KORG®
DRV-3000
DUAL DIGITAL EFFECT PROCESSOR

Owner's Manual

DRV-3000

Thank you and congratulations on your purchase of the KORG DRV-3000 Dual Digital Effect Processor.

The DRV-3000 is designed and constructed to professional specifications, and incorporates sophisticated state-of-the-art LSI technology to create a wide variety of superb effects.
The DRV-3000 can be used in virtually any music situation where high-performance sound processing is required, and is particularly suited to MIDI applications.

For optimum performance please read this manual carefully while operating your DRV-3000. We advise you to carefully study the PRECAUTIONS section before you connect the DRV-3000 to your music system. A program chart is provided with this manual, detailing the 32 programs loaded into the DRV-3000 when shipped.

The DRV-3000 offers you an enormous range of new sound worlds. Enjoy to the full the creativity offered by this versatile and exciting unit!

CONTENTS

MAIN FEATURES OF THE DRV-3000

1. **A RANGE OF EFFECTS.** The DRV-3000 provides 16 sound-processing Effects, including five REVERB Effects, two EARLY REFLECTION Effects and two ECHO Effects. Also included are several special Effects such as FLANGE, CHORUS, ENSEMBLE, PAN and two PITCH SHIFT Effects, plus a PARAMETRIC EQ/DRIVER Effect. All these Effects are stereo, and can be applied to a stereo or mono input.

2. **DUAL-EFFECT PROGRAMS.** On the DRV-3000, two different Effects are used together, to create a "Program". The DRV-3000 features a range of 32 factory-preset Programs.

3. **CREATING NEW PROGRAMS.** Effects can be edited (modified) by altering their "Parameters" – the individual functions which when combined make up the overall Effect. You can select two Effects, edit them and combine them to make a Program in two ways. "In serial" means the input signal is "split" into two signals which are routed to each Effect separately. "In parallel" means the input signal is processed by Effect 1, and this processed signal is again processed by Effect 2. 32 new Programs can be created and stored in the same locations as the preset Programs. However, the first 16 preset Programs can always be recalled.

4. **REMOTE CONTROL.** The DRV-3000 is operated via a handy wireless remote control unit, allowing instant selection of all Effects and Programs, as well as level changes, Effect cancel and Parameter editing.

5. **MIDI CONTROL.** You can also select Programs from an external MIDI keyboard or sequencer–handy for onstage situations when you need to instantly select the right Program for your keyboard sound. All Programs can be assigned to a MIDI Program number corresponding to a voice on your keyboard. A MIDI keyboard can also be used to set the amount of Pitch Shift, in Effects 15 and 16.

6. **PEDAL SWITCH CONTROL.** An optional pedal switch can be used to switch the Reverb time to a second, pre-programmed setting, and also to cancel the Effect or select Programs. Again, this is ideal in a live situation where your hands are occupied.

7. **SURROUND SOUND.** Two pairs of output connectors (Processing Out 1 and 2) allow the DRV-3000 to be used for "surround sound" Effects. When you use a stereo input you can send the direct signal to one pair of speakers, and a mix (which can be varied) of direct/processed sound to another pair.

8. **RACK MOUNTING.** The DRV-3000 can be mounted in a standard rack mount, where it will occupy two rack unit spaces.

PRECAUTIONS

LOCATION

Do not use this unit for extended periods of time where it is exposed to direct sunlight, extremes of temperature or humidity, or sand or dust.

POWER SUPPLY

Use the DRV-3000 ONLY with the rated AC voltage. If you will be using the DRV-3000 in an area or country having a different voltage, be sure to use the correct power transformer. To prevent electrical interference, avoid using the same power outlet or extension cord as other equipment.

HANDLE GENTLY

Although the DRV-3000 is constructed to KORG's high standards of precision and durability, it should be treated with care. Do not force any of the keys or rotary controls.

REMOTE CONTROL

Virtually all functions on the DRV-3000 are operated by the remote control unit, so ALWAYS keep the remote control unit in its storage slot when not in use. Treat the remote control with care, and make sure you have spare "AA" size batteries available at all times.

MAINTENANCE

Wipe the exterior of the DRV-3000 with a soft, dry cloth. Never use paint thinner, benzene or other solvents.

BACKUP BATTERY

The DRV-3000 has a built-in battery to ensure that User Programs are not lost when the power is turned off. This battery has a life of about 5 years, with normal use. When the battery voltage level falls to a low level, a "MEMORY CRASHED! LOW BATTERY" message will appear on the DRV-3000's LCD.

Consult your KORG dealer IMMEDIATELY about battery replacement, otherwise you run the risk of losing all User Programs if the battery is not replaced as soon as possible.

The preset Programs are permanently stored in the DRV-3000's internal memory, and will not be affected by a change of battery.

KEEP THIS MANUAL

Keep this manual in a safe place, so that you can refer to it at all times.

FRONT PANEL
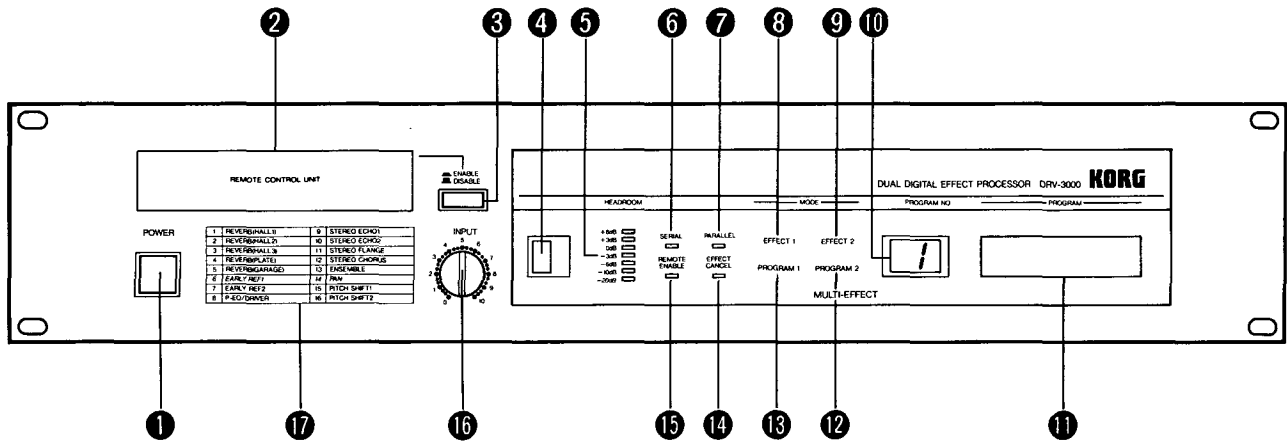
❶ **Power ON/OFF switch.**

❷ **Remote Control slot.**

❸ **Remote Control Enable/Disable Switch.**

❹ **Remote Control signal receiver.**

❺ **INPUT LEVEL LED (Light Emitting Diode) indicator.**
Shows the input level in six steps from −20 dB to +6 dB.

❻ **SERIAL LED.**
Lights when the Serial Mode is selected.

❼ **PARALLEL LED.**
Lights when the Parallel Mode is selected.

❽ **EFFECT 1 LED.**
Lights when Effect 1 of a Program is selected.

❾ **EFFECT 2 LED.**
Lights when Effect 2 of a Program is selected.

❿ **EFFECT/Program number LED display.**
Shows the number of the selected Effect or Program.

⓫ **LCD (Liquid Crystal Display) panel.**
Shows all information regarding the current status of the DRV-3000, including Effect/Program names, Parameter names and values, and Utility functions.

⓬ **PROGRAM 2 LED.**
Lights when Program Range 2 (Programs 17 thru 32) is selected.

⓭ **PROGRAM 1 LED.**
Lights when Program Range 1 (Programs 1 thru 16) is selected.

⓮ **EFFECT CANCEL LED.**
Lights when the Effect is canceled by the remote control or pedal switch.

