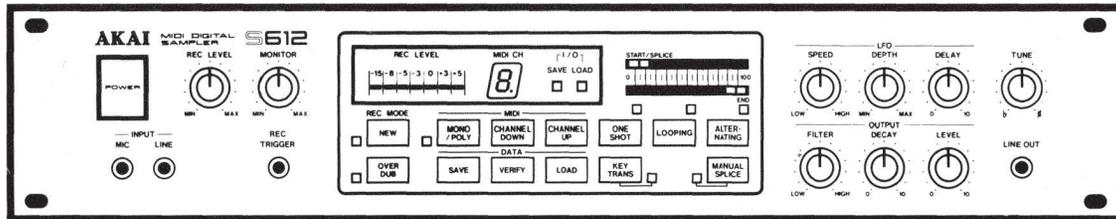


AKAI

Hi-Fi & Video.

S612

MIDI DIGITAL SAMPLER



WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

Operator's Manual

Warning

Power requirements

Power requirements for electrical equipment differ from area to area. Please ensure that your machine meets the power requirements in your area.

If in doubt, consult a qualified electrician.

120 V, 60 Hz for USA and Canada

220 V, 50 Hz for Europe except UK

240 V, 50 Hz for UK and Australia

110 V/120 V/220 V/240 V, 50/60 Hz

convertible for other countries.

Voltage conversion

Models for Canada and USA are not equipped with this facility. Each machine is preset at the factory according to its destination, but some machines can be set to 220 V or 240 V as required.

If your machine's voltage can be converted:

Before connecting the power cord, turn the **VOLTAGE SELECTOR** located on the rear panel with a screwdriver to the correct voltage as indicated for your area.

Precautions

FOR CUSTOMERS IN THE UK

IMPORTANT FOR YOUR SAFETY

The flex supplied with your machine will have either two wires or three, as shown in the illustrations.

TWO CORE FLEX IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

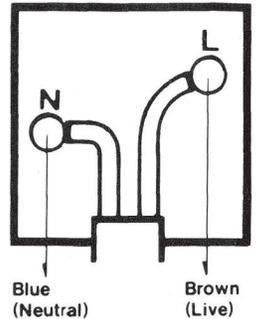
Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured terminals identifying the terminals in your plug, proceed as follows: The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

* Do not connect any wire to the larger pin marked E or \equiv when wiring a plug. Ensure that all terminals are securely tightened and that no loose strands of wire exist.



This equipment conforms to EEC standard No. 82/499.

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		



The lightning flash with the arrowhead symbol superimposed across a graphical representation of a person, within an equilateral triangle, 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.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

AKAI MIDI DIGITAL SAMPLER S612

The Akai MIDI Digital Sampler S612 is an amazingly sophisticated electronic instrument which enables you to record (sample) any kind of sound, and reproduce it at any desired pitch or pitches. The following are only a few examples of the many sounds that the S612 can sample.

1. Sounds of acoustic musical instruments (such as pianos, strings or percussion instruments).
2. Sounds of nature (such as sounds made by animals, wind, wild birds and rain).
3. Human voices, radio, television, CDs, analogue records, mechanical noises, etc.

With the S612, you are able to perform musically with ease using a wide variety of sound sources (only a few of which are listed above). The acoustic instruments can be sampled and reproduced as realistically as the original sound. Existing synthesizers, up to now among the most advanced electronic musical instruments, are unable to sample and reproduce in this way.

The S612 offers entirely new and unique ways to express your musical creativity.

Features

- Realization of super high quality sound by 12-bit sampling technology.
- 6-voice polyphonic performance is possible in connection with MIDI keyboards, synthesizers, sequencers and many others.
- Realization of sampling time up to eight seconds.
- A short sampled sound can be continuously played with no time restrictions and without sounding awkward. The S612 contains an advanced scanning mode system with "looping" and "alternating" modes.
- The best splicing point for "looping" can be selected instantly by the automatic splicing system.
- A splicing point can be selected at any time by switching to the manual splice mode.
- Because the starting or ending point of the sample can be selected at any time, it is possible to play the sound after elimination of an undesired portion of the sample. It is also possible to reproduce the sample in reverse.
- It is possible to overdub samples and accumulate various sounds infinitely.
- The S612 is equipped with an L.F.O., which can add vibrato effects with a delay.
- The S612 is also equipped with continuous variable low-pass filters for adding a milder touch to samples.
- 2.8 inch sample disks can be used for data files. "Save" and "load" procedures are extremely quick. You can continuously build your own tone sample library with the specially designed Sampler Disk Drive MD280. (optional)
- Any type of sound can be tuned to a designated pitch by transposing it by a half step. This can also be done by tuning ± 100 cent. The sound can then be stored on a disk.
- The S612 is rack mountable (EIA/2U type) for excellent operation in the studio as well as at live performances. It can be handled with ease and offers astonishing performance.

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Controls

MONITOR Control

This control adjusts the monitor level while sampling a live sound. The monitor level is not affected by the output LEVEL control. When sampling by microphone and the monitor level is too high, "howling" may result.

REC LEVEL Control

This control adjusts the recording level of the incoming signal.

POWER Switch

Use the **POWER** switch to turn the power on and off.

Note: Do not attempt to connect the sampler disk drive MD280 after the S612 has been turned on.

MIC INPUT Jack

This jack is used for sampling from a microphone or a electric guitar. The input sensitivity is -63 dB. Connect a standard 6.3 mm ϕ phone plug to this jack.

LINE INPUT Jack

This jack is used for sampling the line out from keyboards or audio equipment, etc. The input sensitivity is -27 dB. Connect a standard 6.3 mm ϕ phone plug to this jack.

Note: When both MIC and LINE input jacks are used, the MIC input has priority.

MIDI CH. Display

Normally, this will indicate the **MIDI** reception channel. However the display will light up to confirm proper operation when saving, verifying and loading tone data.

* When the power is on, the display will show "0" (omni on). When the unit receives **MIDI** signals, such as key-on, key-off, etc., the display will brighten momentarily.

REC LEVEL Indicator

Shows the recording level which can be adjusted by the **REC LEVEL** control.

LOOPING Button

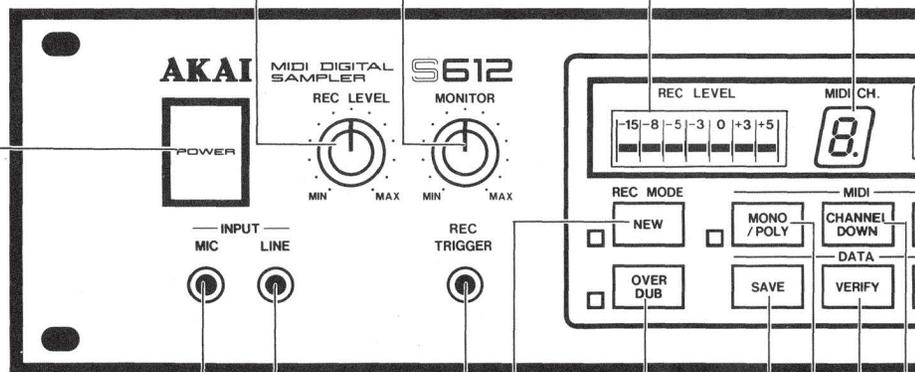
Press this button to set the scanning mode to looping. The LED indicator will light.

ONE SHOT Button

Press this button to set the scanning mode to one-shot. The LED indicator will light.

Save Load Indicator

The **SAVE, LOAD** LED will light when the respective function has been selected.



REC TRIGGER Jack

This jack allows the use of a foot switch to trigger the sampling process.

Note: Connect a standard 6.3 mm ϕ phone plug to this jack. Use the Akai PS-X80 or the circuit is opened when the connected switch is pushed down.

NEW Button

Press this button when you make a new sample.

* The previous sample will be erased.

OVERDUB Button

Press this button when you wish to overdub one or more sounds.

* You can overdub many times.

SAVE Button

Press this button to save the sound data in the S612 onto disk.

MIDI MONO/POLY Mode Select Button

This button is used to switch between the **MIDI** mono and poly modes. The indicator lights when the mono mode is set.

END Point lever

This lever sets the end-point of the sampled sound.

START/SPLICE Lever

This lever sets the start/splice point of the sampled sound.

Note: Normally, this lever sets the starting point. However, when the **MANUAL SPLICE** button is pressed, it will set the splicing point.

ALTERNATING Button

Press this button to set the scanning mode to alternating. The LED indicator will light.

MANUAL SPLICE Button

Press this button to set a splicing point manually. The LED indicator will light.

LFO, SPEED, DEPTH, DELAY controls

A vibrato effect can be added to the sampled sound by using the LFO.

SPEED — Adjusts the speed of the vibrato.

DEPTH — Adjusts the depth of the vibrato.

DELAY — Adjust the delay time of the vibrato.

TUNE Control

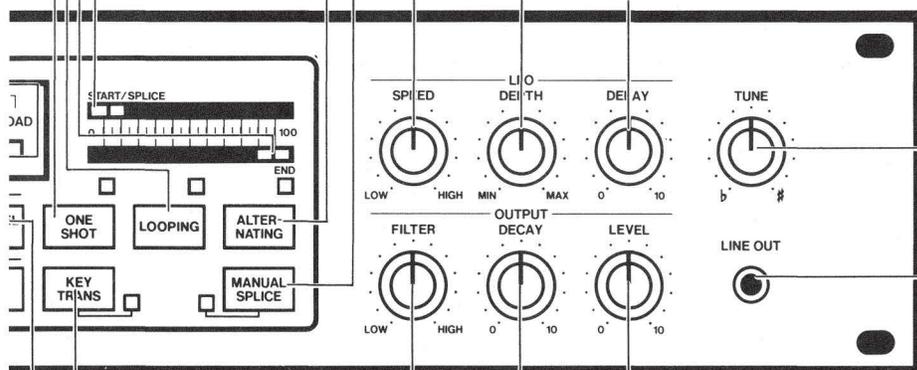
The sampled sound can be fine tuned using this control. It will also serve as a pitch control when replaying sampled sound.

LINE OUT Jack

The monitor/output signal of the S612 appears at this **LINE OUT** jack, which can be connected to the line input of mixers or amplifiers.

* Connect a standard 6.3 mm ϕ phone plug to this jack.

Note: This jack is connected in parallel with the **LINE OUT** jack on the rear panel.

**KEY TRANS Button**

Press this button to transpose the sampled sound. The LED indicator will light.

MIDI CHANNEL UP Button

Press this button to increment the **MIDI** channel number.

* Pressing once increases the channel by one. Pressing the button while "9" is displayed on the **MIDI CH.** display will forward the display to "0".

LOAD Button

Press this button to load the sound data, saved on disk, into the S612.

MIDI CHANNEL DOWN Button

Press this button to lower the **MIDI** channel number.

* Pressing once decreases the channel by one. Pressing the button while "0" is displayed on the **MIDI CH.** display will revert the display to "9".

VERIFY Button

Press this button to verify the sound data saved on disk.

LEVEL Control

This control adjusts the output level of the sampled sound. The monitor level is not affected by the output **LEVEL** control.

DECAY Control

This control adjusts the decay effect of the sampled sound. Turning the knob clockwise will increase the decay time after key-off.

FILTER Control

This control adjusts the low-pass filtering on the sampled sound. The replayed sampled sound will become mellow as the control is turned towards the **LOW** position.

MIDI OUT Jack

This jack is for sending **MIDI** system exclusive information to other **MIDI** equipment.

