Operating System

Reference Manual Addendum

Versions 2.00 to 2.50

ASR X

Sampler Resampler

ENSONIQ™

LEADING THE WORLD IN SOUND INNOVATION

ASR-X Version 2.00 to 2.50
Operating System Reference Manual Addendum

Written, designed, and illustrated by: Robby Berman

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IMPORTANT:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Part Number 9311009301-B **Model# MM-159**

Changes or modifications to the product not expressly approved by ENSONIQ could void the user's FCC authority to operate the equipment.

In order to fulfill warranty requirements, your ASR-X should be serviced only by an Authorized ENSONIQ Repair Station. The ENSONIQ serial number label must appear on the outside of the unit, or the ENSONIQ warranty is void.

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ASR-X Version 2.00 Operating System Software

What’s New in Version 2.00?

The version 2.00 operating system software for the ASR-X adds the following features to your ASR-X:

1. The version 2.00 operating system adds support for SCSI loading and saving of data. With an ENSONIQ SP-5 SCSI interface installed, the ASR-X can:
   - save and load sound, sequence, session and system setup files to and from DOS-formatted SCSI disks. The ASR-X has software-based SCSI device ID and termination settings that can be saved to floppy in SYSTEMSETUP files for automatic reloading on power-up.
   - format fixed and removable SCSI disks. You can also create custom directories, or *folders*.
   - import ASR-10/88, AKAI S-1000 and Roland S-770 sounds from SCSI devices such as CD-ROM drives. Once loaded, these sounds behave just like any other standard ASR-X sounds: they can be played, edited or saved to disk.
2. Quantization templates are now stored in SYSTEMSETUP files.
3. The first track recorded in a sequence now automatically defines the sequence’s length.

The ASR-X Version 2.00 Reference Manual Addendum describes in detail the new features of the version 2.00 ASR-X operating system. The addendum also includes an introduction to SCSI for beginners.

Important—Setting Up for SCSI

Since the ASR-X provides convenient software-switchable SCSI device ID and termination settings, the following sequence of events must take place, in order, when setting up the ASR-X for SCSI operations.

Note: Before proceeding, operating system version 2.00 or higher must be installed in the ASR-X.

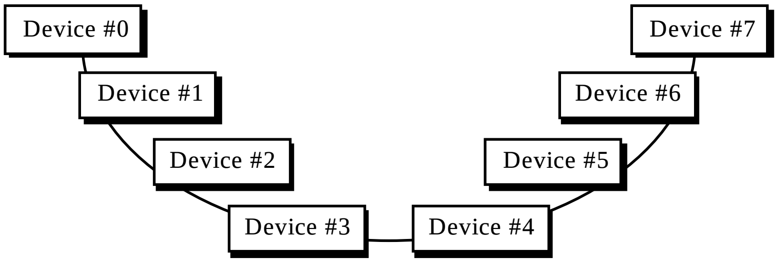
1. Without connecting any SCSI cables to the ASR-X, you must install the SP-5. This process is described in the SP-5 Installation Manual included in the SP-5 package.
2. When the SP-5 has been installed, the ASR-X—still unconnected to any other SCSI device—must be powered on and its SCSI ID and SCSI Termination system preferences set to their desired values. These parameters are described in “Setting and Saving SCSI System Prefs” later in this booklet.
3. The SCSI ID and Termination parameter setting must be saved to a floppy disk as part of a SYSTEMSETUP file. This procedure is described in Chapter 7 of the ASR-X Reference Manual.
4. The ASR-X must be powered off, and then connected to any relevant SCSI devices. Some common SCSI configurations are shown in “Introduction to SCSI” below.
5. Your ASR-X —with the floppy containing the SYSTEMSETUP file already in the floppy drive—must be powered up for use. See “Introduction to SCSI” below for tips on powering up your SCSI system.

Introduction to SCSI

What is SCSI?

SCSI is circuitry that allows for the high-speed transfer of data between computers and computer peripherals, including CD-ROM drives, scanners, storage devices and musical instruments such as the ASR-X. The word “SCSI”—pronounced “scuzzy”—stands for “Small Computer Systems Interface.”

In addition to internal circuitry, SCSI utilizes its own cables. These cables typically have 25- or 50-pin connectors on one or both ends. SCSI devices are equipped with SCSI jacks to which SCSI cables can be connected. Up to eight SCSI devices can be interconnected—daisy-chaining one after another—in this manner at any given time.



The data conduit created by the cabling that connects a SCSI system's devices is referred to as a "SCSI bus."

Most SCSI data is saved to a disk of some sort. Even removable SCSI cartridges contain a disk on which data is stored. Some SCSI devices—such as CD-ROM players—use disks whose contents can't be changed. These are referred to as "read-only" devices. Other SCSI devices—such as fixed and removable drives—contain *writable* disks to which you can save your data.

The ASR-X is actually a SCSI II device—SCSI II is a faster, second-generation version of the original SCSI protocol. The SP-5 SCSI interface installed in your ASR-X is equipped with a 50-pin SCSI II jack. If your SCSI cables don't match the SP-5's jack, you can purchase the necessary adapter at any computer supply outlet. SCSI II devices are compatible with SCSI and SCSI III devices.

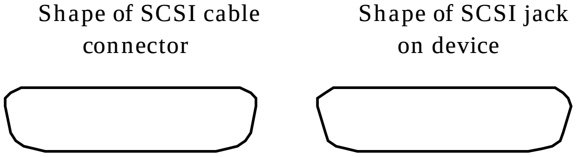
This booklet refers to SCSI II as "SCSI" for simplicity's sake.

Note: If you're inexperienced with SCSI systems, be sure to read "About Termination" and "About SCSI Device IDs" below.

Attaching SCSI Cables

Warning: SCSI cables should be connected to and disconnected from your devices' SCSI jacks only when the power is turned off to all devices on the SCSI bus. Failure to observe this rule can result in damage to your equipment.

The connectors at the end of SCSI cables are shaped in such a way that they can only be plugged into SCSI jacks in the proper direction.

