

Musician's Manual

VERSION 3 OPERATING SYSTEM



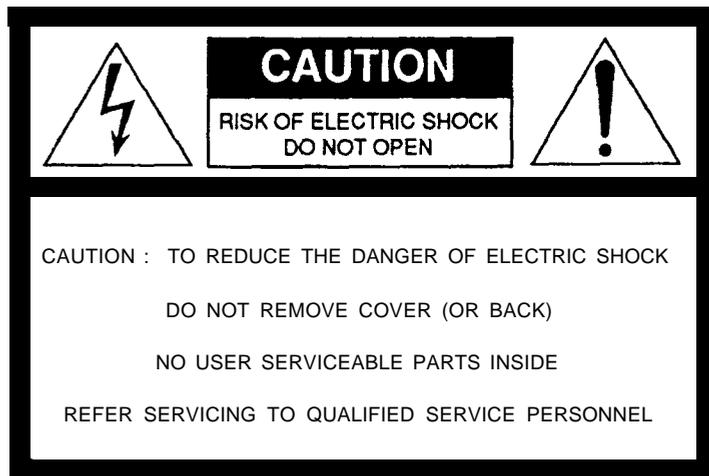
READ THIS FIRST!

WARNING!!

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate **outlet** that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Improper connection of the equipment-grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

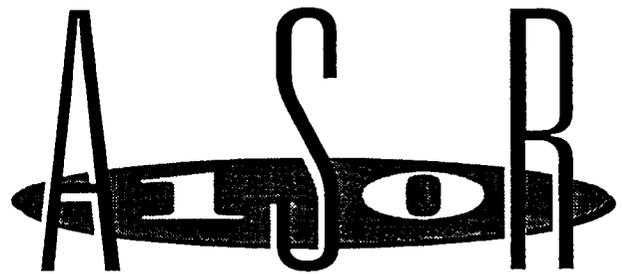


This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of **sufficient** magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SEE IMPORTANT SAFETY INSTRUCTIONS ON BACK COVER!



Advanced Sampling Recorder
Version 3 Operation System

ASR-10 Version 3 Operating System

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Your Authorized ENSONIQ Dealer: _____ Phone: _____

Your Dealer Sales Representative: _____

Serial Number of Unit: _____ Date of Purchase: _____

Your Authorized ENSONIQ Dealer is your primary source for service and support. The above information will be helpful in communicating with your Authorized ENSONIQ Dealer, and provide necessary information should you need to contact ENSONIQ Customer Service. If you have any questions concerning the use of this unit, please contact your Authorized ENSONIQ Dealer first. For additional technical support, or to find the name of the nearest Authorized ENSONIQ Repair Station, call ENSONIQ Customer Service at (610) 647-3930 Monday through Friday 9:30 AM to 12:15 PM and 1:15 PM to 6:30 PM Eastern Time. Between 1:15 PM and 5:00 PM we experience our heaviest call load. During these times, there may be delays in answering your call.

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IMPORTA!!

"This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been designed to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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 the receiving antenna
- * relocate the instrument with respect to the receiver
- * move the instrument away from the receiver
- * plug the instrument into a different outlet so that the instrument and receiver are on different branch circuits

"If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: 'How to Identify and Resolve Radio-TV Interference Problems.' This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402 Stock No. 004-000-00345-4."

In order to **fulfill warranty requirements, the ASR-10 should be serviced only by an Authorized ENSONIQ Repair Station.**

The ENSONIQ serial number label must be on the outside of the unit or the ENSONIQ warranty is void.

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Welcome to the ASR-10 Version 3! This document explains the new features offered in the Version 3 Operating System (as well as features offered in earlier software updates) and serves as a companion to the ASR-10 Musician's Manual. This document also includes the DI-10 Digital I/O and SP-3 SCSI Interface manuals, allowing you to find all of the additional ASR-10 information in one convenient manual.

Version 3 O.S. requires ROM Version 1.5 or higher, which can be installed by any Authorized ENSONIQ Service Station for a nominal fee.

What's New in 3.0

Load Akai and Roland Sampled Sounds via SCSI

Operating System 3.0 for the ASR-10 provides a new command for loading sampled sounds via SCSI from Akai (S1000/1100 Series) and Roland (S-700 Series) formatted SCSI Storage Devices. This means that the ASR-10 can read sound data from an Akai or Roland-format CD-ROM disk, converting the sound data and program parameters into "native-mode" ASR-10 data. The sound can then be saved as an ASR-10 Instrument, with full editing control over all its parameters.

Audio Track Settings Saved with Global Parameters

When configured for DiskTrack recording (ATRK PLAY/REC=SCSI) the active settings of the CONFIGURE AUDIO TRACKS command will be saved with the Global Parameters on the O.S. Disk.

Automatic Preparation of Audio Tracks

Audio Tracks will automatically be prepared when Song files or Bank files that contain Song files are loaded.

What's New in 2.5

New DAT Backup/Restore Command

DAT BACKUP/RESTORE is a command that allows you to back up SCSI Storage Devices to DAT tape by way of the DI-10 Digital I/O Interface. The ASR-10 will prompt you with the actions you need to perform on both the ASR-10 and the DAT machine. There are three functions supported in the command: BACKUP, RESTORE and VERIFY.

What's New in 2.0

Audio Track Recording Capability

Version 2 O.S. adds *two* tracks of *digital audio recording* capability to the ASR-10. Audio Tracks can be recorded directly into RAM (RAMTracks™) or directly to a SCSI storage device (hard disk, removable media, etc.) via the optional SP-3 SCSI Interface (DiskTracks™). Now you can combine live performances with MIDI sequenced tracks for full production recording within the ASR-10. Sing, play your guitar, blow your horn — add whatever live performances you wish.

Additional 44.1 KHz Effect Algorithms

This O.S. disk also includes 12 new effect algorithms, designed exclusively for the ASR-10, that use the 44.1 KHz system sample rate (note: polyphony is reduced to 23 voices). Audio Tracks recorded at the 44.1 KHz sample rate can be output directly from the ASR-10's Digital I/O Output jack (which requires the optional DI-10 Digital I/O Interface). For a complete description of the new 44.1 KHz effect algorithms, see later in this document. For more information on how effects work, see *Section 5 — Effect Concepts in the ASR-10 Musician's Manual*.

Support for the Optional DI-10 Digital I/O Interface

ASR-10 Version 2 supports the optional DI-10 Digital I/O Interface. When installed, the DI-10 provides direct digital input and output connection to and from the ASR-10 using RCA-type connectors. **The Digital Output** will provide 44.1 KHz digital output of the Main Out mix when the current effect uses a 44.1 KHz sample rate. **The Digital Input** can be used for direct digital sampling from an external digital audio source at 44.1 or 48 KHz.

The Digital Input and Output conform to the S/PDIF standard (Sony/Phillips Digital Interface Format). S/PDIF is a digital audio communication standard for digital hardware devices. Be sure that any digital devices used with the DI-10 conform to this standard. For more information about using the DI-10 Digital I/O Interface, refer to the section about the DI-10 in this manual.

Note: If you wish to record the 44.1 KHz digital output of the ASR-10 to a DAT recorder, the DAT recorder must be able to record from its digital input at 44.1 KHz S/PDIF. Some older/consumer DAT recorders do not record at 44.1 KHz as a copy protection scheme: *These DAT recorders will not record the ASR-10's 44.1 KHz digital output.*

What's New in 1.5

The ENTER PLAYS KEY Function

A new Edit/System•MIDI parameter was added to the ASR-10 as of Version 1.50 O.S. The ENTER PLAYS KEY parameter adds new functionality for selecting and playing WaveSamples. This is useful for listening to WaveSamples that are outside of your keyboard's range, or listening to the different WaveSamples in a multisampled Instrument (a drum kit for instance). It is especially handy for ASR-10 rack mount owners who are operating their units without a connected MIDI controller.

Notes

When using the Version 3 O.S., the processing of sequencer editing may take a little longer than when using previous OS. Versions. This is because the ASR-10 ensures the accurate processing of information, and needs to prepare Audio Tracks with each sequencer edit.

Caution:

Saving a SONG + ALL SEQS (*Project*) file to disk will take longer than in previous OS. versions. The SHUFFLING DATA message will be displayed before saving, perhaps for several minutes. This happens because the ASR-10 must manage the Audio Track data that is stored with the SONG + ALL SEQS (project) file. The more AudioSamples you have recorded, the longer it will take.

In general, shuffling time is dependent on free memory. With a lot of memory free, shuffling time is reduced considerably.

Backing Up the O.S. Disk

Since floppy disks are vulnerable to the effects of magnetic fields, we highly recommend making back-up copies of your O.S. disk. Doing so can save time and frustration in the unlikely event that the O.S. disk becomes damaged. Since the tutorial files and the new 44.1 KHz effect algorithms **are** on the O.S. disk, you will need a HD (high density) disk to save all of the information. We'll use the COPY FLOPPY DISK command to back up the disk. Here's how:

1. Slide open the plastic write-protect tab on the original O.S. disk (you should be able to see through the little square hole) so that the disk is write-protected (protected from being written to). This is an extra precaution to safeguard the data.
2. **Press** COMMAND, then SYSTEM•MIDI, and scroll to the COPY FLOPPY DISK command.
3. **Press** ENTER-YES.

The display shows INSERT SOURCE DISK (the one you want to copy).

4. **Insert** the source disk, then press ENTER-YES.

The drive will engage and the display will flash READING SOURCE DISK. Once the drive stops, the display will change to show INSERT DEST DISK.

5. Insert the destination disk (the one you want to copy to) and press ENTER-YES.

If the destination disk is unformatted, the display will ask ERASE AND FORMAT DISK?

Press ENTER-YES to format the disk. When formatting is complete, the drive will **engage** and the display will flash WRITING DEST DISK.

After writing to the destination disk, the display will read VERIFYING DEST DISK. If the copy is complete, the display will read DISK COMMAND COMPLETED.

If you do not want to copy all of the tutorial files or the 44.1 KHz effect algorithms, use the Command/System•MIDI, COPY O.S. TO DISK command (see *Section 2 — System•MIDI in the Musician's Manual*).

We recommend that you use the copied O.S. disk for daily use, and store the original O.S. disk in a safe place. If your O.S. disk becomes damaged and you do not have a back-up copy made, your local Authorized ENSONIQ Dealer can make a new copy for you (you must supply the disk).

New Command/Instrument Pages

<i>COMMAND</i>	IMPORT NON-ASR SOUNDS
<i>INST</i>	Press <u>(COMMAND)</u> / <u>(INSTRUMENT)</u> / scroll using' the <u>(◀)</u> and <u>(▶)</u> buttons

This command allows you to load sampled sounds via SCSI from Akai S1000™ Series and Roland S700™ Series formatted SCSI Storage Devices. Once imported, the non-ASR sampled sounds can be edited and saved as ASR-10 Instruments, as normal. IMPORT NON-ASR SOUNDS is located in the command list after DELETE INST EFFECT:

```

INST                                STOP
IMPORT NON-ASR SOUNDS

```

Note: This command requires an SP-3 SCSI Interface equipped ASR-10.

How to Use the IMPORT NON-ASR SOUNDS Command

1. Connect the ASR-10 SCSI interface to the Akai or Roland format SCSI Storage Device that you want to load sampled sounds from.
2. Power on the SCSI Storage Device (let the drive spin up).
3. Power on the ASR-10.
4. Press (COMMAND), then (INSTRUMENT), and use the (◀) and (▶) buttons to locate the IMPORT NON-ASR SOUNDS command.
5. The IMPORT NON-ASR SOUNDS command requires at least one unused (empty) Instrument•Sequence Track location into which to load the Akai or Roland sampled sound(s). If all eight Instrument•Sequence Tracks are occupied (red LED lit), pressing (ENTER•YES) to invoke the command will display “NO FREE INSTRUMENT,” and the command will be aborted.
6. If there is at least one unused (empty) Instrument•Sequence Track location available, pressing (ENTER•YES) while the IMPORT NON-ASR SOUNDS command is displayed will show the following page:

```

INST                                STOP
DEVICE TYPE=XXXXXX

```

DEVICE TYPE

Range: AKAI, ROLAND

Set the DEVICE TYPE parameter to the type corresponding to the format of the connected SCSI Storage Device. This value will be retained until power-off, even after the command is exited.

How To Import Akai Samples

Note: The ASR-10 can only read Akai SCSI Storage Devices that have been formatted with a sector size of 512 bytes (the default). Any Akai device that has been formatted to a size other than 512 bytes, will not be recognized.

When DEVICE TYPE=AKAI, pressing ENTER-YES will display the following page:

```

INST                                STOP
LOAD DEVICE=XXXXXX

```

LOAD DEVICE Range: SCSI 0 to 7

This parameter is used to select the Akai format SCSI Storage Device. Use the and buttons and/or the **Data Entry Slider** to set this to match the ID number of the SCSI Storage Device. Pressing CENTER-YES will perform the following functions:

1. The ASR-10 will check to see if SCSI is installed, and if the selected Load Device exists. If SCSI is not installed, or if the selected Load Device does not exist, an error message will be displayed, and the command will be aborted.
2. The ASR-10 will check to see if the selected Load Device is a valid Akai format SCSI Storage Device. If the selected Load Device is invalid/unformatted, an error message will be displayed, and the command will be aborted.
3. The ASR-10 will check to see if there is enough free memory to load the directory from the selected Akai format SCSI Storage Device. There must be a minimum of 300 free blocks available in memory (required for transferring data). If there is not enough free memory to load the directory, an error message will be displayed, and the command will be aborted.
4. If SCSI is installed, and the selected SCSI Storage Device exists and is valid, the ASR-10 will mount the selected Load Device. (The original current Storage Device will be restored when the command is exited, if it exists and is a valid ASR-10 Storage Device; if it is no longer valid, the current Storage Device will be reset to FLOPPY when the command is exited.) The following page will be displayed:

```

INST                                STOP
PARTITION=X

```

PARTITION Range: <1 character Partition names>

This selects from among the partitions available on the selected Load Device. After selecting the desired partition, pressing ENTER-YES will display the following page:

```

INST                                STOP
VOLUME=XXXXXXXXXX

```

VOLUME Range: <11 character Volume names>

This parameter selects from among the Volumes available in the chosen Partition (previous step) on the Load Device. Pressing CANCEL-NO from this page will re-display the PARTITION parameter page.

After selecting the target location for the import, you must press **(ENTER-YES)** to begin the importing process:

1. The display will flash the following message:

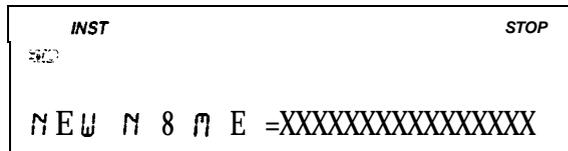


All button presses will be ignored during the importing process.

2. The ASR-10 will load as many possible samples into memory as it can, starting with the lowest key in the selected key range, and moving up the keyboard. There are two cases that can cause the ASR-10 to exit the importing process with only part of the selected program imported: if you run out of layers into which to import WaveSamples, and/or if the ASR-10 runs out of memory. This can be either more than the total ASR-10 memory, or more than the current free memory. The display will show "IMPORT INCOMPLETE." See the Troubleshooting section for more information about this message.
3. The default Storage Device for the newly created Instrument (used for Bank saves) will be initialized to NONE.
4. The sample data for the selected Akai Program will be loaded into the ASR-10, mapped to the appropriate WaveSamples and Layers. If the first sample that the ASR-10 tries to load is too large to fit into the free memory available, an error message will be displayed.
5. The Akai Program parameters will be interpreted and converted appropriately. While each Wave Sample is imported, the display will show "IMPORTING<12 character WaveSample name>," displaying the names of each WaveSample as it is imported.

Note: The importing process may take several minutes, depending on the size and complexity of the Akai Program.

When the parameter conversion is complete, the newly created Instrument will be selected (yellow Selected LED lit) and can be played from the keyboard or via MIDI In. The following page will be displayed:



NEW NAME Range: <first 12 characters of Program name>

This parameter allows you to assign a 12 character ASR-10 Instrument name to the imported Akai program. This will default to the first 12 characters of the name of the imported Akai program.

After editing the NEW NAME parameter as desired, pressing **(ENTER-YES)** will display the following prompt:



- Pressing (CANCEL- NO) will exit the command. The following message will be momentarily displayed:

```

INST                                STOP
-----
COMMAND COMPLETED

```

- Pressing (ENTER-YES) will re-display the following page:

```

INST                                STOP
-----
P 8 0 0 = x x x x x x x x x x x x x x

```

PROG

Range: <16 character Program names>

You may continue to select from among the Akai sampled sound programs available in the selected Partition and Volume on the selected Load Device, importing them as desired into any unused (empty) Instrument•Sequence Track location. If you answered yes to the IMPORT ANOTHER? prompt, the last key range will be retained, unless you change the selected Akai program. If you change the selected program, the RANGE parameter will be reset to the full 88 note keyboard again.

Once imported, the Akai sampled sound program(s) can be edited and saved as ASR-10 Instruments, as normal.

The settings for the LOAD DEVICE, PARTITION, VOLUME and PROG parameters will be retained even after exiting the command. They will be validated when the command is re-entered and as each page is displayed; if they are no longer valid, the parameters will default to the lowest value.

How To Import Roland Samples

When DEVICE TYPE=ROLAND, pressing **(ENTER+YES)** will display the following page:

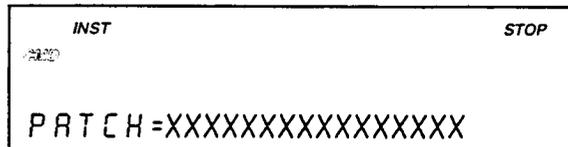


LOAD DEVICE Range: SCSI 0 to 7

This parameter selects the ID number for the Roland format SCSI Storage Device.

After selecting the Load Device, pressing **(ENTER+YES)** will perform the following functions:

1. The ASR-10 will check to see if SCSI is installed, and if the selected Load Device exists. If SCSI is not installed, or if the selected Load Device does not exist, an error message will be displayed, and the command will be aborted.
2. The ASR-10 will check to see if the selected Load Device is a valid Roland format SCSI Storage Device. If the selected Load Device is invalid/unformatted, an error message will be displayed, and the command will be aborted.
3. The ASR-10 will check to see if there is enough free memory to load the directory from the selected Roland format SCSI Storage Device. There must be a minimum of 300 free blocks available in memory (required for transferring data). If there is not enough free memory to load the directory, an error message will be displayed, and the command will be aborted.
4. If SCSI is installed, and the selected SCSI Storage Device exists and is valid, the ASR-10 will mount the selected Load Device. (The original current Storage Device will be restored when the command is exited, if it exists and is a valid ASR-10 Storage Device; if it is **no** longer valid, the current Storage Device will be reset to FLOPPY when the command is exited.) The following page will be displayed:



PATCH Range: cl 6 character Patch names>

This parameter selects from among the Roland sampled sound Patches available on the selected Load Device. Lower case letters will be converted to upper case. Any characters in the Roland Patch name that are not available in the ASR-10 character set will be displayed as a blank space, with the following exceptions:

This:	Becomes this:
@	*
&	+
#	+
:	-
;	-
/	-
\	-

Pressing **(CANCEL-NO)** from this page will re-display the VOLUME parameter page (if implemented).

After selecting the desired Roland Patch, pressing **(ENTER•YES)** will display the following page:

```

INST                                STOP
-----
R R N G E L  O = x x x  H I = x x x

```

RANGE LO HI Ranges: A0 to C8

These parameters allow you to define a key range for the selected Roland patch that you are about to load. This can be used for doing partial imports when the selected patch would require more memory or layers than the ASR-10 supports. This parameter defaults to the full 88 note keyboard (A0 to C8).

Pressing **(CANCEL•NO)** from this page will abort the command. After selecting the desired range, pressing **(ENTER•YES)** will display the following page:

```

INST                                STOP
-----
INST=#                               -HIT ENTER

```

INST=Range: 1 to 8

This parameter selects the target location into which the Roland Patch will be imported. It defaults to the lowest numbered unused (empty) **Instrument•Sequence Track**. Pressing any unused (empty) **(INSTRUMENT•SEQUENCE TRACK)** button will update the **INST=#** display.

After selecting the target location for the import, you must press **(ENTER•YES)** to begin the importing process:

1. The display will flash the following message:

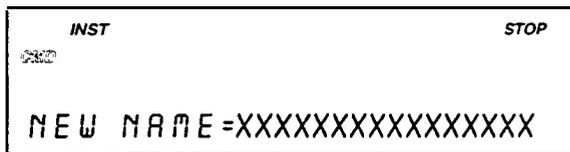
```

INST                                STOP
-----
IMPORTING PATCH

```

- All button presses will be ignored during the importing process.
2. The ASR-10 will load as many possible samples into memory as it can, starting with the lowest key in the selected key range, and moving up the keyboard. There are two cases that can cause the ASR-10 to exit the importing process with only part of the selected patch imported: if you run out of layers into which to import *WaveSamples*, and/or if the ASR-10 runs out of memory. This can be either more than the total ASR-10 memory, or more than the current free memory. The display will show "IMPORT INCOMPLETE." See the Troubleshooting section for more information about this message.
3. The default Storage Device for the newly created Instrument (used for Bank saves) will be initialized to NONE.
4. The sample data for the selected Roland Patch will be loaded into the ASR-10, mapped to the appropriate *WaveSamples* and Layers. If the first sample that the ASR-10 tries to load is too large to fit into the free memory available, an error message will be displayed.
5. The Roland Patch parameters will be interpreted and converted appropriately. While each *Wave Sample* is imported, the display will show "IMPORTING<12 character *WaveSample* name>," displaying the names of each *WaveSample* as it is imported.
 Note: The importing process may take a few minutes, depending on the size and complexity of the Roland Patch.

When the parameter conversion is complete, the newly created Instrument will be selected (yellow Selected LED lit) and can be played from the keyboard or via MIDI In. The following page will be displayed:

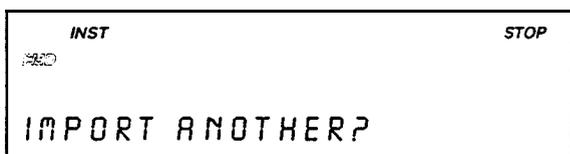


NEW NAME

Range: <12 character Patch name>

This parameter allows you to assign a 12 character ASR-10 Instrument name to the imported Roland patch. This will default to the name of the imported Roland patch.

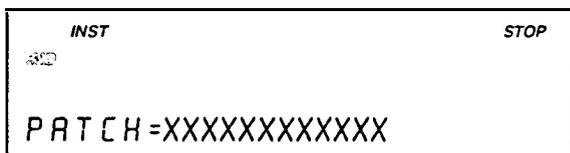
After editing the NEW NAME parameter as desired, pressing (ENTER-YES) will display the following prompt:



- Pressing (CANCEL-NO) will exit the command. The following message will be momentarily displayed:



- Pressing (ENTER-YES) will re-display the following page:



PATCH

Range: <12 character patch name>

You may continue to select from among the Roland sampled sound patches available on the selected Load Device, importing them as desired into any unused (empty) Instrument•Sequence Track location. If you answered yes to the IMPORT ANOTHER? prompt, the last key range will be retained, unless you change the selected Roland patch. If you change the selected patch, the RANGE parameter will be reset to the full 88 note keyboard again.

Once imported, the Roland sampled sound patch(es) can be edited and saved as ASR-10 Instruments, as normal.

The settings for the LOAD DEVICE and PATCH parameters will be retained even after exiting the command. They will be validated when the command is m-entered and as each page is displayed; if they are no longer valid, the parameters will default to the lowest value.

Helpful Hints For Importing Non-ASR Sounds

While we have tried to make this conversion as “smart” as possible, there are some situations where the ASR-10 cannot fully import a sound, or the conversion is less than complete. The purpose of this document is to help you identify the reasons why an import is not working, and to help you to take the steps needed to successfully deal with that situation.

Memory Limitations

Both the Akai and Roland samplers support up to 32 MB of memory, while the ASR-10 supports up to 16 MB. Obviously not all Akai and Roland sounds will fit into even an expanded ASR-10. To help compensate for that difference, we have added the ability to import sounds by key range. When you see in the documentation for the non-ASR sound that it is larger than 16 MB, you should choose a limited key-range to avoid an incomplete import.

If you are importing multiple sounds, or already have some ASR sounds loaded, you will not even have the full 16 MB available. We recommend importing larger sounds one at a time to ensure the most complete import possible.

Here are some of the most common “symptoms” of an incomplete import due to lack of memory, followed by **suggested solutions**:

SYMPTOM	CAUSE	SOLUTION
A sound does not play across the full key range it should.	The sound is larger than 16 MB.	1) Use it as is. 2) Re-import it using a smaller keyrange.
A sound is in stereo at the lower end of the keyboard, but becomes mono, panned left at the upper ranges.	The ASR-10 imports the left half of a stereo instrument first, placing it into Layer 1. When finished, it loads the right half into Layer 2. It may run out of memory before completing Layer 2.	1) Delete Layer 2 and edit Layer 1's panning to be 00 (center), instead of +99 (hard right). 2) Delete the entire Instrument and re-import it using a limited key range.
A sound does not play across the full velocity range.	The ASR-10 switches velocity at the layer level. Since it imports into Layer 1 first, Layer 2 second, it may have run out of memory before getting to the higher layer containing the velocity-switched data needed.	1) Use it as is, editing the velocity ranges of the layers to cover the full velocity range. This may involve deciding new velocity split points for each layer, or using a single (or dual stereo) layer(s) to cover the full velocity range 000-127. Either way, you should delete any incomplete layers. 2) Delete the entire Instrument and re-import it using a limited key range.
A sound doesn't load in at all, displaying the “IMPORT INCOMPLETE” - “OUT OF MEMORY” message.	It may be a single wavesample that exceeds the 16 MB memory limit (a very rare situation).	Sorry.
A sound loads in quickly, then doesn't sound when played.	Sometimes Roland CD-ROMs will use a file location to place a message to be read only. It doesn't actually contain any sound data.	Don't load these text files.

Layer Limitations

The ASR-10 uses different layers to separate stereo data, and/or velocity switched data. Both the Akai and Roland architectures allow for situations that can cause the ASR-10 to run out of layers before completing an import, even though there may be enough memory to load in the waveform data. It is also possible that samples will be placed in a layer that has a slightly different velocity range than the original Akai or Roland program.

Akai

The Akai architecture allows you to stack or velocity cross-switch up to 128 wavesamples on a single key. The ASR only allows 8 layers (4 stereo) per instrument. Although it is somewhat rare, there are some Akai programs that require more than 8 layers for the conversion.

Roland

The Roland architecture allows you to create velocity splits at the Partial level. This results in the possibility of having more than 8 different velocity split values in a given instrument, exceeding the number of layers in the ASR-10.

In both cases, the conversion process deals with this the best that it can, but eventually runs out of layers for the instrument. This situation will result in the “IMPORT INCOMPLETE” message, followed by “NO MORE LAYERS”. Use of the import key range will reduce the chance of exhausting all layers in the program. The selection of a limited key-range will cause the ASR-10 to only look at the layer needs for that range, as opposed to the whole instrument. In this way you can “break-up” the import across several Instruments, and better match the original velocity split values.

What follows are symptoms of this “NO MORE LAYERS” scenario. In all cases, you should import by key range for better results.

- A sound does not play across its full velocity range
- A cross-switched sound is missing a velocity range element (a 3 way snare only has 2 samples present)
- From sample to sample the velocity cross-switch performance does not match up (e.g., a pop for a slap bass is not even across the keyboard)
- An element is missing from a sound (Guitar & Strings does not **have the** Strings element)

Selecting Key Ranges For Importing

When you encounter a situation that requires you to choose a limited key range for importing a non-ASR sound, there are a couple of guidelines to follow:

- The default is A0 - C8, which is a 127 note range. Try limiting the key-range to the length of your keyboard to start. The only drawback is that you will not have notes to allow you to raise/lower the instrument by an octave.
- If you know that you only need to play a part over a given note range, simply select that range.
- In the case of drums and percussion, it is likely that each note will have a different drum on it. Using the documentation supplied with the CD-ROM, select the **note** or notes that give you the instruments you need.
- Again, in the case of drums and percussion, you will find breaking up a kit into multiple instruments the best route to go.

Roland Filter Resonance

Roland sounds that rely on the resonant filter will not sound the same on the ASR-10, which doesn't offer a resonance mode on its filter. Analog-style synth sounds are most likely to use this parameter (synth basses, leads etc.). Don't despair — you can purchase a resonant filter effect algorithm from WAVeBOY Industries and add that much needed quality to your sound. For more **information, contact them at:**

WAVeBOY Industries
P.O. Box 233
Paoli, PA 19301 USA
(610) 251-9562

Final Suggestions

Version 3 for the ASR-10 opens up a huge selection of sounds for your music. With a little care and planning you will find that you can take advantage of the majority of Akai and Roland CD-ROM libraries.

We do recommend that you look carefully at a disk before purchasing it, ensuring that its memory size and instrument configurations match the ASR-10's importing capabilities. Ask if the company has a listing of instrument names and sizes they can send you. If you are in doubt, see if the seller offers a return policy so you do not end up with a disk that you cannot use. Enjoy!

What if the WaveSample you want to edit is not in Layer 1 (or in the currently displayed layer)? By continually moving the cursor back and forth between the Layer and WaveSample values on the Edit Context page-(selecting each defined layer), pressing **(ENTER•YES)** will help you locate the WaveSample that you want to edit.

1. Press **(SYSTEM-MIDI)** to go back to the ENTER PLAYS KEY parameter.
2. Press **(▲)** until the display shows ENTER PLAYS KEY=E6.
3. Press **(ENTER-YES)**. YOU will hear the hand clap assigned to E6.
4. Press the (EDIT button to get to the Edit Context page.
5. Press **(ENTER-YES)** to update the Edit Context page. You will hear the hand clap assigned to E6, but since this WaveSample is not on Layer 1, the display shows WS=ALL.
6. Move the cursor under the Layer value, and select Layer 2 using the **(▲)** button.
7. Move the cursor under the WaveSample value, and press the **(ENTER-YES)** button. You have just determined that this WaveSample is not on Layer 2, because the display still shows WS=ALL.
8. Repeat the last to steps for Layer 3, Layer 4 and Layer 5. Haven't found it yet, huh?
9. Move the cursor under the Layer value, and select Layer 6 using the **(▲)** button.
10. Move the cursor under the WaveSample value, and press **(ENTER-YES)**. The WaveSample value has been updated, and the display shows WS=37. You've just used **(ENTER-YES)** to find the location of the hand clap (LYR=6 WS=37). Now press **(ENTER-YES)** repeatedly, and give yourself a hand!

<i>CMD</i>	DAT BACKUP/RESTORE
<i>SYSTEM•MIDI</i>	Press (COMMAND) / (SYSTEM•MIDI) / scroll using the (a) and (▶) buttons [®]



What does DAT BACKUP/RESTORE do?

DAT BACKUP/RESTORE is a command that allows you to back up SCSI Storage Devices to DAT tape by way of the DI-10 Digital I/O Interface. The ASR-10 will prompt you with the actions you need to perform on both the ASR-10 and the DAT machine. There are three functions supported in the command: BACKUP, RESTORE and VERIFY.

- The BACKUP function transfers packets of information from the SCSI Storage Device and backs them up as an image backup to DAT tape. As a continuation of the BACKUP function, the ASR-10 will verify the backup.
- RESTORE will transfer the data on the backup tape(s) to the original or another SCSI Storage Device. (This drive must be the same size as the drive that was backed up.)
- VERIFY is entered automatically after a BACKUP. It can also be selected as a separate function. The backed-up packets of data will be compared to the stored information for accuracy and completion.

When Should You Use DAT BACKUP/RESTORE?

In the case of a partial backup, you may prefer to back up small files to floppy disks. Since the DAT BACKUP is an image backup, the DAT BACKUP/RESTORE will take the same amount of time regardless of the amount of information contained on the SCSI Storage Device. (This is because the entire storage device is scanned for information; even the parts that are empty.) However, if you want to begin a backup without constant monitoring, use DAT BACKUP/RESTORE. Multiple tape backup allows you to accommodate SCSI Storage Devices that are larger than 165 MB. For an estimate of how long your backup will take, refer to the chart located in this section.

Please Note the Following!

USE ONLY DDS DATA-GRADE 60 METER LENGTH (2 HOUR) DAT TAPES. These are available at most computer stores. Don't assume your audio-grade tapes will do the job just as well. They won't! The ASR-10 tells you how many tapes will be needed for a multiple tape backup based on 60 meter length tapes. Remember to always label your tapes to avoid mix-ups (see sample labels on the following page).

USE ONLY RCA-TYPE VIDEO DUB CABLES. This will help ensure the integrity of your data. Another good idea is to use the shortest possible length cables between your ASR-10 and DAT machine. This will reduce signal loss.

MAKE MORE THAN ONE SAFETY BACKUP of the same SCSI Storage Device. Your backups are crucial to saving hours of work. Don't let a catastrophe find you unprepared!

CHECK YOUR DAT MACHINE to be sure that the DI-10 Digital I/O Interface will operate properly. Your DAT recorder must be able to record from its digital input at 44.1 KHz.

DISCONNECT ANALOG OUTS AND HEADPHONES!

Caution!

Disconnect the Main Out jacks and the Headphone output. The BACKUP command function bypasses the main Volume Slider. The data bursts occurring during BACKUP are very loud and could damage loudspeakers, headphones or human hearing!

Backup times for Various SCSI Storage Devices

The following chart contains approximate times required for backing up various size SCSI Storage Devices. Exact drive sizes and access time will vary, and will cause slight variations in the backup time required.

Disk Size	Packet Count	Minutes	Tapes Required
30 Meg	469	21	1
44 Meg	687	31	1
65 Meg	1015	45	1
105 Meg	1639	73	1
150 Meg	2341	104	1
275 Meg	4291	191	2
300 Meg	4682	208	2
435 Meg	6789	301	3
500 Meg	7804	346	4
600 Meg	9364	415	4

What You Need To Get Started

Before you begin DAT BACKUP/RESTORE you'll save time by going through this checklist to be sure you have all the resources you'll need at your fingertips.

