

# D55-1

**DIGITAL  
SAMPLING  
SYNTHESIZER**

*People and Technology in Harmony*

# KORG





# Beyond Sampling, Beyond Synthesis —

**DIGITAL  
SAMPLING  
SYNTHESIZER**

**DSS-1**

The DSS-1 is a new kind of digital keyboard that blurs the boundaries between sampling and synthesis, between reproduction and improvisation. Any audio input can serve as your starting point. From a microphone, tape, even another synth. You may also create completely new waveforms by "drawing" them or specifying their harmonic composition. Blend and edit your waveforms to alter their timbre any way you like. Never has synthesis been this fast, easy or versatile. You can select any of 32 sound programs in a flash. No waiting like with conventional sampling systems.

## Three Ways to Create Sounds

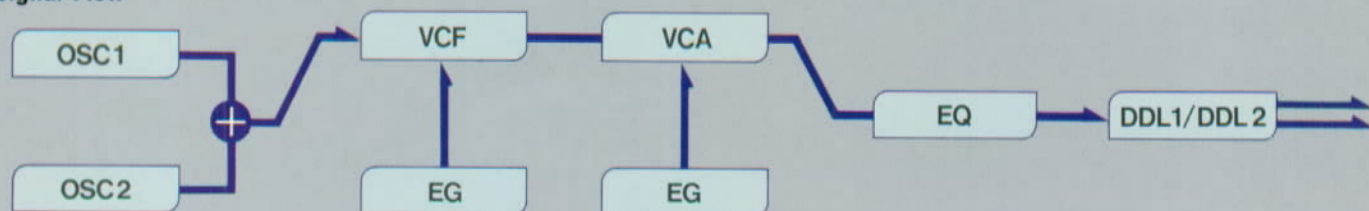
Conventional sampling units simply record and reproduce sounds. The DSS-1 lets you use sampled sounds as your raw material for the creation of new sounds. Or you can synthesize waveforms from scratch by specifying the levels of 128 harmonics. You can even "draw" a waveform by moving a data entry slider up and down while the display indicates the time axis position in the full-wave cycle. That's just the

## Four Sampling/Synth Systems per Disk

In the world of Korg's DSS-1, sixteen waveforms and 32 programs make up one "system." Each pocket-size floppy disk holds four of these sampling/synth systems.

It's like having four completely different synthesizers per disk. Contrast this with conventional sampling keyboards which tend to use one whole disk for a single sound.

### Signal Flow



beginning. Five powerful functions—"truncate," "reverse," "link," "mix," and "view/edit sample data"—give you real creative freedom. Shape the data to fit your musical mold. The "auto-zero cross search" and "cross-fade" commands assure a smooth loop for your waveform. You can assign waveform samples to up to 16 sections of the keyboard, enabling more natural response. Operation is simplified by an interactive programming system using a large LCD display.

## Sixteen Waveforms and 32 Programs at Your Fingertips

The DSS-1's internal memory holds sixteen waveforms of your creation. There are two "oscillators," called OSC1 and OSC2, each of which can be assigned one of the sixteen waveforms. You can detune these two oscillators, change octaves, set them at regular intervals, and alter their relative volume levels. Then adjust the VCF, VCA and EG parameters to determine the final sound program. Advanced sync effects are possible between OSC1 and OSC2. You can even produce distortion by varying digital-to-analog converter resolution. Up to 32 programs can reside in internal memory. Change sounds instantly by simply selecting a different program number.

The DSS-1 goes so much further than conventional sampling keyboards that it will change the way you think about synthesis and synthesizers.





## Start with the Basic Waveform

### 1. The starting point for sound synthesis.

#### ■ The raw materials.

There are three ways to obtain a waveform:

Sampling Harmonic Synthesis "Waveform Drawing"

#### ■ Editing the waveform.

Five editing functions enable manipulation of the waveform.

Ⓐ Truncate Ⓑ Reverse Ⓒ Link  
Ⓓ Mix Ⓔ View/Edit Sample Data

#### ■ Assignment of waveforms to keyboard split sections.

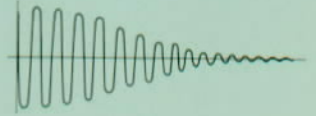
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Makes one complete sound source.

### 2. Ways to obtain waveforms.

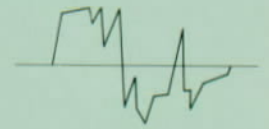
**Sampling:** As in a conventional sampling keyboard, this makes a digital recording of an audio input signal from a microphone or other external source. Sampling allows accurate storage and reproduction of complex, changing waveforms like that of a piano.



**Harmonic Synthesis:** Here you individually set the level of 128 harmonics, using the number keys. This is handy for synthesizing relatively conventional "regular" waveforms.

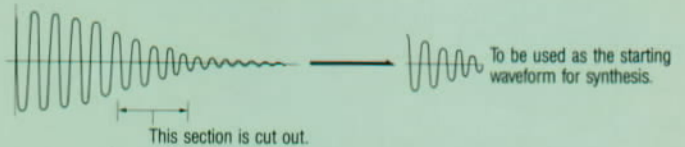


**Drawing:** The display indicates elapsed time, while you move the data entry slider up or down to "draw" the waveform. Useful for producing complex, irregular waveforms.



### 3. Editing the Waveform.

Ⓐ **Truncate:** This lets you chop off any portion of a waveform for use. (Normally applied to sampled material.)



The truncate function is also handy for obtaining a single full-wave (like you get with the harmonic synthesis and drawing methods) from a sampled input.



## DSS-1 MIDI DATA

### SEND DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION

- NO.2 VCF MODULATION
- NO.64 SUSTAIN FOOT SWITCH
- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)

- PITCH BEND
- SYSTEM EXCLUSIVE

### RECEIVE DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION
- NO.2 VCF MODULATION
- NO.64 SUSTAIN

- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)
- PITCH BEND
- ALL NOTES OFF
- OMNI MODE OFF
- OMNI MODE ON

- LOCAL CONTROL ON
- LOCAL CONTROL OFF
- ACTIVE SENSING
- SYSTEM EXCLUSIVE

## DSS-1 SPECIFICATIONS

●KEYBOARD: C - C 61 Keys, Velocity, After Touch ●CONTROLLERS: Joystick (X Axis: OSC/VCF FC Bend, +Y Axis: OSC Modulation, -Y Axis: VCF Modulation), Program Up Jack, Sustain Damper Jack ●CONFIGURATION: 8 Voices, 16 Oscillators, (2 Oscillators per Voice), 8 VCF Modules, 8 VCA Modules ●SOUND SOURCES: Waveforms Obtained by Sampling, 128 Harmonic Synthesis, or "Drawing" can be edited, assigned to sections of the keyboard and looped. 12-bit quantization, Sampling Frequencies and Times: 16KHz, 16s, 24KHz, 11s, 32KHz, 8s, 48KHz, 5.5s (can be used together as one sound source), Number of Keyboard Split Points: Up to 16 ●NUMBER OF SOUND SOURCES: Up to 16 in internal wave RAM, Up to 120 per Disk ●EFFECTS: Digital Delay x2, Equalizer HIGH & LOW (All Programmable) ●NUMBER OF PROGRAMS: 32 in memory, 128 on disk ●BUILT-IN DISK DRIVE: Takes 3.5-inch, Double Sided, Double Density (1MB unformatted) Floppy Disks, 770K PCM Data Storage Capacity per Disk ●SUPPLIED ACCESSORIES: Floppy Disks x4, AC Power Cord ●DIMENSIONS: 1171 (W) x 436 (D) x 123 (H)mm ●WEIGHT: 18.5kg