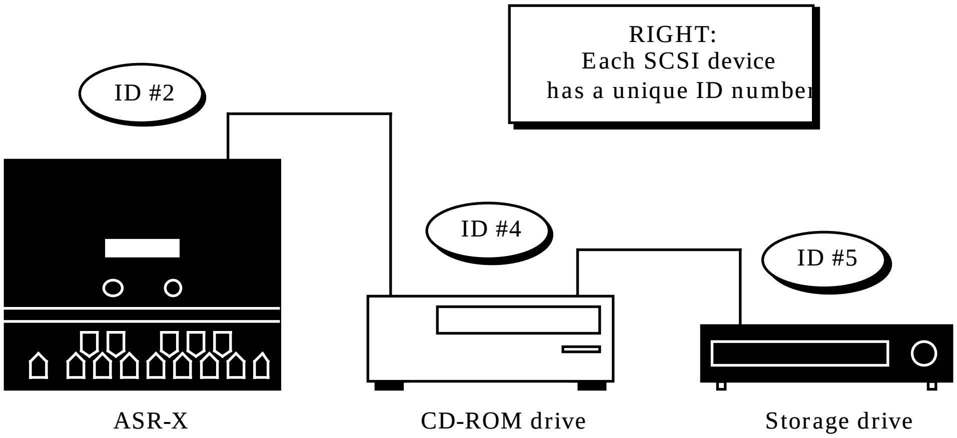


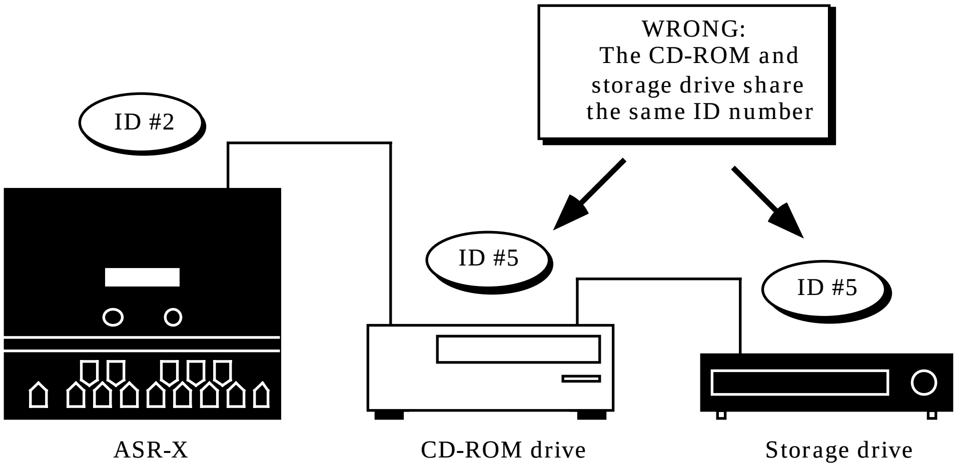
Many SCSI connectors provide a mechanism that can lock the connector and jack together. Such a lock should be used wherever possible, since a solid cable-to-jack connection is important for successful operation of your SCSI devices. Standard SCSI II 50-pin jacks—such as the one found on the ASR-X—typically provide a pair of handles that snap into a SCSI II connector. Older SCSI connectors may offer screws for this purpose; SCSI jacks on older devices may alternately offer a pair of clamps that hold a cable's connector in place.

About SCSI Device IDs

Each SCSI device in a SCSI system—including the ASR-X—must be assigned a number from 0 to 7, with the selected number representing one of the eight possible positions in a SCSI chain. These numbers, called "SCSI device IDs," allow you to identify—and target—the desired device when it comes time to load or save data.

It's very important that no two devices are set to the same ID number—if this occurs, the SCSI bus won't be able to distinguish between the devices. This can cause your entire SCSI system to misbehave.


RIGHT:
Each SCSI device
has a unique ID numbe
ID #2
ID #4
ID #5
ASR-X
CD-ROM drive
Storage drive


WRONG:
The CD-ROM and
storage drive share
the same ID number
ID #2
ID #5
ID #5
ASR-X
CD-ROM drive
Storage drive

Some common SCSI devices are pre-configured to use certain SCSI ID numbers. If you'll be connecting your ASR-X to any of these devices, be sure to avoid using these already-taken SCSI device IDs:

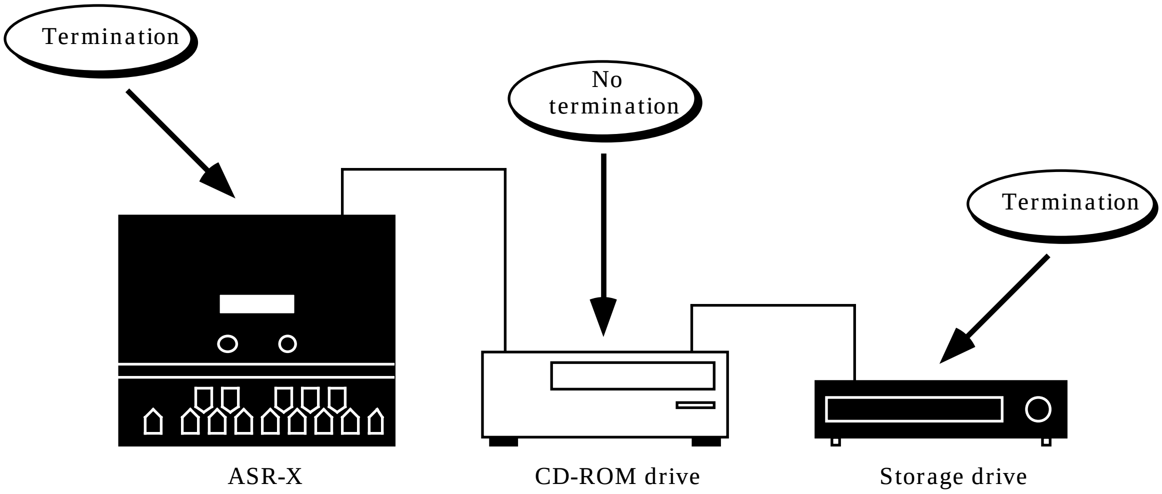
Device	Uses ID	Comment
Macintosh internal hard drives	0	unchangeable
ASR-10/88, TS-10/12, EPS16 PLUS	3	unchangeable
Macintosh internal CD-ROM drives	3	can be reset internally
ENSONIQ CD-ROM drives	4	can be reset via hardware switch
Iomega Zip drives	5 or 6	unchangeable
PC and Macintosh CPUs	7	unchangeable

Tip: If you're connecting your ASR-X to an ASR-10/88 or TS-10 and a non-ENSONIQ CD-ROM drive, it's a good idea to set the CD-ROM drive to ID #4, allowing the ASR-10/88 take advantage of ENSONIQ's DirectMacro™ feature, and to set the ASR-X to some other unused ID number.