- DI-IO/SP-3 equipped ASR-10 or ASR-10 rack mount
- OS. disk version 2.5 or higher
- SCSI Storage Device and SCSI Cable
- S/PDIF equipped DAT recorder with 44.1 KHz digital input capability
- Two RCA-type phono jack video dub cables
- One or more 60-meter DDS data-grade DAT tapes
- ASR-10 Musician's Manual (and this document)

Note: Make sure you are familiar with the controls on your ASR-10. If not, please review the ASR-10 Musician's Manual.

Set Up

SCSI Review

The Small Computer Systems Interface (SCSI, pronounced “scuzzy”) is a standardized communication protocol for small computers (such as the Macintosh and the ASR-10) and peripheral storage devices (hard disk drives, CD ROM players, etc.) that allows for quick and efficient transfer of digital information. You may have up to eight SCSI devices connected on a single SCSI network. These devices can be computers, disk drives, tape backup systems, musical instruments, and other types of equipment.

Here is an overview of what you must do to make your SCSI system work:

1. The ASR-10 requires a specific file format on any SCSI Storage Device that it uses, and any storage devices used with the ASR-10 must be formatted exclusively for that purpose. ASR-10 files cannot be saved directly to a SCSI hard drive formatted for use with a Macintosh, nor can the Macintosh store files on a SCSI hard drive formatted for the ASR-10. If you are using a SCSI network configuration that includes a Macintosh and a Macintosh-formatted SCSI drive, make sure that you understand this distinction.
2. Make sure that the SCSI cable has a 25-pin D-type connector (dB-25P) on one end. Use this cable to connect the ASR-10 to a hard drive. Most SCSI hard drive manufacturers supply this type of cable with the drive.
3. Make sure your SCSI Storage Device has a terminator -- either internal or external. The SCSI terminator is a resistor network on each SCSI signal on the SCSI bus that allows reliable high speed data transfers. The terminator is usually implemented in one of two ways; either externally or internally. The documentation that accompanied your storage device will usually describe the procedures required for installation and removal of terminators.

The SCSI installed in the ASR-10 rack mount (or the SP-3 SCSI Kit for the ASR-10 keyboard version) contains internal termination via removable resistor packs.

4. **SET THE PRIORITY/ID ON YOUR SCSI DEVICE TO ANY PRIORITY/ID NUMBER FROM 0 TO 7 OTHER THAN 3.** Each device on the SCSI network must be assigned a different ID number. The SCSI ID number can range from 0 to 7, with 7 being the highest priority. The priority of a SCSI device becomes important if two devices are trying to control the SCSI bus at the same time. In this case, the device with the highest priority will gain control of the SCSI bus.

The ASR-10 has a fixed SCSI ID of 3. The ID of your SCSI Storage Device must be different from that of the ASR-10. If it isn't, the ASR-10 will never see it. Most SCSI Storage Devices provide a way of changing their ID. Refer to the manuals for the SCSI Storage Devices in your system to determine how to change their SCSI ID's.

Refer to the SP-3 SCSI Interface section of this manual for additional information.

Digital I/O

The DI-10 Digital I/O Interface (S/PDIF) provides direct Digital Input and Output connection to and from the ASR-10 using RCA-type connectors. The Digital Output will provide direct 44.1 KHz digital audio output of the Main Output mix when the current effect uses a 44.1 KHz sample rate. The Digital Input can be used for direct digital sampling from an external digital audio source at 44.1 or 48 KHz. The Digital Input and Output conform to the S/PDIF standard.

Note: If you wish to record the 44.1 KHz digital output of the ASR-10 to a DAT recorder, the DAT recorder must be able to record from its digital input at 44.1 KHz. Some older/consumer DAT recorders do not record at 44.1 KHz as a copy protection scheme: *these DAT recorders will not record the ASR-10's 44.1 KHz digital output.*

DAT Settings

Set your DAT machine to the following:

- Record Source or Input set to Digital.
- Sampling Frequency Rate at 44.1.
- S/PDIF Digital I/O as the record source and playback output (not AES/EBU).
- Program time Off.
- Disable Auto Start ID's if possible on your DAT machine.

DAT BACKUP

Get Set

Before powering up, make sure you look over the following checklist:

- The SCSI cable is connected to the ASR-10 and SCSI Storage Device.
- The SCSI Storage Device is formatted to the ASR-10.
- Proper SCSI termination is achieved.
- The Priority/ID Number on the SCSI Storage Device is set.
- The DAT machine and ASR-10 are connected by two RCA-type phono jack video dub cables as follows:
 - ASR-10 digital I/O output to S/PDIF digital DAT input;
 - ASR-10 digital I/O input to S/PDIF digital DAT output.
- The DAT machine settings are selected as indicated above.

You're Ready

⚠ Important: Power on in this order to avoid damage:

1. Turn on the SCSI Storage Device(s) first and wait approximately 20 seconds.
2. If you're using a removable SCSI medium, insert a formatted cartridge into the SCSI Storage Device.
3. Turn on the DAT machine.
4. Insert the Operating System floppy disk into the ASR-10 disk drive.
5. Turn on the ASR-10.

If there is an O.S. in the floppy drive, the ASR-10 will boot from that. Otherwise, it will boot from the SCSI Storage Device with the highest priority/ID.

6. Insert a DAT tape. Fast-forward and rewind your DDS Data Grade 60 meter length DAT tape(s) to stretch them and pack them evenly on the spools.

12. Press **(ENTER-YES)**. The display shows:



Rewind the tape on the DAT machine.

13. Press **(ENTER-YES)**. The display shows:



Put the DAT into Record.

14. Press **(ENTER-YES)** and the BACKUP will resume. When the ASR-10 has completed writing to the last backup tape, the display will show:



15. Press **(ENTER-YES)**. At this point, the ASR-10 will automatically proceed to VERIFY the backup to ensure data integrity.

Proceed with the VERIFY Command

VERIFY can also be performed as a separate step after a BACKUP or RESTORE. The backed-up packets of data will be compared to the stored information for accuracy and completion.

1. If more than one tape was required for the backup, the display will show: INSERT DAT 1-ENTER. Remove the last tape and label it.
2. After inserting the first tape press **(ENTER-YES)**. The display will show: REWIND DAT-ENTER. Rewind your tape on the DAT machine.
3. Press **(ENTER-YES)**. The display shows: PLAY DAT-ENTER. Press **play** on the DAT machine.
4. Press **(ENTER-YES)**. The display will show:

A screenshot of a system display. At the top, the word "SYSTEM" is on the left and "STOP" is on the right. In the center, the text "WAITING..." is displayed in a monospaced font. There is a small icon on the left side of the display area.

until it receives the first data from the DAT tape being verified, at which time the display will change to:

A screenshot of a system display. At the top, the word "SYSTEM" is on the left and "STOP" is on the right. In the center, the text "VERIFY _ _ _ _ OF _ _ _ _" is displayed in a monospaced font. There is a small icon on the left side of the display area.

(For a single tape backup, skip to step 7.)

Note: If more than one tape was required, the ASR-10 will compare the set number and tape number to the one that was inserted. If the tape is from the wrong backup set or is out of order, an error message will be displayed. Eject that tape and insert the correct tape.

5. After verifying the first tape, the display shows: INSERT DAT Z-ENTER. Remove the first tape and insert the next one.
6. Press **(ENTER-YES)**. The display shows: REWIND DAT-ENTER.
7. After rewinding the DAT tape, press **(ENTER-YES)**. PLAY DAT-ENTER appears. Press Play on the DAT machine,
8. Press **(ENTER-YES)**. The WAITING... message will be shown until the VERIFY message replaces it.

Note: Additional tapes will be requested until all of the backed-up data has been verified. The display will show: VERIFY COMPLETE.

9. Press **(ENTER-YES)**. The display will show: COMMAND COMPLETED and the command will be exited.

Tip: This is a good time to consider making multiple backups of your SCSI Storage Device as a precautionary measure. You should use the BACKUP function again to make additional backup sets. Do not attempt to make a digital to digital dub of a backup tape between **two DAT machines**.

DAT RESTORE

RESTORE will transfer the data on the backup tape(s) to the original or another SCSI Storage Device. (This drive must be the same size as the drive that was backed up.)

Important: If you abort during the RESTORE command, the data on the SCSI Storage Device is no longer valid. If this should occur, promptly reformat it to prevent further problems.

1. Press **(COMMAND)**, then **(SYSTEM•MIDI)**.
2. Press the (a) button until the display shows: DAT BACKUP/RESTORE. It is located between CONFIGURE AUDIO TRACKS and BACKUP RESTORE.
3. Press the **(ENTER•YES)** button and the display will show: MUST ERASE MEMORY OK?
4. Press **(ENTER•YES)** and the display shows: DAT FUNCTION=BACKUP. Press the **(▲)** or **(▼)** until the display shows: DAT FUNCTION=RESTORE.
5. Press **(ENTER•YES)**. The display shows: SCSI DRIVE=0. Use the **(▲)** to select the same number as the Priority/ID Number on your SCSI storage device.
6. Press **(ENTER•YES)**. The display shows: REWIND DAT-ENTER. Rewind your DAT tape.
7. Press **(ENTER•YES)**. The display will show: ERASE ALL DISK FILES?
8. Press **(ENTER•YES)** and the display will show: PLAY DAT-ENTER
9. Press Play on your DAT machine. The display will flash:

```

          SYSTEM                               STOP
-----
WRITING. . .
  
```

until the ASR-10 receives the first data from the DAT tape at which time the message

```

          SYSTEM                               STOP
-----
RESTORE _ _ _ _ OF _ _ _ _
  
```

appears. (For a single tape backup, skip to step 12.)

Note: If more than one tape was required, the ASR-10 will compare the set number and tape number to the one that was inserted. If the tape is from the wrong backup set or out of order, an error message will be displayed. Eject it and insert the correct tape.

10. After restoring the first tape the display shows: INSERT DAT 2-ENTER. Remove the first tape and insert the next one.
11. Press **(ENTER•YES)**. The display shows: REWIND DAT-ENTER. Rewind your DAT tape.
12. Press **(ENTER•YES)**. The prompt PLAY DAT-ENTER appears. Press Play on the DAT machine.
13. Press **(ENTER•YES)** The WAITING... message will be shown until the RESTORE message replaces it.

Note: Additional tapes will be requested by the prompts until all of the backed up data has been restored. The display will show: RESTORE COMPLETE.

14. Press **(ENTER•YES)**. The display will show: COMMAND COMPLETED and the command will be exited.

DAT VERIFY

VERIFY can be performed as a separate step after a BACKUP or RESTORE. The backed-up packets of data will be compared to the stored information on tape for accuracy and completion.

1. Press **COMMAND**, then **SYSTEM-MIDI**.
2. Press the (a) button until the display shows: DAT BACKUP/RESTORE. It is located between CONFIGURE AUDIO TRACKS and BACKUP RESTORE.
3. Press the **ENTER-YES** button and the display will show: MUST ERASE MEMORY OK?
4. Press **ENTER-YES** and the display shows: DAT FUNCTION=RESTORE. Press the **▲** until the display shows: DAT FUNCTION=VERIFY.
5. Press **ENTER-YES**. The display shows: SCSI DRIVE=0. Use the **▲** to select the same number as the Priority/ID Number on your SCSI storage device.
6. Press **ENTER-YES**. The display shows: REWIND DAT-ENTER. Rewind your DAT tape.
7. Press **ENTER-YES**. The display will show: PLAY DAT-ENTER. Press Play on your DAT machine.
8. Press **ENTER•YES**. The display will flash: WAITING... until the ASR-10 receives the first data from the DAT tape at which time the message VERIFY appears. (For a single tape backup, skip to step 12.)

Note: If more than one tape was required, the ASR-10 will compare the set number and tape number to the one that was inserted. If the tape is from the wrong backup set or is out of order, an error message will be displayed. Eject that tape and insert the correct tape.

9. After restoring the first tape the display shows: INSERT DAT 2-ENTER. Remove the first tape and insert the next one.
10. Press **ENTER•YES**. The display shows: REWIND DAT-ENTER. Rewind the DAT tape.
11. Press **ENTER-YES**. PLAY DAT-ENTER appears. Press Play on the DAT machine.
12. Press **ENTER•YES**. The WAITING... message will be shown until the VERIFY message replaces it.

Note: Additional tapes will be requested until all of the backed-up data has been verified. The display will show: VERIFY COMPLETE.

13. Press **ENTER-YES**. The display will show: COMMAND COMPLETED and the command will be exited.

User Retry

It may be necessary to confirm that an error occurred in the actual backup data on the DAT tape. You will be given an opportunity to retry during RESTORE or VERIFY if any of the following error messages appears:

- DATA NOT FOUND
- DAT CHECKSUM ERROR
- DAT VERIFY ERROR

If you press either CANCEL-NO or ENTER-YES when you see one of these error messages, the display will show RETRY?

1. Press CANCEL-NO to completely abort the command or ENTER-YES to retry.
2. The ASR-10 display shows REWIND DAT-ENTER. Rewind the DAT tape.
3. Press ENTER-YES.

Note: You may rewind the tape completely if you are unsure when the error occurred. If however, you do know that point in the tape, then rewind to a point just before the error. This will save time by avoiding another playback of data that is already restored or verified.

4. The display shows PLAY DAT-ENTER. Press Play on the DAT machine.
5. Press ENTER-YES on the ASR-10. The display changes to WAITING... (If you rewind too far back, the WAITING... message will appear for a long time.)
- ☞ **Important:** Once WAITING... is displayed, you must leave the DAT machine in Play. Whatever you do, do not stop it or press fast forward!
6. When the error is found, the ASR-10 will attempt to re-enter the RESTORE or VERIFY. The screen will show RESTORE or VERIFY.

Note: If the tape was not rewound far enough to begin playing before the error, the screen will show DATA NOT FOUND. Retry again and rewind the tape further back this time.

DATA NOT FOUND during RETRY?

The DATA NOT FOUND or another error message may appear a second time after you RETRY? but not because you rewound too little. In this case, the DAT tape is probably damaged in some way.

1. Press CANCEL-NO when you see RETRY? and abort the command.
If you were in VERIFY, perform another BACKUP before your next VERIFY.

If you were in RESTORE, reformat the SCSI Storage Device and attempt another RESTORE from your additional safety backup. (You remember, the one you made to avoid a catastrophe...)

A Note About Humidity and Your DAT Machine

You may see some error messages (see Troubleshooting later in this document) if you're performing a DAT BACKUP/RESTORE and you're operating your DAT machine in a humid environment. In this case, the data on the tape may be good. We strongly recommend operating your DAT machine in a cool, climate controlled environment.

<i>CMD</i>	CONFIGURE AUDIO TRACKS
<i>SYSTEM•MIDI</i>	'Press (COMMAND) / (SYSTEM•MIDI) / scroll using the (◀) and (▶) buttons '



This command enables and disables Audio Track playback and recording. It also determines whether Audio Tracks will be recorded direct-to-disk via the SCSI port, or whether they will reside in RAM and must be manually saved to disk as part of a SONG + ALL SEQS file.

For details about using **this** command, see **Configuring Audio Tracks**, in this document.

Audio Track Recording

We recommend reading all of the Audio Track information, as well as pertinent sections in the ASR-10 Musician's Manual. Doing so will help you thoroughly understand how Audio Tracks work and how they are integrated into the overall ASR-10 Operating System. Recognizing that you want to get up and running quickly, we strongly recommend that you try the following section titled "Give it a Try — An Audio Track Tutorial" to get a feel for the Audio Track recording process. Then, continue reading to learn about the other features and how to use them (you may want to scan the headings to find specific information).

Give It a Try! — An Audio Track Tutorial

Before beginning this tutorial, make certain that any Instruments or sequences that you might want to save have been backed up to floppy (or a SCSI storage device).

Load the Audio Track Tutorial Bank and Play the Song

1. Insert the disk "ENSONIQ ASR-10 Operating System Version 2 (or higher)" into the ASR-10 floppy drive.
2. Press the (LOAD) button.
3. Press the (INSTRUMENT) button.
4. Use the (▲) and (▼) buttons to locate the "FILE 11 ATRK TUT BNK" Bank file.
5. With the BANK indicator lit (in the upper left of the display) and the display reading FILE 11 ATRK TUT BNK, press (ENTER-YES).

The ASR-10 will begin to load Instruments into various (INSTRUMENT-SEQUENCE TRACK) locations. Once loading has completed, the display will read BANK LOAD COMPLETED.

6. Press the (PLAY) button.

You will hear ATRK TUT SNG, which is based on the classic 12-bar blues pattern. Later in the tutorial, you will be using a sequence from within this song to record your first RAMTrack. When the song reaches the end, it will automatically stop. If you want to stop listening to the song sooner, you can hit the (STOP-CONTINUE) button, located immediately to the left of the (PLAY) button.

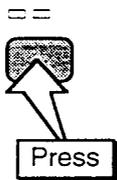
Select the Sequence for Recording

1. Press (EDIT), then the (SEQ•SONG) button. The name of the song (ATRK TUT SNG) should be underlined.
2. Press the (▲) and (▼) buttons to select the sequence named "ATRK BLUES." This is the sequence that we'll be using to record the first RAMTrack. You can listen to this sequence by pressing (PLAY). Notice that the sequence repeats after 12 bars, because Edit/Seq•Song, LOOP=ON. This allows you to continually practice your part (after basic set-up) as the sequence plays, until you're ready to record.
3. Press (STOP-CONTINUE) to stop the sequence.

Set-up for Recording a RAMTrack

1. Plug a guitar or microphone with a 1/4" phone plug into the jack marked **Audio Input A/Left** on the rear panel.
2. Press the (AUDIO TRACK A) button. The yellow Selected LED above the button will light. This indicates that Audio Track A is selected for editing.
3. Press (AUDIO TRACK A) again. The red Source-Monitor LED will light. This indicates that the Audio Track is active or Source Monitor enabled and can be used to listen to incoming audio from the corresponding rear panel Audio Input. The Left Audio Input corresponds to Audio Track A and the Right Audio Input corresponds to Audio Track B.

To select an Audio Track, press its button:



Its yellow Selected LED will light (solidly):



Press the Audio Track button again and the red Source Monitor LED will light:



Note:
The rack-mount ASR-10 LED and button placement is different than the keyboard ASR-10, but the functionality is identical.

4. If you do not hear audio when using a microphone, flip the **Mic/Line Switch** on the rear panel of the ASR-10 (keyboard only) up to the Mic position. You should now be able to hear the signal. However, it may still be a bit too loud or soft.

Tip: (ASR-10 Keyboard only) You can overload the analog mic pre-amp by setting **the Mic/Line switch** to Mic for a line-level signal source. This creates a fabulous analog distortion for guitar (or whatever) without using the effects processor. Then use the effects processor to add chorus, reverb, or any other effect to the analog distortion. This can then be sampled or recorded to Audio Tracks, or you can just play along with sequences.

5. To further adjust **the volume**, turn **the Input Level Trim Control** knob on the rear panel of the unit until the signal just begins to light the red Signal/Peak indicator.

The Input Level Trim Control knob increases the signal level when turned clockwise and decreases the signal level when turned counter-clockwise (as viewed when facing the rear panel).

6. Test your guitar or microphone.

Depending on the output level of your source, you may or may not hear signal coming through the ASR-10. The left pair of Signal/Peak Input Level indicators will light when a signal is present (green indicates a signal is detected, and red indicates the signal has reached 6 dB below the point of overload). You should see these indicators light when you hear audio.

Play Along with the Sequence

Now that you are set up for recording a RAMTrack, you may want to have a "practice run" to play or sing along with the sequence before recording.

1. Make sure the Left Audio Track's yellow and red LEDs are still lit. If not, press the (AUDIO TRACK A) button until they are lit.

2. Press the (PLAY) button.

You will now hear the ATRK BLUES sequence, based on the classic 12-bar blues pattern, and you can play/sing along with it for as long as you want.

3. Press (STOP•CONTINUE) to stop the sequence.

Record Your First RAMTrack

When you are finished practicing, it's time to record:

1. Make sure the Left Audio Track's yellow and red LEDs are still lit. If not, press the (AUDIO TRACK A) button until they light (if the yellow LED is not lit, you will not be recording an Audio Track).
2. While holding down the (RECORD) button, press (PLAY).
There will be a four bar countoff, followed by the sequence named "ATRK BLUES."
3. Play your guitar along with the sequence, or "sing the blues" in your microphone. Here's some typical 'blues lyrics':
My baby done left me
I sure do got the blues
My dog died yesterday (substitute the animal of your choice; e.g., My llama died yesterday)
I sure do got the blues
I'm feeling so low
I sure do got the blues

Audition Your RAMTrack Recording

When the sequence is finished, (or you run out of memory) the display shows:

```

                                PLAY
                                _____
                                SEQ
                                _____
                                GOT
                                _____
                                KEEP =  OLD          NEW
  
```

This is the Audition page. The ASR-10 has always let you compare between the OLD (original) part and the NEW part when performing any recording or track command. This is also true for RAMTracks and DiskTracks. Notice that you are now listening to your newly recorded RAMTrack.

1. If you want to hear the OLD track (in this case, no Audio Track recorded), press the (◀) button to select (underline) KEEP=OLD.
You will now be hearing the original sequence without the Audio Track recording.
2. Use the (STOP-CONTINUE) and (◀) and (▶) buttons to select whether to keep the newly recorded track or not. If you do not like your RAMTrack performance, select KEEP=OLD, press (ENTER-YES), and re-record the RAMTrack.
3. When you've recorded an acceptable performance, select KEEP=NEW and press the (ENTER-YES) button.

You'll briefly see...EDITING... on the display. Then you'll be returned to the Sequence Select/GOT0 page. By pressing the (ENTER-YES) button while NEW was underlined on the Audition page, you have chosen to keep your newly created part.

Press Play and Enjoy!

You can listen to your performance by pressing (PLAY). You have just successfully recorded a RAMTrack! Pretty easy, huh?

Master Directly to DAT

These Audio Tracks were digitally recorded using the 44.1 KHz sample rate because the current effect is a 44.1 KHz algorithm. With the optional DI-10 Digital I/O Interface installed, you could record your entire performance directly from the ASR-10's Digital I/O output to any DAT recorder (or other digital audio recording device) equipped with a compatible digital input. See the section about the DI-10 for more details on using the DI-10 Digital I/O Interface.

Save your Work

If you want to save this performance to floppy disk, use the Command/Seq•Song, SAVE SONG + ALL SEQs command, followed by the Command/Instrument, SAVE BANK command.

Using the SAVE SONG + ALL SEQS Command

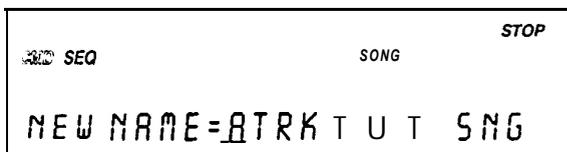
Once you have created a song or made changes to an existing one, you can save the song to a formatted ASR-10 disk. In addition to saving the song itself, the SAVE SONG + ALL SEQS command saves all the individual sequences currently in memory (whether they are part of the song or not). Audio Track recording data is also stored with the SONG + ALL SEQS file type. Because the SONG + ALL SEQS file saves your Audio Track recording data, it is sometimes referred to as the Project file. Note that a SONG + ALL SEQS file that is to be saved after a large amount of RAMTrack data has been recorded will increase in size significantly and may need to be saved across multiple disks. Be prepared with a few extra floppy disks for this task.

To save a song:

1. Insert a formatted disk into the drive.
2. Press **(COMMAND)**, then press **(SEQ•SONG)**.
3. Press the (a) or **(▶)** button until the display reads:



4. Press **(ENTER•YES)**.
5. Edit the song name (optional):



The display shows the current name of the song with a cursor (underline) beneath the first character. If you want to give the song a new name, use the Data Entry Controls (see the ASR-10 Musician's Manual for details).

6. Press **(ENTER•YES)**.

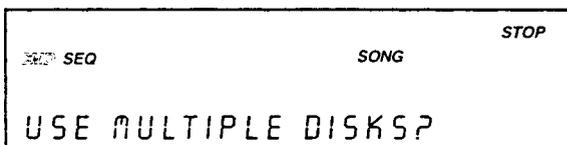
The display will flash SHUFFLING DATA as the ASR-10 prepares to save the file to disk.



Caution:

Saving a SONG + ALL SEQS (Project) file to disk will take longer than in previous O.S. versions. The **SHUFFLING DATA message** will be displayed before saving, perhaps for several minutes. This happens because the ASR-10 must manage the Audio Track data that is stored with the SONG + ALL SEQS (Project) file. The more AudioSamples you have recorded, the longer it will take.

7. If the SONG + ALL SEQS file will be saving RAMTracks, the display will usually ask:



8. Press **(ENTER•YES)**. The display shows SAVING <SONG NAME> while the song is being saved.

- If there is already a song file with the same name on the disk, the display will ask DELETE OLD VERSION? Press (ENTER-YES) to save the song, replacing the one on the disk. This is for updating songs to which you have made changes. Or press (CANCEL-NO) to abort the procedure.
- If there is not enough free space on the disk, the display will show:

```

          INST          SONG          STOP
          SEQ
INSERT DISK-HIT ENTER

```

At this point, press the Eject button on the disk drive, remove the disk, insert the next ASR-10 formatted disk into the drive, and press (ENTER-YES). You may need to repeat this step several times, depending on the size and amount of the RAMTracks.

9. When the SONG + ALL SEQS file is finished being saved, the display will show COMMAND COMPLETED, then return to the SAVE SONG + ALL SEQS command page.

About Saving the Bank

Use the SAVE BANK command to save the current Bank. Banks provide a way to load a whole group of Instruments, song and sequences, and Audio Track recording data into the ASR-10 with a few button presses. When you save a Bank to disk, it is like taking a “snapshot” of the contents of the ASR-10 internal memory. The Bank file stores the following information:

- Which Instrument files are loaded into each Instrument•Sequence Track location.
- Which SONG + ALL SEQS file is loaded into the internal memory. This includes all Audio Track recording data, and automatically prepares any Audio Tracks (Song or Sequence Audio Tracks) that would be played by the song.
- Up to eight discrete Performance Presets.
- The Bank Effect and its parameter settings.
- The Edit/(seq) Track MIX, PAN, OUT, and EFFECT MOD CONTROL setting for each Instrument•Sequence Track.

Saving the Bank:

1. Insert one of your own ASR-10 formatted disks (you should not save any of your own files to the Version 3 O.S. disk.)
2. Press (COMMAND), then (INSTRUMENT), and **use the Data Entry Controls** to select the SAVE BANK command.
3. Press (ENTER-YES). The display shows:

```

          INST          SONG          STOP
          SEQ
BANK NAME = BTRK TUT BNK

```

The display shows the current Bank name with a cursor (underline) beneath the first character. If you want to rename **the** Bank, **use the Data Entry Controls**.

If you are updating an existing bank, and you didn't rename the bank, pressing (ENTER-YES) will show the following screen:

```

          INST          SONG          STOP
          SEQ
DELETE OLD VERSION?

```

- Press **(ENTER-YES)**. The display shows SHUFFLING DATA, then COMMAND COMPLETED, and returns to the SAVE BANK command page.

Note: It's not necessary for the Instrument files and SONG + ALL SEQS file to be saved on the same disk as the Bank. Each file can be saved on separate disks, but make sure the disks are labeled with a unique disk label (see the WRITE DISK LABEL command found on the Command/System•MIDI page) so that the Bank knows which disk the files are saved on, and can locate the information properly.

You have just successfully recorded and saved a RAMTrack!

How Audio Track Recording Works

Think of an Audio Track as a giant sample that is triggered by the sequencer. The sample is referred to as an AudioSample, and the sequencer event that plays the sample is referred to as an Audio Trigger. The Audio Trigger event specifies which AudioSample will play. Each Audio Track can have multiple Audio Trigger events on it, one after the other, that will each trigger a different AudioSample. However, each Audio Track can only trigger one AudioSample at a time.

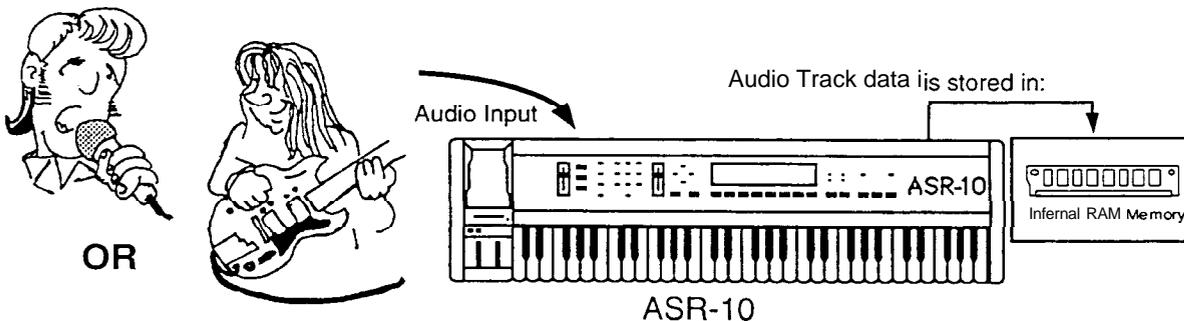
Differences between Audio Track recording and sampling

When recording an Audio Track, the ASR-10 automatically creates a trigger event for the data. With ordinary sampling you would have to:

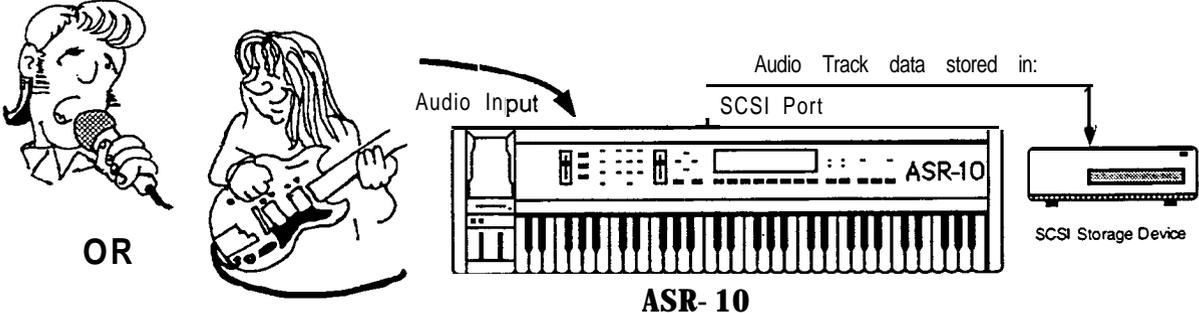
- create the sample as a WaveSample in an Instrument.
 - go into record on the sequencer, and
 - trigger the sample where you want it to play (by playing a key and holding the key down for the full length of the sample).
- The Audio Track audition mechanism greatly simplifies the process of recording a part, listening to it in context with a sequence, and re-recording the part if desired.
 - When you locate to a section of a sequence that contains audio data, the ASR-10 will play back all the data (sequence and audio) from that point onward, even if the Audio Trigger event started earlier. With a sample, you would not hear any audio playback if you located past the sequencer key event that triggered it.
 - The length of a DiskTrack is limited only by the size of your SCSI storage device, so you can create much longer audio recordings than when using sampling.
 - You can punch in/out with an AudioSample; you cannot with a WaveSample.

Methods of Recording Audio Tracks

RAMTracks — Record directly into internal memory. No additional hardware is required (16 Meg RAM is recommended — record up to three minutes mono @44.1 KHz, 4.5 minutes mono @29.76 KHz with 16 Meg RAM). RAMTrack data is stored entirely in the SONG + ALL SEQS file type.



DiskTracks — Record directly to a SCSI storage device (hard disk, removable media, etc.) via the SCSI Interface (*SP-3 option required for the keyboard version ASR-10*). DiskTracks will work on a standard ASR-10, although expanded RAM is recommended. Recording time is limited only by the size of the SCSI storage device (as a general rule, 10 Meg = about one minute of stereo recording @44.1 KHz).



For more information about using SCSI with your ASR-10, including optional connector setups, refer to the section about the SP-3 SCSI Interface.

Audio Track Polyphony

Each Audio Track can use up to two voices of polyphony: Source monitoring requires one voice, and playback requires another voice. You can recover two of these voices, turn the source monitor off (red Source-Monitor LED unlit), and/or mute Audio Track playback on the Edit/(audio) Track, ATRK PLAYBK STATUS page.

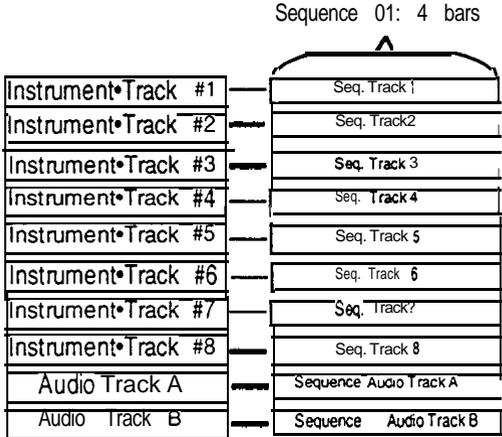
Types of Audio Tracks

The ASR-10 can record and play back two different types of Audio Tracks: sequence audio tracks or song audio tracks.

Sequence Audio Tracks

An ASR-10 sequence is a collection of eight independent Instrument tracks and their associated notes and controller data. Each sequence has its own pair of Audio Tracks, containing audio trigger events that trigger a collection of AudioSamples from RAM or SCSI.