⓯ **REMOTE ENABLE LED.**
Lights when the Remote Enable is turned ON using the Remote Enable Key.
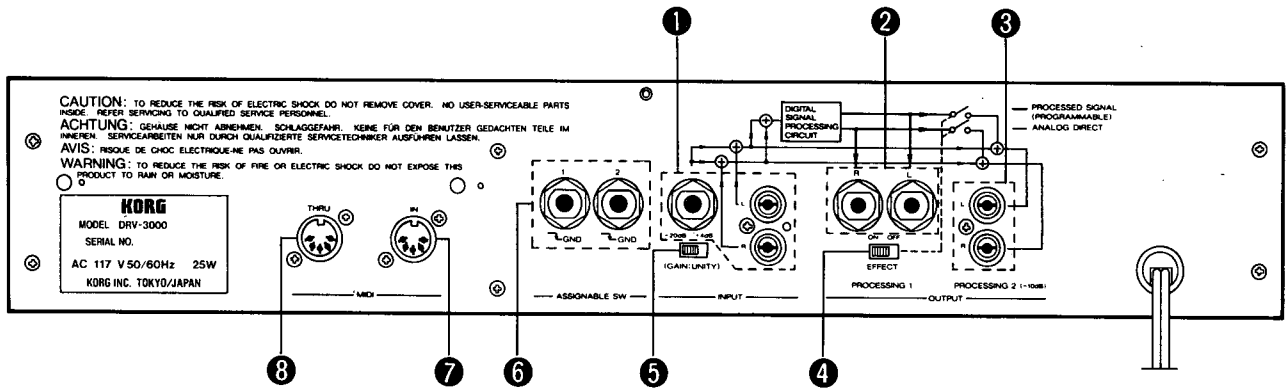
⓰ **INPUT LEVEL control.**
Sets the level of the incoming signal.

⓱ **EFFECTS TABLE.**
Lists the DRV-3000's 16 Effects.

REAR PANEL

❶ INPUTS.
Standard 1/4" jack for mono input. Left and Right
RCA phono jacks for stereo input.

❷ PROCESSING 1 OUTPUTS.
Outputs a stereo mix of the direct sound and
the processed sound. These outputs are used for
normal operation of the DRV-3000. The
direct/processed sound balance can be varied
and this balance setting can be stored as part of
a Program. 1/4" jacks.

❸ PROCESSING 2 OUTPUTS.
Outputs a stereo mix of the direct sound and
the processed sound. The direct/processed
sound balance is fixed at 100%, but the
processed sound can be muted (using the
EFFECT ON/OFF switch to the left of these
outputs) for monitoring of the direct signal only.
With a stereo input, these outputs could be used
to monitor the direct sound while you use the
Processing 1 outputs to monitor a mix of
direct/processed sound, for a 4-speaker
"surround sound" effect. RCA phono jacks.

❹ EFFECT ON/OFF switch.
Cancels the processed sound output by the
PROCESSING 2 outputs ONLY.

❺ INPUT LEVEL switch.
Switches input level between −20 and +4 dB.

❻ Pedal switch connectors 1 and 2.
Pedal switch functions can be set using the
Utility Mode.
Use a foot switch that is turned on when
pressed (KORG PS-1, PS-2, etc.). Any other type
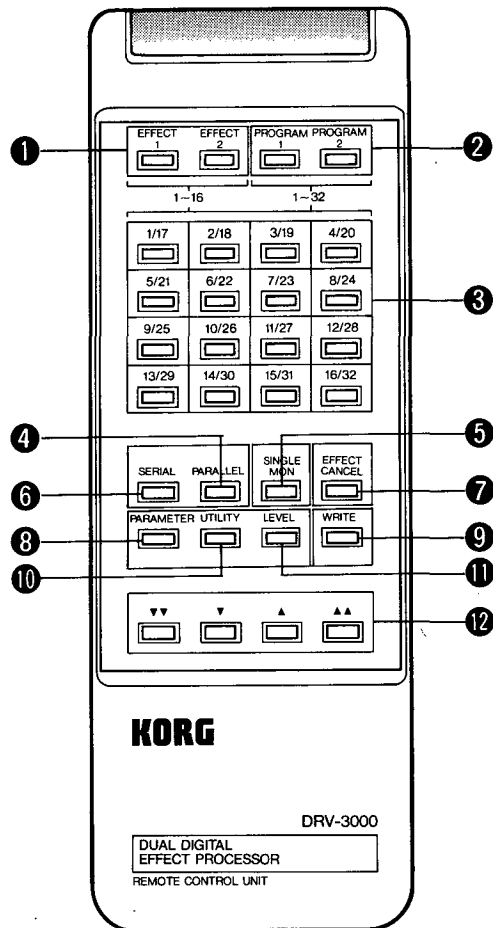of foot switch may cause malfunction. 1/4" jacks.

❼ MIDI IN connector.
Receives MIDI signals from external keyboard or
sequencer, for Program changes or Pitch Shift
control.

❽ MIDI THRU connector.
Outputs all MIDI signals received at the MIDI IN
connector.

REMOTE CONTROL UNIT

KORG

DRV-3000

DUAL DIGITAL
EFFECT PROCESSOR

REMOTE CONTROL UNIT

❶ EFFECT 1 and EFFECT 2 keys.
For selection of two Effects which will be combined to make a Program. Press one of these keys then use the Numeric keys to select an Effect.

❷ PROGRAM 1 and PROGRAM 2 keys.
These keys must be pressed prior to using the Numeric keys for selection of Programs 1–16 and 17–32 respectively.

❸ Numeric keys.
For selection of Effects 1–16 or Programs 1–32.

❹ PARALLEL key.
Allows two selected Effects to be used in parallel.

❺ SINGLE MONITOR key.
When editing a Program, this allows you to listen to ONLY the Effect that you have selected (it mutes the other Effect in the Program).

❻ SERIAL key.
Allows two selected Effects to be used in serial.

❼ EFFECT CANCEL.
Cancels the processed sound, allowing you to hear only the direct sound.

❽ PARAMETER key.
Allows you to enter the editing mode and select Effects Parameters for editing. Also used to move the cursor on some LCD messages.

❾ WRITE.
Allows you to write (store) a newly-edited Program.

❿ UTILITY key.
Allows you to enter the Utility Mode and select Utility functions.

⓫ LEVEL key.
Allows you to set the level and balance of the processed sound and direct sound.

⓬ Nudge keys.
For setting of Parameter values or selection of Effects or Programs. The keys with single arrows are known as UP and DOWN keys respectively, according to the direction of the arrow, and permit gradual change of data. The keys with double arrows permit more rapid change.

CHANGING BATTERIES

The DRV's remote control unit uses standard "AA" batteries. These are changed by pushing on the battery compartment cover (on the underside of the remote control unit) in the direction of the arrow. Remove the old batteries and insert new batteries with their positive/negative poles directed as indicated in the battery compartment. Replace the cover and make sure it is firmly closed.

USE OF THE REMOTE CONTROL

The remote control unit is designed to function within a distance of 6 meters (20 feet), and at an angle of not more than 30 degrees to a direct line to the remote control signal receiver on the front panel of the main unit. Care should therefore be taken when positioning the main unit.
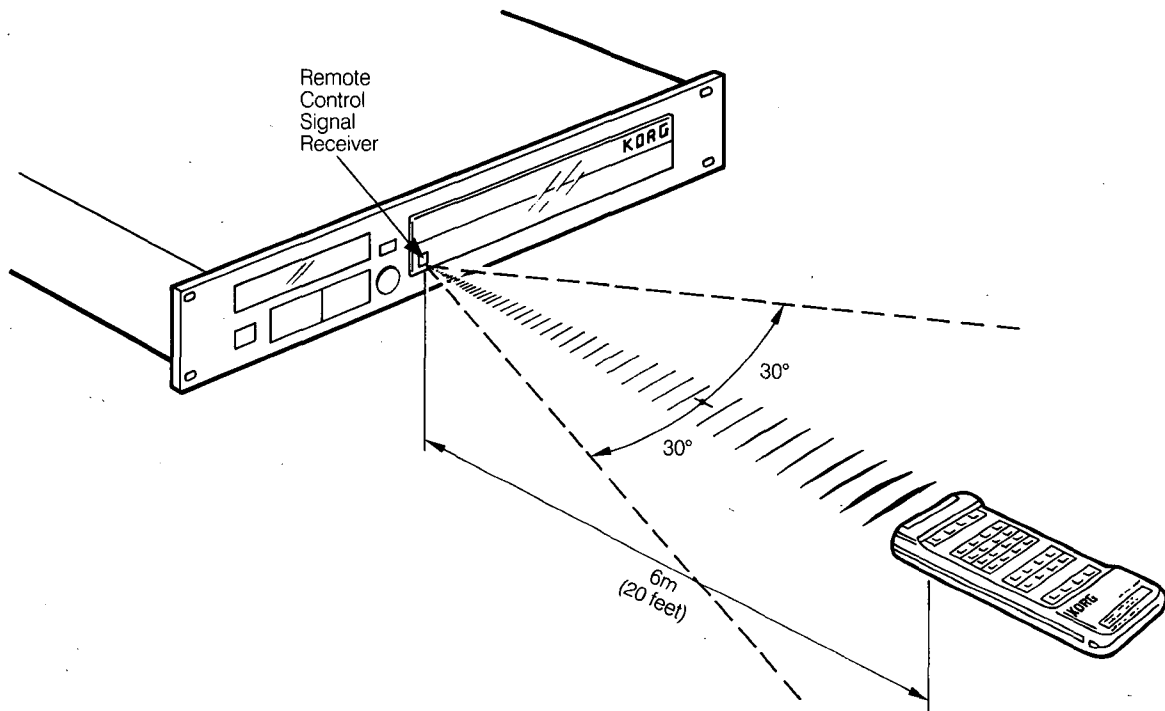
APPLICATION EXAMPLES