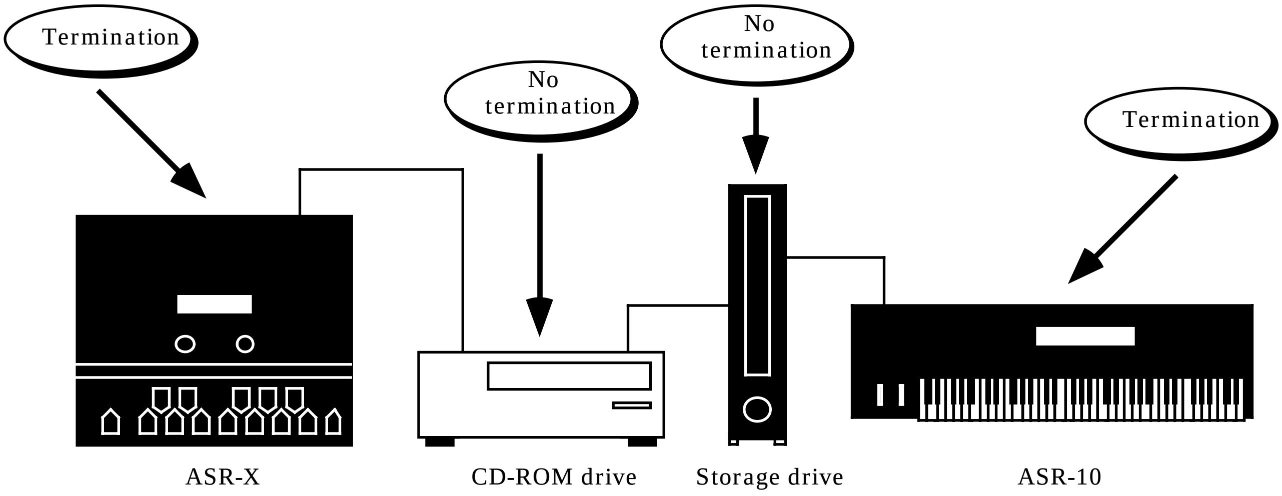
The ASR-X's SCSI Device ID parameter—available when an SP-5 is installed—can be set to any of the eight possible SCSI Device ID numbers. This parameter is described later in this booklet.

About Termination

The SCSI bus in any SCSI system is a circuit through which power flows from the first device in the chain to the last. Such a circuit requires a resistor at each of its ends. These resistors, which supply *termination* to the bus, prevent electricity from colliding with either end of the circuit and bouncing back—this can cause all sorts of problems. Extra termination supplied by devices other than the first and last in the chain is also problematic, since it impedes the easy flow of power up and down the bus. Therefore, the rule is: A SCSI bus requires termination on either end and nowhere else.


Termination
No termination
Termination
ASR-X
CD-ROM drive
Storage drive

or...


Termination
No termination
No termination
Termination
ASR-X
CD-ROM drive
Storage drive
ASR-10

Termination can be applied to the first and last device in a SCSI system in various ways. It can be provided by:

- jumper connectors installed inside a SCSI device,
- a terminator plug externally installed in a device’s spare SCSI jack
- software-switchable termination, as found in the ASR-X.

The ASR-X can supply termination or not, as your setup requires. This is controlled by the SCSI Termination parameter that becomes available when an SP-5 SCSI interface is installed—this parameter is described later in this chapter.

Directories/Folders

Fixed and removable SCSI disks, CD-ROMs and floppies provide open expanses of memory to which data can be stored, and from which it's retrieved. In an effort to aid the organization of all that data, it can be useful to create smaller sub-divisions of memory into which related chunks of data can be stored and from which they can be easily accessed. These sub-divisions are commonly called "directories" or—as in the ASR-X—"folders." Many CD-ROMs organize their files into such folders. You can create your own folders on any SCSI disk to which you're saving ASR-X data. The procedure for doing so is described later in this chapter in "Creating a Folder Using the ASR-X."

Each folder can contain other folders and on and on and on. The ASR-X provides a simple method for digging down through the folders on your SCSI disks to get to the locations and files you seek. See "Folder Navigation" later in this booklet.

Invisible Folders

When the ASR-X saves files to a SCSI disk, it creates a set of folders into which the various ASR-X file types are automatically saved (see Chapter 7 of the ASR-X Reference Manual). These folders are not visible when loading, saving, erasing or renaming disk files on the ASR-X since they're used by the ASR-X's internal automatic filing system. The folders can be seen when an ASR-X disk is viewed on a computer. The names of the invisible folders are:

BANKS
SEQUENCE
SESSION
SOUNDS
WAVES

In addition, whenever the ASR-X saves a file to a folder where the default folders don't already exist, it will create a new set of invisible folders into which files can be saved.

Powering Up SCSI Devices

The order in which SCSI devices should be turned on varies from setup to setup. A general rule of thumb is to power up your terminated devices first—the devices on either end of your SCSI daisy-chain—and then power up the devices in-between. If the devices in your SCSI system fail to start up properly, or if some devices are not being recognized by other devices, experiment with different power-up sequences.

Troubleshooting Your SCSI System

If your SCSI devices are not working properly, start by ensuring that the following items have been properly set up, since these are the most common causes of SCSI trouble:

- Make sure that you have termination at either end of your SCSI daisy-chain, and *only* at its ends.
- Make sure that no devices are sharing a SCSI device ID number.
- Try turning on your devices in different orders.
- Make sure all of your devices are turned on.

The ASR-X provides a Reset SCSI Bus command that can help straighten out a SCSI bus that's gotten confused for some reason. It's use is described later in this booklet.

Finally, SCSI, while very powerful, can be a very finicky thing with which to work. Sometimes you've done everything right, and your SCSI system still misbehaves. Try unconnecting your cables and re-connecting them; occasionally, cables that appear to be seated correctly are not. It's also possible that one or more of your SCSI cables have become unreliable. It's a good idea to have some spare SCSI cables around for troubleshooting purposes.

If you need further assistance, contact ENSONIQ customer Service at (610) 647-3930 Monday through Friday 9:30 a.m. to 12:15 p.m. and 1:15 p.m. to 6:30 p.m. Eastern Time.

Setting and Saving SCSI System Prefs

When an ENSONIQ SP-5 SCSI interface is installed in the ASR-X, the ASR-X version 2.00 operating system adds two new system preferences that set up the ASR-X for use in a SCSI system. These parameters are accessed in the same manner as any other system preferences. For information on accessing system preferences, see Chapter 7 in the ASR-X Reference Manual. For background information on SCSI device IDs and termination, see “Introduction to SCSI” earlier in this booklet.

Tip: You can save a SYSTEMSETUP file to floppy that restores your SCSI settings automatically on power-up by naming the file “SYSSETUP” and turning on the ASR-X with the disk already in the drive.

SCSI Device ID

Each device in a SCSI system must be assigned it’s own unique SCSI device ID number so that it can identified by the other devices in the system. The ASR-X can be set to any of the eight possible SCSI device IDs, numbered as 0 through 7. Some ID numbers should be avoided in certain circumstances—see “About SCSI Device IDs” earlier in this booklet for more information. The default ASR-X SCSI Device ID is 2.

SCSI Termination

A SCSI system is an electrical circuit that requires resistors on either end that supply termination to the SCSI bus. The ASR-X can be set to provide termination according to the setting of its SCSI Termination parameter. The parameter’s default setting is On.

