, the chain will occur as soon as the song has faded to silence, regardless of the setting for the chain time. This can happen easily if you are striking a key on your MIDI keyboard to automatically set the chain time at the end of a song.

Another thing to keep in mind is that the chain event remains in a song even if you set the Chain Song parameter to "No Song Chain." In this case, the song would simply stop playing at the chain event.

Chaining is a very valuable feature. In its simplest application you can use it to turn the MS-1 into a MIDI jukebox, queueing up songs to play

*If you are chaining to a song which also has a fade, make sure to mark the chain time before the end of the fade.*

in any order. But it can also be used as a powerful composition tool because it gives you a handy way to reorganize a piece of music. Let's say you're working on a typical pop song with a Verse, a Chorus, and a Bridge. If you record each part as a separate song you can re-order them just by chaining them up in different ways. This way you can quickly create new versions of your song without re-playing all the parts. This is fairly tricky, however, since the chain events are always rounded to the beat. It may be difficult for you to create a smooth transition between chained sections.

### **c: Fade Song**

Pressing the YES button when this item is in the MS-1 display allows you to apply a pre-programmed fade out to any song. The display will look something like this:

**16 beat fade**

Use the SELECT buttons to choose the length of the fade you want. Your choices are:

2 beat fade  
4 beat fade  
8 beat fade  
16 beat fade  
32 beat fade  
64 beat fade  
128 beat fade

*Use the longer fades (16 beats and up) whenever possible.*

Fade Song works similarly to Chain Song. While in Play/Record Mode, you choose a song you want to fade out. Then, you enter Edit Mode, choose the length of the fade you want, listen to your song play back, and mark the beginning of the fade by playing a note on your MIDI keyboard.

When you have selected the length of the fade press the YES button. The display will look like this:

**Start. No or Key**

Striking a key on your MIDI keyboard at this point will automatically set the fade at beat 1. To set the fade at another beat, press the START button instead of striking a key and your song will start to play. As your song plays you can mark the fade point by playing any note on your MIDI keyboard. While you are listening the display will look like this:

**Mark fade start**

“Mark fade start” means that the MS-1 is waiting for you to mark the point at which your song will begin to fade out by hitting a note on your MIDI keyboard.

Once the fade has been marked it can be modified by re-entering the Fade Song menu item. When you enter the menu item, the MS-1 will display the fade length:

**8 beat fade**

You can select a new fade length by using the SELECT buttons. Pressing the YES button allows you modify the point at which the fade begins. The display will look something like this:

**Fade at Beat: 14**

This means that the fade point is currently set at beat 14. To move the fade point to a different beat use the SELECT buttons. To re-mark the fade press the NO button. The display will return to:

**Start, No or Key**

Press the START button to re-mark the fade point. To remove the fade press the NO button. The MS-1 will respond with the message:

**Fade removed.**

Applying a pre-programmed fade out to a song can be really effective.

*If you think about the fade outs you hear in recorded popular music they are really pretty long. Try to mark your fade at least 16 beats before the end of the song.*



In general, avoid very short fades like 2, 4, or 8 beats. You will find that, because they are so short, the fade out is not very smooth. There is simply not enough volume resolution over MIDI to accomplish a smooth fade in so short an amount of time.

### 3: Copy

Under this menu you will find menu items that allow you to copy and merge MIDI data between songs and tracks. To scroll through the items under the Copy menu use the SELECT buttons. This will take you to the list of items under the Copy menu. Use the SELECT buttons to scroll through the other items under the Copy menu.

#### a: Copy Song

Copy Song is used to copy one entire song to another song location in the MS-1. Pressing the YES button when this item is in the MS-1 display allows you to specify the source and destinations for the copy operation. The display will look something like this:

```
SOURCE S: 1 ++++
```

S:1 means Song 1, the song to be copied. You can change the source song by using the SELECT buttons. Once the source song has been selected pressing the YES button again allows you to specify the destination. The display will look something like this:

```
COPY TO S:12 ----
```

The MS-1 will automatically select the lowest numbered available (i.e., empty) song location. You can change the destination by using the SELECT buttons. You can copy any song to any song location in the MS-1.

After you have chosen the desired source and destination songs press the YES button. The display will look something like this:

```
COPY S1 to S12?
```

*Many of the editing parameters on the MS-1 are not undoable so it's sometimes a good idea to copy a song to an empty location before editing it extensively.*

Pressing the NO button will cancel the copy operation, and return you to Play/Record Mode. Pressing the YES button will initiate the copy operation. The MS-1 will briefly display the number of tracks copied and then return you to Play/Record Mode with the destination song selected.

When you copy one song to another location you erase any data that was in the destination song before the copy operation took place. To prevent accidental erasure, the MS-1 will prompt you if the destination song contains any data. At that time you will have the choice of continuing or canceling the operation.

### **b: Merge Tracks**

Pressing the YES button when this item is in the MS-1 display allows you to merge the MIDI data from any single track in a song with the data on another track in the same song. You will first specify the source track for the merge and then the destination track. Once the merge has taken place, the destination track will contain the MIDI data from both the source and destination tracks and the source track will be erased.

