



ASR

Advanced Sampling Recorder

Handbook

Version 3.5

ASR-88 Handbook:

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Please record the following information:

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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IMPORTANT

“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-88 should be serviced only by an Authorized ENSONIQ Repair Station. The ENSONIQ serial number label must appear on the outside of the unit, or the ENSONIQ warranty is void.

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Welcome!

Thank-you for your purchase of the ENSONIQ ASR-88 Advanced Sampling Recorder. The ASR-88 is a phenomenal new sampling workstation, with 88 weighted keys for a realistic piano feel, 24-bit dynamic effects processing and stereo audio inputs that can be monitored, sampled, and resampled through the effects. And only ENSONIQ offers all the expressive control that turns a sampler into a truly musical instrument.

Thanks as well for opening up the ENSONIQ ASR-88 Handbook. This handbook covers the differences between the ASR-10 and the ASR-88, and includes a tutorial that is designed to give you a big head start in being able to use and understand all of the major features of the ENSONIQ ASR-88 Advanced Sampling Recorder. The tutorial is easy to read and digest, and will take you about an hour or so to complete. If you've ever used a tutorial that came with a computer software package, this format will be familiar to you.

After you've finished the tutorial, you'll be on the way to using the ASR-88 to its fullest. But don't forget about the Musician's Manual. It contains all the in-depth details you'll want to know to help you become a more accomplished user.

After finishing the tutorial, it is a good idea to read *Section 1— Controls and Architecture* of the Musician's Manual. It will give you the final pieces of information about the ASR-88 you'll need to get going.

Using the ASR-10 Musician's Manual with the ASR-88

The ASR-10 Musician's Manual (which was included with your ASR-88 accessory kit) will help you to use and understand the major features of the ASR-88. The ASR-88's functionality is identical to the ASR-10, with the following differences:

1. The ASR-88 has 27 more keys than the ASR-10, with a key range from A0 to C8. Wherever key ranges are mentioned in the ASR-10 Musician's Manual, keep this extended range in mind.
2. The ASR-88's keyboard does not generate Poly-Key™ pressure. However, it does generate Channel pressure. See page 26 for more information about pressure.
3. The ASR-88 will transmit release velocity. It *will not receive* release velocity, or record it with the sequencer.

Center Supported Stands

With the ASR-88, or any weighted-action keyboard, we highly recommend that you do not use center-supported column-type keyboard stands. Weighted keyboards are too heavy, too long, and usually require greater playing force to be exerted on them. They will be unstable on center-supported column-type stands.

ASR-88 Tutorial

You will need the following materials to complete this Tutorial:

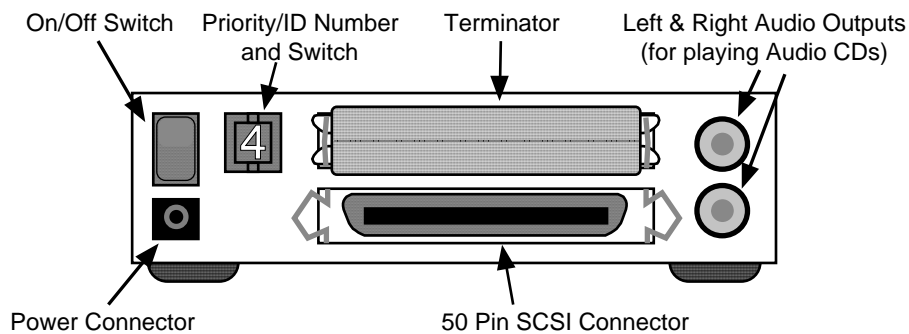
- An ASR-88
- A CD-ROM Drive
- The floppy diskettes that came with your ASR-88
- A microphone
- A blank, unformatted 3.5 floppy diskette (either Double or High density)
- An Audio Monitoring System (Keyboard Amp, Mixer, Headphones, etc.)

Once you've collected these items, you can begin.

Making Connections

Connect the CD-ROM Drive to the ASR-88

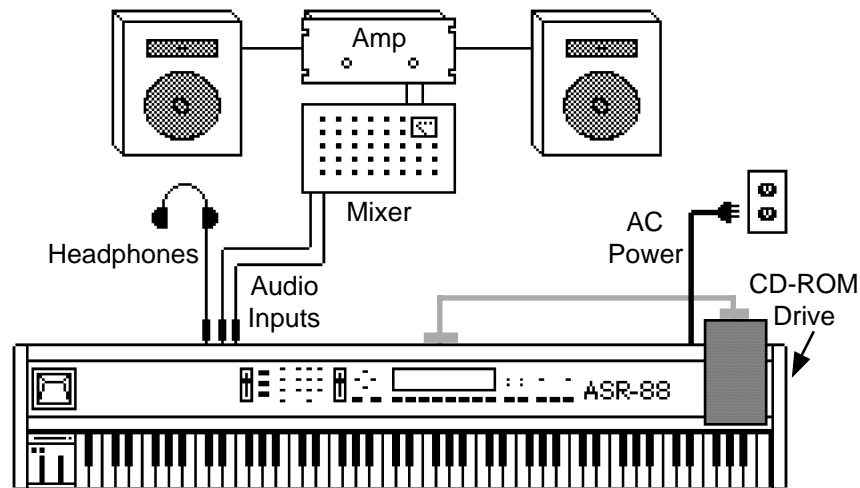
1. Position the CD-ROM Drive on the top right side of the ASR-88.
2. Connect the SCSI cable to the CD-ROM Drive, then to the SCSI connector on the rear panel of the ASR-88.



3. Set the Priority/ID number to 4. This is the recommended ID setting for the CD-ROM Drive, and will allow you to recognize banks and demos on ENSONIQ formatted CDs.
4. Connect the Power Supply Cable to the CD-ROM Drive, then to an AC Line Outlet.
5. Press the button on the front of the CD-ROM Drive (which opens the drawer tray), and insert the CDR-3 disc (which came with your ASR-88).

Connect the ASR-88 to an Audio Source

1. Connect the Power Cable to the ASR-88, then to an AC Line Outlet.
2. Connect the SW-2 Foot Switch (found in the in-box accessory kit) into the jack labeled Foot Switch on the rear panel of the ASR-88.



3. Connect the Main Outputs of the ASR-88 to the line level inputs of a mixer, instrument amplifier, stereo, or any other sound system, using 1/4 inch audio cables. If your system is stereo, connect the Left and Right Main Outputs of the ASR-88 to two input channels of your mixer, stereo, etc. (If you are connecting to your home stereo, you will likely need a set of 1/4 inch to RCA cables. These are available at most electronic supply stores.) If your system is mono, use either of the ASR-88 Main Outputs, but make sure nothing is plugged into the other output. For listening through headphones, plug the phones into the rear-panel jack marked Phones. If you're running the ASR-88 through a mixer in stereo, be sure to pan the Left channel fully left, and the Right channel fully right.

It is a good idea to make sure your audio system is turned off (or down) when making connections, to avoid damaging speakers or other components.

Note: The ASR-88 Main Outputs are line-level, and are intended to be connected only to line-level inputs, such as those on a mixer, stereo pre-amp, keyboard amp, etc. Connecting the ASR-88 Main Outputs to a mic-level input, such as a guitar amp or the microphone jacks on a tape deck, is not recommended, and might result in damage to the device input.

4. Turn the CD-ROM Drive on. You will see the activity light turn on in the front of the housing, and hear the drive spinning. When the activity light extinguishes, move on to the next step.
5. Turn the ASR-88 on and move the Volume Slider all the way up. As with any digital musical instrument, the ASR-88 will give the best results if you keep the Volume Slider full on, and use the volume control on your mixer or amp to adjust its level.
6. Switch the audio system on, and adjust the amplifier volume for normal listening levels. If the sound is too soft or loud after you've loaded an Instrument, adjust the levels accordingly.

Loading the Operating System

1. Find the disk labeled "ENSONIQ ASR Operating System with Tutorial Version 3.50." This should be located in the accessory kit that came with your ASR-88, along with this manual, the Musician's manual, the eight Essential Sound Disks, AC Power Cord, and Foot Switch.
2. Turn the Power Switch, located on the rear panel, to the On position.
The display will briefly read "ENSONIQ ASR-88," then will switch to prompting "PLEASE INSERT DISK."
3. Insert the ENSONIQ ASR Operating System disk into the disk drive (located above the Pitch/Mod Wheel Assembly) metal tab end first with the disk label facing upwards.
The display will read LOADING SYSTEM, then TUNING KBD (keyboard) -- HANDS OFF. The ASR-88 needs this brief time to calibrate the keyboard. Do not play the keyboard during this time. Finally, the display will show KEYBOARD TUNED, followed by a file name.
4. Move the Data Entry Slider as far down as it will go. The display on the ASR-88 will now read:

INST		STOP
	BANK	
FILE 1 TUTORIAL BNK		

Loading, Selecting, and Playing an Instrument

1. Press the `{[]}` button.
This button, along with the `{[]}`, `{<}` and `{>}` buttons, is located directly to the left of the display and allows the selection and editing of parameters and files. The display will read FILE 2-JM DIGI SYNTH.
2. Press the `{ENTER"YES}` button.
This button, along with the `{CANCEL"NO}` button, is located below the `{ARROW}` buttons. The `{ENTER"YES}` button is the one on the right. The display will read PICK INSTRUMENT BUTTON.
3. Press `{INSTRUMENT"SEQUENCE_TRACK_1}` button.
This is the first of the eight `{INSTRUMENT"SEQUENCE_TRACK}` buttons that are located beneath the display. Any one of these eight buttons could have been selected at this time as a location to load the selected instrument into. We're using Instrument•Sequence Track 1 in our example.
After selecting the `{INSTRUMENT"SEQUENCE_TRACK_1}` button, the file will begin to load. As this is happening, you will notice the red Loaded LED above the `{INSTRUMENT"SEQUENCE_TRACK_1}` button will be flashing, and the display will read LOADING JM DIGI SYNTH. Once loading has completed, the red Loaded LED will remain solidly lit and the display will read FILE LOADED. The solidly lit red Loaded LED indicates an Instrument is loaded into that location.
4. Press the `{INSTRUMENT"SEQUENCE_TRACK_1}` button again.
You will now see the yellow Selected LED light up, in addition to the red Loaded one. The yellow Selected LED indicates that the corresponding Instrument is selected and can be played from the keyboard.
5. Play the keyboard.

