DW-8000

PROGRAMMABLE DIGITAL WAVEFORM SYNTHESIZER

OWNER'S MANUAL

KORG

DW-8000

FEATURES OF THE KORG DW-8000

1 A new kind of 8-voice programmable polyphonic synthesizer featuring an advanced Digital Waveform Generator System (DWGS).
The DWGS has sixteen digitally encoded waveforms stored in four 256 kilobit ROM chips. These waveforms are digitally encoded samples of actual acoustic instruments recreated by additive synthesis techniques to enable more realistic sound synthesis. (The sixteen waveforms also include simple sawtooth and pulse waveforms such as "◺, ⊓" and "∿" which are found in conventional analog synthesizers.)

2 Uses two Digital Oscillators, analog noise generator, and VCF and VCA modules for sound synthesis. You can enjoy the uniqueness of digital sound plus quick and logical sound synthesis as in analog control.

3 The DW-8000 features a keyboard with Initial Touch (key velocity) and After Touch (channel pressure) functions. These functions give you real-time control at your fingertips of output volume, tone color, and pitch modulation for finely-controlled, dynamic playing.

Thank you and congratulations on your choice of the Korg DW-8000. To obtain optimum performance from this advanced digital synthesizer, please read this manual carefully before using this synthesizer.

4 A programmable digital delay is included to store clear stereo effects (Chorus, Doubling, Short Delay, and Long Delay) for each of 64 tone colors in the programmer.

5 Built-in Arpeggiator with MIDI control capabilities and Assign mode, which can function as 64-note sequencer.

6 Auto Bend is included for more realistic synthesis of human voice and brass sounds.

7 Polyphonic Portamento can be controlled by footswitch.

8 Key Assign mode provides two polyphonic modes and two unison modes, which are effective for playing solo or bass parts or using Portamento.

9 MIDI equipped for full interfacing with other MIDI equipped devices, including synthesizers, sequencers, and personal computers.

IMPORTANT SAFETY PRECAUTIONS

■LOCATION

To avoid malfunction do not use this unit in the following locations for long periods of time:

- **In direct sunlight.**
- **Exposed to extremes of temperature or humidity.**
- **In sandy or dusty places.**

■POWER SUPPLY

- Use only with rated AC voltage. If you will be using this unit in a country having a different voltage, be sure to obtain the proper transformer to convert to rated voltage.
- To help prevent noise and degraded sound quality, avoid using the same outlet as other equipment or branching off extension cords shared by other equipment.

■INPUT/OUTPUT JACKS AND CONNECTION CORDS

Be sure to use standard "guitar" cables with phone plugs, such as the cable supplied with this instrument, for input and output connections to the rear panel of the DW-8000. Never insert any other kind of plug into these jacks.

■PREVENTING ELECTRICAL INTERFERENCE

As a microprocessor based device, the DW-8000 is extremely flexible in operation, yet may possibly perform erratically if exposed to electrical interference from other electrical devices and fluorescent lamps. Avoid operating the DW-8000 near possible sources of interference. If something seems to be wrong, try turning off the power, waiting about ten seconds, then turning it back on. This resets the computer circuits to their initial state so performance should return to normal.

■HANDLE GENTLY

Knobs and switches are designed to provide positive operation with a light touch. Excessive force may cause damage.

■MAINTENANCE

Wipe the exterior with a soft, dry cloth. Never use paint thinner, benzene or other solvents.

■KEEP THIS MANUAL

Store this manual in a safe place for future reference.

■MEMORY BACKUP

- To protect your programmed memory contents, the DW-8000 utilizes a built-in rechargeable backup battery power supply. Battery life is rated at five years or more, so replacement is recommended after five years. Contact your Korg dealer or authorized service center at that time.
- For maximum security, save your sound programs on tape, using the built-in tape interface system. Then if memory contents are accidentally erased or altered, you can simply load the data back into DW-8000 internal memory in seconds!

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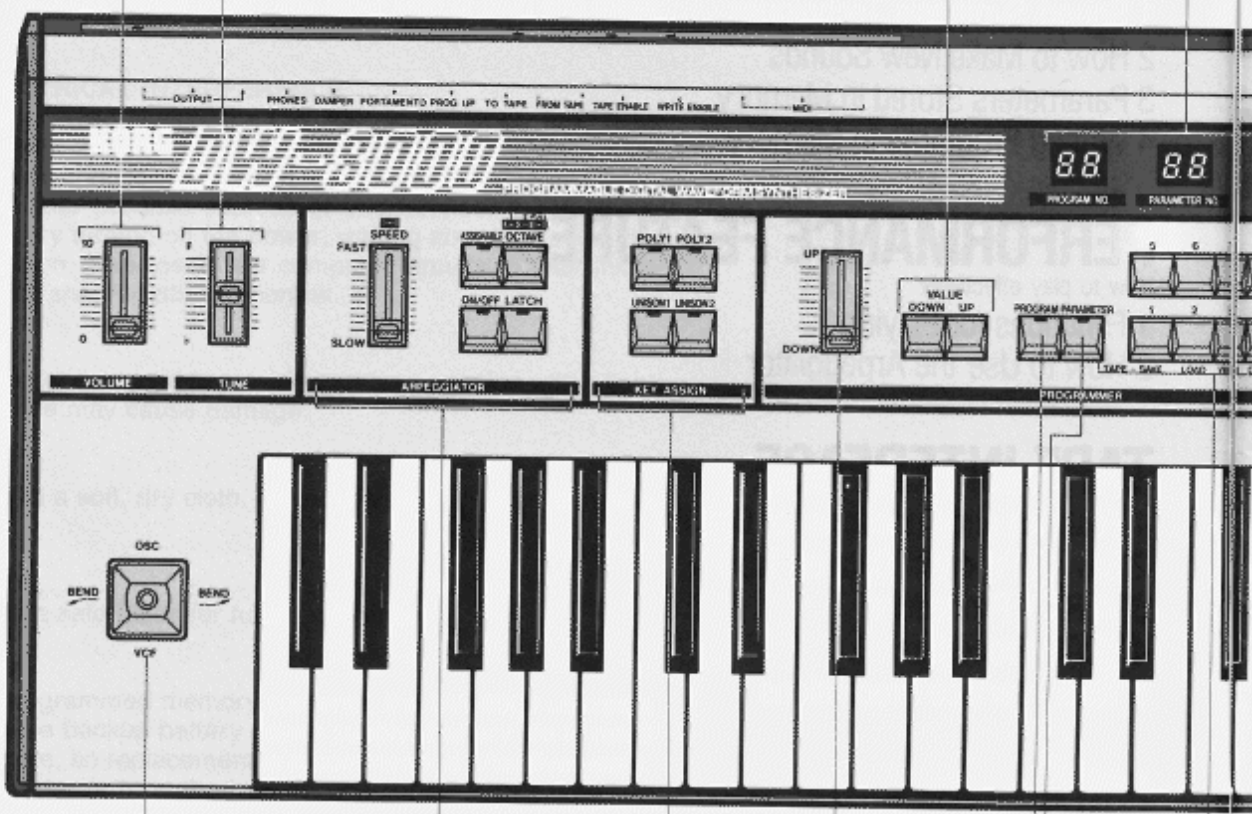
FEATURES & FUNCTIONS

1. FRONT PANEL



■**JOYSTICK**

■**ARPEGGIATOR**

SPEED, ASSIGNABLE, OCTAVE, ON/OFF, LATCH, SPEED INDICATOR, OCTAVE INDICATOR

■**KEY ASSIGN**

POLY 1, POLY 2, UNISON 1, UNISON 2

■**EDIT SLIDER**

■**PROGRAM SWITCH**

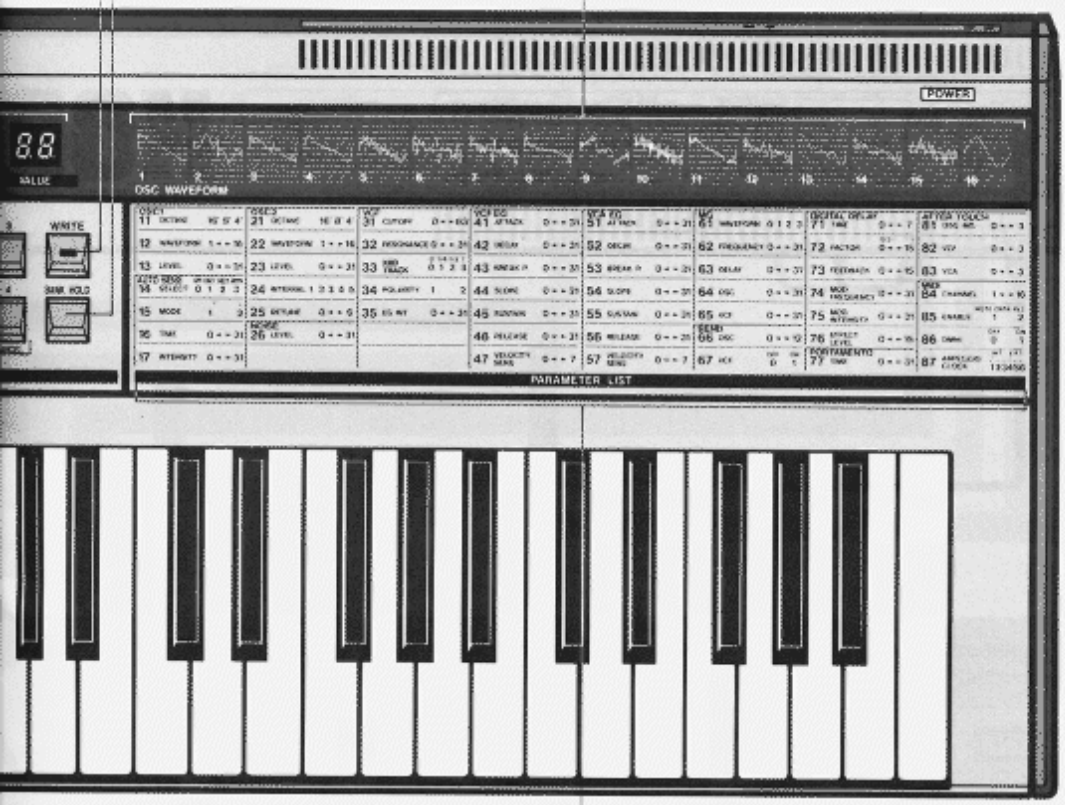
■**PARAMETER SWITCH**

■**NUMBER SELECT BUTTONS**

1 ~ 8 (1: SAVE, 2: LOAD, 3: VERIFY, 4: CANCEL)

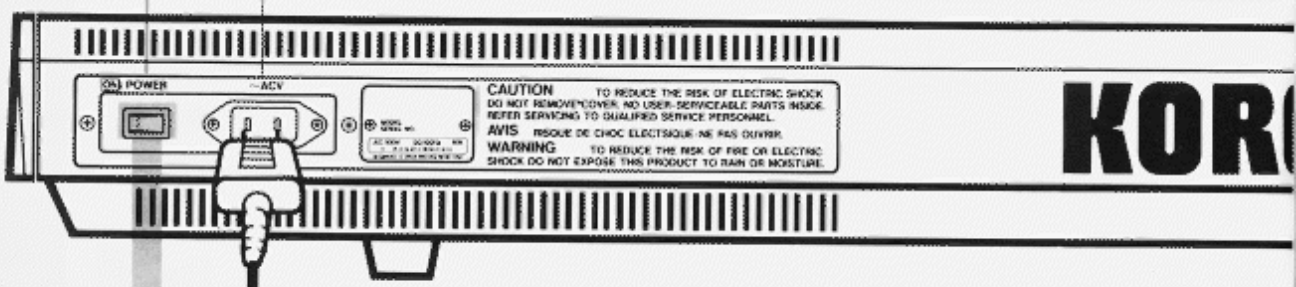
■**PARAMETER LIST**

■VOLUME
■TUNE
■VALUE
UP,DOWN
■INDICATORS
PROGRAM NO., PARAMETER NO., VALUE
■PROGRAM WRITE KEY
■BANK HOLD SWITCH
■OSCILLATOR WAVEFORM

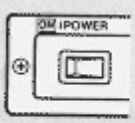


2. REAR PANEL AND BASIC SETUP

■TAPE SWITCH
■WRITE SWITCH
■MIDI TERMINALS
IN, OUT, THRU
■AC CORD RECEPTACLE
■POWER SWITCH

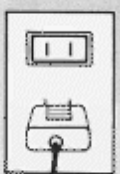


After everything is properly connected, turn the power on.



No sound is generated for about one second after the power is switched ON. The display shows "8000" during the one-second period.

Accessory AC cord

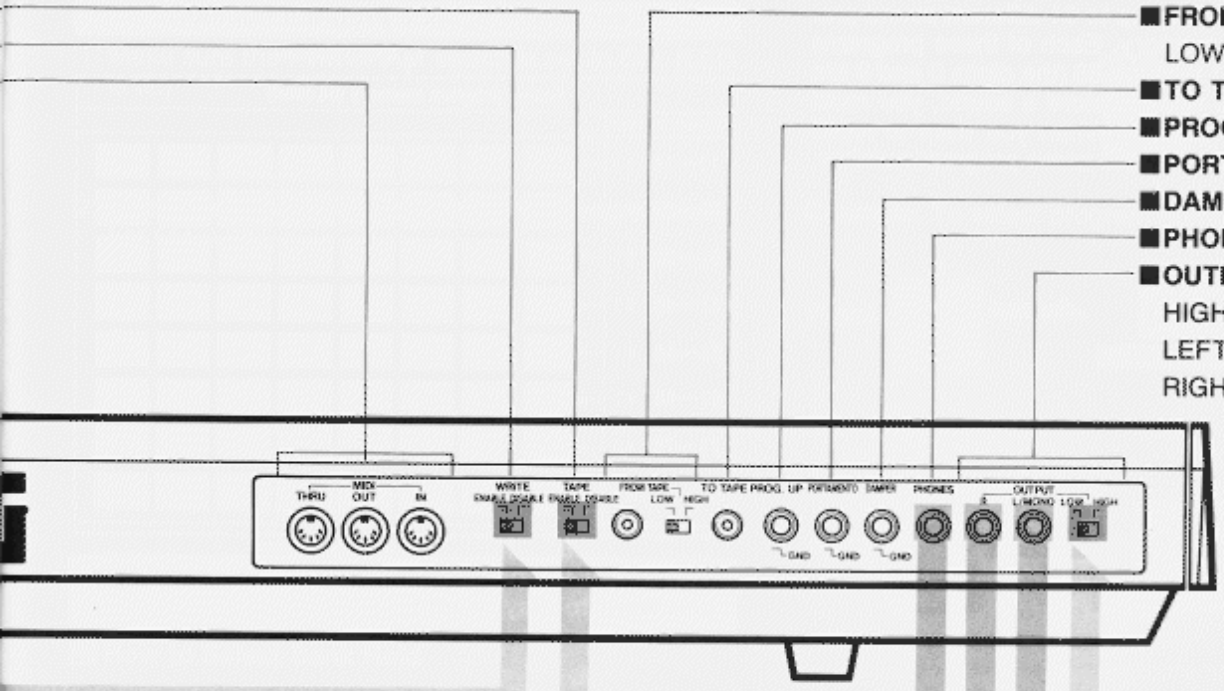


Plug it into a wall socket

Set the WRITE switch to DISABLE.

Set the TAPE switch to DISABLE.

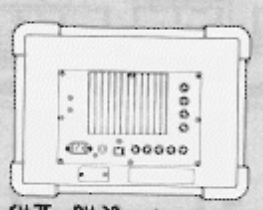
If set to ENABLE, no sound will be produced.



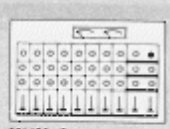
Plug stereo headphone, if used, into this jack.
KH-1000, etc.

KH-1000 etc.

Use these jacks to connect amplifiers, mixers, or stereo systems.



SM-75, PM-30, etc.



KMX-8, etc.

Stereo system

If the two output terminals are connected to independent amplifiers, stereo effects can be produced.
Use only LEFT/MONO for connection to a single amplifier or mixer channel.

Set the LOW/HIGH switch as follows according to the connected amplifier type.

Amplifier and input-terminal types	Switch position
Audio amp (AUX IN)	HIGH
Guitar amp (INPUT)	LOW
Keyboard amp (INPUT)	HIGH or LOW
Mixing console (AUX, INPUT)	HIGH or LOW

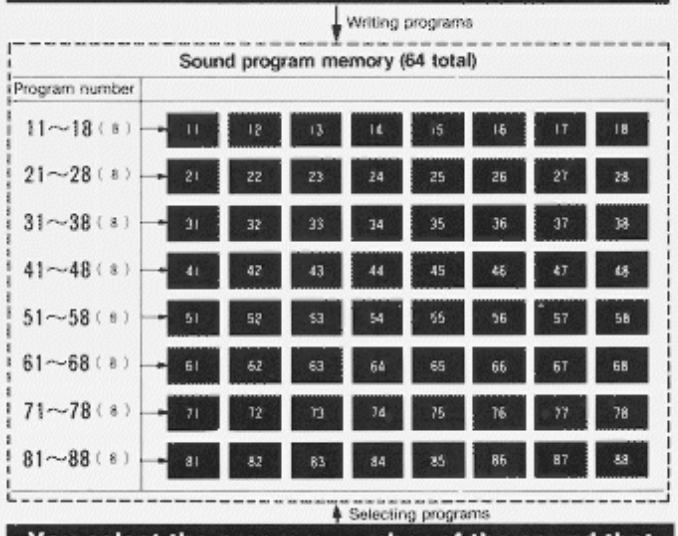
SELECTING PROGRAMS

This explains how to select any of the 64 different sounds stored in the DW-8000's memory. The PROGRAMMER section on the front panel is used for this purpose.

1. About Program Numbers

The DW-8000 can be store up to 64 different sound programs in its internal memory. Each of these programs has a number from 11 through 88 (the digits 0 and 9 are not used). When you want to store a sound, you must assign it a program number. When you want to recall that sound, you select it by the same program number.

Every sound gets a program number.



You select the program number of the sound that you want to play or edit.

2. How to Select a Program Number

1 Features and Functions for Control

1. PROGRAM switch

When this switch is activated (and its LED indicator is on), different programs may be selected using the NUMBER keys.