MIDI THRU Jack

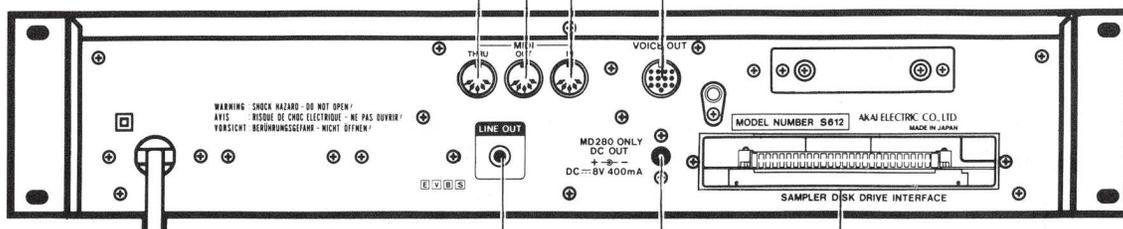
This jack provides a direct copy of data coming in the **MIDI IN** jack.

MIDI IN Jack

This jack is for receiving **MIDI** information from other **MIDI** equipment.

VOICE OUT Jack

The six voices of the S612 can be individually accessed through this jack.

**LINE OUT Jack**

The monitor/output signal of the S612 appears at this **LINE OUT** jack, which can be connected to the line input of mixers or amplifiers.

* Connect a standard 6.3 mm ϕ phone plug to this jack.

Note: This jack is connected in parallel with the **LINE OUT** jack on the front panel.

DC OUT Jack

This jack provides a DC power supply [8 V] for the MD280.

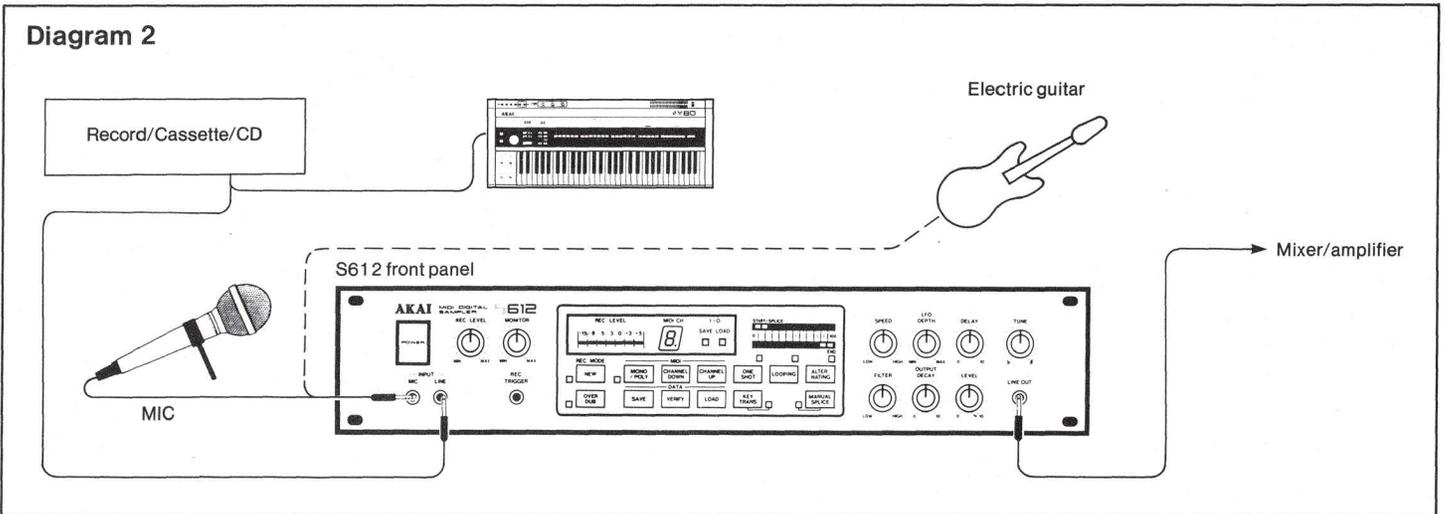
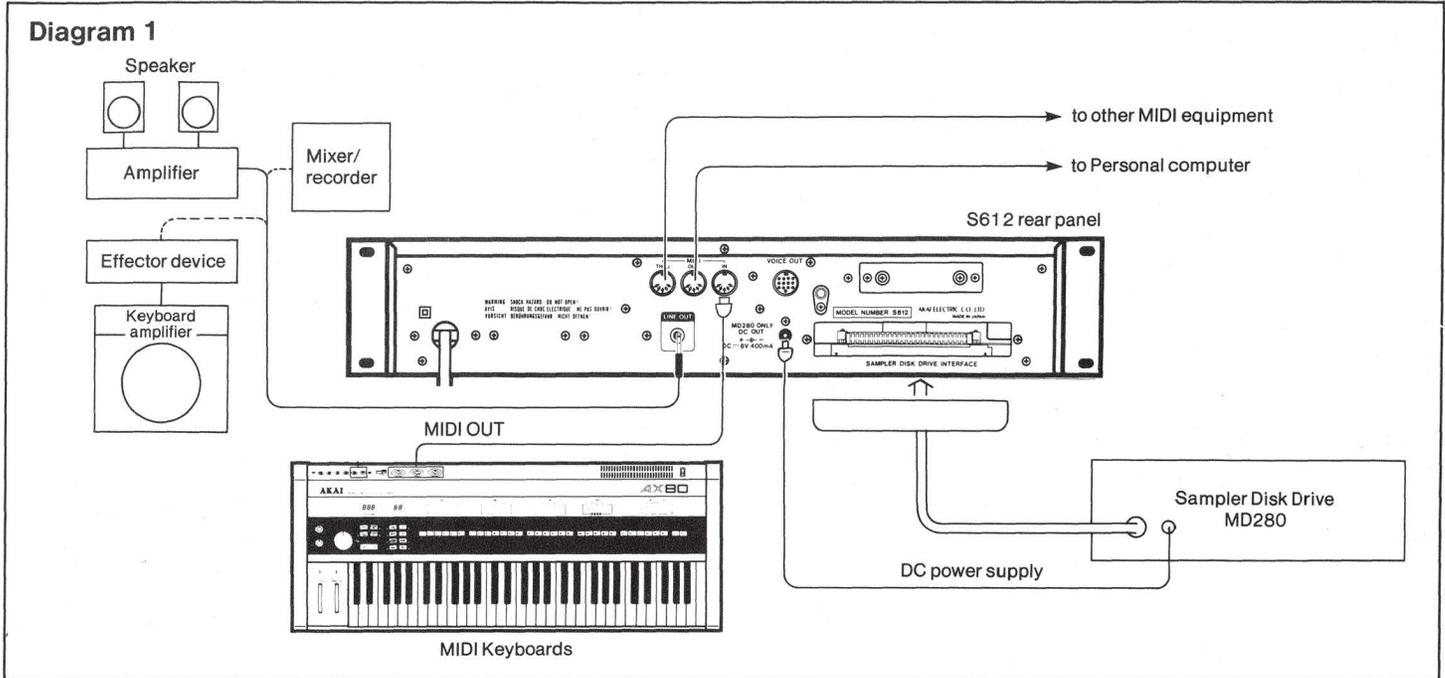
MD280 connector (MD280 ONLY)

This connector is specially designed for connection of the Sampler Disk Drive MD280, and is used for save/load operation onto sampler disks.

Connections

The S612 is a MIDI digital sampler which will function only if input information is received at MIDI-IN. Ensure that all the correct connections have been made between the MIDI-IN and MIDI-OUT of the S612 and any keyboards (such as the Akai

AX80) or sequencers. Obviously, unless a sound is being input or a sample has been loaded into the S612, it will not reproduce any sounds. The S612 will not "remember" any data after it has been switched off.



Sampler Disk Drive MD280

The Sampler Disk Drive MD280 (optional) is the device which quickly and accurately saves the sound data. The format of 2.8" disk makes the filing space very compact.

Note: If the MD280 is to be used, it should be connected with the S612 before switching on the S612. Any sampled data in the S612 will be lost if the MD280 is plugged in or unplugged while the S612 is switched on.

Sampling

PREPARATIONS

Before Turning the Power On

Make sure the various connections with **MIDI** and audio equipment have been completed before turning the power of the S612 on. (Refer to the chapter concerning connection with external equipment on page 6.)

When using the specially designed MD280 Sampler Disk Drive, ensure that the correct connections between the MD280 and the S612 have been made.

Note: Connecting the MD280 while the S612 is switched on will result in the loss of sound data sampled in the S612.

Connections to Input

Connect the sound source that you want to sample to the **MIC** or **LINE INPUT** jacks.

Adjustment of Recording Level

Set the recording level by the **REC LEVEL** control. To obtain the best results in sampling, bring the level close to "+3" on the **REC LEVEL** indicator.

Monitor Level

Use the **MONITOR** level control when monitoring the sound source to be sampled. When using a microphone, feedback may occur if the monitor level is too high.

Designation of the Sampling Frequency

This brief outline may help to clarify some different aspects of sampling technique:

Are you trying to reproduce (a) high or (b) low frequency sounds?

(a) To faithfully reproduce high frequency sounds, a faster (therefore, shorter) sampling time will be required.

The S612 can be "instructed" to accept a wider bandwidth sample by pressing a higher note on the **MIDI** keyboard prior to making the sample; see Table #1.

(b) The reproduction of lower frequency sounds, typically much longer in duration, will require a longer sampling time.

The S612 can be "instructed" to accept a long sample by pressing a lower note on the **MIDI** keyboard prior to making the sample; see Table #1.

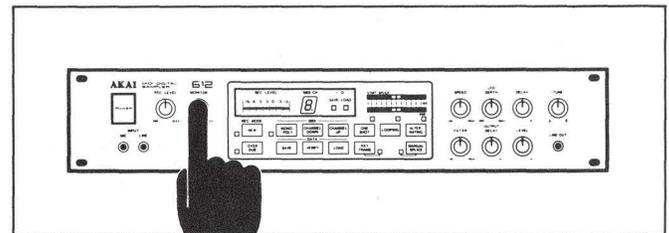
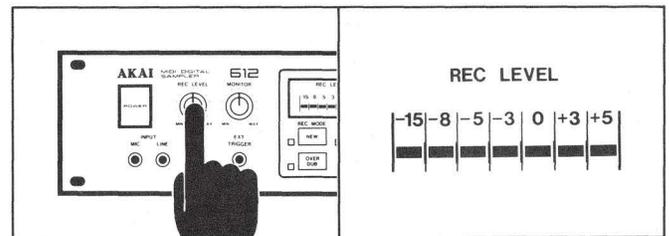
(c) For accurate reproduction (pitch) of a sampled sound it is necessary to first press the same note on the **MIDI** keyboard as that being sampled.

This process can be extended to allow for pitch transposition if required.

Table 1

Equipment to be connected.	Input.	Input Sensitivity.
Equipment or devices, such as guitars or microphones, have low output levels.	MIC	-63 dB
Audio equipment, such as televisions, cassette tape decks, CD players, tuners or preamplifiers, or musical instruments, such as synthesizers or electric keyboards have higher output levels (line level).	LINE	-27 dB

Note: When both the **MIC** and **LINE INPUT** jacks are connected, the **MIC** jack overrides **LINE** jack.



Example: Press A2 (lowest A) on the **MIDI** keyboard, then play (sample) A3 (A string) on a guitar. Now when A3 is played on the **MIDI** keyboard the actual pitch of the reproduced note will be A4: The pitch has been transposed up by one octave.

This technique can be used to transpose from 1/2 stops through to several octaves if required.