After entering this menu item the MS-1 will automatically choose the highest numbered track with data on it as the source track. You can select any other source track by pressing the appropriate TRK button. The display will look something like this:

T:4 is source

This means that Track 4 will be the source track for the merge operation. Pressing the YES button allows you to select the destination track. You can select the destination track by pressing the appropriate TRK button. The display will look something like this:

T:1 is dest

Pressing the YES button brings up this display:

Merge T4 to T1?

*Remember, the source track is erased after the merge operation.*

Pressing the NO button will cancel the merge operation. Pressing the YES button will initiate the merge operation. As it performs the merge, the MS-1 will briefly display the message:

merging.....

When the merge is complete the MS-1 will display the number of events merged, erase the source track, and will then return you to Play/Record Mode.

If the program changes for the source and destination tracks are different, the MS-1 will inform you of this fact, just prior to merging, and will ask if you want to merge the tracks anyway. If you decide to execute the merge anyway then the destination track will retain its program change command. For example, if you were merging a Bass track into a Piano track, once the merge was completed all the notes would play back with the Piano sound. The MS-1 does not retain program changes or MIDI channel assignments when performing a merge operation.

*Merging is not undoable in any way. You cannot unmerge tracks nor can you recall the erased source track once the merge has been executed.*

Merging is not undoable in any way. You cannot unmerge tracks nor can you recall the erased source track once the merge has been executed. Before merging, therefore, it is recommended that you copy the song you are working on to another song location in case the results of the merge are not what you had in mind.

#### **4: Erase**

Under this menu you will find menu items that allow you to erase songs from the MS-1 and its RAM cartridges. To scroll through the items under the Erase menu use the SELECT buttons.

##### **a: Erase Song**

Pressing the YES button when this item is in the MS-1 display allows you to erase any song in the MS-1. The display will look something like this:

Erase 12? ++++

*These options are not undoable. Be careful when performing any of them.*

You can select which song you want to erase by using the SELECT buttons. Pressing the YES button initiates the erase operation. Pressing the NO button cancels the operation.

Use this with caution. The MS-1 will not prompt you for any further confirmation of the erasure. This is not undoable.

### **b: Clear Memory [Hard Reset]**

Pressing the YES button when this item is in the MS-1 display allows you to erase the entire memory of the MS-1. The display will look something like this:

Are You Sure?

Pressing the YES button erases all songs currently loaded in the MS-1 and performs a Hard Reset. All parameters in the MS-1 will be reset to their factory default values. Pressing the NO button cancels the operation.

Songs stored on a RAM card (Songs 25 to 99) will not be affected by this operation.

### **c: Clear RAM Card**

Pressing the YES button when this item is in the MS-1 display allows you to erase the contents of the currently inserted MS-1 RAM card. The display will look something like this:

Initialize Card?

Pressing the YES button will initialize (erase) the RAM card. Pressing the NO button cancels the operation. If no card is inserted, pressing the YES button will return you to Play/Record Mode.

In order to erase a RAM card, its Memory Protect switch must first be set to OFF. If it is set to ON, the MS-1 will ignore the command to initialize the card, and will return to Play/Record Mode.

Songs stored in the MS-1 (Songs 1 to 24) are not affected by this operation.

### 5: Loop

Under this menu you will find menu items that allow you to loop recorded tracks. To scroll through the items under the Loop menu use the SELECT buttons.

#### a: Set T1 Loop

Pressing the YES button when this item is in the MS-1 display allows you to set loop points for any track in an MS-1 sequence. You set the loop points by playing on your keyboard. The first note you play will set the loop start point, the second note you play will set the loop end point. These notes will not be recorded into your song. Loops can be set up independently for each of the four tracks. To loop a track, press the appropriate TRK button. The display will look something like this:

a: Set T1 Loop

Once you have selected the track to be looped, pressing the YES button brings up this display:

Start, No or Key

*Loop points can only be set in the first 540 beats of a song.*

You have three choices at this point. Pressing the PLAY button will cancel the looping operation, but will leave any loop points you may have set previously. Pressing the NO button cancels the looping operation and removes any loop that was previously assigned to the track you selected. If you want the loop start point to be the beginning of song hit a key on your MIDI keyboard. The MS-1 will then begin playing your song and will prompt you to mark the loop end point. You can mark the loop end point by playing another note on your keyboard.

If you want to loop a track from some point other than the beginning of the song, press the START button. The MS-1 will start the song and then prompt you to mark the beginning of the loop. You can do this by

playing a note on your MIDI keyboard. Once the beginning of the loop has been marked you can mark the end of the loop in the same manner.

Once the loop points have been marked, the MS-1 will prompt you with this message:

**Round to beat?**

Pressing the YES button will cause the MS-1 to round off the loop start and end points to the nearest beats. Pressing the NO button leaves the start and end points exactly where you played them. In general, if you are playing to a metronome you will want to answer YES here. If you are not playing to a metronome you should probably answer NO because the "beat" won't necessarily have any relation to the music you have played.