SCSI Device Selection and Navigation

Since the ASR-X can be connected to a large array of SCSI devices—as well as its floppy drive—a mechanism is provided that allows you to select the device you want to use during any of the ASR-X’s disk-related activities.

1. A load device can be selected from which data can be loaded.
2. A save device can be selected to which ASR-X data can be saved.
3. A device can be selected as the subject of disk utility operations.

Until power-down, the ASR-X retains the device that’s been selected for each of these roles. This spares you from having to constantly re-select devices when you want to load a file from one device and save it to another—the ASR-X remembers the last one selected for loading, the last one selected for saving, and so on.

The device-selection process is essentially the same for each activity. When you press the Disk/Global Load or Save buttons, or answer the System/MIDI “Access disk utils?” question by pressing the Yes button, the “Select Device?” display appears. (If it doesn’t, you can turn the Parameter knob all the way counter-clockwise to access the display.) The procedure for selecting a device is explained in “Select Device?” below.

Once a device has been selected, you’ll be able to navigate through any folders it contains to access its files or to save your own files to one of its folders. This process is described below in “Folder Navigation.”

If you’re confused about any of the terms in the following section, see “Introduction to SCSI” earlier in this booklet.

Select Device?

When the Load or Save buttons are pressed—or the disk utilities are accessed—the "Select Device?" display appears after power-up with the floppy disk selected for use, and looking something like this:

This may also read "Select load device?" or "Select save device?"

m

```
Select device?
Floppy Disk
```

i

The currently selected storage device

The device shown on the bottom line of the display is the device selected for the current task.

To choose a connected SCSI device for use, turn the Value knob clockwise one tick. The first time that this occurs after power-up, the ASR-X will scan the SCSI bus to learn what devices are connected. The display will show the ASR-X checking each of the seven remaining SCSI IDs to see if they represent connected devices (the ASR-X is already using one of the eight possible SCSI IDs).

When the ASR-X has finished, the SCSI device with the lowest ID number will be selected.

```
Select device?
SCSI 4:CDR-016
```

i p

The currently selected storage device

The disk in the device

You can turn the Value knob counterclockwise to select any of the other connected SCSI devices.

Note: If a connected SCSI device is shown as *NOT READY*, most likely the device is a CD-ROM player or removable drive and its CD-ROM or cartridge is not currently installed.

Once you've selected a device, turn the Parameter knob clockwise by one tick—the ASR-X will read the contents of the disk in the selected device. Or, to jump right to the files on the disk, hit Enter instead.

Scan SCSI Devices?

If you change something in your SCSI system—if you've switched CD-ROMs or removable cartridges, for example—you'll need to re-scan the SCSI bus so that the ASR-X can see the changes. To do so, turn the Value knob all the way clockwise until you see "Scan SCSI devices?" and press the Yes button.

Folder Navigation

Folders provide an excellent means of organizing disk files. Many CD-ROM disks and storage drives contain complex arrangements of folders, with folders within folders within folders. The ASR-X provides a simple method for digging down into each folder to access the files and folders it may contain.

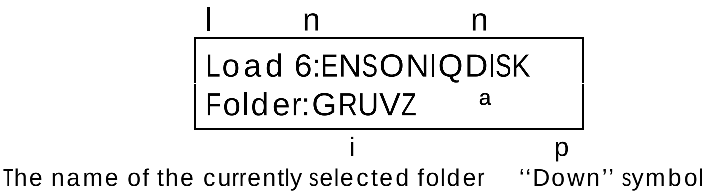
How to Move Through a Disk's Folders

When you've chosen a SCSI device, turn the Parameter knob one tick to the right to view the outer-most folders on the selected device's disk. The display will look something like this:

This may also say "Save" or Utils"

The selected ID#

The currently selected disk



The upper left-hand area of the display shows the type of operation being performed and the ID number of the selected device.

Turn the Value knob to view the names of the other folders available in this location on the selected disk.

The down symbol in the lower right-hand corner of the display indicates that the currently displayed folder can be opened by pressing the Enter button.

Turn the Parameter knob clockwise at any time to show the files types available in the selected location. Turn the Value knob to choose individual files of the selected type.

Tip: Turning the Parameter knob counter-clockwise all the way returns you to the "Select device?" display.

To close the folder you're in, and to move back upward in the folder hierarchy, press the Exit button.

When you've navigated to the folder or file you seek, standard ASR-X loading, saving, erasing and renaming procedures can be used. For more information about these procedures, see Chapter 7 of the ASR-X Reference Manual.

Creating a New Folder Using the ASR-X

The ASR-X allows you to create your own folders on any connected writable disk.

Note: When creating your own folders on an ASR-X disk, you cannot use the names reserved for the invisible default folders (described in "Invisible Folders" earlier in this chapter).

When saving disk files or using the disk utilities, you can create new folders. To do this:

1. While viewing the currently selected SCSI device's name on the "Select Device? display, turn the Parameter knob so that "Folder" appears in the lower left portion of the display.
2. Turn the Value knob all the way clockwise so that the display shows "Create new?"
3. Press the Yes button.
4. Spell out the new folder's name by using the Parameter knob or left/right arrow buttons to select each character position in turn, and the Value knob to dial in the desired character for each position.
5. When you've finished, press the Yes button to complete the creation of your new folder.

Note: If you create a new folder inside an invisible folder, the folder you've created will be conveniently accessible at the outermost level of the disk's folder hierarchy.

Creating a New Folder Using a Computer

You can use a computer to create folders on an ASR-X disk. When doing so, there are a couple of things to bear in mind to help ensure that the disk will be easy to use with the ASR-X:

- Avoid using the names assigned to the invisible folders so as not to conflict with the ASR-X's automatic filing system.
- For the sake of clarity, it's best not to create folders within any of the invisible default folders (these folders can be seen on a computer). While this will not pose major problems, the ASR-X will make the invisible folder visible to provide you access to the folders it contains—this can cause the disk's folder structure to be a bit more confusing to conceptualize and navigate.

SCSI Disk Utilities

The ASR-X's disk utilities have been expanded to include new SCSI-related commands that allow you to format writable SCSI disks, reset a confused SCSI bus and invoke write-protection for SCSI devices that support this feature. To learn how to access the ASR-X disk utilities, see Chapter 7 of the ASR-X Reference Manual.

When you press the System/MIDI button and answer "yes" to "Access disk utils?" the "Select Device?" display is presented—if it's not, turn the Parameter knob all the way counterclockwise to view the "Select Device" display. The selected device will be the device upon which disk utility operations will be performed. To learn how to choose a device, see "Select Device?" earlier in this booklet. Once a device has been selected, turn the Parameter knob clockwise to access the various disk utilities.