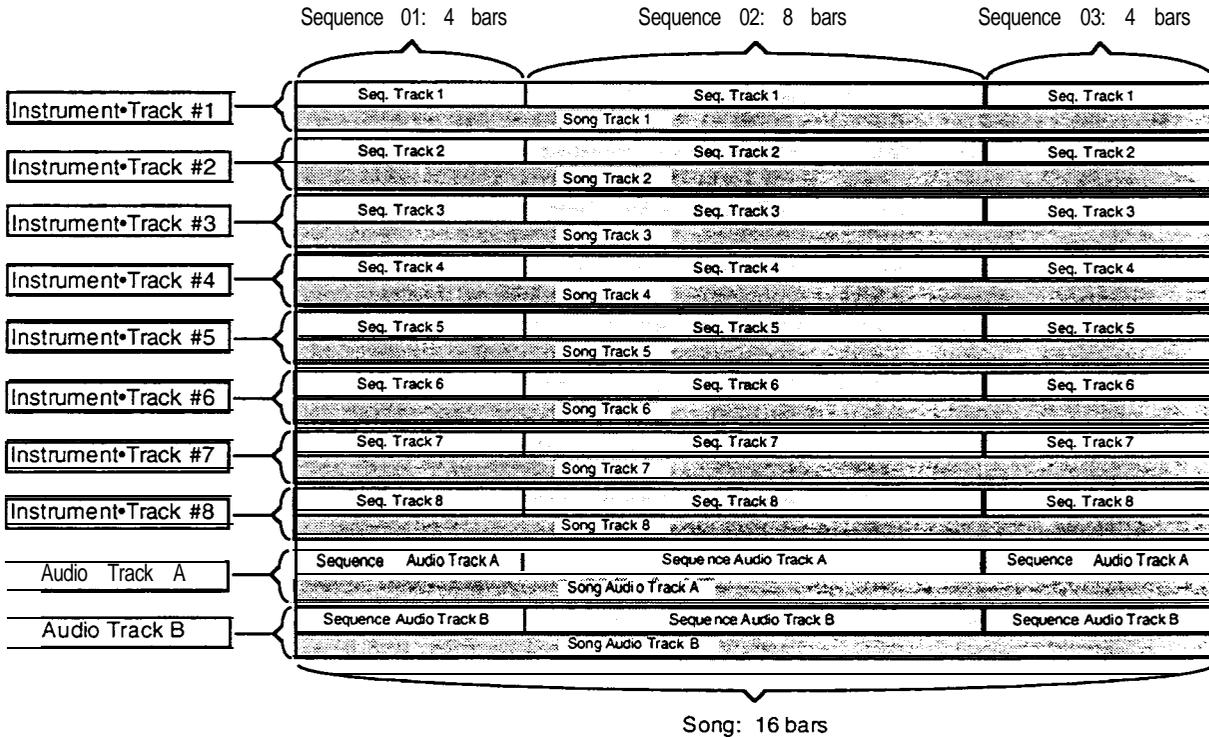
Sequence Audio Tracks would look like this:



Song Audio Tracks

An ASR-10 song is a group of sequences that have been chained together. Like sequences, the Song has its own pair of Audio Tracks that span the entire length of the song. When the Song is selected, and an Audio Track is selected, entering Record will record on a Song Audio Track (subject to the resetting of the SET SONG ATRK PLAYBACK command, explained later in this manual).

Continuing with the previous example, Song Audio Tracks might look like this:



Note: In Song mode, the Audio Tracks will play either both of its Song Audio Tracks, both of its Sequence Audio Tracks, or one of each. It can never play all four at once.

Song Audio Tracks have the added bonus of recording AUDIO-MIX and AUDIO-PAN information that will affect the playback of the Audio Tracks for full mixdown capabilities. The Command/(audio) Track, FILTER AUDIO EVENTS command can be used to remove AUDIO-MIX and AUDIO-PAN events without removing the Audio Trigger events. See later in this document for a description of the Command/(audio) Track commands.

The ASR-10 can play a maximum of two Audio Tracks at one time. Since the Song contains two song-length Audio Tracks, and the Song plays sequences that also have their own associated Audio Tracks, you must decide which pair of Audio Tracks you want to play. Use the Command/Seq•Song, SET SONG ATRK PLAYBACK command to do this (also explained later in this manual).

Important: All sequences used within a song must have the same Tempo and Time Signature in order to record Song Audio Tracks.

All About Memory

Whether you are configured for RAMTracks or DiskTracks will determine how much memory you have for recording and playing back Audio Tracks:

RAMTracks (Audio recorded into RAM)

RAMTracks are the simplest type of Audio Track Recording. However, even with the ASR-10 memory fully expanded (16 meg), RAMTracks do not offer as much recording time as DiskTracks.

Internal RAM Memory and SIMMs

The internal RAM memory is shared by Instruments, sequences, and AudioSamples, and is distributed *dynamically*. This means that the more sounds and sequences you have in memory, the less AudioSample memory you have. This is why we recommend expanding the memory if you plan to do a lot of RAMTrack recording. The ASR-10 can address up to 16 Megabytes/8 Megawords using industry standard SIMMs. For further information about SIMMs, refer to the ASR-10 Musician's Manual.

DiskTracks (Audio recorded to a SCSI storage device)

DiskTracks allow a longer recording time than RAMTracks, but require you to configure the ASR-10 to recognize the SCSI storage device (how to configure the ASR-10 for DiskTracks will be explained later). Because some internal (RAM) memory is required as a buffer, we recommend expanding the ASR-10 memory to at least 4 Megabytes for improved performance.

Note: DiskTrack performance is dependent on the speed of the SCSI storage device and the extent of data fragmentation on the disk (see below).

Memory Fragmentation

If you think of memory — either internal RAM or the space on a SCSI storage device — as a large jigsaw puzzle, fragmentation can be thought of as missing pieces. Fragmentation occurs when gaps in memory are left unused with data recorded on either side of the gaps. This can happen as a result of erasing a file, and then saving a different file in its place. If the new file is larger or smaller than the file that was erased, a gap in memory will remain. Fragmentation will adversely affect the performance of any memory-based system, causing it to take longer to find each file.

The ASR-10 prevents fragmentation in its internal RAM by SHUFFLING DATA each time data is added to or erased from memory. SCSI storage devices are unable to shuffle their data, and as a result are prone to fragmentation. This fragmentation will affect DiskTrack performance. To improve performance on a SCSI Storage Device and prevent fragmentation, start with a clean disk, and don't save Instrument files to the same SCSI Storage Device that you plan to use for recording Audio Tracks.

Memory-to-Recording Time — Conversion Table

The following table summarizes recording time for different memory capacities:

Memory/Disk Space		Recording Time (minutes)			
		44.1 KHz		29.76 KHz	
Megabytes	Blocks (approx.)	Mono	Stereo	Mono	Stereo
10	19,000	2	1	3	1.5
44	85,000	8	4	12	6
105	205,000	20	10	29	14.5
150	292,000	28	14	41	20.5
300	585,000	56	28	83	41.5

RAM Buffers

A RAM buffer is a temporary holding area in the ASR-10's internal memory. Information that is to be transferred to an external SCSI storage device is stored in this area. A large RAM buffer can help the ASR-10 process greater amounts of information at one time, resulting in fewer transfers to the SCSI storage device (which generally means a cleaner, smoother transfer of information).

Because of this, we recommend setting the SCSI BUFFER size to the largest amount available on your ASR-10. The SCSI BUFFER size is set with the Command/System•MIDI, CONFIGURE AUDIO TRACKS command (see later).

Preparing to Record Audio Tracks

There are four things that you must do before recording Audio Tracks in the ASR-10:

1.	Select the sample rate
2.	Configure the Audio Tracks
3.	Choose a Record Source
4.	Prepare the Audio Tracks

The following sections contain rules and steps that must be followed prior to recording.

Step One: Selecting the System Sample Rate

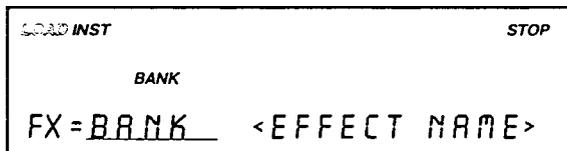
1.	Select the sample rate
2.	Configure the Audio Tracks
3.	Choose a Record Source
4.	Prepare the Audio Tracks

(Select 30 or 44.1 KHz effects for use)

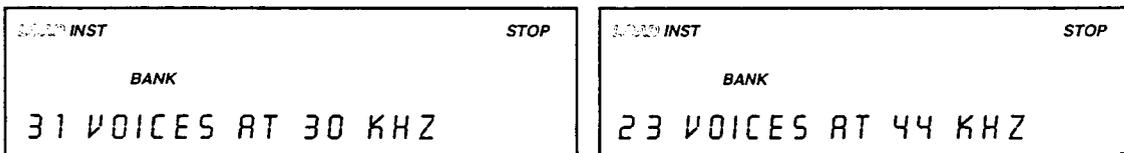
The sample rate of the current effect algorithm on the FX Select•FX Bypass page determines the sample rate at which AudioSamples will be recorded.

To Select the Sample Rate

1. Press the [FX SELECT-FX BYPASS] button. The display shows:



2. Press the (a) button. The display now shows the sample rate for the selected effect:



3. Press the [▶] button to return to the effect select display.

Important: If you plan to use the Digital I/O Output, make sure that a 44.1 KHz effect is selected.

Selecting an effect that uses a different sample rate than the rate at which previously recorded AudioSamples were recorded will change the pitch of this material during playback. For this reason, we strongly recommend choosing one sample rate for the duration of an Audio Track recording Project (SONG + ALL SEQs file).

When recording Audio Tracks, we do not recommend setting FX=INST on the FX Select•FX Bypass page. Ideally, set FX= BANK. This will prevent Instrument selection from inadvertently changing the system sample rate, and will ensure that the correct effect is saved when you save the Bank.

For a complete list and descriptions of the 44.1 KHz effect algorithms found on the OS. disk, see the section titled “44 KHz Effect Descriptions and Variations.”

Step Two: Configuring Audio Tracks for RAMTrack or DiskTrack Recording

1.	Select the sample rate
2.	Configure the Audio Tracks
3.	Choose a Record Source
4.	Prepare the Audio Tracks

These procedures configure the Audio Tracks for either RAM or SCSI recording and playback, or completely disable Audio Track recording and playback.

How to Configure the ASR-10 for RAMTrack recording:

1. Press **(COMMAND)**, then **(SYSTEM-MIDI)**, and use the **Data Entry Controls** to select the **CONFIGURE AUDIO TRACKS** command:



2. On this page, press **(ENTER-YES)**. The display shows:



3. Use the **Data Entry Controls** to set **ATRK PLAY /REC=RAM** (the default setting). When **ATRK PLAY /REC=RAM**, entering record with an Audio Track solidly selected will record AudioSamples into RAM on the solidly selected Audio Track. This is the default setting for the **CONFIGURE AUDIO TRACKS** Command.
4. Press **(ENTER-YES)** again. The display will momentarily show **COMMAND COMPLETED**, and you will be returned to the **CONFIGURE AUDIO TRACKS** command page.

How to configure the ASR-10 for DiskTrack recording:

1. Make sure that the ASR-10 and the SCSI storage device are both powered down, then connect the external SCSI storage device to the SCSI Connector on the rear panel of the ASR-10 as shown in the SCSI connection diagram earlier. For more information about using SCSI with your ASR-10, refer to the section about the SP-3 SCSI Interface.
2. Turn on the ASR-10 and the SCSI storage device.
3. Press **(COMMAND)**, then **(SYSTEM-MIDI)**, and use the **Data Entry Controls** to select the **CONFIGURE AUDIO TRACKS** command:



4. On this page, press the **(ENTER-YES)** button, and set **ATRK PLAY/REC=SCSI**:



5. With the above screen set to **ATRK PLAY/REC=SCSI**, pressing **(ENTER-YES)** will display the

following:

```

          SYSTEM                               STOP
REC
SCSI BUFFERS = 1166 BLKS

```

6. On this screen, you can select a size for the SCSI BUFFERS (a temporary holding area in the ASR-10's internal memory, where the ASR-10 stores information that is to be transferred to an external SCSI storage device). The SCSI Buffer (spooling size) is based on the amount of ASR-10 internal RAM memory that is currently available, and may be different than the amount shown in the illustration above. Larger numbers give you a greater safety margin for writing the data out to disk. We recommend using the largest buffer size that your system will support.
7. Press **(ENTER-YES)**, and select the SCSI ACCESS SPEED:

```

          SYSTEM                               STOP
REC
s c s i A C C E S S   S P E E D = 3

```

8. This defaults to 3, but can be increased or decreased (using the Data Entry Controls) to match the speed of your connected SCSI storage device. Note that setting the SCSI ACCESS SPEED too high can have an adverse effect on sequencer timing. We recommend starting with the default value of 3, and only increase the value if the SCSI ACCESS TOO SLOW message is displayed.
9. Press **(ENTER-YES)**, and select the REC SCSI DRIVE=xxxx:

```

          SYSTEM                               STOP
REC
R E C   S C S I   D R I V E = S C S I   0

```

10. Set this to the SCSI storage device ID number that you want to record on. This will automatically reset Command/System•MIDI, CHANGE STORAGE DEVICE to match the same SCSI ID number. Selecting REC SCSI DRIVE=NONE will allow playback *only* from the current SCSI storage device, and will disable Audio Track recording.
11. Press **(ENTER-YES)** again. The display shows:

```

          SYSTEM                               STOP
REC
R E C   F I L E = C U R R E N T   B L K S

```

This creates or resizes the Temporary Record Files, and defines the largest size that the AudioSample can be when recorded to the SCSI storage device.

12. Press **(ENTER-YES)** again.

The ASR-10 will now prepare the SCSI storage device for recording DiskTracks. The display will show PREPARING SCSI DEVICE (if it needs to access the SCSI device for anything), followed by COMMAND COMPLETED, and then you will be returned to the CONFIGURE AUDIO TRACKS command page.

Note: RAM AudioSamples can still be played back along with SCSI AudioSamples when ATRK PLAY/REC=SCSI.

Understanding Temporary Record Files (REC FILE)

Temporary Record files are the area on the selected REC SCSI DRIVE that SCSI AudioSamples will be recorded into. They are stored in file 38, a directory called AUDIO TRACKS, on the selected REC SCSI DRIVE. This directory is created when you configure Audio Tracks for ATRK PLAY /REC=SCSI. The two Temporary Record Files are named TEMPORARY000 and TEMPORARY001, for Audio Tracks A and B respectively, and appear as Instrument files under Load/Instrument when you are in the AUDIO TRACKS directory. REC FILE=CURRENT BLKS uses any available space within the current Temporary Record File on the selected SCSI REC DRIVE. If the Temporary file has a size of 0 Blocks or does not exist, you will get a NOT ENOUGH DISK SPACE error message (i.e., there's not enough disk space in the Temporary Record File). The ASR-10 will be reconfigured for REC SCSI DRIVE=NONE. Note that you can always create new Temporary files by reconfiguring (provided that you have enough disk space left on your SCSI storage device).

Temporary Record Files are dedicated; one for Audio Track A, and the other for Audio Track B. For example, if you configure for REC FILE=30000 BLKS, you can record 15000 Blocks on Audio Track A, and 15000 Blocks on Audio Track B (15000 Blocks mono on each of A and B, or 15000 Blocks stereo on both A and B simultaneously, but not 30000 mono on either A or B).

Note: Stereo Audio Track recording time is limited by the size of the smaller of the two Temporary Record Files. If you have done some mono recording, and then enter Stereo recording, you may get a NOT ENOUGH DISK SPACE message. We suggest reconfiguring with a REC FILE size other than CURRENT or NONE to make more room.

Resizing Temporary Record Files to Zero Blocks

Resizing Temporary Record Files to zero blocks can free up disk space on your connected SCSI storage device. You must first configure with REC SCSI DRIVE set to the Device ID for the SCSI storage device that contains the Temporary Record Files, and then reconfigure for REC SCSI DRIVE=NONE. If you configure for REC SCSI DRIVE=NONE without currently being configured for a SCSI # (for example, first thing after power-up), the Temporary Record Files will not be resized because the ASR-10 doesn't recognize which SCSI ID # they reside on.

Deleting Temporary Record Files

You can delete the Temporary Record files manually just like any other disk file:

1. Press (LOAD), then (SYSTEM•MIDI).
2. Enter the file 38 AUDIO TRACKS directory by pressing (ENTER-YES). This is where all DiskTrack AudioSamples reside.
3. Press (LOAD), then (INSTRUMENT).
4. Select the ASMPL—##### files that you want to delete using the Data Entry Controls.
5. Press (CANCEL- NO) while holding down the (LOAD) button.

Auditioning DiskTracks

When auditioning a DiskTrack recording, you cannot switch between OLD and NEW on the Audition page while the sequencer is in play. This is because the sequencer must be stopped to properly prepare DiskTracks. The STOP SEQUENCER FIRST error message will be displayed if you try. You must first press (STOP•CONTINUE), select OLD or NEW, and then press PLAY.

About Syncing Audio Tracks to MIDI Clocks

When recording or playing back Audio Tracks, we highly recommend the Edit/Seq•Song, CLOCK SOURCE=INTERNAL (i.e., not slaved to an external MIDI clock). This is because the external MIDI clock may not have a consistent tempo, and the Audio Track playback could drift out of sync with the sequence tracks. When you configure Audio Tracks for DiskTracks (ATRK PLAY/REC=SCSI), the ASR-10 automatically sets the sequencer CLOCK SOURCE parameter to be INTERNAL. Then, as long as you have Audio Tracks configured for SCSI, you cannot change the CLOCK SOURCE parameter. Whenever the Audio Tracks are reconfigured for RAM or OFF, the CLOCK SOURCE parameter can be changed.

When Does the System Automatically Reconfigure for RAMTracks?

When the system boots up, it is configured for RAMTrack recording by default. Once it is configured for SCSI, there are several ways it can be reconfigured back to RAM. One way is to run the CONFIGURE AUDIO TRACKS command and set it manually. There are times when the ASR-10 automatically reconfigures for RAMTracks (in order to free up memory that is being used by the SCSI Buffers). This happens when you enter Sampling, BACKUP/RESTORE, DAT BACKUP/RESTORE, COPY FLOPPY DISK, COPY SCSI DRIVE, or use the MIDI SYSEX RECORDER. In all these cases, the ASR-10 needs the maximum RAM memory that's available, and that means releasing the SCSI buffers. Most of these actions (except entering sampling) will prompt you with "MUST ERASE MEMORY-OK?" before continuing.

Resampling Audio Track Playback

If you are configured for ATRK PLAY/REC=SCSI, and you enter sampling (i.e., get to the VU page), the ASR-10 automatically reconfigures ATRK PLAY/REC=RAM. This eliminates the SCSI BUFFERS in RAM, allowing for the maximum amount of sample RAM. This also prevents sampling of DiskTrack playback, but DiskTrack data is usually too large to fit into sample RAM anyway. You can still sample RAMTrack playback.

Tip: Resampling RAMTrack playback (with Sample•Source Select, REC SRC=MAIN-OUT) allows you to convert part or all of a RAMTrack into a WaveSample, through effects if desired. By performing this, you will be able to process the RAMTrack AudioSample data with the WaveSample commands. You can then truncate, normalize, loop, reverse, pitch correct, etc., and then either sequence with the new WaveSample(or m-record them back to Audio Tracks with REC SRC=MAIN-OUT. The sky's the limit!

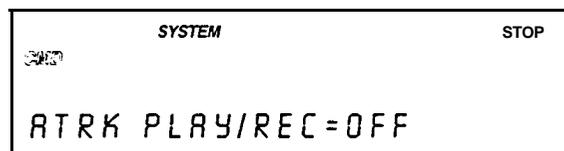
Tip: Resample RAM Track playback for one-finger triggering of an entire stereo Audio Track mix. If you then play the original sequence, and play the key that triggers the sample of the sequence at the same time, you can create a chorusing/flanging effect. To set the chorus/flange delay time, move the pitch wheel slightly up or down while holding down the key to get ahead of or behind the sequence playback; when you find the proper relationship, let go of the pitch wheel, and the chorus/flange effect will remain.

How to disable Audio Track recording and playback

1. Press (COMMAND), then (SYSTEM•MIDI), and use the Data Entry Controls to select the CONFIGURE AUDIO TRACKS command:



2. On this page, press the (ENTER-YES) button, and use the button to set ATRK PLAY/REC=OFF:



When ATRK PLAY/REC=OFF, entering record with an Audio Track solidly selected will record on the flashing selected Instrument•Sequence Track, not the solidly selected Audio Track. If no Instrument•Sequence Tracks are selected when Record is entered, the last selected Instrument•Sequence Track will automatically become flashing-selected.

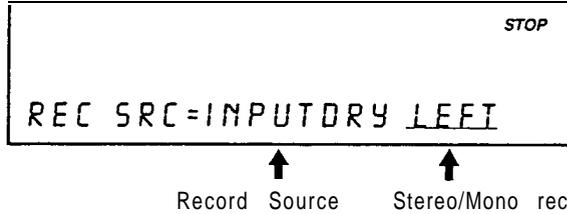
3. Pressing (ENTER-YES) from the above screen will execute the command.

Step Three: Choosing a Record Source

1.	Select the sample rate
2.	Configure the Audio Tracks
3.	Choose a Record Source
4.	Prepare the Audio Tracks

To Choose a Record Source:

- Press the (SAMPLE-SOURCE SELECT) button. The display shows:



This page determines the Record Source and Stereo/Mono Record mode for Audio Track recording:

When REC SRC=	Entering Record will:
INPUTDRY	Record audio from the Audio Inputs dry, while monitoring the Audio Inputs through the Edit/(audio) Track, OUT Bus.
INPUT+FX	Record and monitor audio from the Audio Inputs wet through BUS1 , while monitoring all other ASR-generated Audio dry .
MAIN-OUT	Record any ASR-10 voices that are routed to BUS1/2/3 . This includes any sequence tracks that are playing local ASR-10 Instruments, and any notes played on the keyboard or received via MIDI that play local ASR-10 Instruments. Audio Track playback can itself be re-recorded according to the bounce-down rules described later.
DIGITAL	Record audio from the Digital Input. For more information about using this record source, refer to the section about the DI-10 Digital I/O Interface.

1 or 2 Inputs?

The REC SRC Field 2 values determine whether the Audio Tracks will be mono or stereo:

When:	Then:
LEFT	The left channel of the REC SRC will be selected for Sampling & Audio Track recording (MONO).
RIGHT	The right channel of the REC SRC will be selected for Sampling & Audio Track recording (MONO).
L+R	Both the left and right channels of the REC SRC will be selected for Sampling and Audio Track recording (simultaneously in STEREO). Stereo Audio Track recording will create two separate AudioSamples; one for the left, and one for the right.

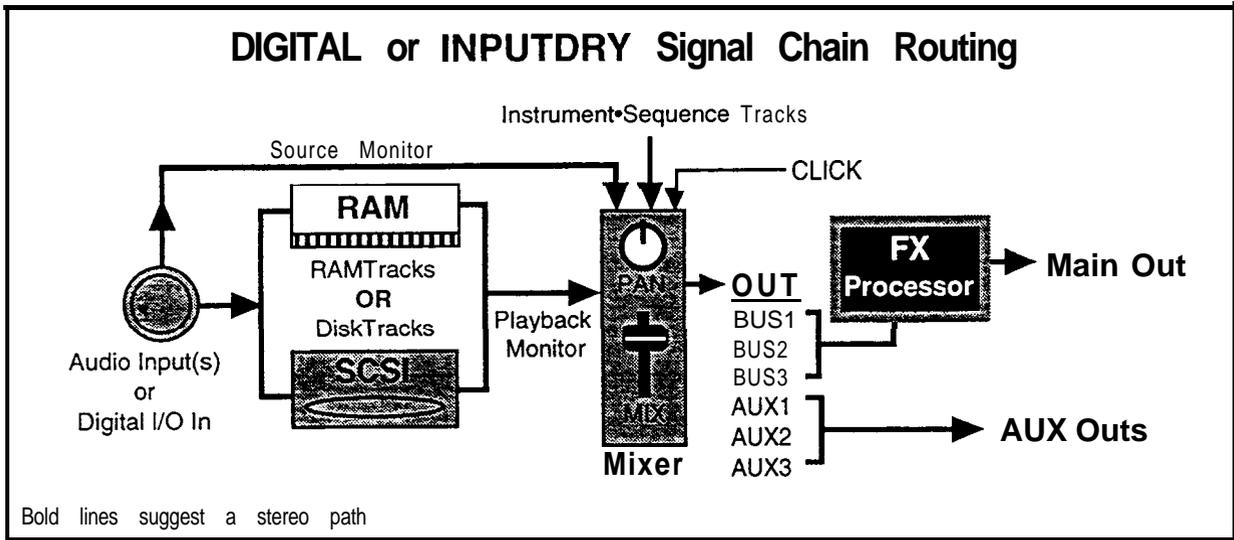
Note: When using REC SRC=INPUT+FX and recording a mono source (e.g., a guitar or a single mic) in stereo, through a stereo effect like reverb, you should use a “Y” cable into both Audio Inputs. Otherwise the signal will only appear on one side of the stereo image.

Using the Audio Track Buttons to Select and Monitor Audio Tracks

Pressing the (AUDIO TRACK) buttons will also change the REC SRC Field 2 value to reflect the current combination of selected Audio Tracks. For instance, if you press (AUDIO TRACK A), the REC SRC Field 2 value changes to LEFT. If you press (AUDIO TRACK B), the REC SRC Field 2 value changes to RIGHT. If you press (AUDIO TRACK A) and while holding it down press (AUDIO TRACK B), the REC SRC Field 2 value changes to L+R. When both Audio Tracks are selected (both yellow LEDs lit), holding one (AUDIO TRACK) button and pressing the other one will change the REC SRC Field 2 value to LEFT. Both Audio Tracks will become Source Monitor disabled (no red LEDs lit).

For more information about Audio Tracks, see Section 12 & 13 of the Musician’s Manual.

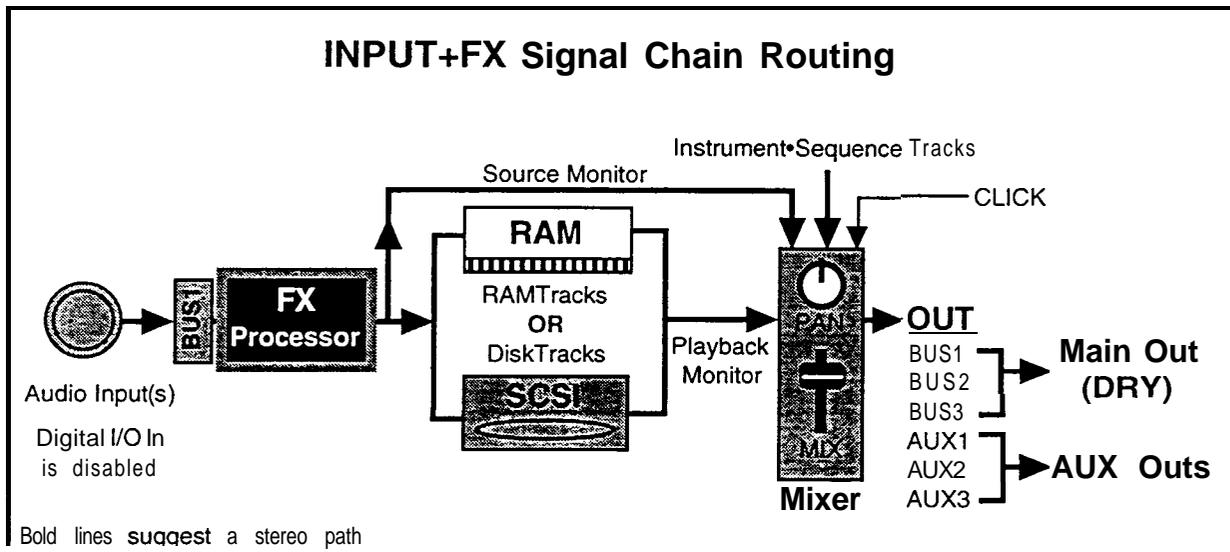
The following diagrams explain the signal chain routing for the four different Record Sources.



About the INPUT DRY and DIGITAL Signal Chain Routing

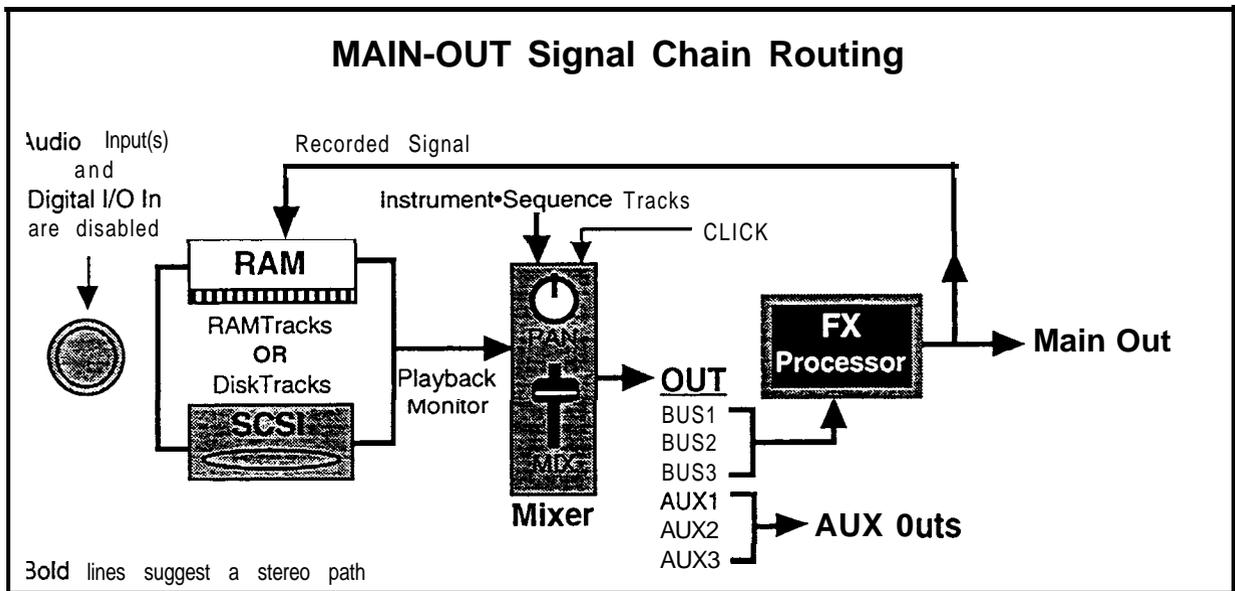
Audio Tracks can be thought of as a two-track recording studio with tape-monitor mix (but not source-mix) capabilities — the Input source goes directly to “tape” before the “mixer” but is always monitored through the mixer.

The Audio Input or Digital I/O In is recorded directly to RAMTracks or DiskTracks, before the mixer. The mixer monitors both the Input source and the output of the RAMTracks or DiskTracks. The FX Processor follows the mixer, for monitoring both the source and the playback wet.



About the INPUT+FX Signal Chain Routing

In this routing, the FX Processor is moved between the Audio Input (Digital I/O In is disabled) and the RAMTracks or DiskTracks. The RAMTracks or DiskTracks record the direct output of the FX Processor, and the Mixer monitors the output of the FX Processor (source). The Mixer also monitors the output of the RAMTracks or DiskTracks, and will playback dry (without additional processing). The Audio Input is hard-wired directly to BUS1. The FX Processor is not available for processing Instrument•Sequence Tracks, the Click track, or RAMTrack or DiskTrack playback. If the Edit/(audio) Track, OUT value is set to BUS1/2/3, the display will show "OUT=DRY—FX BUS IN USE," because the effects unit is not available on the "effects loop" from the mixer. AUX1/2/3 are still available, as usual. The Edit/(seq) Track, OUT and Edit/Amp, OUT parameters will also show "OUT=DRY—FX BUS IN USE" for any Tracks/WaveSamples that are routed to BUS1/2/3.



About the MAIN-OUT Signal Chain Routing (for Bounce-down)

The ASR-10 becomes a two-track re-mix studio with source-mix capabilities.

In this routing, the Audio Inputs and Digital I/O In are disabled. The Audio Track Source-Monitor LEDs remain off at all times. Any ASR-generated audio signal that is routed to BUS1/2/3 will be recorded. The FX Processor follows the Mixer, so you will be recording the output of the FX Processor. The output of the FX Processor is monitored out the Main Outs.

Tip: When Sample•Source Select, REC SRC=MAIN-OUT, and Edit/Seq•Song, CLICK=REC, the click will be muted to prevent it from being recorded. You can set it to ON and route it to AUX1/2/3 if you want to hear it without recording it.

Step Four: Preparing Audio Tracks

1.	Select the sample rate
2.	Configure the Audio Tracks
3.	Choose a Record Source
4.	Prepare the Audio Tracks

Audio Tracks that contain data must be prepared before recording or playback. Preparing Audio Tracks involves cueing up the first AudioSample for each Audio Track.

Preparing the Audio Tracks for recording and playback:

If the sequencer is stopped, selecting a sequence or song that has data recorded on its Audio Tracks will not automatically prepare the Audio Tracks for playback. This happens because preparing the Audio Tracks for playback requires some set-up time to cue up the first AudioSample for each Audio Track. The **SEQ** indicator light will flash on all Seq•Song mode screens (indicating that the current Sequence/Song has data recorded on its Audio Tracks) until the Audio Tracks are prepared.

```

                               STOP
                               SEQ
                               SEQ
                               SEQ-SONGNAME BAR=###.##

```

- After selecting a new sequence, you must either press (ENTER-YES) (when the sequence/song name is underlined), *or* press an unselected (AUDIO TRACK) button, to prepare the Audio Tracks. Each time a new Sequence/Song is selected, any currently selected Audio Tracks will be automatically de-selected as a handy reminder.
- After selecting a Sequence/Song that has data recorded on its Audio Tracks, pressing (PLAY) without either pressing (ENTER-YES) or selecting an Audio Track will play the sequence tracks *without* playing the Audio Tracks. You must first press (STOP•CONTINUE), and then press (ENTER-YES), or select an unselected Audio Track, in order to prepare the Audio Tracks and be able to play them.
- If the sequencer is stopped, pressing (ENTER-YES) (only when the sequence/song name is underlined) or selecting an unselected Audio Track will cue up the Audio Tracks (if necessary).

Whenever the first AudioSample for each Audio Track is being cued up for playback (after pressing (ENTER-YES) on the Sequence Selection page, after selecting an Audio Track, or after executing various sequencer commands), the display will flash the following message and return to the last screen displayed:

```

                               STOP
                               SEQ
                               SEQ
                               PREPARING AUDIO TRACKS

```

After Audio Tracks are prepared, the current stopped location will be reset back to the start of the sequence or song.