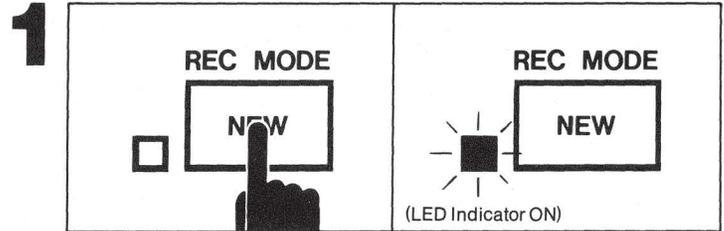
Note: If the **MIDI** keyboard or the S612 have just been switched on and no key has been pressed before sampling, the S612 will automatically designate C4 as the desired pitch.

Key No.	C2	C3	C4	C5
MIDI Note No.	36	48	60	72
Sampling Frequency	4 kHz	8 kHz	16 kHz	32 kHz
Sampling Time	8 sec.	4 sec.	2 sec.	1 sec.

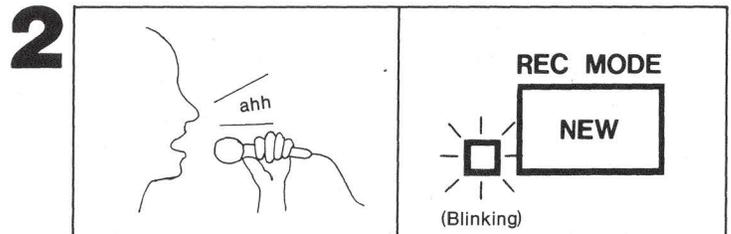
Note: Although only four (4) keys are depicted, other keys may be selected if intermediate frequencies are desired.

Sampling

1. Once you have adjusted the recording level and designated the desired sampling frequency, you are ready to sample. Press the **NEW** button. The LED indicator will light. This indicates that the unit is standby for sampling.



2. Using a microphone, make a sample. Say "ahh..." for example. The LED indicator should start blinking from the moment you begin speaking into the microphone. After blinking for the length of time of the designated sampling frequency, the LED indicator will go out automatically. This indicates the completion of the sampling process.



Automatic Trigger

Because the S612 contains an automatic trigger circuit, it will automatically start the sampling process when the sound level reaches a certain preset level. You will notice that the unit may start off the process prematurely by picking up surrounding noise when the sampling is done through a microphone. On the other hand, when the recording level is too low,

the sampling process may not begin because the sound level is not high enough to trigger the circuit. In which case, after increasing the recording level, reset the unit by pressing the **NEW** button again to get it into the standby mode, then start sampling.

Cancelling the Sampling Standby Mode

To cancel the sampling standby mode, press the **NEW** button again. The **LED** will go out.

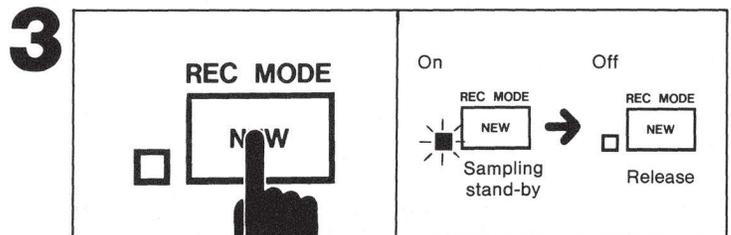
3. Thus, sampling has been completed. This sampled sound data will be maintained until either the power is turned off, the process is repeated for another sampling or other sampled data is loaded from the disk.

* If necessary, save the sound data for later use with the specially designed Sampler Disk Drive MD280 (optional). Refer to page 22.

4. You should now be able to enjoy six-voice polyphonic, velocity touch sensitive sounds, from the S612, by playing **MIDI** keyboard instruments.

Note: All six voices may not be able to be heard when music is played mostly on the keys around the fifth octave (the highest octave range for the AX80). This is not a defect in the unit.

5. After connecting the **MIDI** keyboards, if sampling is done without any keys being pressed down, the sampling frequency will be set at 16 kHz with a sample time of 2 seconds.



Cautions when Designating the Sample Frequency

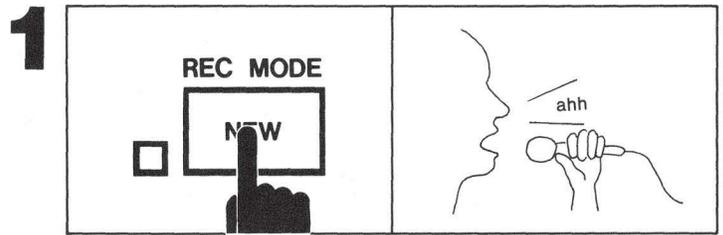
1. Because the last key to be pressed down will determine the sampling frequency, if connected with **MIDI** keyboards, make sure to press down the key to designate the frequency before going through the sampling process.
2. The range of the keys to which a sampling frequency can be designated is between **MIDI** key number 36 (C2) and 72 (C5). The keys out of this range are invalid.

Overdubbing

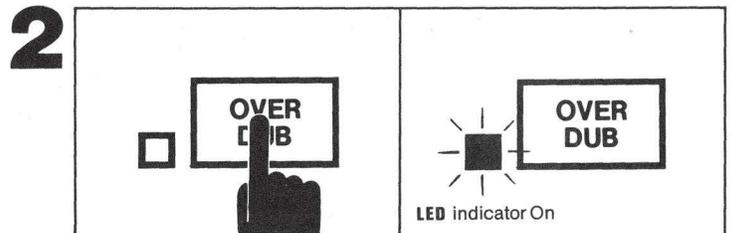
By means of pressing the **OVERDUB** button instead of the **NEW** button for the above mentioned sampling process, you are able to overdub a newly sampled sound without erasing the previously sampled sound.

Let's try to overdub (ohh...) as a second sound over the first sound (ahh...). The setting-up process is identical to the previous chapter for sampling (Refer to page 8).

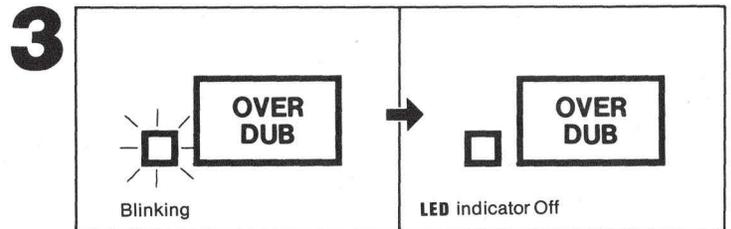
1. After adjusting the recording level and designating the sampling frequency, press the **NEW** button. Sample your voice (ahh...).



2. You are about to overdub (ohh...) on (ahh...), which you have just sampled. (It is possible to designate the sound to a different frequency.) Press the **OVERDUB** button. The **LED** next to the button will light. This indicates the unit is in standby for overdubbing.



3. Say (ohh...) into the microphone. From the moment you started to say (ohh...), the LED should start blinking. This blinking indicates overdubbing is in progress. After blinking for the length of time equivalent to the designated frequency, the LED will go out automatically.



4. Thus, the overdubbing process has been completed. When you play the **MIDI** keyboard, you should be able to hear the combined sounds of (ahh...) and (ohh...).

Overdubbing can be done as many times as you wish.

Note: Once the overdubbing is done, there is no way to single out the individually sampled sounds. We, therefore, recommend that you store and save the individual sounds on disk if they are needed for later use.

OVERDUB SOUND LEVEL

As with any overdubbing process, there will be some attenuation (reduction) of previously recorded material (approximately -6 dB) for each "take".

If it is desired that the combined sounds are to be of equal level when replayed, then, the last sound to be sampled should be recorded at a lower level to compensate for the attenuation of previous samples.

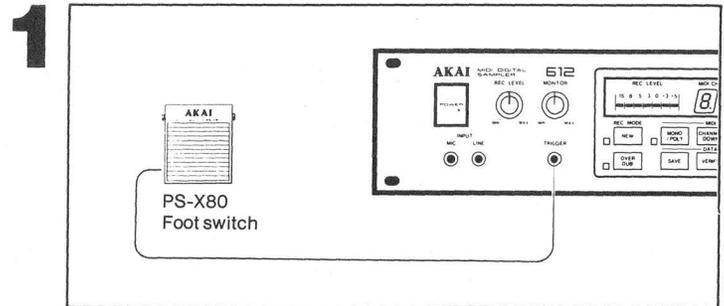
Sampling by Rec Trigger

Although the S612 contains an automatic trigger system, it is possible to start sampling at any desired time by connecting a foot switch to the **REC TRIGGER** jack. (It can be used for overdubbing as well.)

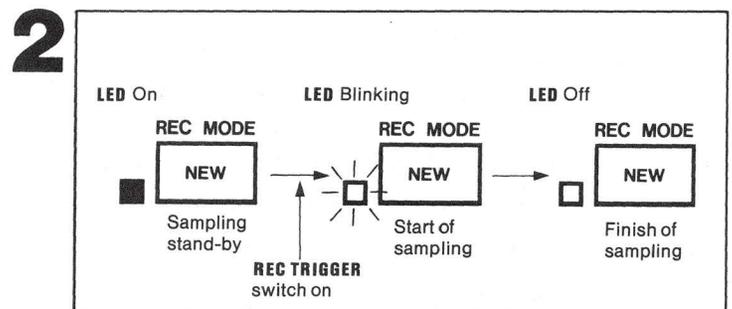
This **REC TRIGGER** feature becomes especially useful and effective in situations where the sound is slow in reaching the required trigger level, and therefore, "its" initial attack may not be sampled.

1. Connect the Akai PS-X80 foot switch to the **REC TRIGGER** jack.
 - * In this case, the automatic trigger system will be overridden.
 - * Use a foot switch of the type shown below, if you do not use the Akai PS-X80 foot switch.

Normal (closed)
Press Down (open)



2. The setting-up process is identical to the chapter for sampling (Refer to page 7). After adjusting the recording level and designating the sampling frequency, press down the **NEW** button (or **OVERDUB** button). The **LED** next to the button (either **NEW** or **OVERDUB**, depending on the process you are using), should light. This indicates the unit is ready for sampling (or overdubbing).

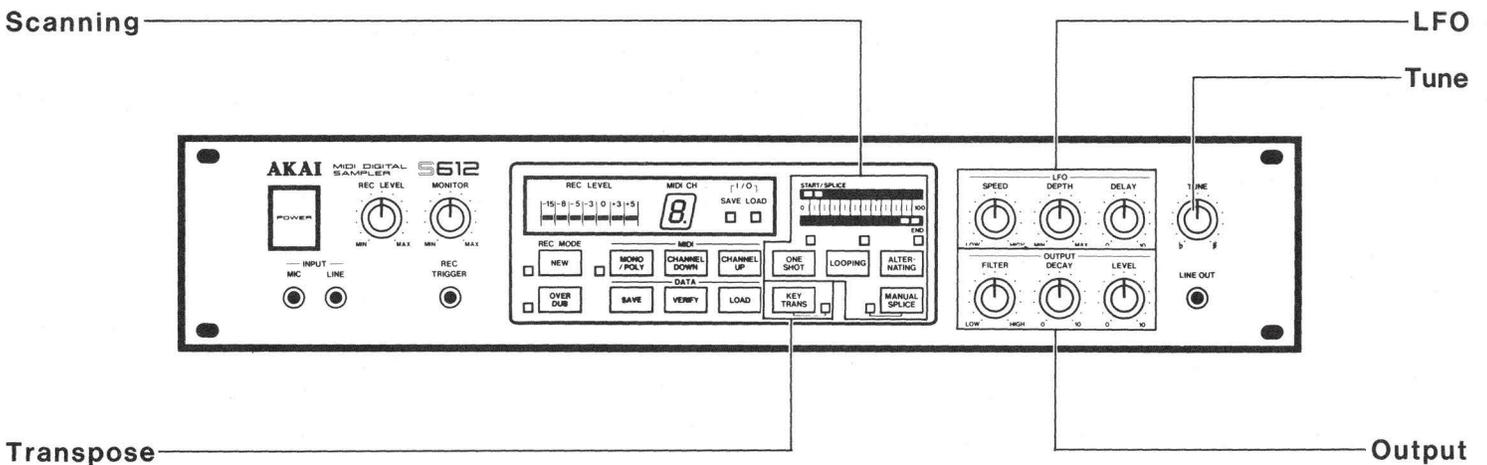


3. Sampling (or overdubbing) is initiated by pressing the foot switch connected to the **REC TRIGGER** jack.

Edit

The S612 contains various editing functions so that sampled sounds can be applied more effectively for your musical expressions. These functions include the following:

- Scanning
- LFO
- Output
- Transpose
- Tune



1. SCANNING

This is the function that is controlled by the "START POINT" and "END POINT" levers, in conjunction with the "ONE SHOT", "LOOPING" and "ALTERNATING" mode buttons, that enables you to decide how the sample will be replayed.