SINGLE MIDI KEYBOARD
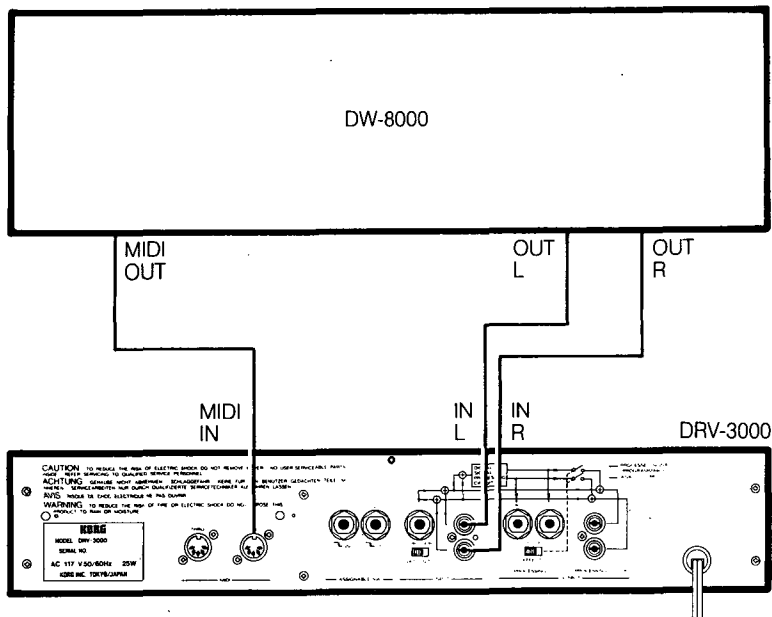
In this basic system, a Korg DW-8000 Programmable Digital Waveform Synthesizer is connected to the DRV-3000, using both audio and MIDI cables. The audio connections send the DW-8000's output to the DRV-3000 for processing. The MIDI connection allows you to change Programs on the DRV-3000 by selecting voice Programs on the DW-8000.

* The DW-8000 and DRV-3000 should be set to the same MIDI channel. See MIDI PROGRAM CHANGE and MIDI RECEIVE CHANNEL in the MIDI AND THE UTILITY MODE chapter.

MIDI PERFORMANCE SYSTEM
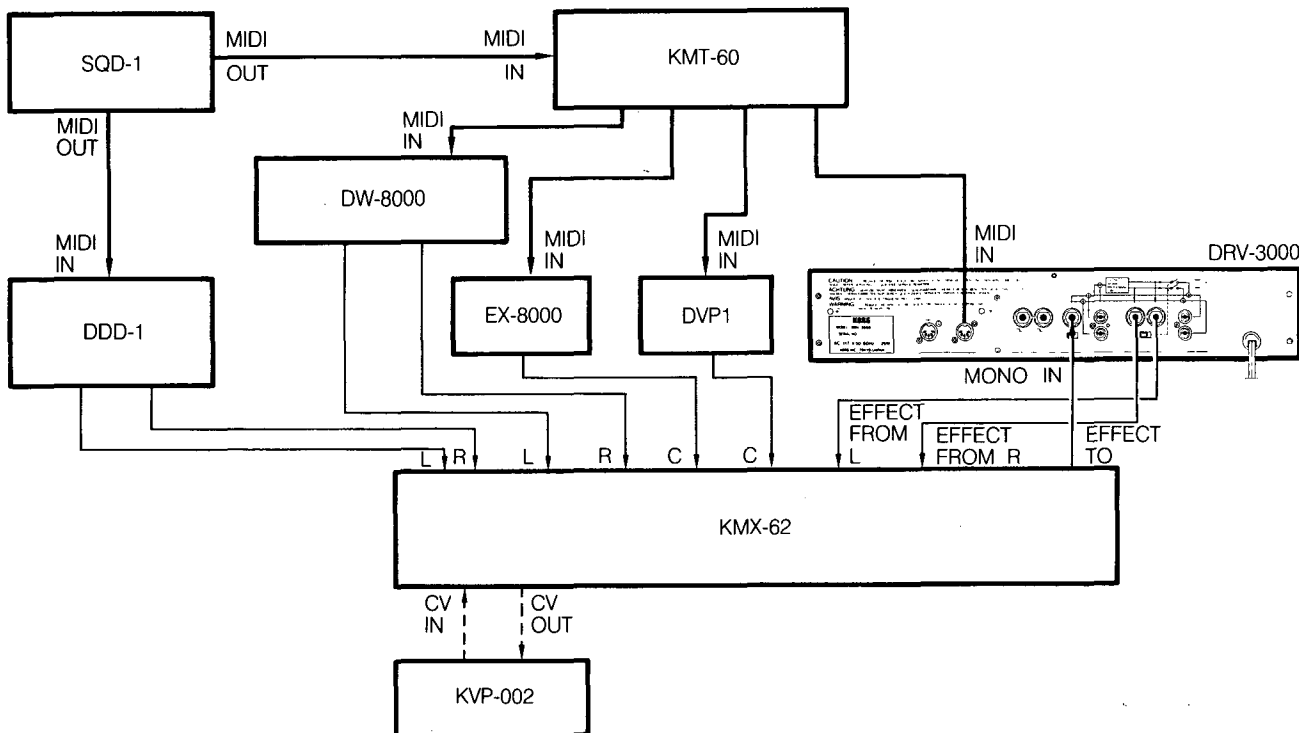
This advanced MIDI performance system utilizes Korg digital music devices, for a really sophisticated and powerful setup. The SQD-1 MIDI Recorder sends music data on separate MIDI channels, via the KMT-60 MIDI Thru Box, to the DW-8000 Programmable Digital Waveform Synthesizer, the EX-8000 Programmable Polyphonic Synthe Module (which features the same powerful digital voices as the DW-8000) and the DVP-1 Digital Voice Processor (which creates incredibly realistic vocal sounds, digitally). The SQD-1 transmits MIDI sync signals to control the playback and tempo of the DDD-1 Dynamic Digital Drums (which provide natural drum and percussion sounds). The SQD-1 also sends Program change information to the DRV-3000, on a separate MIDI channel. All sounds are routed into a KMX-62 Keyboard Mixer, for balancing and panning. A KVP-002 Volume Pedal allows you to adjust the overall level of selected individual channel levels.

For this application, the DRV-3000 is connected to the EFFECT TO and EFFECT FROM connectors on the KMX-62 Keyboard Mixer. The mixer's Effect Return Volume and Channel Effect Volume controls are used to adjust the overall effect level and individual channel levels, allowing you to add a different amount of effect to each of the MIDI instruments.

* The DRV-3000 should be set to the same MIDI channel as the channel on which the SQD-1 is transmitting MIDI Program Change data. See MIDI PROGRAM CHANGE and MIDI RECEIVE CHANNEL in the MIDI AND THE UTILITY MODE chapter.