## OPTIONS

PS-1 PEDAL SWITCH

PS-2 PEDAL SWITCH

TWC-030 TWIN CABLE (3m)

DS-1 DAMPER SWITCH

KH-1000 DYNAMIC STEREO HEADPHONES

HC-DSS HARD CASE

MIDI CABLE (7m/10m/12m)

MF-2DD MICRO FLOPPY DISKS

SOUND PROGRAM LIBRARY

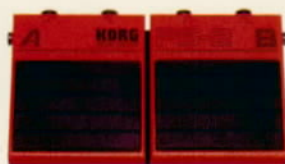
MF-2DD MICRO FLOPPY DISK



PS-1 PEDAL SWITCH



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DS-1 DAMPER SWITCH



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HC-DSS HARD CASE



\*Specifications and features are subject to change without notice for further improvement.

KORG EXCLUSIVE DISTRIBUTOR IN ENGLAND

**KORG (UK).**

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## NOTICE

Korg products are manufactured under strict specifications and voltages required by each country. These products are warranted by the Korg distributor only in each country. Any Korg product not sold with a warranty card or carrying serial number disqualifies the product sold from the manufacturer's/distributor's warranty and liability. This requirement is for your own protection and safety.

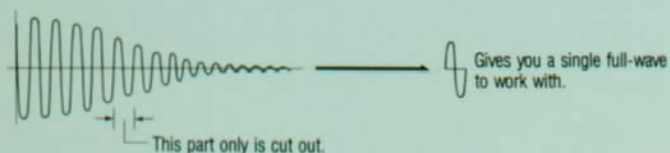
# KORG

KORG INC. 15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo Japan.



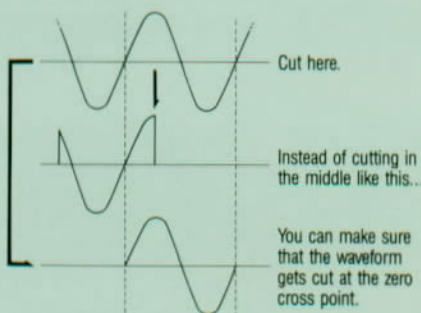
# Endless Universe of Sonic Improvisation

## Basic Sound Source Creation Process

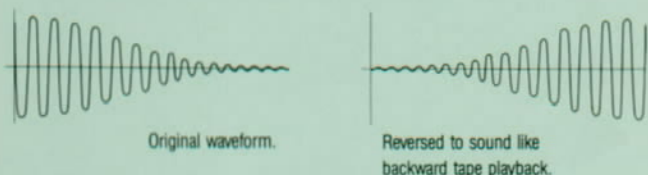


The "auto-zero cross search" function can be used to make sure that the truncated waveform is cut off at the zero cross point, thereby enabling smooth linking and looping.

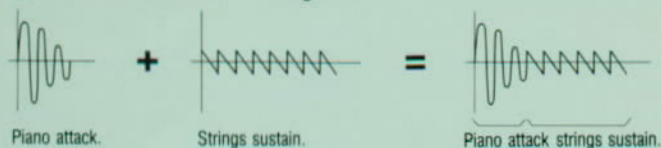
Since the truncate function allows you to get rid of unneeded portions of a sample, it saves memory and disk space.



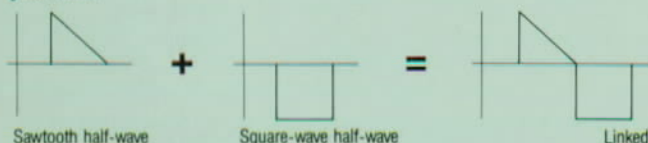
**Reverse:** Reverses the waveform so it sounds like a tape played backward. (Usually used with sampled material.)



**Link:** Joins two waveforms together.

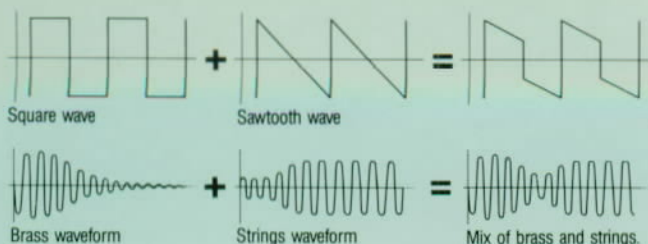


You can also link single full-waves created with harmonic synthesis or drawing. You can make longer waveforms by linking as many times as you want.

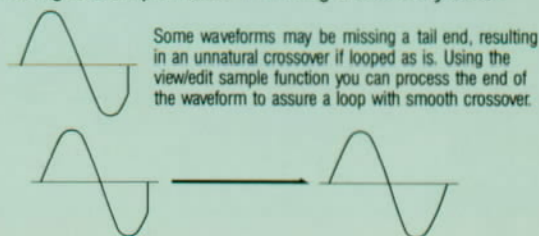


The "splice cross-fade" function can help assure a smooth transition between dissimilar waveforms. Similarly, the "auto-level adjust" function minimizes unnatural effects at the crossover between different timbres.

**Mix:** This mixes two waveforms, producing the same kind of output that you would obtain with an audio mixing console. Of course, you can also mix single full-waves. When mixing you can adjust the volume levels and detune (or tune) the waveforms relative to each other.



**View/Edit Sample Data:** Lets you examine and modify one "data word" at a time in "wave RAM" memory where the basic waveforms are stored. Editing is a simple matter of moving a data entry slider.



### 4. Assignment of waveforms to keyboard split sections.

Different waveforms (produced by steps 2 and 3 above) can be assigned to different portions of the keyboard, then looped and grouped together to make one complete sound source. (The keyboard may be split into a maximum of sixteen sections.)



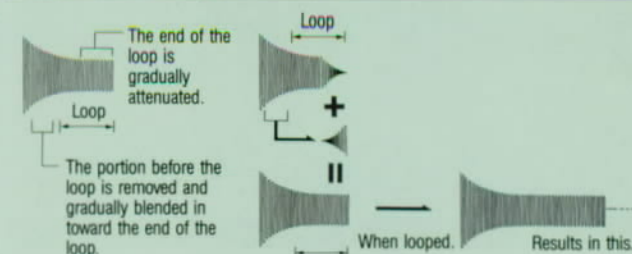
• This procedure is necessary to produce realistic results with sampled sounds. The more samples you take (at different pitches), the more natural the effect will be.

• Single full-waves created by harmonic synthesis or drawing are looped and assigned automatically to the entire keyboard. Therefore this procedure is not required unless you edit the waveforms.

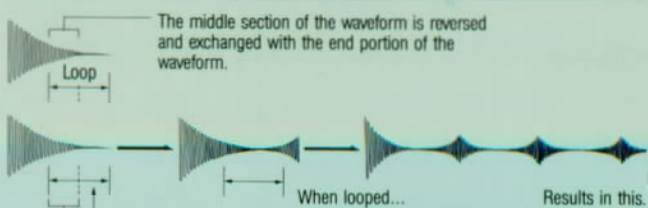
• The auto-cross search function can be used to assure smooth crossover for the loop.