Note: The arrangement of the disk utilities has been slightly changed from their sequence in operating systems earlier than version 2.00. In addition, the "Set disk prefs/info?" submenu has been removed, making it easier to get to the directory-sorting and free disk memory displays.

Note: When the selected device is a read-only SCSI disk—such as a CD-ROM—only disk utilities relevant to that type of disk are available.

Format disk?

Before a disk can be used by the ASR-X to store data, it must be in DOS format. You can use the ASR-X to format any HD (high-density) floppy disk that's been properly inserted into its drive, or any writable SCSI disk. When you press the Yes button in response to "Format disk?" the ASR-X presents a second display as a safety feature to make sure you're prepared to erase the selected disk. The formatting process can take anywhere from a few to 20 minutes (or longer with a very high-capacity SCSI disk). As formatting occurs, "Formatting disk. Please wait..." will be displayed. (When certain SCSI devices—such as Iomega's Zip and Jaz drives—are being formatted, a percentage display will appear, showing the progress of the formatting procedure.)

Warning: Make sure that any disk you format does not contain anything that you want to keep. All data on a disk will be lost when the disk is formatted.

Reset SCSI bus?

SCSI busses handle large chunks of data flowing in between complex computer-based devices. Sometimes the bus itself becomes confused as a result of minor malfunctions, power fluctuations, or unstable connections. Symptoms of a scrambled SCSI bus would include:

- the inability to access a SCSI device.
- failed data-saving operations.
- failed loading operations.
- SCSI devices that appear to be "stuck" in some mode of operation.
- failed attempts at ejecting removable cartridges.

This doesn't necessarily mean that there's anything wrong with your data—resetting the bus will often solve the problems you're experiencing. When you press the Yes button in response to "Reset SCSI bus?" the ASR-X presents a second display as a safety feature to make sure you want to do this.

Warning: Do not reset the SCSI bus when any of your SCSI devices are performing any reading or writing operations. Doing so could result in damage to your data and/or SCSI devices.

Some devices—especially computers or other musical instruments—may need to rescan the SCSI bus after it's been reset by the ASR-X.

Write-Protect

Some SCSI devices—such as Iomega's Zip and Jaz drives—support software write-protection. This allows you to set a software parameter that will prevent the accidental writing of data to the selected disk. If the currently selected SCSI device supports this feature, the Write Protect parameter will be available among the ASR-X disk utilities. Setting this parameter to "Yes" will ensure that you won't be able to inadvertently replace important data to the currently selected disk.

Saving and Loading SCSI Files

Once you've navigated to the desired location on a floppy or SCSI disk, the standard ASR-X loading and saving operations can be performed. For more information on these operations, see Chapter 7 of the ASR-X Reference Manual.

Loading ASR-10/88, AKAI S-1000 and Roland S-770 Sounds

The ASR-X can now import ASR-10/88, AKAI S-1000 and Roland S-770 sounds from the currently selected SCSI device. ASR-10/88 sounds are shown in the loading displays as ASR-SND files. Two new files types have been added for the loading of AKAI and Roland sounds. AKAI sounds are shown on the ASR-X Load displays as AKAISND files; Roland sounds are shown simply as SND files, in order to leave room for the displaying of Roland's long sound file names. To import an ASR-10/88, AKAI or Roland sound from a SCSI device:

- Insert the desired the CD-ROM or removable cartridge into its SCSI device if necessary.
- Press the ASR-X Load button.
- Select the SCSI device, as described in "SCSI Device Selection and Navigation" earlier in this booklet.

Tip: If the CD-ROM's name isn't displayed, see "Scan SCSI devices?" earlier in this booklet.

- Navigate to the file you want to load (this procedure is described in "SCSI Device Selection and Navigation").
- Press the Yes button to load the sound.

A Note About Imported AKAI S-1000 and Roland S-770 Sounds

The ASR-X, AKAI S-1000 samplers and Roland S-770 samplers each have their own distinctive voice architecture, with their own set of parameters. On rare occasions you may experience some changes in such sounds when they're played on your ASR-X —a direct translation of every parameter in an AKAI or Roland sound to the ASR-X's architecture is not always possible.

Note: The amount of time that it takes to import an AKAI or Roland sound depends on the number of wavesamples in the sound, since each wave's parameters must be translated to the ASR-X architecture—the process can take several minutes to complete.

Once an AKAI or Roland sound has been imported, it behaves like any other ASR-X standard sound: it can be played, converted to a RAM kit and edited using the PAD parameters, and saved to floppy.

A Note About Imported ASR-10/88 Sounds

The ASR-10/88 and ASR-X voice architectures are not exactly alike, and certain ASR-10/88 parameters are not translated upon importation into the ASR-X. See the ASR-X Reference Manual Addendum for details, or if you've got an earlier version of the manual than 1.10, see the ASR-X Version 1.10 Reference Manual Addendum.

Saving and Loading Quantization Templates

Quantization templates are now saved to disk as part of a SYSTEMSETUP file. This allows you to always have available your favorite quantization setups. To learn more about quantization templates, see Chapter 6 of the ASR-X Reference Manual.

Tip: If you save a SYSTEMSETUP file to floppy with the name "SYSSETUP," and power up your ASR-X with the floppy containing the file already in the drive, your quantization templates will be available as soon as your ASR-X finishes powering up.

Assorted Version 2.00 Changes

Saving and Loading Floppy Files

The displays that appear when saving and loading floppy disk files have changed to reflect the SCSI capabilities introduced in the operating system version 2.00 software. In general, the selected device is now shown on disk-related displays even when a floppy disk is being used.

Region To is Turned On After Recording the First Sequence Track

In response to user requests, the first track recorded in a sequence now defines the sequence's length. After the first track has been recorded, the sequence's Region To setting will be automatically turned on. This can be manually overridden, if desired, by turning the Region To feature off after recording the track. For more information on the Region To feature, see Chapter 6 of the ASR-X Reference Manual.

Some ASR-X Tips

SMFs and PPQs

Different MIDI sequencers record music with varying degrees of timing accuracy. This is determined and measured by the number of subdivisions, or pulses, into which they divide quarter notes. The ASR-X typically records music at 384 pulses per quarter note, or "384 ppqn."

Every Standard MIDI File (SMF) contains information that tells the ppqn at which it was recorded. The ASR-X is smart about SMFs this: when an SMF recorded at some ppqn other than 384 is loaded into the ASR-X, the ASR-X adjusts its playback timing resolution so that the SMF plays as intended. When additional tracks are recorded in the sequence, they're recorded at the SMF's ppqn.

A Warning About Renaming and Moving Disk Files Belonging to a Session

When SESSION files are saved to disk—as described in Chapter 7 of the ASR-X Musician's Manual—all of the files saved as part of the session are assigned a common name. One of the session files is a record-keeper that contains information about which files were part of the session—this information ultimately allows the session to be successfully reloaded. If any of the files that are part of session are renamed or moved to another directory, the session will not successfully reload. To ensure that all of the files belonging to a session are successfully located and loaded, do not rename or move them.