ELECTRIC GUITAR
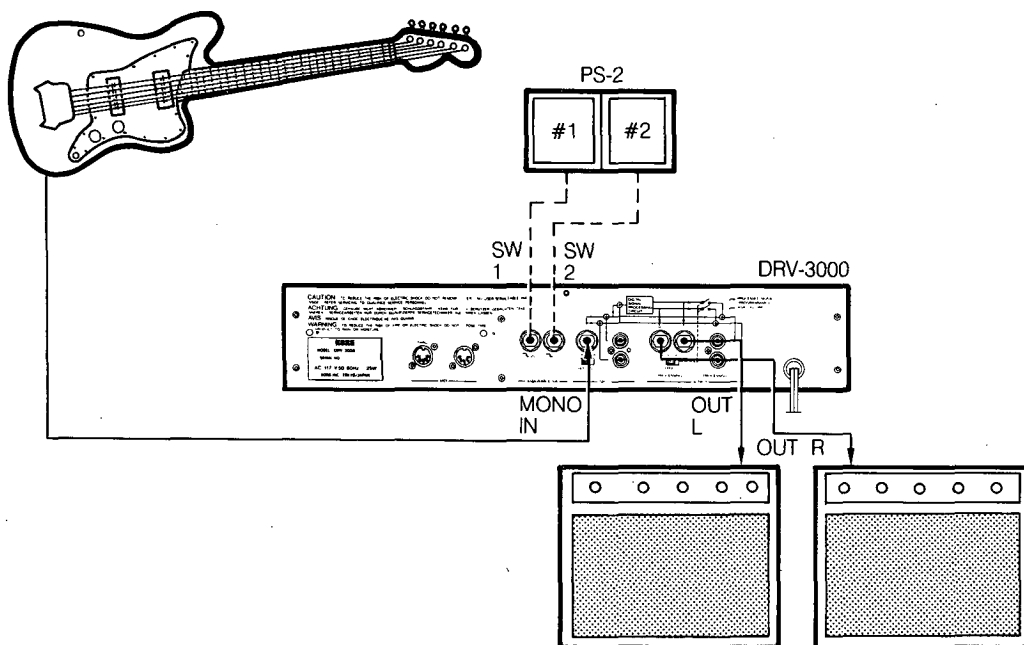
The DRV-3000 is not just for MIDI users. An electric guitarist, for example, can make full use of its advanced features. In this system, the guitar sound is processed by the DRV-3000 to create a rich stereo sound which can be processed in a variety of ways, and amplified by two guitar amplifiers or via a mixer and sound system. The guitarist uses a dual PS-2 pedal switch. Switch #1 is used for switching the reverb time on reverberation-type Programs to a second, pre-programmed setting (for example, to add extra dimension to a solo passage). Switch #2 is used to change Programs on the DRV-3000, stepping down through a selected range of Programs that have been stored in the correct order for a sequence of songs in a performance. This pedal switch could also be used for instant cancelling of the processed sound, so that only the direct guitar sound is heard.

* See SWITCH PROGRAM CHANGE, SWITCH 1 ASSIGN and SWITCH 2 ASSIGN in the MIDI AND THE UTILITY MODE chapter, for instructions on assigning pedal switch functions. See REVERB TYPE EFFECTS in the EFFECTS AND PARAMETERS chapter, for instructions on programming a second reverb time. See STORING A NEW PROGRAM in the EDITING AND STORING PROGRAMS chapter, for instructions on storing Programs in any desired order.

P.A. SYSTEM

INSTRUMENT,
MIC INPUTS

To AMPS/SPEAKERS

L R

PS-2

#1 #2

SW
1   SW
    2   MONO
        IN   DRV-3000

ECHO
SEND

ECHO RETURN L,R

OUT
R   OUT
    L
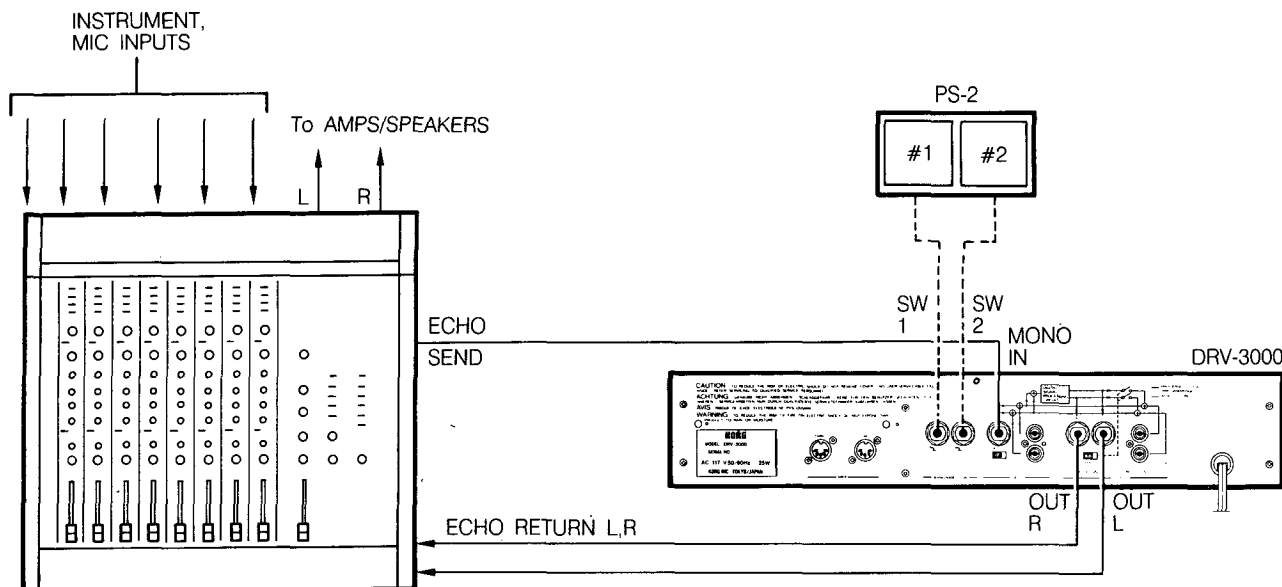
In this example, the DRV-3000 is part of a stereo PA system. It is connected to the echo send/return loop of the PA mixer, so that the amount of effect on each instrument or microphone can be varied. The sound engineer has set the Programs in the right order so that he can, by simply stepping through a selected range of Programs using pedal switch #2, select the correct Program for each of up to 32 songs in a show. Pedal switch #1 allows him to select Reverb Time 2 on reverb-type Programs, to highlight instrumental solos.

* See SWITCH PROGRAM CHANGE, SWITCH 1 ASSIGN and SWITCH 2 ASSIGN in the MIDI AND THE UTILITY MODE chapter, for instructions on assigning pedal switch functions. See REVERB TYPE EFFECTS in the EFFECTS AND PARAMETERS chapter, for instructions on programming a second reverb time. See STORING A NEW PROGRAM in the EDITING AND STORING PROGRAMS chapter, for instructions on storing Programs in any desired order.
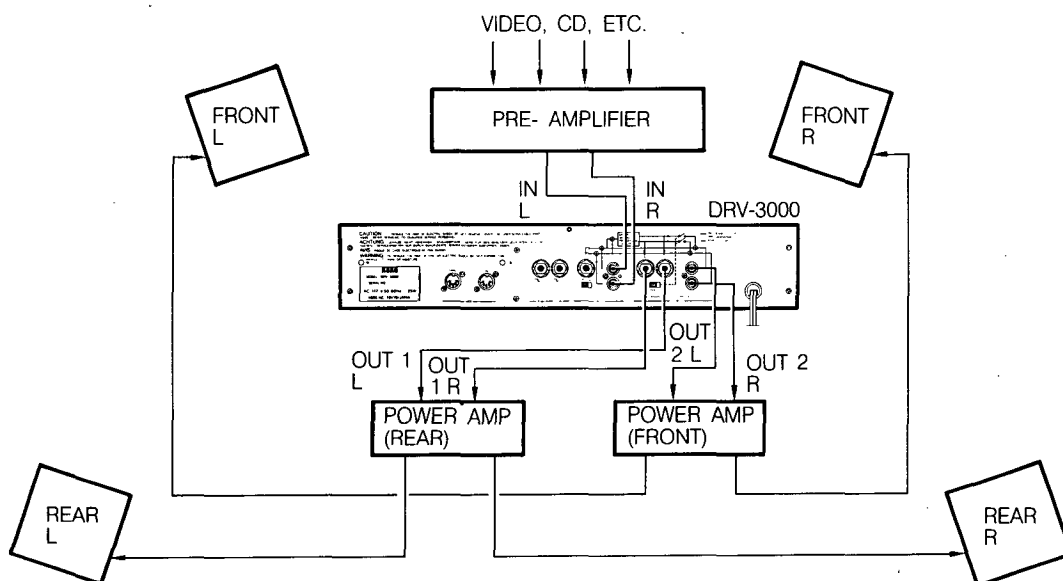
A/V SYSTEM

VIDEO, CD, ETC.