How to Prepare Song Audio Tracks:

The ASR-10 can playback two Audio Tracks at one time. Since the song can contain data on its own pair of Audio Tracks, and the sequences that make up the song can also contain data on their Audio Tracks, you must decide which pair you want to play and whether or not you want to record Song Audio Tracks. Before you begin, make sure that you have the song selected on the Edit/Seq•Song, Sequence Selection page. Then:

1. On the Command/Seq•Song, SET SONG ATRK PLAYBACK page, press the **(ENTER•YES)** button.
2. On this sub-page you will set the PLAY value:

IF:	THEN:
PLAY=SEQ ATRKS ONLY	You will be preparing to play back both sequence Audio Tracks only, and to disallow Song Audio Track recording and playback.
PLAY=SONG-A + SEQ-B	You will be preparing to record and play back one Song Audio Track using Audio Track A, and to play back the data on Audio Track B in the sequences that make up the song. You will be unable to record or play back from Song Audio Track B.
PLAY=SEQ-A + SONG-B	You will be preparing to record and play back one Song Audio Track using Audio Track B, and to play back the data on Audio Track A in the sequences that make up the song. You will be unable to record or play back from Song Audio Track A.
PLAY=SONG ATRKS ONLY	You will be preparing to record and play back both Song Audio Tracks only, and to ignore any data recorded on both Audio Tracks in the sequences that make up the song.

3. Select the proper PLAY setting for your Audio Track recording using the Data Entry Controls, and press **(ENTER•YES)**. The display will momentarily show COMMAND COMPLETED, and you will be returned to the SET SONG ATRK PLAYBACK command page.

A Note About Preparing Song Audio Tracks

When the Song is selected, the SEQ indicator light will always flash, whether or not the Song contains data on either the Song Audio Tracks or any of the Sequence Audio Tracks in the Sequences that make up the Song. This is done to ensure that you prepare the Audio Tracks before attempting to record Song Audio Tracks, and so that the ASR-10 can check the sequences that make up the Song to ensure that they all use the same Tempo and Time Signature.

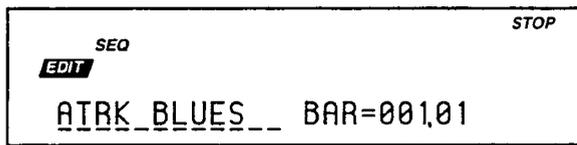
Audio Tracks in “Chain Play”

When using the “Chain Play” function to manually cue up a second sequence to play while one is already playing, the second sequence will play its sequence tracks fine, but will not play its Audio Tracks. This is due to the lack of necessary set-up time required to prepare the second Sequence’s AudioSample data. You must first press **(STOP•CONTINUE)** and then press **(ENTER•YES)** in order to prepare the Audio Tracks.

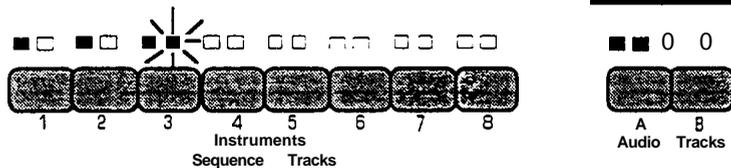
Principles of Audio Track Recording

Which Track is Selected?

The solidly selected (yellow LED lit) track is always the target for recording;



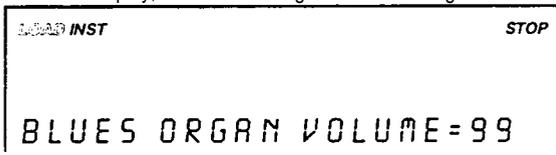
Note:
Although the rack-mount ASR-10 button and LED placement is different than the keyboard ASR-10, the functionality is identical.



If the Audio Track LED is solidly selected, and Instrument•Sequence track LED is flashing selected, you will be recording an Audio Track.

In LOAD mode, it is possible to have both an Audio Track and an Instrument solidly selected. If you were to enter record mode on the ASR-10, the name of track you see on the display is the one you are recording on:

If an Instrument•Sequence Track name is shown in the display, it is the target for recording:



If ATRK-A LEFT or ATRK-B RIGHT is shown in the display, it is the target for recording:



Tie the Jack to the Track

- If you are connected to the Audio Input A/Left jack (mono), you will be recording data to Audio Track A. You will not be recording any AudioSample data to Audio Track B.
- If you are connected to the Audio Input B/Right jack (mono), you will be recording data to Audio Track B. You will not be recording any AudioSample data to Audio Track A.
- If you are connected to both Audio Inputs (stereo), you will be recording two discrete AudioSamples using Audio Track A and Audio Track B.

Note: This does not imply that what is plugged into the jacks will determine which Audio Tracks will be selected for recording. Remember, your record source is selected on the Sample•Source Select page.

Recording the first AudioSample

When you enter record for the first time with an Audio Track selected, you are recording both an AudioSample (recorded audio data) and an Audio Trigger event that will trigger the recorded AudioSample data. The Audio Trigger event is recorded automatically at the point at which you enter record. For this example, imagine someone singing the alphabet:

Recording the first AudioSample on an Audio Track	
Existing (or new) sequence length:	*****
Audio Trigger event:	▼
AudioSample data:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
Note: The AudioSample data will play for its entirety when triggered by an Audio Trigger event (which is automatically recorded).	

Overdubbing

Overdubbing allows you to re-record all or part of an Audio Track.

Recording Over an Audio Track

If you record over an existing Audio Track, it replaces all previous AudioSample data.

Recording over an existing Audio Track	
Audio Trigger event:	▼
Original data of AudioSample 1:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
Audio Trigger event:	▼
Data that you punch-in (AudioSample 2):	abcdefghi jklmnopqrstuvwxyz
Note: AudioSample 1 is deleted. New AudioSample 2 is created.	

Punching In on an Audio Track

Suppose you have an Audio Track that is fine for the first four bars, but the next four bars need to be redone. You can “punch in” at any point in the Audio Track by doing the following:

1. Select the Audio Track(s) that you want to record on and prepare the Audio Tracks, as explained earlier.
2. Press (PLAY) to start the sequence.
3. At the point that you want to start the “punch-in,” press **(RECORD)**.
As soon as you press **(RECORD)**, the ASR-10 will start recording, leaving intact the part of the Audio Track before the punch-in.
4. Press **(STOP-CONTINUE)**, or let the sequence/song end. You will see the Audition page, letting you play the new or the old Audio Track before deciding which to keep.

General Punch-In & Out Rules

- An AudioSample that is playing at the time of punch-in will have its data changed.
- A new AudioSample recorded during the Playback of an existing AudioSample will be “amalgamated” into the existing AudioSample, if the existing AudioSample was triggered before the punch-in occurred.
- When you KEEP=NEW on the Audition page, a 10 msec cross-fade time is imposed on the splice points at which the AudioSamples are amalgamated (there are no cross-fades in Audition).
- If an AudioSample is triggered to play *during* punch-in, the AudioSample will be deleted.

- If an AudioSample is changed or deleted as the result of a punch-in, any Audio Trigger Events after the punch-out point that trigger any of the changed or deleted AudioSamples will be silenced during Audition.
 - See the punch-in examples below for more details.
- ☞ **Note about Auditioning DiskTracks:** If punching in on an existing AudioSample, the Audition playback requires much more disk activity than what it would after a KEEP=NEW. (This is because selecting KEEP=NEW converts the two separate AudioSamples into one AudioSample, eliminating disk fragmentation if possible.) Therefore, you are more likely to experience missed audio playback during Audition.

Amalgamation

Amalgamation is the way the ASR-10 automatically tries to unite all punched-in AudioSamples into one AudioSample, which helps to avoid disk fragmentation.

Amalgamation of SCSI-based AudioSamples may require free disk space to build the amalgamated AudioSample. This means that you might encounter a scenario wherein there is enough room on disk to record, but not enough room to amalgamate. In this case, keeping NEW after a punch-in will keep the NEW AudioSample without amalgamating it.

Punch-In Cases for Audio Track Overdubbing

Examples 1-5 describe the most common punch-in situations:

PUNCH-IN TABLE	
In the following examples:	
Audio Trigger event:	▼
Original data of AudioSample 1:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
Audio Trigger event:	▼
Data that you punch-in (AudioSample 2):	abcdefghijklmnopqrstuvwxyz

PUNCH-IN Example 1:	
(Punch-in and out occur during AudioSample 1)	
Audio Trigger event:	▼
Original data of AudioSample 1:	ABCDEFGHIJKLMNOPQRSTUVWXYZ
Data that you punch-in (AudioSample 2):	. . . . . abcdef
What you audition:	ABCDEFGHIJabcdefQRSTUVWXYZ
Audio Trigger event:	▼
What you keep:	ABCDEFGHIJabcdefQRSTUVWXYZ
Note: AudioSample 1 data has changed. It is the same size.	

PUNCH-IN Example 2: (Punch-in before AudioSample 1, punch-out after AudioSample 1)	
Audio Trigger event:	▼
Original data of AudioSample 1:	.....ABCDEFGHIJKLMN.....
Data that you punch-in (AudioSample 2):	abcdefghijklmnopqrstuvwxyz
What you audition:	abcdefghijklmnopqrstuvwxyz
Audio Trigger event:	▼
What you keep:	abcdefghijklmnopqrstuvwxyz
Note: AudioSample 1 is deleted. New AudioSample 2 is created.	

PUNCH-IN Example 3: (Punch-m during AudioSample 1, punch-out after AudioSample 1)	
Audio Trigger event:	▼
Original data of AudioSample 1:	ABCDEFGHIJKLMNOPQRSTWWXYZ
Data that you punch-in (AudioSample 2):	.....abcdefghijklmnop
What you audition:	ABCDEFGHIJKLMNOPQRSTUvwXabcdefghijklmnop
Audio Trigger event:	▼
What you keep:	ABCDEFGHIJKLMNOPQRSTUvwXabcdefghijklmnop
Note: AudioSample 1 data has changed. It is also bigger.	

PUNCH-IN Example 4: (Punch-m before AudioSample 1, punch-out during AudioSample 1)	
Audio Trigger event:	▼
Original data of AudioSample 1:	.....ABCDEFGHIJKLMNOPQRSTWWXYZ
Data that you punch-in (AudioSample 2):	abcdefghijklmnop
What you audition:	abcdefghijklmnopFGHIJKLMNOPQRSTUvwXYZ
Audio Trigger event:	▼
What you keep:	abcdefghijklmnopFGHIJKLMNOPQRSTUvwXYZ
Note: AudioSample 1 is deleted. New AudioSample 2 is created. AudioSample 2 contains some of the data that was in AudioSample 1.	

PUNCH-IN Example 5: (Punch-in over multiple AudioSamples)	
Audio Trigger event:	▼
Original data of AudioSample 1:	ABCDEFGHIJKL.....
Audio Trigger event:	▼
Original data of AudioSample 2:	..... MNOP
Audio Trigger event:	▼
Original data of AudioSample 3:	..... QRSTUVWXYZ
Data that you punch-in (AudioSample 4):	.... abcdefghijklmnopqrstuv....
What you audition:	ABCDabcde fghijklmnopqrstuvWXYZ
Audio Trigger event:	▼
What you keep:	ABCDabcde fghijklmnopqrstuvWXYZ
Note: AudioSample 1 data has changed. AudioSample 2 is deleted. AudioSample 3 is deleted. Some of AudioSample 3's data is now part of AudioSample 1.	

More complex examples follow. Note that in these examples, the Audio Track being recorded on contains multiple Audio Trigger Events that point to the same AudioSample data. These situations only occur when you have used some Sequence or Track Commands (COPY SEQUENCE, APPEND SEQUENCE, COPY AUDIO TRACK, etc.), and then have punched in over these AudioSamples. *We strongly suggest that you don't do this.*

Most sequence commands affect the Audio Triggers, but not the AudioSample data. Remember, the same AudioSample can be triggered by many different sequences as a result of using the COPY SEQUENCE or COPY AUDIO TRACK Commands. If you punch in on an AudioSample that is used elsewhere, it will be modified elsewhere as well.

In PUNCH-IN Examples 6-8:

In the following examples, some of the original AudioSample data (shown in capital letters) is triggered twice throughout the duration of the Audio Track. The data that you will be punching in (lower case letters) will overlap part of the original AudioSample data.

PUNCH-IN Example 6: (Punch-in changes AudioSample that is triggered by multiple Audio Trigger Events.)	
Audio Trigger event:	▼ ▼ ▼
What you have:	ABCDEFGHIJKL... MNOP.. ABCDEFGHIJKL
	..... abcdefghij.....
What you audition:	ABCDEFGabcde fghijOP.....
Audio Trigger event:	▼ ▼
What you keep:	ABCDEFGabcde fghijOP.. ABCDEFGabcde
Note: AudioSample 1 data has changed. AudioSample 1 has picked up the new data that were punched-in. AudioSample 1 has also picked up some data from AudioSample 2. AudioSample 2 is deleted. During audition, the ASR-10 <i>does not</i> play the second Audio Trigger of new AudioSample 1. After keeping NEW, the second Audio Trigger of AudioSample 1 plays the changed version.	

PUNCH-IN Example 7:	
(Punch-in changes AudioSample that is triggered by multiple Audio Trigger Events.)	
Audio Trigger event:	▼ ▼
What you have:	ABCDEF GHIJKL ABCDEF GHIJKL . .
	. . . . . abc
What you audition:	ABCDEF GabcKL
Audio Trigger event:	▼ ▼
What you keep:	ABCDEF GabcKL ABCDEF GabcKL . .
<p>Note: AudioSample 1 data has changed. During audition, the ASR-10 does <i>not</i> play the second Audio Trigger of new AudioSample 1. This example shows that if you correct a bad note in the middle of one AudioSample, then all Audio Trigger Events that trigger that AudioSample will pick up the correction. After keeping NEW, the second Audio Trigger of AudioSample 1 plays the changed version.</p>	

PUNCH-IN Example 8:	
(Punch-in changes AudioSample that is triggered by multiple Audio Trigger Events.)	
Audio Trigger event:	▼ ▼
What you have:	ABCDEF GHIJKL ABCDEF GHIJKL . .
	. . . . . abcdefghijklmno
What you audition:	ABCDEF Gabcdefghijklmno
Audio Trigger event:	▼
What you keep:	ABCDEF Gabcdefghijklmno
<p>Note: AudioSample 1 data has changed. During audition, the ASR-10 does <i>not</i> play the second Audio Trigger of new AudioSample 1. After keeping NEW, the second Audio Trigger of AudioSample 1 does <i>not</i> play the second Audio Trigger of new AudioSample 1.</p>	

Punching In on Copied Sequences

Recording Different Audio Tracks to Copied Sequences

If you copy a sequence that contains data recorded on its Audio Tracks, and you want to record a different version of the Audio Tracks into the copy, you must do the following in order to avoid recording over the AudioSamples that are triggered by the original sequence:

1. Copy the sequence using the **Command/Seq•Song**, COPY SEQUENCE Command.
2. Invoke **Command/(audio) Track**, ERASE AUDIO TRACK for Audio Tracks A and B, but make sure ERASE=ATRK EVENTS ONLY

This will erase the Audio Trigger events, but will leave the AudioSamples intact to be played back by the original sequence. You can now record new Audio Track data into the copy without affecting the original sequence.

Punching In on a Copied Audio Track without Affecting the Original

You can record a mono punch-in on a copied Audio Track without affecting the AudioSample data in the original Audio Track, by bouncing down (re-recording) the playback of one Audio Track to another Audio Track. Here's how:

1. Copy the sequence using the **Command/Seq•Song**, COPY SEQUENCE command. This will copy the sequence data and the Audio Trigger events only (and not duplicate the AudioSample data).

If the original sequence had data on both Audio Tracks, then the copied sequence triggers the same data as the original sequence in both of its Audio Tracks. In order to record in the copy without affecting the original, you must erase the Audio Trigger events in the copy.

2. Erase all trigger events from one Audio Track in the copied sequence by using the **Command/(audio) Track**, ERASE AUDIO TRACK command. Make sure ERASE=ATRK EVENTS ONLY. This will erase the Audio Trigger **events**, leaving the AudioSample data intact (hence not affecting the playback of the original sequence). *Be sure to erase the Audio Track that you don't want to punch in on.*
3. Bounce-down (with REC SRC=MAIN-OUT on the **Sample•Source Select** page, and **Edit/Seq•Song**, MUTE ATRKS IN REC=NO; see below) *from* the Audio Track that you want to punch-in on, *to* the one that you just erased. This will make a new AudioSample that you can then safely punch-in on without affecting the original sequence.

Bounce-Down

Bounce-down is the re-recording of the playback of existing tracks. You can bounce down two tracks into one, allowing for unlimited overdubbing – create stacked background vocals, doubled guitar parts, etc. A track can be bounced back to itself to add effects to a dry track, or to build up multi-processed tracks using a different effect algorithm with each pass.

Tip: When **Sample•Source Select**, **REC SRC=MAIN-OUT**, up to eight **Instrument•Sequence Tracks** can be bounced down to one (or two) Audio Track(s), freeing up the eight **Instrument•Sequence Tracks** for additional sequencing! Just set the **Edit/Seq•Song**, **MUTE ATRKS IN REC=YES** to prevent the Audio Tracks from being re-recorded as well (see below).

Note: SCSI speed on most SCSI Storage Devices tends to be too slow to allow the accurate transfer of ASR-10 bounce-down information. Because of this, we do not recommend performing a 2-to-2 bounce-down using **DiskTracks**.

Audio Track Bounce-Down Rules — Recording the MAIN-OUT:

- When **Sample•Source Select**, **REC SRC=MAIN-OUT**, the Audio Inputs are disabled, and both Source-Monitor LEDs remain off at all times. Only the Audio Track playback is monitored through the **Edit/(audio) Track** settings. The Source Monitor voices are not needed to monitor this **REC SRC**, as it is always audible out the MAIN OUTS.
- In combination with setting the **Sample•Source Select**, **REC SRC=MAIN-OUT**, setting the **Edit/Seq•Song**, **MUTE ATRKS IN REC=NO** enables Audio Track playback, allowing Audio Track playback to be re-recorded, or bounced down.
- Entering record with the **Sample•Source Select**, **REC SRC=MAIN-OUT** will record any ASR-10 voices that are routed to **BUS1/2/3**. This includes any sequencer tracks that are playing local ASR-10 Instruments, any notes played on the keyboard or received via MIDI that play local ASR-10 Instruments, and any previously recorded Audio Tracks that have their **Edit/(audio) Track**, **ATRK PLAYBACK STATUS** set to "P" (if the **Edit/Seq•Song**, **MUTE ATRKS IN REC=NO**).
- Audio Tracks are always bounced-down *through* the **Edit/(audio) Track** settings, with the **MIX** and **PAN** and **FX** processing settings being permanently imposed on the Audio data.
- When the **Sample•Source Select**, **REC SRC** Field 1 is set to **MAIN-OUT**, the following **REC SRC** Field 2 settings determine whether entering Record will bounce both Audio Tracks down to a single track (2 to 1), or will simply re-mix both Audio Tracks through new effects, maintaining track discretion (2 to 2).

2-to-1 Bounce-Down

2-to-1 Bounce-Down is configured by setting the **Sample•Source Select**, REC SRC Field 1 to MAIN-OUT and Field 2 to LEFT or RIGHT (i.e., this will be re-recorded in mono, since only one track is selected). The selected Audio Track is the destination for the bounced-down AudioSample. This creates a single AudioSample out of all AudioSamples that were triggered by both Audio Tracks. The original material on the track that was *not* the destination (i.e., was not selected) for the bounce-down is left unchanged. Make sure that all **Instrument•Sequence Tracks** are muted (on the Edit/(seq) Track, Status page) or they will be bounced-down as well.

- If you are bouncing down to Audio Track A, you should adjust the Edit/(audio) Track PAN settings to the *left* side, so that they will be recorded properly.
- If you are bouncing down to Audio Track B, you should adjust the Edit/(audio) Track PAN settings to the *right* side, so that they will be recorded properly.

2-to-2 Bounce-Down

2-to-2 Bounce-Down is configured by setting the **Sample•Source Select**, REC SRC Field 1 to MAIN-OUT and Field 2 to L+R (i.e., this will be re-recorded in stereo, since both tracks are selected). This creates two AudioSamples — one for each Audio Track — out of all of the AudioSamples that were triggered by both Audio Tracks. Make sure that all **Instrument•Sequence Tracks** are muted (on the Edit/(seq) Track, Status page), or they will be bounced-down as well.

Tip: When **Sample•Source Select**, REC SRC=MAIN-OUT, and **Edit/Seq•Song**, CLICK=REC, the click will be muted to prevent it from being recorded. You can set it to ON and route it to AUX 1, 2, or 3 if you still want to hear it during recording.

Notes on Bounce-down:

We strongly recommend that you perform a bounce-down to an empty track before Punching-In on any Audio Track that has had Audio Track commands performed on it. This prevents any confusion that could result from punching in on an Audio Track that contains multiple Audio Trigger Events that trigger the same AudioSample. Be aware that this will probably increase the memory used by AudioSamples. See punch-in rules above.

To monitor Audio Tracks without re-recording their playback during bounce-down, set the Edit/(audio) Track, OUT value(s) to AUX1/2/3. With this setup, the Audio Track playback will not be re-recorded, but any ASR-10 voices routed to BUS1 /2/3 *will* be recorded.

Remember to mute any Sequence Tracks (on the Edit/(seq) Track Status page) that you don't want bounced down to the Audio Tracks.

When REC SRC=MAIN-OUT, the MAIN-OUT audio will be recorded post-Volume Slider. For the optimal signal-to-noise ratio, the Volume Slider should be at maximum when recording the MAE-OUT.

Tip: To quickly record global volume changes on both Audio Tracks simultaneously (and **any** other voices routed to BUS 1/2/3), adjust the Volume Slider while recording a bounce-down. These volume changes will be permanent.

Song Audio Track Mixdown

Song Audio Tracks have the added bonus of recording AUDIO-MIX and AUDIO-PAN information that will affect the playback of the Audio Tracks for full mixdown capabilities (the Edit/Seq•Song, SONG ATRK REC parameter determines this). The **Command/(audio) Track, FILTER AUDIO EVENTS** command can **be used** to remove AUDIO-MIX and AUDIO-PAN events without removing the Audio Trigger events (see later in this document for a description of the Audio Track commands).

Recording Audio-Mix and Audio-Pan information

1. Select a song (refer to the ASR-10 Musician's Manual for steps in creating a song).
2. Select an Audio Track that has AudioSample data (by pressing its **AUDIO TRACK** button).
3. Press **(EDIT)**, then **(SEQ•SONG)**, and **use the Data Entry Controls** to select SONG ATRK REC=AUDIO.
4. press **(▲)** once to change the display to SONG ATRK REC=MIX+PAN.
5. Press **(RECORD)** and while holding it down, press (PLAY).

At this point, you can change the mix or pan of the Audio Track, and it will be recorded.

6. When the song is finished, select KEEP=NEW.

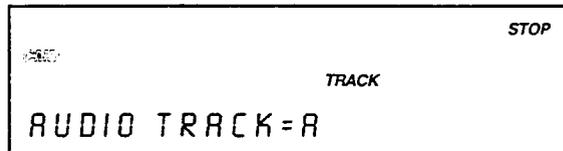
If you want to re-record your mixdown, you must first filter the audio events (see below).

How to Filter Audio Mixdown Events

1. Press **(COMMAND)**, then (TRACK).
2. Use **the Data Entry Controls** to select the FILTER AUDIO EVENTS command:

/ ; ; I , , ,

3. Press **(ENTER-YES)** to invoke the command. The display shows:



The screenshot shows a rectangular display area with a black border. At the top right corner, the word "STOP" is displayed. In the center, the word "TRACK" is displayed. Below "TRACK", the text "AUDIO TRACK=A" is displayed in a larger font.

4. Use the **(AUDIO TRACK A)** and **(AUDIO TRACK B)** buttons to select the Audio Track that you want to filter the audio events.
5. Press **(ENTER-YES)**.
This page allows you to select either the AUDIO-MIX or the AUDIO-PAN events to erase (which are selected using the **(▲)** and **(▼)** buttons or **the Data Entry Slider**).
6. Press **(ENTER-YES)** to filter the selected Audio Track. The display momentarily shows SHUFFLING DATA, then allows you to Audition the newly filtered Audio Track. If there are no events to filter, the display momentarily shows NO DATA ON SOURCE TRACK.
7. Select KEEP=NEW and press **(ENTER-YES)** to save the filtered version, or press **(CANCEL-NO)** to abort the command.

Audio Track Storage

Saving

Where is Everything Stored?

- Audio Track recording data can only be saved using Command/Seq•Song, SAVE SONG + ALL SEQS. The SAVE SONG + ALL SEQS (also known as the Project) file stores all of the information about what AudioSamples are triggered by each Audio Track.
- Audio Track recording data cannot be saved with Command/Seq•Song, SAVE CURRENT SEQUENCE.
- RAMTrack AudioSamples are stored in the ASR-10 internal RAM Memory.
- RAMTrack AudioSamples can only be saved using Command/Seq•Song, SAVE SONG + ALL SEQS.
- DiskTrack AudioSamples are saved to the connected SCSI storage device as you record Audio Tracks.
- The Audio Trigger events that play the DiskTrack AudioSamples are saved using Command/Seq•Song, SAVE SONG + ALL SEQS.
- Temporary Record files are the area on the selected REC SCSI DRIVE that SCSI AudioSamples will be recorded into. They are stored in file 38, a directory called AUDIO TRACKS, on the selected REC SCSI DRIVE. This directory is created when you configure Audio Tracks for ATRK PLAY/REC=SCSI. The two Temporary Record Files are named TEMPORARY000 and TEMPORARY001, for Audio Tracks A and B respectively, and appear as Instrument files under Load/Instrument when you are in the AUDIO TRACKS directory. REC FILE=CURRENT BLKS uses any available space within the current Temporary Record File on the selected SCSI REC DRIVE. If the Temporary file has a size of 0 Blocks or does not exist, you will get a NOT ENOUGH DISK SPACE error message (i.e., there's not enough disk space in the Temporary Record File). The ASR-10 will be reconfigured for REC SCSI DRIVE=NONE.

Using the SAVE SONG + ALL SEQS Command

Once you have created a song or made changes to an existing one, you can save the song to a formatted ASR-10 disk. In addition to saving the song itself, the SAVE SONG + ALL SEQS command saves all the individual sequences currently in memory (whether they are part of the song or not). Audio Track recording data is also stored with the SONG + ALL SEQS file type. Because the SONG + ALL SEQS file saves your Audio Track recording data, it is sometimes referred to as the *project file*. Note that a SONG + ALL SEQS file that is saved after a large amount of RAMTrack data has been recorded will increase in size significantly, and may need to be saved across multiple disks. Be prepared with a few extra floppy disks for this task.

To save a song:

1. Insert a formatted disk into the drive.
2. Press **(COMMAND)**, then press **(SEQ•SONG)**.
3. Press the (a) or **(▷)** button until the display reads:

```

REC SEQ                                SONG                                STOP
SAVE SONG + ALL SEQS

```

4. Press **(ENTER•YES)**.

5. Edit the song name (if needed):

```

      SEQ                      SONG                      STOP
NEW NAME=BTRK TUT SNG
  
```

The display shows the current name of the song, with a cursor (underline) beneath the first character. **If you** want to give **the song** a new name, **use the Data Entry Controls** to change the name, as explained in the ASR-10 Musician's Manual (if you don't need to rename the song, just skip this step).

6. Press (ENTER-YES).

The display will flash SHUFFLING DATA as the ASR-10 prepares to save the file to disk.

```

      SEQ                      SONG                      STOP
SHUFFLING DATA
  
```

Caution:

Saving a SONG + ALL SEQS (Project) file to disk will take longer than in 'previous OS.' versions. The **SHUFFLING DATA** message will be displayed before saving, perhaps for several minutes. This happens because the ASR-10 must manage the Audio Track data that is stored with the SONG + ALL SEQS (Project) file. The more AudioSamples you have recorded, the longer it will take.

7. If the SONG + ALL SEQS file will be saving RAMTracks, the display will usually ask:

```

      SEQ                      SONG                      STOP
USE MULTIPLE DISKS?
  
```

8. Press (ENTER-YES).

The display shows SAVING <SONG NAME> while the song is being saved.

- If there is already a song file with the same name on the disk, the display will ask DELETE OLD VERSION? Press (ENTER-YES) to save the song, replacing the one on the disk. This is for updating songs to which you have made changes. Or press (CANCEL-NO) to abort the procedure.
- If there is not enough free space on the disk, the display will show:

```

      SEQ                      SONG                      STOP
INSERT DISK-HIT ENTER
  
```

At this point, press the Eject button on the disk drive, remove the disk, insert the next ASR-10 formatted disk into the drive, and press (ENTER-YES). You may need to repeat this step several times, depending on the size and amount of the RAMTracks.

9. When the SONG + ALL SEQS file is finished being saved, the display will show COMMAND COMPLETED, then return to the SAVE SONG + ALL SEQS command page.

About Saving the Bank

Use the SAVE BANK command to save the current Bank. Banks provide a way to load a whole group of Instruments, song and sequences, and Audio Track recording data into the ASR-10 with a few button presses. When you save a Bank to disk, it is like taking a “snapshot” of the contents of the ASR-10 internal memory. The Bank file stores the following information:

- Which Instrument files are loaded into each Instrument•Sequence Track location.
- Which SONG + ALL SEQs file is loaded into the internal memory. This includes all Audio Track recording data.
- Up to eight discrete Performance Presets.
- The Bank Effect and its parameter settings.
- The Edit/(seq) Track MIX, PAN, OUT, and EFFECT MOD CONTROL setting for each Instrument•Sequence Track.

Saving the Bank:

1. Insert one of your own ASR-10 formatted disks (you should not save any of your own files to the Version 3 O.S. disk.)
2. Press COMMAND, then (INSTRUMENT), and use **the Data Entry Controls** to select the SAVE BANK command.
3. Press ENTER•YES. The display shows:

```

INST                                SONG                                STOP
┌──────────┴──────────┬──────────┴──────────┬──────────┴──────────┐
|  BANK NAME = ATRK J U T  BNK  |
└──────────┬──────────┬──────────┬──────────┬──────────┬──────────┘

```

The display shows the current Bank name with a cursor (underline) beneath the first character. **If you** want to rename **the** Bank, **use the Data Entry Controls**.

If you are updating an existing Bank, and you didn't rename the Bank, pressing ENTER•YES will show the following screen:

```

INST                                SONG                                STOP
┌──────────┴──────────┬──────────┴──────────┬──────────┴──────────┐
|  DELETE OLD VERSION?  |
└──────────┬──────────┬──────────┬──────────┬──────────┘

```

4. Press ENTER•YES. The display shows SHUFFLING DATA, then COMMAND COMPLETED, and returns to the SAVE BANK command page.

Note: It's not necessary for the Instrument files and SONG + ALL SEQs file to be saved on the same disk as the Bank. Each file can be saved on separate disks, but make sure the disks are labeled with a *unique* disk label (see the WRITE DISK LABEL command found on the Command/System•MIDI page) so that the Bank knows which disk the files are saved on, and can locate the information properly.

Backing Up SCSI Storage Devices containing DiskTracks:

- You can use the Command/System•MIDI, DAT BACKUP/RESTORE command to back up SCSI Storage Devices to DAT tape by way of the DI-10 Digital I/O Interface. See the previous section of this manual for more information.
- You can use the Command/System•MIDI, COPY SCSI DRIVE command to make a backup copy to the same size/type SCSI storage device.
- BACKUP/RESTORE will not backup AudioSample files. You will get an Error Message: CANT BACKUP <AudioSample name> is displayed whenever an AudioSample file is encountered, but BACKUP/RESTORE will continue to back up other data.

Loading:**Loading Foreign Sequences into the current SONG + ALL SEQs (Project) file**

A Foreign Sequence is a sequence that has had data recorded on its Audio Tracks, within the context of another SONG + ALL SEQs (Project) file.

Caution:

We strongly recommend against loading Foreign Sequence files into the current SONG + ALL SEQs (also known as the Project) file. AudioSample ID numbers are Project-specific, and the same ID number might be used in two different SONG + ALL SEQs (Project) files. Loading a Foreign Sequence can result in the Audio Trigger Events on the Foreign Sequence's Audio Tracks triggering like-numbered, but incorrect, AudioSamples in the current SONG + ALL SEQs (Project) file. As a result, Foreign Sequences cannot be imported cleanly into the current SONG + ALL SEQs (Project) file. You should only load single SEQUENCE files that have data recorded on their Audio Tracks back into the same SONG + ALL SEQs (Project) file in which they were created.

Loading Multi-Disk Song Files

Because a Song file may contain Audio Track data, it might need to be loaded from several floppy disks. You will be prompted for the required disks by name. Here's how to load a Multi-disk Song file :

1. Press (LOAD), then (SEQ•SONG).
2. Use the (▲) and (▼) buttons to locate the Song file:

```

  LOAD                               STOP
    SEQ SONG
FILE 1  ATRK TUT SNG 1.
  
```

When a song is selected, the SONG indicator lights next to the SEQ indicator. If the song is saved across multiple disks, the bottom right corner of the display will show the number of the disk in the multi-disk song file.

3. Press (ENTER•YES) to load the Song file showing on the display. The display shows LOADING <Song-name>, then asks for the next disk in the multi-disk song file:

```

/ : I , , , , , , , : , ,
  
```

4. Press the Eject button on the disk drive, remove the disk, insert the next ASR-10 formatted disk into the drive, and press (ENTER•YES). You may need to repeat this step several times, depending on the size of the SONG + ALL SEQs (Project) file.
5. When the SONG + ALL SEQs file is finished being loaded, the display will show FILE LOADED and the song will be automatically selected.

Automatic Preparation of Audio Tracks

Loading Song files, or Bank files that load SONG+ALL SEQS files, will automatically prepare any Audio Tracks (Song and/or Sequence Audio Tracks) that would be played by the Song, according to the current setting of the Command/Seq•Song, SET SONG ATRK PLAYBACK command. The following message will flash after the Song file is loaded while the Audio Tracks are prepared:

```
LOAD INST                                STOP  
  
PREPARING AUDIO TRACKS
```

After the Audio Tracks are prepared, the display will show:

```
LOAD INST                                STOP  
  
FILE LOADED
```

possibly followed by BANK LOAD COMPLETED (if a Bank loaded the SONG+ALL SEQS file) as normal.