Looping may also be assisted by the "cross-fade" and "back-and-forth" functions. (Cross-fade helps avoid unnatural effects while back-and-forth is used to produce special effects.)

### Cross-Fade used to loop the waveform below:



### Back-and-Forth used to loop waveform below:



Pitch, timbre and volume can be adjusted for each keyboard split section, thereby avoiding unnatural results regardless of which notes you play.



# New Parameters Mold the Sound to Fit Your Image

<ul style="list-style-type: none"> <li>3 SAMPLE START</li> <li>1 SAMPLE NO./MEM DIV</li> <li>2 ATTN/GAIN</li> <li>3 TRIGGER LEVEL</li> <li>4 ORIGINAL/TOP KEY</li> </ul>	<ul style="list-style-type: none"> <li>5 SAVE SAMPLE</li> </ul>	<b>SYSTEM</b> <ul style="list-style-type: none"> <li>1 GET SYSTEM</li> <li>2 SAVE SYSTEM</li> </ul>	<ul style="list-style-type: none"> <li>3 PROGRAM DIRECTORY</li> <li>4 GET PROGRAM</li> <li>5 GET ALL PROGRAMS</li> <li>6 SAVE ALL PROGRAMS</li> </ul>	<ul style="list-style-type: none"> <li>7 M.SOUND DIR/FREE SPACE</li> <li>8 ERASE MULTI SOUND</li> <li>9 GET MULTI SOUND</li> </ul>
<ul style="list-style-type: none"> <li>1 SELECT SAMPLE</li> <li>2 AUTO REPEAT ON/OFF</li> <li>3 TRUNCATE START/LENGTH</li> <li>4 REVERSE SAMPLE</li> <li>5 LINK SAMPLES</li> </ul>	<ul style="list-style-type: none"> <li>6 MIX SAMPLES</li> <li>7 VIEW/EDIT SAMPLE DATA</li> <li>8 SAVE/RENAME SAMPLE</li> </ul>	<b>DISK UTILITY</b> <ul style="list-style-type: none"> <li>0 FORMAT DISK</li> <li>1 PROTECT DISK (SET/RESET)</li> <li>2 PROGRAM DIRECTORY</li> <li>3 MULTI SOUND DIRECTORY</li> <li>4 SOUND DIRECTORY</li> </ul>	<ul style="list-style-type: none"> <li>5 DELETE SOUND</li> <li>6 DELETE MULTI SOUND</li> <li>7 DISK STATUS</li> </ul>	
<ul style="list-style-type: none"> <li>1 DRAW WAVEFORM</li> <li>2 HARMONIC SYNTHESIS</li> <li>3 SAVE WAVEFORM</li> </ul>		<b>PROGRAM PARAMETER</b>	<b>OSC</b> <ul style="list-style-type: none"> <li>11 OSC OCT</li> <li>12 OSC1 MULTI SOUND</li> <li>13 OSC2 MULTI SOUND</li> <li>14 MIX RATIO</li> <li>15 OSC2 DETUNE &amp; INTERVAL</li> <li>16 SYNC MODE, D/A RESOLUTION</li> <li>17 OSC MG MOD</li> <li>18 AUTO BEND MODE</li> <li>19 AUTO BEND TIME &amp; INT</li> </ul>	<b>VCA</b> <ul style="list-style-type: none"> <li>36 VCA TOTAL LEVEL</li> <li>37 VCA DEC KBDTRACK</li> <li>38 VCA EG</li> </ul>
<ul style="list-style-type: none"> <li>0 GET SOUNDS</li> <li>1 SELECT M.SOUND/SOUND</li> <li>2 REL. PARAMS(TUNE/LEV/Fc)</li> <li>3 ORIGINAL/TOP KEY</li> <li>4 SOUND START &amp; LENGTH</li> </ul>	<ul style="list-style-type: none"> <li>5 LOOP ON/OFF</li> <li>6 LOOP START &amp; LENGTH</li> <li>7 LOOP PROCESS (X-FADE/B&amp;F)</li> <li>8 REPLACE SOUND</li> <li>9 SAVE/RENAME M.SOUND</li> </ul>	<b>NOISE</b> <ul style="list-style-type: none"> <li>21 NOISE LEVEL</li> </ul>	<b>VELOCITY SENS</b> <ul style="list-style-type: none"> <li>41 AUTO BEND INT</li> <li>42 VCF EG CUTOFF</li> <li>43 VCF EG (ATK, DEC, SLP)</li> <li>44 VCA EG LEVEL</li> <li>45 VCA EG (ATK, DEC, SLP)</li> <li>46 VELOCITY SWITCH</li> </ul>	<b>KEY ASSIGN</b> <ul style="list-style-type: none"> <li>63 KEY ASSIGN MODE</li> <li>64 UNISON DETUNE &amp; VOICES</li> </ul>
<ul style="list-style-type: none"> <li>1 CHANNEL SELECT</li> <li>2 FUNCTION SELECT</li> <li>3 OMNI MODE</li> <li>4 LOCAL ON/OFF</li> <li>5 SAVE MIDI PARAMETERS</li> </ul>		<b>PROGRAM</b> <ul style="list-style-type: none"> <li>00 INITIALIZE PARAMS</li> <li>01 WRITE/RENAME</li> </ul>	<b>AFTER TOUCH SENS</b> <ul style="list-style-type: none"> <li>51 OSC MG MOD INT</li> <li>52 VCF CUTOFF/MG MOD</li> <li>53 VCA TOTAL LEVEL</li> </ul>	<ul style="list-style-type: none"> <li>65 EQ (BASS, TREBLE)</li> <li>66 DOL MG</li> <li>71 DOL MG FREQUENCY</li> <li>DDL-1 CONTROL <ul style="list-style-type: none"> <li>81 TIME</li> <li>82 FEEDBACK</li> <li>83 EFFECT LEVEL</li> <li>84 MOD INT</li> </ul> </li> <li>DDL-2 CONTROL <ul style="list-style-type: none"> <li>91 INPUT SIGNAL SELECT</li> <li>92 TIME</li> <li>93 FEEDBACK</li> <li>94 EFFECT LEVEL</li> <li>95 MOD INT</li> <li>96 MOD INVERT SW</li> </ul> </li> </ul>

## OSC

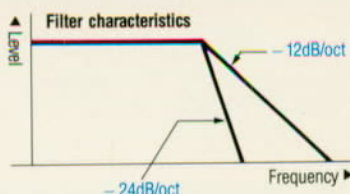
### 16 SYNC MODE, D/A RESOLUTION

The sync mode forces OSC2 to follow OSC1; very effective for metallic and reed sounds. Be lowering D/A (digital-to-analog converter) resolution from 12 bits to 10, 8, 7, or 6, you can cause upper harmonics to be added to the sound.

## VCF

### 31 VCF MODE

Filter slope is switchable between a steep -24dB/oct and a more gentle -12dB/oct. This effectively changes the brightness of the sound.



## VCA

### 37 VCA DEC KBDTRACK

Reduces decay time as you play higher notes on the keyboard. Effective for imitating piano sounds.