FRONT
L

PRE- AMPLIFIER

FRONT
R

IN
L   IN
    R   DRV-3000

OUT
2 L

OUT 1
L   OUT
    1 R   OUT 2
          R

POWER AMP
(REAR)

POWER AMP
(FRONT)

REAR
L

REAR
R

This system utilizes the Processing 1 and Processing 2 outputs, to create a "surround sound" effect, adding excitement and dimension to video sound, CD and other music sources. Four speakers are used. The power amplifiers driving the front speakers are connected to the Processing 2 outputs. The Effect ON/OFF switch on the rear of the main unit is set to OFF, so that no processed sound is sent to the front speakers. The power amplifiers for the rear speakers are receiving a mix of the direct and processed sound, whose balance can be adjusted using the LEVEL function of the remote control unit.

BASIC OPERATIONS

We'll begin by explaining what happens when you use the DRV-3000 (the block diagram later in this manual shows this visually).

The input signal is converted into a digital signal by the Analog/Digital convertor in the DRV-3000. (A stereo signal is mixed to mono before conversion, then processed into a stereo processed signal. The direct signal, however, remains in stereo). The Effect is then created in the digital signal processor, using a Program which combines two Effects in serial or in parallel. The processed digital signal is converted back into a stereo analog signal, and mixed with the original direct sound, by an amount according to the effect level setting.

SETTING UP

1. Once you have connected your DRV-3000 to your system, (see the APPLICATION EXAMPLES earlier in this manual) switch its power on. It is best to do this before switching on your amplifier or mixer, to avoid any clicks or bumps.

2. Set the INPUT LEVEL switch on the rear of the main unit to the appropriate setting for your input. This allows the DRV-3000 to be used with all signal sources, including microphones, electric guitars, synthesizers, P.A. systems and A/V systems.

3. Send a signal to the DRV-3000 and adjust the input level control on the front of the main unit so that the input level LED peaks at zero.

4. You can now select Programs on your DRV-3000.

SELECTING PROGRAMS

1. Remove the remote control unit from its slot on the front of the main unit.

2. Press the REMOTE ENABLE key on the front of the main unit, so that the REMOTE ENABLE LED lights.

3. Aim the remote control at the remote control signal receiver on the front panel of the main unit. Press PROGRAM 1 (to select Programs 1 thru 16) or PROGRAM 2 (to select Programs 17 thru 32). The corresponding LCD will light on the main unit.

4. Press a Numeric Key to select a Program. For example, pressing the key above which is written "1/17" will select Program 1 (if you pressed PROGRAM 1 in the previous operation) or Program 17 (if you pressed PROGRAM 2 in the previous operation). The LCD will display the selected Program.

5. You can select other Programs using the PROGRAM 1, PROGRAM 2 and Numeric Keys. You can also select Programs using the Nudge keys, to step through the Program range.

SETTING LEVELS

The Program Level can be adjusted using five different Level functions. By pressing the LEVEL key you can select the first of these functions. You can then adjust the displayed level using the Nudge keys. Subsequent pressings of the LEVEL key allow you to step through the other Level functions, which can also be adjusted using the Nudge keys. After you have stepped through all five Level functions, the next press of the LEVEL key will exit the Level function and return the LCD to the function that was selected prior to entering the Level mode. You can also exit the Level mode without having to step through all the Level functions, by holding down the LEVEL key.

The level modes, in the order in which they appear, are as follows:

1. **TOTAL LEVEL.** The overall level of the direct (unprocessed) sound and the processed sound.

```
┌─────────────────────────┐
│      [PROGRAM]          │
│ TOTAL LVL= 100 %        │
└─────────────────────────┘
```

The Total level can be adjusted from 100% (full level) to 0% (silence).

2. **EFFECT 1 BALANCE.** The balance between the direct sound and the processed sound routed to Effect 1.

```
┌─────────────────────────┐
│      [EFFECT]           │
│ BALANCE1 = 100 %        │
└─────────────────────────┘
```

The Effect 1 balance can be adjusted from 100% (processed sound level equal to direct sound level) to 0% (processed sound reduced to silence).

3. **EFFECT 1 LEVEL.** The combined level of the direct sound and processed sound that is routed to Effect 1.

```
┌─────────────────────────┐
│      [EFFECT]           │
│   LEVEL1 = 100 %        │
└─────────────────────────┘
```

4. **EFFECT 2 BALANCE.** The balance between the direct sound and the processed sound routed to Effect 2.

```
┌─────────────────────────┐
│      [EFFECT]           │
│ BALANCE2 = 100 %        │
└─────────────────────────┘
```

The Effect 2 balance can be adjusted from 100% (processed sound level equal to direct sound level) to 0% (processed sound reduced to silence).

5. **EFFECT 2 LEVEL.** The combined level of the direct sound and processed sound that is routed to Effect 2.

```
┌─────────────────────────┐
│      [EFFECT]           │
│   LEVEL2 = 100 %        │
└─────────────────────────┘
```

NOTE: Once you have altered levels, the new settings can be memorized by the DRV-3000, as described in the STORING A NEW PROGRAMS section of the EDITING AND STORING PROGRAMS chapter.

EFFECT CANCEL

Pressing this key cancels the processed sound, so that you will hear the direct sound ONLY. When this function is used, the EFFECT CANCEL LED will light on the main unit.

This is a useful way of checking the exact effect of the processed sound on your original signal.

EDITING AND STORING PROGRAMS

Programs on the DRV-3000 are easily edited (modified) to create your own Programs, which can be stored and recalled at any time. All 32 preset Programs may be edited, and although new Programs may be stored in Program locations 1 thru 16, the first 16 preset Programs are permanently memorized and can always be recalled.

See the PARAMETER CHART for details of the Parameters relating to each Effect. These are fully explained in the EFFECTS AND PARAMETERS chapter.

Program editing can be executed in two ways: (1) You can edit a preset Program, adjusting the Parameters of its two Effects, to create a modified version of the selected Program or (2) you can select a Program, then select other Effects and edit them to create a completely different type of Program.

QUICK GUIDE

1. Select a Program.

2. Select Effect 1. OPTION: use the Numeric keys to select a new Effect.

3. Alter the Parameters of Effect 1.

4. Select Effect 2. OPTION: use the Numeric keys to select a new Effect.

5. Alter the Parameters of Effect 2.

6. Press SERIAL or PARALLEL to select the mode in which the two Effects will be combined.

7. Set the level and balance of each Effect, and the total level of the Program.

8. Store the edited Program in a selected Program location.

9. Give the Program a name (see Function 1 in the MIDI AND THE UTILITY MODE chapter).

PROGRAM EDIT OPERATIONS

NOTE: When combining two Effects to create a new Program, the possible Effects combinations are as follows:

ANY of Effects 1 thru 10 may be combined with each other. You can also use one of these Effects twice, with different Parameter settings.
Only ONE Effect from Effects 11 thru 16 may be used in a Program.

If you have selected one Effect from Effects 11 thru 16, then you try to combine it with another Effect from Effects 11 thru 16, the following LCD message will appear:

```
 SELECT EFFECT
 FROM  [1-10]
```

You should now select an Effect from Effects 1 thru 10.

1. Select a Program, as described in the BASIC OPERATIONS chapter. Then press EFFECT 1 to select Effect 1 of the selected Program.