### **b: Times to Loop**

Pressing the YES button when this item is in the MS-1 display allows you to specify the number of times you would like a particular section of a track to loop. After setting up your loop points the MS-1 will send you back to Play/Record Mode. In most cases you will want to come right back into the Loop menu and set up how you want your loop to play back. Press the TRK button for the track you just looped. The display will look something like this:

**Endless Loop**

This is the default setting. Any time you create a loop in a track the MS-1 will assume you want that track to loop forever unless you say otherwise. To loop a track a specified number of times use the SELECT buttons.

In addition to setting up an endless loop or a loop that plays a specific number of times, you can also turn looping off by selecting this option:

**Track loop: OFF**

*Endless loop is the default setting. That means your track will play endlessly between your loop points until you come back to b: Times to Loop and change the setting.*

This is handy if, for some reason, you don't want a track to loop but you want to have the option of turning the loop back on at any time without having to re-mark the loop points.

If a track that you have looped seems to stop earlier than you had expected check the Cutoff Loops parameter. If this is set to ON, your loops may not play as long as many times as you have specified.

### **c:Cutoff Loops**

Pressing the YES button when this item is in the MS-1 display allows you to "cut off" any looped material to match the longest unlooped track in a song. The display will look something like this:

*If your loops seem to cut off too soon, check this parameter.*

**LOOP CUTOFF:ON**

Use the SELECT buttons to turn this parameter ON and OFF. When this item is ON (the default setting) the MS-1 looks to the longest unlooped track in a song, and uses the end of that track as the end of the song. Any loops which ordinarily would have played for additional repetitions (or endlessly) will be terminated at this point. This feature allows you to avoid having to worry about setting your loop repetitions to match the end of a song.

When this parameter is OFF looped tracks will behave normally. If the Cutoff Loops feature prevents a track from looping as many times you have specified in b:Times to Loop, turn this parameter OFF.

NOTE: The cutoff loops feature is global. It affects all tracks in all songs. You cannot set it to affect one song and not another.

### **6: Metronome**

Under this menu you will find menu items that allow you to change the volume of the MS-1's built-in metronome and, to determine whether the setting of the Tempo Knob will define the tempo at which a song is initially recorded. To scroll through the items under the Metronome menu use the SELECT buttons.

*You can plug the metronome's output into a mixing board, a home stereo system, or an instrument amplifier.*

### **a: Click Volume**

Pressing the YES button when this item is in the MS-1 display allows you to change the volume of the MS-1's built-in metronome. The display will look something like this:

**Click Volume: 7**

Use the SELECT buttons to change the volume of the click. 7 is the loudest setting. 4 is the default setting. At a level of 0 the metronome is inaudible, but the light will still blink if the metronome is turned on.

### **b: Record Tempo**

Pressing the YES button when this item is in the MS-1 display allows you to determine whether the setting of the Tempo Knob, at the time a song is recorded, will be saved with the song you are working on. The display will look like this:

**Record Tempo: ON**

Use the SELECT buttons to turn Record Tempo ON and OFF. When Record Tempo is ON (the default) the current setting of the Tempo Knob will be saved with the current song as that song's tempo. When a song that has been recorded with Record Tempo ON is recalled at a later time it will then play back at the tempo at which it was recorded.

If Record Tempo is OFF when you begin to record a song then the current setting of the Tempo Knob will not be saved with the song you are working on. If, at a later time, you recall the song for playback, it will play back at the current setting of the Tempo Knob. It is highly recommended that you leave Record Tempo ON for most applications.

## **7: MIDI**

Under this menu you will find menu items that allow you to edit the MS-1's MIDI parameters. To scroll through the items under the MIDI menu use the SELECT buttons.



*This MIDI channel set here must match the transmitting channel of your MIDI keyboard.*

### **a: Base Channel**

Pressing the YES button when this item is in the MS-1 display allows you to change the MS-1's MIDI base channel (i.e., MIDI receive channel). The display will look something like this:

Recv on chan 1

Use the SELECT buttons to set the appropriate MIDI receive channel. This channel must match the transmitting channel on your keyboard. If you are sending MIDI information to the MS-1 on any channel other than the one set here, the MS-1 will not record your playing. In order for the MS-1 to record MIDI data your keyboard must be transmitting on this channel.

The default MIDI receive channel is 1. It is probably best to leave this set to 1 at all times. For a complete discussion of this issue see the section on *How the MS-1 Records and Plays Back Your Songs*.

### **b: Patch Through**

Pressing the YES button when this item is in the MS-1 display allows you to turn on or off the MS-1's Patch Thru feature. The display will look something like this:

Patch thru: OFF

Use the SELECT buttons to set Patch Thru ON or OFF. When Patch Thru is OFF (the default setting), MIDI data received at the MS-1's MIDI In port will not be echoed through the MIDI Out port. When Patch Thru is ON, any data received at the MS-1's MIDI In port will also be echoed through the MIDI Out port.