2. LFO

It is possible to add a vibrato effect to sampled sounds.

3. OUTPUT

It is possible to control the degree of mellowness of the sampled sound (FILTER). It is also possible to adjust the length of time the note sounds after the key-off (DECAY).

4. TRANSPOSE

It is possible to transpose the samples.

5. Tune

It is possible to tune the samples up or down within the range of ± 100 cents.

When saving to disk, the editing parameters will also be stored along with the sampled data, therefore, when the sampled data is retrieved (loaded) from disk, it is ready for playing in its' original, edited form, until/unless the editing control(s) is/are readjusted. For example, if a sound, which has been edited, using the **LFO**, to contain a very deep vibrato, is saved to disk and then, at some later date is loaded back into the sampler, even though, in the meantime, the **LFO** controls may have been reset to minimum, that sound will still contain a deep vibrato. However, if any of the **LFO** controls are adjusted after the sample has been loaded, they will again affect the character of the sound. This superior feature enhances the "useability" of the S612 Digital Sampler.

Note: The output **LEVEL** control is not a programmable parameter.

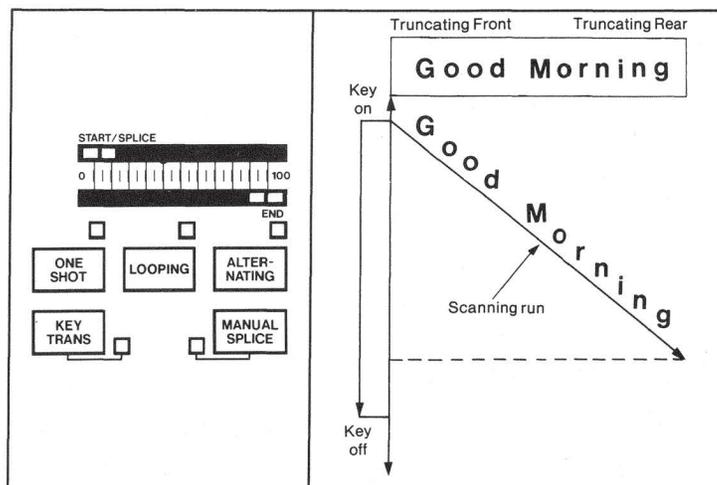
Scanning

The S612 stores sampled sounds in memory IC's in digital data form and reconstructs the pitch by altering the speed at which the memory data is read. It works on the same principle as a tape recorder. The pitch changes according to the tape speed. However, because sounds are recorded differently in memory IC's than on tapes, it is possible for us, using the in-

ternal computer of the S612, to control the ways in which the data in the memory IC's is read. In other words, it is possible to designate the point at which the S612 starts reading or stops reading the data in the memory IC's; to make a loop, or to reproduce a reverse version. We call these functions "Scanning".

Normal Setting

In order for the scanning functions to be easily understood, let's suppose a situation where we have sampled a phrase "Good Morning". Picture also the situation where the phrase "Good Morning" is stored in digital data form in the memory ICs of the S612, as seen in the diagram. In the normal setting, scanning is done from truncating front to the truncating rear all the way through. This means that with a key-on, the sampled phrase "Good Morning" will be played, and there will be no more sound. In this case, even if the key is held down, there will be no sound after the phrase "Good Morning" is played once.



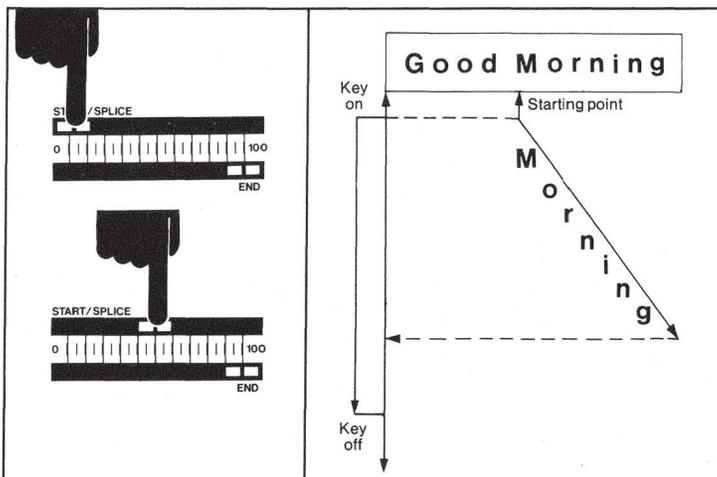
Starting Point and Ending Point

Starting Point

By adjusting the **START/SPLICE** lever, it is possible to set a starting point (the point where the S612 starts replaying from the memory ICs) at any desired point.

For example, if you choose "Morning" to be the starting point, after sliding the lever to the appropriate position, the "Morning" portion of the phrase will be replayed when a key is pressed, as seen in the diagram.

Note: Re-trigger a key each time the lever is moved to determine (hear) the new starting point.



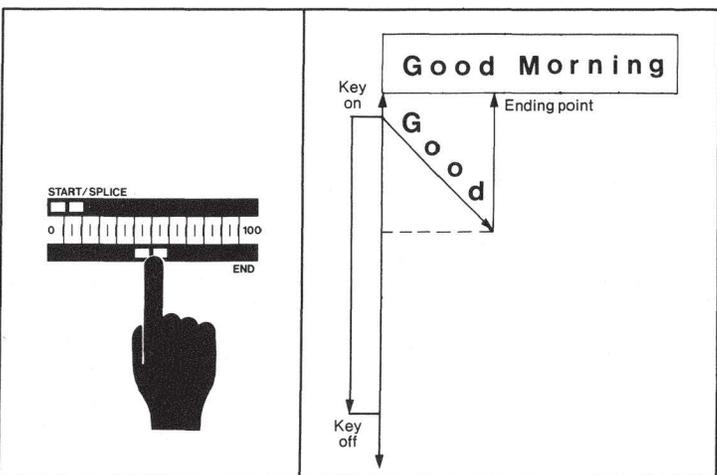
The **START/SPLICE** lever has two (2) functions.

Normally (if the **MANU. SPLICE** button has not been pressed), the **START/SPLICE** lever has the function of setting a starting point. On the other hand, when the S612 is in the manual splicing mode (the **MANU. SPLICE** button having been pressed), the lever has the function of setting splicing point. (See Page 15)

Ending point

By adjusting the **END POINT** control, it is possible to set an ending point (the point where the S612 stops replaying from the memory ICs) at any desired point.

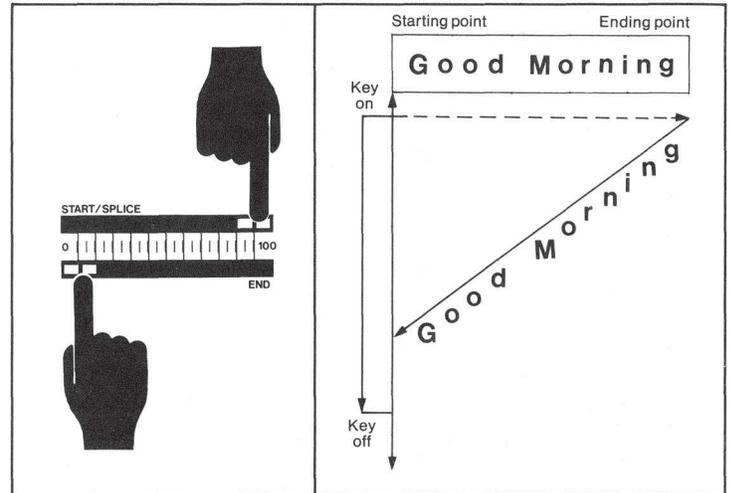
For example, as seen in the diagram, by adjusting the control to the appropriate point, only "Good" will be played when a key is pressed.



Playback of Reverse Version

If you set the two levers so that the **END** point lever is positioned before the **START** point lever, the playback will be reversed. For example, as seen in the diagram, when the set up is done with the start point at the truncating rear and with the end point at the truncating front, the reverse version "gninroM dooG" will be played when a key is pressed. It follows, therefore, that it is possible to replay any desired portion of the sample in reverse.

Note: Although the **START** and **END** point levers may be reversed, it is not possible to **SAMPLE** in reverse. A sound can only be recorded as it occurs naturally (in its' original form) even through, once sampled, it can be reproduced in reverse.



Scanning Mode

The S612 employs the latest computer technology so that it is not only able to play sampled sounds, but can also be used very extensively for musical application.

The following are three special scanning modes:

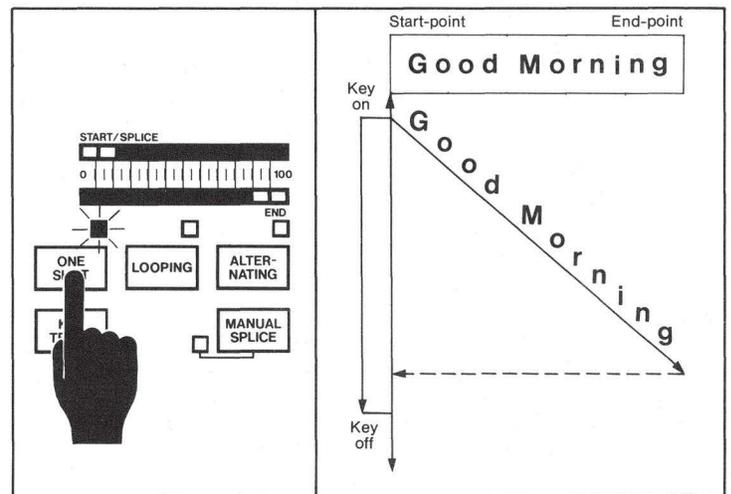
- * One-Shot
- * Looping
- * Alternating

One-Shot mode

In the "One-Shot" mode, the S612 functions as an ordinary sampling device. For example, when it is set as shown in the diagram (the same as the normal setting), the sampled sound "Good Morning" will be played when a key is pressed. There will be no sound thereafter, even if the key is held down.

With the one-shot mode, scanning is done in the following order.

Starting point → Ending point



Looping Mode

In the **LOOPING** mode, the setting up of a loop automatically (automatic splicing system) or manually (manual splice mode) within the S612's memory IC's makes it possible for the sampled sound to be played continuously. With this mode, playing the continuous sounds of strings, brasses, chorus, etc., becomes possible. (The sound starts when a key is pressed and will play continually until the key is released.) This makes the application of the S612 very extensive by opening up more paths for your musical expression.