You can retain the displayed Effect, or use the Numeric keys to select another Effect (if you do this, the new Effect number will be displayed, but the Effect 1 Indicator will remain, indicating that this is Effect 1 of the Program). In either case, the displayed Parameter (Parameter 1 of the selected Effect) is now available for editing. For example, if Effect 1 is HALL 3, the first Parameter displayed will be Reverberation Time.
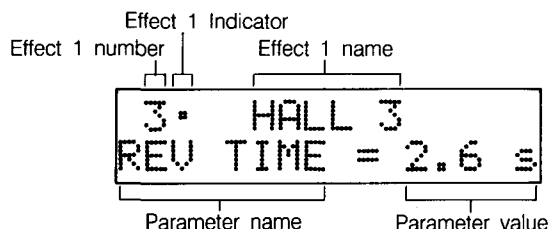
2. Press SINGLE MONITOR. This will cancel the Effect that is not displayed, so that you can listen to only the Effect that you are editing, making it easy to hear the exact result of your editing operations. At any time during editing, you can press this key again to hear both Effects together. When the Single Monitor function is turned on, the Effect Indicator will start to flash.
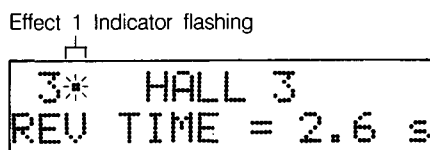
3. Use the Nudge keys to alter the Parameter value.
The new Parameter value will be displayed on the LCD.
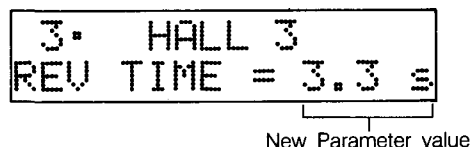
4. To select other Parameters, press PARAMETER. This key allows you to "step through" the Parameters relating to the selected Effect. In our example, the next displayed Parameter will be High Damp.
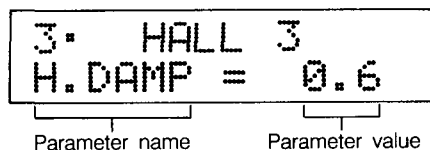
5. You can now edit the value of the newly selected Parameter, using the Nudge keys. Then press PARAMETER to select the next Parameter for editing. Once you have selected and edited all Parameters, the next pressing of PARAMETER will return you to Parameter 1.

6. Press EFFECT 2 to select the other Effect in the Program (this can be done at any time while editing Effect 1). For example, ENSEMBLE.

```
                         Effect 2 Indicator
         Effect 2 number |        Effect 2 name
          ┌──┐┌─┐   ┌─────────────────┐
         ┌──────────────────────────────┐
         │13: ENSEMBLE                   │
         │MOD FREQ=   0.7Hz              │
         └──────────────────────────────┘
          └────────────┘   └──────────┘
            Parameter name   Parameter value
```
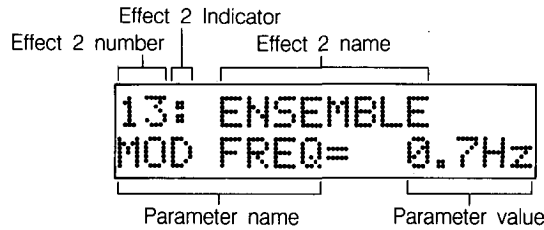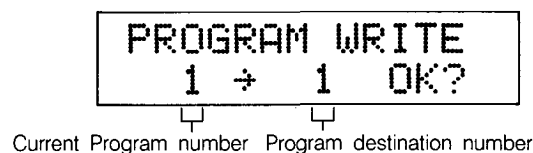
You can retain this Effect, or use the Numeric keys to select another Effect (if you do this, the new Effect number will be displayed, but the Effect 2 Indicator will remain, indicating that this is Effect 2 of the Program). In either case, the displayed Parameter is now available for editing. Edit its Parameter values in the same way you edited Parameters in Effect 1.

7. Press SINGLE MONITOR again to cancel the single Effect monitoring, so that you can listen to both Effects to hear the exact result of your Program editing. The Effect Indicator will now stop flashing.

8. Press either SERIAL or PARALLEL, according to how you wish to combine the two edited Effects (see the SERIAL/PARALLEL MODES section later in this chapter). The corresponding LED will light on the main unit.

9. Set the level and balance of each Effect, as well as the total direct-plus-processed level. These operations are described in the SETTING LEVELS section of the BASIC OPERATIONS CHAPTER. You can use the SINGLE MONITOR function to aid level and balance setting of individual Effects.

You can go back and edit any Parameters again, until you have achieved your desired sound. Once this is done, the edited Program is now ready to be stored.

STORING A NEW PROGRAM

1. Press WRITE. The Program number LED will start to flash, and the LCD will show (example: Program 1):

```
         ┌──────────────────────────────┐
         │PROGRAM WRITE                  │
         │   1 → 1  OK?                  │
         └──────────────────────────────┘
             └┘      └┘
   Current Program number  Program destination number
```

2. If you do not wish to store the edited Program in its original location, select another Program destination number using the normal program select procedure. The selected Program destination number will be displayed on the LCD (example: Program 13):

```
┌─────────────────────────┐
│  PROGRAM WRITE          │
│    1 ÷ 13   OK?         │
└─────────────────────────┘
```

3. Press WRITE again to store the edited Program.
   NOTE: This will erase Program data existing in the selected Program location.

The LCD will show

```
┌─────────────────────────┐
│  PROGRAM WRITE          │
│   *COMPLETE!*           │
└─────────────────────────┘
```

then display the last Effect and Parameter that was selected.

NOTE: You can store Programs without editing them. For example, you might wish to store Programs in a specific order for a performance, so that when you use a pedal switch to step through the Programs, they will match the sequence of songs in your performance. In this case, the LCD will return to the Program name display, after the Program store operation is carried out.

THE SERIAL/PARALLEL MODES

The two Effects in each Program on the DRV-3000 can be used in serial or in parallel, as the following diagrams demonstrate:

SERIAL MODE
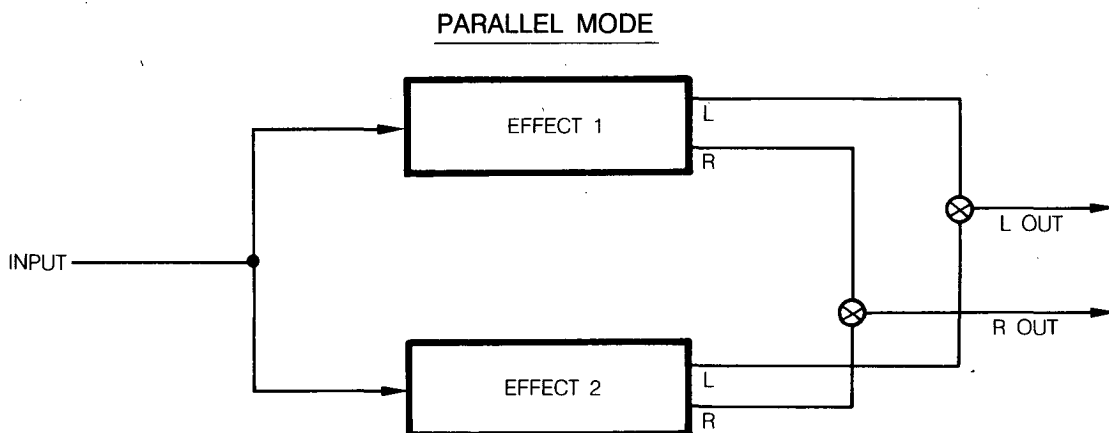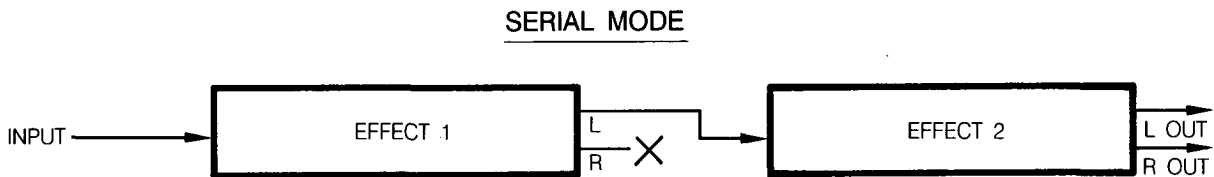
PARALLEL MODE