During normal operations (using the MS-1 with a single MIDI keyboard) you will want to keep Patch Thru turned OFF. If, however, you are using the MS-1 with a MIDI keyboard controller or external sound modules you may need to turn Patch Thru ON in order to hear the sounds you want without re-patching MIDI cables. In this case, if the MS-1 is set up to play back to your master MIDI keyboard, be sure to turn the keyboard's Local Control off to avoid doubling of MIDI data.



**Notes & Ctl's only**

Notes & Ctl's only means that only MIDI Note and MIDI Controller data recorded into the MS-1 will be sent out on playback. No pressure or System Exclusive data will be sent.

**e:Program Chgs**

Pressing the YES button when this item is in the MS-1 display allows you to determine whether program changes recorded into a track will be transmitted on playback. This is useful if you are controlling more than one sound module from the MS-1, and you make program changes on your keyboard during the song, but don't want those changes to be transmitted to the other sound modules. This parameter does not affect all program changes including the initial program change recorded at the beginning of a track.

*If this parameter set to OFF, the initial program changes on each track will not be sent out when a song is played.*

If this parameter set to OFF, the initial program changes on each track will not be sent out when a song is played. Any other program changes recorded into the track will also not be transmitted.

**f: System ID**

Pressing the YES button when this item is in the MS-1 display allows you to set the MIDI System Exclusive ID number for memory dumps from other MS-1 MicroSequencers. The display will look something like this:

**Load anyMS1 dump**

Load Any MS1 dump means that your MS-1 will accept a memory dump from any other MS-1 regardless of that MS-1's System Exclusive ID number. This is the default setting and will probably never need to be changed. Pressing the right SELECT button brings up this display:

**Load on ID=1**

Here you can set your MS-1 to accept memory dumps from MS-1's whose ID numbers match the number you set here (from 1 to 127). Use the SELECT buttons to set the appropriate ID number. A double press returns the status to Load Any MS1 dump.

### **g: Sync Mode**

When used with other MIDI devices the MS-1 is capable of acting as either a Master or Slave device. Pressing the YES button when this item is in the MS-1 display allows you to change the MS-1's Sync Mode. The display will look something like this:

**No MIDI Sync**

No MIDI Sync (the default setting) means that the MS-1 will not send out any synchronization information during playback or recording. In this state, the MS-1 functions as neither Slave nor Master device. Pressing the right SELECT button changes the display to:

**MIDI Sync Master**

MIDI Sync Master means that the MS-1 will send out the appropriate MIDI synchronization information during playback and recording. In this state, the MS-1 functions as a Master device. Use this setting if you are driving another sequencer or drum machine in sync with the MS-1. Pressing the right SELECT button changes the display to:

**MIDI Sync Slave**

MIDI Sync Slave means that the MS-1 will not send out any synchronization information during playback or recording. In this state, the MS-1 functions as a Slave device. Use this setting if you want to drive the MS-1 in sync with other MIDI devices. In this state, the MS-1 will not begin playing until it receives the appropriate synchronization commands from the Master device. In this sync mode the MS-1 follows MIDI clock commands enabling it to follow any tempo changes from the Master device. Pressing the right SELECT button changes the display to:

*Even though the MS-1 does not do tempo changes it can still follow them if they are being created by another device like a drum machine.*

## MIDI Start/Stop

MIDI Start/Stop means that the MS-1 needs only the MIDI Start and Stop commands to synchronize to an external device. In this sync mode the MS-1 will not follow MIDI clock commands but will instead "run free." This mode was included to allow the MS-1 to use its high-resolution timing (20 times more accurate than MIDI clock commands) when slaved to another MS-1 sequencer.

### h: MIDIScope

Pressing the YES button when this item is in the MS-1 display enables the MS-1's MIDI Scope feature. This feature allows you to view MIDI messages as they are sent from your keyboard. The display will look something like this:

MIDISCOPE

Playing a note on your MIDI keyboard will cause MIDIScope to display some information about what that MIDI message looks like. If the note you played was C4 the display might look something like this:

NON 1 C4 86

NON stands for Note On. 1 stands for MIDI channel 1. C4 is the note you played. 86 is the velocity of the note.

Note that no sound will be heard while the MS-1 is in MIDISCOPE mode.

The first three characters of the display will always contain a mnemonic for the type of data (the status byte) the MS-1 is receiving. The remaining "columns" will usually display the value of the parameter and other important information (data bytes) associated with the particular command. Here is a list of all the mnemonics:

NON	Note On
NOF	Note Off

*You can use MIDISCOPE to see what MIDI data looks like.*

PKP	Polyphonic Key Pressure
CCH	Control Change (MIDI Controller)
PCH	Program Change
MCP	Monophonic Channel Pressure
PWL	Pitch Wheel
SOX	Start of System Exclusive
EOX	End of System Exclusive
MTC	MIDI Time Clock
SPP	Song Position Pointer
SCH	Song Change
TUN	Tune Request
CLK	Clock
STR	Start
CNT	Continue
STP	Stop
SNS	Active Sensing
RST	System Reset
XRT	System Real Time
XNR	System Common

### **i: Dump to MIDI**

NOTE: The features under this menu item require a personal computer and software that will allow your computer to record MIDI System Exclusive data dumps. Most recently-released sequencer software packages can do this.