Nice, huh? A more elaborate version of this sound can be found in the ENSONIQ Signature Series ESS-17 Jason Miles (this sound can also be found on CDR-2). Take a few minutes to enjoy playing the ASR-88. Then, continue with the Tutorial.

Loading a Sound From The CD-ROM Drive

1. With the CD-ROM Drive connected to the ASR-88 and powered on (as explained earlier), insert the CDR-3 disc into the drawer tray of the CD-ROM Drive.
2. Find the CDR-3 Sound Manual book that came with the CDR-3 disc.
This will be an invaluable tool for quickly loading sounds off of the CD-ROM into the ASR-88.
3. Locate the sound ORCH STRINGS in the sound descriptions section of the manual (it's the first one).
Next to the name ORCH STRINGS, you'll see "DM# 1101." This is its Direct Macro™ number, and the key for quickly loading sounds off of ENSONIQ formatted CD-ROMs.
4. Press and hold the {LOAD} button.
5. While continuing to hold the {LOAD} button, enter 1-1-0-1 on the ASR-88 keypad.
On the ASR-88, the keypad is the group of numbered buttons to the left of the Data Entry Slider, not the Instrument•Sequence Track buttons. With each button press, the display adds each number that you press until the display shows "MACRO 1101."
6. Release the {LOAD} button. As soon as the ASR-88 has located the Instrument on the CDR-3 disc, it will display the Instrument name (in this example, ORCH STRINGS).
7. Press the {ENTER"YES} button, then select a location to load the instrument into, as described earlier in *Loading, Selecting, and Playing an Instrument*.

Loading a Bank

1. Press the {LOAD} button. This is the top of the three buttons located immediately to the right of the Volume Slider. These three buttons as a group are known as the Mode buttons.
2. Press the {INSTRUMENT} button. This is the top of the four buttons located immediately to the right of the Mode buttons. (Also note that this {INSTRUMENT} button has a different function than the eight {INSTRUMENT"SEQUENCE_TRACK} buttons located beneath the display.)
3. Repeatedly press the {[} button. Watch the display and notice that each time you press {[}, a different file is shown. This is how files are selected for loading.
You should also notice that as you scroll through these file names, one file lights up an indicator light labeled BANK in the upper left of the display. This indicates that the file listed is not an Instrument, but rather a Bank. A Bank is a collection of Instruments and can also contain sequencer data.
4. With the BANK indicator lit and the display reading FILE 1 TUTORIAL BNK, press the {ENTER"YES} button. The ASR-88 will begin to load Instruments into various Instrument•Sequence Track locations. As each loads, notice that the red Loaded LED above the {INSTRUMENT"SEQUENCE_TRACK} button flashes as the Instrument is loading, then remains solidly lit once loaded.
The Instruments are loading into the Instrument•Sequence Track locations that were predetermined when the bank was saved. You'll notice that this has an effect on the Instrument that was already loaded into Instrument•Sequence Track 1. Namely, it erases it and puts another Instrument in its place. Remember that a Bank will overwrite any Instrument that is in the ASR-88 that resides in an Instrument•Sequence Track location that is needed by the Bank. In other words, make certain that any Instruments you might want are saved to a disk somewhere before loading in a Bank.
5. Select various Instruments in the ASR-88 by pressing their corresponding {INSTRUMENT"SEQUENCE_TRACK} buttons.
Notice that each time you select an Instrument, the yellow Selected LED above its {INSTRUMENT"SEQUENCE_TRACK} button lights up to indicate that it is selected for playing. Take a few more minutes to enjoy these new sounds. Then, come back to the Tutorial.

Using Controllers

- Press the {INSTRUMENT"SEQUENCE_TRACK_6} button.
This selects the Instrument OB-8*, which comes from the collection of sounds that were included with the EPS-16 PLUS. The entire library of EPS and EPS-16 PLUS sounds are compatible with the ASR-88.

Mod Wheel

The Modulation (or Mod)Wheel is the right-most of the two wheels located at the bottom end of the keyboard.

- While playing a chord on the keyboard, move the Modulation Wheel to its full on (up) position.
Notice the addition of vibrato in the sound as the Mod Wheel was moved. This is called LFO (Low Frequency Oscillator) pitch modulation, and is probably familiar, along with the Mod Wheel itself, to most of you.

The Mod Wheel is known as a modulator or modulation source. Simply put, a modulator is anything that can take a parameter value and change (or modulate) it to produce an audible variation in the sound. The Musician's Manual has an in-depth discussion of modulators, but for now we'll merely touch on the most frequently used and witness some common applications.

Pitch Bend Wheel

The Pitch Bend Wheel is the left-most wheel on the ASR-88.

- With a chord held down on the keyboard, move the Pitch Bend Wheel up and down.
As its name implies, the Pitch Bend Wheel changes the pitch either sharp or flat when the wheel is moved up or down. Notice that unlike the Mod Wheel, which caused a continuous undulation in the pitch, the Pitch Bend Wheel offsets the pitch in a constant manner, based on the position of the wheel. The other difference between these wheels is that the Pitch Bend Wheel is spring-loaded, and will always return to its center position when released.

Patch Select buttons

1. Play and release a chord on the keyboard.
2. Hold down the left {PATCH_SELECT} button, then restrike the same chord.
The {PATCH_SELECT} buttons are located above the Pitch and Mod Wheels. Notice the difference? {PATCH_SELECT} buttons are an ENSONIQ innovation that allow different layers in an Instrument to be audible or muted when either (or both) {PATCH_SELECT} buttons are held down. This can provide tremendous opportunities to play more expressively by having various articulation, timbre shifts, or even completely different sounds available at the press of a button.
3. Experiment with using the {PATCH_SELECT} buttons by playing chords again holding down the right {PATCH_SELECT} button, and then both {PATCH_SELECT} buttons.

Channel Pressure

- Play a chord once again. This time, as you hold the notes, apply pressure into the keyboard. Did you hear the change in volume? Pressure (or aftertouch) is often used to add vibrato to a sound, but in this sound it is a modulator that is programmed to increase the volume.

Stacking Instruments

1. Press the {INSTRUMENT"SEQUENCE_TRACK_5} button.
This selects the Instrument JM CLAV, an expanded version of which can be found in the Jason Miles Signature Series (ESS-17 and CDR-2) collection.
2. Play the keyboard.
3. Double-click the {INSTRUMENT"SEQUENCE_TRACK_6} button.
Double-clicking involves pressing a button twice in quick succession. You'll notice that as you do this, the yellow Selected LED above the {INSTRUMENT"SEQUENCE_TRACK_6} button begins flashing, and the yellow Selected LED above the {INSTRUMENT"SEQUENCE_TRACK_5} button remains solidly lit.

You have just stacked OB-8* on top of JM CLAV. Stacking is accomplished by double-clicking {INSTRUMENT"SEQUENCE_TRACK} buttons, and results in layering the double-clicked Instruments on top of the previously selected (also called the primary) Instrument.

4. Play the keyboard.
You're now hearing both JM CLAV and OB-8* at once. You can stack up to all eight Instruments at a time. The primary Instrument will always have its yellow Selected LED solidly lit. All Instruments stacked onto the primary Instrument will have their yellow Selected LEDs flashing.

Creating a New Instrument/Creating New Layers

1. Press the {COMMAND} button.
This button is located beneath the {LOAD} button and places the ASR-88 into Command mode. You'll see an indicator light labeled CMD turn on in the upper left of the display.
2. Press the {INSTRUMENT} button.
The display should read CREATE NEW INSTRUMENT. If not, press the {>} button repeatedly until it does.
3. Press the {ENTER"YES} button.
The display will ask SELECT UNUSED INST=7.
4. Press the {ENTER"YES} button again.
You have just created your first, albeit empty (that is, it contains no wave data), ASR-88 Instrument. The display will briefly show COMMAND COMPLETED, then revert back to CREATE NEW INSTRUMENT.
5. Press the {LAYER} button.
The display should read CREATE NEW LAYER. If not, press the {>} button repeatedly until it does.
6. Press the {ENTER"YES} button.
The display will briefly show LAYER 1 CREATED, then revert back to CREATE NEW LAYER.

Using Audio Tracks

1. Plug a microphone with a 1/4" phono plug into the jack marked Left Audio Input on the rear panel.
2. Press the {AUDIO_TRACK_A} button.
This button is one of pair of buttons located between the {INSTRUMENT"SEQUENCE_TRACK} buttons and the {SEQUENCER_TRANSPORT} buttons. The yellow Selected LED above the button will light. This indicates that {AUDIO_TRACK_A} is selected for editing.
3. Press the {AUDIO_TRACK_A} button again.
The red Source Monitor LED above the button will light. This indicates that the Audio Track is active, or Source Monitor enabled, and can be used to monitor 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}.
4. Test your microphone (a simple "one, two, three" will do).
Depending on the output level of your microphone, you will either hear signal coming through the ASR-88, or no signal will be audible. Also, the left pair of Signal/Peak Input Level indicators, located to the right of the display, will light when signal is present (green indicates a signal is detected, red indicates the signal has reached 6 dB below the point of overload). You should see these indicators light when you hear audio.

If you hear no audio:

- Flip the Mic/Line Switch on the rear panel of the ASR-88 up to the Mic position.
You should now be able to hear signal. However, it may still be a bit too loud or soft.

To further adjust the volume:

5. 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 (from the perspective of looking at the rear panel).

You are now using an Audio Track. An Audio Track is not only the method for getting audio input to the ASR-88 for sampling, it also allows you to use the built-in digital effects of the ASR-88 to process external signals (you've probably noticed the reverb on your voice as you spoke into the microphone). Using Audio Tracks, you will be able to sing, or play guitar or bass through the ASR-88, and play along with the sequencer. We'll look into the Effects and the Sequencer later. For now, let's move on to recording some samples.