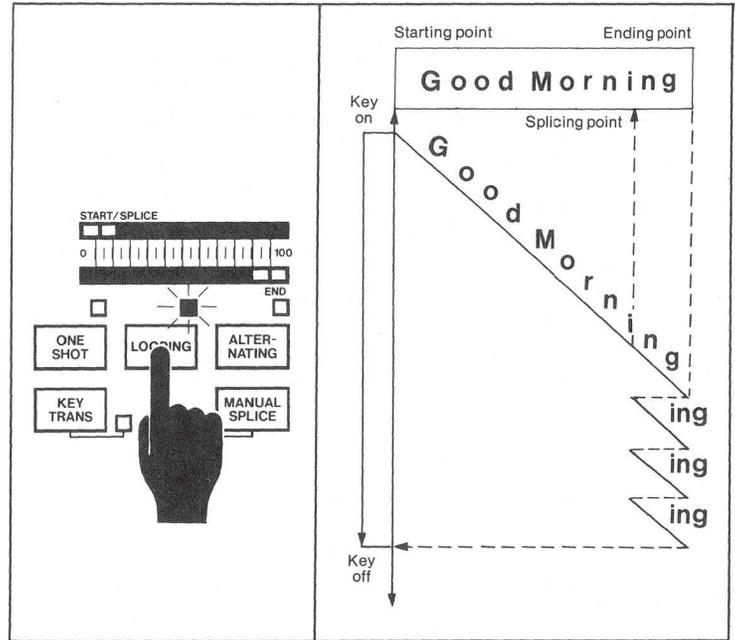
Automatic Splicing System

The S612's looping function makes it feasible, by fully applying today's computer technology, to search out and automatically "Splice" any point ("Splicing Point") of the sample instantaneously. This has been said to be very difficult and time consuming without the aid of the computer.

* The term "Splicing" is used when joining two audio tapes together with a special adhesive tape to make one continuous tape when editing is necessary. Similarly, we call the restarting point of a scanning loop a "Splicing Point".

The moment the **LOOPING** button is pressed, the automatic splicing system of the S612 finds the most appropriate splicing point of the sampled sound. For example, as seen in the diagram, when the **LOOPING** button is pressed, with the **START/END** point levers in the normal position, the key-on (when a key is pressed) will start the sampled phrase "Good Morning". After "Good Morning" is played once, "ing" will repeat continuously until the key-off (the key is released). This means that the S612's computer selected "O" as the beat splicing point.

In the **LOOPING** mode, the scanning is done in the following order:
 Starting point → Ending point → Splicing point



Note: The automatic splicing point is referenced to the position of the **END POINT** lever. Therefore, if the sampled sound does not utilize all of the available memory the computer will be attempting to replay (loop) an "empty" memory; = no sound! This situation can be remedied by repositioning the **END POINT** lever, making a longer sample or, shortening the sample time. Some sound will not loop well. Sounds which are not produced by musical instruments (human voices, effects and so on) or, with erratic or staccato-like sounds which contain much variation, some noise (splicing noise) may be heard. This is not a defect. Experimentation may be necessary with some sounds. The automatic splicing system will be overridden if the **MANUAL SPLICE** mode is selected.

Alternating Mode

The **ALTERNATING** mode is based on the same idea as the **LOOPING** mode where a loop is built by scanning. But it is different from the **LOOPING** mode in the way the loop is built. For example, as seen in the diagram, when the **ALTERNATING** button is pressed, with the **START/END** point levers in the normal position, the key-on will start the sampled phrase "Good Morning". After "Good Morning" is played once, "gni" then "ing" will be replayed continually until the key-off. The scanning simply reverses direction between the end point and the splicing point.

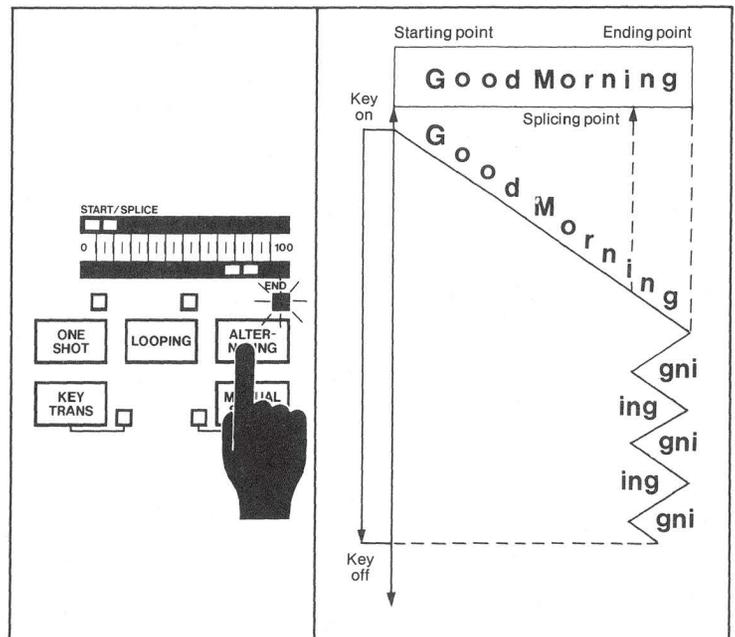
In the **LOOPING** mode the scanning "jumps" back to the splicing point; scans only from the splicing point to the end point; does not scan from the end point to the splicing point.

This difference in scanning should be comprehended more easily in the next chapter for "Manual Splice".

In the **ALTERNATING** mode, scanning is done in the following order:

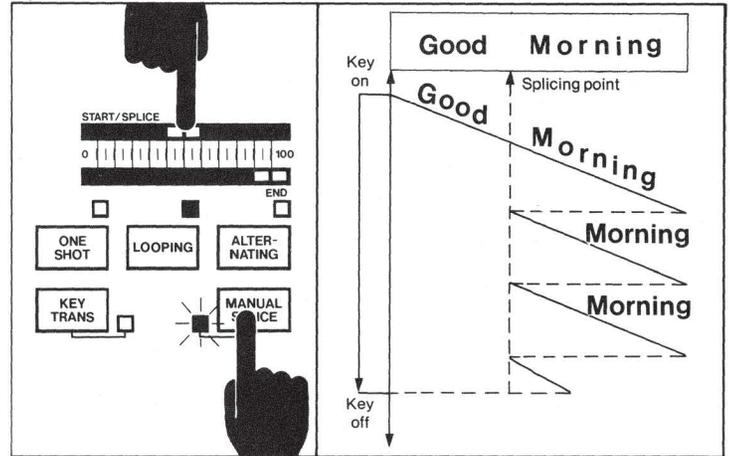
(Reverse)
 Starting point → Ending point → Splicing point

Note: The **ALTERNATING** mode is very useful, especially when it comes to building the continuous sounds of strings. But there are some instances where the sound produced by the looping mode is more acceptable. Compare the **LOOPING** mode and the **ALTERNATING** mode when editing and select the continuous tone which sounds better.



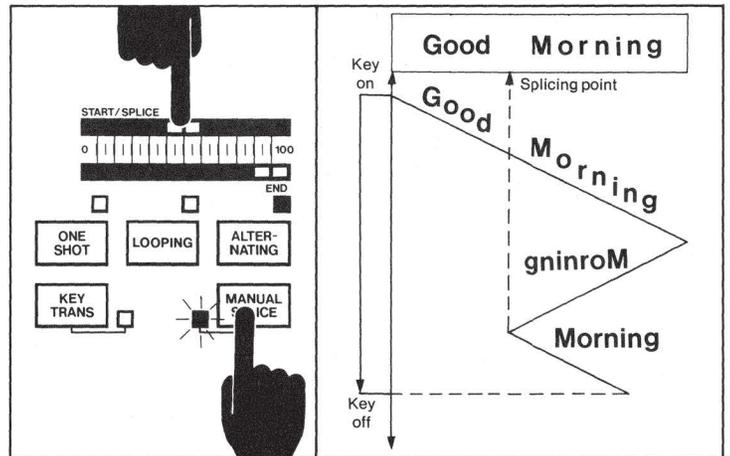
Manual Splice Mode

The S612 normally sets up a splicing point by using the automatic splicing system. However, by pressing the **MANUAL SPLICE** button, the automatic splicing system will be overridden, which makes it possible for you to set a splicing point manually. In this situation, the **START/SPLICE** lever's function is to set a splicing point and by adjusting this lever, a different splicing point may be set. Also, the **END** lever gives a fine adjustment of the splice, and pressing the **LOOPING** (or **ALTERNATING**) button will advance the splice point by one. Eight presses will return to the point set by the levers. For example, in the **LOOPING** mode, when the **MANUAL SPLICE** button is pressed and the splicing point is set at "Morning" by the lever, a key-on starts the phrase "Good Morning". After the phrase is played once, "Morning" will be repeated until the key-off.



In the **ALTERNATING** mode however, a key-on starts the phrase "Good Morning". After the phrase is played once, "gninroM-Morning-gninroM" will be repeated until the key-off.

Note: The **MANUAL SPLICE** button will not function in the one-shot mode.

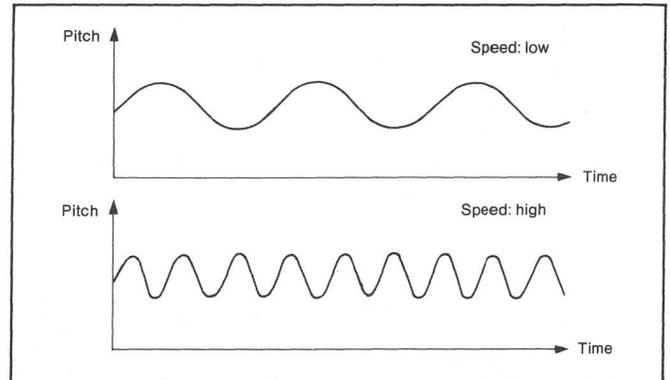
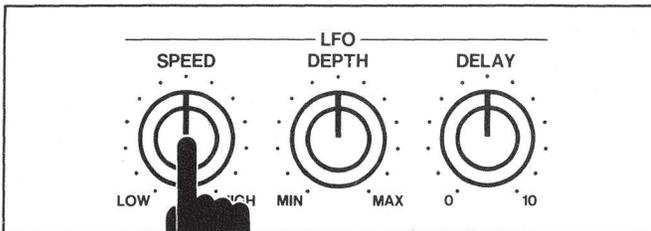


LFO

Because the S612 contains an **LFO** (Low Frequency Oscillator) circuit, it is possible to add vibrato effects to sampled sounds. The waveform of the **LFO** is ~.

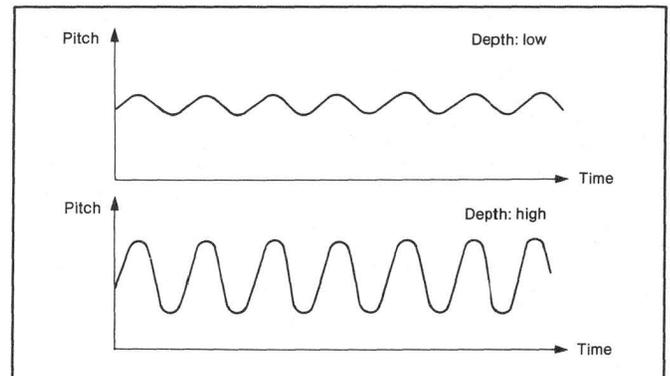
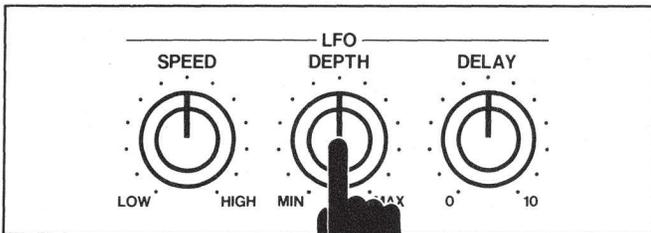
SPEED Control

This control sets the modulation rate of the LFO.