Software for your computer may be available commercially or free of charge through public domain software collections and electronic bulletin board systems. You can contact Customer Support at Kurzweil Music Systems for more information on the availability of such software.

The data dump is in the form of a MIDI System Exclusive Message. So, any software you may have that is capable of recording a MIDI SysEx dump will be sufficient.

You should also note that it is not necessary to use these features in order to permanently store your songs. Permanent storage can be accomplished with a RAM card by inserting the card and saving the songs you create to any song location between 25 and 99.

The MS-1 has the ability to save its songs to an external device like a personal computer or to another appropriate device such as a second MS-1. Pressing the YES button when this item is in the display allows you to determine what songs you want saved and how you want to save them. The display will look something like this:

**h1:Save S1..S24**

Pressing the YES button when this item is in the display initiates a dump of all songs in the MS-1's memory (Songs 1 to 24). During transmission the MS-1 will provide brief updates as to the progress of the dump.

From h1:Save S1...S24 pressing the right SELECT button changes the display to:

**h2:Save Card**

Pressing the YES button when this item is in the display initiates a dump of all songs in the MS-1's RAM card (Songs 25 to 99). During transmission the MS-1 will provide brief updates as to the progress of the dump.

From h2:Save Card pressing the right SELECT button changes the display to:

**h3:Save Song**

Pressing the YES button when this item is in the display allows you to save a single song. Use the SELECT buttons to select the song you want to save. Once you have selected the song you want to save, pressing the YES button initiates a dump of that song.

### **j: Load Song to #**

Pressing the YES button when this item is in the MS-1 display allows you to load a previously saved song to any song location. The display will look something like this:

**Load to: 12 ---**

Use the SELECT buttons to select the song location into which you want to load a song. Once the location has been selected pressing the YES button prepares the MS-1 to receive a MIDI System Exclusive data dump. You then will initiate the dump from your computer. Whatever data is contained in the file you dump from your computer will be loaded into the MS-1, replacing any data previously stored in the same location(s). Pressing the NO button cancels the operation.

Normally, when a song is loaded into the MS-1 it will load back in to the location from which it was originally saved. If you want to re-order your songs by saving some of them into different locations you can use this command to load any song to any location.

If you invoke this operation without having an appropriate transmission device the MS-1 will hang (waiting indefinitely for a message it will never get) and you will have to turn it off and back on again to restart it. Or perform a soft reset by pressing the STOP, START, and right SELECT buttons simultaneously.

**8: Utilities**

Under this menu you will find menu items that allow you to perform certain utility functions on the MS-1. Press the YES button to enter the Utilities menu. Use the SELECT buttons to scroll through the items under the Utilities menu.

**a: Show Free Note**

Pressing the YES button when this item is in the display allows you to see how many more notes you can record into the MS-1 before its memory is full. The display will look something like this:

**13684 notes free**

When completely empty the MS-1 can record 15,781 events. This is about enough memory to record two movements of a typical Mozart symphony.

*The maximum number of free notes is just under 16,000.*



If you have a RAM card inserted you can also see how many notes are available there by pressing the right SELECT button. The display will look something like this:

2915 card notes.

### **b:Show Song Size**

Pressing the YES button when this item is in the MS-1 display allows you to see the number of notes each song is using in both the MS-1 and the RAM card. The display will look something like this:

S1 = 76 notes.

Use the SELECT buttons to scroll through the other songs to find out the size of each song stored in the MS-1.

### **c:Play All Songs**

Pressing the YES button when this item is in the MS-1 display allows you to change the way the MS-1 plays back its songs. The display will look something like this:

Play all: OFF

When Play All is OFF (the default setting) the MS-1 will play only the current song whenever playback is initiated. This is the MS-1's normal mode of operation. When Play All is ON, initiating playback will cause all songs in the MS-1 to play, one right after the other, from Song 1 through Song 24 (or Song 99 if a RAM card is in use). In this mode, the MS-1 acts something like a typical CD player. You can use the SELECT buttons to jump to other songs. This is a great feature if you just want to listen to all of your MS-1 songs with one command.

# *Appendix*

# 4

---

*Section  
Four*

---

## *Appendix*

### **Battery Replacement**

The MS-1 uses batteries to keep its internal memory alive when power is turned off. The original batteries should last at least 2 years before they need replacing. (NOTE: There is no “low battery” indication.)