Sampling

1. With the microphone still connected, press the {SAMPLE"SOURCE_SELECT} button.
The display will read REC SRC=INPUT DRY LEFT. This indicates that the sample will be recorded dry, or prior to being fed into the signal processor (you'll still be able to monitor with effects, both now and after you've taken the sample, though). The LEFT in the display indicates which audio input will be sampled. Since the microphone is plugged into the Left Audio Input, there is no need to change this parameter.
2. Press the {ENTER"YES} button.
The display reads PICK SAMPLE INSTRUMENT.
3. Press the {INSTRUMENT"SEQUENCE_TRACK_7} button.
The display now reads UNNAMED LYR=1 WS=NEW. This indicates the name of the Instrument (currently called UNNAMED INST), the Layer where the sample will be placed (Layer 1), and the WaveSample number that is being taken. Since there are no WaveSamples in this Instrument, the display reads WS=NEW. If there were WaveSamples in this Instrument, the {} and {} buttons could select existing WaveSample numbers for WaveSamples in the current Layer. If you did this, the sample you would be recording would replace the sample that had that WS number.
4. Press the {ENTER"YES} button.
The display now looks like this:



This is the Level Detect VU screen. As you speak into the microphone, notice that there are lines that fill up the display. This indicates the signal level. If you speak loudly, you will probably see the AMP indicator light appear in the upper right of the display. This lets you know that the signal has reached a point where distortion will occur in the sample. The optimum level for sampling is the point just beneath where the AMP indicator light is triggered.

The asterisk in the display represents the sample threshold level. This is the level that the incoming audio signal must reach to trigger sampling after sampling is initiated.

5. As when using Audio Tracks outside of the sampling mode, adjust the signal level via the Input Level Trim Control knob.
6. Press the {ENTER"YES} button.
The display reads WAITING XXX SEC LEFT. The XXX will indicate the total amount of available sample time remaining in the ASR-88.
7. Clearly speak "One" into the microphone.
The display switches to RECORDING and the time begins to countdown.
8. Press the {CANCEL"NO} button.
This stops sampling, and the display will flash PLAY ROOT KEY.
9. Play middle-C.
You will now hear your voice saying "One". Middle-C is now the Root Key for this sample -- that is, the note at which the sample will play back at its original pitch. If you play keys

above middle-C, you'll notice the pitch of your voice getting higher; below middle-C, your voice will sound lower in pitch.

Let's take another sample.

10. Press the {SAMPLE"SOURCE_SELECT} button.

The display will show the REC SRC (Record Source) page. Stereo sampling, sampling with effects, and re-sampling from the Main Output are all discussed in-depth in the Musician's Manual. For right now, we'll take another dry sample from the Left Audio Input.

11. Press the {ENTER"YES} button.

The display will read PICK SAMPLE INSTRUMENT.

12. Press the {INSTRUMENT"SEQUENCE_TRACK_7} button.

The display once again reads UNNAMED LYR=1 WS=NEW. We're going to take a new sample in addition to the one that is currently inside the Instrument.

13. Press the {ENTER"YES} button.

The Level Detect VU screen will appear. Since the input level should be the same as that of the last sample, there is no need to readjust the Input Level Trim Control Knob.

14. Press the {ENTER"YES} button.

The display reads WAITING XX SEC LEFT. This number will vary, depending on the length of your initial sample.

15. Clearly speak "Two" into the microphone.

The display switches to RECORDING and the time begins to countdown.

16. Press the {CANCEL"NO} button.

This stops sampling, and the display will flash PLAY ROOT KEY.

17. Play D above middle C.

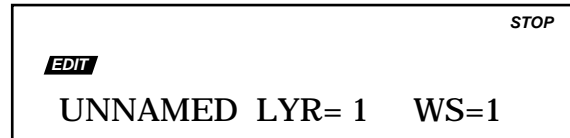
You will now hear your voice saying "Two." If you play across the keyboard, you will hear "One" from the bottom of the keyboard to the D-flat above middle-C, and "Two" from the D above middle-C to the top of the keyboard.

You have just completed your first session of multisampling with the ASR-88!

WaveSample Editing

1. Press the {EDIT} button.

The {EDIT} button is the third mode button and is located after the {LOAD} and {COMMAND} buttons. The Edit Context page will be displayed.



The Edit Context page determines which WaveSample, Layer or entire Instrument will be modified when you edit any of the WaveSample, Layer and Instrument parameters, or when you perform any of the may wave data processing commands.

2. Play middle-C.

Notice that the display shows WS=1 in the WaveSample field.

3. Play D above middle-C.

Notice that the display now shows WS=2 in the WaveSample field. What is happening at this point is that you are selecting which WaveSample you are going to edit.

By playing keys across the keyboard, you'll see that whenever you play anywhere between the bottom of the keyboard and D-flat above middle-C, the WaveSample field reads WS=1. Playing keys between the D above middle-C to the top of the keyboard will display WS=2. These areas are know as the WaveSample's Key Range. A WaveSample is selected for editing by playing a key within its Key Range.

4. Play middle-C.

We'll make some edits to WaveSample 1 first.

5. Press the {WAVE} button.

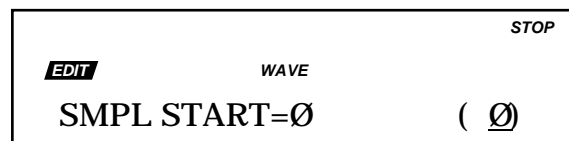
The {WAVE} button is located in the group of 10 buttons to the immediate left of the Data Entry Slider. It is where WaveSamples can be edited, and wave data commands can be executed.

The display reads. MODE=FORWARD-NO LOOP.

6. Press the {>} button multiple times.

Take a few "trips around the block" and get familiar with the names of the Edit Wave parameters. As you'll see, there are many ways of editing an ASR-88 sample. For this tutorial, we'll focus on editing the SAMPLE START and SAMPLE END parameters.

7. Press the {>} button repeatedly until you see the following display:



In the above illustration, there is an underline under the 0 in parentheses. If your underline is beneath the other 0 (the one not in parentheses), press the {>} button one more time.

This parameter is called the SAMPLE START PERCENTAGE parameter. The other parameter on this screen is the ABSOLUTE SAMPLE START point.

8. Using the Data Entry Slider, edit the SAMPLE START PERCENTAGE value so that the sample starts just as you begin saying "One".

Because we used the sample threshold when taking this sample, you will probably find that you do not need to set this number to more than 1 or 2 to find the correct SAMPLE START point. If you find that setting this parameter even as low as one causes the beginning of the word to be cut off, reset this parameter to zero and move on to the next step.

9. Press the {>} button twice.

This is the SAMPLE END PERCENTAGE parameter. We will set this parameter to a point just past the end of the word "One."

10. Use the Data Entry Slider to set the SAMPLE END point.

Since we are attempting to eliminate silence from the end of this sample, it will be easiest to perform this edit by moving the Data Entry Slider downwards until it begins to cut off the end of the word. Then, move the slider slowly upwards just until the whole word can be heard.

You have now edited a WaveSample. There are many other additional WaveSample edits you can perform; they are all described in detail in the Musician's Manual.

It is important to realize, however, that although the silence at the beginning and end of the sample can no longer be heard, it is still a part of the WaveSample and as such is still taking up memory in the ASR-88. In order to eliminate this unwanted wave data and at the same time free up memory in the ASR-88, we will have to perform a WaveSample command, which is our next lesson in the tutorial.

Performing a WaveSample Command

1. Press the {COMMAND} button.
2. Press the {WAVE} button.

This display will show CREATE NEW WAVESAMPLE. The ASR-88 is now ready to perform WaveSample commands.

3. Press the {>} button multiple times.

The display now shows the various commands that can be enacted upon a WaveSample. Stop pressing the {>} button when the display reads TRUNCATE WAVESAMPLE.

4. Press the Enter•Yes button.

The display will briefly read DATA BEING PROCESSED. When it is finished executing the command, the display will briefly show COMMAND COMPLETED, then revert back to TRUNCATE WAVESAMPLE.

You have just completed a WaveSample command. For a detailed listing of other WaveSample commands, see the ASR-10 Musician's Manual.

Selecting and Editing Effects

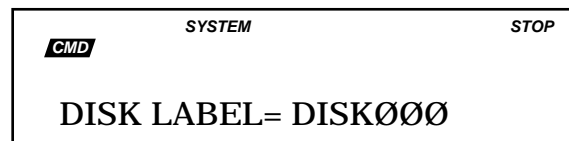
1. Press the {FX_SELECT"FX_BYPASS} button.
2. Repeatedly press the {} button.
You are now scrolling through the 50 digital effects that the ASR-88 can produce using the ENSONIQ ESP chip. This is the same chip that is used in the powerful ENSONIQ DP/4+ Parallel Effects Processor (the DP/4+ contains four ESP chips). The ASR-88 can also load new effects from disk.
3. Continue pressing the {} button until the display reads FX=ROM-18 LARGE PLATE.
This selects the Large Plate reverb as the effect that the internal Instruments will be played through.
4. Press the {INSTRUMENT"SEQUENCE_TRACK_1} button.
We'll use JM DRUMS to listen to the various changes that can occur when editing this effect. An expanded version of JM DRUMS can be found in the Jason Miles Signature Series Sound Library (ESS-17 and CDR-2).
5. Press the {EDIT} button.
6. Press the {EFFECTS} button.
This {EFFECTS} button, not to be confused with the {FX_SELECT"FX_BYPASS} button, is located at the bottom of the group of four buttons found to the immediate right of the mode buttons. The display will now read VAR= 1 BALLAD REV.
7. Press the {} button three times, noticing that with each button press the display changes.
Each of these is called an Effect Variation. Every effect in the ASR-88 has four Effect Variations, each of which can be thought of as an effect preset, or specific set of parameter values for that effect. Effect Variations are quick ways of getting in the ballpark of a particular sound you want out of the Effect, considerably cutting down on the amount of time you'll need to spend editing (in fact, you'll find many sound so good you won't need to edit at all). Each Effect Variation can be edited to your own taste.
8. Press the {>} button.
The display will read BUS 1 MIX=28.
9. Use the Data Entry Slider to adjust the BUS1 MIX parameter value.
10. Strike various keys as you change the parameter value to get an idea of how this parameter affects the amount of reverb you hear.

You have just selected an Effect, selected an Effect Variation within that effect, and edited a parameter of that effect. With 50 built-in effects, each having as many as thirty parameters, you can see that there is not enough room in this tutorial to cover them all. However, the Musician's Manual provides all the information you will need to know about effects.

Formatting and Naming a Disk

1. Eject the disk that is currently in the drive by pressing the disk ejector button located at the front of the disk drive.
2. Insert a blank high density (HD) or double density (DD) diskette into the drive.
3. Press the {COMMAND} button.
4. Press the {SYSTEM" MIDI} button.
5. Repeatedly press the {>} button until the display reads FORMAT FLOPPY DISK.
6. Press the {ENTER"YES} button.