2. NUMBER keys

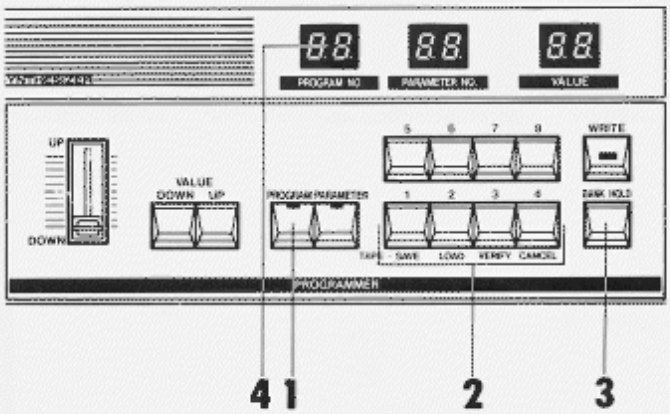
Press these keys to specify program numbers, which range from 11 through 88. Programs are arranged in eight "banks," signified by the left digit, with eight programs per bank, signified by the right digit; 8 × 8 = 64 total programs.

3. BANK HOLD switch

This holds the left "bank" digit so that you can use single number keys to quickly access any of the eight program numbers within a single bank.

4. PROGRAM NO. display

Shows selected program number.



2 How to Select a Program Number

1 Make sure the PROGRAM switch is set to ON. (LED is lit.)

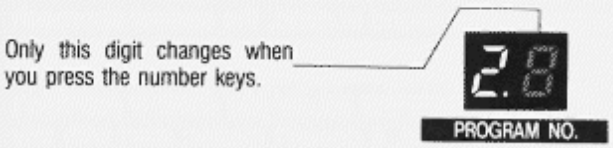
2 Press the NUMBER keys to select any program number (11 ~ 88).

Example: To select program number...

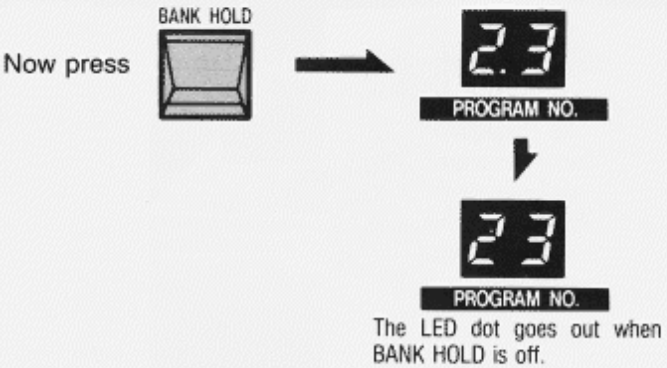
3 How to Select Bank Hold

1 Pressing the BANK HOLD switch preserves the left digit of the selected program number.

2 Now if you press any of the NUMBER keys, only the right digit will change.



3 When you want to change to a program number in a different bank, press the BANK HOLD switch again to cancel BANK HOLD. You can now enter both digits using the NUMBER keys..



CREATING SOUNDS How to Make New Sounds

1. Sound Synthesis Techniques

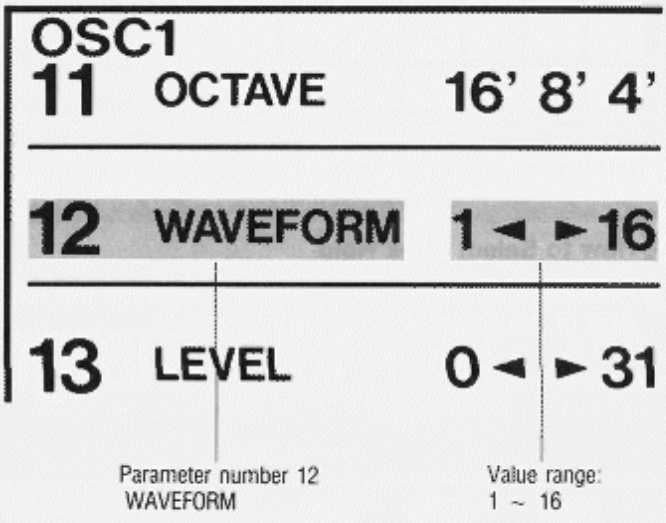
1 Parameters and Values

The various aspects of a sound, such as its pitch, timbre and variations in volume, are called "Parameters." To create or change a sound, you adjust the values of each of these parameters.

On the DW-8000, there are 49 parameters per program; each parameter has a number, and each parameter's value is also represented by a number. These numbers are shown on the front panel display. To create or change a sound, you select parameters and change (or "Edit") their values.

When the DW-8000 stores a sound in memory or calls it back from memory, it is actually storing and recalling the values you have given it for the sound's various parameters. All possible parameters and values are listed in the "parameter index" chart on the right side of the DW-8000 front panel. To create or change a sound, you first use the number keys to select a parameter number, then you use the edit slider and up/down keys to change its value.

Parameters for oscillator 1



2 Sound Synthesis on the DW-8000

To create new sounds on the DW-8000, you change or edit old programs. You do not start with a "blank slate". There are 64 sounds already in memory. If you have a new sound in mind, the easiest approach is to first select a sound that resembles the sound you want to create. Then "edit" (change the selected sound until you get the sound you want. If you don't find a similar sound, it doesn't matter; start with any sound you like.)

After you finish editing your sound, you store it into memory. At this point you can give it a different program number (thereby preserving the sound you started with) or the same program (thereby erasing or "overwriting" the old sound).

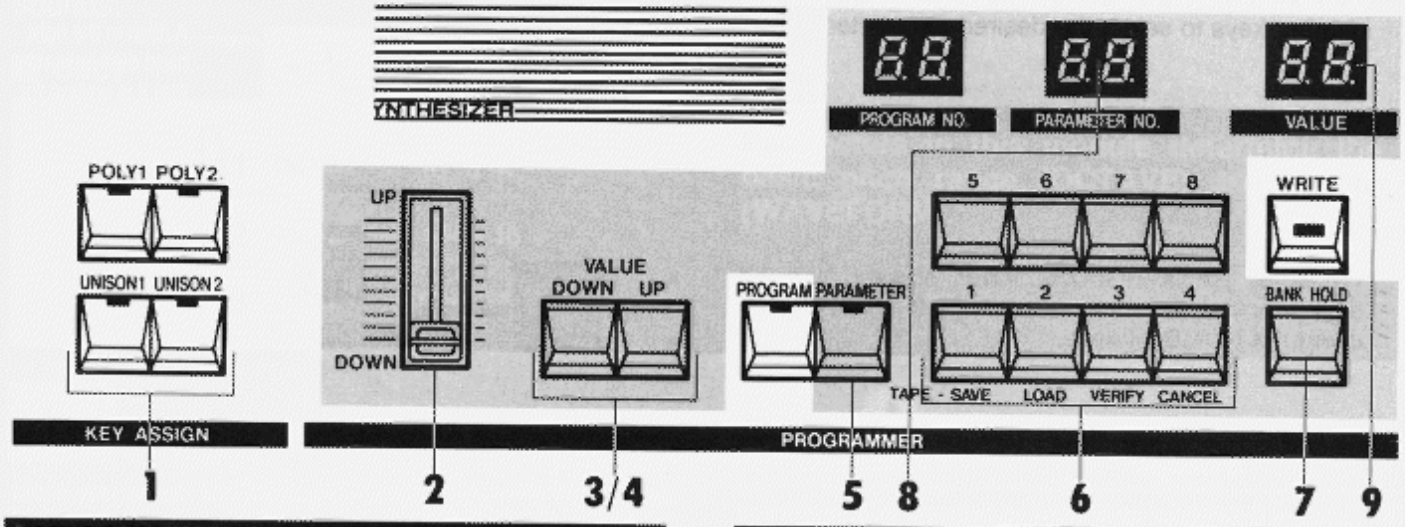
Selecting a Program: Finding a current programmed sound that resembles the new one you wish to create.

Creating Sounds (Editing): Changing the values of the parameters that need to be changed to obtain the desired sound.

Writing the Program to Memory: Giving the sound a program number and storing it in memory.

2. How to Make New Sounds

1 Features and Functions for Control



1 KEY ASSIGN SECTION

Used to select assign mode suited for the created sound. (See "KEY ASSIGN" on page 32.)

2 EDIT SLIDER

Permits rapid and easy adjustment of parameter VALUES (aspects of the sound) over a wide range.

3/4 DOWN/UP keys

Press to change parameter values up or down a step at a time.

5 PARAMETER switch

When this switch is on, you can create and modify sounds by selecting different parameters (using the NUMBER keys) and varying their VALUEs (using the EDIT slider and/or DOWN/UP buttons).

6 NUMBER keys

These keys are used to select different Parameter Numbers (when the parameter switch is on).

7 BANK HOLD switch

This holds the Parameter Number's left digit, so that the NUMBER keys can be used to select only the right digit. This can speed up Parameter Number selection when you are working on several parameters within the same "family" (that is, having the same left digit).

8 PARAMETER NUMBER display

Shows selected parameter number.

9 VALUE display

Shows current VALUE for selected parameter.

2 How to Change Values

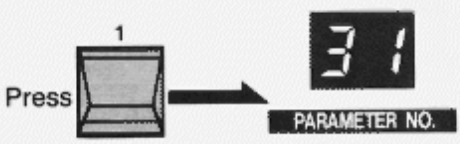
1 With PROGRAM switch on, use the number keys to select programs and play the keyboard to find out what they sound like. Stop when you find one that resembles the new sound that you want to create.

2 Press the PARAMETER switch so that its LED lights up.

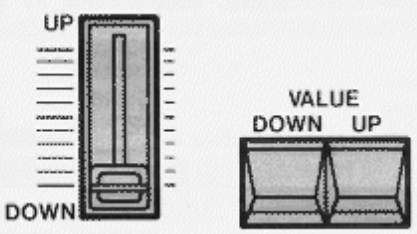
3 Refer to the parameter index chart to find the number of the parameter that you want to change. Press the number keys to select the desired parameter.

Example: Selecting VCF CUTOFF frequency. ... This is parameter number 31, so ...

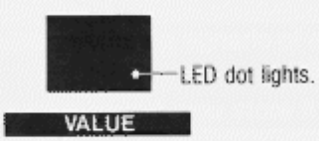
When the BANK HOLD switch is pressed, the left digit is locked; then, you can change the right digit by using the NUMBER keys.



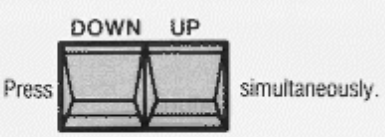
4 Use the Edit slider or Up/Down buttons to change the parameter's value. Suggestion: Use the Edit slider to make large changes in value, then use the Up/Down keys to "fine tune" the sound. (VALUE display)



The LED dot in the corner of the VALUE display indicates that the value of the currently selected parameter has been changed. The dot goes out if you return to its original value.



If you want to return to the original value of a parameter, just press both UP/DOWN keys at the same time.



5 Repeat steps 3 and 4 for each parameter that needs to be changed.
To store your new sounds in memory, follow the operation procedures described in "WRITING PROGRAMS TO MEMORY" on page 33.

3. Parameters Stored in Memory

This section describes parameters which can be stored in the DW-8000's memory to create your sounds.

1 OSC1

OSC1		
11	OCTAVE	16' 8' 4'
12	WAVEFORM	1◄ ►16
13	LEVEL	0◄ ►31

Parameters in this module determine the basic pitch range (OCTAVE) and timbre (WAVEFORM).

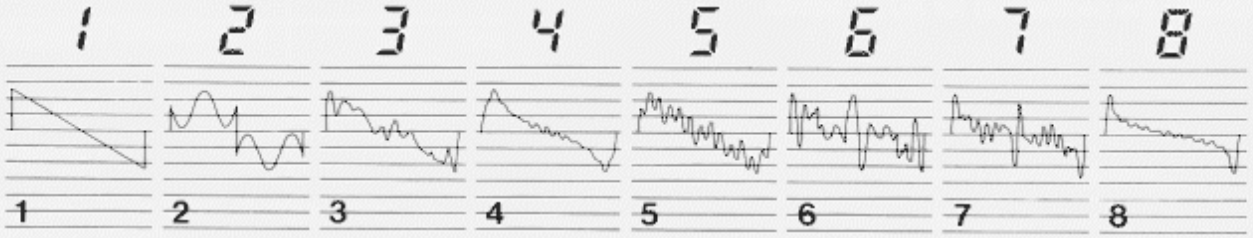
11 OCTAVE

Here you select the basic pitch range of oscillator 1. The higher the value, the lower the pitch. You have three choices which correspond to 16′ (16 foot), 8′, 4′.

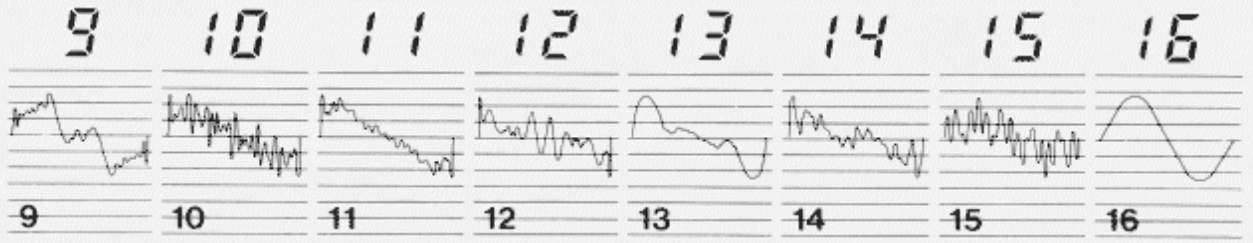
VALUE	OCTAVE
16	16′ (low)
8	8′ (middle)
4	4′ (high)

12 WAVEFORM

The choice of waveform will have more effect on the tonal characteristics (timbre or tone color) of the sound than will any other parameter. You have sixteen basic waveforms to choose from.



VALUE	1	2	3	4	5	6	7	8
INSTRUMENT FAMILY	Brass, strings, and analog synthesizers	Clarinet and analog synthesizers (harmonics components are the same with "⊓")	Acoustic piano	Electric piano	Electric piano (hard)	Clavi	Organ	Brass



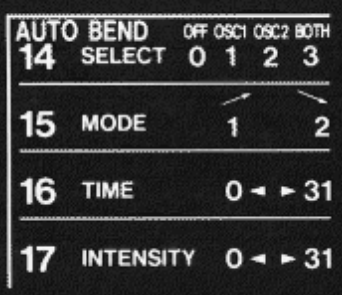
VALUE	9	10	11	12	13	14	15	16
INSTRUMENT FAMILY	Saxophone	Violin	Acoustic guitar	Guitar (distorted)	Electric bass	Digital bass	Bell	Organ and whistle

13 LEVEL

Sets output level (volume) of oscillator 1. This is useful for adjusting overall volume to match other programs, and for balancing OSC1 with OSC2 and/or noise as desired.

VALUE	OUTPUT LEVEL
0	No sound from OSC1
↕	↕
31	Maximum volume

2 AUTO BEND



This parameter adjusts the change in pitch produced when a note is played on the keyboard.
As soon as a key is pressed, the pitch is shifted to the pitch level of the pressed key. This is useful for the synthesis of human voice and brass sounds.

14 SELECT

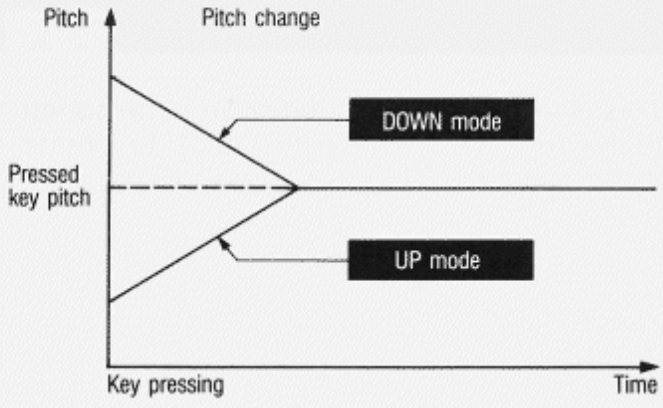
Selects the oscillator(s) for AUTO BEND.

VALUE	Oscillator Used for AUTO BEND
0	No oscillator (AUTO BEND OFF)
1	OSC1
2	OSC2
3	OSC1 and OSC2

15 MODE

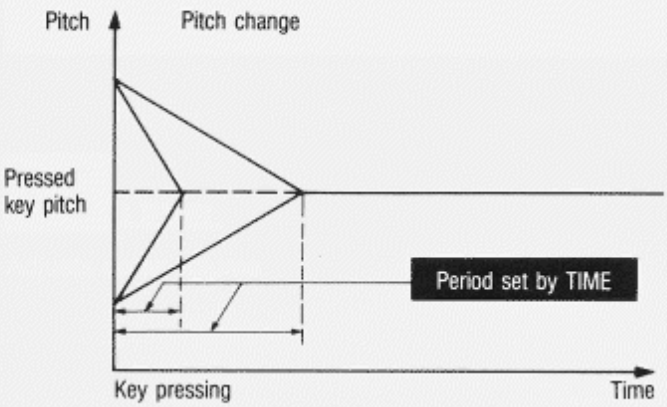
Selects between UP and DOWN modes. In UP mode, the pitch rises to the pitch of the pressed key. In DOWN mode, the pitch falls to the pitch of the pressed key.

VALUE	Pitch Change after Key Pressing
1	Pitch rises to the key level
2	Pitch falls to the key level



16 TIME

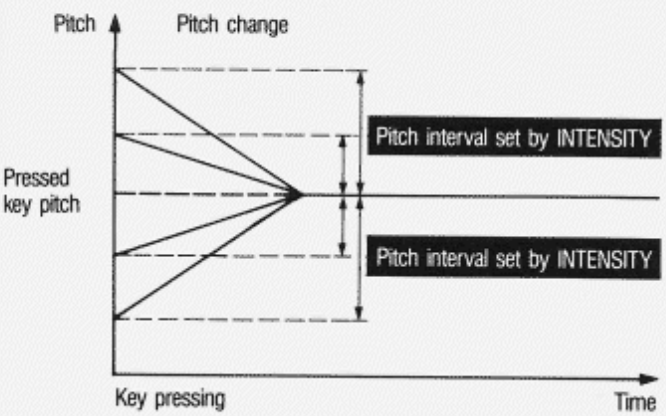
Sets a period of time from the key pressing to the time when the pitch reaches the pitch of the pressed key.