To replace the batteries, disconnect the power supply cord, remove the three screws along each side, and lift the top cover off. The batteries are near the rear panel. Try not to touch any of the other electronic components inside. Replace with two high quality AA size “heavy-duty” or “alkaline” batteries. A capacitor will keep the memory alive for a couple of minutes while changing the batteries so don’t remove the old ones until the new ones are available. Both batteries should point toward the right with the + end of each battery matching the + mark printed near the battery holder. Reassemble the top cover before plugging the power supply cord back in.

Most quality brand-name batteries now have “sell by” dates printed on their package. Carbon-zinc batteries will last for at least a year while alkaline batteries should last for at least two years after that date. Battery life is not significantly increased by leaving your MS-1 on all the time and may even be reduced by the unit’s warmth if left on continuously.

Manufacturer:  
**YOUNG CHANG**  
MIDI Sequencers

## MIDI Implementation Chart

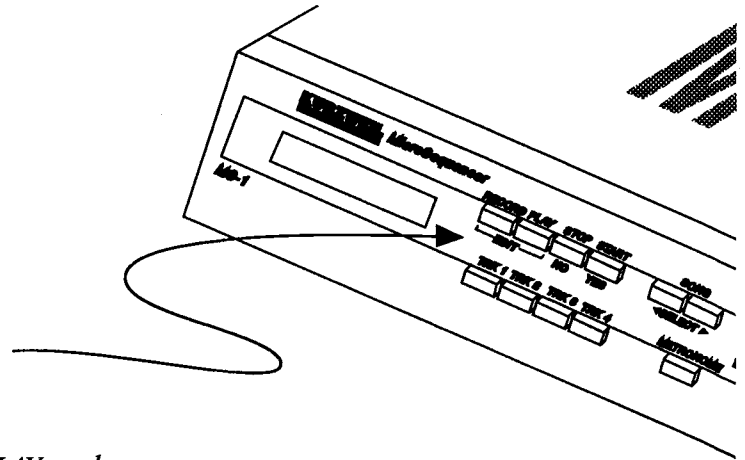
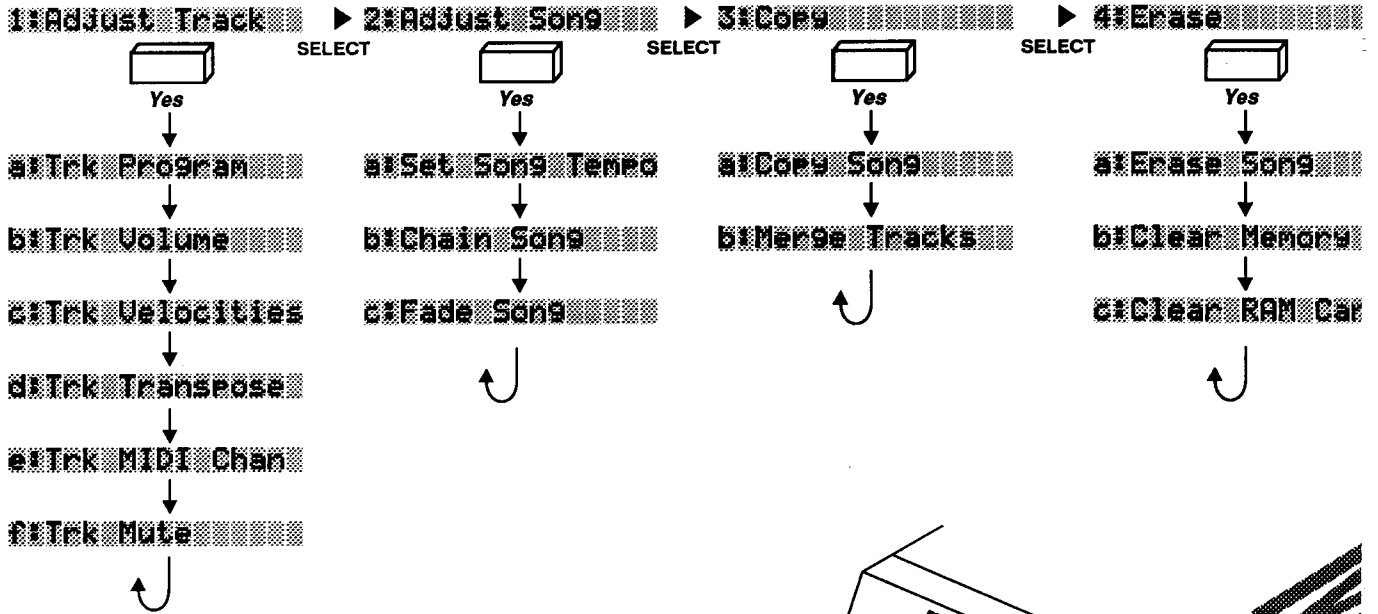
Model: MS-1