The display will show the following:



This parameter allows you to give the diskette a Disk Label. A disk label is a unique 4 letter and 3 number name that identifies the disk. Later, you'll learn how disk labels are used by the ASR-88 to load Instruments that reside on separate disks into the same bank.

7. Press the {[] or use the Data Entry Slider to change the first character of the disk label to "I."
8. Press the {>} button once.
Notice that the cursor has moved under the "I." When editing a name, the {<} and {>} buttons select which character can be edited, and the {[] and {]} buttons or the Data Entry Slider are used to edit the character.
9. Using the above methodology, edit the disk label to TEST 001.
10. Press the {ENTER"YES} button.
The display will read FORMAT TYPE=ENSONIQ. The ASR-88 can format its disks in a couple of different formats. For more information on this, consult the Musician's Manual.
11. Press the {ENTER"YES} button.
The display asks ERASE AND FORMAT DISK?
12. Press the {ENTER"YES} button.
The display flashes * FORMATTING * while this command is being executed. This should take approximately 1-2 minutes.

When finished, the ASR-88 display will briefly read DISK COMMAND COMPLETED, then revert to FORMAT FLOPPY DISK. The disk is now formatted and is now ready to store ASR-88 Instrument, Bank, Song, Sequence, Effect and MIDI System Exclusive files. But there's one last step.

13. Eject the disk, and write the new disk label name on the paper writing area on the disk. Now you will always know the disk label for each disk, without having to insert it into the ASR-88. This is very important, because the ASR-88 will ask for disks by name when you load a Bank.

Saving a New Instrument

1. Press the {INSTRUMENT"SEQUENCE_TRACK_7} button.
The yellow Selected LED will come on (if it was not on already).
2. Press the {COMMAND} button.
3. Press the {INSTRUMENT} button.
4. Repeatedly press the {>} button until the display reads SAVE INSTRUMENT.
5. Press the {ENTER"YES} button.
The display looks like this:



- This parameter allows you to rename the Instrument prior to saving it to disk. As with the Disk Label parameter, the {<} and {>} buttons select which character can be edited, and the {[] and {} buttons or the Data Entry Slider are used to edit the character.
6. Using the above methodology, edit the Instrument NAME to A ONE A TWO.
 7. Press the {ENTER"YES} button.
The display will flash SAVING A ONE A TWO while this command is being executed.
- When finished, the ASR-88 display will briefly read DISK COMMAND COMPLETED, then revert to SAVE INSTRUMENT. The disk now contains an Instrument file named A ONE A TWO. To verify this, let's reload the Instrument.
8. Press the {LOAD} button.
 9. Press the {INSTRUMENT} button.
The display file read FILE 1 A ONE A TWO.
 10. Press the {ENTER"YES} button.
The display reads PICK INSTRUMENT BUTTON.
 11. Press the {INSTRUMENT"SEQUENCE_TRACK_7} button.
The display flashes LOADING A ONE A TWO while the command is taking place. When finished, the display will show FILE LOADED. You have now completed saving an Instrument to disk and reloading it back into the ASR-88.

Loading and Playing a Sequence

1. Eject your new disk, TEST001, and reinsert the disk "ENSONIQ ASR Operating System with Tutorial Version 3.50."
2. Press the {LOAD} button.
3. Press the {SEQ"SONG} button.
This button is located directly below the {INSTRUMENT} button. The display will show FILE 9 TUTORIAL SEQ.

4. Press the {ENTER"YES} button.
The file will begin to load. Once loading has completed the display will read DISK COMMAND COMPLETED.
5. Press the {PLAY} button.
This button is the right-most of the three Sequencer Transport control buttons, located to the right of the two {AUDIO_TRACK} buttons.
You will now hear four funky bars of music. When it reaches the end, the sequence will loop back around and play again from the beginning. It will continue doing this until you hit the {STOP"CONTINUE} button, located immediately to the left of the {PLAY} button.
6. Press the {STOP"CONTINUE} button.
The sequence will stop playing. You have now loaded a sequence from disk and played it on your ASR-88.

Loading and Playing a Song

1. Press the {LOAD} button.
2. Press the {SEQ"SONG} button.
3. Press the {[]} button.
Watch the display and notice that when you press the {}, a different file is shown. This is how files are selected for loading.

You should also notice that as you scroll to this new file name, the indicator light labeled SONG lights up in the upper left of the display. This indicates that the file listed is not just a Sequence, but rather a Song. A Song is a collection of sequences arranged in a particular order.
4. With the SONG indicator lit and the display reading FILE 10 TUTORIAL SNG, press the {ENTER"YES} button.
The ASR-88 will load the song file. While it is performing this task, the display will flash LOADING TUTORIAL SNG. When finished, the display will read FILE LOADED.
5. Press the {PLAY} button.
You'll notice that this song does NOT contain the sequence that you were listening to a minute ago. As a matter of fact, that sequence was erased when the Song file was loaded. Remember that a Song will overwrite any Sequences that are in the ASR-88 at the time the song is loaded (if you recall how Banks can erase Instruments, the theory is similar). In other words, make certain that any Sequences you might want to keep are saved to a disk somewhere before loading in a Song.
Also note that only one song can reside in the ASR-88 at one time. Loading a new song would erase the song and all sequences currently in the ASR-88.
6. Press the {STOP"CONTINUE} button.
The sequence will stop playing.

Now that you've loaded and played some sequences and songs from disk, it is time to create a sequence of your own from scratch.

Creating a New Sequence

1. Press the {COMMAND} button.
2. Press the {SEQ"SONG} button.
3. Repeatedly press the {>} button until the display reads CREATE NEW SEQUENCE.
4. Press the {ENTER"YES} button.

The display looks like this:

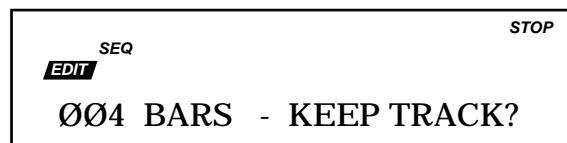


- This parameter allows you to give a name to the sequence you are about to create.. As with the other naming parameters, the {<} and {>} buttons select which character can be edited, and the {[] and {]} buttons or the Data Entry Slider are used to edit the character.
5. Using the above methodology, edit the NEW NAME to MY SEQUENCE.
 6. Press the {ENTER"YES} button.
The display will show the Time Signature parameter. This parameter will determine the time signature for the sequence that is about to be created is set. For the purpose of this tutorial, 4/4 will be fine.
 7. Press the {ENTER"YES} button twice.
This confirms the 4/4 time signature and initiates the process of creating a new sequence.

When finished, the ASR-88 display will briefly read COMMAND COMPLETED, then revert to CREATE NEW SEQUENCE. You have just created a sequence in the ASR-88. It is now ready to have material recorded into it.

Record the First Track

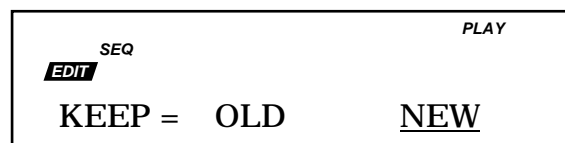
1. Press the {INSTRUMENT"SEQUENCE_TRACK_1} button.
This selects Track 1 for recording.
2. While holding down the {RECORD} button, press the {PLAY} button.
This turns on the sequencer CLICK. You should hear a distinctly different click every fourth beat -- this is beat 1. The ASR-88 will now begin recording as soon as you play a key.
3. Beginning on the first beat of a measure (the distinct sounding click), play the bottom C key on every quarter note for four bars (16 beats).
4. Press the {STOP"CONTINUE} button.
The display will show the following:



- The display may list a different number of bars if you did not immediately hit the {STOP"CONTINUE} button, but that's OK. The ASR-88 is giving you the option to keep what you have just recorded. This will also determine the length of the sequence, although there are methods for changing this later (see the Musician's Manual for details).
5. Press the {ENTER"YES} button.
You'll briefly see . . .EDITING . . . on the display. Then, you'll be returned to the Sequence Select/GOTO page. You have just recorded a track into an ASR-88 sequence.

Re-recording a Track in REPLACE Mode

- When sequencing on the ASR-88, you may find that you want to record over a part that is currently there and replace it with a new part. That is what we'll do now.
1. While holding down the {RECORD} button, press the {PLAY} button.
The sequencer will give you a four beat count-off. When it reaches the beginning of Bar 1 of the sequence, it will begin recording, thereby erasing the material that was on the track previously. It will be replaced by no events (if you do not play anything), or by whatever you play during the recording.
 2. Starting at beat 1 of bar 1, play the bottom C on the keyboard for beats 1 and 3 of each measure, and the C one octave up from the bottom on beats 2 and 4 of each measure, until the display shows you the following:



This is the Audition page. The ASR-88 always lets you compare between the OLD (original) part and the NEW part when performing any re-recording or track command (in fact, this

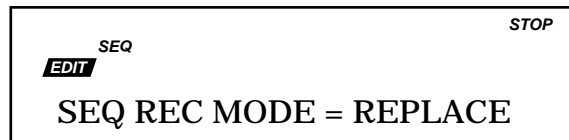
useful feature is found on all ENSONIQ keyboards). Notice that you are currently listening to your newly recorded Kick and Snare part.

3. Press the {<} button once.
The underline moves beneath the word OLD on the display, and you're now listening to the original Kick drum pattern.
4. Press the {>} button once.
The underline moves back beneath the word NEW on the display, and you're again listening to the newly created Kick and Snare drum pattern.
5. Press the {ENTER"YES} button.
You'll briefly see . . .EDITING . . . on the display. Then, you'll be returned to the Sequence Select/GOTO page. By pressing the {ENTER"YES} button while NEW was underline on the Audition page, you have chosen to keep your newly created part, and to discarded the original version.

Recording in ADD Mode

Let's add a hi-hat to the drum part.