## VELOCITY SENS

### 41 AUTO BEND INT

Controls the amount of pitch bend that is dependent upon keyboard velocity. Handy for chopper bass and related effects.

### 43 VCF EG (ATK, DEC, SLP)

Controls the amount of timbre change that is dependent upon keyboard velocity. You get bright sound at the beginning when you play hard. But when you play soft the sound gradually gets brighter. The decay and slope parameters allow you to obtain more rapid tone color changes on the attack and after the break-point when you play harder, much like on a piano.

### 45 VCA EG (ATK, DEC, SLP)

Determines the amount of volume change that is dependent upon keyboard velocity. This allows you to obtain a more rapid attack when you play harder and a slower attack when you play softer. Decay and slope times also decrease when you play harder.

### 46 VELOCITY SWITCH

This allows you to reverse the mix levels of the two oscillators (as set by parameter 14) depending on keyboard velocity. You can have strings when you play softly and piano when you play loud. You can also determine the velocity value at which the switch will occur.

## KEY ASSIGN

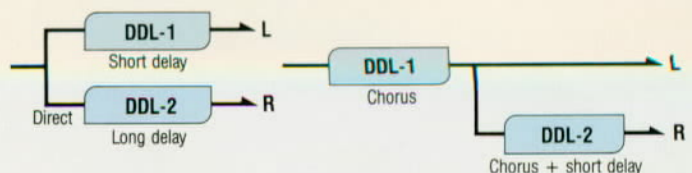
### 64 UNISON DETUNE & VOICES

Especially valuable for bass and reed synthesizer effects, this lets you determine the number of voices in the unison mode and adjust detuning to obtain a fatter sound.

## DDL-2 CONTROL

### 91 INPUT SIGNAL SELECT

There are two built-in digital delays. You can either apply the source signal to DDL-2 directly or use the output of DDL-1 for input to DDL-2.



These two delays can be used to create many sophisticated effects.



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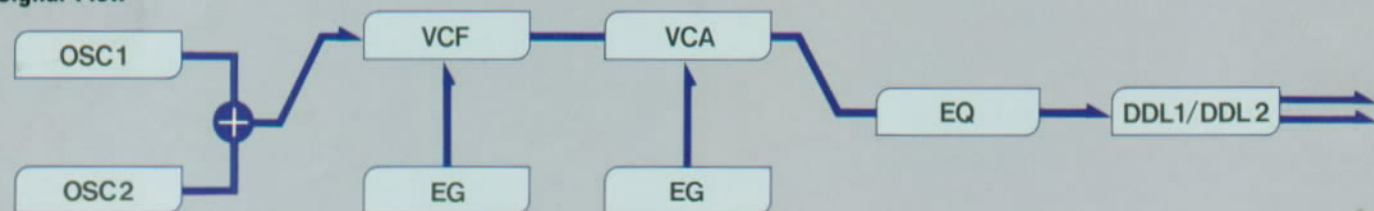
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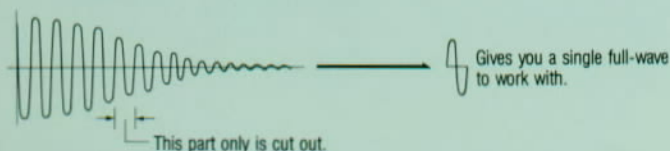
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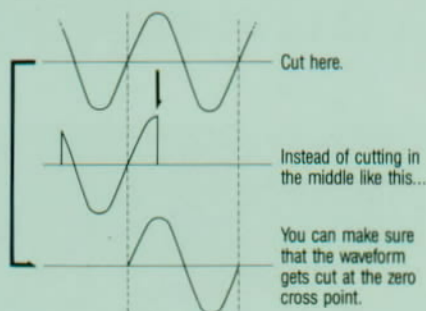
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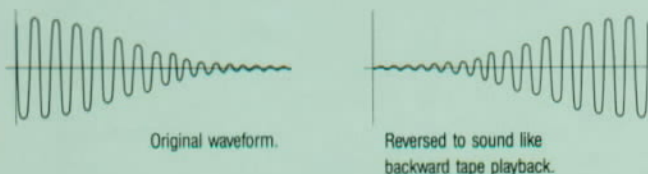


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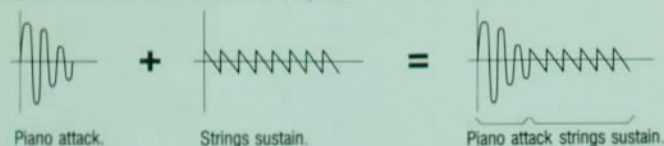
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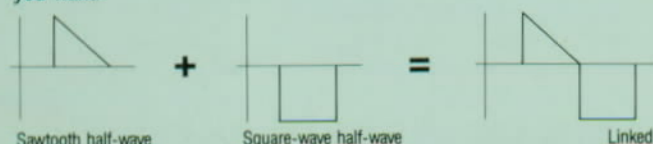
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**C Link:** Joins two waveforms together.

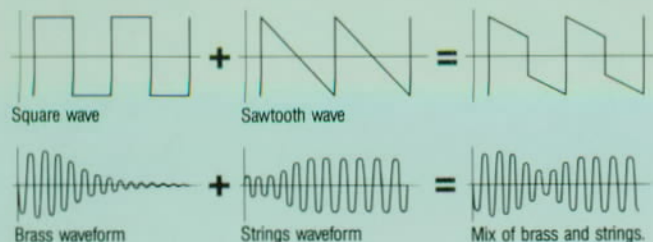


You can also link single full-waves created with harmonic synthesis or drawing. You can make longer waveforms by linking as many times as you want.

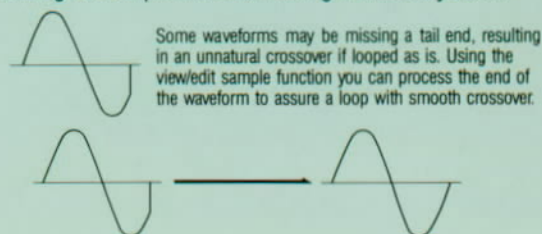


The "splice cross-fade" function can help assure a smooth transition between dissimilar waveforms. Similarly, the "auto-level adjust" function minimizes unnatural effects at the crossover between different timbres.

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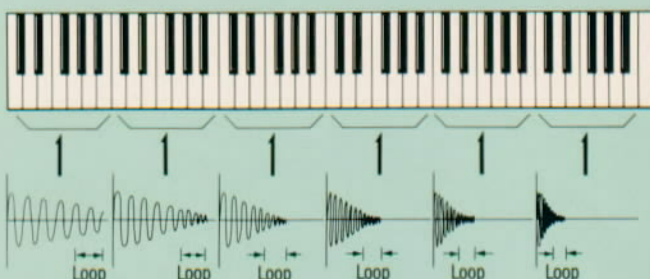


**E View/Edit Sample Data:** Lets you examine and modify one "data word" at a time in "wave RAM" memory where the basic waveforms are stored. Editing is a simple matter of moving a data entry slider.



### 4. Assignment of waveforms to keyboard split sections.

Different waveforms (produced by steps 2 and 3 above) can be assigned to different portions of the keyboard, then looped and grouped together to make one complete sound source. (The keyboard may be split into a maximum of sixteen sections.)