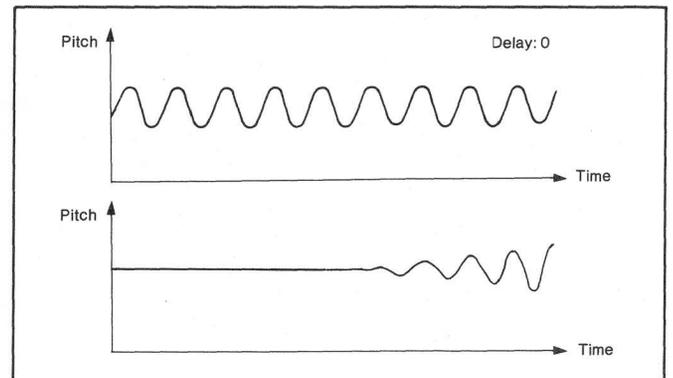
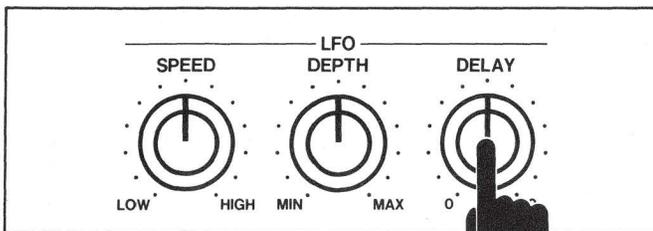
DEPTH Control

This control sets the depth of the modulation.



DELAY Control

This control sets the delay time of the vibrato.



Note: The three controls for the **LFO** (**SPEED**, **DEPTH** and **DELAY**) are programmable parameters. When sounds are to be saved on disks, these data will be saved along with the sampling data.

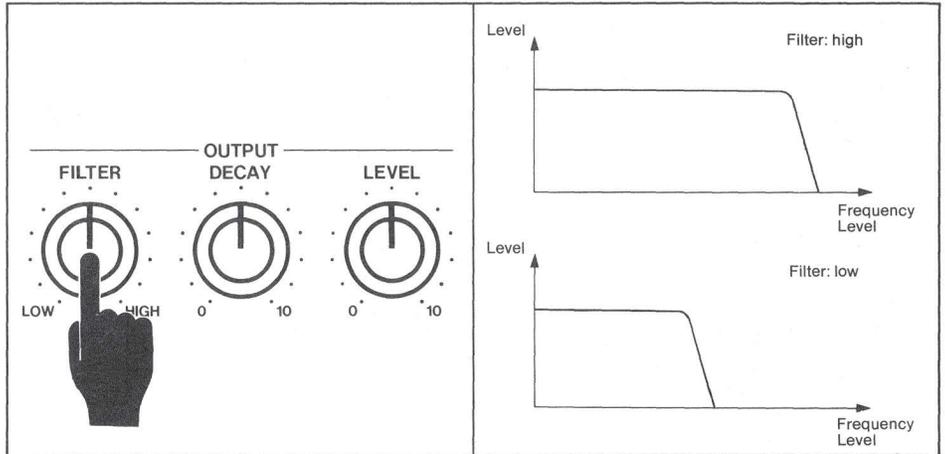
Note: It is possible to add a vibrato effect not only with the **LFO**, but also by operating the modulation wheel on external **MIDI** keyboards. (Refer to **MIDI** on page 20.)

OUTPUT

The S612 has three **OUTPUT** controls, **FILTER**, **DECAY** and **LEVEL**.

FILTER Control

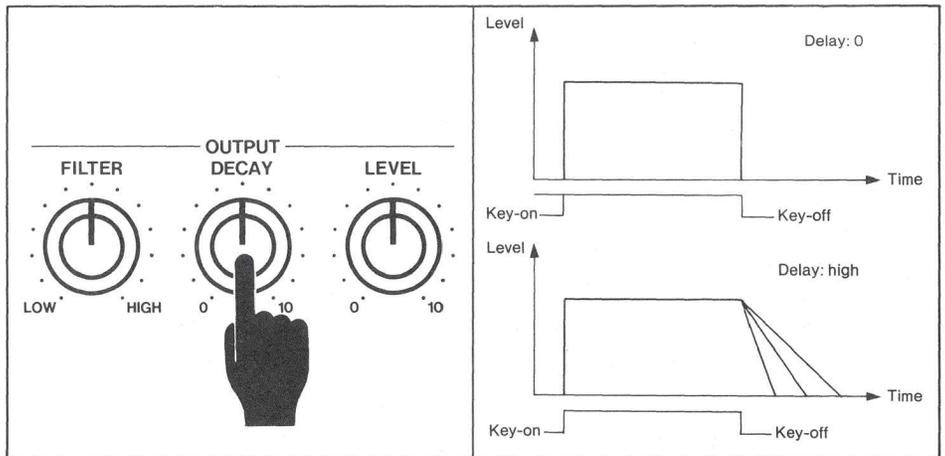
By processing the sampled sound through a low-pass filter, it is possible to give it a milder or a mellow tone.



DECAY Control

By adjusting the **DECAY** control, a decay (reverb-like) effect can be added, so that when the key is released (key-off) the sampled sound fades gradually. The higher the value (number) that the control is set at, the longer the decay effect.

NOTE: The S612 can receive decay effect by "Sustain Pedal On" data from external **MIDI** keyboards.

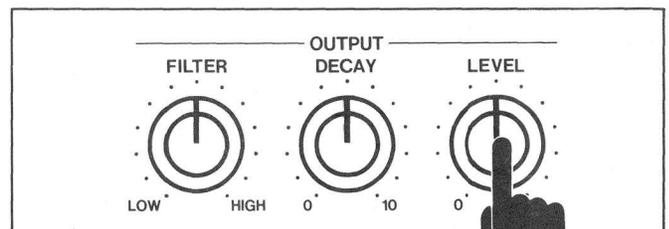


LEVEL Control

This control is for adjusting the output level of sampled sounds.

Note: The adjustment of this control does not affect the monitor level.

Of the three **OUTPUT** controls, the **FILTER** and **DECAY** are programmable parameters. When the sound data is saved on disks, they will be saved along with the sampled data. However, because the **LEVEL** data is not programmable, it cannot be saved on disks.



TRANSPOSE

The S612 is able to transpose sampled sounds by a half-step interval through to several octaves, so that they can be played at any desired pitch. The transposition is enabled by the **MIDI** keyboard. For example, let's transpose the sampled sound up by one octave.

Transposition

For example, let's transpose the sampled sound up by one octave.

Note: All transpositions are made relative to middle C.

- Listen to the sampled sound of C4. (Middle C)
- Press the **KEY TRANS** button. The LED indicator will start blinking.
- To move the pitch of the sound by one octave, press down the key of **MIDI** note No. 72 (C5 for AX80). The S612 does not produce any sound in this case.

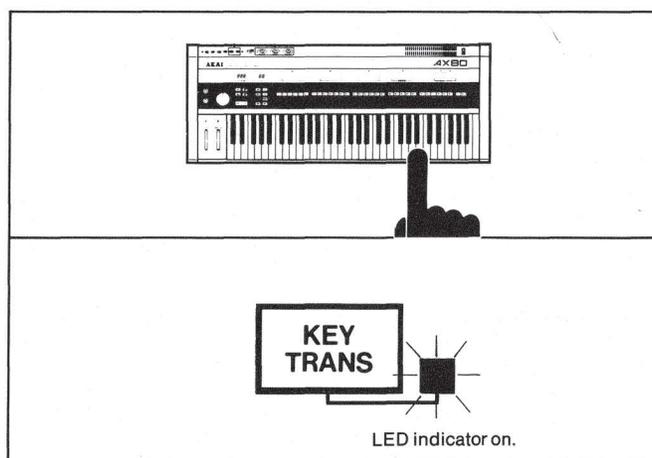
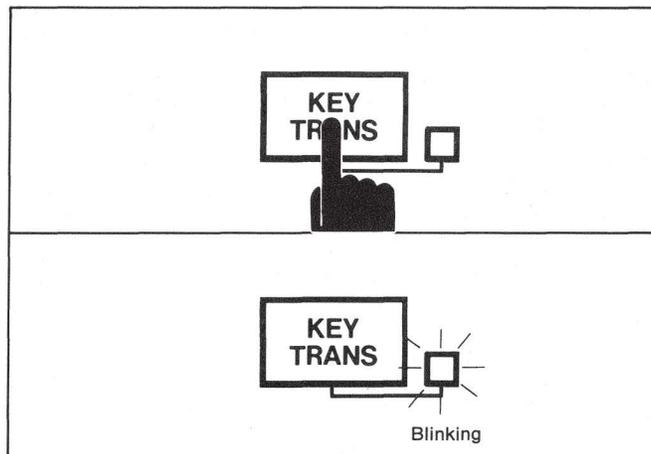
Upon completion of the key-on process, the LED indicator will stop blinking and stays lit, indicating the completion of the transposition.

At this time when you press down the key of **MIDI** note No. 60, you will get the C5 sound.

The transposition for one octave up has now been completed.

If you wish to transpose to the fifth interval up, press down the key of **MIDI** note No. 67 (G4 for AX80).

When you wish to go back to the original sampled pitch, depress the **KEY TRANS** button while the **KEY TRANS** LED blinking, the transpose mode will be cancelled.



Note: The S612 must be connected to **MIDI** keyboards in order to use the transposing function. The transposing function is programmable. When you wish to save a sound onto disk, the transposition will be saved along with the other data.

TUNING

With the S612's "Tuning" function, it is possible to freely tune a sampled sound within a range of ± 100 cents (a half step), and to save the tuning parameters along with the sampled data. In other words, the data for the **TUNE** control are programmable.

Tuning when Sampling

When sampling, the tuning is based on the center position of the **TUNE** control.

1. When the sampled sound is played and the **TUNE** control points to the center, as shown in the diagram, the sound will be reproduced with the same pitch.
2. When the sampled sound is played, and the **TUNE** control is turned fully right (left) as shown in the diagram, the pitch will be a half step higher (lower).

Tuning when Saving

Because the **TUNE** control is programmable, the data to be saved on disks (tapes) will correspond to how much to the right (or left) the control is turned.

Example: If the note A is sampled and then retuned, using the **TUNE** control, by +100 cent and saved to disk, when the A key is pressed the note A# will be played. However, provided that the **TUNE** control is not reset, once the save is verified the tuning will again move by +100 cents. This means that now, when the A key is pressed, the note B will be played. It is possible to achieve the previously desired note of A# by resetting the **TUNE** control to the center position.

Tuning when Loading

When sound is loaded from disk (tape) the tuning will be either higher or lower than the tuning which had been saved, depending on the present position of the control.