1. Press the {EDIT} button.
The ASR-88 will display the Sequence Select/GOTO page.
2. Press the {<} button until you see the following:



3. Press the {[]} button once.
The display will now read SEQ REC MODE=ADD. ADD mode allows additional material to be recorded onto a selected track in addition to the part that is already there, instead of erasing the previously recorded part. Find the hi-hat located on key E3, then proceed to the next step.
4. While holding down the {RECORD} button, press the {PLAY} button.
The sequencer will again give you a four beat count-off. When it reaches the beginning of Bar 1 of the sequence, it will begin recording, only this time it will add your newly played part onto the material that was on the track previously. You will hear the kick and snare as you record the hi-hat.
5. Starting at beat 1 of bar 1, play 1/8 notes on the E3 key, until the display shows the Audition page.
6. Press the {ENTER"YES} button.
You'll briefly see . . .EDITING . . . on the display. Then, you'll be returned to the Sequence Select/GOTO page. By pressing the Enter•Yes button while NEW was underline on the Audition page, you have chosen to ADD your new hi-hat part onto the previously created kick and snare part.

Quantizing a Track

Now that you have kick, snare, and hi-hat recorded, you can QUANTIZE the track to tighten up any timing inconsistencies that might exist.

1. Press the {COMMAND} button.
2. Press the {TRACK} button.

The {TRACK} button is the bottom button in the group of 10 buttons located to the immediate left of the Data Entry Slider.

The display will read QUANTIZE TRACK.

3. Press the {ENTER"YES} button.
The display reads TRACK 1.
4. Press the {ENTER"YES} button.
You'll see the following display:

CMD	STOP
<i>TRACK</i>	
QUANTIZE TO 1/4	

This is where you determine to what timing interval the notes on the track will be quantized. The selections range from quarter notes to 64th note triplets.

5. Press the Up Arrow button twice.
The display will now read QUANTIZE TO 1/8 NOTES.
6. Press the {ENTER"YES} button.
You'll see the following display:

CMD	STOP
<i>TRACK</i>	
RANGE = ENTIRE TRACK	

This is where you determine to what range of the track will be quantized. You can specify a certain range of notes, a certain range of the sequence in bars and beats or a combination of both. For details, see the Musician's Manual.

7. With the display showing RANGE=ENTIRE TRACK, press the {ENTER"YES} button.
You'll briefly see . . .EDITING . . . on the display, followed by the Audition page.
8. Press the {ENTER"YES} button.
You'll again see . . .EDITING . . . on the display. Then, you'll be returned to the Sequence Select/GOTO page. By pressing the {ENTER"YES} button while NEW was underline on the Audition page, you have chosen to KEEP your newly quantized version of the previously recorded kick, snare and hi-hat part.

Recording Additional Tracks

1. Press the {INSTRUMENT"SEQUENCE_TRACK_1} button.
2. While holding down the {RECORD} button, press the {PLAY} button.
The sequencer will give you a four beat count-off. When it reaches the beginning of Bar 1 of the sequence, it will begin recording on this new track. You'll hear the previously recorded and quantized drum track.
3. Starting at beat 1 of bar 1, play middle C on the keyboard for beats 1 and 3 of each measure, and the D above middle C on beats 2 and 4 of each measure, until the display shows the Audition page.
4. Press the {ENTER"YES} button.
You'll briefly see . . .EDITING . . . on the display. Then, you'll be returned to the Sequence Select/GOTO page. By pressing the {ENTER"YES} button while NEW was underlined on the Audition page, you have opted to keep your newly recorded part.
5. Press the {PLAY} button.
You should now hear yourself counting "one, two, one, two . . ." along with the drum part. You could ADD material to this track, quantize, then record additional tracks if you wanted to. But for now, let's leave the sequence as it is and proceed with the tutorial.

Editing Song Steps

- Press the {COMMAND} button.
- Press the {SEQ"SONG} button.
- Repeatedly press the {<} button until the display reads EDIT SONG STEPS.
- Press the {ENTER"YES} button.

You'll see the following:

CMD SEQ	STOP STEP REP
INS <u>INTRO</u> Ø1.Ø1	

This page allows you to arrange the order that the sequences in memory will play , in order to make up a song.

- Press the {>} button once.
The underline moves beneath the number 01 in the Step field of the display.
- Press the {[} button twice.
The number in the Step field increases to 2, then 3. You'll also notice that the Sequence Name field changes from INTRO to VERSE, then finally CHORUS. These are the names of the sequences in the order that they are currently playing in TUTORIAL SNG.
- Press the {<} button.
The underline moves back to the Sequence Name field. You can now select a sequence to INSert before the CHORUS. How about your new sequence, MY SEQUENCE?
- Repeatedly press the {[} button until you see MY SEQUENCE in the Sequence Name field of the display.

- Press the {ENTER"YES} button.

You'll briefly see . . .EDITING . . . on the display. Then, the display will read:

CMD SEQ		STOP STEP REP
INS	<u>CHORUS</u>	Ø3.Ø1

By pressing the {ENTER"YES} button while MY SEQUENCE was underline on the Audition page, you have INSerted your sequence as the new Step 03, between VERSE and CHORUS.

The display will now read INS CHORUS 04.01. This indicates that a third step has been INSerted and that CHORUS is now Step 04. In order to see the step that you've just INSerted, press the {} button once. You'll see INS MY SEQUENCE 03.01 in the display. You can now be assured that your Song Step Edit is in place.

- Press the {CANCEL"NO} button.

This takes you out of the Edit Song Steps function. The edits that you just made can now be heard in the song when you press the {PLAY} button.

- Press the {PLAY} button.

Listen to the song in its entirety. Did you notice how the addition of your sequence really livened up the tune? Next, you'll probably want to save this new song.

Saving Song + All Sequences

- Eject the disk, "ENSONIQ ASR Operating System with Tutorial Version 3.50," and reinsert the disk TEST001. You'll know which one it is, because you wrote the disk label name on the disk (didn't you?).
- Press the {COMMAND} button.
- Press the {SEQ"SONG} button.
- Repeatedly press the {>} button until the display reads SAVE SONG + ALL SEQS.
- Press the {ENTER"YES} button.

The display looks like this:

CMD SEQ	SONG	STOP
NEW NAME = <u>T</u> TUTORIAL SNG		

This parameter allows you to rename this new version of the song prior to saving it to disk. As with the other naming parameters, the {<} and {>} buttons select which character can be edited, and the {} and {} buttons or the Data Entry Slider are used to edit the character.

- Using the above methodology, edit the NEW NAME to TUTORIAL +ME.
- Press the {ENTER"YES} button.

The display will flash SAVING TUTORIAL +ME while this command is being executed.

When finished, the ASR-88 display will briefly read DISK COMMAND COMPLETED, then revert to SAVE SONG + ALL SEQS. The disk now contains a Song file named TUTORIAL +ME. To verify this, let's reload the Song.

- Press the {LOAD} button.
- Press the {SEQ"SONG} button.
The display file reads FILE 2 TUTORIAL +ME.
- Press the {ENTER"YES} button.

The display flashes LOADING TUTORIAL +ME while the command is taking place. When finished, the display will show FILE LOADED. You have now completed saving a Song + All Sequences file to disk, and reloaded it back into the ASR-88.

Saving a Bank

Now that you have made your own Instrument, recorded your own sequence, and edited the song steps of an existing song to make it your own, you can now save all of this information in a Bank.

As was discussed earlier in this tutorial, a Bank is a collection of Instruments and can also contain sequencer data.

- Press the {COMMAND} button.
- Press the {INSTRUMENT} button.
- Repeatedly press the {>} button until the display reads SAVE BANK.
- Press the {ENTER"YES} button.

The display looks like this:



This parameter allows you to rename the Bank prior to saving it to disk. As with other naming parameters, the {<} and {>} buttons select which character can be edited and the {} and {} buttons or the Data Entry Slider are used to edit the character.

- Using the above methodology, edit the BANK NAME to MY 1ST BANK.
- Press the {ENTER"YES} button.

The display will flash SAVING MY 1ST BANK while this command is being executed.

When finished, the ASR-88 display will briefly read DISK COMMAND COMPLETED, then revert to SAVE BANK. The disk now contains a Bank file named MY 1ST BANK. We can now delete all of the contents of memory and be able to reload it all later.

Deleting Instruments

- Press the {COMMAND} button.
- Press the {INSTRUMENT} button.
- Repeatedly press the {>} button until the display reads DELETE INSTRUMENT.
- Press the {ENTER"YES} button.
The display will ask DELETE A ONE A TWO?
- Press the {ENTER"YES} button.
At this point, you'll see the LEDs for Instrument•Track 7 go out, and Instrument•Track 6 will become selected. The display will briefly read COMMAND COMPLETED then revert to DELETE INSTRUMENT.
- Press the {ENTER"YES} button.
We'll now continue repeating this command until all of the Instruments are removed from memory.
- Press the {ENTER"YES} button repeatedly until all the Instrument•Tracks have been deleted.

Erasing Song + All Sequences

- Press the {COMMAND} button.
- Press the {SEQ"SONG} button.
- Repeatedly press the {>} button until the display reads ERASE SONG+ALL SEQS.
- Press the {ENTER"YES} button.
The display will ask ERASE ALL SEQ DATA?
- Press the {ENTER"YES} button.
The display will briefly read . . . EDITING . . ., followed by COMMAND COMPLETED, before reverting to ERASE SONG+ALL SEQS.

You have now deleted or erased all of the contents of memory. Now you can reload your Bank from disk to see how it all was remembered when you saved MY 1ST BANK.

The Final Step

- Press the {LOAD} button.
- Press the {INSTRUMENT} button.
The display reads FILE 3 MY 1ST BANK.
- Press the {ENTER"YES} button.
The ASR-88 will now load A ONE A TWO into {INSTRUMENT"SEQUENCE_TRACK_7}, then it will load the song file TUTORIAL +ME. After these files have loaded, the display of the ASR-88 will read INSERT DISK OS-V300. This is a prompt that the ASR-88 issues when it needs to load Instruments or Song files from a disk other than the one currently in the drive. OS-V100 is the Disk Label (remember those?) of the ENSONIQ ASR Operating System with Tutorial Version 3.50 disk.
- Eject the disk, TEST001, and reinsert the disk OS-V100 (formerly known as "ENSONIQ ASR Operating System with Tutorial Version 3.50").
- Press the {ENTER"YES} button.
The ASR-88 will load the additional Instruments that were used in the TUTORIAL +ME Bank. When the remaining instruments have all loaded in, the display will read BANK LOAD COMPLETED.
- Press the {PLAY} button.
Notice that you're now hearing your song TUTORIAL +ME playing back exactly as you saved it.