Deleting:**To Delete a RAM AudioSample:**

1. Select the appropriate Audio Track by pressing its button.
2. Press the **[COMMAND]** button.
3. Press the **(TRACK)** button.
4. Using the **(◀)** and **(▶)** buttons, scroll until the display shows DELETE AUDIOSAMPLE. The DELETE AUDIOSAMPLE command will delete any single AudioSample in the current SONG + ALL SEQs (Project) file. This command will not delete the Audio Trigger Events that may have triggered the AudioSample that was deleted.

A screenshot of the ASR-10 display. The screen shows the word "TRACK" in the center. Below it, the text "DELETE AUDIOSAMPLE" is displayed in a monospaced font. In the top right corner, the word "STOP" is visible. In the top left corner, there is a small icon of a cassette tape.

5. Pressing **(ENTER-YES)** will invoke the command, revealing the following screen:

A screenshot of the ASR-10 display. The screen shows the word "TRACK" in the center. Below it, the text "ASAMPLNAME=ASAMPL--XXXXX" is displayed in a monospaced font. In the top right corner, the word "STOP" is visible. In the top left corner, there is a small icon of a cassette tape.

6. This display shows the AudioSample name. Press **(ENTER-YES)** :

A screenshot of the ASR-10 display. The screen shows the word "TRACK" in the center. Below it, the text "DELETE ASAMPL--XXXXX ?" is displayed in a monospaced font. In the top right corner, the word "STOP" is visible. In the top left corner, there is a small icon of a cassette tape.

7. This display asks if you are sure you want to delete the named AudioSample. Pressing **(ENTER-YES)** will execute the command. The "PREPARING AUDIO TRACKS" message will be briefly displayed while the Audio Tracks are cued up for Playback.

To Delete a SCSI AudioSample:

There are two ways to delete a Disk AudioSample:

- Run the DELETE AUDIOSAMPLE command (as explained above). This is the recommended way to delete AudioSamples from DiskTracks, or
 - Select the AudioSample on the SCSI storage device and delete the file manually:
1. Press **(LOAD)**, then **(SYSTEM-MIDI)**.
 2. Enter the file 38 AUDIO TRACKS directory by pressing **(ENTER-YES)**. This is where all DiskTrack AudioSamples reside.
 3. Press **(LOAD)**, then **(INSTRUMENT)**.
 4. Select the ASAMPL-#### files that you want to delete using the Data Entry Controls.
 5. Press **(ENTER-YES)** while holding down the **(LOAD)** button.

This is the way to delete "orphaned" disk AudioSamples. For example, when you've recorded a Disk AudioSample, but didn't save the SONG + ALL SEQs (Project) file before turning the ASR-10 off, AudioSamples can become "orphaned," because the ASR-10 doesn't know that they are part of a Project.

Auto-Configuring for DiskTracks upon Booting

When the ASR-10 is configured for DiskTracks (ATRK PLAY/REC=SCSI), the SAVE GLOBAL PARAMETERS command will store the active settings of the CONFIGURE AUDIO TRACKS command with the Global Parameters on the O.S. disk.

Booting from an O.S. disk that has a DiskTrack configuration saved with its Global Parameters will display the following prompt:

```

LOAD INST                                STOP
                                          
CONFIGURE SCSI ATRKS?

```

Pressing (CANCEL-NO) from the above prompt will abort the function. The ASR-10 will boot normally, and will default to being configured for RAMTracks.

Pressing (ENTER-YES) from the above prompt will invoke the Auto-Configure function:

- The CONFIGURE AUDIO TRACKS command will be run, behind the scenes, using the parameter settings that were saved with Global Parameters.
- The usual range of error messages will indicate any failure(s) in the process.
- If an error occurs, the ASR-10 will default to being configured for RAMTracks, (or for DiskTracks playback only, depending on the error), and will enter flashing LOAD Mode after the error message has been displayed.
- Auto-Configure will always use REC FILE=CURRENT BLKS (the current size of the existing Temporary Record Files). You cannot Auto-Configure to a specific size REC FILE.
- If no errors have occurred, the following message will be displayed when the system has been configured:

```

I      :      ;      :      ,

```

How to Auto-Configure for DiskTracks

1. Perform the COPY O.S. TO DISK command to your boot device (SCSI or FLOPPY). This doesn't have to be the same as your REC SCSI DRIVE.
2. Run the CONFIGURE AUDIO TRACKS command, and configure the ASR-10 for the desired type of Audio Track Recording/Playback.
3. Press COMMAND then SYSTEM-MIDI, and use the ARROW buttons to locate the SAVE GLOBAL PARAMETERS command. The display shows:

The screenshot shows a rectangular display area with a black border. At the top, the word 'SYSTEM' is centered, and 'STOP' is on the right. Below this, the text 'SAVE GLOBAL PARAMETERS' is displayed in a large, monospaced font, centered horizontally. There is a small, faint icon on the left side of the display area.

4. Press ENTER-YES to run the SAVE GLOBAL PARAMETERS command to your boot device. (You may have to run the CHANGE STORAGE DEVICE command if the current REC SCSI DRIVE is not the same as your boot device.)
4. You can now power down after saving you work (SONG+ALL SEQs file followed by a Bank file, remember?).
5. If you were configured for DiskTracks when you ran the SAVE GLOBAL PARAMETERS command, confirm that all SCSI cables are properly connected, power on your SCSI Storage Device, then boot the ASR-10. The CONFIGURE SCSI ATRKS? prompt will be displayed, as described on the previous page.

Note: Invoking the LOAD GLOBAL PARAMETERS command will not invoke the Auto-Configure function.

Refer to the ASR-10 Musician's Manual for more information about the SAVE GLOBAL PARAMETERS command, and read the pertinent sections in this document for additional information about setting up a SCSI rig.

New Sequencer Parameters

<i>EDIT</i> SEQ•SONG	SONG ATRK REC
	Press (EDIT) / (SEQ•SONG) / scroll using the (a) and (▶) buttons

```

      r                               STOP
      SEQ
      SONG ATRK REC=AUDIO
  
```

SONG ATRK REC Range: AUDIO, MIX+PAN

This parameter determines what will be recorded onto Song Audio Tracks when the Song is selected, and you enter Record with an Audio Track selected:

AUDIO — the sequencer will record Audio Trigger Events in REPLACE mode. AudioSample data is recorded according to the punch-in rules, described earlier. This is the default value for this parameter.

MIX+PAN — the sequencer will record AUDIO-MIX and AUDIO-PAN events in ADD mode.

<i>EDIT</i> SEQ•SONG	MUTE ATRKS IN REC
	Press (EDIT) / (SEQ•SONG) / scroll using the (◀) and (▶) buttons

```

      SEQ                               STOP
      MUTE ATRKS IN REC=YES
  
```

MUTE ATRKS IN REC Range: NO, YES

Determines whether or not Audio Track playback will be muted during Audio Track recording:

YES — Audio Track playback will be muted during Audio Track recording. This is the default value.

NO — Audio Track playback will not be muted during Audio Track recording.

Note: In combination with setting the Sample•Source Select, REC SRC=MAIN-OUT, setting the Edit/Seq•Song, MUTE ATRKS IN REC=NO, enables Audio Track Bounce-Down. See earlier in this document for information on performing bounce-down.

<i>CMD</i> SEQ•SONG	ERASE ALL AUDIOSAMPLES
	Press (COMMAND) / (SEQ•SONG) / scroll using the (◀) and (▶) buttons

This command will erase all AudioSamples within the current SONG + ALL SEQs (Project) file from RAM, SCSI, or BOTH. This will not erase SCSI resident AudioSamples that are triggered by other SONG + ALL SEQs (Project) files.

```

      SEQ                               STOP
      ERASE ALL AUDIOSAMPLES
  
```

- Pressing **(ENTER-YES)** from the above screen will display the following screen:

```

                                STOP
CMD SEQ
ERRSE FROM = RAM
    
```

- Use the **Data Entry Controls** to select RAM, SCSI, or BOTH.
- Press **(ENTER-YES)**. The display shows the following confirmation screen:

```

                                STOP
CMD SEQ
ERASE ASMP LSP
    
```

- Pressing **(ENTER-YES)** will execute the command.
Pressing **(CANCEL-NO)** will abort the command.

CMD SEQ•SONG	SET SONG ATRK PLAYBACK
	Press (COMMAND) / (SEQ•SONG) / scroll using the (←) and (→) buttons

This command determines which pair of Audio Tracks (Song or Sequence) will be played when the song is selected. It also enables or disables Song Audio Track recording.

```

                                STOP
CMD SEQ
SET SONG ATRK PLAYBACK
    
```

- Press **(ENTER-YES)**. The display shows:

```

                                STOP
CMD SEQ
PLAY=SEQ ATRKS ONLY
    
```

PLAY

Range: SEQ ATRKS ONLY, SONG-A + SEQ-B,
SEQ-A + SONG-B, SONG ATRKS ONLY

Pressing **(ENTER-YES)** will execute the command. If any Audio Tracks have been recorded, the PREPARING AUDIO TRACKS message will be briefly displayed while the Audio Tracks are cued up for playback. This parameter defaults to PLAY=SEQ ATRKS ONLY upon booting.

- If the SONG is not selected when the SET SONG ATRK PLAYBACK command is invoked, the song will be automatically selected.
- If the song is selected, and this is set to PLAY=SEQ ATRKS ONLY, trying to enter record on an Audio Track results in the NOT SET FOR SONG ATRK message.

IF:	THEN:
PLAY=SEQ ATRKS ONLY	You will be preparing to play sequence Audio Tracks only, and to disallow Song Audio Track recording and playback.
PLAY=SONG-A + SEQ-B	You will be preparing to record and play back a Song Audio Track using Audio Track A, and to play the data on Audio Track B in the sequences that make up the song. You will be unable to record or play back from Song Audio Track B.
PLAY=SEQ-A + SONG-B	You will be preparing to record and play back a Song Audio Track using Audio Track B, and to play the data on Audio Track A in the sequences that make up the song. You will be unable to record or play back from Song Audio Track A.
PLAY=SONG ATRKS ONLY	You will be preparing to record and play back Song Audio Tracks only, and to ignore any data recorded on both Audio Tracks in the sequences that make up the song.

How Existing Sequence Commands Affect Audio Tracks

Sequencer commands only affect the Audio Trigger events, and do not affect the associated AudioSamples. Only the following functions will affect the AudioSamples:

- Punching-in on an Audio Track
- Command/Seq•Song, ERASE ALL AUDIOSAMPLES
- Command/(audio) Track, DELETE AUDIOSAMPLE
- Command/(audio) Track, ERASE AUDIO TRACK
- When the SAVE SONG + ALL SEQs command is invoked, the SONG + ALL SEQs file type can now be saved across multiple disks. It may be very large if it contains large RAM AudioSamples.

After performing the Command/Seq•Song, APPEND SEQUENCE, CHANGE SEQUENCE LENGTH, and EDIT SONG STEPS Commands on Sequences that have data recorded on their Audio Tracks, the “PREPARING AUDIO TRACKS” message will be displayed as Audio Tracks are cued up for Playback.

Caution:

Most sequence commands only affect the Audio Triggers, and not the AudioSample data. Remember, the same AudioSample can be triggered by many different sequences **as a result** of using the COPY SEQUENCE or COPY AUDIO TRACK Commands. If you punch' in 'on an AudioSample that is used elsewhere, it will be modified elsewhere as well. We recommend performing sequence commands before recording any data to Audio Tracks.

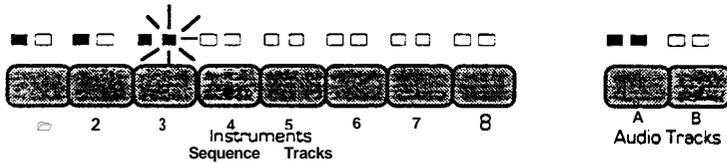
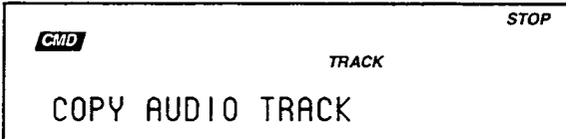
The DELETE SEQUENCE and ERASE SONG + ALL SEQs Commands will NOT delete the AudioSamples that are triggered by Events on the Sequence's Audio Tracks.

How Audio Tracks Function in Command and Edit Modes

There are two sets of track commands and track edit parameters: Sequence Track commands/parameters, and Audio Track commands/parameters.

Which command or edit parameter you will see is based on whether an Audio Track or an Instrument•Sequence Track is selected.

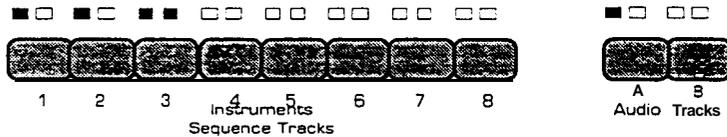
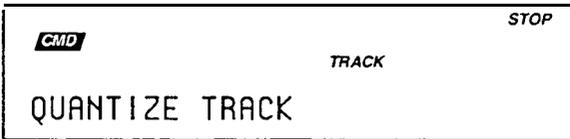
- When an Audio Track is selected in Command and Edit modes, the Audio Track's Selected LED will be solidly lit, and the currently selected Instrument•Sequence Track's Selected (yellow) LED will flash. The solidly selected track is always considered the target for Command/Track commands:



Note:
Although the rack-mount ASR-10 button and LED placement is different than the keyboard ASR-10, the functionality is identical.

If the Audio Track LED is solidly selected, and Instrument•Sequence track LED is flashing selected, the Audio Track commands and Edit parameters will be displayed.

- Selecting an Instrument•Sequence Track in command mode will de-select both Audio Tracks.



Note:
Although the rack-mount ASR-10 button and LED placement is different than the keyboard ASR-10, the functionality is identical.

If the Instrument•Sequence Track LED is solidly selected, the Audio Track LED is de-selected, and the Instrument•Sequence Track commands and Edit parameters will be displayed.

- When both Audio Tracks are selected in LOAD mode, pressing COMMAND will leave them both selected — one Solidly Selected and one Flashing-Selected. The Solidly Selected Audio Track is always considered the target for Command/(audio) Track commands.

New (Audio) Track Parameters

<i>EDIT</i> (Audio) TRACK	ATRK PLAYBACK STATUS press (EDIT)/(audio) (TRACK) / (0)
------------------------------	--

Double-clicking the **(TRACK)** button on the Edit/(audio) Track page will reveal the following ATRK PLAYBK STATUS parameter:



ATRK PLAYBACK STATUS Range: * (TRACK is empty), P (play-TRACK contains data, and is unmuted), M (mute — TRACK contains data, and is muted)

- Press the **(AUDIO TRACK)** buttons to move the cursor. Audio Tracks that are muted before entering record will not have their data cued up, and will not play if unmuted during play.

Note: When recording Audio Tracks with Edit/Seq•Song, MUTE ATRKS IN REC=YES, Audio Track playback on the track being recorded on is automatically muted while the ASR-10 is in Record, and the ATRK PLAYBK STATUS is displayed as below, and cannot be edited.



See AUDITION PLAY for rules on how exiting AUDITION PLAY affects the ATRK PLAYBK STATUS.

The currently implemented Edit/(audio) Track, MIX, PAN and OUT parameters affect both the REC SRC signal monitor as well as the PLAYBACK monitor.

When the Sample•Source Select, REC SRC Field 1 is set to MAIN-OUT, only the Audio Track Playback is monitored through the Edit/(audio) Track settings. The Audio Inputs are disabled, and both Source-Monitor LEDs remain off at all times. The Source Monitor voices are not needed to monitor this REC SRC, as it is always audible out the MAIN OUTs.

How Edit/(audio) Track, MIX and PAN parameters work with Version 3 O.S.

The following chart describes how the Edit/(audio) Track, MIX and PAN parameters interact with Audio Track source monitoring and playback. For more information, refer to the ASR-10 Musician's Manual.

How the Audio Track MIX and PAN parameters work			
If you edit the values:	in Mono:	In Stereo:	Sequencer plays back MIX or PAN:
The Display changes:	YES (mono)	YES (stereo)	NO
The Playback volume changes:	YES (mono)	YES (stereo)	YES (mono)
The Monitor volume changes:	YES (mono)	YES (stereo)	NO

Tip: Using the FILTER AUDIO EVENTS command on Sequence Audio Tracks will remove the “default” Audio Track MIX events. The default MIX events are recorded each time you enter record on an Audio Track. This is useful to prevent the playback of these events from interfering with manual edits to the MIX value that you might make during bounce-down.

<i>EDIT</i>	ASMPNAME
<i>(Audio) TRACK</i>	Pfess (EDIT)/(audio) (TRACK)/ scroll using the (←) and (→) buttons

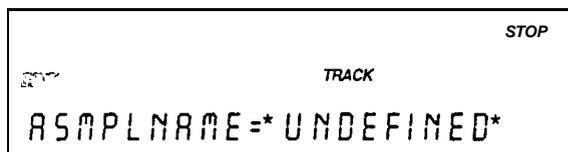
The ASMPNAME parameter displays the name of the AudioSample that will be the target of all Command/(audio) Track commands. This parameter can be edited to select any AudioSample in the current SONG + ALL SEQS (Project) file, and once edited, does not necessarily reflect the AudioSample triggered by the currently selected Audio Track.



The list of all AudioSamples in the current SONG + ALL SEQS (Project) file can be accessed with the Data Entry Controls.

Whenever the sequencer is running, the ASMPNAME value will be updated in real-time to indicate the name of the AudioSample that was last triggered by an Audio Trigger Event on the currently selected Audio Track.

After the sequencer is stopped, this parameter will always default **to the name** of the last AudioSample that was being triggered by the selected Audio Track when the sequencer was stopped. If no AudioSamples exist, or if the sequence or the song has just been selected, the display will read:



If the ASMPNAME parameter is edited while the sequencer is stopped, selecting an Audio Track, or pressing (PLAY) will update the parameter value to reflect the currently triggered AudioSample.

The ASMPNAME parameter is duplicated in several Command/(audio) Track Commands. If the ASMPNAME parameter is edited within a Command, the Edit/(audio) Track, ASMPNAME parameter will inherit the edited value, and the current AudioSample context will remain for use by other Commands (until either the Transport Controls or the GOT0 function are used).

Note: As AudioSamples are recorded, they are each assigned a unique default name (ASMP—#####). AudioSamples can be renamed with the Command/(audio) Track, RENAME AUDIOSAMPLE Command.

CMD (Audio) TRACK	COPY AUDIO TRACK
	Press (COMMAND)/(audio) (TRACK)/ scroll using the (←) and (→) buttons

This command allows the currently selected Audio Track to be copied from the current Sequence or the Song, to any other Audio Track in any sequence, or to the Song, in memory. This will erase all existing Audio Track Events on the DESTINATION Audio Track.

```

                                STOP
                                TRACK
COPY AUDIO TRACK

```

1. Select the Audio Track that you want to copy by pressing its (AUDIO TRACK) button.
2. Press (ENTER-YES) to invoke the command. The display shows:

```

                                STOP
                                TRACK
FROM AUDIO TRACK=A

```

3. Press (ENTER-YES). The display shows:

```

                                STOP
                                TRACK
TO SEQ=SEQ-SONGNAME

```

4. Use the Data Entry Controls to select the DESTINATION (where you want the copied Audio Track to reside) Sequence or Song. This defaults to the currently selected sequence or song name.
5. Press (ENTER-YES). The display shows:

```

                                STOP
                                TRACK
TO AUDIO TRACK=B

```

6. Use the (AUDIO TRACK) buttons to select the destination Audio Track.
7. Press (ENTER-YES). The display shows:

```

                                STOP
                                TRACK
AT BAR=1

```

8. Use the Data Entry Controls to select the BAR where you want to place the Audio Trigger Event (that will play the AudioSample).

9. Press (ENTER-YES). The display shows:



10. This command does not have any Audition.

11. Pressing (ENTER-YES) will execute the command. If a destination Track in a different Sequence is selected as the target for the COPY, the PREPARING AUDIO TRACKS message will be briefly displayed while the Audio Tracks are cued up for Playback.

CMD	ERASE AUDIO TRACK
(Audio) TRACK	press <u>(COMMAND)</u> /(audio) (<u>TRACK</u>) scroll using the <u>(◀)</u> and <u>(▶)</u> buttons

This command will erase all Audio Trigger, Audio-Mix and Audio-Pan events from the currently selected Audio Track.



Pressing (ENTER-YES) will invoke the command, revealing the following screens:



AUDIO TRACK Range: A or B (selected by pressing an (AUDIO TRACK) button)

A secondary parameter determines whether or not the command will erase all the RAM and Disk AudioSamples that are triggered by the Audio Trigger events on the Audio Track being erased, or if only the Audio Trigger, Audio-Mix and Audio-Pan events will be erased, leaving the AudioSamples intact:



ERASE Range: EVENTS + ASMPLS, ATRK EVENTS ONLY

Pressing (ENTER-YES) will execute the command. This command has no Audition.

CMD	SHIFT AUDIO TRACK
(Audio) TRACK	Press (COMMAND)/(audio) (TRACK)/scroll using the (←) and (→) buttons

This command allows all Events on the currently selected Audio Track to be shifted by ± 96 clocks.

```

STOP
TRACK
SHIFT AUDIO TRACK

```

- Pressing (ENTER-YES) will invoke the command, revealing the following screens:

```

STOP
TRACK
AUDIO TRACK = R

```

AUDIO TRACK

Range: A or B (selected by pressing an (AUDIO TRACK) button)

```

STOP
TRACK
SHIFT AMOUNT = +0

```

SHIFT AMOUNT

Range: -96 to +96 clocks

Pressing (ENTER-YES) will execute the command. This command has Audition.

CMD	RENAME AUDIOSAMPLE
(Audio) TRACK	Press (COMMAND)/(audio) (TRACK)/ scroll using the (←) and (→) buttons

This command allows you to rename any single AudioSample in the current SONG + ALL SEQs (Project) file. If the Edit/(audio) Track, ASAMPLNAME=*UNDEFINED*, the SELECT ASAMPL FIRST error message will be displayed.

```

STOP
TRACK
RENAME AUDIOSAMPLE

```

Pressing (ENTER-YES) will invoke the command, revealing the following screen:

```

STOP
TRACK
ASAMPLNAME=ASAMPL--00000

```

This screen allows you to use the **Data Entry Controls** to change the name of the AudioSample.

Caution:

If you rename a SCSI resident AudioSample, you should immediately save the SONG + ALL SEQs file as well. If you forget to do this, and reload your original SONG + ALL SEQs file later, you will have renamed the file on disk but your original SONG + ALL SEQs file will be looking for the old name, not the new one.

Pressing (ENTER-YES) from the above screen will execute the command, renaming the AudioSample.

When renaming a disk AudioSample, the command changes the name of the file on the disk and in the SONG + ALL SEQs (Project) file which currently resides in the ASR-10's RAM. If you rename a disk AudioSample (using the Command/(audio) Track, RENAME AUDIOSAMPLE Command) but forget to resave the SONG + ALL SEQs (Project) file before turning the unit off, then the next time you load that SONG + ALL SEQs (Project) file, it will still be referencing the AudioSample by the old name and unfortunately, not find it anywhere. The AudioSample file on disk (which has the new name) is considered "orphaned" since it is not being referenced.

To Recover an Orphaned AudioSample

You can run the RENAME AUDIOSAMPLE command again, selecting the AudioSample in the SONG + ALL SEQs (Project) file (the old name) and renaming it to the file on the disk (the new name). The rename command will search for the disk file to rename and if it cannot find it, it will still rename the AudioSample within the current SONG + ALL SEQs (Project) file. Now the SONG + ALL SEQs (Project) file's AudioSample and the disk AudioSample have the same name. You must reselect the sequence and re-prepare it so that the prepare logic will load in the disk information.

When performing the RENAME AUDIOSAMPLE command, *make sure that you are renaming the proper AudioSample*. Once you've recovered the orphaned AudioSample, be sure to resave the SONG + ALL SEQs file, or you may have to repeat this whole process again.

CMD (Audio) TRACK	AUDIO SAMPLE INFO Press (COMMAND): /(audio) (TRACK) / scroll using the (←) and (→) buttons .
----------------------	---

This command provides information about the last AudioSample that was being triggered when the sequencer was last stopped (i.e., the same AudioSample that was last displayed on the Edit/(audio) Track, ASMPLNAME screen).

```

                                     STOP
                                     TRACK
AUDIOSAMPLE INFO

```

Pressing (ENTER-YES) will invoke the command, revealing the following read-only screens:

```

                                     STOP
                                     TRACK
ASMPLNAME=ASMPL--00000

```

If the AudioSample has not been named, this defaults to "ASMPL-#####" (##### represents the currently selected AudioSample file number).

```

                                     STOP
                                     TRACK
ASMPL NUMBER=#####

```

```

ii-                                     STOP
                                     TRACK
ASMPL RESIDENCY=RAM

```

This screen shows whether the AudioSample resides in RAM or SCSI.

```

                                     STOP
                                     TRACK
SIZE=#####          BLKS

```

This display shows the size in blocks.

```

                                     STOP
                                     TRACK
SAMPLE RATE=29.7619 KHZ

```

This display shows the sample rate (either 29.7619 or 44.1000). Pressing (ENTER-YES) from any of the above screens will exit the command.

CMD	FILTER AUDIO EVENTS
(Audio) TRACK	Press (COMMAND)/(audio) (TRACK)/scroll using the (←) and (→) buttons

This command allows you to erase any Mix or Pan **events** associated with the Audio Tracks.

```

STOP
-----
-REC-
          TRACK
FILTER AUDIO EVENTS

```

FILTER AUDIO EVENTS Range: AUDIO-MIX, AUDIO-PAN

1. Pressing (ENTER-YES) will the invoke the command. The display shows:

```

STOP
-----
-REC-
          TRACK
AUDIO TRACK = A

```

2. Use the (AUDIO TRACK A) and (AUDIO TRACK B) buttons to select the Audio Track that you want to filter the audio events.
3. Press (ENTER-YES).
4. This page allows you to select either the AUDIO-MIX or the AUDIO-PAN events to erase.
5. Press (ENTER-YES) to filter the selected track. The display momentarily shows SHUFFLING DATA, then allows you to Audition the newly filtered Audio Track. If there are no events to filter, the display momentarily shows NO DATA ON SOURCE TRACK.
6. Select KEEP=NEW and press (ENTER-YES) to save the filtered version, or press (CANCEL-NO) to abort the command.

System Optimization Tips

Application Notes to Improve Performance:

Note that these are not required, but may improve situations where system bandwidth is being limited by excess SCSI activity:

- Mute the first Audio Track before recording the second. This will cut down on disk activity during record.
- When recording from the start of a sequence, record with a countoff. This allows one bar of countoff time to verify recording files exist, instead of having to do this verification in real-time.
- When Audio Track recording, mute unneeded sequence tracks.
- Record Audio Tracks with a minimum timing reference, then copy over sequence tracks from another sequence (or copy Audio Tracks over to the other sequence).
- Mute Audio Tracks before recording sequence tracks.
- For Audio Track bounce-down (assuming you're bouncing-down Audio Track playback only, and not sequence playback), set the SCSI ACCESS SPEED as high as possible. Sequencer track playback may be compromised, but the AudioSamples will play back smoothly, and since this what you are m-recording, the bounced-down data should be fine. Again, mute the sequence tracks here, as well.
- For 2-track playback, SCSI storage devices that were recently formatted will perform better than a SCSI storage device that had a lot of data on it prior to Audio Track recording. This is true even if the SCSI storage device has been defragmented. This is because data that resides on the outer edges of the SCSI storage device will reduce the disk head movement.
- The SCSI storage device manufacturer's access times do NOT tell the whole story. Some SCSI storage devices use highly intelligent caching schemes to greatly reduce the amount of disk activity for the same amount of data transferred. Some SCSI storage devices have fast seek times, but slow SCSI transfer times. Drives with segmented caches work *much* better for multiple Audio Tracks.
- Some SCSI storage devices will time out after several minutes of no use. This puts the SCSI storage device into an idle state. The first request to the SCSI storage device while it is in this state takes longer to process because the motor may not be up to full speed. If you try to go into record, this may result in a MEMORY OVERFLOW message. If you go into play, this may result in a SCSI ACCESS TOO SLOW message. Subsequent SCSI storage device activity is then fine. To get around the idle state, simply reselect the sequence and prepare it (press **CENTER-YES**). This will wake the SCSI storage device up so the first real-time playback SCSI transfer will be on time.
- Audio Tracks recording or playing back at 44.1KHz require much more SCSI activity than the same sequence at 30KHz. If the MEMORY OVERFLOW message occurs during recording at 44.1KHz, you may be successful recording at 30KHz. Again, this is all dependent on what type of SCSI storage device is at the other end of the SCSI cable.
- Follow all cabling tips in the SP-3 SCSI Manual, making the shortest possible path between the ASR-10 and the SCSI storage device selected with the CONFIGURE AUDIO TRACKS command, REC SCSI DRIVE parameter.

AudioSample Specs

- Each SONG + ALL SEQs (Project) file can have a maximum of 8192 AudioSamples.
- The map of contiguous blocks will allow approximately 500 fragments per sequence or song. So if all AudioSamples were contiguous, this would allow up to 500 AudioSamples per sequence or song. If each file consisted of two fragments, you could have up to 250 AudioSamples per sequence or song (fragmentation is entirely dependent on the data already on the disk).
- Time limits per AudioSample (worst case): 80.1 minutes at 29.7KHz; 54.1 minutes at 44.1KHz.

Troubleshooting

About the Cancel•No Button

Pressing CANCEL•NO will usually abort the command in response to any of the following error messages unless otherwise noted.

When using DAT BACKUP/RESTORE, be certain you want to completely abort your DAT BACKUP, RESTORE or VERIFY before pressing CANCEL•NO.

Error/Informational Messages (in alphabetical order)

Message displayed:	Defined/What to Do:
AUDIO DEV NUT SELECTED	If you configure for ATRK PLAY/REC=SCSI with REC SCSI DRIVE set to one SCSI Device ID number, and then you run CHANGE STORAGE DEVICE and set the current storage device to a different SCSI Device ID number. This will also appear if you try to play DiskTracks from a device that is not currently selected (regardless of what the REC SCSI DRIVE is set to).
COMMAND ABORTED	Pressing <u>CANCEL•NO</u> in response to any prompt or parameter page (unless specified otherwise) will abort the command, and momentarily display this.
CONFIGURE RTRKS FIRST	If you are configured for SCSI, with SCSI RECDRIVE=NONE, and you try to enter record with an Audio Track selected.
DAT CHECKSUM ERROR	During RESTORE or VERIFY, the ASR-10 has read the wrong backup packet checksum from the DAT tape. You will have the option to RETRY here. (See User Retry section.)
DAT FROM WRONG SET	A tape from the wrong backup set has been inserted. You will be given the chance to insert the correct tape after pressing <u>ENTER•YES</u> . You will have the option to RETRY here. (See User Retry section.)
DAT VERIFY ERROR	The backup packet on the DAT tape does not verify with the data on the selected SCSI Storage Device. You will have the option to RETRY here. (See User Retry section.)
DRTR NCT FOUND	During RESTORE or VERIFY, the ASR-10 has not read the backup data packet number it is expecting from the DAT tape, or the data is unreadable. You will have the option to RETRY here. (See User Retry section.)
DIFFERENT SIZE DRIVES	The backed-up data on the DAT tape is not from the same size drive as the selected SCSI Storage Device. Select a SCSI Storage Device that is either the same drive as the one used for BACKUP or another that is the same size.
DISK DRIVE NUT READY	This message usually occurs when the ASR-10 is trying to access the floppy drive or a removable SCSI storage device when there is no disk or cartridge in the drive, or when the SCSI storage device is spinning up. If this message occurs, insert a floppy disk or cartridge in the drive, then use the CHANGE STORAGE DEVICE command to select the appropriate SCSI Device ID number (or press (LOAD), then <u>ENTER•INSTRUMENT</u>). Make sure the disk or cartridge has been inserted into the disk drive or SCSI Storage Device and has had a chance to spin up. This event may take place because of improperly saved files. Refer to the section on "Transferring Banks from a Floppy Disk to a SCSI Storage Device."
DISK HRS BEEN CHRNGED	The disk (or cartridge) has been ejected from the drive since the last time the drive was accessed by the ASR-10. This is also displayed when the ASR-10 can't find the Temporary Record Files when you entered record on an Audio Track while configured for ATRK PLAY/REC=SCSI, or the available recording space within the Temporary Record File has been depleted. Reinsert the disk or cartridge, press (LOAD), then <u>ENTER•INSTRUMENT</u> , and continue. This is also displayed if the Akai or Roland format SCSI Storage Device is changed after the directory is read, and you press <u>ENTER•YES</u> to begin importing an Akai program or Roland patch. The command will be aborted.