When you select a Program, either the SERIAL or PARALLEL LED will light, indicating which mode is in use in the selected Program. You can switch to the other mode by pressing the appropriate key.
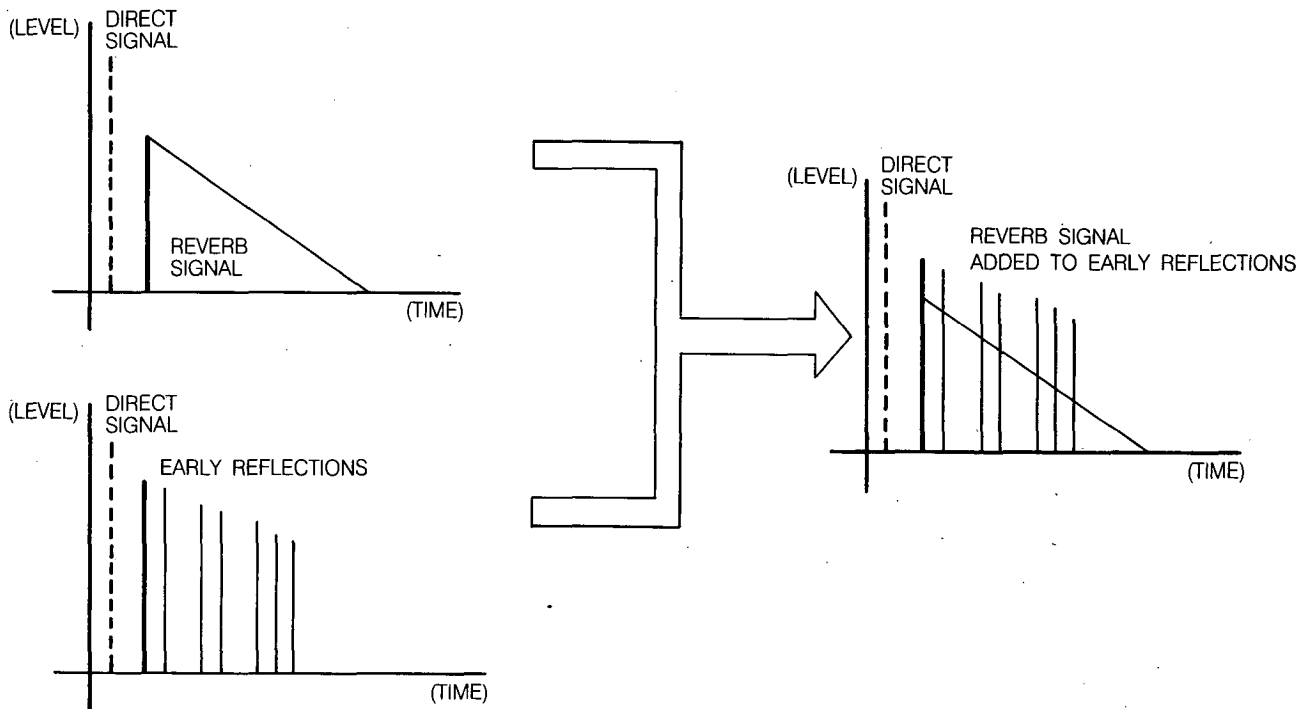
NOTE: The newly selected mode will NOT be stored as part of the Program unless you carry out the store operation as described in the previous section.

The aural result of switching between Serial and Parallel modes depends on the actual Effects that are being used. The following example shows in graphic form one case-the use of Reverb and Early Reflection Effects to create two noticeably different Programs simply by switching between Serial and Parallel. We suggest you try this example, and then experiment with other Programs to see how useful the Serial and Parallel modes can be.

REVERB PLUS E/R IN PARALLEL. RESULT: GATE REVERB

(LEVEL) DIRECT SIGNAL

REVERB SIGNAL

(TIME)

(LEVEL) DIRECT SIGNAL

EARLY REFLECTIONS

(TIME)

(LEVEL) DIRECT SIGNAL

REVERB SIGNAL ADDED TO EARLY REFLECTIONS

(TIME)

REVERB PLUS E/R IN SERIES. RESULT: ENHANCED REVERB

(LEVEL) DIRECT SIGNAL

REVERB SIGNAL

(TIME)

(LEVEL) DIRECT SIGNAL

EARLY REFLECTIONS

(TIME)

(LEVEL) DIRECT SIGNAL

REVERB SIGNAL MULTIPLIED BY EARLY REFLECTIONS

(TIME)
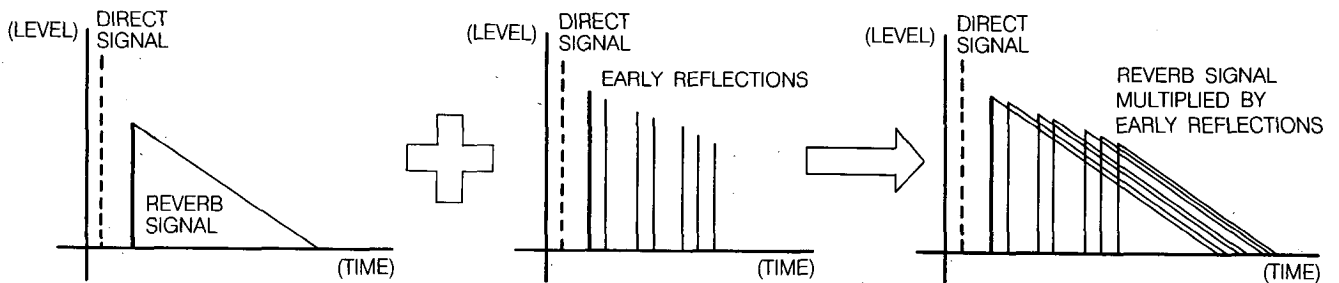
EFFECTS AND PARAMETERS

The DRV-3000's Effects each feature a number of separate, programmable functions called "Parameters". These allow you to vary the Effect in different ways to create new Effects.

This chapter explains in detail the Parameters relating to each Effect. They are also listed in the PARAMETER CHART later in this manual.

Parameters are selected by pressing the PARAMETER key. The first pressing of this key selects Parameter 1. Subsequent pressings of this key allow you to step through the available Parameters (from 2 to 9, according to the selected Effect) then return to Parameter 1.

NOTE: Effects also contain "invisible Parameters" that cannot be modified—so for example, if you set the Programmable Parameters of Effects 1 and 2 (which are both reverb-type Effects) to the same settings, the result will not be the same.

REVERB TYPE (EFFECTS 1 THRU 5)

The DRV-3000 provides five different Reverb Effects, reproducing the sound qualities of a variety of environments. You can also create complex Reverb Programs by combining two Reverb Effects. When used in PARALLEL, the result is a reverberation that features all the characteristics of the two Reverb Effects (whose parameters may all be varied).

When used in the SERIAL mode, Effect 1's Reverb Effect is blended with Effect 2's Reverb Effect to create a rich reverberation that cannot be obtained by simply connecting two digital reverb units. In this case, the Reverb Time and High Damp of Effect 2 ONLY may be varied. Although the displayed values of Effect 1's Reverb Time and High Damp may be altered, their actual values will NOT change.

NOTE: These limitations do NOT apply when combining a Reverb Effect with another type of Effect.
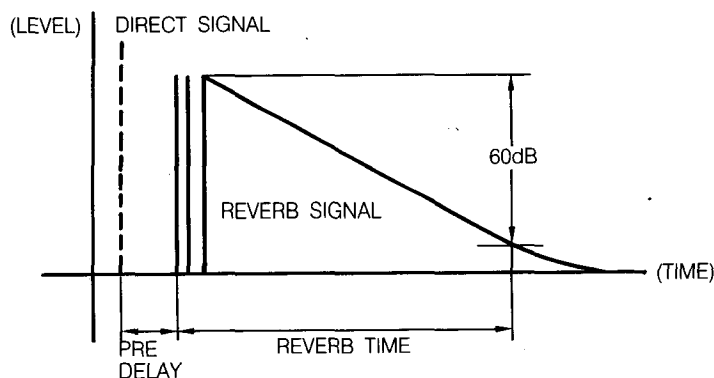
1. REVERB TIME. RANGE: 0.3–99.9 seconds

The length of time it takes for the reflected sound to decrease by 60 dB (almost to silence). This depends on the hall size, shape and the absorbency of its surfaces.

2. HIGH DAMP. RANGE: 1–10

Allows you to reduce the reverb time of the high frequency content of the input signal (in any environment, high frequencies are absorbed more than low frequencies, by carpets, drapes, etc.) The higher the value of this parameter, the shorter the high frequency reverb time.

3. PRE DELAY. RANGE: 0.1–500 milliseconds

This allows you to reproduce the time delay that occurs naturally between the time the direct sound and the first reflected sound reach the listener in a concert hall.