ASR-X Version 2.50 Operating System Software

What's New in Version 2.50?

The version 2.50 operating system software for the ASR-X adds the following new features:

1. Record quantization allows you to correct the timing of your music as it's being recorded, eliminating the need for time-consuming post-recording quantization.
2. The new pattern mode allows you to chain sequences together in real time. As each sequence plays, you can select the sequence to follow it.
3. The ASR-X's new song mode allows you to chain sequences together into a song playlist. A song playlist is constructed from *steps*, each of which plays a sequence. Songs can contain up to 128 sequences arranged into as many as 200 steps, and you can add or delete song steps at any time. Songs can be saved to disk in ALL-SESSION files.
4. A new SoundFinder category—MIDI-OUT—has been added allowing you to play sounds in external MIDI devices from the ASR-X sequencer. Each MIDI-OUT sound can send Program Change and Bank Select values to your external devices so that they'll play the sounds you want.
5. Two new disk utilities have been added that allow you to copy and optimize the performance of SCSI disks.
6. The version 2.5 operating system speeds up the loading of ASR-10 sounds from disk.
7. The selection of global reverb presets has been improved.
8. Users of Giebler Enterprises Ensoniq Disk Manager (EDM) can now load .efe- and .efa-format files into the ASR-X. This format is popular for exchanging ASR-10, EPS and EPS 16 PLUS sounds on the Internet. For more information on EDM, visit Giebler Enterprise's Web site at *http// www.giebler.com*.
9. The ASR-X can now read .wav and AIF files from any ISO-9660-format CD-ROM. The ISO-9660 format is commonly used for the distribution of software. If an ISO-9660 CD-ROM contains .wav- or AIF-format files, the files can now be loaded into the ASR-X Scratch Pad.
10. The ASR-X can now load ASR-10/88 from ASR-10/88 double-density (DD) floppy disks as well as from high-density and SCSI disks.
11. The ASR-X now offers a "Scale time?" pad process that allows you to time-stretch and -shrink your sampled loops to fit a pre-determined space.
12. The ASR-X supports the SMDI Sample Transfer Protocol, allowing the ASR-X to receive samples via SCSI from any SMDI-compliant application or product.

Quantizing as You Record Sequence Tracks

The ASR-X now allows you to correct the timing of your performances as you record them in the ASR-X sequencer. Quantizing while you record saves you time by eliminating the need to perform standard post-recording quantization. The RecordQuantize parameter must be set prior to recording the track(s) you want to pre-quantize.

The RecordQuantize parameter is accessed by pressing the Sequence Edit button and turning the Parameter knob. It can be set to any of the following values:

- OFF—to disengage input quantization
- 1/2
- 1/2T
- 1/4
- 1/16
- 1/16T
- 1/32

- 1/4T
- 1/8
- 1/8T
- 1/32T
- 1/64
- 1/64T

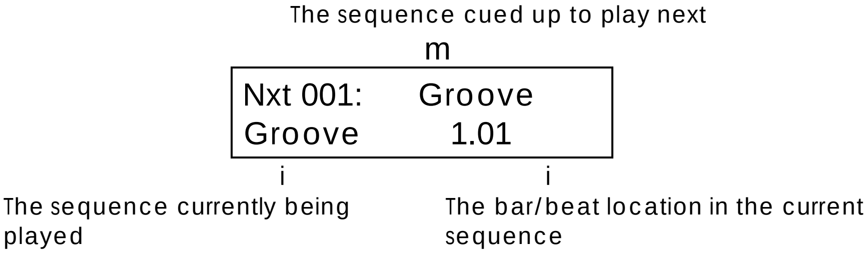
Playing Sequences in Pattern Mode

Pattern mode allows you to hear your sequences played one after the other. This can be handy when jamming, in performance, or when trying out song structures. (If you're ready to actually create a song, use the new song mode described below.)

Note: In pattern mode, as one sequence plays, the next sequence to be heard is selected. If you'd like to pre-program a long list of sequences to be played, use song mode.

To Chain Sequences Together in Real Time

You must be in pattern mode to chain sequences. Pattern mode is entered by pressing the Sequence Process button, turning the Value knob until "Enter pattern mode?" is displayed, and pressing the Yes button in response. After the ASR-X scans the contents of its sequencer memory, the pattern mode sequence selection display appears:



The sequence cued up to play next

```
Nxt 001:     Groove
Groove        1.01
```

The sequence currently being played

The bar/beat location in the current sequence

1. Press the sequence Play button to hear the sequence shown on the bottom line.

   The top line shows the next sequence to be played. (When you first enter pattern mode, as shown above, the currently playing sequence will also be shown on the top line.)
2. Turn the Value knob to select the sequence you want to play next—your selection is shown on the top line of the display.
3. Press the Yes button to lock in your choice—when the currently playing sequence reaches the end, the sequence selected on the top line will start to play.
4. Repeat Steps 3 and 4 to select and play each additional sequence you want to hear.
5. When you're done chaining patterns, press the Sequence Stop button.

Tip: You can cue up the next sequence in advance when you want to let the currently playing sequence loop for a while before proceeding to the next sequence. To do this, turn the Value knob to select the desired next sequence without hitting the Yes button. When you're ready to hear the next sequence, hit the Yes button—the currently playing sequence will play to its end, and the next sequence will play.

Tip: If you've selected a next sequence and hit the Yes button, you can hit the No button to prevent it from playing. This allows you to change your next-sequence selection, and will cause the sequence shown on the bottom line to loop.

Exiting Pattern Mode

When you're in pattern mode, only the Sequence Play and Stop buttons and the Yes and no buttons are active on the ASR-X front panel. To exit pattern mode, hit the Sequence Stop button and then proceed with normal ASR-X operations.

Creating , Playing and Editing Songs on the ASR-X

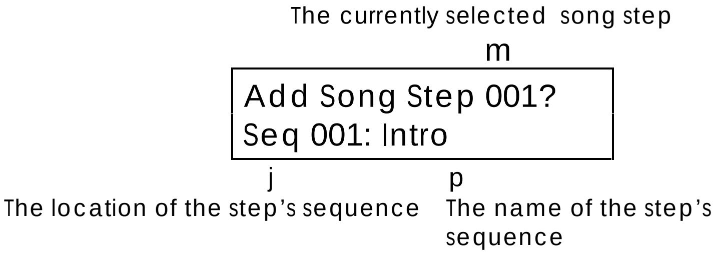
Song Mode

Version 2.5 of the ASR-X operating system introduces song mode, in which you can chain sequences together to play as songs. This is achieved by creating a playlist made up of song steps—there can be up to 200 steps in a song. Each step plays one of the sequences currently in the ASR-X. While in song mode, the ASR-X provides sequencer functions related to songs.