VALUE	Time Period from Key Pressing to the Pitch's Reaching the Key Level
0	Short
↕	↕
31	Long

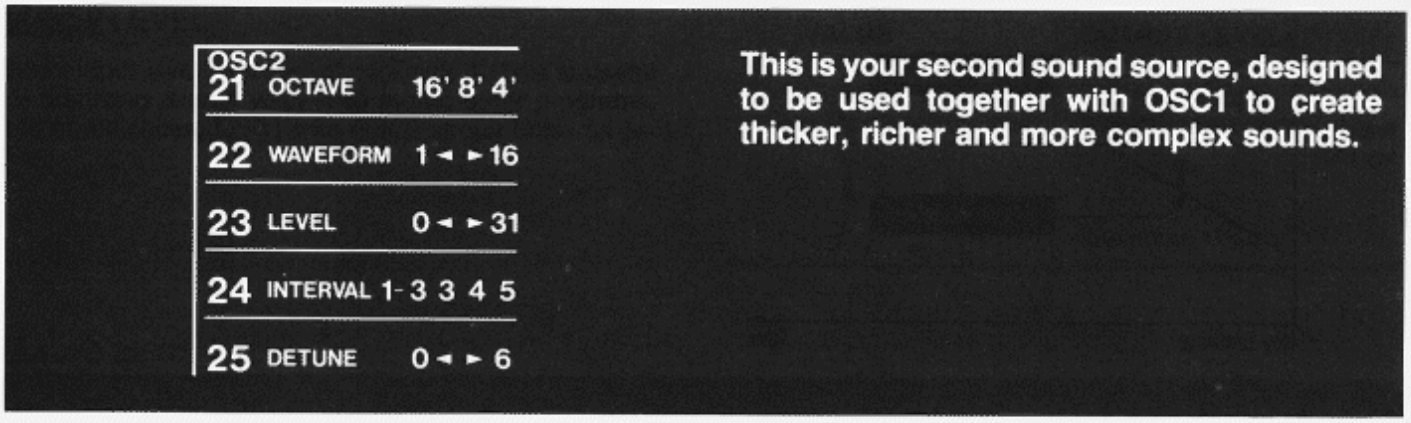
17 INTENSITY

Specifies the pitch where pitch change starts.



VALUE	Pitch Change Width
0	No pitch change (AUTO BEND OFF)
↕	↕
31	Max. bend width

3 OSC2



21 OCTAVE

As with OSC1, you have a choice of three pitch ranges: 4′, 8′, and 16′.

22 WAVEFORM

Once again, you have sixteen waveforms to choose from.

23 LEVEL

Adjusts output level as in OSC1

24 INTERVAL

This lets you transpose or offset the pitch of OSC2 so that it sounds a constant interval above OSC1. Selectable intervals are: Unison (same as OSC1), a minor 3rd, major 3rd, perfect 4th, or perfect 5th above.

VALUE	INTERVAL
1	Unison
-3	Minor 3rd
3	Major 3rd
4	Perfect 4th
5	Perfect 5th

*You will get different intervals (from those shown above) depending on the OCTAVE values for the two oscillators.

25 DETUNE

For fine pitch adjustment of OSC2 relative to OSC1. The higher the value, the greater the pitch difference between the two oscillators. Detuning can help achieve a fatter, more animated sound.

VALUE	PITCH DIFFERENCE
0	Minimum (no detuning—same pitch)
↕	↕
6	Maximum (25 cents)

4 NOISE

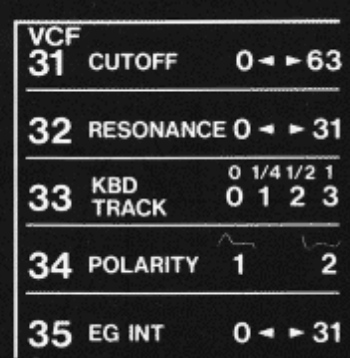
Provides white noise (a mixture of all frequencies) as a separate sound source. This is useful for adding "breath noise" to simulated acoustic instrument sounds, and for creating special effect sounds such as wind, surf, gunshot sounds, etc.

26 LEVEL

Adjusts noise volume.

VALUE	LEVEL
0	No noise
↕	↕
31	Maximum

5 VCF

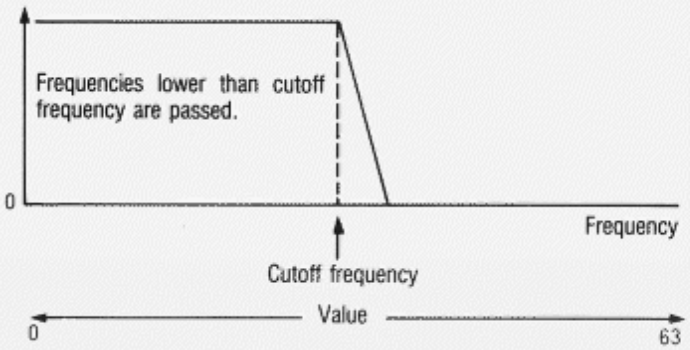


This DW-8000s eight voltage controlled filters (one per voice) remove or emphasize portions of the basic waveform harmonics. This affects the timbre of the OSC1, OSC2, and NOISE waveforms. These VCF are low-pass filters, which remove frequencies above the selected CUTOFF frequency (while allowing lower frequencies to pass through).

31 CUTOFF

This determines the cutoff frequency of the low-pass filter. The higher the cutoff frequency, the less effect the filters have on the basic waveforms (since more frequencies are passed).
At the highest value, 63, all harmonics are passed. The lower the value, the more harmonics are cutoff, so the sound becomes progressively rounder or less bright.

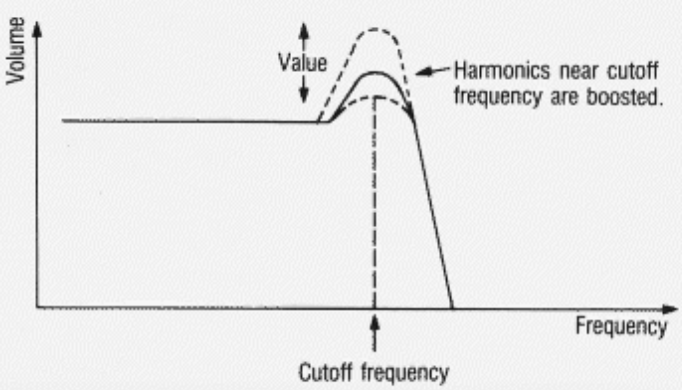
VALUE	TIMBRE
0 ↕ 63	Dull or rounded ↕ Bright, unchanged timbre



32 RESONANCE

This emphasizes the harmonics near the cutoff frequency, producing a characteristic peaky or bandpass type of sound.
The higher the value, the higher the resonance peak and the more obvious the effect. At or near the maximum value 31, the VCFs go into self-oscillation, producing a pure sine wave, which can be used as an additional sound source for special effects. The pitch of the VCF tone is affected by the Cut Off, Keyboard Track, EG INT, and MG VCF parameters.

VALUE	EFFECT
0 ↕ 31	None ↕ Self-oscillation, very "peaky" sound.



33 KBD TRACK

Keyboard tracking affects how the cutoff frequency changes as you play notes higher or lower on the keyboard. At full tracking (VALUE = 3), cutoff rises in exact proportion to keyboard pitch, maintaining the same relative timbre for all notes. At half tracking (VALUE 2) it rises a half octave for every full octave on the keyboard. (The difference will be obvious if resonance is set to a high value.)

VALUE	KBD TRACK Effect
0 (off)	0 0% (No change in cutoff frequency)
1 (1/4)	1/4 25%
2 (1/2)	1/2 50%
3 (full)	1 100% (Max. effect)

34 POLARITY

Determines how the VCF cutoff frequency is affected by the VCF EG (Envelope Generator). With normal polarity (VALUE = 1), the cutoff frequency rises during the EG's Attack and falls during Decay. Use "inverted" polarity (VALUE = 2) for special sounds where you want the opposite effect.

VALUE	POLARITY
1	 Cutoff frequency is swept up during the attack portion of the envelope, and down during the decay portion, etc.
2	 Cutoff frequency is swept down during the attack portion, and up during the decay portion of the envelope.

35 EG INT

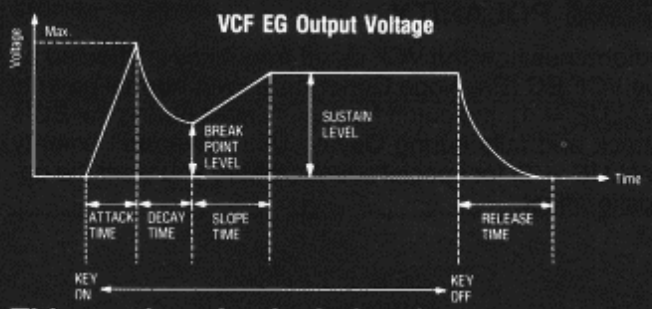
The "EG Intensity" parameter determines how much the VCF Envelope Generator (EG) will affect the cutoff frequency. The higher the value, the more obvious the change in tone color (timbre).

VALUE	INTENSITY
0	No effect
↕	↕
31	Maximum change in tone color.

6 VCF EG

VCF EG		
41	ATTACK	0 ◄ ► 31
42	DECAY	0 ◄ ► 31
43	BREAK P.	0 ◄ ► 31
44	SLOPE	0 ◄ ► 31
45	SUSTAIN	0 ◄ ► 31
46	RELEASE	0 ◄ ► 31
47	VELOCITY SENS	0 ◄ ► 7

This envelope generator controls the "contour" (or changes over time, in terms of the sound's attack, sustain, decay, and other dynamic characteristics) of each programmed sound. The "voltage changing over time" generated by the VCF EG is controlled by the parameters "34 POLARITY" and "35 EG INT" and, then, modulates VCF cutoff frequencies to create "timbre changes over time." (See POLARITY and EG INT on page 21.) The output voltage of VCF EG is determined by the following parameters.



This section also includes the parameter to change timbre according to the speed of playing a note on the keyboard.

41 ATTACK (Rate)

The parameter controls how long it takes for the VCF EG output voltage to rise from zero to its maximum level.

VALUE	ATTACK TIME
0	Short
↕	↕
31	Long

42 DECAY (Rate)

This parameter controls how long it takes for VCF EG output voltage to fall from its maximum level (after an attack time) to the break point level.

VALUE	DECAY TIME
0	Short
↕	↕
31	Long

BREAK P. (Break Point Level)

This parameter determines the VCF EG output voltage after the decay time. If this is set to the same value as the sustain level, then the envelope becomes a conventional ADSR type.

VALUE	BREAK POINT LEVEL
0	0
↕	↕
31	Max.

SLOPE (Rate)

This parameter controls how long it takes for the VCF EG output voltage to change from the break point level to the sustain level.

VALUE	SLOPE TIME
0	Short
↕	↕
31	Long

SUSTAIN (Level)

This parameter determines the VCF EG output voltage after the slope time.

VALUE	SUSTAIN LEVEL
0	0
↕	↕
31	Max.

RELEASE (Rate)

This parameter determines how long it takes for the VCF EG output voltage to fall to zero level after the note is released on the keyboard.

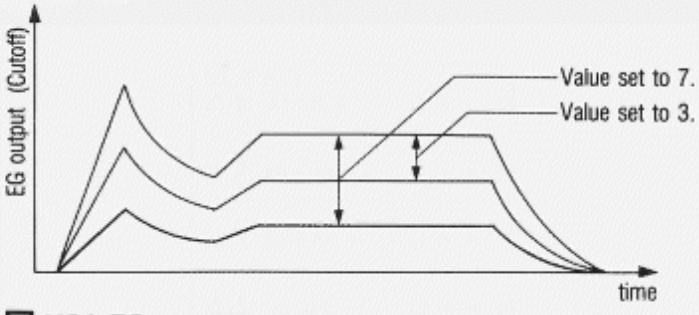
VALUE	RELEASE TIME
0	Short
↕	↕
31	Long

VELOCITY SENS

Controls the degree of timbre change according to the speed of playing a note on the keyboard. (See "Functions for Playing" on page 38.)
When the value is made larger, the degree of timbre change becomes greater. (Actually, change of EG output becomes larger.)

VALUE	DEGREE OF TIMBRE CHANGE
0	No change
↕	↕
7	Max. change

Ex: When the value is changed for a fixed envelope.

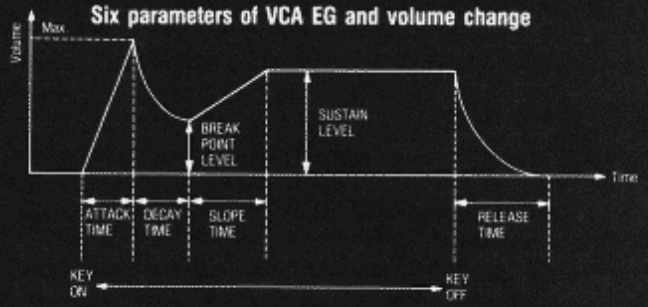


7 VCA EG

VCA EG		
51	ATTACK	0 ◄ ► 31
52	DECAY	0 ◄ ► 31
53	BREAK P.	0 ◄ ► 31
54	SLOPE	0 ◄ ► 31
55	SUSTAIN	0 ◄ ► 31
56	RELEASE	0 ◄ ► 31
57	VELOCITY SENS	0 ◄ ► 7

This envelope generator determines how volume changes over time. Similar to VCF EG, the following six parameters determine the volume change.

Six parameters of VCA EG and volume change



This section also includes the parameter to change volume according to the speed of playing a note on the keyboard.

51 ATTACK (Rate)

Controls how long it takes for the volume to rise from zero to its maximum level after a note is played on the keyboard.

VALUE	ATTACK TIME
0	Short
↕	↕
31	Long

52 DECAY (Rate)

Determines how long it takes for the volume to fall from its maximum attack level to the break point level.

VALUE	DECAY TIME
0	Short
↕	↕
31	Long

53 BREAK P. (Break Point Level)

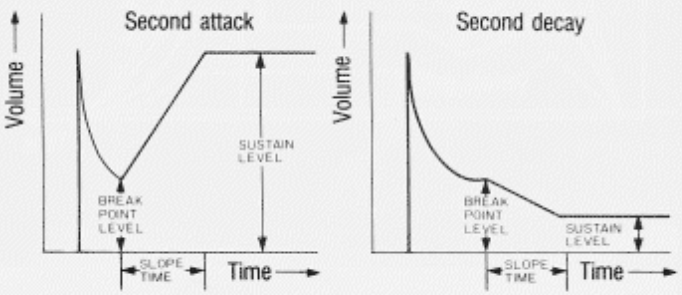
Determines the level at which volume stops dropping during the decay. If this is set to the same value as the sustain level, then the envelope becomes a conventional ADSR type (as if it had no break point or slope parameters).

VALUE	BREAKPOINT LEVEL
0	0
↕	↕
31	Max.

54 SLOPE (Rate)

Determines how long it takes for volume to change from the break point level to the sustain level. Note that if the break point is lower than the sustain level, then the slope functions as a second attack. If the break point is higher than sustain, then slope functions as a second decay.

VALUE	SLOPE TIME
0	Short
↕	↕
31	Long



55 SUSTAIN (Level)

Determines the level at which volume is held after the attack, decay, and slope phases are completed, for as long as the note is held down on the keyboard.

VALUE	SUSTAIN LEVEL
0	0
↕	↕
31	Max.

56 RELEASE (Rate)

Determines how long it takes for the sound to fade away after you release the note on the keyboard.

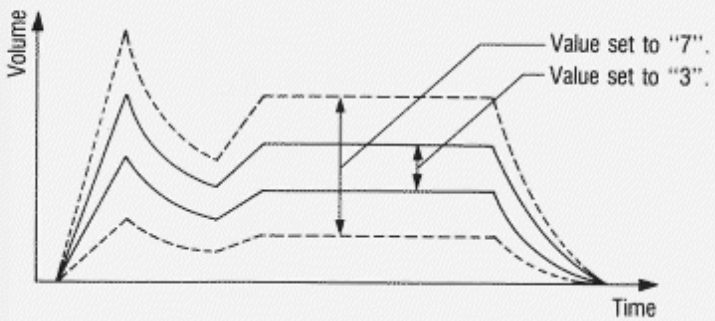
VALUE	RELEASE TIME
0	Short
↕	↕
31	Long

57 VELOCITY SENS

Control the degree of volume change according to the speed of playing a note on the keyboard. When the value is made larger, the degree of volume change becomes larger.

VALUE	DEGREE OF VOLUME CHANGE
0	No change
↕	↕
7	Max. change

Ex.: When the value is changed for a fixed envelope.



8 MG

MG		
61	WAVEFORM	0 1 2 3
62	FREQUENCY	0 ◄ ► 31
63	DELAY	0 ◄ ► 31
64	OSC	0 ◄ ► 31
65	VCF	0 ◄ ► 31

This stands for Modulation Generator. (LFO) The MG section utilizes a low frequency oscillator to modulate the DW-8000's oscillator pitch (creating vibrato effects) and/or VCF cutoff frequency frequency (creating filter mod or "wah-wah" effects).

61 WAVEFORM

Selects the waveform to modulate oscillator/VCF.

VALUE	WAVEFORM
0	◿
1	◺
2	◢
3	⊓

62 FREQ

Determines the speed of the cyclic pitch or tonal variation. The higher the value, the faster the speed.

VALUE	SPEED of vibrato or filter mod
0	Slow
↕	↕
31	Fast

63 DELAY

Determines the amount of delay following key depression prior to the onset of vibrato or other modulation effects. At 0, there is no delay, and modulation begins immediately when the first note is played. The higher the value, the longer the delay.

VALUE	DELAY TIME
0	None: modulation effect starts immediately
↕	↕
31	Long delay

64 OSC (vibrato depth)

Controls the amount of pitch variation in the vibrato effect (that is, the depth of frequency modulation).

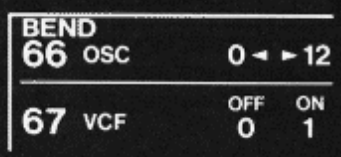
VALUE	VIBRATO DEPTH
0	No effect
↕	↕
31	Deep modulation

65 VCF (filter mod depth)

Controls the depth of cyclic filter mod effects (that is, the depth of VCF cutoff frequency modulation).

VALUE	Filter mod DEPTH
0	No effect
↕	↕
31	Deep modulation

9 BEND



This parameter lets you determine the maximum change in pitch produced by the joystick. It also lets you choose whether or not the joystick will affect the VCF cutoff frequency. (See "Functions for Playing" for details.)

66 OSC

Determines the maximum change in pitch produced by moving the joystick to the left or right, in exact semitone steps. The higher the value, the greater the pitch change (up to 1 octave).

VALUE	PITCH BEND
0	None
↕	↕ (change in semitone steps according to the value)
12	1 octave

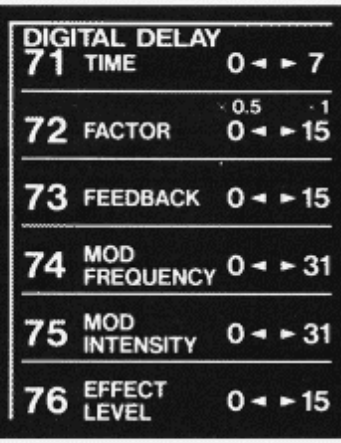
67 VCF

Enables or disables "sweeping" of the VCF cutoff frequency via the joystick. When this is on, you can use the joystick to change the brightness of sounds while playing.