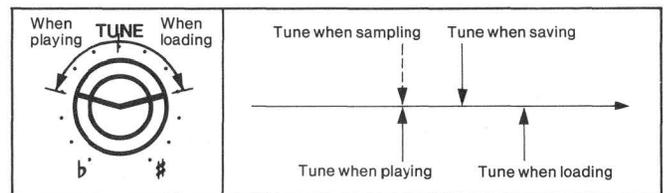
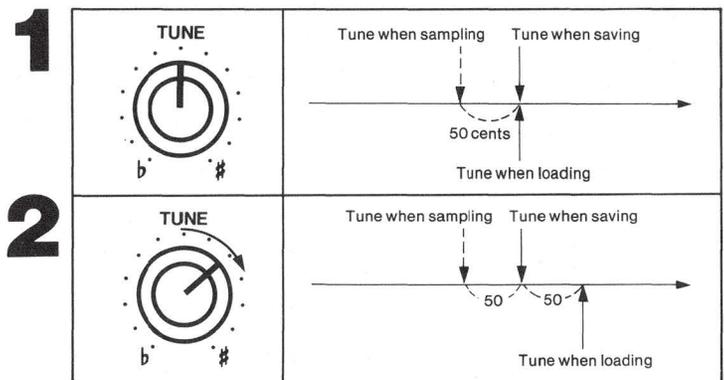
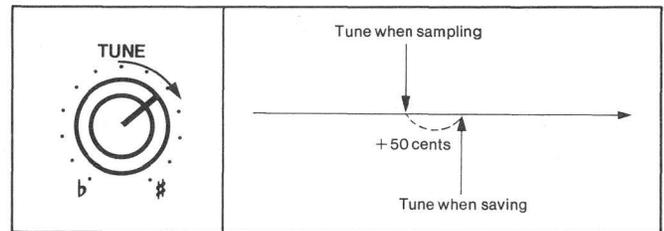
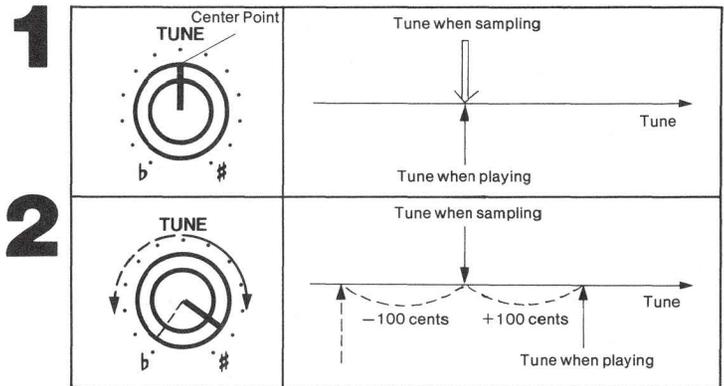
1. When the loaded sound is played and the **TUNE** control is positioned in the center, the pitch will be the same as the tuning which has been saved.
2. When the loaded sound is played and the **TUNE** control is set at +50 cents from the center position, the sound is played +50 cents higher than the saved tuning.

When the sound data is loaded from disk (tapes), the present position of the **TUNE** control will add to, or subtract from, the pitch of the saved data. For example, suppose that the sample was saved 50 cents higher than the originally sampled sound and that the loaded sound is played with the **TUNE** control set at +50 cents. In this case, the pitch will be (+50) cents + (+50) cents = +100 cents, which is a half step higher than the original sound.

Tuning when Playing after Loading

As stated earlier, after the sound data is loaded, the pitch of the replayed sound will depend on the present setting of the **TUNE** control (regardless of where the **TUNE** control was set during loading).

For example, suppose that a sample is retuned to +50 cents and then saved to disk (tape). When that sample is loaded from disk (tape), if the **TUNE** control is still set at +50 cents, then the replayed sound will now be at (+50) cents + (+50) cents = +100 cents; a half step higher than the original sample. However, if the **TUNE** control is reset to the center position, the replayed sound will now be at only +50 cents higher than the original sample; the pitch at which the sample was saved. It follows, therefore, that if the **TUNE** control were to be set at -50 cents, the replayed sound will be (+50) cents + (-50) cents = 0 cent; zero change; which means that the sound will now be the same pitch as the original sample.



MIDI

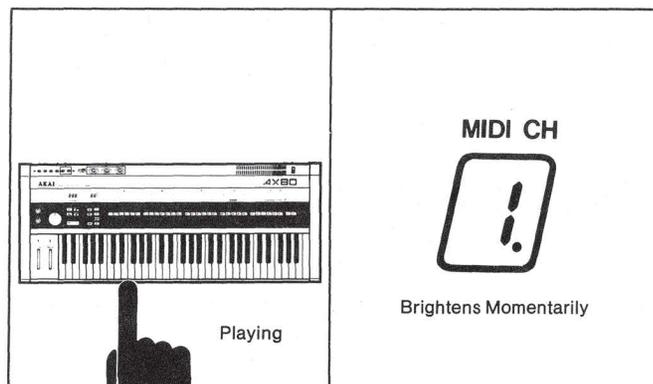
MIDI (Musical Instrument Digital Interface)

This is the Internationally recognized standard for electronic musical instruments. It is possible for these instruments to exchange any kind of information needed for musical performance, by utilizing their **MIDI** connections.

The S612 is able to receive the following **MIDI** information through midi cables:

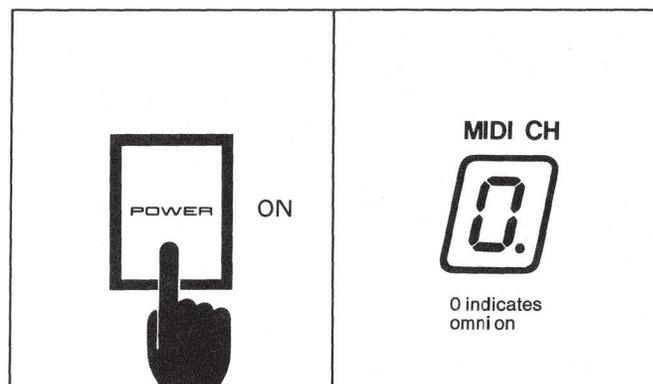
- Note No., Key-On, Key-Off and Key Velocity
- Sustain pedal
- Pitch bend
- Modulation wheel (vibrato)
- Mode change for Mono/Poly
- System exclusive

When the S612 receives the **MIDI** information, its **MIDI CH** display, which indicates the **MIDI** channel numbers, will brighten momentarily to let you know that information has been received. (If the **MIDI** reception channel does not match, the display shows no change.)

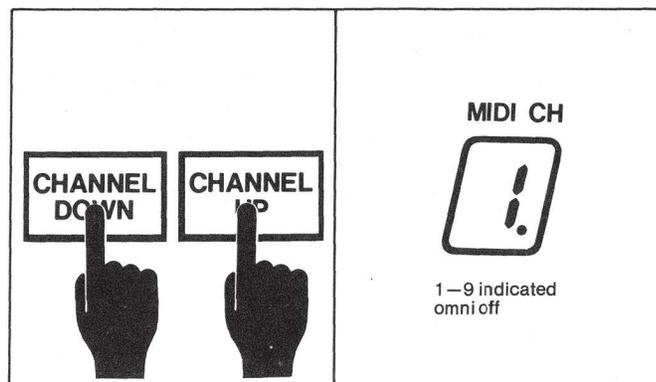


How to set the MIDI Reception Channel

1. When the power is turned on, the S612 initiates to the **POLY** mode of omni on. In this case, it will receive any channel and play according to the information. The digit "0" on the **MIDI CH** displays shows omni on.



2. When you want to reselect the **MIDI** reception channel (1—9), press either the **CHANNEL DOWN** or **CHANNEL UP** button until you reach the desired number. In this case, the S612 receives information only on the designated **MIDI** channel.



MIDI Mode

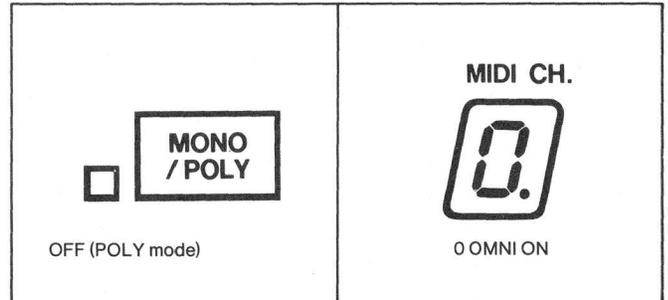
There are four **MIDI** modes possible, from combinations of the **MONO/POLY** mode and the **OMNI ON/OFF** mode.

OMNI ON, POLY mode

With this mode, the S612 will receive the MIDI information from any channel, and 6-voice polyphonic sound can be played simultaneously on a channel.

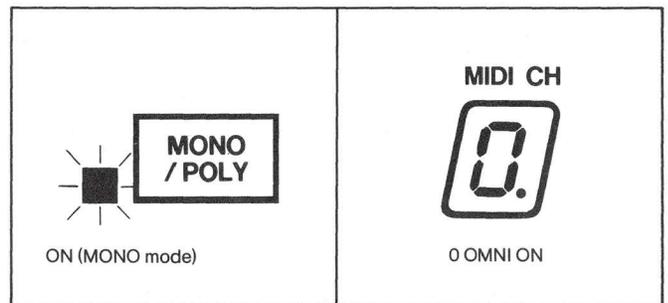
The **OMNI ON, POLY** mode is selected automatically when the S612 is turned on.

(The **MIDI CH** display shows "0" during this mode.)



OMNI ON, MONO mode

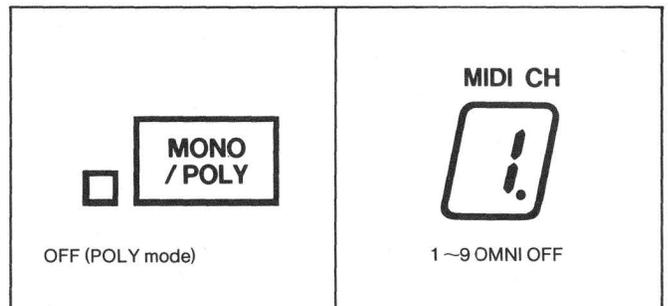
With this mode, the S612 will receive the **MIDI** information from any channel. However, only one sound can be played at a time on any channel. Press down the **MONO/POLY** button once. (The **LED** indicator will light.)



OMNI OFF, POLY mode

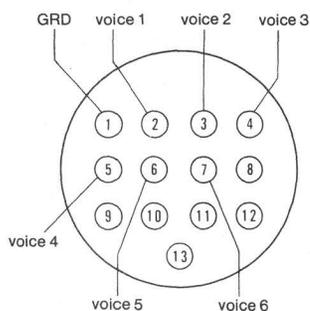
With this mode, the S612 will receive the MIDI information only from the channel which has been designated as the reception channel, and 6-voice polyphonic sound can be played simultaneously on a channel.

When the **MIDI CH** display numbers 1—9 are selected, the S612 is in the **OMNI OFF** mode.

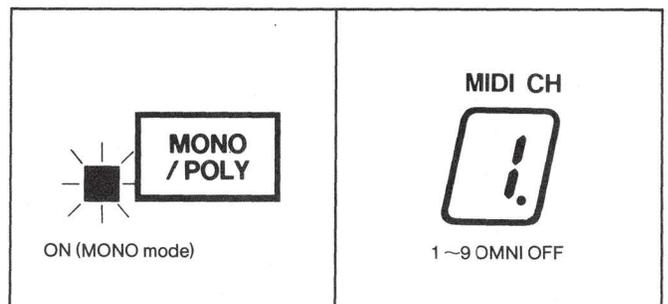


OMNI OFF, MONO mode

With this mode, the S612 will receive the **MIDI** information only from the channel which has been designated as the reception channel. When numbers 1—9 are selected, the One-voice sound corresponding to the designated channel can be played. Also the designated channel voice can go thru the **VOICE OUT** jack.