DISK WRITE PROJECTED	Just like floppy disks, some cartridges used with removable SCSI storage devices have a switch to prevent accidentally erasing files. If this message appears while using a removable SCSI storage device, remove the cartridge, and change the Write Protect switch.
DRIVE NOT RESPONDING	<p>If encountered while using a SCSI storage device, this error may indicate a problem with your SCSI cables. The cable from the ASR-10 to the SCSI storage device may be too long, or the system may not have proper termination.</p> <p>Check all connections and make sure that you are using the correct cables. Make sure you have the proper termination. If this message appears repeatedly while files are being saved to the disk or SCSI storage device, then it is likely that you are invisibly losing sectors of your SCSI storage device. Correct the problem before continuing to use the SCSI storage device. For more information, refer to the section about the SP-3 SCSI Interface.</p>
EMPTY DIRECTORY	When no files are found in the selected Partition or Volume, this momentary error message will be displayed, and the previous page will be re-displayed.
IMPORT INCOMPLETE	<p>This is displayed if you run out of layers into which to import WaveSamples (if the Akai Program or Roland Patch being loaded required more than the eight layers that the ASR-10 supports).</p> <p>This is also displayed if the Akai Program or Roland Patch being imported requires more memory than what is available. This can be either more than the total ASR-10 memory, or more than the current free memory.</p> <p>Pressing <u>(ENTER-YES)</u> or <u>(CANCEL-NO)</u> will cause either a NO MORE LAYERS or an OUT OF MEMORY message to be momentarily displayed, and the command will be exited. The partially imported Program/Patch will remain intact in memory.</p> <p>You can then delete the partially imported Program/Patch (and possibly delete any other items in memory if the ASR-10 had run out of memory), re-enter the command, and use the RANGE parameter to selectively import the partial key ranges of the the selected Program/Patch that will fit within eight layers or within the available memory in the ASR-10.</p>
INVALID LOAD DEVICE	<p>No SCSI storage device with this ID number was connected to the network when the ASR-10 booted up.</p> <p>Use the CHANGE STORAGE DEVICE Command to verify that you are using the correct SCSI Device number.</p>
MEMORY OVERFLOW	DiskTrack recording has filled up the SCSI BUFFERS before the data could be transferred to the SCSI storage device. The sequencer will automatically stop recording, the message will be displayed for two seconds, and the ASR-10 will enter Audition Play. The AudioSample data that was recorded before the overflow occurred is processed as if you had pressed <u>(STOP-CONTINUE)</u> to exit recording. This may also be displayed if there is a memory problem during RAMTrack recording or sampling.
NOAJRKPLAYBACKROOM	<p>If the current Sequence/Song has data recorded on its Audio Tracks, and there is not enough memory to cue up the Audio Tracks for playback, this will be displayed when you press <u>(PLAY)</u> or <u>(STOP-CONTINUE)</u>, or when <u>(ENTER-YES)</u> is pressed on the Edit/Seq•Song, Sequence Selection screen.</p> <p>After this message is displayed, the Audio Tracks will not play, but the Sequence Tracks will play fine.</p>
NO DIGITAL INTERFACE	The cables between the ASR-10 and the DAT machine may not be connected properly. Does your ASR-10 have the DI-10 Digital I/O Interface installed?
NO FREE INSTRUMENT	When importing Akai/Roland samples, if all 8 Instrument•Sequence Tracks are occupied (red LED lit), pressing <u>(ENTER-YES)</u> to invoke the command will display this message, and the command will be aborted.

<p>NO ROOM FOR OPERATION</p>	<p>If there is not enough memory to record Audio Tracks, this will be displayed when you try to enter record with an Audio Track selected. If you try to run a command that requires more memory than available, this will be displayed and the command will be aborted.</p> <p>When importing Akai/Roland samples, if there is not enough free memory to load either the directory from the selected Akai or Roland format SCSI Storage Device, or the first WaveSample, this will be displayed, and the command will be aborted.</p>
<p>NO SCSI RJK MIDISYNC</p>	<p>This appears when you try to manually change the Edit/Seq•Song, CLOCK SOURCE to MIDI when Audio Tracks have been configured for DiskTrack recording.</p>
<p>NOT AN RSR SCSI DEV</p>	<p>The SCSI storage device selected is not a valid ASR-10 formatted Storage Device, and cannot be used by the ASR-10. Make certain you inserted an ASR-10 formatted SCSI Cartridge before powering on the ASR-10.</p> <p>You may choose to reformat the SCSI storage device for use with the ASR-10. Use caution, as this will erase all previously saved data on the SCSI Storage Device.</p>
<p>NOT ENOUGH DISK SPACE</p>	<p>The allocated Temporary Record Files have been used up, or you are configured for SCSI with REC FILE SIZE=CURRENT, but no Temporary Record files exist on the selected SCSI storage device.</p>
<p>NOT SET FOR SONG RJK</p>	<p>This will appear if you are trying to record a Song Audio Track, but Command/Seq•Song, SET SONG ATRK PLAYBACK is set to PLAY=SEQ ATRKS ONLY.</p> <p>It will also appear if you are trying to record Song Audio Track A and PLAY=SEQ A + SONG B, or you are trying to record Song Audio Track B and PLAY=SONG A + SEQ B.</p>
<p>OUT OF MEMORY</p>	<p>RAMTrack recording has completely filled the ASR-10 internal memory during recording. The sequencer will automatically stop recording, the message will be displayed for two seconds, and the ASR-10 will enter Audition Play. The AudioSample data that was recorded before all memory was exhausted is processed as if you had pressed ⏏ (STOP-CONTINUE) to exit recording.</p>
<p>PREP RE RJKS FIRST</p>	<p>If an Audio Track is selected, but the Audio Tracks have not been prepared (i.e. data has not been cued up by pressing ⏏ (ENTER-YES), or selecting an unselected Audio Track while the sequencer is stopped), this will be displayed when you try to enter record. The sequencer will not enter record with an Audio Track selected until the Audio Tracks have been prepared.</p>
<p>READING DIRECTORY</p>	<p>When importing Akai/Roland samples, when the ASR-10 is reading the directory contents from the selected Akai or Roland format SCSI Storage Device, this will be displayed. All button presses will be ignored while this message is displayed.</p>
<p>SCSI ACCESS TOO SLOW</p>	<p>This is displayed when you press ⏏ (STOP-CONTINUE) to stop sequencer playback, and it means that the selected SCSI storage device is not keeping up during audio playback. This could be due to one or more of the following:</p> <p>Within the Command/System•MIDI, CONFIGURE AUDIO TRACKS command:</p> <ul style="list-style-type: none"> • SCSI BUFFERS too small • SCSI ACCESS SPEED too slow <p>Problems relating to the External SCSI storage device:</p> <ul style="list-style-type: none"> • disk access time too slow • disk seek time too slow • disk drive not smart about caching • disk drive SCSI interface too slow • disk fragmented <p>You can continue to use the sequencer even though this message appeared, because it is possible that some problems can be detected but not heard. If you see this message but didn't hear a problem, you might want to consider reconfiguring the Audio Tracks (using the Command/System•MIDI, CONFIGURE AUDIO TRACKS command) with larger SCSI BUFFERS and a slightly faster SCSI ACCESS SPEED. If you hear glitching of the Audio Tracks during playback, you should definitely look for this message when you press ⏏ (STOP-CONTINUE). Note that this message does not appear in Audition Play.</p>
<p>SELECT ASMPL FIRST</p>	<p>If the Edit/(audio) Track, ASMPLNAME=*UNDEFINED*, or if no AudioSamples exist, this will be displayed when any AUDIOSAMPLE command is invoked.</p> <p>Go to the ASMPLNAME parameter and use the ⏏ (▲) and ⏏ (▼) buttons to choose a target AudioSample before invoking the Command.</p>

<code>SONGTEMPO/TIMEVARIES</code>	This message appears when you try to record Song Audio Tracks in a song made up of sequences containing different Tempos and Time Signatures. Song Audio Tracks can only be recorded in songs made up of sequences of like tempos and time signatures.
<code>STOP SEQUENCER FIRST</code>	When auditioning a DiskTrack recording, you cannot dynamically switch between OLD and NEW on the Audition page while the sequencer is in play. If you try, you will get this message.
<code>UNCONNECTED SCSI DEV</code>	A SCSI storage device that was detected by the ASR-10 at bootup is no longer connected or turned on, or the selected Load Device does not exist. The ASR-10 will be configured for ATRK PLAY/REC=SCSI, but REC SCSI DRIVE=NONE (i.e., SCSI playback only) and Buffers have been allocated. Check the cable connections from your SCSI Storage Device to the ASR-10. Also make sure you selected the same Priority/ID number as the storage device.
<code>USE SMALLER AMOUNT</code>	The SCSI BUFFERS size selected in the CONFIGURE AUDIO TRACKS command is too large to fit in available RAM. After this message is displayed, the ASR-10 Audio Track configuration will be left unchanged. Choose a smaller value and try again.
<code>WRITING .</code>	During RESTORE or VERIFY, if it appears indefinitely, the backup on the DAT is damaged so the ASR-10 cannot recognize it, or the DAT contains no ASR-10 BACKUP at all. Press <u>(CANCEL-NO)</u> to abort the command. Check that the right and left LED displays are responding equally on the DAT machine. If not, remove the tape and check to see that you are using the correctly labeled tape. You may need to BACKUP again if the data is damaged.
<code>WRONG DAT NUMBER</code>	The wrong number tape from the correct set has been inserted. You will be given the chance to insert the correct tape after pressing <u>(ENTER-YES)</u> . Eject the tape and insert the proper tape from the set.
<code>WRONG DEVICE TYPE</code>	If the selected Load Device is not formatted, or is the wrong format, the following error message will be displayed, and the command will be aborted.
<code>WRONG SIZE DISK</code>	This message appears when you use the COPY FLOPPY DISK command and try to copy data from an HD disk (High Density disk) to a DD disk (Double Density disk), or vice versa.

Note: You may see some of these error messages if you're performing a DAT BACKUP/RESTORE and you're operating your DAT machine in a humid environment. In this case, the data on the tape may be good. We strongly recommend operating your DAT machine in a cool, climate controlled environment.

44 KHz Effect Descriptions and Variations

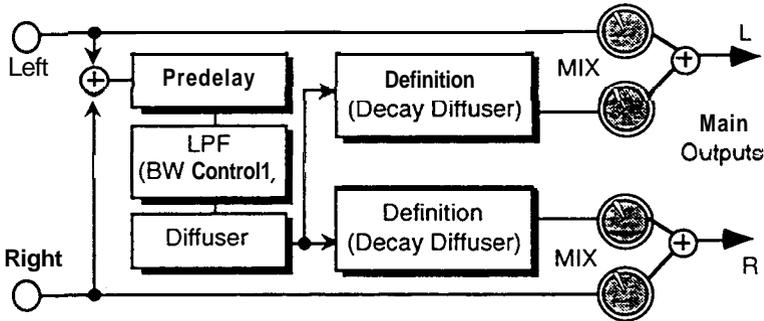
The Operating System disk contains 12 new 4.4 KHz effect algorithms specially designed for the ASR-10. This section will:

- show the name of each effect as it appears on the display (shown inside the black header),
- list the available preprogrammed variations (shown immediately below the effect name),
- describe the effect,
- show the signal routing diagram (if applicable), and
- list the names of parameters that you can adjust.

At the end of the section is an alphabetized list of all the parameters and what they do.

44LUSH PLATE			
1 LUSH REVERB	2 STANDARD REVERB	3 MEDIUM REVERB	4 LONG REVERB
44LUSH PLAT2			
1 LUSH REVERB	2 STANDARD REVERB	3 MEDIUM REVERB	4 LONG REVERB
44PERC PLA			
1 AMBIENT REVERB	2 SLAP REVERB	3 SHORT REVERB	4 PERC REVERB

A plate reverb takes the vibrations from a metal plate and uses them to create a metallic-sounding reverb. 44LUSH PLATE is a 44 KHz small plate reverb offering early reflections; 44LUSH PLAT2 is a larger 44 KHz plate reverb effect; 44PERC PLATE is a 44 KHz plate reverb optimized for drum and percussion sounds. In general, **small** plate reverbs are used for drums and percussion, while large plate reverbs are used to enhance a vocalist's performance.



Reverb Signal Routing (applies to all plate reverb effects)

DECAY TIME	DEPTH
PREDELAY TIME	DEFINITION
HF DAMPING	DIFFUSION (1 & 2)
BW (bandwidth)	ER TIME (L & R) <small>* not available within 44LUSH PLAT2</small>
DETUNE RATE	ER LEVEL (L & R) <small>* not available within 44LUSH PLAT2</small>

Reverb Parameters (apply to all plate reverb effects, except where noted)

44EQ+DDL

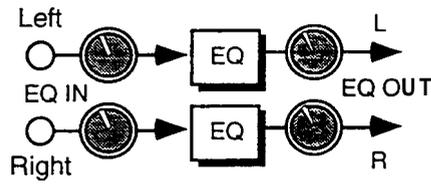
1 LEFT RIGHT CENTR

2 SLAP ECHOES

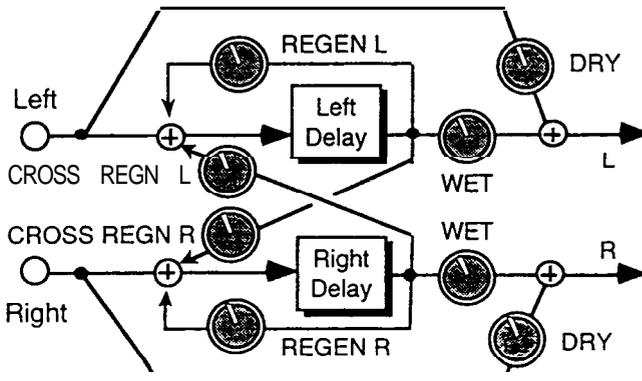
3 WHEEL ECHO

4 RHYTHMIC ECHOES

44EQ+DDL combines a 44 KHz parametric EQ with a digital delay.



EQ Routing



Digital Delay Routing

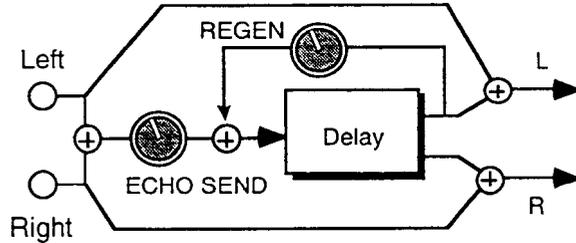
EQ IN	MID BW
OUT	ECHO WET
GAIN BASS	DRY
TREB	ECHOTIME (L & R)
MID	ECHO REGEN (L & R)
GAIN	CROSS REGN (L & R)

44EQ+DDL Parameters

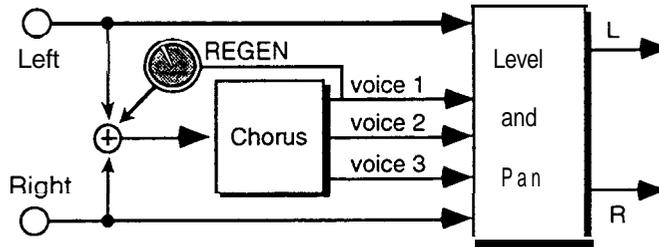
44DDL+CH+REV

1 SWIRLING CHORUS 2 DDL+SLOW CHORUS 3 FLANGED CHORUS 4 WARM CHORUS

44 KHz digital delay with a three-voice chorus and reverb. Because this is a hi-fidelity 44 KHz effect algorithm, BUS2 and BUS3 are dry. The reverb routing is the same as in the plate reverbs.



Digital Delay Routing



Three-Voice Chorus Routing

REVERB MIX	DECAY TIME
ECHO SEND	PREDELAY TIME
REGEN	HF DAMPING
ECHOTIME (L & R)	B W
CH RATE	DEFINITION
REGEN	DIFFUSION
CH DRY LEV	
PAN	EXPERT PARAMS
CH WET LEV (1 to 3)	FDBK T
CH WET PAN (1 to 3)	TIME L
CH LFORATE (1 to 3)	TIME R
CH WIDTH (1 to 3)	GAIN L
CH DELAY (1 to 3)	GAIN R

44DDL+CH+REV Parameters

44DDL+CHORUS

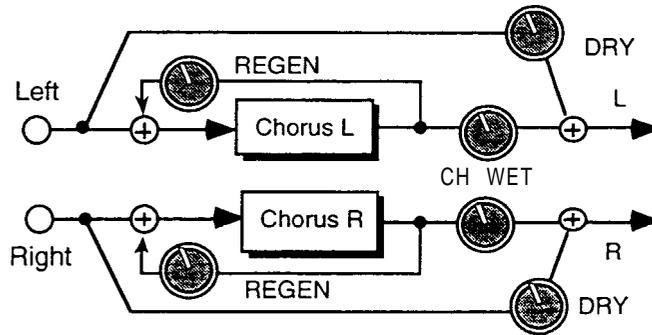
1 PING PONG CHORUS

2 FAT CHORUS

3 ORGAN VIBRATO

4 CLOCKWORK PIANO

Combines a 44 KHz six-voice chorus (three left and three right) with a reverb. Because this is a hi-fidelity 44 KHz effect algorithm, BUS2 and BUS3 are dry. The digital delay routing is the same as found in 44DDL+CH+REV.



Six-Voice Chorus Routing

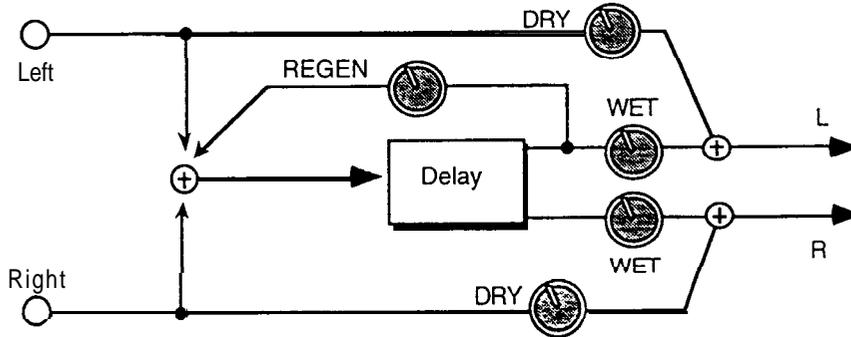
ECHO LEV	CH RATE
REGEN	REGEN
ECHOTIME (L & R)	CH LFO SPREAD
CH WET	CH WIDTH
DRY	DELAY

44DDL+CHORUS Parameters

44DLYLFO+REV

1 PING PONG CHORUS | 2 SIDE TO SIDE | 3 DETUNER | 4 WHEEL WOW

Combines a 44 KHz digital delay that provides LFO modulation with a chorus effect. The reverb routing is the same as in the plate reverbs.



Delay LFO Routing

REVERB MIX	BW
DLWET	DEFINITION
DRY	DIFFUSION (1 & 2)
DL RATE	
REGEN	EXPERT PARAMS
DL WIDTH (L & R)	FDBK T
DL DELAY (L & R)	TIME L
DECAY TIME	TIME R
PREDELAY TIME	GAIN L
HF DAMPING	GAIN R

44DLYLFO+REV Parameters

44EQ+DDL+CHO

1 SWIRLING CHORUS	2 DDL+SLOW CHORUS	3 FLANGED CHORUS	4 WARM CHORUS
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This 44 KHz algorithm combines a parametric EQ with a digital delay and a chorus effect. The EQ routing is the same as in 44EQ+DDL. The digital delay routing is the same as in 44DDL+CH+REV. The chorus routing is the same as in 44DDL+CH+REV.

EQ IN	REGEN
OUT	CH DRY LEV
EQ FREQ	PAN
GAIN	CH WET LEV (1 to 3)
EQ BW	CH WET PAN (1 to 3)
ECHO LEV	CH LFORATE (1 to 3)
REGEN	CH WIDTH (1 to 3)
ECHOTIME (L & R)	DELAY (1 to 3)
CH RATE	

44EQ+DDL+CHO Parameters**44PARAM EQ**

1 LA CURVE	2 HYPED VOCALS	3 BASS BOOST	4 ASR SWEETENER
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44PARAM EQ offers a 44 KHz minimum phase three band parametric EQ. The EQ routing is the same as in 44EQ+DDL.

BASS FC	MID Q
GAIN	TREBLE FC
MID FC	GAIN
GAIN	INPUT TRIM

44PARAM EQ Parameters

44EQ+REVE			
1 LUSH REVERB	2 STANDARD REVERB	3 MEDIUM REVERB	4 LONG REVERB

This effect combines a 44 KHz parametric EQ with a reverb. This reverb routing is the same as in the plate reverbs. The EQ routing is the same as in 44EQ+DDL.

REVERB MIX	DEFINITION
EQ IN	DIFFUSION (1 & 2)
OUT	
EQ_FREQ	
GAIN	EXPERT PARAMS
EQ BW	FDBK T
DECAY TIME	TIME L
PREDELAY TIME	TIME R
HF DAMPING	GAIN L
B W	GAIN R

44EQ+REVERB Parameters

44ROTO+REVRB

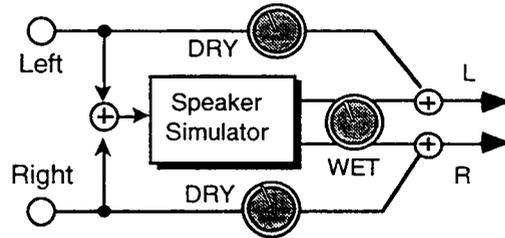
1 AMBIENT REVERB

2 SLAP REVERB

3 SHORT REVERB

4 PERC REVERB

A 4.4 KHz rotating speaker simulation with reverb. The reverb routing is the same as in the plate reverbs.



Rotary Speaker Routing

REVERB MIX	PREDELAY TIME
SPKR WET	HF DAMPING
DRY	B W
SPEED	DEFINITION
INERTIA	DIFFUSION (1 & 2)
SPEED MIN	
MAX	EXPERT PARAMS
AM MIN	FDBK T
MAX	TIME L
FM MIN	TIME R
MAX	GAIN L
DECAY TIME	GAIN R

44ROTO+REVRB Parameters

44EQ+ROT+DDL			
1 PATCH SELECT	2 MOD WHEEL	3 TREMOLO PATCH	4 VIBRATO PATCH

This 44 KHz effect combines a parametric EQ with a rotating speaker and digital delay. The rotary speaker topology is the same as in 44ROTO+REVRB. The EQ routing is the same as in 44EQ+DDL. The rotary speaker routing is the same as 44ROTO+REVRB. The digital delay routing is the same as in 44EQ+DDL.

EQ IN	MAX
OUT	AM MIN
EQ FREQ	MAX
GAIN	FM MIN
EQ BW	MAX
SPKR WET	ECHO WET
DRY	DRY
SPEED	ECHOTIME (L & R)
INERTIA	ECHO REGEN (L & R)
SPEED MIN	CROSS REGN (L & R)

44EQ+ROT+DDL Parameters

Effect Parameters in Alphabetical order:

AM MIN and MAX Range: 0 to 127 (corresponding to the SPEED setting)

Allows you to set the Ah4 modulation amount for the minimum speed (SPEED=MIN) and for the maximum speed (SPEED=MAX). Ah4 modulation is the amount that the volume will fade away as the speaker rotates away from the listener. Higher values create a deeper rotating effect.

BASS FC Range: 0 to 1000 Hz

Sets the center of the low-frequency parametric.

BW (bandwidth) Range: 1 to 99

Acts as a low-pass filter on the signal going into the reverb, controlling the amount of high frequencies present. The higher the setting, the more high frequencies are allowed to pass through, offering a brighter ringing sound. Some interesting effects can be created by using a mod controller over a large range.

CH DELAY (1 to 3) Ranges: 0 to 50

Controls the nominal delay time of the chorus in milliseconds.

CH DRY LEV Range: -99 to +99

Allows you to define how much of the signal you want to completely bypass the chorus. Setting this parameter to +0 will eliminate the dry signal. By setting this parameter to 99 and the CH WET parameter to +0, you can assign voices to be completely dry. Negative values will reverse the polarity, offering a tonal variation.

CH LFORATE (1 to 3) Ranges: 0 to 130

Controls the rate of the LFO (pitch modulation) of the three discrete chorused signals. To achieve a chorusing effect, this rate must be very slow.

CH RATE 44DDL+CH+REV, 44EQ+DDL+CHO Range: 0 to 127
44DDL+CHORUS Range: 0 to 130

Controls the rate of modulation of the delay time of the chorus. The delay modulation produces vibrato and tremolo.

CH WET Range: -99 to +99

Controls the volume of the chorused signal only. Setting this parameter to +0 will eliminate the chorused portion completely.

CH WET LEV (1 to 3) Ranges: -99 to +99

Adjusts the volume of the three discrete chorused signals. The sign of the value determines the polarity of the chorus. A level of +0 will offer no chorused signal.

CH WET PAN (1 to 3) Ranges: -99 to +99

Determines the location of the three chorused signals in the stereo spectrum. A value of -99 is panned hard left, and +99 is hard right.

CH WIDTH (1 to 3) Ranges: 0 to 127

Controls the excursion of pitch modulation of the three discrete chorused signals. Since the rate is usually very slow, the width is usually large.

CROSS REGN (L and R) Ranges: -99 to +99

Allows you to feed back the echoed signals to their opposite sides. The left voice crosses to the right voice, and the right voice crosses to the left voice. A setting of +99 or -99 will cause infinite delay. Be careful, if the echo regen is set too high, it may cause this parameter to “blow up.”

DECAY TIME 44PERC PLATE Range: 0.40 to 1.21
 44LUSH PLATE 1 and 2, 44DDL+CH+REV,
 44DLYLFO+REV, 44EQ+REVERB,
 44ROTO+REVRB Range: 0.40 to 140. sec

Controls the amount of time it takes for the reverberation to decay. Generally, high values of decay time sound good on plate reverb algorithms.

DEFINITION Range: 0 to 99

Controls the rate at which echo density increases with time. Higher values can cause the echo density to build at a rate that exceeds the decay rate. Try to select the highest value that works with your sound source for the best performance.

DELAY 44EQ+DDL+CHO Ranges: 0 to 50
 44DDL+CHORUS Ranges: 0 to 100

Controls the nominal delay time of the chorus in milliseconds.

DEPTH Range: 0 to 99

This parameter controls the depth of the detuning, that is, how much the pitch will change. Low values yield a metallic sound. Some synth voices sound best with very low values.

DETUNE RATE Range: 0 to 99

This parameter controls the LFO rate of detuning incorporated within the reverb. Detuning introduces a slight pitch shift in the reverberated signal, giving it a more natural-sounding decay by breaking up resonant nodes.

DIFFUSION (1 & 2) Ranges: 0 to 99

Smears the input signal to create a smoother sound. Lower values will cause impulse sounds to appear as a series of discrete echoes, while higher values tend to increase the smear, making the echoes less apparent. The diffusers are in series. Plate reverbs tend to sound metallic, and the diffusers help to smear the signal, eliminating the metallic sound.

DL DELAY L and R Ranges: 0 to 400 msec

Determines the nominal amount of time between the input signal and the delay outputs.

DL RATE Range: 0 to 130

Controls the rate of the LFO (pitch modulation). To achieve a chorusing effect, this rate must be very slow.

DL WET Range: -99 to +99

This parameter controls the volume of the delayed signal only. Setting this parameter to +0 will eliminate the delay portion completely.

DL WIDTH L and R

Ranges: 0 to 127

These two parameters control the left and right excursion of pitch modulation. Since the rate is usually very slow, the width is usually large.

DRY

44EQ+DDL Range: 0 to 99

44DDL+CHORUS, 44DLYLFO+REV,

44ROTO+REVRB, 44EQ+ROT+DDL

Range: -99 to +99

Allows you to define how much of the signal you want to completely bypass the effect. Setting this parameter to 0 will eliminate the dry signal. By setting this parameter to 99 and the WET parameter to 0, you can assign voices to be completely dry. Negative values will reverse the polarity, offering a tonal variation. Note that for 44ROTO+REVRB and 44EQ+ROT+DDL, you can simulate the typical "leakage" of a rotary speaker by setting the DRY parameter to approximately half of the SPKR WET value. This offers the best rotating effect at a slow speed.

ECHOTIME L and R

44DDL+CHORUS Ranges: 0 to 1000 msec

44EQ+ROT+DDL Ranges: 0 to 700 msec

Sets the amount of delay time for the independent delays. Each value increases the delay time by 1 millisecond. Experiment with different settings to find the right mix for your sound source and application.

ECHO LEV

Range: 0 to 99

Adjusts the volume of the delayed signals against the original dry signal. A level of 0 will offer no audible delay.

ECHO REGEN (L and R)

Ranges: -99 to +99

Determines the amount of signal that will be fed from the output of the delay back into the input, increasing the number of repeats in the delay. A setting of 99 would offer an infinite delay. The sign of the value determines the polarity of the regen (regeneration).

ECHO SEND

Range: 00 to 99

Controls the amount of delay being sent into the chorus. A setting of 0 would offer no delay.

ECHOTIME (L and R)

44EQ+DDL Ranges: 0 to 700 msec

44DDL+CH+REV Ranges: 0 to 500 msec

44EQ+DDL+CHO Ranges: 0 to 1400 msec

These parameters control the delay times for the left and right echoes. Each value increases the delay time by 1 millisecond. Experiment with different settings to find the right mix for your sound source and application.

ECHO WET

Range: 0 to 99

Controls the volume of the echoed signal only. Setting this parameter to 0 will eliminate the echo portion completely.

EQ BW

Range: 0 to 20K

This parameter is a bandwidth control that determines the width of the resonant peak at the mid-frequency band. By lowering the value, you can produce a narrower bandwidth.

EQ FREQ Range: 0 to 20000

Sets the center of the mid-frequency parametric.

EQ IN Range: -99 to +48 dB

Allows you to adjust the input level trim to the EQs to eliminate the possibility of clipping boosted signals.

ER TIME (L & R) Ranges: 0 to 127

Controls the amount of time it takes for the early reflections to be injected into the reverb. Early reflections are the sounds that have been reflected back from the walls or other reflective surfaces.

ER LEVEL (L & R) Ranges: -99 to +99

Controls the level of early reflections of the input signal added directly to the reverb output. Experiment with both positive and negative on all echoes to change the tonal character of the results.

FM MIN and MAX Range: 0 to 127 (corresponding to the SPEED setting)

Allows you to set the FM modulation amount for the minimum speed (SPEED=MIN) and for the maximum speed (SPEED=MAX). FM modulation is the detuning amount applied to the rotating speaker. This can be used to create a “Doppler” effect.

GAIN Range: -99 to +48 dB

Sets the amount of boost or cut applied to the mid-frequency parametric.

GAIN (BASS FC) Range: -48 to +24 dB

Sets the amount of boost or cut applied to the low-frequency parametric.

GAIN (MID FC) Range: -48 to +24 dB

Sets the amount of boost or cut applied to the mid-frequency parametric.

GAIN (TREBLE FC) Range: -48 to +24 dB

Sets the amount of boost or cut applied to the high-frequency parametric.

GAIN BASS Range: -99 to +48 dB

Sets the bass amount of boost or cut applied to a 0 to 80Hz low-shelving filter.

HF DAMPING Range: 0 to 99

Controls the rate of attenuation of high frequencies in the decay of the reverberation. As natural reverb decays, some high frequencies tend to get absorbed by the environment. Increasing the value of this parameter will filter out increasing amounts of high-frequency energy.

INERTIA Range: 0 to 127

Determines how long it will take for the rotor effect to speed up and slow down after switching from MAX to MIN or vice versa. Adjust this parameter to simulate the effect of the rotary speaker gradually picking up speed.

INPUT TRIM Range: -24 to +0 dB

Allows you to adjust the input level trim to the EQs to eliminate the possibility of clipping boosted signals.

LFO SPREAD Range: 0 to 127

Controls the speed of the three left and three right oscillators relative to one another. A setting of 0 offers the same speed between the oscillators, whereas a setting of 127 would yield an octave between 1 and 2, and 2 and 3.

MAX Range: 0 to 130

Determines the rate of the rotary speaker when in the 'MAX' setting. The higher the value, the faster the rate.

MID Range: 0 to 20000

Sets the center of the mid-frequency parametric.

MID BW Range: 0 to 20K

This parameter is a bandwidth control that determines the width of the resonant peak at the mid-frequency band. By lowering the value, you can produce a narrower bandwidth.

MID FC Range: 0 to 9999 Hz

Sets the center of the mid-frequency parametric.

MID Q Range: 1 to 18

A bandwidth control that determines the width of the resonant peak at the center-frequency band. By raising the value you can produce a narrower bandwidth.

OUT Range: -99 to +48 dB

Adjusts the output volume after the parametric EQ. With the LEVEL, GAIN BASS, and TREBLE LEVEL set to high values, the OUTPUT parameter could be used to create a raspy distortion effect. Negative values will decrease the output volume.

PAN Range: -99 to +99

Determines the location of the dry signal in the stereo spectrum. A value of -99 is panned hard left, and +99 is hard right.

PREDELAY TIME Plate Range: 0 to 300 msec
44EQ+DDL, 44DDL+CH+REV, 44DLYLFO+REV,
44EQ+REVERB, 44ROTO+REVRB Range: 0 to 150 msec

Controls the amount of time it takes for the input signal to be presented to the reverb. A value of 0 would offer no delay. The range is based in milliseconds.

REGEN Range: -99 to +99

Determines the amount of signal that will be fed from the output of the left delay back into the input, increasing the number of repeats in the delay. A setting of 99 would offer an infinite delay.

REGEN (Chorus) Range: -99 to +99

Controls the amount of feedback applied to the chorus. The sign of the value determines the polarity of the feedback. Feedback accentuates the complexity of the ‘swept’ signal.

REGEN (Delay) Range: -99 to +99

Determines the amount of signal that will be fed from the output of the delay back into the input, increasing the number of repeats in the delay. The sign of the value determines the polarity of the regen.

REVERB MIX Range: 0 to 99

This parameter controls the Dry/Wet mix of the Reverb. A setting of 0 offers no reverb.

SPEED Range: MIN or MAX

Determines how the rotary speaker will switch between slow and fast speeds. The behavior of the switch accurately reflects an actual rotary speaker, taking time to speed up or slow down, based on the value of the INERTIA parameter (see INERTIA description). Any effect modulator can act as the SPEED controller. How the modulators will switch the rotor speed fall into two categories:

- PATCH, FTSW2, SUSTN — These modulation sources toggle the rotor speed between MIN and MAX. Every time the modulation source moves from zero in a positive direction, the rotating speaker effect changes speeds from MIN to MAX or MAX to MIN.
- KEYDN, VEL, KBD, XCTRL, PEDAL, PRESS, PBEND, WHEEL — These modulation sources act like a switch to turn the fast rotor speed on or off. To reverse the polarity of the switch, set SPEED MIN faster than MAX.

SPEED MIN Range: 0 to 130

Determines the rate of the rotary speaker when in the “MIN” setting. SPEED MIN determines the manual level for the rotary speaker rate when SPEED=MIN, or when the selected modulator is at zero output level. Again, the higher the value, the faster the rate.

SPKR WET Range: -99 to +99

This parameter controls the volume of the rotating speaker only. Setting this parameter to +0 will eliminate the rotating speaker portion completely.

TREB Range: -99 to +48 dB

Sets the treble amount of boost or cut applied to a 10 to 22K high-shelving filter.

TREBLE FC Range: 1 to 20 KHz

Sets the center-frequency of the high-frequency parametric.