When the VCF parameter value is 1 (ON) then moving the joystick to the right produces a brighter sound; moving it to the left produces a darker or duller sound.

VALUE	JOYSTICK VCF EFFECT
0	OFF
1	ON

10 DIGITAL DELAY



This module lets you produce digital delay effects, including chorus and short delay.

71 TIME (Delay time)

Adjusts delay time coarsely. Fine adjustment is performed by using the FACTOR parameter.

VALUE	DELAY TIME RANGE
0	About 2 ~ 4ms
1	About 4 ~ 8ms
2	About 8 ~ 16ms
3	About 16 ~ 32ms
4	About 32 ~ 64ms
5	About 64 ~ 128ms
6	About 128 ~ 256ms
7	About 256 ~ 512ms

72 FACTOR

Performs fine adjustment of delay time in a range specified by the TIME parameter (71).

VALUE	DELAY TIME LENGTH
0	(×0.5) Short
↕	↕
15	(×1) Long

73 FEEDBACK

Controls feedback quantity.

VALUE	FEEDBACK QUANTITY
0	0% (No feedback)
↕	↕
15	100%

74 MOD FREQUENCY (Modulation frequency)

Determines the speed of the low-frequency oscillator output used to modulate delay time.

VALUE	FREQUENCY
0	Slow
↕	↕
31	Fast

75 MOD INTENSITY (Modulation intensity)

Determines the modulation depth for delay time modulation.

VALUE	MODULATION DEPTH
0	No modulation
↕	↕
31	Large

76 EFFECT LEVEL

Control the volume of effect sounds mixed in direct sound (the sound without delay effect).

VALUE	VOLUME
0	No effect sound
↕	↕
15	Max.

11 PORTAMENTO

PORTAMENTO
77 TIME 0◄ ►31

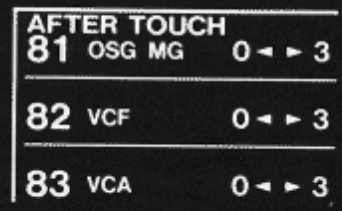
This parameter lets you produce a polyphonic note gliding effect at various rates. (See "Functions for Playing " for details.)

77 TIME (Portamento)

Determines how gradual the change in pitch is. (See "Functions for Playing" for details.)

VALUE	PORTAMENTO TIME
0	No portamento effect (instant change)
↕	↕
31	Slow change in pitch from one note to the next.

12 AFTER TOUCH



The DW-8000 enables you to control the vibrato depth, tone brightness, and volume by pressing harder after playing a note on the keyboard. AFTER TOUCH is used to determine the degree of these effects. (For details, see "Functions for Playing" on page 39.)

81 OSC MG

Determines the depth of vibrato controlled by the pressure on the keyboard.

VALUE	CHANGE OF VIBRATO DEPTH
0	No change
↕	↕
3	Max. change

82 VCF

Determines the change of tone brightness controlled by the pressure on the keyboard.

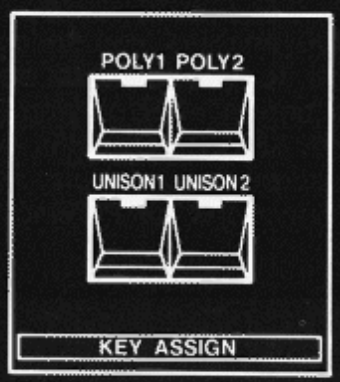
VALUE	BRIGHTNESS CHANGE
0	No change
↕	↕
3	Max. change

83 VCA

Determines the change of volume controlled by the pressure on the keyboard.

VALUE	CHANGE OF VOLUME
0	No change
↕	↕
3	Max. change

13 KEY ASSIGN

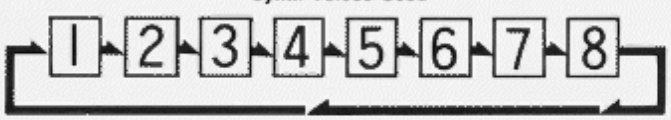


The DW-8000 has eight synthesizer voices. The KEY ASSIGN function determines which voice is used (and how it is used) to produce the sound when a note is played on the keyboard.
The KEY ASSIGN section provides four modes — POLY1, POLY2, UNISON1, and UNISON2 — to give you an optimum choice for playing your new sounds.
When you write a program to the DW-8000, the KEY ASSIGN mode being selected at that time will be stored in memory.

■POLY 1 Mode

This mode is used for normal polyphonic playing. The DW-8000's eight voices are assigned sequentially as notes are played. If you play more than eight notes, then the most recent notes will cancel out the earliest notes still sounding. In this mode, sounds using long release times will create an effect of "overlapping" notes, which will create a spacious sound.

Synth Voices Used

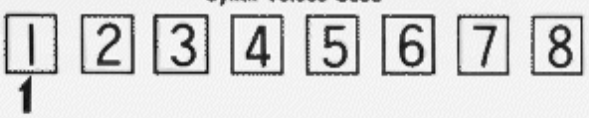


When one note is played, the eight voices are used sequentially.

■POLY2 Mode

This is most useful for certain instrumental sounds, and for sounds using polyphonic portamento effects. If a one note passage is being played, the first synth voice (out of eight) is used continuously. If two notes are played, the first two voices are used continuously, and so forth.

Synth Voices Used

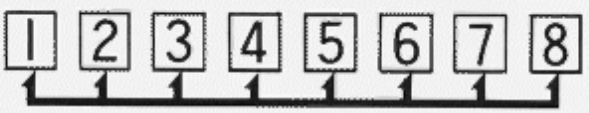


When one note is played, the first voice is always used. When two or more notes are played, other voices also are used.

■UNISON 1, 2 Mode

This mode assigns all eight voices to each key depression, following a "last note played" priority system. Because all eight voices are automatically detuned when this mode is selected, this produces a very fat, rich sound. This mode is useful when the DW-8000 is used for soloing or playing a bass part.
UNISON 1 causes the envelope to retrigger every time a new key is pressed, regardless of other keys being held. UNISON 2 will result in single trigger operation (only the first key pressed will activate the envelope).

Synth Voices Used



All voices are used for each note played.

4. Writing Programs to Memory

1 Features and Functions for Control

1. NUMBER Keys

Used to specify the program number

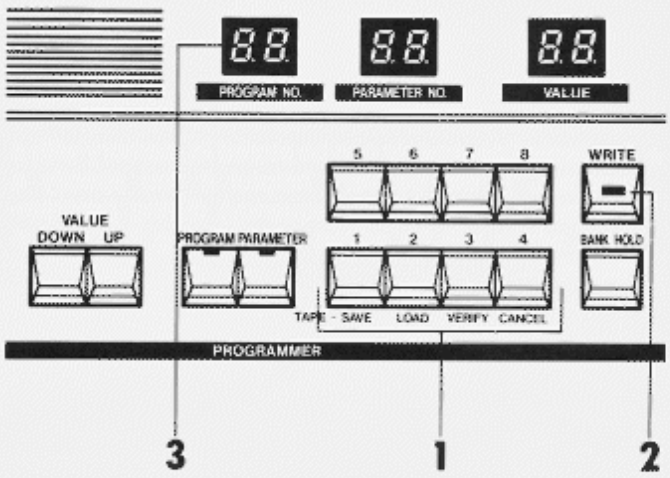
2. WRITE Key

Used to start writing programs.

3. PROGRAM NO. Display

Shows presently selected program number.

■Front Panel



4. WRITE Switch

When this switch is set to ENABLE, memory write operation is enabled.

■Rear Panel

2 Program Write Procedure

1 Create a sound (as described in the previous section of this manual).

2 Set the rear panel WRITE switch to the ENABLE position.

3 Press the WRITE key on the front panel.

4 Use the NUMBER keys to select the program number where you want to store your sound. The new sound is stored in the specified memory location immediately after the program number selection. (Previous contents of the selected memory location are erased.)

Example: Storing your sound at program number 34.

Your sound now occupies the memory space called program number 34.
The previous contents of this space have been erased.

☆ A selected parameter can be stored in memory with a program. It will be very helpful if you specify a parameter (e.g., cutoff frequency) during programming which will be edited often during live performance.

Caution:
Be sure to return the rear panel WRITE switch to the DISABLE position after completing this procedure. This helps protect against accidental overwriting (erasure) of memory contents. If you accidentally press the WRITE key and do not wish to "write" a program into memory, simply switch the rear panel WRITE switch to the DISABLE position. This will cancel the write procedure.

3 Repositioning Sounds in Memory

If you always use particular sounds in the same order in a song or stage performance, then you can simplify matters by storing the sounds in the same order in which they will be used. That is, store your first sound under program number 1, the second sound under program number 2, and so on. You can then use a footswitch to advance from one sound to the next, as you need it. Sounds are repositioned by copying them from their present program number to a different program number.

1 Set the rear panel WRITE switch to the ENABLE position.

2 Use the NUMBER keys to select the program number of the sound that you want to reposition.

3 Press the WRITE key on the front panel.

4 Use the NUMBER keys to select the program number where you want the sound to be located. When the selection is done, the sound specified by step 2 is repositioned to the selected program number. (The previous contents under the program number are erased.)

☆ If the previous contents should not be erased, the previous contents must be repositioned to another unused program location before step 4.

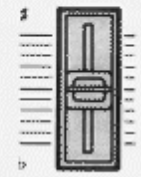
5 Follow step 2 through 4 above, to rearrange your sounds in the order that is most convenient for performance.

PERFORMANCE FEATURES How to play effectively

1. Functions for Playing

1 TUNE

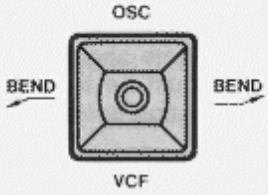
Used to tune the DW-8000 to match the pitch of other instruments.



TUNE

2 JOYSTICK

■ The joystick can be used to control pitch bend and tone brightness by its left-right movement.



Parameter 66 (BEND OSC) determines the amount of pitch bend during left-right joystick movement. (See OSC on page 28.)

BEND		
66	OSC	0◄ ►12

To control tone brightness (VCF cutoff frequency) by the joystick movement, parameter 67 (BEND VCF) value must be set to 1 (ON). (See VCF on page 28.) When the joystick is moved to the left, a "darker" sound is produced. Moving it to the right gives a brighter sound.

		OFF	ON
67	VCF	0	1

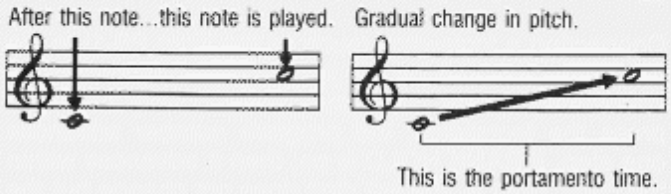
■ The joystick is also used to modulate the VCF and oscillators by MG. Moving it up produces vibrato or trill effects (cyclic change of the pitch), and moving it down gives filter mod effects (cyclic change of timbre).

Parameter 61 determines the waveform to modulate oscillators and VCF. The speed of vibrato and filter mod effects depends on the value of parameter 62.

MG		
61	WAVEFORM	∧ ◹ ◿ ⊓ 0 1 2 3
62	FREQUENCY	0◄ ►31

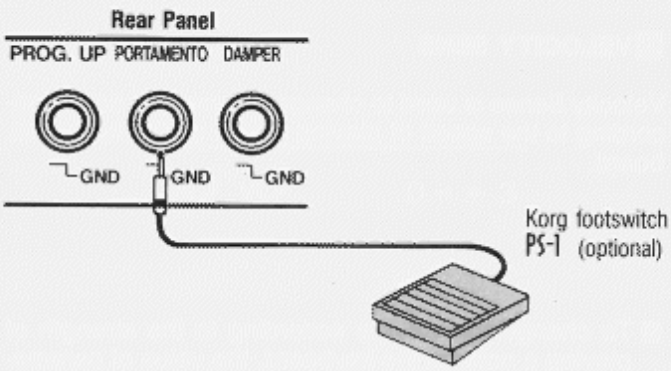
3 PORTAMENTO

■ Portamento is a gradual change in pitch from one note to the next.



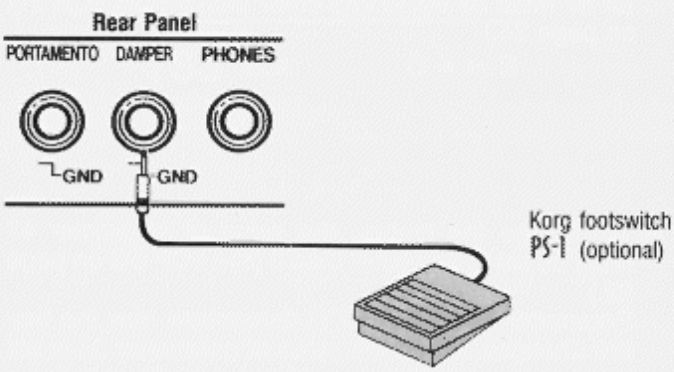
To use portamento, parameter 77 (PORTAMENTO TIME) value must be specified. (See PORTAMENTO on page 30.)

■ If a footswitch (⌐ GND type) such as the Korg PS-1 is connected to the PORTAMENTO jack on the rear panel, then the portamento effect will be turned on for as long as the switch is kept depressed. When on, the portamento time will be the value selected in the portamento parameter 77.

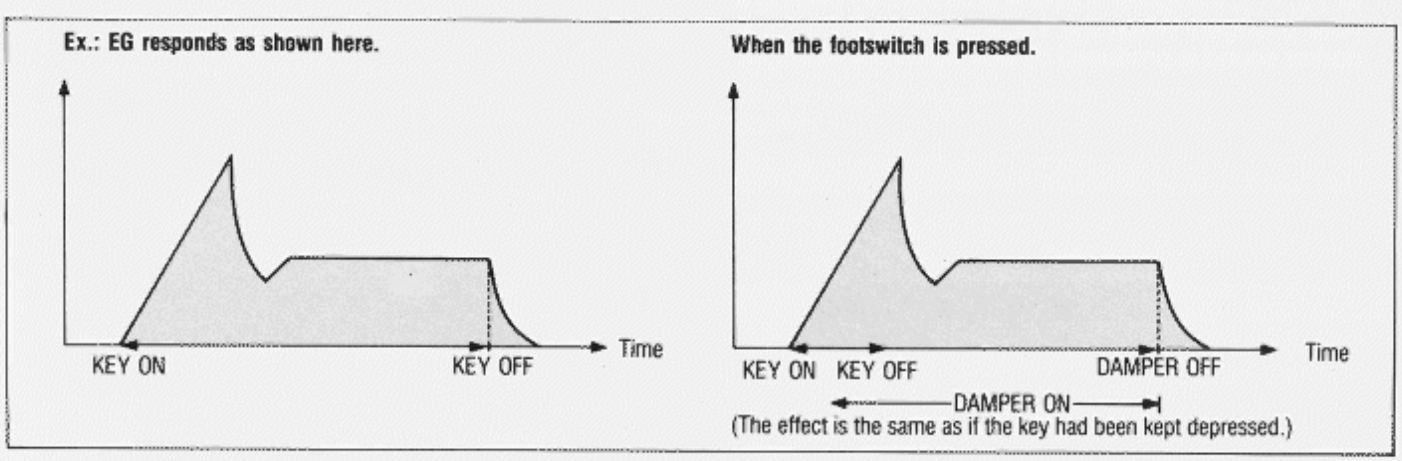


4 DAMPER (HOLD)

■ When a footswitch (⌐ GND type) such as the Korg PS-1 is connected to this jack, it can be used like a piano damper or "sustain" pedal or indefinite "HOLD".

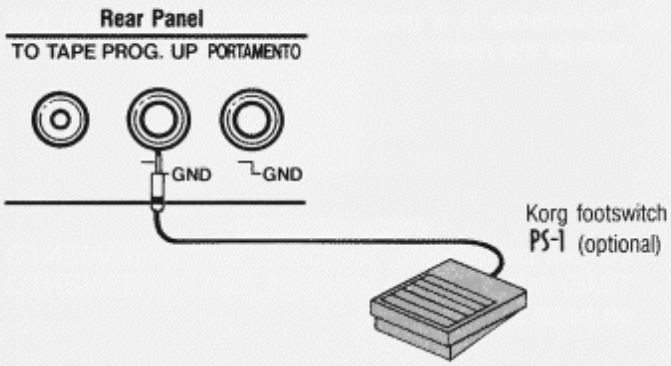


Depressing the footswitch has the same effect as keeping keys depressed on the keyboard.



5 PROG UP (Program UP)

Connecting a footswitch (such as the Korg PS-1) to the rear panel PROGRAM UP jack enables convenient incrementing of the program number. Every time you press the footswitch, the program number advances one step. If BANK HOLD is on, then it advances within the bank. (that is, the left digit does not change but the right digit goes in a loop from 1 up to 8 and then starts over from 1, etc.)



6 VELOCITY SENS

Velocity Sense is used to change volume and timbre according to the speed of playing a note on the keyboard. board.

■ To change the volume according to the strength of playing a note on the keyboard, the value of parameter 57 must be set to any other than 0 (see VCA EG on page 24.)

57	VELOCITY SENS	0◄ ►7

■ To change the timbre, the value of parameter 47 must be set to any other than 0 (see VCF EG on page 22.)
Parameter 34 (POLARITY) determines how the timbre changes. When the value of parameter 34 is set to 1 ( ), a brighter sound is produced by playing a note stronger. When the value is set to 2 ( ), a darker sound is produced by playing a note stronger.

47	VELOCITY SENS	0◄ ►7

7 AFTER TOUCH

The DW-8000 has the After Touch function to produce vibrato, make the sound brighter, and increase the volume by pressing a keyboard key harder after a note is played on the keyboard.

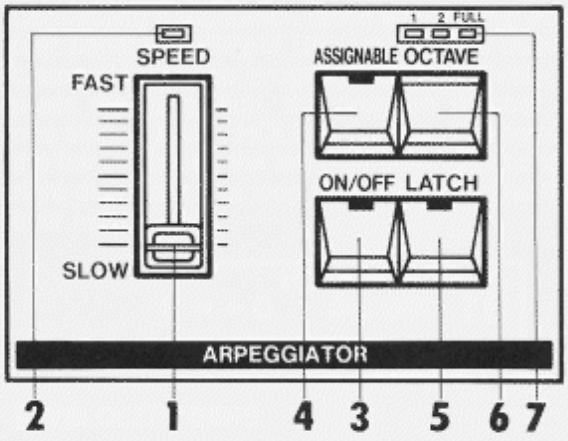
■ To produce vibrato, set the value of parameter 81 to any other than 0 (see OSC MG on page 31.) Parameters 61 and 62 determine waveform and speed of the vibrato.