Date: 06 30 89  
Version: 1.0

FUNCTION		TRANSMITTED	RECOGNIZED	REMARKS
BASIC CHANNEL	Default Changed	1 1 - 16	1 1 - 16	memorized
MODE	Default Messages Altered	Multi* Multi	Multi OMNI ON, Multi	memorized
NOTE NUMBER	True Voice	0 - 127 12 - 120	0 - 127 12 - 120	key range: C0 - C8
VELOCITY	Note ON Note OFF	<input type="radio"/>	<input type="radio"/>	
AFTER TOUCH	Keys Channels	<input type="radio"/>	<input type="radio"/>	
PITCH BENDER		<input type="radio"/>	<input type="radio"/>	
CONTROL CHANGE	1 2 7 64 66	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	mod wheel breath volume sustain sostenuto
PROGRAM CHANGE	True #	<input type="radio"/> 0 - 127 1 - 128	<input type="radio"/> 0 - 127 1 - 128	
SYSTEM EXCLUSIVE		<input type="radio"/>	<input type="radio"/>	
SYSTEM COMMON	Song Pos Song Sel Tune	X X X	<input type="radio"/> <input type="radio"/> <input type="radio"/>	
SYSTEM REAL TIME	Clock Messages	<input type="radio"/> X	<input type="radio"/> X	
AUX MESSAGES	Local Control All Notes Off Active Sense Reset	X X <input type="radio"/> X	X O** <input type="radio"/> X	
<p>NOTES</p> <p>*enables you to assign different Programs to each MIDI Channel</p> <p>**can be disabled in EDIT Mode</p>				

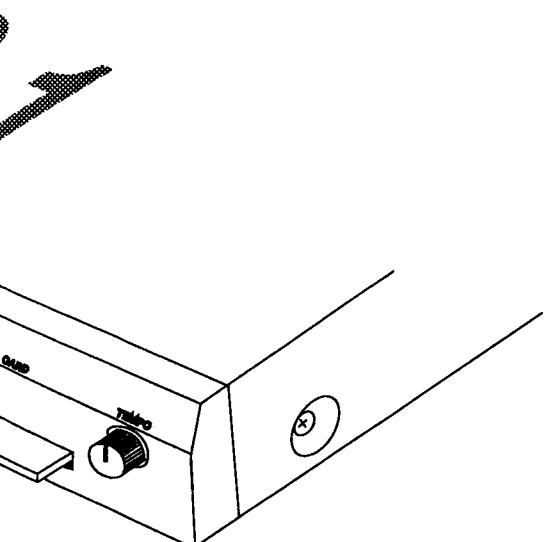
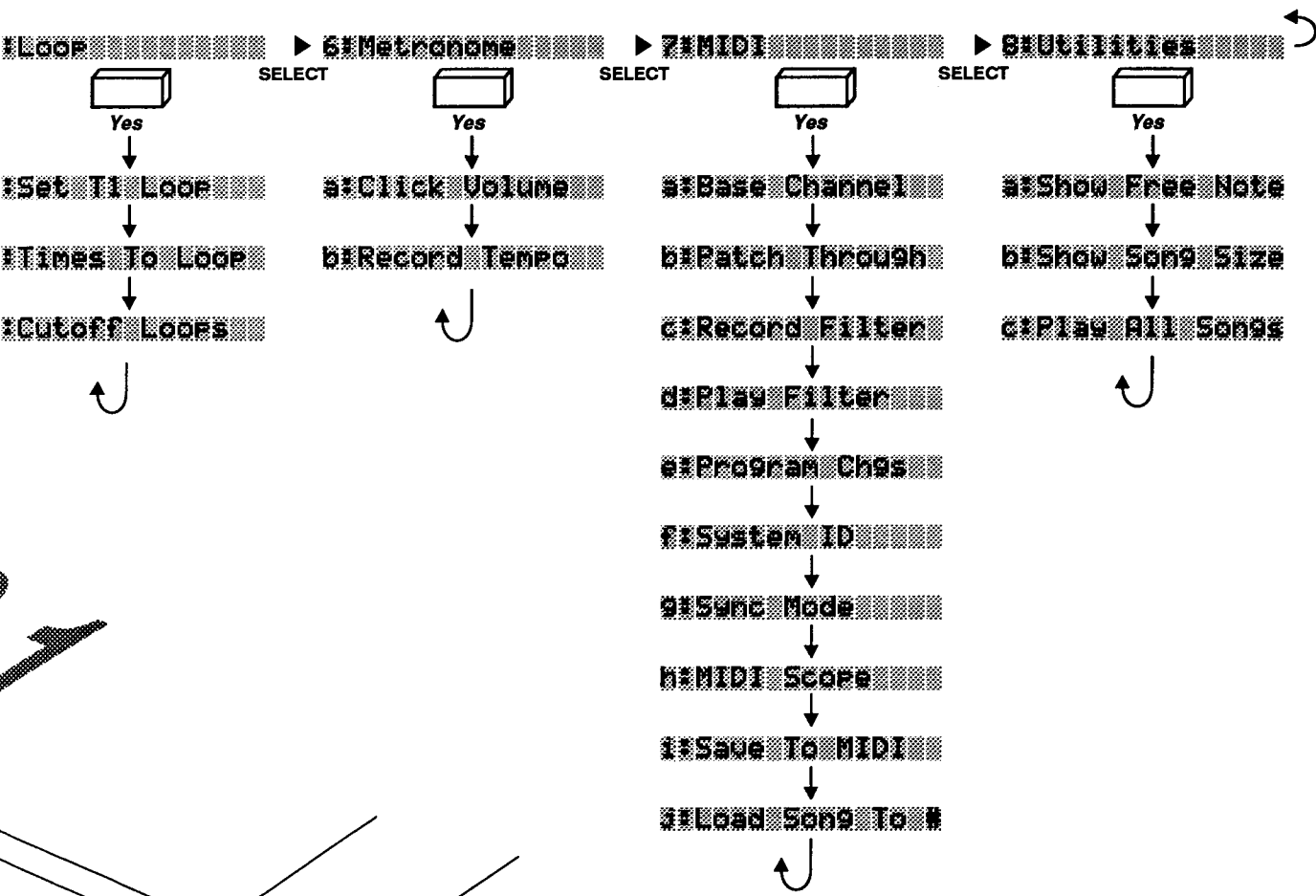
O = yes  
X = no