Additional Effect Parameters

EXPERT PARAMS

The following parameters, designed for the professional sound engineer, offer a high degree of programmable editing.

FDBKT Ranges: 0 to 127

These four feedback time parameters control the “size” of the reverb (like early reflections). 1 and 3 are generally short, and 2 and 4 are long.

GAIN L Ranges: -99 to +99

These four parameters control the output volume of the four left taps.

GAIN R Ranges: -99 to +99

These four parameters control the output volume of the four right taps.

TIME L Ranges: 0 to 127

These parameters set four output tap positions (early reflections) for the left side within the reverb. Higher numbers create a more delayed early reflection.

TIME R Ranges: 0 to 127

These parameters set four output tap positions (early reflections) for the right side within the reverb. Higher numbers create a more delayed early reflection.

SP-3 SCSI Interface Manual

Introduction

Congratulations on adding the power of SCSI to your ASR-10. We're sure that once you have experienced the speed with which you can load sounds from SCSI Storage Devices, you'll wonder how you ever did without it. Please read this manual carefully in order to get the most out of your new SP-3.

What is SCSI?

The great power and flexibility of the ASR-10 lies in the fact that it is really a computer disguised as a musical instrument. The Small Computer Systems Interface (SCSI, pronounced "scuzzy") is a standardized communication protocol for small computers (such as the Macintosh and the ASR-10) and peripheral devices (hard disk drives, CD ROM players, etc.) that allows for quick and efficient transfer of digital information. You may have up to eight SCSI devices connected on a single SCSI network. These devices can be computers, disk drives, tape backup systems, musical instruments, and other types of equipment.

Quick Set-up Guide

Here is a summary of what you must do to make your SCSI system work:

1. Obtain a SCSI Storage Device on which the Priority/ID number can be set by an external switch.
2. Make sure that the SCSI cable has a Macintosh-type connector (DB-25P) on one end.
3. Make sure your SCSI Storage Device has a terminator - either internal or external.
4. Set the SCSI Device ID number for the SCSI Storage Device to any number from 0 to 7 other than 3.
5. Connect the SCSI Storage Device to the ASR-10.
6. Power on the SCSI Storage Device first, then the ASR-10.
7. Press COMMAND, then SYSTEM-MIDI and scroll left to the FORMAT SCSI DRIVE command. Press ENTER•YES.
8. Set the LOAD DEVICE=SCSI # to the same SCSI Device ID number you selected in step 4. Press ENTER•YES.
9. Select and enter a unique name (DISK LABEL) for this device. This is important mainly for removable drives. Press ENTER•YES.
10. Select an Interleave value. ,
11. Pressing ENTER•YES will format the SCSI Storage Device. Respond to the prompts that appear by pressing ENTER•YES to automatically install the O.S. and set up sub-directories and default macros.
12. Shut off your ASR-10 and wait ten seconds. Eject the floppy disk.
13. Turn on your ASR-10 and wait for the system to boot from the SCSI Storage Device.

Getting Started

First, a Few Important Notes

Never connect or disconnect the SCSI cable while your ASR-10 or SCSI Storage Device is turned on. Serious damage will result.

The ASR-10 requires a specific file format on any SCSI Storage Device that it uses. For example, ASR-10 sounds cannot be saved directly to a SCSI Storage Device formatted for use with a Macintosh computer, nor can the Macintosh store files on a SCSI Storage Device formatted for the ASR-10. If you are using a SCSI network configuration that includes a Macintosh computer and a Macintosh-formatted SCSI Storage Device, make sure that you understand this distinction.

What About Cables?

There are several types of SCSI cables:

1. **Apple/ASR-10 to SCSI** -- a 25-pin D-type subminiature connector (DB-25P) on one end and a standard 50-pin male SCSI connector on the other end. This cable is used to connect an ASR-10 to a SCSI Storage Device. Most SCSI Storage Device manufacturers supply this type of cable with the storage device.
2. **SCSI to SCSI** -- a cable with the standard 50-pin male SCSI connector on both ends. This type of cable is often used to connect two SCSI Storage Devices.
3. **SCSI to SCSI Extension** -- a cable with a male SCSI connector on one end and a female SCSI connector on the other. These connectors can be either the standard 50-pin type or the 25-pin D type. This type of cable is used to extend the length of another SCSI cable. We do not recommend the use of long extension cables.
4. **Apple/ASR-10 to Apple/ASR-10** -- a cable with 25-pin D-type subminiature connectors (DB-25P) on both ends. This type of cable can be used to connect an ASR-10 directly to a Macintosh computer.

SCSI cables usually come in standard sizes of two feet and six feet. The combined length of all the cables in your SCSI network may be up to six meters (approximately nineteen feet). However, you should avoid cables that approach this limit. *Always use cables that are as short as possible for your connections.*

SCSI Terminators

The SCSI terminator is simply a resistor network on each SCSI signal on the SCSI bus. The terminator prevents reflection or ringing on the signal lines, allowing reliable high speed data transfers.

Warning! A system configuration (two or more SCSI Storage Devices) **must** have **two** terminators. Damage will result if more **than two terminators** are present. Terminator placement is described **below**.

The terminator is usually implemented in one of two ways: either externally or internally. The external terminator resembles either two 50-pin SCSI connectors mounted back to back, or one 50-pin SCSI connector that is connected to the same SCSI Storage Device with two connectors on it. The two-connector type of terminator is plugged into the SCSI connector of the SCSI Storage Device and then the SCSI cable is plugged into the terminator. The single-connector SCSI terminator is plugged into the unused connector on a two-connector SCSI Storage Device. The internal terminator is simply the resistor network integrated into the SCSI Storage Device itself, typically as resistor packs on the SCSI device controller circuit board. The documentation that accompanies the SCSI Storage Device will usually describe the procedures required for installation and removal of terminators. The SCSI installed in the ASR-10 rack mount (or the SP-3 SCSI Kit for the ASR-10 keyboard version) contains internal termination via removable resistor packs. Note that the ASR-10 supplies power for its own terminator only. Therefore, any SCSI Storage Devices used with the ASR-10 must supply power to the SCSI bus.

Connecting your ASR-10 to a SCSI Storage Device

Each time you set up or break down your ASR-10 and SCSI Storage Device system, you will need to connect or disconnect the SCSI cable from the 25-pin connector on the rear of the ASR-10, and probably from the SCSI Storage Device as well. When doing this, be careful to avoid static discharges that could damage either piece of equipment. Also make sure that you do not bend the SCSI cable too sharply, which could damage some of the small wires inside the cable and make it unreliable. *If you transport the system a lot, it is a good idea to carry an extra SCSI cable, just in case.*

SCSI System Set-Ups and Termination Requirements

There are two general types of system configurations. The **first** consists of an ASR-10 with one or more SCSI Storage Devices connected. Figures 1 to 3 show the termination requirements for several configurations of this type.

Figure 1

ASR-10, 1 SCSI Storage Device
Both units must be terminated.

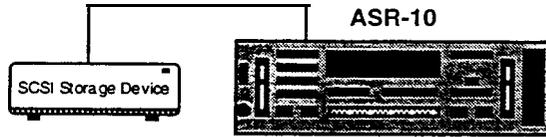


Figure 2

ASR-10, 2 SCSI Storage Devices
The ASR-10 and SCSI Storage Device 2 must be terminated. SCSI Storage Device 1 must not have a terminator.

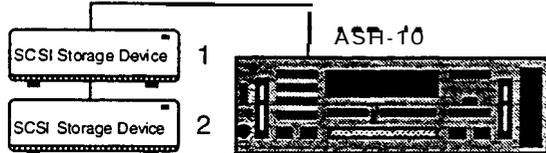
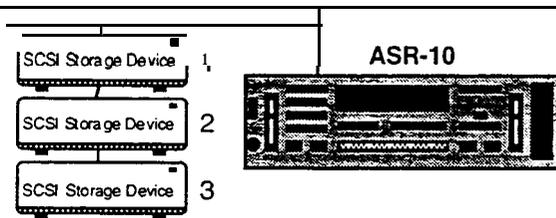


Figure 3

ASR-10, 3 or More SCSI Storage Devices
The ASR-10 and SCSI Storage Device 3 must be terminated. SCSI Storage Devices 1 and 2 must not have termination.



The second type of configuration consists of an ASR-10 with SCSI Storage Device(s) and a SCSI-equipped computer such as a Macintosh. Figures 4, 5 and 6 illustrate several such set-ups. The following are a few notes on using the ASR-10 with a computer on the SCSI bus:

- Position the ASR-10 and the computer at opposite ends of the SCSI chain.
- Any SCSI Storage Devices should be located in the center of the chain.
- Terminators must be present on the ASR-10 and on the computer only.
- All terminators in or on the SCSI Storage Device(s) *must be removed*.

Note: If your Macintosh has an internal SCSI Storage Device, it also has internal termination.

Figure 4

Macintosh Computer with internal hard disk, ASR-10, and 1 ASR-10 SCSI Storage Device
The SCSI Storage Device must not have a terminator. The Macintosh and ASR-10 are terminated internally.

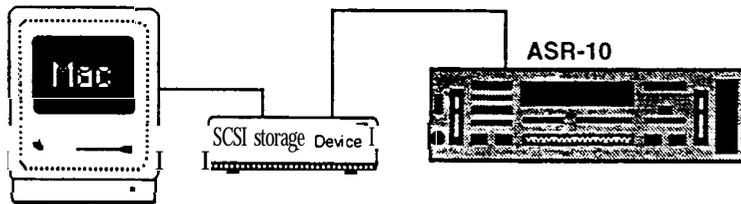
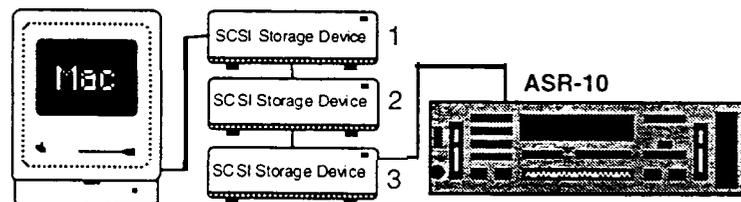


Figure 5

Macintosh Computer with no internal hard disk, ASR-10, 2 or More SCSI Storage Devices
SCSI storage Devices 1, 2, and 3 must not have terminators. The Macintosh* and ASR-10 must have termination.



* Some computers may not provide internal termination. For these system configurations, simply terminate the SCSI Storage Device that is closest to the computer *and use as short a cable as possible between that device and the computer*.

Note: Some newer model Apple Computers come with a built-in CD-ROM drive. Unfortunately, this internal CD-ROM drive has been set at SCSI device ID number 3. This will cause a conflict with the ASR-10 (which is also internally set at SCSI device ID number 3). If you are planning a SCSI system where both the Apple Computer and the ASR-10 must be able to talk to the CD-ROM, you are better off buying a computer without an internal CD-ROM drive, and instead buying an external CD-ROM drive where the SCSI device ID number can be changed to an ID that is other than 0 (Macintosh internal hard disk), 3 (ASR-10), or 7 (Macintosh Computer).

Setting the SCSI Device ID Number

Each SCSI Storage Device on the SCSI network must be assigned a different SCSI Device ID number. The SCSI Device ID determines the priority of the SCSI Storage Device. The SCSI Device ID number can range from 0 to 7, with 7 being the highest priority. The SCSI Device ID number of a SCSI Storage Device becomes important if two storage devices are trying to control the SCSI bus at the same time. In this case, the SCSI Storage Device with the highest priority will gain control of the SCSI bus.

It is important that each SCSI Storage Device be assigned a different SCSI Device ID number ensuring predictable communication between devices. Since the range of valid SCSI Device ID numbers is 0 to 7, a maximum of eight distinct SCSI Storage Devices can be connected to the network.

The ASR-10 has a fixed SCSI Device ID number of 3. The Apple Macintosh computer has a fixed SCSI Device ID number of 7. A Macintosh with an internal hard drive has the Macintosh at SCSI Device ID number 7 and the internal hard drive at SCSI Device ID number 0. Most other SCSI Storage Devices provide a way of changing their SCSI Device ID numbers. When buying a SCSI Storage Device for use with the ASR-10, make sure that there is an external switch provided for changing the SCSI Device ID number. Refer to the manuals of the other SCSI Storage Devices in your system to determine how to change their SCSI Device ID numbers.

☛ **Important:** Set the SCSI Device ID number of your storage device to any number (0 to 6) except 3! The SCSI Device ID number of your SCSI Storage Device must be different from that of the ASR-10. If it isn't, the ASR-10 will never see it.

<p>Warning: If you change the SCSI, ID of your SCSI Storage Device after you format it, your Macros and Banks will no longer work properly. The ASR-10 will be able to find the SCSI Storage Device but the device ID portion of the file path will be different.</p>
--

Notes for Macintosh Computer Users

If you have an external SCSI Storage Device for your Macintosh computer, its SCSI Device ID number may need to be set to 6. Some earlier versions of the Macintosh System software will try to boot from the highest priority drive that is on the SCSI network. Do not set your ASR-10 SCSI Storage Device ID number higher than your Macintosh SCSI drive SCSI Device ID number.

Booting Up with SCSI Storage Device(s) Connected

ASR-10 with SCSI Storage Device(s):

1. Turn on the SCSI Storage Device(s) first and wait approximately 20 seconds.
2. Turn on the ASR-10.
3. The ASR-10 will boot from the highest-numbered SCSI Storage Device containing the ASR-10 O.S. (If none of the ASR-10 formatted SCSI Storage Devices contain the ASR-10 O.S., the ASR-10 must be booted from a floppy disk.)

ASR-10 with SCSI Storage Device(s) and a computer:

1. Turn on the SCSI Storage Device(s) between the ASR-10 and the computer and wait approximately 20 seconds.
 2. Turn on the computer and follow its procedure for booting.
 3. Boot the ASR-10 (see above).
-

Notes for Macintosh Computer Users

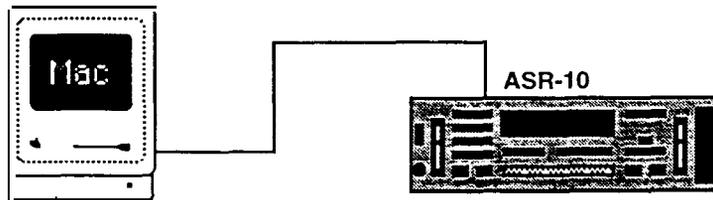
If you have an external SCSI Storage Device for your Macintosh computer, its SCSI ID may need to be set to 6. Some earlier versions of the Macintosh System software will try to boot from the highest priority drive that is on the SCSI network. Do not set your ASR-10 SCSI Storage Device ID number higher than your Macintosh SCSI drive ID number.

Note also that the ASR-10 can be connected directly to the Macintosh (no external hard disk in between) using a 25-pin to 25-pin cable, as long as both units are terminated (figure 6 below).

Figure 6

Macintosh Computer with or without internal hard disk, ASR-10

The ASR-10 can be connected directly to the Mac. Both units must be terminated.



ASR-10 Commands For Use With Storage Devices

Selecting the Storage Device

The CHANGE STORAGE DEVICE command is used to select the device that will be used to load and save files. Only one device can be selected at a time; that is, if you are looking at files on the SCSI Storage Device, you won't see any indication of the files on the floppy disk in the floppy drive. There are nine selections available in the Change Storage Device command. The first selection is the floppy disk drive with an ID of FLOPPY. The next eight selections are for SCSI devices 0 through 7.

To change the selected storage device:

1. Press **(COMMAND)**, then **(SYSTEM+MIDI)**.
2. Scroll right until the display shows CHANGE STORAGE DEVICE and press **(ENTER+YES)**.
3. The display shows either LOAD DEVICE = SCSI # (0-7) or LOAD DEVICE=FLOPPY. Use the **(▲)** and **(▼)** buttons to scroll to the ID number of the desired SCSI Storage Device, or FLOPPY, then press **(ENTER+YES)**.

It is important to remember to press **(ENTER+YES)** for the selection to actually take place. The display will show DISK COMMAND COMPLETED briefly when the SCSI storage device has been selected successfully. If the display shows INVALID LOAD DEVICE or UNCONNECTED SCSI DEV, then there is some problem with your connection to the SCSI Storage Device (the Storage Device is not turned on, the cable is disconnected, the Storage Device has a different ID setting, etc.). Check all connections and settings carefully before continuing.

Note for Macintosh Computer users

If the message NOT AN ASR SCSI DEV appears, then the device ID number you have selected may be a Macintosh formatted Storage Device. You cannot select this device as an ASR-10 storage device, except with the formatting procedure. Be very careful to avoid inadvertently erasing your Macintosh SCSI Storage Device.

Formatting a SCSI Storage Device

Formatting a SCSI Storage Device is similar to formatting a floppy disk on the internal disk drive. It prepares the disk to have ASR-10 files saved to it and loaded from it. It is by nature a destructive process because it erases all the information that was previously on the disk and replaces it with new information. The formatting procedure should always be performed very deliberately so that you do not accidentally lose important information by formatting the wrong disk.

Interleave: You will have the option of changing the Interleave number when initiating formatting. What does the Interleave number mean? It attempts to match the speed of the SCSI Storage Device with that of the ASR-10. It is usually expressed as a ratio, the selected number to 1. Some SCSI Storage Devices may be able to make information available to the ASR-10 at a higher rate than the ASR-10 can receive it. If the ASR-10 is not ready to receive the information the first time it is sent, then the SCSI Storage Device must do one full revolution of its disk before it can send the information again. This can cause the SCSI Storage Device to take a longer time to load.

What number is best? Start out with the default value, INTERLEAVE=0. This will use the default ratio for your particular SCSI Storage Device, which is usually 1 to 1. Therefore, an INTERLEAVE value of 0 or 1 will generally produce the same results. Format the SCSI Storage Device and save a sound to the device that is around 1000 blocks. It should take approximately

two seconds to load. If it takes longer, try reformatting the SCSI Storage Device with INTERLEAVE=2 Repeat the process of saving the 1000 block sound and seeing how long it takes to load. If you set the Interleave to a value that is too high, the load time may be longer. Though the Interleave number has a range of 0 to 10, normally you should not have to set it higher than 4. It's a question of trial and error. See what best suits you, or, if you don't want to worry about it, keep INTERLEAVE=0. For more information, see your SCSI Storage Device user's manual.

To Format a SCSI Storage Device

1. With the power of both the ASR-10 and the SCSI Storage Device turned off, connect the units using the appropriate cable (see earlier).
2. Insert the floppy disk containing the current Operating System into the ASR-10.
3. Turn on the SCSI Storage Device, wait 20 seconds, then turn on the ASR-10.

Note The FORMAT SCSI DRIVE command is available only when booting from the floppy disk.

4. Press COMMAND, then SYSTEM-MIDI, and scroll right until the display shows FORMAT SCSI DRIVE. Press ENTER-YES.
5. The display will show LOAD DEVICE = SCSI #. Use the ▲ and ▼ buttons to select the ID number of the SCSI Storage Device to be formatted. Press ENTER-YES.

Important: In a multiple hard drive set-up, make sure that you select the correct SCSI ID number for the Storage Device to be formatted. Otherwise, you may accidentally format a hard drive containing data that you do not want erased.

6. The display will show DISK LABEL=DISK000. Use **the Data Entry Controls** so select a unique name for **this** disk. Press ENTER-YES.
7. The display will show INTERLEAVE=0. Use the ▲ and ▼ buttons to select the desired ratio (see the discussion of Interleave above).
8. Press ENTER-YES. The display will show ERASE AND FORMAT DISK? to verify that you are about to erase the disk, losing all the data on that disk. If you press ENTER-YES in response to the prompt, the formatting will begin, and the display will show a flashing * FORMATTING * message.

Note: The time it takes to format a SCSI Storage Device depends on the size or formatted capacity of that Storage Device (40 Meg, 100 Meg, etc.), and the hard drive manufacturer's SCSI software implementation.

If the message UNCONNECTED SCSI DEV or INVALID LOAD DEVICE appears, then there is a problem with your SCSI Storage Device connection or ID assignment.

9. After the formatting is complete, the display will show the prompt COPY OS TO SCSI DRIVE? Press ENTER-YES. It is strongly recommended that you answer "Yes" to this prompt, as it will make the SCSI Storage Device "bootable" and will save you the trouble of transferring the O.S. later. If you answer "No" then the format procedure will end and you must create your directory structure from scratch.
10. The display will show another prompt MUST ERASE MEMORY, OK? Press ENTER-YES again if the contents of the memory are expendable. The display will show INSERT MASTER OS DISK to prompt you to insert a floppy disk that contains the current version of the O.S. to install on the SCSI Storage Device (if you've been following along, the OS. disk should already be in the drive).
11. Insert the floppy disk and press ENTER-YES. The display will briefly show READING OS INTO MEMORY then WRITING OS TO DISK while the O.S. is copied to the SCSI Storage Device.
12. The display will then show the SETUP DEFAULT DIRS? prompt to ask if you want to have the ASR-10 automatically create a basic directory structure and a macro file (refer to the

following sections of the manual for more information on these topics). It is recommended that you respond to this prompt by pressing (ENTER-YES).

You will see many messages flash across the display as the ASR-10 creates the directory structure and the macro file. DISK COMMAND COMPLETED will be displayed when the process is complete. The SCSI Storage Device is now ready to load and save files.

14. Eject the floppy disk and turn off the ASR-10. Wait ten seconds, and then **turn the ASR-10 back on**. If you have transferred the O.S., the ASR-10 should now boot from the SCSI Storage Device, and automatically load the default MACROFILE 1.

Updating the Operating System on a SCSI Storage Device

After you format a SCSI Storage Device, it is strongly recommended that you copy the current version of the ASR-10 O.S. to that SCSI Storage Device. The standard procedure for formatting (described above) allows you to take care of this step semi-automatically, but if you want to update the version of the O.S. on your Storage Device later, this is the procedure to use.

Note: The O.S. can only be copied to a floppy disk or a SCSI Storage Device if the O.S. was originally installed during the formatting process. Attempting to copy the O.S. to a formatted disk that already has files saved to it, but does not contain the O.S., will result in an error message.

The COPY O.S. TO DISK command allows the O.S. to be copied to either a floppy disk or a SCSI Storage Device. The source of the ASR-10 O.S. to be copied is *always* the floppy disk in the internal drive. The destination is the currently selected SCSI Storage Device as selected by the CHANGE STORAGE DEVICE command (explained earlier).

To Copy the ASR-10 O.S. to a SCSI Storage Device or Floppy Disk

1. If the destination device is not currently selected, select the correct device using the CHANGE STORAGE DEVICE command as described previously.
2. Press (COMMAND), then (SYSTEM•MIDI).
3. Scroll right until the display shows COPY OS. TO DISK and press (ENTER•YES).
4. The display shows INSERT MASTER OS DISK. Insert a floppy disk with the ASR-10 O.S. to be copied into the internal floppy disk drive and press (ENTER-YES).
5. The ASR-10 will automatically copy the O.S. from the floppy disk to the device selected. If the floppy disk is the destination device, then insert the floppy disk you want the ASR-10 O.S. copied onto when you are prompted and press (ENTER-YES).

Booting from a SCSI Storage Device

If you have successfully formatted your SCSI Storage Device using the procedure described on the preceding pages, or if you have just copied the O.S. to the SCSI Storage Device, then you can boot from the SCSI Storage Device. Turn off the ASR-10, and wait about ten seconds before turning it on again (with **no** floppy disk in the internal drive). The ASR-10 should now look for the O.S. on a SCSI Storage Device and boot from it.

The ASR-10 will always look for the O.S. first on a floppy disk. If there is no floppy disk in the drive, it will then look for the O.S. on a SCSI Storage Device. The ASR-10 SCSI Storage Device with the highest priority (ID) will be the device from which the ASR-10 boots. This device becomes the default Storage Device. If file number 5 in the root directory is a Macro file, then that Macro file will automatically be loaded at bootup.

The only difference is that the FORMAT SCSI DRIVE command disappears from the list of System Commands when you **have** booted from a SCSI Storage Device. This is intended to protect you from accidentally erasing your ASR-10 SCSI Storage Device.

SCSI Storage Device vs. Floppy Drive

Almost all the commands that apply to floppy drives **also** apply to SCSI Storage Devices. Commands such as updating the O.S. and saving or deleting files work the same way for SCSI Storage Devices, except faster. Saving files is somewhat faster and loading is much faster. You have to make sure that you have the correct device selected for the function that you want to do. Only one device can be selected at any one time; for example, if you are looking at files on the SCSI Storage Device, you won't see any indication of files on the disk in the floppy drive. To access files on other storage devices, you must select a new device using the CHANGE STORAGE DEVICE command. Make sure to press **ENTER-YES** to initiate the command (the ASR-10 then briefly displays COMMAND COMPLETED). Now, whenever you press **LOAD** and one of the Page buttons, you will be seeing the files for that device.

Another important distinction is that while SCSI Storage Devices are much faster and more convenient than floppies, they are also very sensitive and fragile. To be safe, it is always wise to make sure that you have copies of important files on floppies as well as on your SCSI Storage Device. If you assume that the SCSI Storage Device could fail at any time, and take the necessary precaution of making backups of your files, then you will be prepared in case it ever does malfunction and you have to rebuild your SCSI Storage Device. Refer to the section on backing up your SCSI Storage Device for more information on this topic.

Managing Disk Files

File Types

When you press the (LOAD) button and one of the page buttons (INSTRUMENT), (SEQ•SONG), (SYSTEM-MIDI), or (EFFECTS), the ASR-10 displays any files of the particular type indicated that are available on the currently selected SCSI Storage Device. For example, on the Instrument page, you will see a list of any Instruments or Bank files that are present. The following chart shows which pages contain the different file types, and which indicator lights will be illuminated on the display for each type.

ASR-10 File Types:

Mode/Page	File Types	Indicators
Load/Instrument	instruments Banks	LOAD + INST LOAD + INST + BANK
Load/Seq•Song	Sequences Songs	LOAD + SEQ LOAD + SEQ + SONG
Load/System•MIDI	Directories Macro Files System Exclusive Data	LOAD + SYSTEM LOAD + SYSTEM + MACRO LOAD + MIDI
Load/Effects	Effect Files	LOAD

File Numbers

Associated with each file in a given directory is a number indicating its position in that directory. File numbers are not assigned or organized according to file type, but by the order in which they are saved. For example, file #1 may be an Instrument, file #2 may be a sequence, file #3 may be another Instrument, and so on, depending on the order in which they were created. There is a limit of 38 files that can be grouped together at once. When using floppy disks, this number is not as important, since it is rare to be able to fit the maximum number of files on one disk. SCSI storage devices, however, have the capacity to hold thousands of files, and it becomes desirable to organize the files into distinct groups called Directories.

Directory Commands

To Enter or Move Down into a Directory from the Front Panel

1. Press **(LOAD)** then **(SYSTEM-MIDI)**, and use the **(▲)** and **(▼)** buttons to find the name of the directory you wish to enter.
2. Press **(ENTER-YES)**. This will open the new directory and allow you to view the contents of that directory.
3. The display will show EXIT TO <dir name> where “dir name” is the name of the parent directory which you came down from.
4. You can also enter a directory by sending the ASR-10 a Program Change. Refer to “Receiving Program Changes” when MIDI IN MODE = MULTI or MONO B in the Musician’s Manual.

Pressing the (a) and **(b)** buttons when the EXIT TO <dir name> (which is file 0 in the directory) is displayed will show you the name of the current directory that you are located in.

Note: Once you have entered a directory from the Load/System•MIDI page, you will not see any file names (except Macro, System Exclusive Files and other directories) until you press one of the Page buttons, **(INSTRUMENT)**, or **(SEQ•SONG)**. Remember to select the file type you are seeking before concluding that you have not found the correct directory.

To Exit from or Move Back Up from a Directory

1. Press **(LOAD)** then **(SYSTEM•MIDI)**, and use the **(▲)** and **(▼)** buttons until the ASR-10 displays EXIT TO <dir name> (where <dir name> is the name of the directory above the currently selected directory).

Tip: Press **(LOAD)** then 00 to go directly to the EXIT TO entry.

2. Press **(ENTER-YES)**. Depending on how many directories within directories you have, you may need to press **(ENTER-YES)** a few times to return to the Root Directory level.
3. You can also exit from a directory by sending the ASR-10 MIDI Program Change #1. Refer to “Receiving Program Changes” when MIDI IN MODE = MULTI or MONO B in the Musician’s Manual.

Creating a New Directory

1. Press **(COMMAND)**, then **(SYSTEM-MIDI)**, and scroll to the CREATE DIRECTORY command.
2. Press **(ENTER-YES)**. The display shows DIRNAME = NEWDIRECTORY.
3. You may edit the name of the new directory by using the Data Entry Slider and the **(ARROW)** buttons. The name you choose should in some way reflect the files that will be contained in the directory (see the Directory Recommendations section below).
4. Once you have chosen a name, pressing **(ENTER-YES)** will create a new sub-directory in the current directory. The display will show DISK COMMAND COMPLETED.

Deleting a Directory

A directory is deleted in the same way as any other disk file:

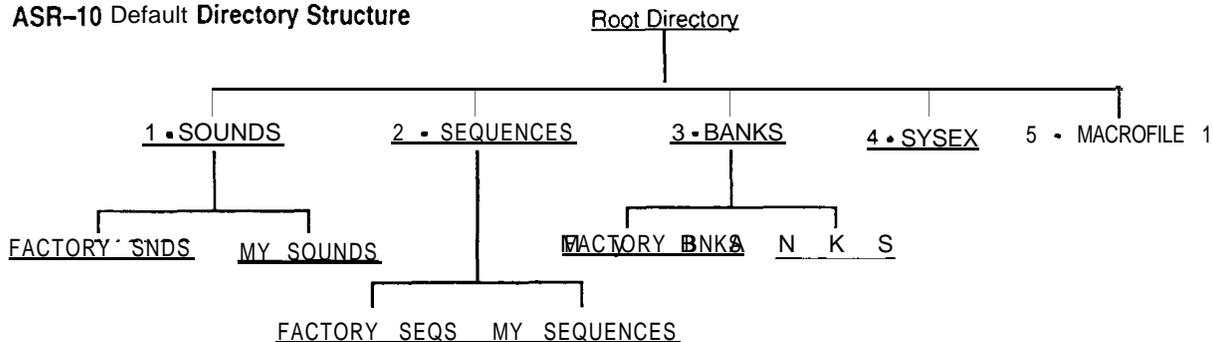
1. Make sure that there are no files remaining in the directory. A directory cannot be deleted if it contains any files.
2. Press **(LOAD)**, then **(SYSTEM•MIDI)** and scroll to the name of the directory you wish to delete. To check the number of files still contained in the directory, scroll left or right while the directory name is displayed.
3. With the name of the directory you wish to delete displayed, press and hold down **(LOAD)**, then press **(CANCEL)**. The display shows "DELETE <directory name> ?"
4. Press **(ENTER-YES)**. The directory will be deleted from the disk.

Directory Recommendations

If you have formatted your SCSI Storage Device using the default directory structure option, then some of the following considerations have been taken care of for you. However, it is still important to understand the concepts described here if you wish to get maximum use and optimum performance from your system.

It is a good idea to give some thought to how you will be using your ASR-10 and SCSI Storage Device before you start saving files, so that you will not have to reorganize files later, which can cause a degradation of drive performance as well as creating more work. Try to organize files of similar types into separate directories where you can find them more easily. Start by creating directories that cover broad areas. It is possible to make a directory that contains only other directories. The default Root Directory is of this type. It contains directories for each of the main ASR-10 file types and looks like the following:

ASR-10 Default Directory Structure



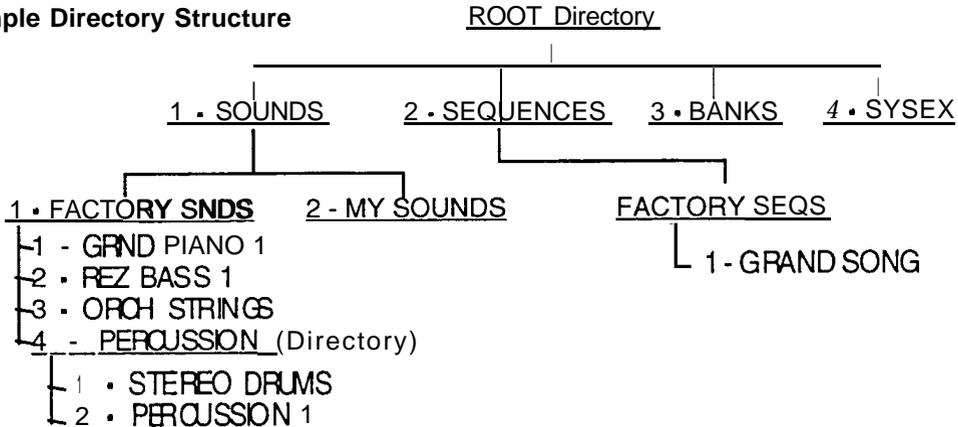
You could start saving different instruments into the SOUNDS directory but you would be limited to thirty-eight instruments. Instead, it makes more sense to first create more directories that will contain specific groups of sounds.

Note: Make sure that you are in the directory you think you are in before creating more subdirectories or saving new files (see the Enter Directory description). This will save you confusion later when looking for your files.

File Paths

It is helpful to have an understanding of how the ASR-10 keeps track of all the files that can be on a large Instrument disk like a CD-ROM.

Example Directory Structure



If we were to describe the location of the factory sound STEREO DRUMS in the Example Directory Structure diagram above, we might say:

“The STEREO DRUMS instrument file is in the PERCUSSION directory, within the FACTORY SNDS directory, which is in the SOUNDS directory, which is in the ROOT directory, which is on the SCSI 1 Storage Device.”

If we read the description from right to left, starting with the SCSI Storage Device, it becomes:

SCSI 1..ROOT..SOUNDS..FACTORY SNDS..PERCUSSION..STEREO DRUMS

This description of the location of the file is called a file path. This is the path that the ASR-10 will follow to find the file. If you use an IBM PC/Compatible running MSDOS, you may already be familiar with file paths (e.g., C:\SOUNDS\FACTORY SNDS\PERCUSSION\STEREO DRUMS). On a Macintosh computer, or an IBM PC/Compatible running Microsoft Windows, the file path would correspond to the cascade of the folders you would open to locate a file.