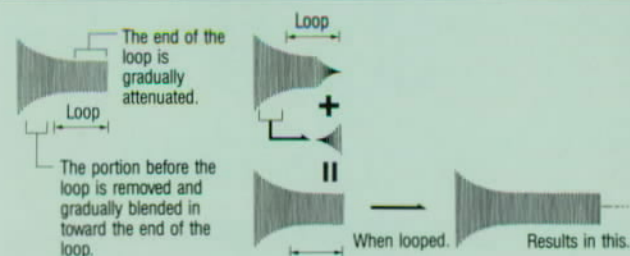
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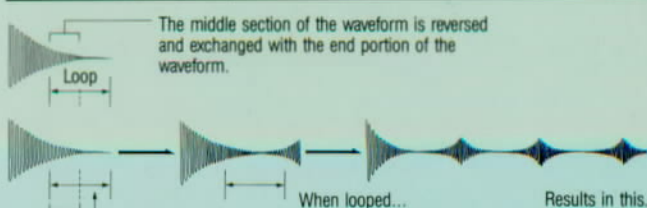
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Looping may also be assisted by the "cross-fade" and "back-and-forth" functions. (Cross-fade helps avoid unnatural effects while back-and-forth is used to produce special effects.)

#### Cross-Fade used to loop the waveform below:



#### Back-and-Forth used to loop waveform below:



Pitch, timbre and volume can be adjusted for each keyboard split section, thereby avoiding unnatural results regardless of which notes you play.



## New Parameters Mold the Sound to Fit Your Image

<div><div>1</div><div>SAMPLE START</div></div> <div><div>2</div><div>SAMPLE NO /MEM DIV</div></div> <div><div>3</div><div>ATTN/GAIN</div></div> <div><div>4</div><div>TRIGGER LEVEL</div></div> <div><div>5</div><div>ORIGINAL/TOP KEY</div></div>	<div><div>6</div><div>SAVE SAMPLE</div></div>	<div><div>SYSTEM</div><div><div><div></div></div></div></div>	<div><div>1</div><div>GET SYSTEM</div></div> <div><div>2</div><div>SAVE SYSTEM</div></div>	<div><div>3</div><div>PROGRAM DIRECTORY</div></div> <div><div>4</div><div>GET PROGRAM</div></div> <div><div>5</div><div>GET ALL PROGRAMS</div></div> <div><div>6</div><div>SAVE ALL PROGRAMS</div></div>	<div><div>7</div><div>M.SOUND DIR/FREE SPACE</div></div> <div><div>8</div><div>ERASE MULTI SOUND</div></div> <div><div>9</div><div>GET MULTI SOUND</div></div>
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<div><div>1</div><div>DRAW WAVEFORM</div></div> <div><div>2</div><div>HARMONIC SYNTHESIS</div></div> <div><div>3</div><div>SAVE WAVEFORM</div></div>		<div><div>PROGRAM PARAMETER</div><div><div><div></div></div></div></div>	<div><div>11</div><div>OSC OCT</div></div> <div><div>12</div><div>OSC1 MULTI SOUND</div></div> <div><div>13</div><div>OSC2 MULTI SOUND</div></div> <div><div>14</div><div>MIX RATIO</div></div> <div><div>15</div><div>OSC2 DETUNE &amp; INTERVAL</div></div> <div><div>16</div><div>SYNC MODE, D/A RESOLUTION</div></div> <div><div>17</div><div>OSC MG MOD</div></div> <div><div>18</div><div>AUTO BEND MODE</div></div> <div><div>19</div><div>AUTO BEND TIME &amp; INT</div></div>	<div><div>36</div><div>VCA TOTAL LEVEL</div></div> <div><div>37</div><div>VCA DEC KBDTRACK</div></div> <div><div>38</div><div>VCA EG</div></div>	<div><div>KEY ASSIGN</div><div><div><div></div></div></div></div>
<div><div>1</div><div>GET SOUNDS</div></div> <div><div>2</div><div>SELECT M.SOUND/SOUND</div></div> <div><div>3</div><div>REL PARAMS(TUNE/LEV/Fc)</div></div> <div><div>4</div><div>ORIGINAL/TOP KEY</div></div> <div><div>5</div><div>SOUND START &amp; LENGTH</div></div>	<div><div>6</div><div>LOOP ON/OFF</div></div> <div><div>7</div><div>LOOP START &amp; LENGTH</div></div> <div><div>8</div><div>LOOP PROCESS (X/FADE/BAF)</div></div> <div><div>9</div><div>REPLACE SOUND</div></div> <div><div>10</div><div>SAVE/RENAME M.SOUND</div></div>		<div><div>21</div><div>NOISE LEVEL</div></div>	<div><div>41</div><div>AUTO BEND INT</div></div> <div><div>42</div><div>VCF EG CUTOFF</div></div> <div><div>43</div><div>VCF EG (ATK, DEC, SLP)</div></div> <div><div>44</div><div>VCA EG LEVEL</div></div> <div><div>45</div><div>VCA EG (ATK, DEC, SLP)</div></div> <div><div>46</div><div>VELOCITY SWITCH</div></div>	<div><div>EQUALIZER</div><div><div><div></div></div></div></div>
<div><div>1</div><div>CHANNEL SELECT</div></div> <div><div>2</div><div>FUNCTION SELECT</div></div> <div><div>3</div><div>OMNI MODE</div></div> <div><div>4</div><div>LOCAL ON/OFF</div></div> <div><div>5</div><div>SAVE MIDI PARAMETERS</div></div>		<div><div>PROGRAM</div><div><div><div></div></div></div></div>	<div><div>31</div><div>VCF MODE &amp; EG POL</div></div> <div><div>32</div><div>VCF CUTOFF &amp; EG INT</div></div> <div><div>33</div><div>VCF RESO &amp; KBDTRACK</div></div> <div><div>34</div><div>VCF MG MOD</div></div> <div><div>35</div><div>VCF EG</div></div>	<div><div>AFTER TOUCH SENS</div><div><div><div></div></div></div></div>	<div><div>DDL-1 CONTROL</div><div><div><div></div></div></div></div>
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				<div><div>61</div><div>PITCH BEND RANGE</div></div> <div><div>62</div><div>VCF SWEEP ON/OFF</div></div>	<div><div>91</div><div>INPUT SIGNAL SELECT</div></div> <div><div>92</div><div>TIME</div></div> <div><div>93</div><div>FEEDBACK</div></div> <div><div>94</div><div>EFFECT LEVEL</div></div> <div><div>95</div><div>MOD INT</div></div> <div><div>96</div><div>MOD INVERT SW</div></div>

### OSC

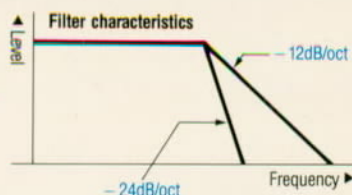
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Filter slope is switchable between a steep -24dB/oct and a more gentle -12dB/oct. This effectively changes the brightness of the sound.



### VCA

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Reduces decay time as you play higher notes on the keyboard. Effective for imitating piano sounds.

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Controls the amount of pitch bend that is dependent upon keyboard velocity. Handy for chopper bass and related effects.