Keep Going!

Congratulations! You now know and have performed all of the major functions of the ASR-88. You can now power up the ASR-88, load its Operating System, load Instruments, Banks, and Seq•Song files, select and edit Effects, Sample, save Instruments, Banks, and Seq•Song files to disk, and more. You'll now be able to get around the ASR-88 comfortably, and start to explore the more intricate features of the machine.

To do that, don't forget about the ASR-10 Musician's Manual. It's packed with over 250 pages of information, including general information everyone should read (*Section 1 — Getting Started*), shortcuts (see the Hints Index), and several Applications sections that present high-end functions of the ASR-88 in the same step-by-step method you've just used in this Tutorial.

The following information in this Handbook updates and/or corrects information found in the ASR-10 Musician's Manual.

Understanding Pressure (After-touch)

Pressure (often called after-touch) is a modulator that allows you to change the sound in various ways by pressing down harder on a key or keys after the initial keystroke. The ASR-88 keyboard is capable of generating Channel Pressure and can receive Poly-Key™ Pressure via incoming MIDI.

Like the Mod Wheel or CV Pedal, Pressure is a modulator, and can be chosen wherever a modulator is selected in the ASR-88. Pressure can be assigned to alter the pitch or volume of voices, the filter cutoff frequency, LFO depth, pan location, and a wide variety of effect parameters.

There are two types of Pressure:

- Channel Pressure, also called Mono pressure, affects all notes that are playing when you exert pressure on any of the keys. For example, if you play a three-note chord, pressing down harder on any of the three notes of the chord will modulate *all three notes*. This type of pressure is the more common of the two types.
- Poly-Key Pressure, also referred to as polyphonic pressure, affects each key independently. For example, if you play a three-note chord, pressing down harder on any of the three notes of the chord will modulate *only that note*. The other two notes will remain unaffected. Although the ASR-88 keyboard will not generate Poly-Key pressure, it will receive it via incoming MIDI.

Note that pressure generates a tremendous amount of data, and will consume sequencer memory much faster than other types of events, such as notes and program changes. You should turn pressure off when sequencing instruments that do not respond to pressure, such as piano and drum sounds. This is done on the Edit/Instrument PRESSURE MODE page (press {EDIT}, then {INSTRUMENT}, then the {<} and {>} buttons until PRESSURE MODE is in the display).

Loading Global Parameters

Whenever Global Parameters are loaded — either upon booting, or manually with the Command/System•MIDI, LOAD GLOBAL PARAMETERS command -- the setting for the Edit/System•MIDI, BASECHAN PRESSURE parameter will be forced to BASECHAN PRESSURE=CHAN, if it was stored as KEY:

- If it was stored as BASECHAN PRESSURE=KEY it will be loaded as CHAN.
- If it was stored as BASECHAN PRESSURE=CHAN it will be loaded as CHAN.
- If it was stored as BASECHAN PRESSURE=OFF it will be loaded as OFF.

Loading Instrument Files

Whenever Instruments are loaded — manually, remotely by program changes, or as part of a Bank -- their Edit/Instrument, PRESSURE MODE setting will be forced to PRESSURE MODE=CHAN, if it was stored as KEY:

- If it was stored as PRESSURE MODE=KEY it will be loaded as CHAN.
- If it was stored as PRESSURE MODE=CHAN it will be loaded as CHAN.
- If it was stored as PRESSURE MODE=OFF it will be loaded as OFF.

Creating New Instruments

The default pressure mode for Instruments created after sampling, or with the Command/Instrument CREATE NEW INSTRUMENT command, will be changed to PRESSURE MODE=CHAN.

The default key range for Instruments created after sampling, or with the Command/Instrument CREATE NEW INSTRUMENT command, will be changed to RANGE= A0 - C8 (ie, the full 88 note range).

Additional SIMM Information

The following information should replace what was written in the ASR-10 Musician's Manual regarding several issues dealing with SIMMs.

In the ASR-88, we do not recommend changing the SIMMs. As it ships from the factory, the ASR-88 is fully loaded with 16 MegaBytes of memory. It can't get any better than that! However, if for some reason you want to remove the SIMMs, or change to 1MegaByte SIMMs (for less memory), the following information is provided.

Warning!

If you are unfamiliar with removing/installing SIMMs, or do not want to risk the possibility of causing damage to the SIMMs or your ASR-88, we highly recommend having an Authorized ENSONIQ Dealer remove/install them. We also recommend reading *all* of the SIMM information in this addendum before attempting to remove/install SIMMs in your ASR-88.

Purchasing SIMMs

Here is some important information you should know about purchasing the *proper* SIMMs, and questions you should ask when ordering SIMMs:

How many pins?

The ASR-88 was designed to use 30 pin SIMMs.

What parity type?

1m x 8 or 4m x 8 (Macintosh) non-parity SIMMs (not 1m x 9 or 4m x 9 parity SIMMs). This is the only type of SIMMs that will work with the ASR-88. Do not use parity SIMMs (designed for IBM PC compatibles). They will not operate properly, and may damage the ASR-88.

Are they D-RAM SIMMs?

When adding memory, only install D-RAM SIMMs in the expansion slots. The ASR-88 will not accept static RAM or ROMs.

How Many DRAM Chips?

It doesn't matter how many (what size) DRAM chips are on the SIMM. The 1 MegaByte SIMMs can be based on either 1 Mb or 4 Mb DRAM chips and the 4 MegaByte SIMMs can be based on either 4 Mb or 16 Mb DRAM chips.

It will not be possible to mix 1 MegaByte and 4 MegaByte SIMMs.

Are the D-RAMs all on one side of the SIMM?

You must use SIMMs with DRAMs all on one side. DRAMs on both sides of the SIMM will not fit and therefore will not operate properly, and may cause damage to the ASR-88.

Are they Composite SIMMs?

Do not use Composite SIMMs. They will not operate properly with your ASR-88 (see next page for more information about Composite SIMMs).

What is the Access Speed of the SIMMs?

We recommend using SIMMs with an access speed of 80 nanoseconds or faster.

Tip: When purchasing SIMMs through mail-order companies, they often try to determine the proper SIMMs by asking which computer they will be installed in. SIMMs that work properly in the Macintosh IIfx, IIfx, Quadra 700, Quadra 900/950, and the LaserWriter IIfg will work with the ASR-88 (however, we strongly recommend that you ask all of the questions above to verify the information).

A Note About Composite SIMMS

A composite SIMM is made up of banks of smaller DRAM devices. These devices are usually made up of more commonly available (and less expensive) parts. Because of this, composite SIMMs usually cost less — hence their attraction. The problem is that the additional components in composite SIMMs make them run more frequently (and hotter), and can cause unexpected results. *The ASR-88 will not operate properly with composite SIMMs, and may cause damage to the ASR-88.*

A Note About the ASR-88 Memory

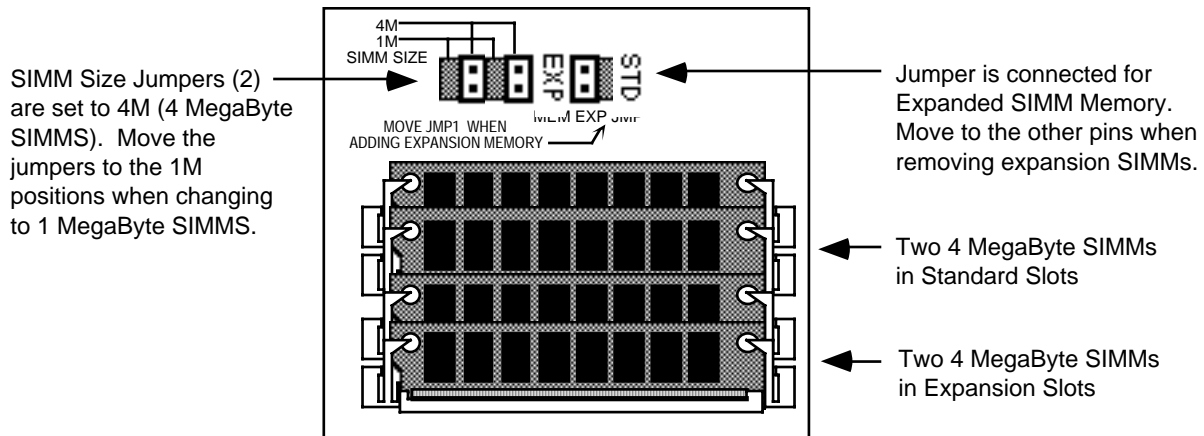
If you want to change the ASR-88 memory, there are only four memory allocations available:

SIMMS	1m x 8 (standard)	1m x 8	4m x 8	4m x 8
# of SIMMS Used	two	four	two	four
Mega Bytes	2	4	8	16
Mega Words	1	2	4	8
Blocks	3,600*	7700*	15900*	31250*

* Actual block count may vary due to different O.S. Versions.

Accessing SIMMs

To access the SIMMs in your ASR-88, *make sure all cables, especially the power cable, are unplugged from the ASR-88.* Turn the unit upside down on a soft surface with the keys facing away from you. Remove the two screws holding the trap door and remove the trap door from the bottom of the ASR-88. As it comes from the factory, the ASR-88 would look like this underneath the trap door:



You will notice that there are 4 MegaByte SIMMs installed in all four slots. Directly above the Standard SIMM Slots, you will find the Memory Expansion Jumper, and a pair of SIMM Size Jumpers.