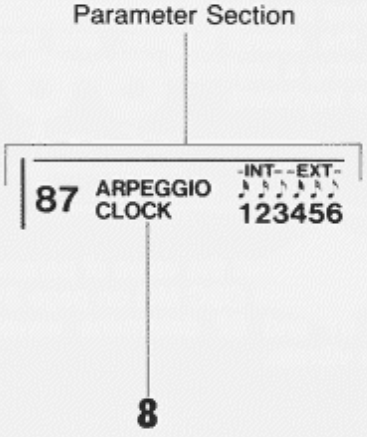
■ To make the sound brighter, set the value of parameter 82 to any other than 0 (see VCF on page 31.) There are some cases in which a bright sound cannot be made any brighter.

■ To increase volume, set the value of parameter 83 to any other than 0 (see VCA on page 31.) The volume does not increase when the volume is already at max. level (e.g., value of parameter 55 SUSTAIN is set to 31.)

2. How to Use the Arpeggiator

1 Features and Functions for Control





1. SPEED CONTROL SLIDER

Used for time adjustment of arpeggio speed. Rough adjustment can be performed by using the ARPEGGIO CLOCK.

2. SPEED indicator

Flashes to indicate the speed of arpeggio.

3. ON/OFF switch

Switches Arpeggiator ON/OFF. When set to ON, LED on the switch is lit.

4. ASSIGNABLE switch

Used to select operation modes for the Arpeggiator. There are two modes — UP/DOWN and ASSIGNABLE mode.
A LED on the switch is lit when the ASSIGNABLE mode is selected.

5. LATCH switch

With the LATCH switch ON (LED is lit), the arpeggio pattern is played repeatedly even after the keyboard keys are released. If keyboard keys are played while another key remains pressed, the new notes will add to the arpeggio pattern.

6. OCTAVE switch

Used to select the octave range for the playing of specified arpeggio patterns.

7. OCTAVE indicator

Displays the number of octaves selected by using the OCTAVE switch.

8. ARPEGGIO CLOCK

■ Determines whether the Arpeggiator is operated by the DW-8000's internal clock or it is operated by the clock supplied from external MIDI equipment. The ARPEGGIO CLOCK is also used for rough adjustment of arpeggio speed.

■ The value of this parameter is set to 1, 2, or 3 for the internal clock mode. In this mode, arpeggio speed can be controlled by using the SPEED CONTROL SLIDER. The speed becomes slower when the value is set to 2 (2× slower than value 1) and when the value is set to 3 (4× slower than value 1).

■ The value of this parameter is set to 4, 5, or 6 for the external clock mode. In this mode, start/stop and speed of arpeggio is controlled by the MIDI equipment (e.g., MIDI sequencer) connected to the DW-8000's rear panel MIDI IN jack (cannot be controlled by the DW-8000). (When you use external MIDI equipment to control the DW-8000, see MIDI section on page 58.)

■ Refer to "How to Change Values" on page 13 for the setting of the parameter values. (The values of the Arpeggiator are not stored in memory.)

☆ The setting of the ASSIGNABLE, LATCH, and OCTAVE switches remain stored in memory even after the ON/OFF switch is turned OFF.

2 Use of UP/DOWN Mode

1 Make sure that the value of parameter 87 (ARP CLOCK) is set to 1, 2, or 3. If set otherwise, no sound will be produced by playing keyboard. (See MIDI section on page 58 when the Arpeggiator is operated by external MIDI equipment.)

2 Set the ON/OFF switch to ON.

3 Press the ASSIGNABLE switch to set the Arpeggiator for UP/DOWN mode. (LED on the ASSIGNABLE switch is turned off.)

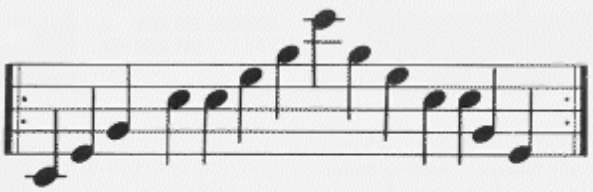
4 When notes are played on the keyboard, arpeggio starts to be played.

Ex. 1: When octave setting is changed.

When these notes are played on the keyboard,

● Arpeggio sound produced with OCTAVE 1.

● Arpeggio sound produced with OCTAVE 2.

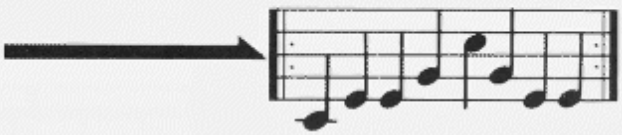


● With OCTAVE FULL, the arpeggio pattern is played in a note range of the DW-8000's full keyboard with one additional octave.

Ex. 2: When LATCH is ON.

When these notes are played.

And the note E is played again.



Another E is added in the arpeggio pattern.

● The arpeggio pattern plays repeatedly even after keyboard keys are released.

● As long as any one key is held down, subsequent playing of other keys adds new notes to the pattern (up to 64 notes).

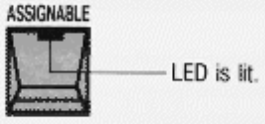
☆ Arpeggio playing can also be started by turning ON/OFF switch ON while pressing keyboard keys.

3 Use of ASSIGNABLE Mode

1 Make sure that the value of parameter 87 (ARP CLOCK) is set to 1, 2, or 3. (See MIDI section on page 58 if Arpeggiator should be operated by external MIDI equipment.)

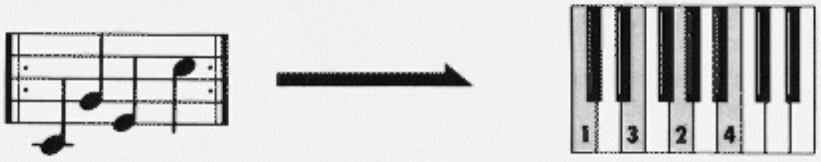
2 Press the ON/OFF switch to switch the Arpeggiator ON.

3 Press the ASSIGNABLE switch to set for the ASSIGNABLE Mode. (LED on the switch is lit.)



4 When notes are played on the keyboard, the notes are arpeggiated in the order they were depressed.

Ex.: To play this arpeggio,



Press the keyboard keys in the sequence from 1 through 4.

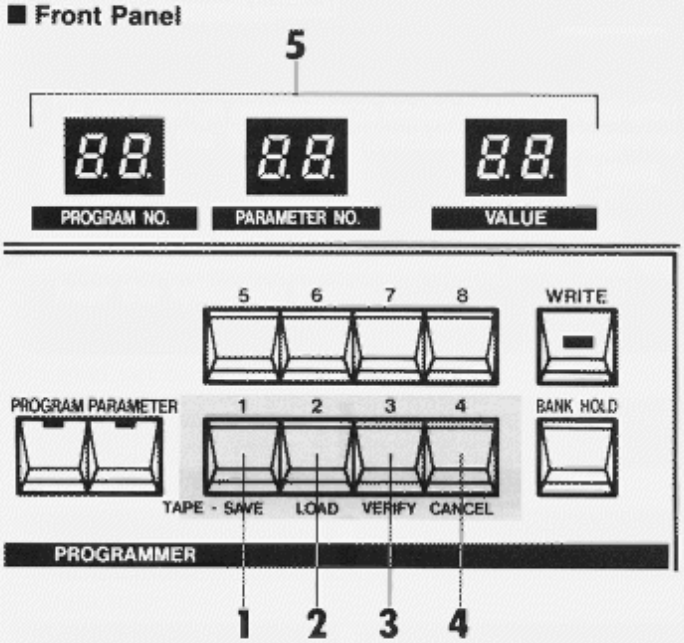
☆ Both octave switching and LATCH functions are effective in the Assignable mode as in the UP/DOWN mode.

TAPE INTERFACE

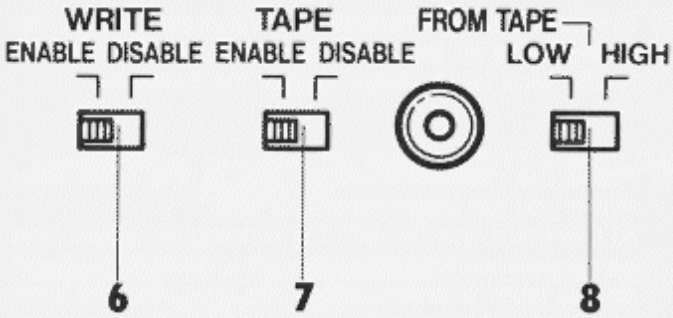
The DW-8000 is equipped with a tape interface that lets you SAVE all sound data stored in memory on cassette tape. Later you can LOAD the data from the tape back into the DW-8000's internal memory. A wide variety of sound data can be stored on cassette tape. The LOAD operation is so fast (a little more than 10 seconds) that you can even change your programs during a performance.

1. Features and Functions for Control

■ Front Panel



■ Rear Panel



1. SAVE key

Press this key to write DW-8000 program memory contents to your connected tape recorder.

2. LOAD key

Press this button to read data from your tape recorder while playing back a tape.

3. VERIFY key

This is used to check recorded data (immediately after the SAVE or LOAD procedure) to make sure that it has been properly performed.

4. CANCEL

If an error occurs during SAVE or LOAD operation, pressing this key lets you start over again. If you press the CANCEL key during SAVE, LOAD, or VERIFY operation, it will immediately interrupt and cancel the operation.

5. DISPLAY

This gives you messages to keep you informed of tape interface operations and possible problems.

6. WRITE switch

This is set to ENABLE to enable LOAD operation.

7. TAPE switch

This switch is set to ENABLE to make tape interface possible.

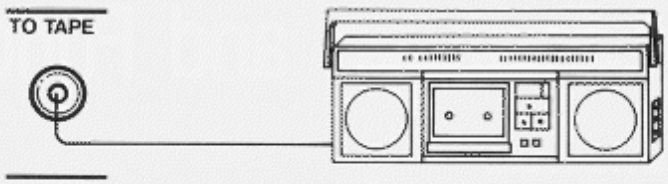
8. HIGH/LOW switch

This switch is used to make the DW-8000 match the output level of the connected tape recorder during VERIFY or LOAD operation.

2. Saving Program Data on Tape

■Follow the procedures below to write DW-8000 program memory contents to your connected tape recorder.

1 Connect the DW-8000 rear panel TO TAPE jack to the microphone (mic) input jack on the tape recorder. You may need a plug adaptor or special connection cord if the input jack is not the usual "mini jack" size.



2 Set the DW-8000 rear panel TAPE switch to the ENABLE (ENA) position.

The DISPLAY will now appear as shown here.

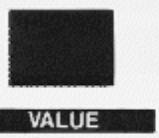
3 Prepare the tape recorder for recording. Begin recording and let the tape advance until it is past the leader tape (at the beginning of the cassette).

4 Press the recorder's pause key at the point from which you will begin recording data.
At this point, the DW-8000 is sending out a test tone as a reference for setting recording level (input level) on the tape recorder. Adjust the tape recorder's recording level as you would normally (refer to tape recorder's instruction manual).

5 After setting recording level, release the pause key so that the recorder begins recording.

6 Press the SAVE key on the DW-8000.

The DW-8000 will start sending data and the DISPLAY will appear as shown here.



This shows the bank number (left digit of program number) 1-8 during data output.

7 When the DISPLAY again shows TAPE, then you can stop the tape recorder.
This completes the SAVE procedure. However, it is good practice to repeat the SAVE procedure several times, as a hedge against the possibility of losing data because of tape dropouts.

8 Reset the DW-8000 rear panel TAPE switch to the DISABLE position.

☆ Do not change any settings on the DW-8000 until you complete the VERIFY procedure (in the following section).

■ **If you listen to a tape of recorded data, you will hear the following tones:**

Level set tone (lower pitched "oooh...")

↓

Leader tone (high-pitched "eee...")

↓

Data tone (medium-pitched "noise")

↓

End tone (high-pitched "eee...")

↓

Level set tone (lower pitched "oooh")

Leader tone: indicates the start of VERIFY and LOAD operations.

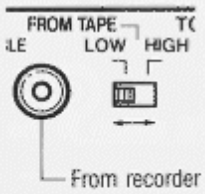
Data tone: The actual digital data from DW-8000 sound program memory.

End tone: indicates the end of the operation.

3. VERIFY Procedure

■ **The VERIFY procedure should always be used immediately after you finish a SAVE (or LOAD) operation. This is to make sure that data has been properly recorded. It is also useful for determining the best playback level setting for your recorder.**

1 Connect the DW-8000 rear panel FROM TAPE jack to the output jack (earphone, line out, etc.) of your recorder. Set the LOW/HIGH switch to match your tape recorder's output signal level.



Recorder output jack	HIGH/LOW
AUX (line out)	LOW
Earphone or headphone output	HIGH

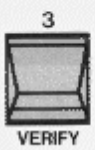
2 Set the DW-8000 rear panel TAPE switch to the ENABLE position.

This shows the DW-8000 is in the tape interface mode.

3 Set the tape recorder's playback volume a bit higher than usual. If the recorder has tone controls, set them to the center positions.

4 Rewind the tape. Begin tape playback. Stop the tape (using the stop or pause key) when you reach the beginning of the leader tone.

5 Press the VERIFY key on the DW-8000.
The DISPLAY will show "VERIFY" to confirm the VERIFY mode.



6 Start the tape recorder (press the play key or release the pause key). The DISPLAY will show "VERIFY" to confirm the VERIFY mode.

The DISPLAY will show the bank number (1-8) for the VERIFY operation.

7 If the recorded data match the DW-8000 internal memory data then the DISPLAY will give a "Good" indication. The DISPLAY will appear as shown here if data is successfully verified.

- **If you get an error (Err) message as shown here**
  Press the CANCEL Key, lower (or raise) the tape recorder's output volume, and repeat steps 4 - 6.

- **If the DISPLAY does not change after ten seconds of tape playback**
  Raise the tape recorder's output volume level and repeat steps 4 - 6.

8 When you get a "Good" message, you can stop the tape recorder. Make a note of the recording level, playback level, and HIGH/LOW switch setting that resulted in the "Good" message.

9 Set the DW-8000 rear panel TAPE switch to the DISABLE position.

Note: You will not get a "Good" message if the recorded data is different in any way from the data in the DW-8000's internal memory. If you change a single parameter value or the key assign mode and then try VERIFY, you will get an error "Err" message.
If you still don't get a "Good" message after trying many different output level settings on the tape recorder (and HIGH/LOW switch settings on the DW-8000) then your recording level may be wrong. Try saving again at a different recording level.

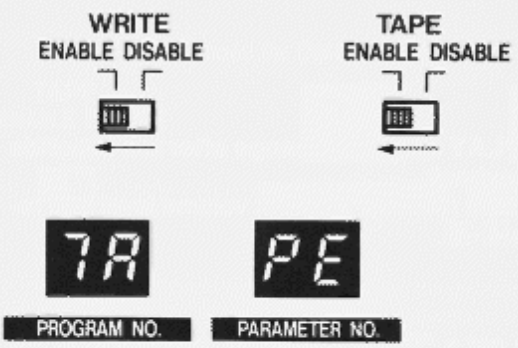
4.LOAD Procedure

■**This procedure is used to put recorded data back into the DW-8000's internal memory.**

1 Connect the DW-8000 rear panel FROM TAPE jack to the output jack (earphone, line out, etc.) of your recorder. Set the LOW/HIGH switch to match your tape recorder's output signal level.

Recorder output jack	HIGH/LOW
AUX (line out)	LOW
Earphone or headphone output	HIGH

2 Set the DW-8000 rear panel WRITE switch and TAPE switch to the ENABLE (ENA) positions.

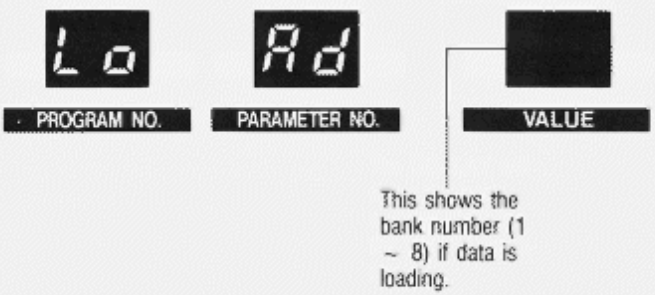


3 Set the tape recorder's playback volume to the level that produced a "Good" indication when you use the VERIFY procedure. If the recorder has tone controls, set them to the center positions.

4 Rewind the tape. Begin tape playback. Stop the tape (using the stop or pause key) when you reach the beginning of the leader tone.

5 Press the LOAD key.

6 Start tape playback (press the play key or release the pause key). The Display will appear as shown here.



7 If the data has successfully loaded into internal memory the DISPLAY will give a "Good" indication.

The " Good" display indicated the completion of loading.

■ **If you get an error (Err) message as shown here**
Press the CANCEL Key, lower (or raise) the tape recorder's output volume, and repeat steps 4 - 6.

■ **If the DISPLAY does not change after ten seconds of tape playback**
Raise the tape recorder's output volume level and repeat steps 4 - 6.

8 When you get a "Good" message, you can stop the tape recorder.

9 Set the DW-8000 rear panel WRITE switch to the DISABLE position.

Follow the VERIFY procedure to check if the data from the tape has precisely loaded into the programmer or not.

10 Set the DW-8000 rear panel TAPE switch to the DISABLE position.

5. Tape Interface Precautions

1

After a SAVE, LOAD, or VERIFY operation, reset the rear panel TAPE switch to DISABLE. If it remains set to ENABLE, the DW-8000 cannot be played.

2

If the tape recorder head is dirty, wow and flutter are excessive, or there are fluctuations in output (due to weak batteries, etc.), SAVE, LOAD, or VERIFY operation may not be correctly completed.

3

When using a stereophonic tape recorder, use the left channel only for the SAVE operation. Otherwise, VERIFY and LOAD operations may not be done.

4

Do not vibrate the tape recorder by moving it or change the output level settings during SAVE, LOAD, or VERIFY operation. Otherwise, incorrect operation may result.