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Controls the amount of timbre change that is dependent upon keyboard velocity. You get bright sound at the beginning when you play hard. But when you play soft the sound gradually gets brighter. The decay and slope parameters allow you to obtain more rapid tone color changes on the attack and after the break-point when you play harder, much like on a piano.

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Determines the amount of volume change that is dependent upon keyboard velocity. This allows you to obtain a more rapid attack when you play harder and a slower attack when you play softer. Decay and slope times also decrease when you play harder.

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This allows you to reverse the mix levels of the two oscillators (as set by parameter 14) depending on keyboard velocity. You can have strings when you play softly and piano when you play loud. You can also determine the velocity value at which the switch will occur.

### KEY ASSIGN

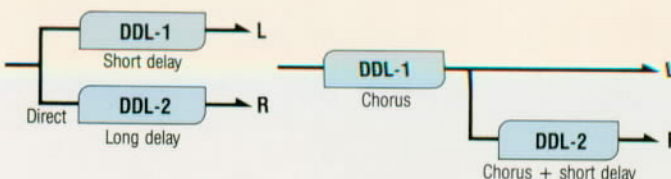
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Especially valuable for bass and reed synthesizer effects, this lets you determine the number of voices in the unison mode and adjust detuning to obtain a fatter sound.

### DDL-2 CONTROL

#### 91 INPUT SIGNAL SELECT

There are two built-in digital delays. You can either apply the source signal to DDL-2 directly or use the output of DDL-1 for input to DDL-2.



These two delays can be used to create many sophisticated effects.



## Start with the Basic Waveform

### 1. The starting point for sound synthesis.

#### ■ The raw materials.

There are three ways to obtain a waveform:

Sampling   Harmonic Synthesis   "Waveform Drawing"

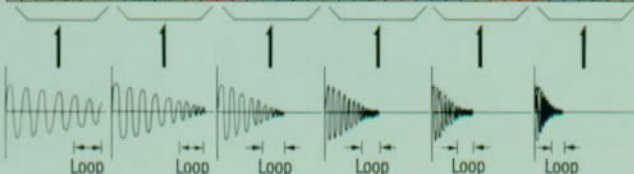
#### ■ Editing the waveform.

Five editing functions enable manipulation of the waveform.

Ⓐ Truncate   Ⓑ Reverse   Ⓒ Link  
Ⓓ Mix   Ⓔ View/Edit Sample Data

#### ■ Assignment of waveforms to keyboard split sections.

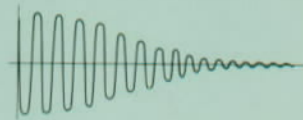
Different waveform samples can be assigned to different portions of the keyboard, looped and grouped make one complete sound source.



Makes one complete sound source.

### 2. Ways to obtain waveforms.

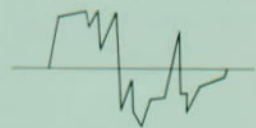
**Sampling:** As in a conventional sampling keyboard, this makes a digital recording of an audio input signal from a microphone or other external source. Sampling allows accurate storage and reproduction of complex, changing waveforms like that of a piano.



**Harmonic Synthesis:** Here you individually set the level of 128 harmonics, using the number keys. This is handy for synthesizing relatively conventional "regular" waveforms.

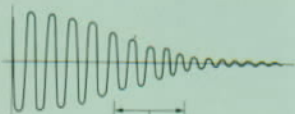


**Drawing:** The display indicates elapsed time, while you move the data entry slider up and down to "draw" the waveform. Useful for producing complex, irregular waveforms.



### 3. Editing the Waveform.

Ⓐ **Truncate:** This lets you chop off any portion of a waveform for use. (Normally applied to sampled material.)



This section is cut out.

To be used as the starting waveform for synthesis.

The truncate function is also handy for obtaining a single full-wave (like you get with the harmonic synthesis and drawing methods) from a sampled input.





## DSS-1 MIDI DATA

### SEND DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION

- NO.2 VCF MODULATION
- NO.64 SUSTAIN FOOT SWITCH
- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)

- PITCH BEND
- SYSTEM EXCLUSIVE

### RECEIVE DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION
- NO.2 VCF MODULATION
- NO.64 SUSTAIN

- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)
- PITCH BEND
- ALL NOTES OFF
- OMNI MODE OFF
- OMNI MODE ON

- LOCAL CONTROL ON
- LOCAL CONTROL OFF
- ACTIVE SENSING
- SYSTEM EXCLUSIVE

## DSS-1 SPECIFICATIONS

●KEYBOARD: C—C 61 Keys, Velocity, After Touch ●CONTROLLERS: Joystick (X Axis: OSC/VCF FC Bend, +Y Axis: OSC Modulation, —Y Axis: VCF Modulation), Program Up Jack, Sustain Damper Jack ●CONFIGURATION: 8 Voices, 16 Oscillators, (2 Oscillators per Voice), 8 VCF Modules, 8 VCA Modules ●SOUND SOURCES: Waveforms Obtained by Sampling, 128 Harmonic Synthesis, or "Drawing" can be edited, assigned to sections of the keyboard and looped. 12-bit quantization. Sampling Frequencies and Times: 16KHz, 16s, 24KHz, 11s, 32KHz, 8s, 48KHz, 5.5s (can be used together as one sound source), Number of Keyboard Split Points: Up to 16 ●NUMBER OF SOUND SOURCES: Up to 16 in internal wave RAM, Up to 120 per Disk ●EFFECTS: Digital Delay x2, Equalizer HIGH & LOW (All Programmable) ●NUMBER OF PROGRAMS: 32 in memory, 128 on disk ●BUILT-IN DISK DRIVE: Takes 3.5-inch, Double Sided, Double Density (1MB unformatted) Floppy Disks, 770K PCM Data Storage Capacity per Disk ●SUPPLIED ACCESSORIES: Floppy Disks x4, AC Power Cord ●DIMENSIONS: 1171 (W) × 436 (D) × 123 (H)mm ●WEIGHT: 18.5kg

## OPTIONS

PS-1 PEDAL SWITCH

PS-2 PEDAL SWITCH

TWC-030 TWIN CABLE (3m)

DS-1 DAMPER SWITCH

KH-1000 DYNAMIC STEREO HEADPHONES

HC-DSS HARD CASE

MIDI CABLE (7m/10m/12m)

MF-2DD MICRO FLOPPY DISKS

SOUND PROGRAM LIBRARY

MF-2DD MICRO FLOPPY DISK



PS-1 PEDAL SWITCH



PS-2 PEDAL SWITCH



DS-1 DAMPER SWITCH



KH-1000 DYNAMIC STEREO HEADPHONES



HC-DSS HARD CASE



\*Specifications and features are subject to change without notice for further improvement

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# KORG

KORG INC. 15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo Japan.