Note: Each sequence used in a song retains its insert effect—when a step is played, the insert effect associated with its sequence is used.

Creating a New Song

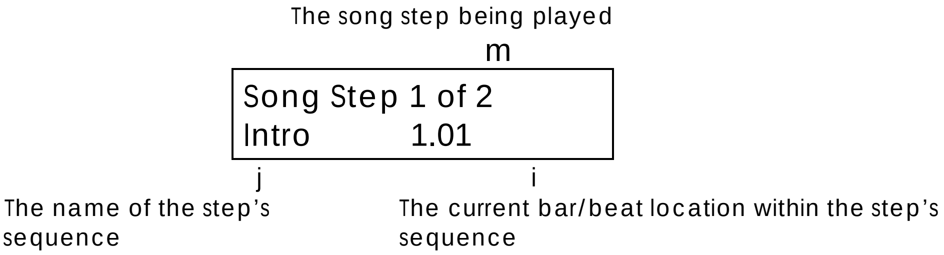
To enter song mode when you have not yet created a playlist, press the Sequence Process button and turn the Parameter knob clockwise to locate the display that asks "Create a new song?" Press the Yes button toaccess the song-creation display:


The currently selected song step
Add Song Step 001?
Seq 001: Intro
The location of the step's sequence
The name of the step's sequence

Each song is comprised of steps that will be played back one after the other. The currently selected step is shown on the top line of the display. Turn the Value knob to select the sequence in memory that you want played at the displayed step, and press the Yes button to lock in your setting and advance to the next step.

Playing a Song

You must be in song mode to play a song on the ASR-X. In song mode, press the Sequence Play button to cause the ASR-X to build (if necessary) and play the song. As the song plays, the display shows you the step in its playlist that's currently being heard.


The song step being played
Song Step 1 of 2
Intro 1.01
The name of the step's sequence
The current bar/beat location within the step's sequence

When the song isn't playing, turn the Parameter knob to select any of the song's steps, and press the Play button to start playback from the selected step.

Exiting and Re-Entering Song Mode

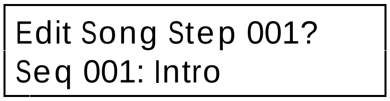
If you like, you can leave song mode—restoring the ASR-X to its normal sequence mode—by pressing the Sequence Select button. To return to your song, press the Sequence Process button and dial all the way clockwise to select the "Enter song mode?" When this question is displayed, press the Yes button.

Editing a Song

You must be in song mode to edit a song. When editing a song, you can change the sequence to be played at a particular step, add steps to the end of the playlist, insert or erase steps. To edit a song, press the Sequence Edit button to cause the main song editing display to appear:

The currently selected song step

m



```
Edit Song Step 001?
Seq 001: Intro
```

j p

The location of the step's sequence

The name of the step's sequence

When this display is visible, turn the Parameter knob to select the step to be edited. The bottom line of the display shows the sequence the step will play. You can change the sequence to be played at the currently selected step by turning the Value knob and then pressing the Yes button.

Adding a Step to the End of a Song

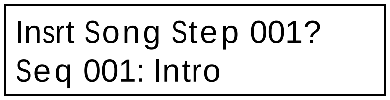
To add an additional step to the end of a song, turn the Parameter knob one tick past the song's last step—the ASR-X will offer to add a new song step. Turn the Value knob to select the desired sequence and press the Yes button.

Inserting and Erasing Song Steps

Even after you've created a song, you can add or remove steps in the middle of its playlist. When the main song editing display is visible, press the Sequence Process button to toggle between the insert and erase song step displays.

The song step at which a new step will be added

m



```
Insrt Song Step 001?
Seq 001: Intro
```

j p

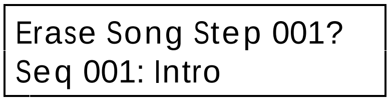
The location of the new step's sequence

The name of the new step's sequence

When you insert a step, a new step is added to the playlist at the selected location—the sequence displayed on the lower line of the display will be played by the inserted step. Select the desired location for your new step, select the sequence you want it to play and press the Yes button to insert the step.

The song step to be removed from the playlist

m



```
Erase Song Step 001?
Seq 001: Intro
```

j p

The location of the step's sequence

The name of the step's sequence

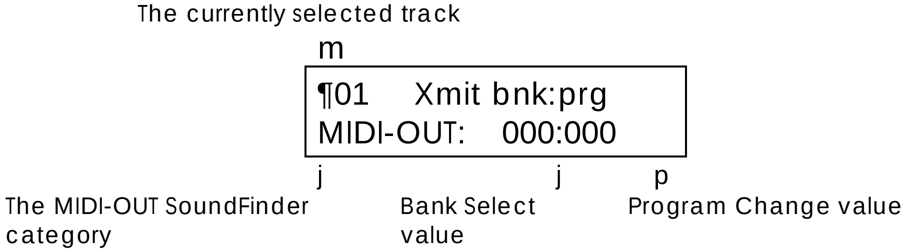
When you erase a song step, the selected step is removed from the playlist. Select the song step you'd like to remove and press the Yes button to erase it.

Playing External MIDI Sounds from the ASR-X Sequencer

The version 2.5 operating system adds a new SoundFinder category, MIDI-OUT, that allows you to play sounds in an external MIDI device from a track in the ASR-X sequencer. This is accomplished by assigning a MIDI-OUT sound to the track. A MIDI-OUT sound sends the track's data out through the ASR-X's MIDI Out jack, producing no sound on the ASR-X itself. When a track uses a MIDI-OUT sound, all MIDI data on the track—controller data as well as note data—will be transmitted from the ASR-X.

To Select and Set Up a MIDI-OUT Sound

To assign a MIDI-OUT sound to a track, select the desired track using the Track Select buttons, and turn the Sound Type knob clockwise all the way to select the MIDI-OUT sound category. The MIDI-OUT category does not require you to select an individual sound as such—instead, its display allows you to set Bank Select and Program Change values for transmission from the selected track.



```
¶01    Xmit bnk:prg
MIDI-OUT:   000:000
```

The currently selected track
The MIDI-OUT SoundFinder category
Bank Select value
Program Change value

To set a Bank Select or Program Change value to be transmitted, select the desired field by turning the Value knob—the selected field will flash to show that it can be edited. Turn the Value knob to set the desired Bank Select or Program Change value. The values are transmitted from the ASR-X as they're set.