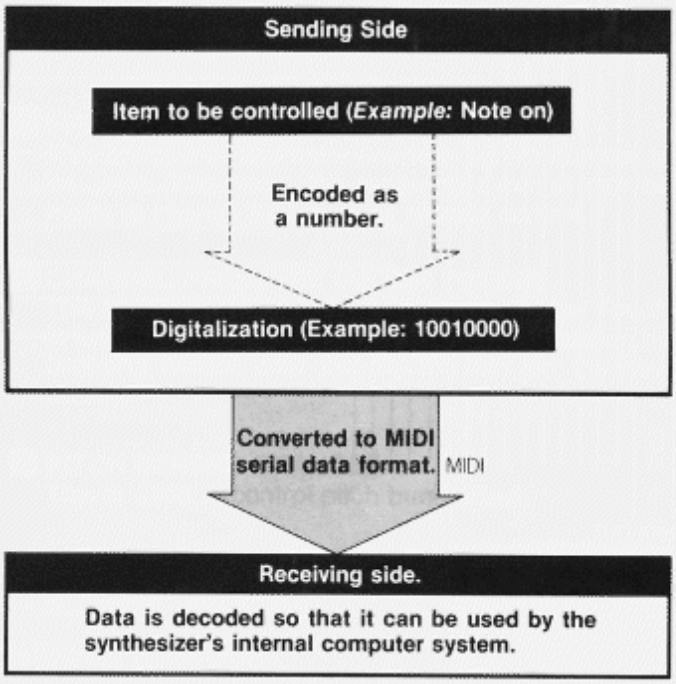
MIDI

MIDI (which stands for "Musical Instrument Digital Interface") is a "universal language" adopted by most musical instrument manufacturers which allows MIDI equipped instruments to communicate and control each other. The DW-8000 is MIDI equipped, so it can be connected to other MIDI equipped synthesizers, sequencers, rhythm machines, and personal computers.

1. How MIDI Works

1 The MIDI Control System

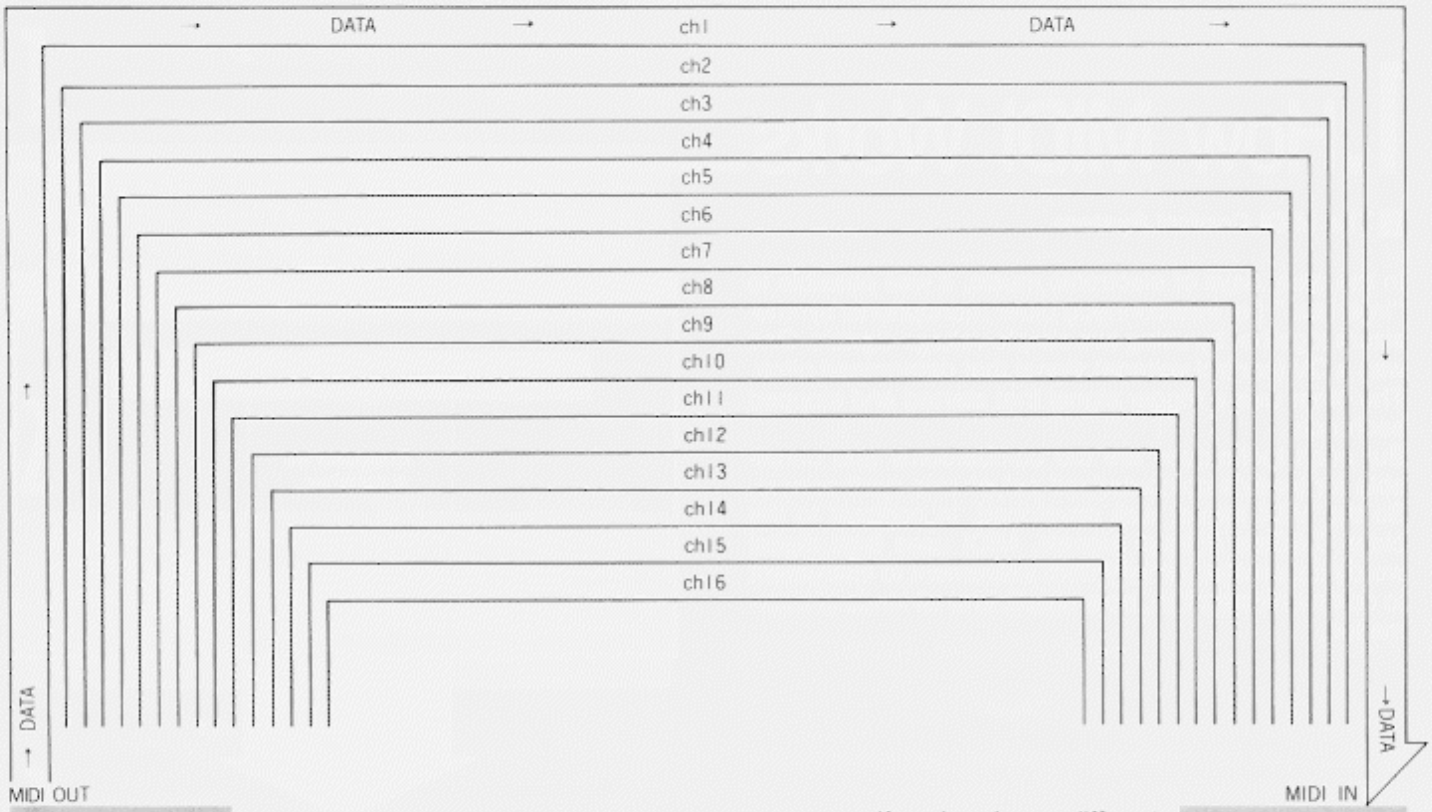
In the early days of electronic music, it was possible to "interface" (ie, interconnect) older monophonic synthesizers together by using two simple voltage signals. One was a CV (control voltage) signal that determined pitch. The other was a trigger signal that started and stopped each note.
But such techniques are too cumbersome and unreliable for today's computerized polyphonic synthesizers. So the MIDI format was developed. In contrast to the older CV/Gate voltage signals, MIDI uses 8-bit digital words transmitted serially from instrument to instrument to communicate pitch, note on/off, and all kinds of information.



2 MIDI Channels

If you are using more than two MIDI synths (or other MIDI units), then you can assign them different channel numbers (sort of like TV channels). There are 16 possible channels (designated as channel 1, channel 2, and so on) for sending and receiving.

MIDI Channels

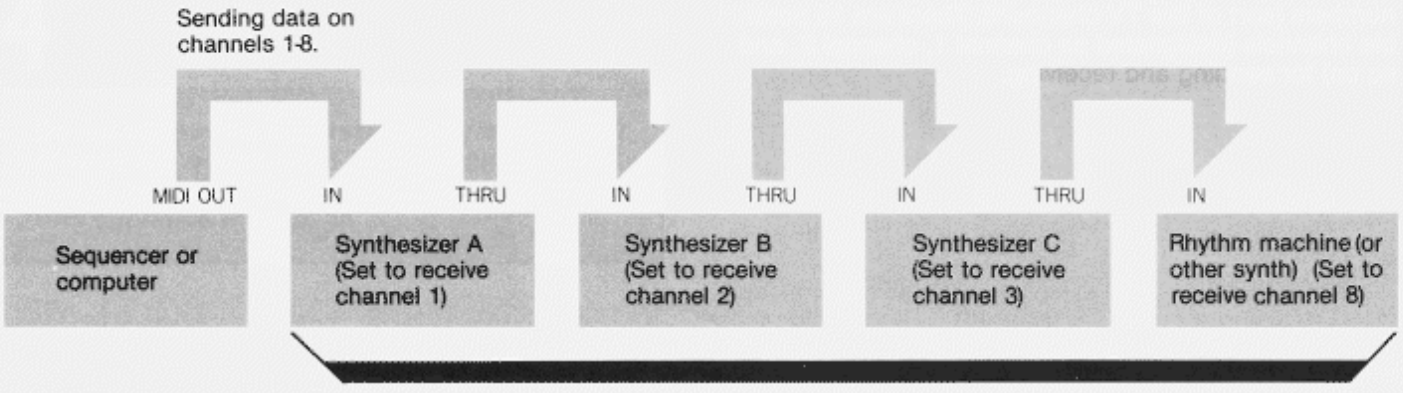


Sequencer (sending instructions and data on channel 1).

If assigned to a different channel (and not in OMNI mode) then the synth would not respond to this information.

Synthesizer (set up to receive only channel 1).

If you are using a MIDI sequencer or computer then you can assign particular instructions and data to particular channels. By assigning the various receiving synthesizers and drum machines to different channels, you can make each instrument play a different part of your musical composition. This kind of complex MIDI system is shown here.



Each receiving unit responds to instructions from the sequencer or computer sent on its assigned channel.

3 Kinds of MIDI Data.

■MIDI can be used to many kinds of messages that contain instructions and information to be used by the receiving synthesizer and/or rhythm machines. The main kinds of MIDI data are described below.

1. CHANNEL VOICE MESSAGES

These tell the receiving synthesizer(s) which sounds to use, which notes to play, and when to start and stop playing those notes. They may also include instructions to use portamento, modulation, and other effects.

A NOTE ON EVENT
This tells the receiving synth to start playing a note (equivalent to depressing a key on the keyboard).

B NOTE OFF EVENT
This tells the receiving synth to stop playing a note (equivalent to releasing the key on the keyboard).

C CONTROL CHANGES
This can be used to control pitch modulation, sustain (damper), portamento, and other effects.

D PROGRAM CHANGES
This is used to select the sound program number to be used. Therefore, the receiving synth(s) can be made to change its sound by remote control.

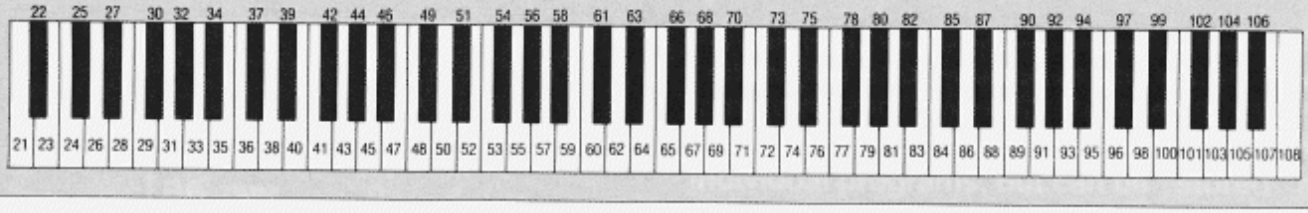
E CHANNEL PRESSURE (AFTER TOUCH)
This message indicates the operation of After Touch (a function to add effects such as pitch modulation by pressing harder after playing the key on the keyboard).

F PITCH BENDER CHANGES
This is used to control pitch bend effect.

NOTE ON and NOTE OFF EVENT above also include the following information.

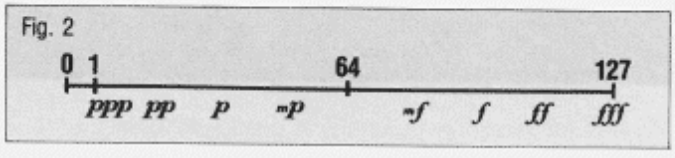
NOTE NUMBER
Every note has a number (representing the key on a keyboard). This number tells the receiving synth which note to play.

Fig. 1 Note number in piano range



VELOCITY
This determines how loud the note is played. (Not all synths can send or receive this data; however, no problems are created by mixing velocity and non-velocity sensitive keyboards.) The relationship between velocity value and "volume" is shown in the chart here.

Fig. 2



2. CHANNEL MODE MESSAGES

These determine the channel mode used for communications.

A OMNI MODE ON, OMNI MODE OFF
When Omni mode is set to ON, the receiving synths will respoond to all messages regardless of which channel they are sent on. When Omni mode is OFF, a synth will respond only to messages sent on its particular specified channel. If you turn off Omni mode, then be sure that the sending synth is set to the same channel number as the receiving synth.

Note: DW-8000 is set to the OMNI ON mode when powered ON.

B POLY MODE ON, MONO MODE ON
This determines whether NOTE ON/NOTE OFF will be handled as polyphonic (chords) or monophonic (one note played at a time). In the poly mode, the receiving synth will, of course, be limited by the number of voices that it has.
In the mono mode, only one note will be played at a time, even if multiple note data is received.

3. SYSTEM REAL TIME MESSAGES

Used for synchronizing rhythm machines and sequencers.
Includes timing clock and start/stop data.

4. SYSTEM COMMON MESSAGES

Used when there are many MIDI units, including rhythm machines and sequencers, in a complex system. These messages include "song select" to specify song to be played and "song position pointer" to tell the units to start at the same time.

5. SYSTEM EXCLUSIVE MESSAGES

Can be used for passing data partaining to one manufacturer's products (since each manufacturer has his own particular ID number). Usually used for program SAVE/LOAD and parameter-change operations.

2. DW-8000 MIDI Features

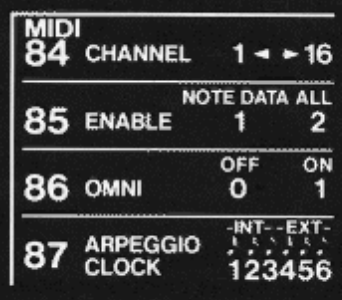
1 Transmitted/Received Messages

The DW-8000 can send and receive the following MIDI data.

Transmission	Reception
■Note OFF	■Note OFF
■Note ON	■Note ON
■Control change:	■Control change:
No. 1 OSC modulation	No. 1 OSC modulation
No. 2 VCF modulation	No. 2 VCF modulation
	No. 7 Volume
No. 64 Damper pedal on/off	No. 64 Damper pedal on/off
No. 65 Portamento on/off	No. 65 Portamento on/off
■Program change	■Program change
■Channel pressure (After Touch)	■Channel pressure (After Touch)
■Pitch bender change	■Pitch bender change
	■All notes OFF
	■Omni MODE OFF
	■Omni MODE ON
■Timing clock	■Timing clock
■Start	■Start
■Stop	■Stop
■Active sensing	■Active sensing
■System exclusive information	■System exclusive information

☆See MIDI IMPLEMENTATION Notes for details.

2 Parameter for MIDI



Parameters for MIDI are shown to the left. Follow the procedures described in "Parameters and Values" to specify them. These parameters cannot be stored in individual programs, but can be "stored" as overall performance parameters.

84 CHANNEL

This parameter is used to select a channel for data send and receive. The same channel must be specified for sending and receiving data. (Different channels cannot be selected independently for send and receive.) At power-ON, the data send/receive channel is set for that previously selected.

VALUE	DATA SEND/RECEIVE CHANNEL
1	CH-1
↕	↕
16	CH-16

85 ENABLE

This selects which kinds of received MIDI data the DW-8000 will send and receive. At value 1 (NOTE DATA), the DW-8000 sends and receives only "note data." At value 2 (All), it sends and receives all MIDI data specified in the DW-8000 MIDI specifications (implementation notes.)
For example, if you don't want program numbers to be changed by some external device through MIDI, then set this value to 1.
The most recently selected ENABLE value is retained when power is turned on and off.

VALUE	Kind of Data Sent/Received
1	(NOTE DATA) NOTE ON/NOTE OFF
2	(ALL) All data

86 OMNI

Omni mode ON (value 1) is selected by default when the power is turned on. When Omni mode is on, the DW-8000 receives MIDI data on all channels (regardless of the parameter 84 setting). However, Omni mode can also be turned on and off from the controlling (sending) device. When Omni mode is off, then the DW-8000 receives MIDI data sent only on the MIDI channel specified by parameter 84.

VALUE	OMNI MODE
0	OFF
1	ON

87 ARP CLOCK (Arpeggio clock)

■ Determines whether the Arpeggiator is operated by the DW-8000's internal clock or it is operated by the signals, including timing clock, start, and stop, sent from external MIDI equipment. This parameter is also used for rough adjustment of arpeggio speed.

■ When the value is set to 1, 2, or 3, the Arpeggiator is operated by the internal clock. Arpeggio speed becomes slower when the value is set to 2 (2× slower than "1" setting) or when set to 3 (4× slower than "1" setting). Use the front panel Speed Control Slider for fine adjustment of arpeggio speed.
Because start, stop, and timing clock messages are sent to external sequencers and rhythm machines connected to the DW-8000's MIDI OUT jacks, a synchronous playing can be achieved.

■ When the value is set to 4, 5, or 6, the Arpeggiator is operated by external MIDI clocks. Use any of the value settings to control the DW-8000's Arpeggiator from an external MIDI sequencer or MIDI rhythm machine. The value can be selected that the DW-8000 plays in sync with external MIDI equipment in a speed of 32nd note, 16th note, or 8th note for a quarter note on the external equipment. This parameter is also used for the rough adjustment of arpeggio speed. Fine adjustment of the speed will be performed on the MIDI sequencer connected to the DW-8000.

VALUE	Arpeggio Clock
	☆Internal clock mode
1	fastest (Full) (32nd)
2	1/2 of value (16nd)
3	1/4 of value (8nd)
	☆External clock mode
4	in 32nd-note tempo
5	in 16th-note tempo
6	in 8th-note tempo

3 MIDI Jacks

1. MIDI IN

Receives MIDI data.

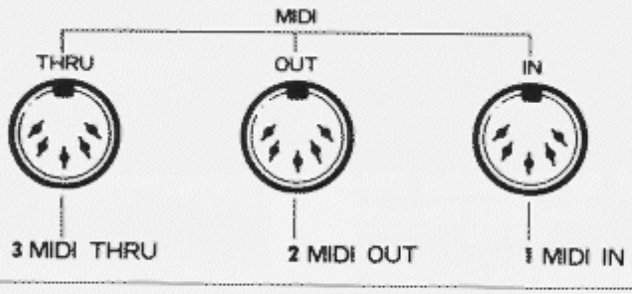
2. MIDI OUT

Transmits MIDI data pertaining to the DW-8000.

3. MIDI THRU

Retransmits unchanged MIDI data received through the MIDI IN jack. (The sound data played on the DW-8000 is not transmitted from this terminal.)

Rear Panel



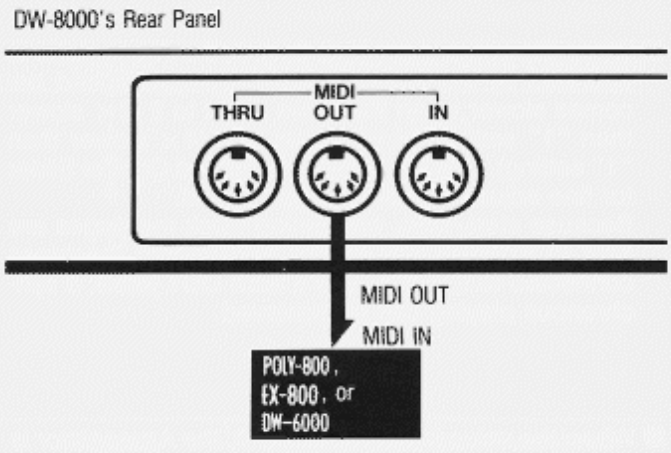
4 Resetting MIDI

If the DW-8000 is being used in a MIDI connected system and starts producing erratic results (making a continuous sound, going out of tune, producing erratic modulation, etc.) press the front panel WRITE key. This resets the circuitry.