# The Edit Mode Menus of



To enter Edit Mode, press the PLAY and RECORD buttons simultaneously.

# The MS-1 MicroSequencer





*Index*

5

---

*Section  
Five*

---



## Index

“\*” 52  
“+” 52  
“-” 52

### A

Automatic fade outs 66

### B

“B” 52  
Back panel buttons 56  
    illustration 55  
Base channel, setting 76  
Battery, changing 36, 86  
Blues in C 11

### C

Card Slot 56  
Chaining songs 45, 63  
Changing tempo 46  
Clear memory 71  
Clear RAM card 71  
Click volume 75  
Contrast control 57

Copying songs 68  
Cutoff loops 74

### D

Display contrast control 57  
Display symbols 52  
Double press 51  
Dump to MIDI 81

### E

Edit Mode 50  
Edit Mode menus, illustration 88  
Endless loops 43  
Erasing a song 40, 70  
Erasing a track 39

### F

Fade outs 66  
    removing 67  
Filtering MIDI data 77  
Front panel buttons 52  
    illustration 55

**G**

Getting started 8

**H**

Hard reset 71

**I-K**

Initial program changes, setting 41

Initializing a RAM card 71

**L**

LCD Display 53

Looping 42, 72

**M**

Mark chain time 46, 64

Mark fade time 67

Maximum velocity 60

Maximum volume setting 59

Memory 83

Menus, illustration 88

Merging tracks 29, 69

Metronome, setting volume 75

Metronome button 56

Metronome jack 57

Metronome LED 56

Metronome menu 74

MIDI channels 24, 44

setting 61

MIDI implementation chart 87

MIDI In, Out, Thru ports 57

MIDI sync 79

MIDI, connecting cables 9

MIDI, defined 21

MIDI, MS-1's base channel 25

MIDISCOPE 80

Muting tracks 34, 62

**N**

No button 54

No fixed tempo 63

**O**

Overdubbing 29

**P, Q**

"P" 52

Patch Thru 39, 76

Play all songs 84

Play button 54

Play filter 77

Play Mode 50

Power jack 56

Power supply 9

Power switch 56

Program changes,

initial 41

recording 39, 58

setting 58

transmitting 78

**R**

"R" 52

RAM card

backing up 36

initializing 71

loading songs 36

saving songs 14, 35

Record button 53

Record filter 77

Record tempo 75

Recording a track 11, 28

Recording and playback 23

Recording initial program changes

27

Recording problems 29

Removing song chains 65  
Resetting the MS-1 83

## S

“S” 52  
Select buttons 54  
Sequencer, defined 20  
Setting MIDI channels 61  
Setting the base channel 76  
Setting the tempo 46  
Setting track velocities 60  
Setting track volume 37, 59  
Setting up the MS-1 9  
Show free notes 83  
Show song size 84  
Soft Reset 83  
Songs  
    chaining 45, 63  
    copying 68  
    erasing 70  
    removing chains 65  
    setting tempo 63  
    show size 84  
Start button 54  
Stop button 54  
Symbols 52  
Sync Mode 79  
Synchronization 79  
Syncing to other devices 79  
System exclusive dumps 78  
System ID 78

## T

Tempo Knob 56  
Tempo  
    changing 46  
    recording 47  
    recording and saving 75  
    setting and changing 63  
    slowing down for recording 45

## Tracks

    channel assignments 25  
    editing velocities 38, 60  
    erasing 39  
    looping 42  
    merging 29  
    merging 69  
    MIDI channels 61  
    muting 34, 62  
    setting MIDI channels 44  
    setting volume 38, 59  
    transposing 61  
Transposing tracks 61  
TRK buttons 54  
Troubleshooting 26  
Tutorial #1 10  
Tutorial #2 14

## U

User Interface 50, 52  
Using other MIDI devices 39  
Utilities 83

## V-X

Viewing MIDI data 80  
Voltage transformer 9

## Y, Z

Yes button 54