## New Parameters Mold the Sound to Fit Your Image

<div><div>0</div><div>SAMPLE START</div></div> <div><div>1</div><div>SAMPLE NO /MEM DIV</div></div> <div><div>2</div><div>ATTN/GAIN</div></div> <div><div>3</div><div>TRIGGER LEVEL</div></div> <div><div>4</div><div>ORIGINAL/TOP KEY</div></div>	<div><div>5</div><div>SAVE SAMPLE</div></div>	<div><div>SYSTEM</div><div><div><div></div></div></div></div>	<div><div>1</div><div>GET SYSTEM</div></div> <div><div>2</div><div>SAVE SYSTEM</div></div>	<div><div>3</div><div>PROGRAM DIRECTORY</div></div> <div><div>4</div><div>GET PROGRAM</div></div> <div><div>5</div><div>GET ALL PROGRAMS</div></div> <div><div>6</div><div>SAVE ALL PROGRAMS</div></div>	<div><div>7</div><div>M.SOUND DIR/FREE SPACE</div></div> <div><div>8</div><div>ERASE MULTI SOUND</div></div> <div><div>9</div><div>GET MULTI SOUND</div></div>
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				<div><div>JOYSTICK</div><div><div><div></div></div></div></div>	<div><div>DDL-2 CONTROL</div><div><div><div></div></div></div></div>
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### OSC

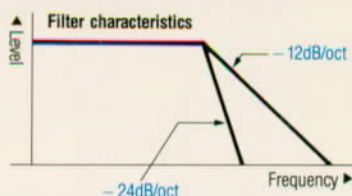
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Filter slope is switchable between a steep  $-24\text{dB/oct}$  and a more gentle  $-12\text{dB/oct}$ . This effectively changes the brightness of the sound.



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This allows you to reverse the mix levels of the two oscillators (as set by parameter 14) depending on keyboard velocity. You can have strings when you play softly and piano when you play loud. You can also determine the velocity value at which the switch will occur.

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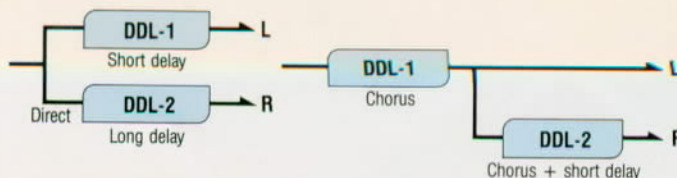
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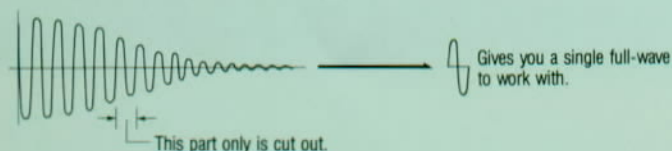


These two delays can be used to create many sophisticated effects.

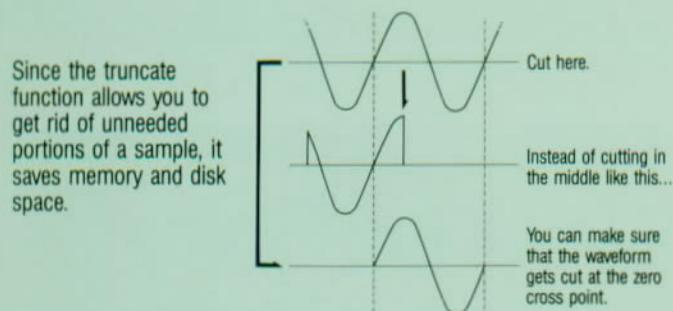


# Endless Universe of Sonic Improvisation

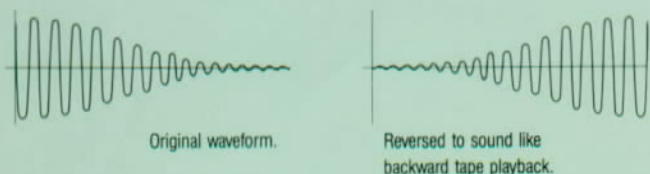
## Basic Sound Source Creation Process



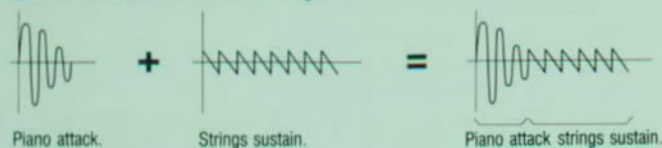
The "auto-zero cross search" function can be used to make sure that the truncated waveform is cut off at the zero cross point, thereby enabling smooth linking and looping.



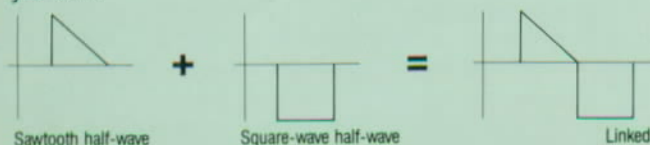
**Reverse:** Reverses the waveform so it sounds like a tape played backward. (Usually used with sampled material.)



**Link:** Joins two waveforms together.

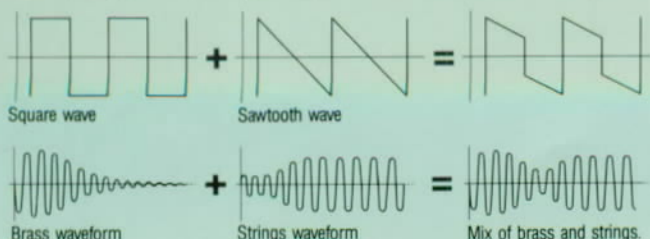


You can also link single full-waves created with harmonic synthesis or drawing. You can make longer waveforms by linking as many times as you want.

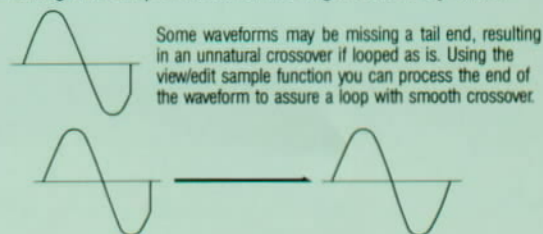


The "splice cross-fade" function can help assure a smooth transition between dissimilar waveforms. Similarly, the "auto-level adjust" function minimizes unnatural effects at the crossover between different timbres.

**Mix:** This mixes two waveforms, producing the same kind of output that you would obtain with an audio mixing console. Of course, you can also mix single full-waves. When mixing you can adjust the volume levels and detune (or tune) the waveforms relative to each other.

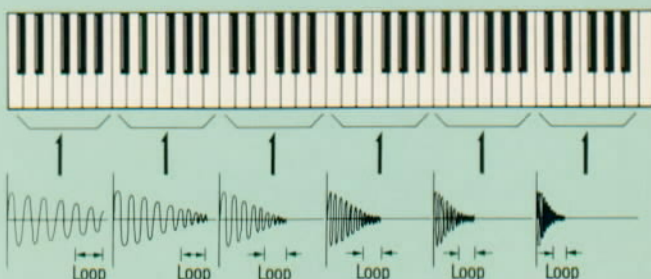


**View/Edit Sample Data:** Lets you examine and modify one "data word" at a time in "wave RAM" memory where the basic waveforms are stored. Editing is a simple matter of moving a data entry slider.



### 4. Assignment of waveforms to keyboard split sections.

Different waveforms (produced by steps 2 and 3 above) can be assigned to different portions of the keyboard, then looped and grouped together to make one complete sound source. (The keyboard may be split into a maximum of sixteen sections.)