5 Typical MIDI Setups

■ Using the DW-8000 to control another MIDI synthesizer or sound generator.

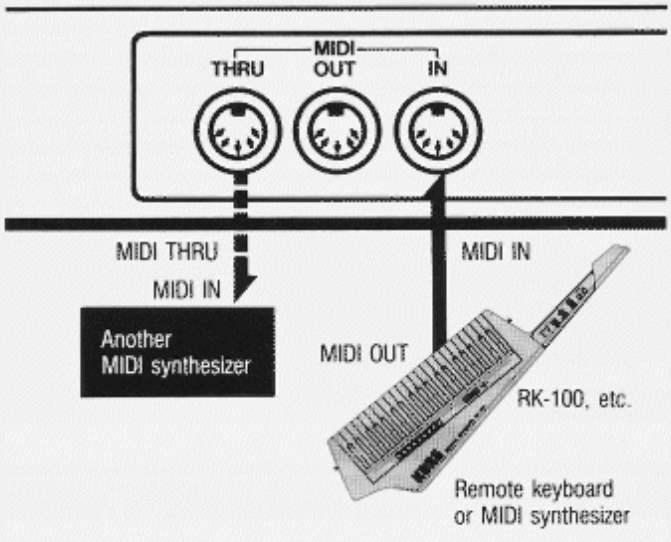
Connect the DW-8000's MIDI OUT to another MIDI synthesizer's MIDI IN using a MIDI cable. Set the DW-8000's data send channel to match the data receive channel of the connected MIDI synthesizer or sound generator.
(This connection is also used to write DW-8000's sound data to a MIDI sequencer such as the SQD-1.)



■ Using a remote keyboard or another MIDI synthesizer to control the DW-8000

Connect remote keyboard or MIDI synthesizer's MIDI OUT to the DW-8000's MIDI IN jack using a MIDI cable. Set the DW-8000's data the receive channel to match the data send channel of the remote keyboard.

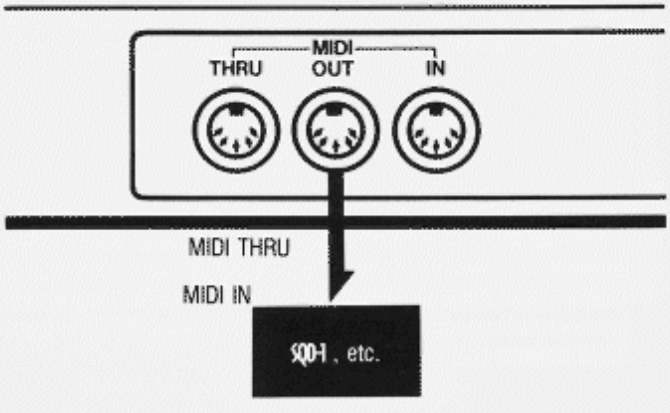
Use the DW-8000's MIDI THRU jack to connect another synthesizer to the remote keyboard.



6 Synchronizing DW-8000's Arpeggiator with other MIDI Equipment

■ Using the DW-8000 to control a MIDI sequencer

1 Connect the DW-8000's MIDI OUT jack to the MIDI IN of a MIDI sequencer.

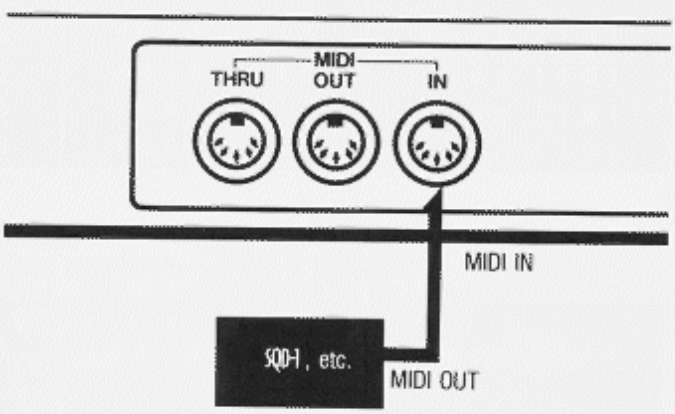


2 Set parameter 87 (Arpeggio clock) on the DW-8000 to 1, 2, or 3 and parameter 85 (Enable) to 2. Set the connected sequencer for "external clock mode" (to be operated by external MIDI timing clock) so that it can be started.

3 On the DW-8000, turn the Arpeggiator ON/OFF switch ON and play a note on the keyboard to start synchronous playing.
Use the DW-8000's parameter 87 and speed control slider to adjust arpeggio speed. If arpeggio playing is interrupted, a "stop" message is sent to stop the MIDI sequencer.

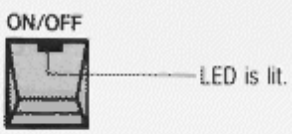
■ Using a MIDI sequencer to control DW-8000's Arpeggiator

1 Connect a MIDI sequencer to the DW-8000 as shown to the right.



2 On the DW-8000, set parameter 87 (Arpeggio clock) to 4, 5, or 6 and parameter 86 (Enable) to 2. Set the connected sequencer for "internal clock mode" (to send timing clock, start, and stop signals out).

3 Turn the DW-8000's Arpeggiator ON/OFF switch ON, and play notes on the keyboard. (No sound is produced in this stage.)



4 When the connected sequencer is started, the Arpeggiator also starts playing in sync with the sequencer. When the Arpeggiator has been set to the Assignable mode, the order that the notes are pressed determines the way the notes will be played in the arpeggio.
If the DW-8000 is set to receive sound data from the connected sequencer (e.g., when Omni mode is ON), the sound data will also be played in the arpeggio pattern. This should be noted.

MIDI IMPLEMENTATION

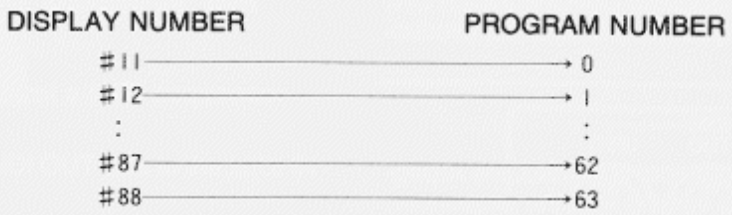
1. Transmitted Data

1 CHANNEL MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION
1000 nnnn	0kkk kkkk	0100 0000	Note OFF kkkkkk k=36–96
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON kkkkkk k=36–96 vvvvvv v=15–127 (40 steps)
1011 nnnn	0000 0001	0vvv vvvv	OSC Modulation vvvvvvv v=0–127 (31 steps)
1011 nnnn	0000 0010	0vvv vvvv	VCF Modulation vvvvvvv v=0–127 (31 steps)
1011 nnnn	0100 0000	0000 0000	Damper Pedal OFF
1011 nnnn	0100 0000	0111 1111	Damper Pedal ON
1011 nnnn	0100 0001	0000 0000	Portamento OFF
1011 nnnn	0100 0001	0111 1111	Portamento ON
1100 nnnn	0ppp pppp	———	Program Change (NOTE 1) ppppppp=0–63
1101 nnnn	0vvv vvvv	———	Channel Pressure (After-Touch) vvvvvvv v=0–127 (63 steps)
1110 nnnn	0000 0000	0bbb bbbb	Pitch Bender Change bbbbbbb=0–127 (bbbbbbb=64 : Center)

☆ nnnn — 0 ~ 15: channel number specified by parameter 84.

NOTE:
1. PROGRAM NUMBER (0ppppppp) correspond to DISPLAY NUMBER on the PANEL which will be the following:



2 SYSTEM REAL TIME MESSAGES

STATUS	DESCRIPTION	
1 1 1 1 1 0 0 0	Timing Clock	(NOTE 2)
1 1 1 1 1 0 1 0	Start	(NOTE 2)
1 1 1 1 1 1 0 0	Stop	(NOTE 2)
1 1 1 1 1 1 1 0	Active Sensing	(NOTE 3)

NOTES:

2. Can be sent when "internal clock" has been specified by parameter 87 (Arpeggio clock).
3. Sent at intervals of 300ms or less.

3 SYSTEM EXCLUSIVE MESSAGES

1 DEVICE ID

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15: channel number (channel to transmit exclusive messages) specified by parameter 84.

NOTE

4. If receive DEVICE ID REQUEST, DEVICE ID message will be sent.

2 WRITE COMPLETED

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 0 1 0 0 0 0 1	Write Completed 21H
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~15: channel number (channel to transmit exclusive messages) specified by parameter 84.

NOTE

5. If WRITE REQUEST is received and program write is completed, a WRITE COMPLETED message will be sent.

3 WRITE ERROR

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch)
0 0 1 0 0 0 1 1	DW-8000 ID 03H
0 0 1 0 0 0 1 0	Write error 22H
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15: channel number (channel to transmit exclusive messages) specified by parameter 84.

NOTE

6. If WRITE REQUEST is received and program write is not completed (if WRITE DISABLE is chosen on the rear panel), a WRITE ERROR message will be sent.

4 DATA SAVE (DATA DUMP)

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 1 0 0 0 0 0 0	Data Dump 40H
0 v v v v v v v	Data 51 Bytes
⋮	(See DW-8000 BIT MAP)
0 v v v v v v v	
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15: channel number (channel to transmit exclusive messages) specified by parameter 84.

NOTE

7. If DATA SAVE REQUEST is received, DATA SAVE (DATA DUMP) will be sent.

2. Recognized Receive Data

1 CHANNEL MESSAGES

STATUS	SECOND	THIRD	DESCRIPTION
1000 nnnn	0kkk kkkk	0xxx xxxx	Note OFF (NOTE 1)
			velocity will be ignored.
1001 nnnn	0kkk kkkk	0vvv vvvv	Note ON (NOTE 1)
			vvvvvvv=1–127 (15 steps)
1001 nnnn	0kkk kkkk	0000 0000	Note OFF (NOTE 1)
1011 nnnn	0000 0001	0vvv vvxx	OSC Modulation
			(5 bits resolution)
1011 nnnn	0000 0010	0vvv vvxx	VCF Modulation
			(5 bits resolution)
1011 nnnn	0000 0111	0vvv vvvv	Volume
			(7 bits resolution)
1011 nnnn	0100 0000	0000 0000	Damper Pedal OFF
1011 nnnn	0100 0000	0111 1111	Damper Pedal ON
1011 nnnn	0100 0001	0000 0000	Portamento OFF
1011 nnnn	0100 0001	0111 1111	Portamento ON
1011 nnnn	0111 1011	0000 0000	All Notes OFF
1011 nnnn	0111 1100	0000 0000	Omni Mode OFF (All Notes OFF)
1011 nnnn	0111 1101	0000 0000	Omni Mode ON (All Notes OFF)
1011 nnnn	0111 1110	0xxx xxxx	(All Notes OFF)
1011 nnnn	0111 1111	0000 0000	(All Notes OFF)
1100 nnnn	0ppp pppp	———	Program Change (NOTE 2)
1101 nnnn	0vvv vvvx	———	After Touch
			(6 bits resolution)
1110 nnnn	0xxx xxxx	0bbb bbbb	Pitch Bender Change
			LSB will be ignored.
			MSB will be recognized.
			(bbbbbbb=64 : CENTER)

★ nnnn = 0 ~ 15:
Channel number specified by parameter 84. When the mode is OMNI ON, all the data will be received. When the mode is OMNI OFF, only data of the channel designated by the parameter will be received. As to MODE MESSAGE, however, designated channel data only will be received even if the mode is OMNI ON.

NOTE

1. NOTE NUMBER (0kkkkkkk) = 24 ~ 108. If data outside this range is received, the data will be transposed to the same note on the nearest octave.
2. PROGRAM NUMBER (0ppppppp) = 0 ~ 63. If the data is larger than 63, it will be recognized as a number that has 64 subtracted from it.

2 SYSTEM REAL TIME MESSAGES

STATUS	DESCRIPTION
1 1 1 1 1 0 0 0	Timing Clock (NOTE 3)
1 1 1 1 1 0 1 0	Start (NOTE 3)
1 1 1 1 1 1 0 0	Stop (NOTE 3)
1 1 1 1 1 1 1 0	Active Sensing (NOTE 4)

NOTES:

3. Can be received if external clock has been selected by parameter 87 (Arpeggio clock).
4. Should be received at intervals of 300ms or less.

3 SYSTEM EXCLUSIVE MESSAGES

1 DEVICE ID REQUEST

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 1 0 0 n n n n	Format ID 4•H (• =ch) (NOTE 5)
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15:
channel number (channel to receive exclusive messages) specified by parameter 84.

2 WRITE REQUEST

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch) (NOTE 5)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 0 0 1 0 0 0 1	Write Request 11H
0 p p p p p p p	Program Number (p p p p p p p = 0 −63)
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15:
channel number (channel to receive exclusive messages) specified by parameter 84.

3 DATA SAVE REQUEST

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch) (NOTE 5)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 0 0 1 0 0 0 0	Data Save Request 10H
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15:
channel number (channel to receive exclusive messages) specified by parameter 84.

4 DATA LOAD (DATA DUMP)

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch) (NOTE 5)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 1 0 0 0 0 0 0	Data Dump 40H
0 v v v v v v v	Data 51 Bytes
⋮	(See DW-8000 BIT MAP)
0 v v v v v v v	
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15:
channel number (channel to receive exclusive messages) specified by parameter 84.

5 PARAMETER CHANGE

BYTE	DESCRIPTION
1 1 1 1 0 0 0 0	Exclusive status
0 1 0 0 0 0 1 0	KORG ID 42H
0 0 1 1 n n n n	Format ID 3•H (• =ch) (NOTE 5)
0 0 0 0 0 0 1 1	DW-8000 ID 03H
0 1 0 0 0 0 0 1	Parameter Change 41H
0 v v v v v v v	Parameter Offset (See DW-8000 BIT MAP)
0 v v v v v v v	Parameter Value (See DW-8000 BIT MAP)
1 1 1 1 0 1 1 1	EOX

★ nnnn = 0 ~ 15:
channel number (channel receive exclusive messages) specified by parameter 84.

NOTE:

5. Messages with channel numbers different from those specified by parameter 84 are ignored. (This has no relation to OMNI mode setting.)

3. System Exclusive Message Reference

1 DW-8000 BIT MAP

PARAMETER OFFSET	PARAMETER VALUE							
	b7	b6	b5	b4	b3	b2	b1	b0
0	0	0	0	0	0	0	OSC 1 OCTAVE	
1	0	0	0	0	OSC 1 WAVE FORM			
2	0	0	0	OSC 1 LEVEL				
3	0	0	0	0	0	0	AUTO BEND SELECT	
4	0	0	0	0	0	0	0	A. BEND MODE
5	0	0	0	A. BEND TIME				
6	0	0	0	A. BEND INTENSITY				
7	0	0	0	0	0	0	OSC 2 OCTAVE	
8	0	0	0	0		OSC 2 WAVE FORM		
9	0	0	0	OSC 2 LEVEL				
10	0	0	0	0	0	INTERVAL		
11	0	0	0	0	0	DETUNE		
12	0	0	0	NOISE LEVEL				
13	0	0	0	0	0	0	ASSIGN MODE	
14	0	0	PARAMETER NO. MEMORY					
15	0	0	CUTOFF					
16	0	0	0	RESONANCE				
17	0	0	0	0	0	0	KBD. TRACK	
18	0	0	0	0	0	0	0	POLA-RITY
19	0	0	0	EG. INTENSITY				
20	0	0	0	VCF ATTACK				
21	0	0	0	VCF DECAY				
22	0	0	0	VCF BREAK.P				
23	0	0	0	VCF SLOPE				
24	0	0	0	VCF SUSTAIN				

PARAMETER OFFSET	PARAMETER VALUE							
	b7	b6	b5	b4	b3	b2	b1	b0
25	0	0	0	VCF RELEASE				
26	0	0	0	0	0	VCF VELOCITY SENS		
27	0	0	0	VCA ATTACK				
28	0	0	0	VCA DECAY				
29	0	0	0	VCA BREAK.P				
30	0	0	0	VCA SLOPE				
31	0	0	0	VCA SUSTAIN				
32	0	0	0	VCA RELEASE				
33	0	0	0	0	0	VCA VELOCITY SENS		
34	0	0	0	0	0	0	MG WAVE FORM	
35	0	0	0	MG FREQUENCY				
36	0	0	0	MG DELAY				
37	0	0	0	MG OSC				
38	0	0	0	MG VCF				
~~38~~ 39	0	0	0	0	BEND OSC			
40	0	0	0	0	0	0	0	BEND VCF
41	0	0	0	0	0	DELAY TIME		
42	0	0	0	0	DELAY FACTOR			
43	0	0	0	0	DELAY FEEDBACK			
44	0	0	0	DELAY FREQUENCY				
45	0	0	0	DELAY INTENSITY				
46	0	0	0	0	DELAY EFFECT LEVEL			
47	0	0	0	PORTAMENTO				
48	0	0	0	0	0	0	AFTER T. OSC MG	
49	0	0	0	0	0	0	AFTER T. VCF	
50	0	0	0	0	0	0	AFTER T. VCA	

[Valve-modified parameter]

2 DW-8000 BIT MAP AND CORRESPONDING PARAMETER VALUES

PARAMETER NAME	PARAMETER OFFSET	BIT	CORRESPONDING PANEL VALUE	PARAMETER NUMBER
OSC 1 Octave	0	b1–b0	00=16 01=8 10=4 11=INHIBIT	11
OSC 1 WF	1	b3–b0	0000–1111=1–16	12
OSC 1 Level	2	b4–b0	00000–11111=0–31	13
A. B. Select	3	b1–b0	00=OFF 01=OSC1 10=OSC2 11=BOTH	14
A. B. Mode	4	b0	0=UP 1=DOWN	15
A. B. Time	5	b4–b0	00000–11111=0–31	16
A. B. Int.	6	b4–b0	00000–11111=0–31	17
OSC 2 Octave	7	b1–b0	00=16 01=8 10=4 11=INHIBIT	21
OSC 2 WF	8	b3–b0	0000–1111=1–16	22
OSC 2 Level	9	b4–b0	00000–11111=0–31	23
OSC 2 Interval	10	b2–b0	000=1 001=–3 010=3 011=4 100=5 101–111=INHIBIT	24
OSC 2 Detune	11	b2–b0	000–110=0–6 111=INHIBIT	25
Noise Level	12	b4–b0	00000–11111=0–31	26
Cutoff	15	b5–b0	000000–111111=0–63	31
Resonance	16	b4–b0	00000–11111=0–31	32
KBD Track	17	b1–b0	00=(0) 01=1(1/4) 10=2(1/2) 11=3(1)	33
Polarity	18	b0	0=1(⌐\) 1=2(_)	34
VCF EG Int.	19	b4–b0	00000–11111=0–31	35
VCF Attack	20	b4–b0	00000–11111=0–31	41
VCF Decay	21	b4–b0	00000–11111=0–31	42
VCF Break P.	22	b4–b0	00000–11111=0–31	43
VCF Slope	23	b4–b0	00000–11111=0–31	44
VCF Sustain	24	b4–b0	00000–11111=0–31	45
VCF Release	25	b4–b0	00000–11111=0–31	46
VCF V. Sens	26	b2–b0	000–111=0–7	47
VCA Attack	27	b4–b0	00000–11111=0–31	51