About the Memory Expansion Jumper

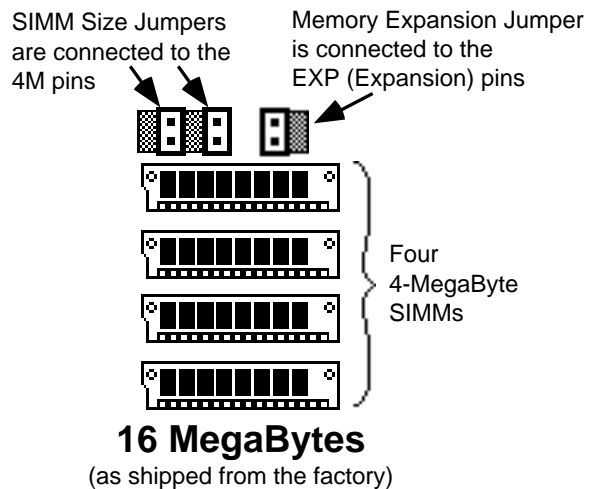
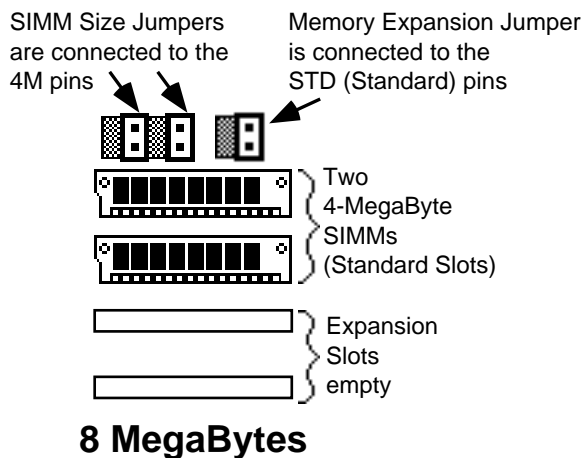
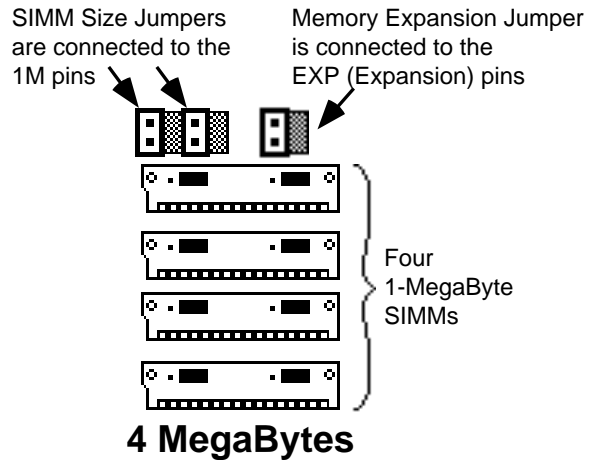
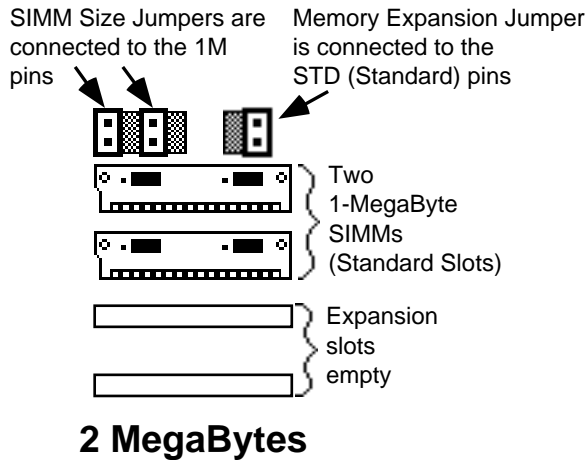
The Memory Expansion Jumper allows you to access the information in the Expansion SIMM Slots. It must be moved to the EXP (Expansion) pins in order for any SIMMs plugged into the expansion slots to be recognized. If you *do not* have any SIMMs plugged into the Expansion slots, the Memory Expansion Jumper must be installed on the STD (Standard) pins, or the ASR-88 will not boot up (display will be blank).

About the SIMM Size Jumpers

The SIMM Size Jumpers determine whether the ASR-88 will recognize 1 or 4 MegaByte SIMMs. Both jumpers must be set to the same value (i.e., either both 1M, or both 4M). The ASR-88 will not work properly if one is set to 4M and the other to 1M.

Installing SIMMs

Memory is user installable in 2, 4, 8, and 16 MegaByte configurations, with 1 and 4 MegaByte SIMMs. There are only four possible memory configurations available on the ASR-88, as shown in the diagram:

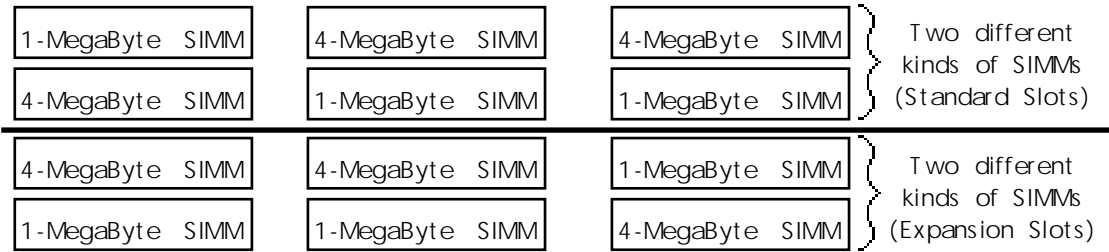


THESE ARE THE ONLY CONFIGURATIONS THAT WILL WORK PROPERLY! Any other configurations will not yield the maximum memory available, or provide the optimal performance.

Important Information about SIMMs

- If SIMMs are installed in a less than optimal configuration, the display will read SIMMS IN WRONG SOCKETS after booting. If this message is displayed, you should power off and check the SIMMs configuration.
- Any configuration which does not use two or four SIMMs will not work (the system will not even boot up).
- Any combination of SIMMs in which there are two different kinds of SIMMs in the standard slots and / or two different kinds of SIMMs in the expansion slots will not work properly. The following diagram shows some examples of incorrect configurations:

Incorrect Configurations



- These incorrect configurations of 1 and 4 MegaByte SIMMs could produce inaccurate information concerning the number of blocks, or noise and distortion.
- If the Memory Expansion jumper is not moved from the "STD" position to the "EXP" position, no memory in the expansion slots will be recognized. The wrong number of blocks will be displayed on the Edit/System•MIDI page.
- If the Memory Expansion jumper is moved from the "STD" to the "EXP" position and there are no SIMMs in the expansion slots, the system will not boot up (display will be blank).
- If the SIMM SIZE jumpers are set to "4M" and there are 4 MB SIMMs in the standard slots and 1 MB SIMMs in the expansion slots, the system will crash with "SYSTEM ERROR 139" after boot-up.
- If the SIMM SIZE jumpers are set to "4M" and there are 1 MB SIMMs in the standard slots and 4 MB SIMMs in the expansion slots, the system will report "RAM FAILED AT XXXXXXX" prior to boot-up.
- If the SIMM SIZE jumpers are set to "4M" and only 1 MB SIMMs are used, the system will report "RAM FAILED AT XXXXXXX" prior to boot-up .
- If the SIMM SIZE jumpers are set to "1M" and 4 MB SIMMs are being used, the 4 MB SIMMs will appear as 1 MB SIMMs to the system. If the system has two 4 MB SIMMs in the standard slots (8 MB of memory), the system will act as if it has two 1 MB SIMMs (2 MB of memory). If the system has four 4 MB SIMMs in the standard slots (16 MB of memory), the system will act as if it has four 1 MB SIMMs (4 MB of memory). The Free Memory Blocks will be 1/4 what they should be, and sampling time will be 1/4 of what it should be.

Troubleshooting Memory Expansion

If the correct number of blocks is not displayed on the Edit/System•MIDI page:

- 1) Make sure that there is no mix-up between 4m x 8 and 1m x 8 SIMMs (or that the store did not sell you the wrong parts).
- 2) Check that the jumpers are in the correct positions.
- 3) Check that you are using one of the four proper configurations. Improper configurations may work, but they will not work properly.

Note: The type of memory used in a SIMM is easy to determine by looking at the SIMM:

1 MegaByte SIMMs using 1 Mb DRAM chips have 8 chips (9 chips for parity SIMMs*).

1 MegaByte SIMMs using 4 Mb DRAM chips have 2 chips (3 chips for parity SIMMs*).

4 MegaByte SIMMs using 4 Mb DRAM chips have 8 chips (9 chips for parity SIMMs*).

4 MegaByte SIMMs using 16 Mb DRAM chips have 2 chips (3 chips for parity SIMMs*).

* Parity SIMMs are not recommended with the ASR-88.

Make sure that you are careful when removing the SIMMs. If the plastic retaining posts are broken, the SIMMs will not stay in place, and the main board will have to be replaced at an Authorized ENSONIQ Repair Station (a costly error).

New Edit/System•MIDI Parameters

The following information about the TOUCH and PRESSURE RESPONSE parameters replaces the information in *Section 2 — System•MIDI* of the ASR-10 Musician's Manual covering the TOUCH (Velocity and Pressure Response) parameter.

<i>EDIT</i>	TOUCH (Velocity Response)
<i>SYSTEM•MIDI</i>	Press Edit / System•MIDI / scroll using the arrow buttons

Allows you to adjust the velocity response of the keyboard to match your playing style and technique. All velocity curves affect both dynamic response of the ASR-88 keyboard and the velocity values transmitted via MIDI. There are 14 velocity curves (Touch) settings, shown in the charts on the following pages:

PIANO VEL1	SYNTH VEL1	FIXED V 64
PIANO VEL2	SYNTH VEL2	FIXED V127
PIANO VEL3	SYNTH VEL3	
PIANO VEL4	SYNTH VEL4	
PIANO VEL5	SYNTH VEL5	
PIANO VEL6	SYNTH VEL6	

When using a PIANO velocity curve, pressing a key down very slowly and softly will yield no sound. This is exactly how a real piano key would respond. When using a SYNTH velocity curve, pressing a key down very slowly and softly will always yield a sound. This is the only difference between a PIANO velocity curve and a SYNTH velocity curve.

Note: We recommend experimenting with the different curves to find the setting that best suits your playing style.

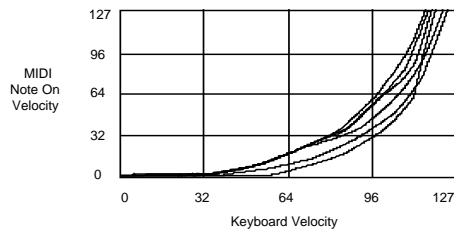
<i>EDIT</i>	PRESSURE RESPONSE
<i>SYSTEM•MIDI</i>	Press Edit / System•MIDI / scroll using the arrow buttons

This parameter allows you to adjust the pressure of the keyboard to match your playing style and technique. The pressure threshold can be varied between SOFT (minimum force required to bring in pressure) and HARD (maximum force required to bring in pressure).