Copying and Optimizing SCSI Disks

The version 2.5 operating system software adds two new disk utilities that can perform SCSI disk copying and optimizing functions. To access these utilities, press the System/MIDI button, answer "yes" to "Access disk utils?" and select the desired SCSI device (if you're unsure how to do this, see "Select Device?" earlier in this booklet). Once the device's directory has been selected, turn the Parameter knob to access the new utilities:

- The "Copy [disk name] disk?" utility allows to you to copy a SCSI disk using one or more drives. You can copy all files between two DOS-formatted disks of different sizes, or perform a sector-by-sector copy between any two disks of the same size. Each type of copy procedure has its advantages and disadvantages, as described below.
- During normal usage, a SCSI disk's files increasingly scattered across the disk's surface, as files are written, edited and re-written to disk. When a disk becomes fragmented in this manner, loading its data takes more time. The "Optimize [disk name] disk?" utility de-fragments the selected SCSI disk to the degree possible given the available amount of free space remaining on the disk, thus optimizing its performance.

Note: The copy and optimize utilities are available only when there is at least one writeable SCSI device active on your SCSI bus, since the procedures require such a device. If your writeable device uses a removable disk, a disk must be present in the drive for the ASR-X to recognize it as a write-capable device.

Note: The ASR-X uses available RAM as it shuffles your disk data during the copying and optimizing procedures. It's recommended that you clear your RAM of all waves and sounds before using these disk utilities. This will allow the ASR-X to perform these operations more quickly, since it will be able to hold larger chunks of disk data in RAM.

SCSI Copying Options

The formatting and relative sizes of the disk being copied and the disk to which the copy is being made determine the nature of the copy to be made. The ASR-X refers to the disk being copied as the source (abbreviated on some displays as "src") and the disk on which the copy will be made as the destination disk (abbreviated as "dest").

Copying Files Between Two Different-Size DOS-Formatted SCSI Disks

When copying a DOS-formatted disk to another DOS-formatted disk of a different size, the ASR-X copies the data from the source disk file-by-file. This has the advantage of allowing you to copy the data on your source disk to a destination disk that already contains files; this can be handy when compiling archive disks containing important files. It may be that you have files on your destination disk that have the same names as files on the source disk—the ASR-X will offer you a choice of whether or not you want to replace such files with copied files, or leave them intact.

The only disadvantage to a file-by-file copy is that, since it uses DOS, only file names of up to eight characters are supported. If you've created long folder or file names on a computer, those names will be truncated during the copying procedure.

Tip: If the destination already contains files you want to discard, wipe the disk clean by formatting it prior to performing the disk copy.

Copying Disk Sectors Between Any Same-Sized SCSI Disks

When copying a disk of any format to another disk of the same size, the ASR-X copies the source disk sector-by-sector. The resulting copy is an exact duplicate of the original source disk. This method has the advantage of supporting any disk format, and of preserving long file names. The disadvantage is that the copying procedure causes all files on the destination disk to be completely erased.

To Copy a SCSI Disk

1. After accessing the disk utilities and selecting the SCSI device containing the disk you want to copy, turn the Parameter knob until "Copy [the name of the selected device] disk?" is displayed.
2. Press the Yes button—the ASR-X will present a display that allows you to select the SCSI device that will contain the new copy of your disk:
3. Select the desired SCSI device.
    - If you want to copy a disk from one DOS-formatted SCSI device to another, select the SCSI device on which you want to make the copy.
    - If you want to make a copy of a removable disk using a single SCSI device by swapping disks during the copying procedure, select the same SCSI device you selected in Step 1.
4. Press the Yes button to make the disk copy. The ASR-X will offer you a confirmation question verifying that you want to proceed with the copying procedure.
5. If you're copying a removable disk using a single SCSI device, the ASR-X:
    - will tell you how many times you'll need to swap the source and destination disks to complete the copying procedure and ask if you want to proceed. The number of swaps depends on the size of the disk being copied and the amount of free RAM that you have in your ASR-X.
    - will ask you to insert each disk as it's needed.

Optimizing a SCSI Disk

1. After accessing the disk utilities and selecting the SCSI device containing the disk you want to optimize, turn the Parameter knob until “Optimize [the name of the selected device] disk?” is displayed.
2. Press the Yes button—the ASR-X will begin optimizing the disk to the extent possible, given the amount of free space available on the disk. The process can take a while, depending on the size of your disk and the amount of RAM available for data-shuffling in your ASR-X.

A Change in Global Reverb Preset Selection

A change to the global reverb selection display has been made to more accurately reflect the reverb parameter settings in use. In previous versions of the ASR-X operating system software, this page showed the last selected preset even when its parameter values had been edited. With version 2.5 of the ASR-X operating system, when you load a sequence, select a sequence or edit reverb parameters, “User Settings” will be displayed. Turn the Value knob clockwise to install one of the global reverb presets if desired.

Wave Time-Compression and Expansion

The “Scale time?” feature alters the duration of a wave without altering its pitch. This allows you to stretch or shrink a wave to fit a particular tempo. You can use the time compression/expansion process to re-size rhythms you want to use as loops.

The “scale time” process is accessed in the same manner as alll of the other pad processes—to learn how to access the pad processes see Chapter 3 of the ASR-X Reference Manual. When you press the “Yes” button in response to “Scale time?” the ASR-X presents you with parameters that determine the nature of the time scaling to be performed. Both of the following parameters can be accessed by turning the Parameter knob:

- Amount—This parameter sets the percentage by which the wave’s duration will be made longer or shorter. A value of 100% will leave the wave at its current length; values lower than 100% will shrink the duration of the wave, while values higher than 100% will increase it. Try different values for this parameter to establish the percentage of time scaling required for your situation.
- Quality—sets the fidelity of the time-scaled wave. The High(slow) value produces cleaner-sounding waves, but will take a greater amount of time to process. When experimenting with the Amount parameter to determine its correct value for your timing needs, set the Quality parameter to Low(fast) to save time. Once you’ve settled on an Amount value, set Quality to the desired setting and re-scale the wave.

Performing SMDI Transfers to and from the ASR-X

SMDI is a protocol that allows the transfer of sounds and samples from one SMDI-compliant device to another via SCSI. The ASR-X can receive and transmit sounds—and the waves upon which they’re based—from and to SMDI-supporting programs and products. The ASR-X acts as a passive partner in these operations; there are no actions to be performed on the ASR-X itself when performing a SMDI transfer.

- To send SMDI sounds to one of the ASR-X’s RAM locations, select the desired location on the sending device and transmit the sound to the ASR-X.
- To transmit a sound from the ASR-X’s RAM, instruct your external SMDI device to retirev the sound from the desired loaction.

Note: In order to avoid competition for the ASR-X’s resources, avoid attempting SMDI transfers while sampling or sequencing on the ASR-X. Once the transfer has been accomplished, you can perform these activities normally.

Once a sound has been sent to the ASR-X via SMDI, it can be saved to disk as a standard ASR-X sound.

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