VOICE OUT jack



SAVE, VERIFY and LOAD

The sampled sound data can be saved, verified or loaded by the specially designed sampler disk drive MD280 (optional). The time it takes to save, verify or load with the MD280 is approximately 8 seconds.

* The sound data is a combination of sampled and edited data.

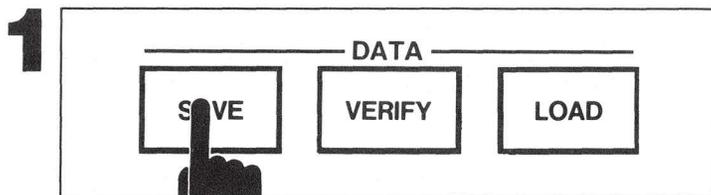
Note: Make sure the power switch of the S612 is turned off before plugging or unplugging the connection cord of the MD280.

Saving

1. Edit the sampled sound of the S612, as required, before saving.

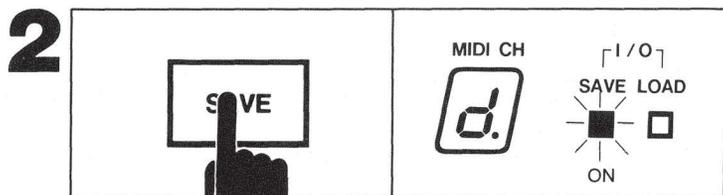
Place the disk into the MD280 sampler disk drive. (Make sure the tab has not been broken.)

- Press the **SAVE** button on the S612. The letter *d* will appear on the **MIDI** channel display and start blinking.



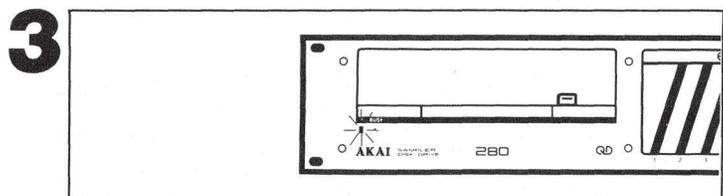
2. Press the **SAVE** button again, while the display is blinking. The *d* display remain lit and the **SAVE** LED lit, indicating that the save function is in progress.

Note: The *d* display will only blink for several seconds. The **SAVE** button must be pressed a second time while the display is blinking to activate the save function, otherwise, the **SAVE** mode will be cancelled.



3. The **BUSY** LED on the MD280 will light indicating that a save function is in progress.

It takes approximately 8 seconds to accomplish the save. Once saving is completed, the **SAVE LED** of the S612 and the **BUSY** LED of the MD280 will go out. After save function, verify that the data has been properly saved.



Note: If you encounter any difficulty when trying to save, check the following, and try saving again.

- * The anti-record tab has been broken from the disk.
- * You are trying to save without inserting a disk in the MD280.
- * The power cord of the MD280 is not connected.
- * There is no sample in the S612.

Verifying

- After the save process has been completed,

- Press the **VERIFY** button.

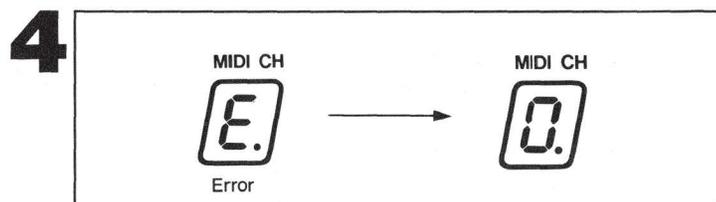
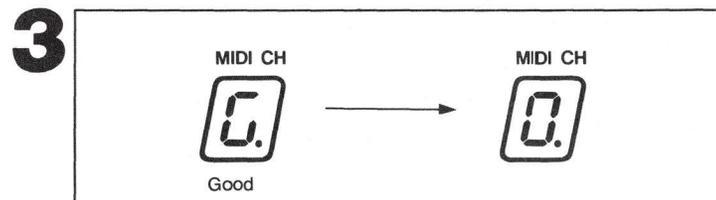
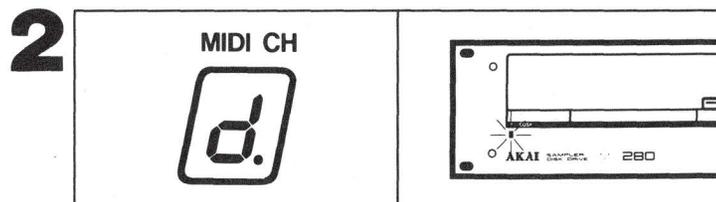
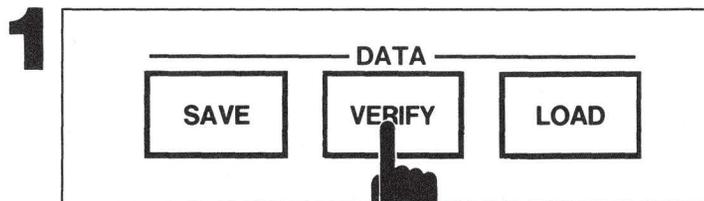
- The letter **d** will appear on the **MIDI CH** display. At the same time, the **BUSY** LED of the MD280 will light, indicating that it is in the verifying process.

- The verifying process takes approximately 8 seconds. If the data has been correctly saved, the letter **G** on the **MIDI CH** display will blink for several second. The display will return to its previous condition after a few seconds.

- If the **MIDI CH** display will indicate the letter **E** and blink for several second the data has not been correctly saved. (After a few seconds, the **MIDI CH** display will return to its previous condition.)

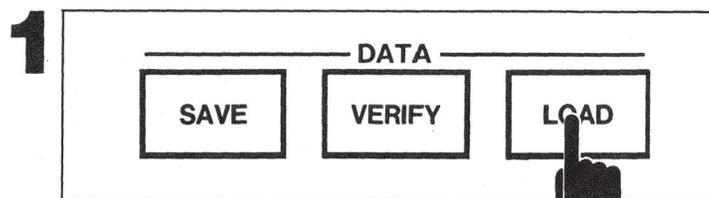
Try to save function once more time.

Note: If several unsuccessful attempts have been made to save and verify, the head may need cleaning or the felt may need changing on the MD280 or the sampler disk may need change. Consult your MD280 Operator's Manual for details.

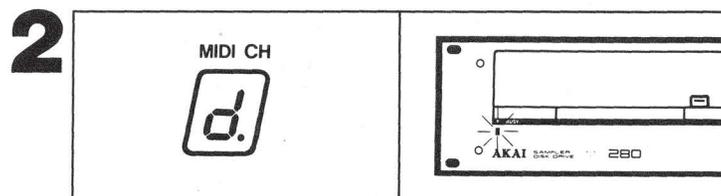


Loading

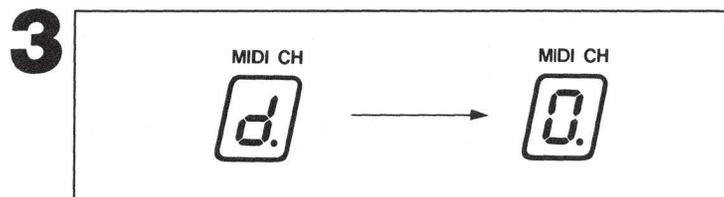
1. Set the sampler disk with sound data into the MD280.
 - Press the **LOAD** button of the S612.



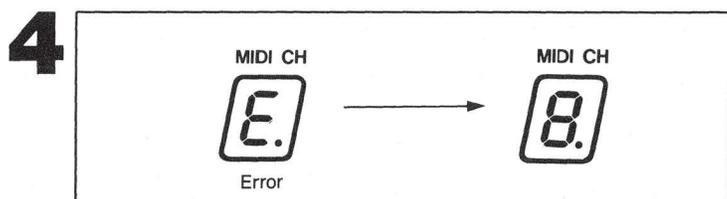
2. The **LOAD** LED will light and loading will begin. At the same time, the letter *d* on the **MIDI CH** display will appear to let you know the S612 is being loaded from the disk. Also, the **BUSY** LED of the MD280 will light, indicating that loading is in progress.



3. Loading will take approximately 8 seconds. If the data has been loaded correctly, the **MIDI CH** display will return to its previous condition.



4. If the data has not been loaded correctly, *E* will appear and blink for few seconds before the **MIDI CH** display returns to normal. If this happens, check the following:
 - * Has the disk been inserted correctly?
 - * Is the disk blank?
 - * Has the disk been close to a strong magnetic field?
 - * Are the power and interface cables connected properly?



Specifications

Format:	12 bit Sampling	Output:	Filter (Low ~High)
	Sampling Frequency:		Decay (0~10)
	4 kHz~32 kHz (Min ~Max)		Level (0~10)
	Sampling Time:	MIDI:	Mono/Poly
	8 seconds~1 second (Max~Min)		Channel Up/Down
	Frequency Response	Data:	Save/Verify/Load
	Sampling:	Display:	Rec level
	25 Hz~12.5 kHz		MIDI Ch 0: Omni On
	(-3 dB band width)		1~9: Omni Off
	Playback:		Save/Load
	25 Hz~20 kHz	I/O:	
	(-3 dB band width)		
	Voice:	Inputs (Sensitivity/Impedance):	
	6 voice	Mic:	-63 dB/5.6 kohms
	Range:	Line:	-27 dB/47 kohms
Function Control:	Power ON/OFF	Line:	(6-voice Mix out) × 2
	Recording Level (Min ~Max)		level + 2 dBm/2.8 Vp-p
	Monitor Level (Min ~Max)	Voice Out:	13 p/DIN
	Recording Mode New/Overdub		(6-voice separate)
			level -4 dBm/1.4 Vp-p
Edit		DC/8 V Out:	for the MD280 Sampler Disc Drive
Scanning:	Memory Start		MIDI IN (5 p/DIN)
	(0~100)		MIDI THRU (5 p/DIN)
	Memory End (0~100)	MIDI:	MIDI OUT (5 p/DIN)
	Scanning Mode		
	One Shot	Interface:	for the MD280 Sampler Disc Drive
	Looping	Power requirements:	120 V, 60 Hz for USA & Canada
	Alternating		220/240 V, 50 Hz convertible for
	Manual Splice (0~100)		other countries
Transpose:	Half-Step	Dimensions:	483 (W) × 90 (H) × 379 (D) mm
Tune:	±100 cent	Weight:	6.0 kg (13.2 lbs)
LFO:	Speed (Min~Max)		
	Depth (Min~Max)		
	Delay (0~10)		

* For improvement purpose, specifications and design are subject to change without notice.

[MIDI DIGITAL SAMPLER]
 Model S612 MIDI Implementation Chart

Function ...	Transmitted	Recognized	Remarks
Basic Default Channel Changed		1 1 - 9	* note
Mode Default Messages Altered	*****	1 MONO POLY OMNI ON/OFF 1 2 3 4	
Note Number : True voice	*****	0 - 127 36 - 96	
Velocity Note ON Note OFF		○ 9nH v=1-127 × 9nH v=0,8nH	
After Key's Touch Ch's		× ×	
Pitch Bender		○	
Control Change 1 64		○ ○	Modulation Damper
Prog Change : True #	*****	×	
System Exclusive	○	○	
System : Song Pos : Song Sel Common : Tune		× × ×	
System :Clock Real Time :Commands		× ×	
Aux :Local ON/OFF :All Notes OFF Mes- :Active Sense sages:Reset		× ○ × ×	
Notes	* OMNI ON → Basic Channel = 1		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO ○: Yes
 Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO ×: no

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