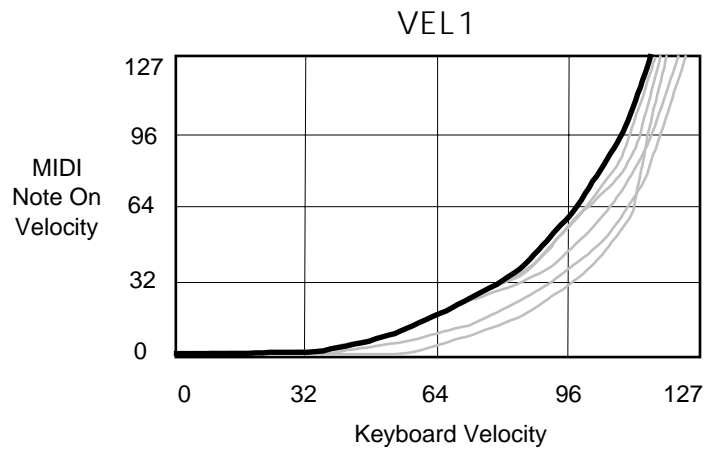
- SOFT — is for someone with a light touch. With this setting, a minimum amount of pressure is required to reach the maximum level of any pressure-controlled parameter.
- MEDIUM — requires slightly harder pressing to reach maximum pressure levels. This is the default setting.
- FIRM — represents average pressure sensitivity. A FIRM setting should be right for the player with an average touch.
- HARD — is for the strong player who presses the keys hard. It allows the widest possible range of pressure sensitivity.

The ASR-88 Velocity Response Curves (Touch)

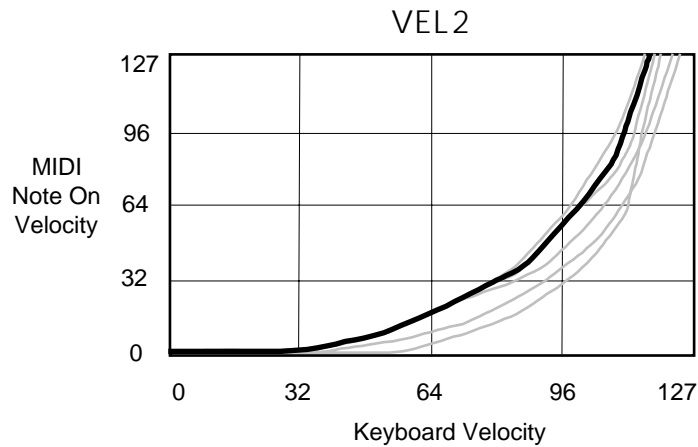
Velocity Curve Diagram



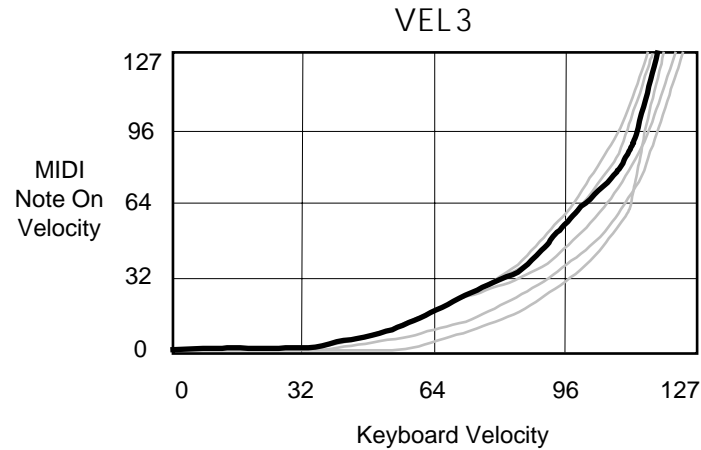
The Velocity Response Curves (Touch) offer control for a wide range of playing styles, as detailed below:



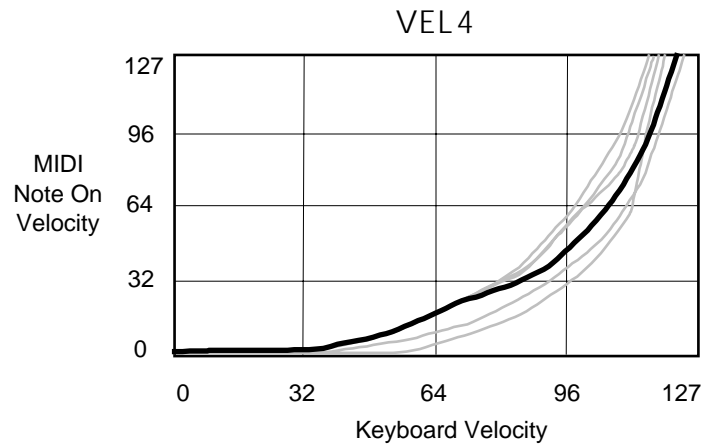
- PIANO/SYNTH VEL1 — Dark line is (thicker) VEL1. This is for someone with a light touch. On this setting, it is easier to reach the maximum level of any velocity controlled parameter.



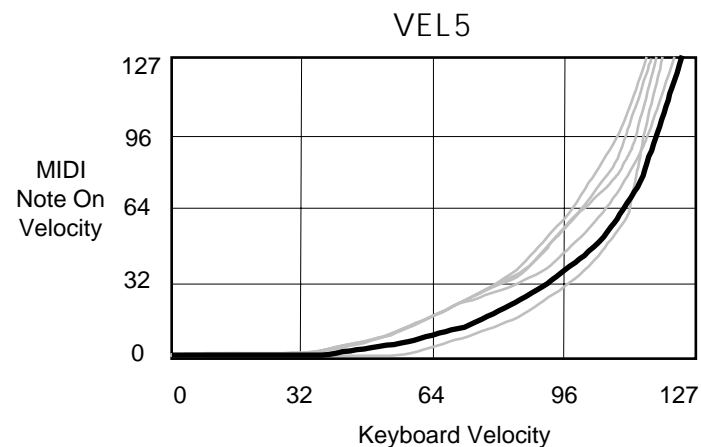
- PIANO/SYNTH VEL2 — Dark line (thicker) is VEL2. Slightly harder key strikes are required for average playing, but this still allows a softer touch to reach maximum velocity levels.



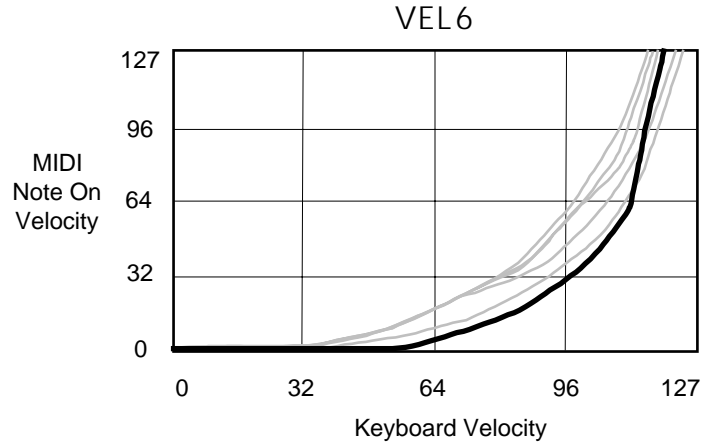
- PIANO/SYNTH VEL3 — Dark line (thicker) is VEL3. This default setting represents average velocity sensitivity. This setting should be right for most players.



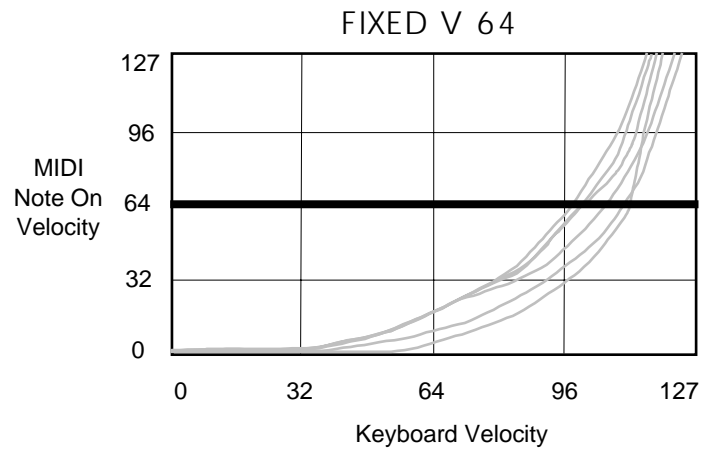
- PIANO/SYNTH VEL4 — Dark line (thicker) is VEL4. This velocity best represents the “classically-trained” player with strong fingers, and offers the widest dynamic range for skilled pianists.



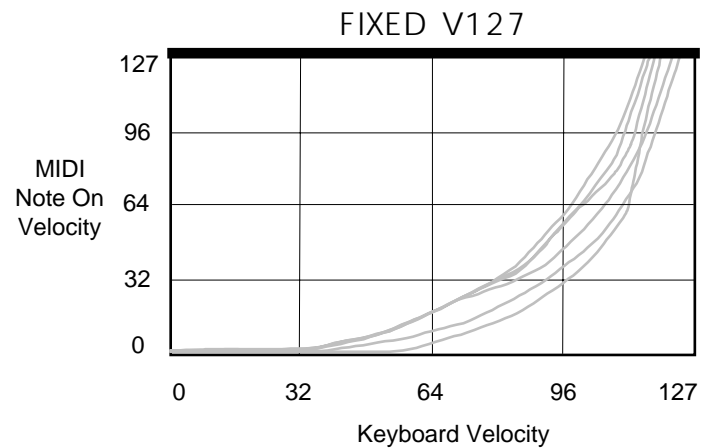
- PIANO/SYNTH VEL5 — Dark line (thicker) is VEL5. This setting offers a smooth curve for players with strong fingers who desire a softer sound. It requires strong playing to reach the top velocity levels.



- PIANO/SYNTH VEL6 — Dark line (thicker) is VEL6. This velocity setting is for the player who wants a lot of control over their softer playing. The curve dedicates most of its range to a gradual increase in volume, with a quick “spike” at the end to still allow full volume accents.



- FIXED V 64 — With this setting the velocity curve always generates a fixed value, set at the halfway point. This may be useful in simulating vintage synth sounds that originally had no velocity control.



- FIXED V127 — This setting is also a fixed velocity curve, with full volume. This is good for playing drum/percussion parts when you want a part without dynamic changes.