VCA Decay	28	b4−b0	00000−11111=0−31	52
VCA Break P.	29	b4−b0	00000−11111=0−31	53
VCA Slope	30	b4−b0	00000−11111=0−31	54
VCA Sustain	31	b4−b0	00000−11111=0−31	55
VCA Release	32	b4−b0	00000−11111=0−31	56
VCA V.Sens	33	b2−b0	000−111=0−7	57
MG Wave Form	34	b1−b0	0=1(∧) 1=2(⋀) 2=3(◿) 3=4(⊓)	61
MG Frequency	35	b4−b0	00000−11111=0−31	62
MG Delay	36	b4−b0	00000−11111=0−31	63
MG OSC	37	b4−b0	00000−11111=0−31	64
MG VCF	38	b4−b0	00000−11111=0−31	65
Bend OSC	39	b3−b0	0000−1100=0−12 1101−1111=INHIBIT	66
Bend VCF	40	b0	0=0(OFF) 1=1(ON)	67
Delay Time	41	b2−b0	000−111=0−7	71
Delay Factor	42	b3−b0	0000−1111=0−15	72
D. Feedback	43	b3−b0	0000−1111=0−15	73
D. Frequency	44	b4−b0	00000−11111=0−31	74
D Intensity	45	b4−b0	00000−11111=0−31	75
D. Eff. Level	46	b3−b0	0000−1111=0−15	76
Portamento	47	b4−b0	00000−11111=0−31	77
A.T.OSC MG	48	b1−b0	00−11=0−3	81
After T. VCF	49	b1−b0	00−11=0−3	82
After T. VCA	50	b1−b0	00−11=0−3	83

PARAMETER NAME	PARAMETER OFFSET	BIT	CORRESPONDING PANEL DISPLAY/MEMORY
Assign Mode	13	b1−b0	00=POLY1 01=POLY2 10=UNISON1 11=UNISON2
Par. NO. Memo.	14	b5−b0	000000-111110=0-62(7, 14, 15, 21, 22, 23, 31, 39, 47, 55,=INHIBIT)

3 THE DW-8000 CAN SEND/RECEIVE THE FOLLOWING DATA.

Sending

DEVICE ID : Identifies the equipment. Sent upon receiving a DEVICE REQUEST.
WRITE COMPLETED : Sent in response to a WRITE REQUEST. This indicates that the PROGRAM WRITE task has been successfully completed.
WRITE ERROR : Sent in response to a WRITE REQUEST. This indicates that the synth is set to the WRITE DISABLE mode so PROGRAM WRITE task cannot be completed.
DATA SAVE (DATA DUMP) : In response to a DATA SAVE REQUEST, this sends the data for the sound presently being produced.

Receiving

RECEIVE ID REQUEST : A request for the equipment's MIDI identification number.
WRITE REQUEST : A request for the DW-8000 to write data for the present sound to program memory.
DATA SAVE REQUEST : A request for the DW-8000 to send data for the present sound.
DATA LOAD (DATA DUMP) : Sound data information. Sound data is entered via the Data Load.
PARAMETER CHANGE : Used to change parameters of the current sound.

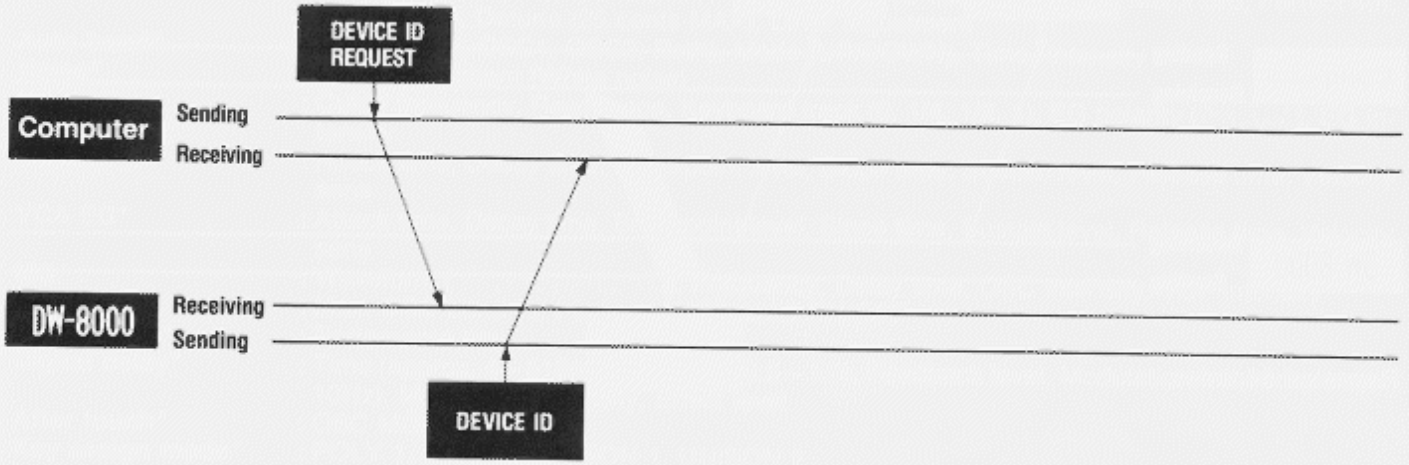
■ The DW-8000 can use these system exclusive messages to communicate with a computer equipped with a MIDI interface. (A program to process the exclusive messages is required.)

■ **Connecting a computer**

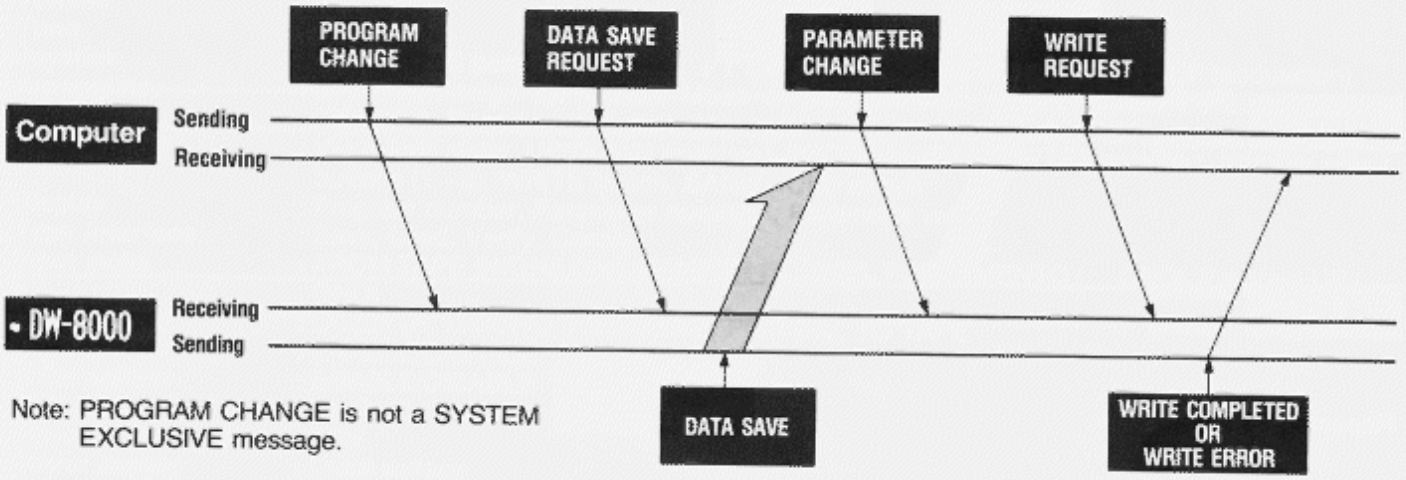
Because each exclusive message for the DW-8000 is specified with a channel designated by parameter 84, the corresponding channel must be used for message transmission from a computer to the DW-8000. A message sent using the incorrect channel will be ignored, regardless of OMNI mode being ON or OFF.
These channels are used to effectively that timbre control could be done independently for each DW-8000 in a system using two or more DW-8000s.

■ Examples of communication with a computer

1 To find the ID number for equipment connected to the computer.

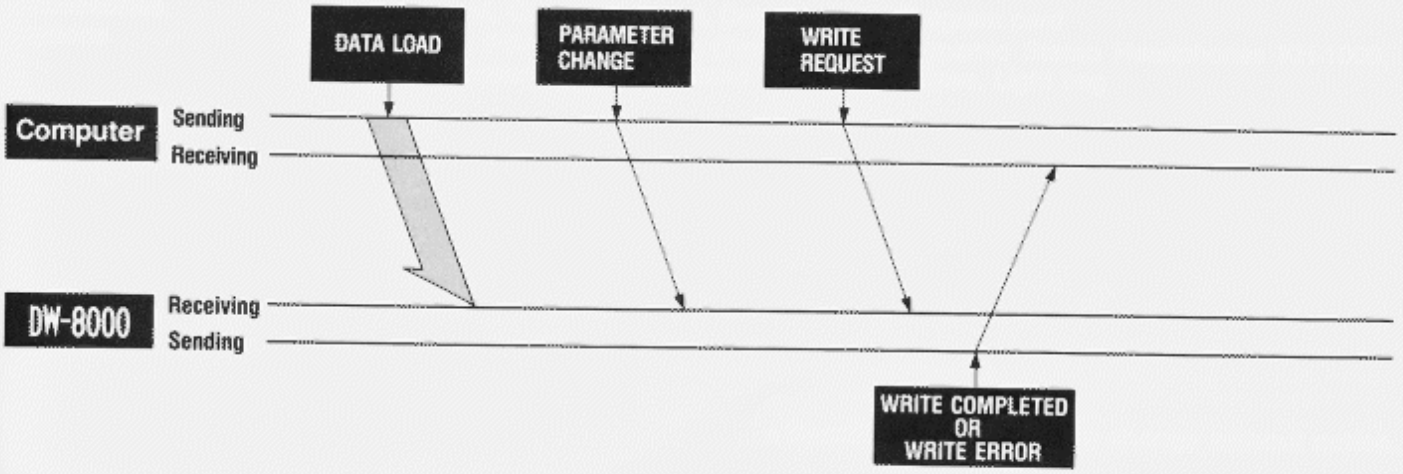


2 To edit sound data within the DW-8000.

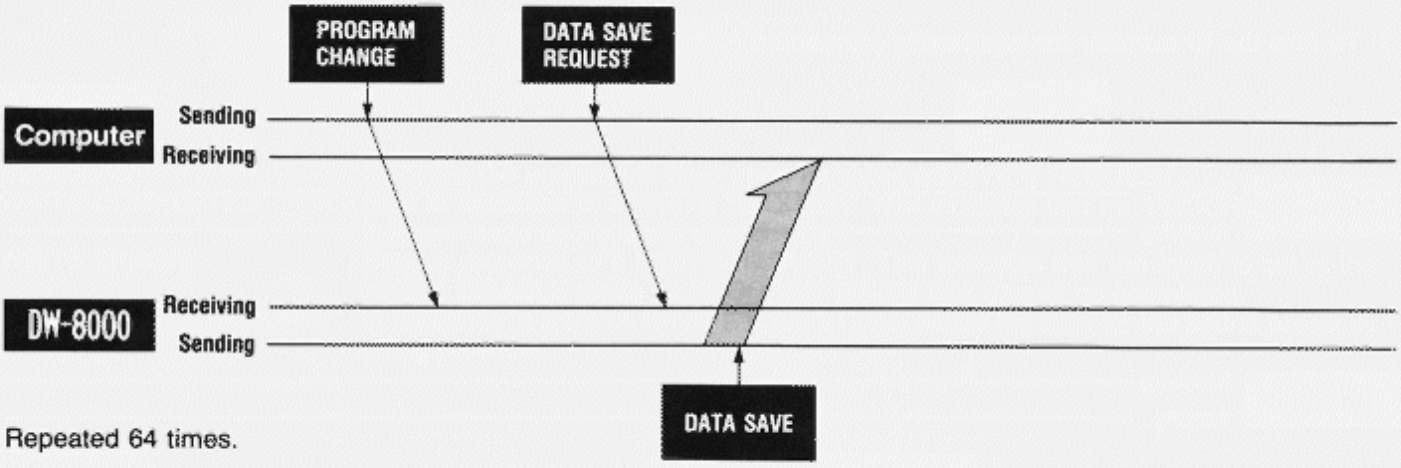


Note: PROGRAM CHANGE is not a SYSTEM EXCLUSIVE message.

3 To edit data already available in the computer.

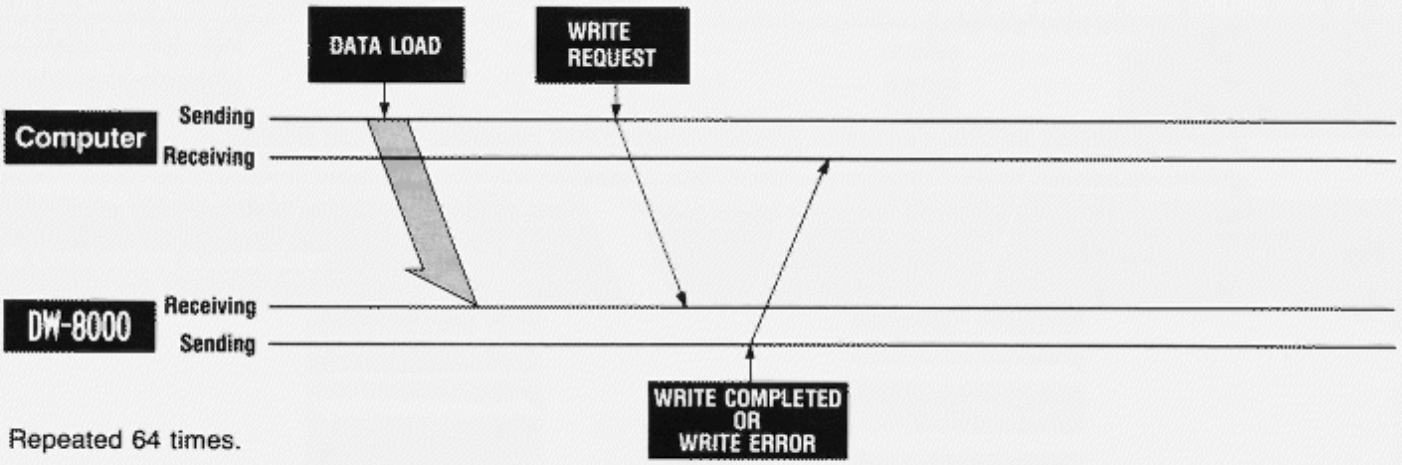


4 To load all 64 sound programs from the computer to the DW-8000.



Repeated 64 times.

5 To save all 64 sound programs from the DW-8000 to the computer.



Repeated 64 times.

SPECIFICATIONS AND OPTIONS

(*Programmable)

Keyboard	: 61 keys (C – C), Initial Touch/After Touch
Voice	: 8 voice
OSC1*	: Octave (16′, 8′, 4′), Waveform (1 – 16), Level adjustment
OSC2*	: Octave (16′, 8′, 4′), Waveform (1 – 16), Interval (Unison, Minor 3rd, Major 3rd, Perfect 4th, Perfect 5th), Detune (25 cents MAX), Level adjustment
Auto bend*	: Select (OFF, OSC1, OSC2, Both), Mode (UP/DOWN), Time, Intensity
Noise*	: Level adjustment (White noise)
VCF*	: Cutoff frequency, Resonance, Keyboard track (0, 1/4, 1/2, 1), EG polarity (,), EG intensity
VCF EG*	: Attack time, Decay time, Breakpoint level, Slope time, Sustain level, Release time, Velocity sens
VCA EG*	: Attack time, Decay time, Breakpoint level, Slope time, Sustain level, Release time, Velocity sens
MG*	: Waveform (, , ,), Frequency, Delay time, OSC intensity, VCF intensity
Bend*	: Max. OSC bend (±1 octave), VCF bend ON/OFF
Portamento*	: Portamento time
Digital delay*	: Time (approx. 4 – 512ms), Factor (×0.5 – 1.0), Feedback level, Modulation frequency (max. 10Hz), Modulation intensity, Effect level
After touch*	: OSC MG, VCF, VCA
Key assign mode*	: POLY 1, POLY 2, UNISON 1, UNISON 2
MIDI	: Send/receive channel (ch 1 – 16), ENABLE (NOTE DATA/ALL), OMNI (ON/OFF), Arpeggio clock
Volume	: (0 – max.)
Tune	: ±50 cents
Joystick	: X axis (OSC bend, VCF bend), +Y axis (OSC modulation), –Y axis (VCF modulation)
Arpeggiator	: ON/OFF, Assign (UP/DOWN Mode or ASSIGNABLE mode), Octave (1, 2, full), Latch (ON/OFF), Speed control slider (Arpeggio tempo: ≒ approx. 20 – 250)
Programmer	: Value (edit slider, UP/DOWN switches), PROGRAM/PARAMETER switches, Number select buttons (1 – 8), WRITE switch, BANK HOLD switch
Display	: Program number, Parameter number*, Parameter value
Tape interface	: Save, Load, Verify, Cancel
Input jacks	: FROM TAPE (HIGH/LOW), DAMPER (GND), PORTAMENTO (GND), Program UP (GND)
Output jacks	: Output (R, L/MONO, HIGH/LOW), PHONES, TO TAPE
Tape switch	: ENABLE/DISABLE
Write switch	: ENABLE/DISABLE
MIDI jacks	IN, OUT, THRU
Power consumption	: 31W
Power supply	: Local voltage
Weight	: 10.9kg
Dimensions	: 998(W) × 338(D) × 101(H)mm
Accessories	: AC power cord, Connection cord, Data cassette, Program card
Options	: Pedal Switch PS-1, MIDI Cable (7m/10m/12m), Dynamic Stereo Headphones KH-1000, Memory expander MEX-8000, Stand ST-2B, Hard Case, Light bag

☆Specifications subject to change without notice.

N O T I C E

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 a serial number disqualifies the product sold from the manufacturer's/distributor's warranty and liability. This requirement is for your own protection and safety.

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