Bank Files

You may already be familiar with the concept of using Bank files to load a group of instruments, presets, and/or sequences with a single command. The demos on the factory disks are a good example of Bank files. If you are not familiar with Bank files, please refer to the Musician’s Manual for an explanation.

Understanding the use of Bank files is very important if you want to get the most from your ASR-10 SCSI Storage Device system.

Banks are particularly useful in conjunction with SCSI Storage Devices because they can vastly simplify the process of loading a set of files that may come from many different directories. Every time you load an Instrument or a Song file, the ASR-10 remembers the file path that was used to find the file. When you save a bank, the ASR-10 saves the file path for every loaded Instrument and the currently loaded Song, according to where it was loaded from.

When you load the Bank file, the ASR-10 will know where to find each Instrument and Song file, even if you have multiple SCSI Storage Devices, regardless of which directory the bank file is

loaded from. This allows you to keep all of your Bank files in one directory or group of directories, as described in a preceding section. The Bank file resides in whatever directory you are in when you save the Bank to disk.

Direct-Macros™

What Is a Direct-Macro?

It may have occurred to you that with the large number of files that a SCSI Storage Device can contain, it would be nice to be able to get directly to a directory or specific file quickly rather than having to scroll through all of the files and manually enter each directory and sub-directory. Direct-Macros allow you to do this. In the ASR-10, a Direct-Macro is a shortcut that allows you to get to a file or directory on your SCSI Storage Device (or floppy) with just a few button presses.

Complete understanding and utilization of macros is very important to the effective use of your SCSI Storage Device. Spend time to make sure that these concepts are clear to you, so that you can set up macros to access all the directories and files that you use often.

Organizing your files in directories makes it easier to locate an individual file, but moving up and down through directories can become tedious if you are working with a specific set of files that are in different directories. Macros allow you to assign a number (1 to 28) to an individual file location. You use or invoke the macro by holding down (LOAD) while entering the macro number (using the numeric keypad), and when you release (LOAD), the ASR-10 will automatically go to the correct directory for the requested file and display its name.

The group of up to 28 currently defined macros may be stored as a Macro File. These macro files appear along with directories on the Load/System•MIDI page. You can have many macro files on disk, but the only macros that are in effect are the macros from the most recently loaded macro file. Only one can be loaded in at a time, giving you access to twenty-eight macros. The best place to save these files is in the root directory. The default macro file created by the formatting procedure is located in the Root Directory of the SCSI Storage Device, and is called MACROFILE 1. A macro file having this or any other name will be automatically loaded at bootup if it is found as file number 5 in the Root Directory. If you want to use other macros, the first thing you should do is load the desired macro file after you boot from the SCSI Storage Device.

The macro file created by the formatting procedure, named MACROFILE 1, contains macros predefined for getting to the various directories in the default directory structure, as follows:

1 FLOPPY DRIVE	2 FACTORY SOUNDS	3 MY SOUNDS
	5 FACTORY SEQS	6 MY SEQUENCES
	8 FACTORY BNKS	9 MY BANKS
	0 MACRO FILE	

Note: All macro operations are performed with the (LOAD) button held down, and take effect when the (LOAD) button is released.

Loading a Macro File

1. Press **(LOAD)** then **(SYSTEM•MIDI)**, and scroll to the macro file that you wish to load.
2. Press **(ENTER•YES)** to load a new set of 28 macros into the ASR-10.

Creating a Macro

1. Find the file or directory to which you want to assign a macro.
2. Press and while holding the **(LOAD)** button, type any number from 1 to 28, press **(ENTER•YES)**, then release **(LOAD)**. The macro assignment will remain in effect until another macro file is loaded or the ASR-10 is rebooted.

Invoking a Macro

- Press and hold the **(LOAD)** button, type and release the number of the desired macro. When you release the **(LOAD)** button, the ASR-10 will go to the file that is assigned to the macro. If the file is a directory, you will need to press **(ENTER•YES)** to actually enter the directory. If no file is assigned to the macro, the macro number will be displayed, and nothing else will happen. In MULTI and MONO B modes, incoming MIDI program changes 101-128 will invoke Macros 0-27.

Saving a Macro File

1. First, invoke macro 0 (zero) to get back to the proper directory for the currently loaded macro file (macro 0 is a special macro that is always automatically assigned to the currently loaded macro file and cannot be reassigned. It is used to allow you to easily get back to the directory where the macro file that you last loaded is located. This makes saving your modified macro files easier).
2. Press **(COMMAND)** then **(SYSTEM•MIDI)**, and scroll to the SAVE MACRO FILE command and press **(ENTER•YES)**. The name of the current macro file will be displayed.
3. The display will show FILE NAME = MACROFILE 1. If you want to create a new macro file, edit the name of the file, and press **(ENTER•YES)** when you are ready. The new macro file will be saved in the same directory as the old macro file(s).
4. If you wish to update the old file, just press **(ENTER•YES)**. When the ASR-10 displays DELETE OLD VERSION? press **(ENTER)** only if you wish to replace the old macro file with the new set of macros. This will save your newly defined set of macros into the macro file that was last loaded.

You can have as many different macro files as you want by giving them different names. You may also save them into any directory, although it is a good idea to save them in the root directory so that they are easy to load when you boot up. Remember that macros can take you to any file or directory, no matter how far down the file path. Also remember that you must resave the macro file any time you add new macros and want them to be there the next time you boot the ASR-10.

Tip: A good example of the use of macros would be to assign macro 11 to a directory consisting solely of bank files. Now, whenever you want to save your current group of instruments (and any saved song file) as a bank, simply invoke macro 11 to select your bank directory, and then use the SAVE BANK command (press **(COMMAND)**, then **(INSTRUMENT)**, and scroll to SAVE BANK). This saves you from having to locate your bank directory each time. Another useful application of macros is the transfer of files from floppy disks onto your SCSI Storage Device.

Applications and Troubleshooting

Transferring Files from a Floppy Disk to a SCSI Storage Device

1. To load a sound from floppy disk, you must use the CHANGE STORAGE DEVICE command to select the floppy drive, or use Macro 1 from the default Macro File.
2. Load the instrument file from the floppy disk into one of the eight **(INSTRUMENT•SEQUENCE TRACKS)**.
3. Now, use the CHANGE STORAGE DEVICE command or a Macro to change to a directory on the SCSI Storage Device. Make sure that you have entered the directory.
4. Before you save the file to the SCSI Storage Device, you must make sure that you are in the proper directory. For example, move down into SOUNDS, then down into FACTORY SNDS. Or you can use default Macro 2 to automatically take you to the FACTORY SNDS directory. Press **(ENTER•YES)** to enter this directory. You may want to define a macro that takes you directly into the directory you have selected for instrument files on your SCSI Storage Device instead of using the default macro. This is probably the best approach.
5. To **save this** file, press **(COMMAND)**, then press **(INSTRUMENT)** and scroll to the SAVE INSTRUMENT command.

Tip: To get to this command, press **(COMMAND)** then double-click on the **(INSTRUMENT)** button.

Repeat this procedure for each sound you wish to transfer. You may want to load and save a few instruments at one time for convenience. After you move your sounds over to the SCSI Storage Device, try loading one. Notice that the files load almost instantaneously from the SCSI Storage Device. Once you get the hang of moving around in directories, you can decide for yourself how you want to organize your directories.

Transferring Banks from a Floppy Disk to a SCSI Storage Device

1. Load the Bank (including Song, if applicable) from the floppy disk.
2. Use the CHANGE STORAGE DEVICE command to select the appropriate SCSI Storage Device.
3. Locate the directory you wish to **save the instruments to** and press **(ENTER•YES)**.
4. Press **(COMMAND)**, then **(INSTRUMENT)**, and scroll to SAVE INSTRUMENT. Select the first instrument to be saved and press **(ENTER•YES)** twice (see Important Note below).
5. Repeat the above steps for all the primary Instruments within the bank (not copies).
6. If the Bank includes a song, locate the directory where you want to save the song to and press **(ENTER•YES)**.
7. Press **(COMMAND)**, then **(SEQ•SONG)**, scroll to SAVE SONG + ALL SEQs, and press **(ENTER•YES)** twice.
8. Locate the directory you wish to **save the Bank to** and press **(ENTER•YES)**.
9. Press **(COMMAND)**, then **(INSTRUMENT)** and scroll to SAVE BANK. Press **(ENTER•YES)** twice.

Important Note about Transferring Banks

When saving instruments that will be used as part of a Bank, it is imperative that only Primary Instruments be saved to the SCSI Storage Device and not copies of those primary Instruments. The following will help you determine which (INSTRUMENT•SEQUENCE TRACK) locations contain primary Instruments. If a bank contains instrument copies, those copies will be the last group of sounds to be loaded into memory. Therefore, while loading the Bank, write down the (INSTRUMENT•SEQUENCE TRACK) location numbers as they are loaded. If a Song/Sequence file is also used in this Bank, there will be a short pause while the sequencer is being loaded, followed by the creation of any instrument copies. It is before this pause that all primary Instruments are loaded. If no song is used by the Bank, the instrument copies will be created immediately following the Primary Instruments.

If you follow these steps, you will successfully transfer your Banks from floppy to SCSI Storage Device.

Moving Sounds Between Directories

To copy an Instrument File from one directory to another:

1. Load the file into one of the (INSTRUMENT•SEQUENCE TRACK) locations and select it.
2. Change to the destination directory using the CHANGE STORAGE DEVICE command.
3. Use the SAVE INSTRUMENT command to save the instrument file to the new directory.
4. To be safe, you may want to load in the newly saved sound just to make sure that it was saved correctly. You may then go back and delete the file **from the original** directory.

A few notes on moving files:

- A similar procedure can be used for all of the other types of files as well.
- Use caution when moving files that are used by a Bank. A bank remembers the 'File Path' to get to a particular file, not the file itself. If you need to move a file used by a bank, first load the Bank that uses the file. Then save the file to its new location, and resave the Bank. You may then delete the old copy of the file.

Getting the Best Performance from your SCSI Storage Device

There are things you can do to keep your SCSI Storage Device **running** at top speed. The speed of a SCSI Storage Device is very dependent upon how quickly it can locate the information contained in a file and transfer it to the device that has requested it. SCSI Storage Devices can be very fast, but there are things you can do to optimize their performance and keep them moving as fast as possible.

The main problem to avoid is disk fragmentation, which is a condition that occurs when files become broken into separate parts spread out over different areas of the disk. The SCSI Storage Device will have to move its heads frequently to find the various pieces of the file, and this slows down loading. The condition develops gradually as files are saved, erased, replaced with new versions of different sizes and so on. The SCSI Storage Device tries to use the disk efficiently by filling in gaps when they are found, but eventually this results in fragmentation. The following are techniques you can use to minimize fragmentation, and procedures that will eliminate it.

- Once you format your SCSI Storage Device, it is strongly suggested that you create all your sub-directories before you save any files to prevent the disk from becoming unnecessarily fragmented.
- Only save finished work to your SCSI Storage Device. Deleting files and replacing them causes the disk to become fragmented. Work on your files using a floppy, then save it to the SCSI Storage Device when it is complete.
- If the disk becomes fragmented, the files will take a longer time to load because parts of a single file may be located in a number of places on the disk rather than in a contiguous block. The more fragmented a SCSI Storage Device (or file) gets, the longer it will take to load.

Advice About Using SCSI Storage Devices

Your SCSI Storage Device is an extremely valuable and fragile piece of sensitive computer equipment. Be especially careful when transporting your SCSI Storage Device to avoid shocks, temperature and humidity extremes, and proximity to magnetic fields. Be careful about static discharges when handling and connecting your SCSI Storage Device. Do not move or bump your SCSI Storage Device while it is running. Read the owner's manual that came with it for additional advice.

To avoid big disappointment later, the most important thing is to keep your files backed up. Always save files you care about in two places, with one of them being a floppy disk. The floppy will serve as your backup in case your SCSI Storage Device goes on an unexpected vacation, which they sometimes like to do. Everyone who works with SCSI Storage Devices is eventually faced with the big crash. Be prepared.' Have fun, enjoy the convenience and speed but be realistic about the reliability. Always assume that it will break when you least expect it.

The next most important thing is to understand and use Macros and Banks effectively. They allow you to minimize the confusion that can occur when managing large amounts of information with limited ability to see the big picture.

Try to form a mental image of your directory structure, and use the system logically. It is a very good idea to keep a written record of where your files are on your SCSI Storage Device, including the directory structure. As you add or delete files, update your written record as well. This will help prevent your "losing" a file because you can't remember what directory it is in.

SCSI Troubleshooting

Error Messages (in alphabetical order)

Message:	Defined:	What to Do:
<code>DISK DRIVE NOT READY</code>	This message usually occurs when the ASR-10 is trying to access the floppy drive or a removable SCSI Storage Device when there is no disk or cartridge in the drive.	If this message occurs, insert a floppy disk or cartridge in the drive, then use the CHANGE STORAGE DEVICE Command to select the appropriate SCSI ID number (or press (LOAD) then (INSTRUMENT)). This event may take place because of improperly saved files. Refer to the section on "Transferring Banks from a Floppy Disk to a SCSI Storage Device."
<code>DISK HRS BEEN CHANGED</code>	The disk (or cartridge) has been ejected from the drive since the last time the drive was accessed by the ASR-10.	Reinsert the disk or cartridge, press (LOAD) , then (INSTRUMENT) , and continue.
<code>DRIVE NOT RESPONDING</code>	If encountered while using a SCSI Storage Device, this error may indicate a problem with your SCSI cables. The cable from the ASR-10 to the Storage Device may be too long, or the system may not have proper termination.	Check all connections and make sure that you are using the correct cables. Make sure you have the proper termination. If this message appears repeatedly while files are being saved to the disk, then it is likely that you are invisibly losing sectors of your disk. Correct the problem before continuing to use the disk.
<code>INVALID LOAD DEVICE</code>	No SCSI device with this ID was connected to the network when the ASR-10 booted up.	Use the CHANGE STORAGE DEVICE Command to verify that you are using the correct SCSI Device number.
<code>NOT AN RSR SCSI DEV</code>	The SCSI device selected is not an ASR-10 formatted storage device, and cannot be used by the ASR-10.	You may choose to reformat the SCSI Storage Device for use with the ASR-10. Use caution, as this will erase all previously saved data on the SCSI Storage Device.
<code>UNCONNECTED SCSI DEV</code>	A SCSI device that was detected by the ASR-10 at bootup is no longer connected or turned on.	Check your SCSI connections. If your SCSI Storage Device has a changeable ID number, make sure it matches the SCSI Device Number you have chosen in the CHANGE STORAGE DEVICE Command.

Final Thoughts

The main problems that you are likely to encounter are the SCSI Storage Device problems described above and cable problems. These are some additional recommendations to help eliminate many problems:

1. Use the shortest cable possible when connecting SCSI Storage Devices.
2. Be sure to use proper termination. Refer to the SCSI Terminators section of this manual.
3. If you need to use an extension cable between your ASR-10 and your SCSI storage device(s), use high quality shielded SCSI extension cables only (do not use printer cables).
4. Avoid running SCSI cables across power cables and other sources of powerful electromagnetic fields.
5. It is required that the SCSI Storage Device supply power to the SCSI bus. Check your SCSI Storage Device manual for further information.
6. Some SCSI Storage Devices may have their SCSI Device ID number set internally. Refer to the SCSI Storage Device's manual or manufacturer for more information.
7. If you use an Apple computer in your setup, be sure to use a short (18" or shorter) Apple-brand SCSI cable between the computer and the first connected SCSI Storage Device.

Remember, most of the problems we encounter are with cabling or with systems that are not terminated properly. If you encounter a problem, make sure you have checked these things carefully before assuming that your ASR-10, SP-3 or your SCSI Storage Device are at fault.

Limited Warranty for the SP-3

What Is Covered

This warranty covers all defects in material and workmanship for thirty days from the date of purchase from an Authorized ENSONIQ Dealer or Repair Station.

What Is Not Covered

This warranty does not cover damage to or deterioration of the SP-3 or internal circuitry resulting from accident, misuse, neglect, attempted unauthorized repair or failure to follow operating instructions. Power to the ASR-10 must be off prior to connecting or disconnecting a SCSI device to the ASR-10. Failure to do so will damage the ASR-10 an/or the SCSI device itself. This would invalidate the warranty.

How To Obtain Warranty Performance

Return your defective SP-3 SCSI Interface with this package to an Authorized ENSONIQ Dealer or Repair Station along with proof of purchase. The defective SP-3 will be replaced.

Limitations Of Implied Warranties And Exclusion Of Certain Damages

Any implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty.

ENSONIQ's liability, for any defective product, is limited to repair or replacement of the product.

ENSONIQ shall not be liable under any circumstance for:

1. Damages based upon inconvenience, loss of use of the SP-3, loss of time, interrupted operation, or commercial loss.
2. Any other damages, whether incidental, consequential, or otherwise, except damages which may not be excluded under applicable law.

Some **states** do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages so the above limitations and exclusions may not apply to you.

The warranty gives you specific legal rights, and you may also have other right which may vary from state to state.

No Claim For Warranty Will Be Honored Without Proof Of Purchase.

Technical Support

If you have any questions concerning this unit, please contact your Authorized ENSONIQ Dealer. For additional technical support, or to find the name of the nearest Authorized ENSONIQ Repair Station, call ENSONIQ Customer Service at (610) 647-3930 Monday through Friday 9:30 AM to 12:15 PM and 1:15 PM to 6:30 PM Eastern Time. Between 1:15 PM and 5:00 PM we experience our heaviest call load. During these times, there may be delays in answering your call.

What is the DI-10 Digital I/O Interface?

The DI-10 Digital I/O Interface (S/PDIF) provides direct Digital Input and Output connection to and from the ASR-10 using RCA-type connectors. The Digital Output will provide direct 44.1 KHz digital audio output of the Main Output mix when the current effect uses a 44.1 KHz sample rate. The Digital Input can be used for direct digital sampling from an external digital audio source at 44.1 or 48 KHz.

The Digital Input and Output conform to the S/PDIF standard.

Note: If you wish to record the 44.1 KHz digital output of the ASR-10 to a DAT recorder, the DAT recorder must be able to record from its digital input at 44.1 KHz. Some older/consumer DAT recorders do not record at 44.1 KHz as a copy protection scheme: *these DAT recorders will not record the ASR-10's 44.7 KHz digital output.*

About the Digital Input



When the DI-10 Digital I/O is installed, the DIGITAL value for the Sample•Select page REC SRC parameter is available.

When REC SRC=DIGITAL, the following rules apply:

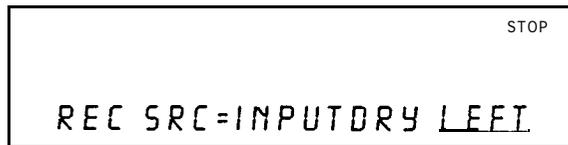
- The left and right analog **Audio Input jacks are disabled.**
- Any digital audio source that has an S/PDIF “coaxial” RCA-type digital output jack can be connected to the ASR-10 **Digital I/O In jack.**
- Digital signals are received by **the Digital I/O In jack**, and can be sampled in stereo or mono.
- Digital signals received at the **Digital I/O In jack** can be monitored on the Audio Tracks, and the monitored signal will be affected by the Edit/(audio) Track parameters. The left portion of the signal is monitored on Audio Track A, and the right portion on Audio Track B. The Audio Tracks can be independently selected and Source Monitor enabled, as normal.
- Both 44.1 KHz and 48 KHz digital signals will be recognized by the digital input, and can be monitored and sampled (Note: When a digital signal is being monitored, some clicks will be heard. The clicks are more frequent when a 48 KHz digital signal is being monitored. This is normal, and is due to the difference in clock rate between the ASR-10 and the external digital signal source. The clicks affect monitoring only, and will not be recorded into any samples).
- 32 KHz digital signals are not supported by the Digital I/O Input and should not be used.
- When REC SRC=DIGITAL, the effect algorithm on the FX Select ● FX Bypass page is automatically set to FX=OFF 23 VOICE 44K, and cannot be edited until the REC SRC parameter is changed to another value. Attempting to change effects while REC SRC=DIGITAL will cause the following error message to be displayed:



Easy All-Digital Sampling

Let's try recording a simple, one-shot sample entirely in the digital domain. First we need a digital audio source. For this example, we'll use a standard CD player (that has a digital output jack) with your favorite audio sampling CD. In the consumer CD player market, CD players with a "coaxial" RCA-type digital output jack are compatible with the ASR-10. CD players with an "optical" digital output jack are not compatible with the ASR-10. See the Appendix for a list of ASR-10 compatible CD players.

1. The digital output jack of the CD player should be connected to **the Digital I/O In** jack on the back of the ASR-10 using a single RCA-type cable.
2. To initiate sampling, press the **(SAMPLE•SOURCE SELECT)** button. The display shows:

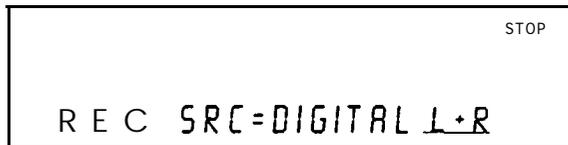


STOP

REC SRC=INPUT DRY LEFT

The RECORD SOURCE parameter **has** two fields. Field 1 determines which Audio Source will be sampled. Field 2 determines whether the Audio Source will be sampled in stereo or mono.

3. Set REC SRC Field 1 to DIGITAL using **the Data Entry Controls**.
4. Set REC SRC Field 2 to L+R (stereo) by pressing both **(AUDIO TRACK)** buttons, or by using the **Data Entry Controls**. The display should look like this:



STOP

REC SRC=DIGITAL L+R

5. Press either an unloaded (no red LED lit) **(INSTRUMENT•SEQUENCE TRACK)** button (the recommended way to select a destination Instrument) or press **the (ENTER•YES)** button. If **the (ENTER•YES)** button is pressed, the display will ask:

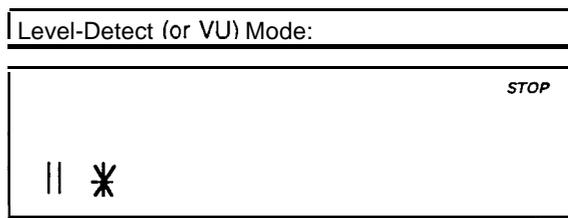


STOP

PICK SAMPLE INSTRUMENT

6. Press an unloaded (no red LED lit) **(INSTRUMENT•SEQUENCE TRACK)** button. If you select an **(INSTRUMENT•SEQUENCE TRACK)** where there is already an instrument loaded, the ASR-10 will display the multisampling screen, as normal.

After you have pressed an unloaded **(INSTRUMENT•SEQUENCE TRACK)** button, the ASR-10 goes into Level-Detect (or W) mode:



Level-Detect (or VU) Mode:

STOP

|| *

↑ ↓

Input signal level Sampling Threshold

In Level-Detect mode the display acts like a peak-reading W meter. The vertical bars on the display lighting from left to right show the level of the incoming signal. The *star* represents the sampling threshold — the ASR-10 will not begin recording until the signal crosses this level. The sampling threshold provides a way to make the ASR-10 “wait” until the signal reaches a certain level before it begins to record. The ASR-10 offers 20 possible sampling threshold levels. Pressing the  button raises the threshold; pressing the  button lowers it.

Starting to Record

When REC SRC= DIGITAL and you are sampling from the Digital Input, the input level is automatically set, and overrides the Mic/Line switch (on the ASR-10 keyboard only) as well as the Input Level Trim Knob and the Input Level LEDs.

1. Press  or press the left foot switch to initiate sampling. The display will show WAITING.. . until the threshold is exceeded. During sampling, the display shows:



The XXX value (range 000 to 999) will count down in real-time when sampling. Remember that if the sampling threshold (the star) is set higher than the input signal level (the vertical bars), the ASR-10 will not begin sampling until the input signal crosses the threshold. Pressing  while the sampling screen reads WAITING.. . will abort sampling, and the ASR-10 will return to Level-Detect mode.

2. Play the sound to be sampled; start the CD player.
3. Press  or press the left foot switch to stop sampling. If you don't stop it by pressing  or the left foot switch, the ASR-10 will continue sampling until it has used up all the available memory.

Note: In order to use the left foot switch to start and stop sampling, the LEFT FOOT SW parameter on the Edit/System•MIDI page must be set to LEFT FOOT SW= SAMPL YES.

After you have stopped sampling (or the memory is full) the display will flash the following message:



The root key is the note on the ASR-10 keyboard at which the sample will play back at “unity” (the same pitch as the original input signal). Whichever key you press in response to the PLAY ROOT KEY OR ENTER prompt is the key that will play back exactly what you sampled.

Tip: You can also press the  button in response to the PLAY ROOT KEY OR ENTER prompt. This assigns the root key to the same key number that the Edit/System•MIDI ENTER PLAYS KEY parameter is set to, allowing you to record samples without using the keyboard or MIDI input. Remember, you can assign different WaveSample ranges and change the root key and pitch using the Instrument Edit parameters.

Normalizing Gain

After you've recorded a satisfactory sample, you should then perform the Command/Amp NORMALIZE GAIN command, to optimize use of the full dynamic range of the ASR-10. To do this:

1. Press **COMMAND**, then (AMP) and scroll until the display reads NORMALIZE GAIN.
2. Press **ENTER-YES** To invoke the command. The display will read DATA BEING PROCESSED, followed by COMMAND COMPLETED.

For more information on the NORMALIZE GAIN command, see *Section 10 — Wave Data Parameters* in the ASR-10 Musician's Manual.

Default Output Routings

When REC SRC= DIGITAL, and a new WaveSample is created, its Edit/Amp, OUT value will be set to the same value as the Edit (audio) Track, OUT parameter for the Audio Track through which the RECORD SOURCE was monitored.

About the Digital Output

When the current system sample rate (as determined by the current effect algorithm) is 44.1 KHz, the Digital Output jack will provide direct 44.1 KHz digital audio output of the MAIN-OUT mix (voices routed to BUS1, 2, or 3). Any voices routed to the AUX 1, 2, or 3 busses will not be sent to the Digital Output. Note that when the current effect algorithm uses a 30 KHz sample rate, the Digital Output is disabled.

To determine the sample rate of the currently selected effect algorithm, press the **FX SELECT-FX BYPASS** button, followed by the (a) button. The display will read either 23 VOICES AT 44 KHZ or 31 VOICES AT 30 KHZ.

A common use for the Digital Output is to mix-down sequences/songs to a DAT recorder equipped with a "coaxial" RCA-type S/PDIF digital input jack. Here's how:

Note: The DAT recorder must be able to record from its digital input at 44.1 KHz. Some older/consumer DAT recorders, such as the Sony PCM 2500, do not record at 44.1 KHz as a copy protection scheme; *these DAT recorders will not record the ASR-10's 44.1 KHz digital output.*

1. Connect the ASR-10 Digital I/O Out jack to the S/PDIF digital input jack of a DAT recorder, using a single RCA-type cable.
2. Press the **FX SELECT-FX BYPASS** button. Using **the Data Entry Controls, set the** current effect to one that uses a 44.1 KHz sample rate.
3. Set up the DAT recorder (using the instructions that came with the DAT machine) to record the sequence/song. The DAT recorder must be set to SP (standard play) 44.1 KHz.
4. Press *record* on the DAT recorder, then press the **PLAY** button on the ASR-10.
5. When the sequence/song is finished playing, press the **STOP** buttons on both the ASR-10 and the DAT recorder.

DI-10 Appendix

The following low-priced (under \$400.00) CD players feature a “coaxial” RCA-type digital output jack, and are compatible with the ASR-10. However, this is not an all-inclusive list, and ENSONIQ does not endorse or support any of these products or their affiliated companies. In general, any CD player with a “coaxial” RCA-type digital output jack should work with the ASR-10:

<u>Manufacturer:</u>	<u>Model:</u>
CEC	780CD
CEC	880CD
Denon	DCD-690
Denon	DCM-420
Denon	DCP-70
Denon	DCP-150
Kenwood	DPC 321
Kenwood	DPC 521
Kenwood	DPC 721
Magnavox	CDB 473
Philips	CD 920
Philips	CDC 935
Teac	CDP 3100

Copyrighted Material

 **Warning:** ENSONIQ does not support or condone sampling of copyrighted material.

Illegal recording (sampling) of copyrighted material is in direct violation of Federal and International copyright laws, and is subject to legal prosecution. If you wish to use samples from copyrighted material in your own original recordings, you must obtain permission in writing from the owner of the copyright.

We recommend that you invest in any of the wide variety of sample source CD's available. Once purchased, these recordings usually permit registered owners unlimited copying rights for use in original recordings.

Limited Warranty for the DI-10

What Is Covered

This warranty covers all defects in material and workmanship for thirty days from the date of purchase from an Authorized ENSONIQ Repair Station.

What Is Not Covered

This warranty does not cover damage to or deterioration of the casing or internal circuitry resulting from accident, misuse, neglect, attempted unauthorized repair or failure to follow operating instructions.

How To Obtain Warranty Performance

Return your defective DI-10 with its packaging to an Authorized ENSONIQ Dealer along with proof of purchase. The defective DI-10 will be replaced.

Limitations Of Implied Warranties And Exclusion Of Certain Damages

Any implied warranties, including warranties of merchantability and fitness for a particular purpose are limited in duration to the length of this warranty.

ENSONIQ's liability, for any defective product, is limited to repair or replacement of the product.

ENSONIQ shall not be liable under any circumstance for:

1. Damages based upon inconvenience, loss of the DI-10, loss of time, interrupted operation, or commercial loss.
2. Any other damages, whether incidental, consequential, or otherwise, except damages which may not be excluded under applicable law.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

The warranty gives you specific legal rights, and you may also have other rights that may vary from state to state.

No claim for warranty will be honored without proof of purchase.

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Glossary

The following is a glossary of terms that have been used throughout this document.

Amalgamation — is the way the ASR-10 automatically tries to unite all AudioSamples affected by the current punch-in into one AudioSample, which helps to avoid disk fragmentation.

AudioSample — Another name for recorded Audio Track sample data that can reside in RAM, on a SCSI Storage Device, or both.

Audio Trigger — The sequencer event that plays the AudioSample. The Audio Trigger specifies which AudioSample to play.

Audio Tracks — Are like two additional sequencer tracks that record incoming audio instead of MIDI data. An Audio Track may consist of one long AudioSample, or contain several shorter AudioSamples.

Bounce-down — Re-recording the playback of existing tracks. You can bounce-down two tracks into one, allowing for unlimited overdubbing. A track can be bounced (resampled) back to itself — add effects to a dry track, or build up multi-processed tracks using a different effect algorithm with each pass.

BUS — The effects processor in the ASR-10 has three inputs (BUS 1/2/3) and one output (the MAIN Out and Digital I/O Output), and processes whatever signal is routed to one of its three inputs.

Chain Play — to manually cue up a second sequence to play while one is already playing.

Digital Audio Recording — Allows you to add up to *two* tracks of *digital audio recording* (called Audio Tracks) to your sequences. The recorded data can reside in the ASR-10's internal memory (RAMTracks) or on a hard disk connected via SCSI (DiskTracks). Audio Track data cannot be recorded directly to floppy.

DiskTracks — Audio Tracks that are recorded direct to hard disk via SCSI (*SP-3 option required for keyboard version*).

Foreign Sequence — A sequence that has data recorded on its Audio Tracks, and is loaded in from floppy (or an external SCSI Storage Device) while a Song (and/or other sequences) with data recorded on their Audio Tracks already exists within the ASR-10. Note that there is no such thing as a Foreign Song, as it would replace all of the sequencer memory if it were to be loaded into the ASR-10.

Fragmentation — occurs when you save a file containing more data than can fit in one connected space on a disk. When this happens, the drive splits the data into many pieces small enough to fit wherever it can find the empty space. Although this is an efficient use of disk space, fragmentation will adversely affect the performance of any memory-based system, causing it to take longer to find each file.

Input Source — Usually the Audio or Digital Inputs, but when the SAMPLE REC SRC=MAIN-OUT, this is the output of the “mixer.”

Mixer — Allows Volume, Panning and FX BUS routing to be imposed on both the “Input Source” monitor and the “Playback” monitor. The “Input Source” and “Playback” share the same monitor mix.

Orphaned AudioSample — An AudioSample file on disk that is not being referenced by the current Project file.

Overdubbing — allows you to m-record all or part of an Audio Track.

Playback Monitor — You are monitoring (hearing) the *recorded* signal that was sampled, or recorded onto an Audio Track.

Project — The currently loaded SONG + ALL SEQs file, including all sequencer data, and song and sequence Audio Track data (Audio Triggers and RAM AudioSamples).

RAM Buffer — A temporary holding area in the ASR-10's internal memory, where the ASR-10 stores information that is to be transferred to an external SCSI Storage Device.

RAMTracks — Audio Tracks that are recorded to internal memory. No additional hardware is required (16 Meg RAM is recommended).

SCSI — Small Computer System Interface. A standardized communication protocol for small computers (such as the Macintosh and the ASR-10) and peripheral devices (hard disk drives, CD ROM players, etc.) that allows for quick and efficient transfer of digital information.

SIMM — Single In-line Memory Module. SIMMs have become the industry standard used by most computers (both IBM and Mac compatible) to expand the computer's memory.

Source Monitor — You are monitoring (hearing) the *initial* signal that is being sampled, played, or recorded onto an Audio Track.

Spooling — The method of transferring information from the RAM buffer to an external SCSI Storage Device.

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**“INSTRUCTIONS PERTAINING TO A RISK OF FIRE,
ELECTRIC SHOCK, OR INJURY TO PERSONS”**

IMPORTANT SAFETY INSTRUCTIONS

WARNING-When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Do not use this product near water - for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
8. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.
9. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
11. The product should be serviced by qualified service personnel when:
 - a. The power supply cord or the plug has been damaged, or
 - b. Objects have fallen, or liquid has been spilled into the product; or
 - c. The product has been exposed to rain; or
 - d. The product does not appear to operate normally or exhibits a marked change in performance;
or
 - e. The product has been dropped, or the enclosure damaged.
12. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS

Part # 9311 0063 01
Model #SU-ASR-3



LEADING THE WORLD IN SOUND INNOVATION