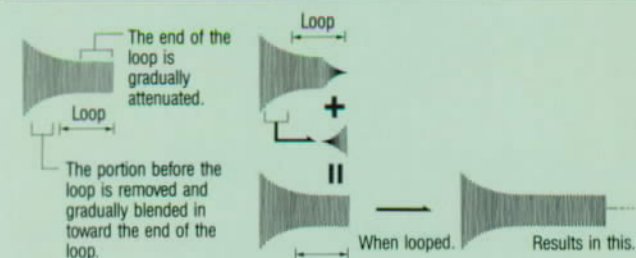
● This procedure is necessary to produce realistic results with sampled sounds. The more samples you take (at different pitches), the more natural the effect will be.

● Single full-waves created by harmonic synthesis or drawing are looped and assigned automatically to the entire keyboard. Therefore this procedure is not required unless you edit the waveforms.

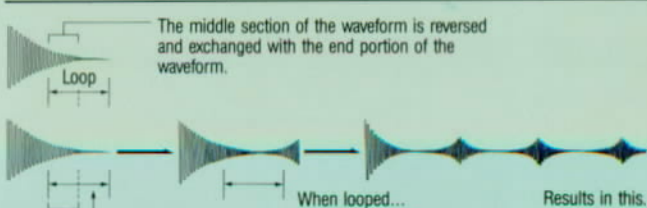
● The auto-cross search function can be used to assure smooth crossover for the loop.

Looping may also be assisted by the "cross-fade" and "back-and-forth" functions. (Cross-fade helps avoid unnatural effects while back-and-forth is used to produce special effects.)

#### Cross-Fade used to loop the waveform below:



#### Back-and-Forth used to loop waveform below:



Pitch, timbre and volume can be adjusted for each keyboard split section, thereby avoiding unnatural results regardless of which notes you play.



## DSS-1 MIDI DATA

### SEND DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION
- NO.2 VCF MODULATION
- NO.64 SUSTAIN FOOT SWITCH
- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)

- PITCH BEND
- SYSTEM EXCLUSIVE

### RECEIVE DATA

- NOTE ON
- NOTE OFF
- CONTROL CHANGE
- NO.1 OSC MODULATION
- NO.2 VCF MODULATION
- NO.64 SUSTAIN
- PROGRAM CHANGE
- CHANNEL PRESSURE (AFTER TOUCH)
- PITCH BEND
- ALL NOTES OFF
- OMNI MODE OFF
- OMNI MODE ON
- LOCAL CONTROL ON
- LOCAL CONTROL OFF
- ACTIVE SENSING
- SYSTEM EXCLUSIVE

## DSS-1 SPECIFICATIONS

●KEYBOARD: C - C 61 Keys, Velocity, After Touch ●CONTROLLERS: Joystick (X Axis: OSC/VCF FC Bend, +Y Axis: OSC Modulation, -Y Axis: VCF Modulation), Program Up Jack, Sustain Damper Jack ●CONFIGURATION: 8 Voices, 16 Oscillators, (2 Oscillators per Voice), 8 VCF Modules, 8 VCA Modules ●SOUND SOURCES: Waveforms Obtained by Sampling, 128 Harmonic Synthesis, or "Drawing" can be edited, assigned to sections of the keyboard and looped. 12-bit quantization, Sampling Frequencies and Times: 16KHz, 16s, 24KHz, 11s, 32KHz, 8s, 48KHz, 5.5s (can be used together as one sound source), Number of Keyboard Split Points: Up to 16 ●NUMBER OF SOUND SOURCES: Up to 16 in internal wave RAM, Up to 120 per Disk ●EFFECTS: Digital Delay x2, Equalizer HIGH & LOW (All Programmable) ●NUMBER OF PROGRAMS: 32 in memory, 128 on disk ●BUILT-IN DISK DRIVE: Takes 3.5-inch, Double Sided, Double Density (1MB unformatted) Floppy Disks, 770K PCM Data Storage Capacity per Disk ●SUPPLIED ACCESSORIES: Floppy Disks x4, AC Power Cord ●DIMENSIONS: 1171 (W) x 436 (D) x 123 (H)mm ●WEIGHT: 18.5kg

## OPTIONS

PS-1 PEDAL SWITCH

PS-2 PEDAL SWITCH

TWC-030 TWIN CABLE (3m)

DS-1 DAMPER SWITCH

KH-1000 DYNAMIC STEREO HEADPHONES

HC-DSS HARD CASE

MIDI CABLE (7m/10m/12m)

MF-2DD MICRO FLOPPY DISKS

SOUND PROGRAM LIBRARY

MF-2DD MICRO FLOPPY DISK



PS-1 PEDAL SWITCH



PS-2 PEDAL SWITCH



DS-1 DAMPER SWITCH



KH-1000 DYNAMIC STEREO HEADPHONES



HC-DSS HARD CASE



\*Specifications and features are subject to change without notice for further improvement

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# KORG

KORG INC. 15-12, Shimotakaido 1-chome, Suganami-ku, Tokyo Japan.



## Start with the Basic Waveform

### 1. The starting point for sound synthesis.

#### ■ The raw materials.

There are three ways to obtain a waveform:

Sampling Harmonic Synthesis "Waveform Drawing"

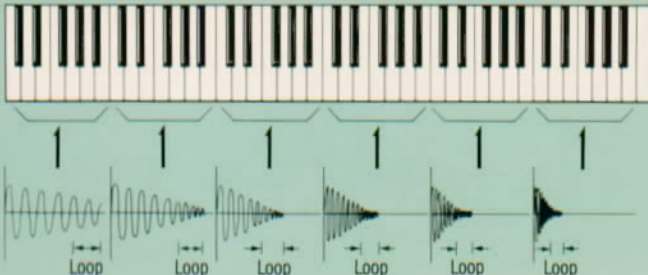
#### ■ Editing the waveform.

Five editing functions enable manipulation of the waveform.

Ⓐ Truncate Ⓑ Reverse Ⓒ Link  
Ⓓ Mix Ⓔ View/Edit Sample Data

#### ■ Assignment of waveforms to keyboard split sections.

Different waveform samples can be assigned to different portions of the keyboard, looped and grouped make one complete sound source.



Makes one complete sound source.

### 2. Ways to obtain waveforms.

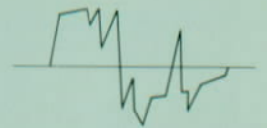
**Sampling:** As in a conventional sampling keyboard, this makes a digital recording of an audio input signal from a microphone or other external source. Sampling allows accurate storage and reproduction of complex, changing waveforms like that of a piano.



**Harmonic Synthesis:** Here you individually set the level of 128 harmonics, using the number keys. This is handy for synthesizing relatively conventional "regular" waveforms.

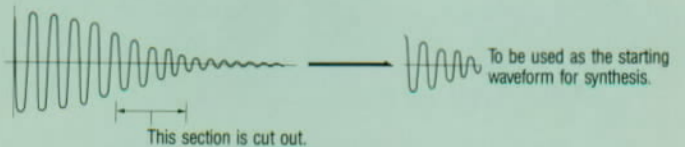


**Drawing:** The display indicates elapsed time, while you move the data entry slider up and down to "draw" the waveform. Useful for producing complex, irregular waveforms.



### 3. Editing the Waveform.

**Ⓐ Truncate:** This lets you chop off any portion of a waveform for use. (Normally applied to sampled material.)



The truncate function is also handy for obtaining a single full-wave (like you get with the harmonic synthesis and drawing methods) from a sampled input.