4. HIGH PASS FILTER. RANGE: THRU, 32 Hz–1 kHz

Allows you to cut the low frequency content of the reverb sound below the selected frequency, for a clearer or thinner sound. When set to THRU, the filter is OFF and all frequencies are passed.

— 17 —

5. LOW PASS FILTER. RANGE: 1 kHz–16 kHz, THRU

Allows you to cut the high frequency content of the reverb sound above the selected frequency, for a more muted, softer sound. When set to THRU, the filter is OFF and all frequencies are passed.

6. REVERB TIME 2. RANGE: 0.3–99.9 seconds

This lets you set a second reverb time, which can be instantly selected by using a pedal switch connected to the SW1 connector on the rear of the main unit. The pedal switch function must be set using Utility Mode, function #5.

EARLY REFLECTION TYPE (EFFECTS 6, 7)

These presets reproduce the initial early reflections that occur in an acoustic environment, and indicate precisely the size and quality of the environment. EARLY REFLECTION CHARTS can be found later in this manual. Each Early Reflection is separately discernible and can be measured, which contrasts with the numerous multiple reflections that occur later and form what is known as reverberation. These Effects are clear and powerful and can add excitement and modern studio-type ambience to your sound.

Preset 6 has fewer reflections, while Preset 7 has more reflections for a denser quality.
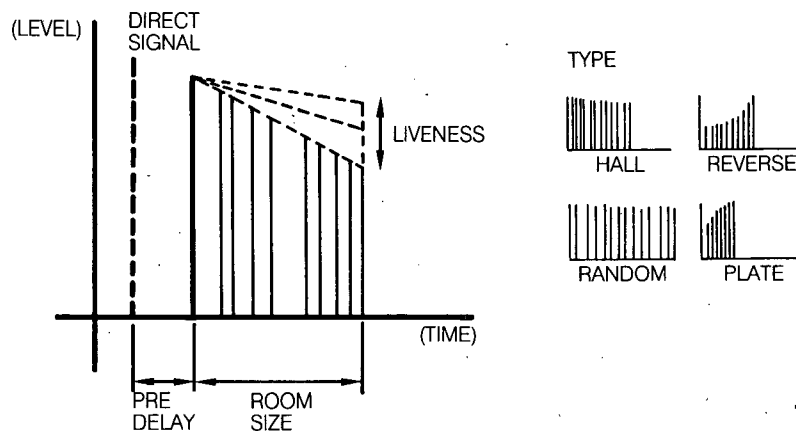
1. TYPE. RANGE: HALL, RANDOM, REVERSE, PLATE

This allows you to select the type of Early Reflection groupings. HALL reproduces typical reflections in a concert hall. RANDOM is an artificial reverberation created by a randomly selected group of early reflections. REVERSE creates the illusion of a backward sound by having reflections that increase in level. PLATE reproduces the sound of studio reverb units that create reverberation by passing a signal through a large metal plate.

2. ROOM SIZE. RANGE: 0.1–20

This affects the "gaps" between the early reflections, giving an accurate indication of room size, from a box to a stadium.

3. LIVENESS. RANGE: 0–10

Allows you to set the rate at which the reflected sounds fade. A high setting simulates a highly reflective room (steel and glass) while a lower setting simulates an absorbent environment (wood and drapes).

4. PRE-DELAY. RANGE: 0.1–1300 milliseconds

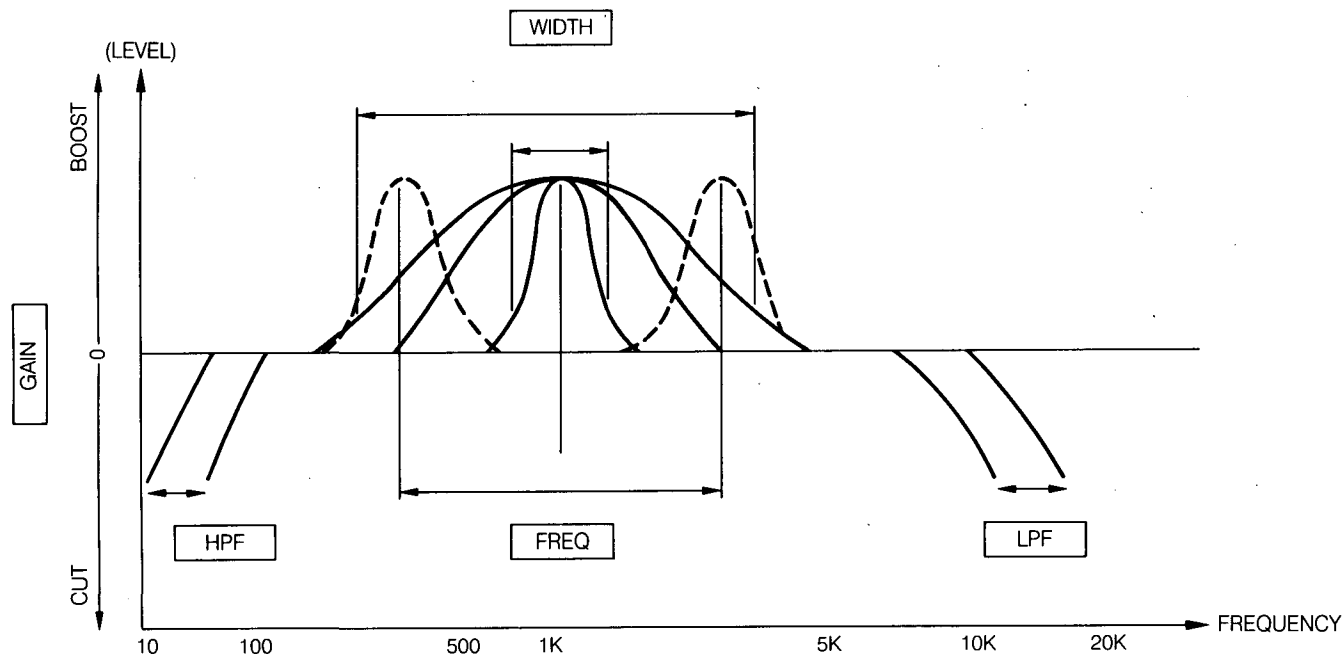See the same function in Reverb Type Effects.

5. LOW PASS FILTER. RANGE: 1 kHz–16 kHz, THRU

See the same function in Reverb Type Effects.

PARAMETRIC EQ/DRIVER (EFFECT 8)

Parametric EQ (equalization) lets you select any two frequency bands of your input signal, and boost or cut them, to finely tailor the sound (particularly useful for matching vocals to a performing environment). You can also delay the processed sound.

When the GAIN is set to a high level, the sound goes into a type of controlled distortion which can produce powerful fuzz-type modulation (especially impressive on lead guitar).

1. HIGH PASS FILTER. RANGE: THRU, 32 Hz–1 kHz

See the same function in Reverb Type Effects.

2. FREQUENCY 1. RANGE: 315 Hz–12 kHz

Allows you to set the center frequency of the EQ band.

3. GAIN 1. RANGE: −18 – +18 dB

Allows you to set the amount of boost or cut applied to the selected EQ band.

4. WIDTH 1. RANGE: 1.0–5.0 dB

Allows you to set the "Q" (Quality factor or bandwidth) of the selected EQ band. The higher the value, the narrower the width.

5. FREQUENCY 2. RANGE: 315 Hz–12 kHz

Allows you to set the center frequency of a second EQ band.

6. GAIN 2. RANGE: −18 – +18 dB

Allows you to set the amount of boost or cut applied to the second EQ band.

7. WIDTH 2. RANGE: 1.0–5.0 dB

Allows you to set the "Q" (Quality factor or bandwidth) of the second EQ band.

8. LOW PASS FILTER. RANGE: 1 kHz–16 kHz, THRU

See the same function in Reverb Type Effects.

9. DELAY. RANGE: 0.1–1400.0 msec

Allows you to set a delay time between the direct sound and the processed sound.

STEREO ECHO 1 and 2 (EFFECTS 9, 10)

The Stereo Echo Effects produce independently variable left and right channel delays. Single delays or multiple delays can be created, similar to tape echo, but without the noise problems of tape. The two presets create slightly different echoes: STEREO ECHO 1 lets you mix the feedback (echo repeats) from both channels, while STEREO ECHO 2 lets you apply feedback independently to left and right channels.
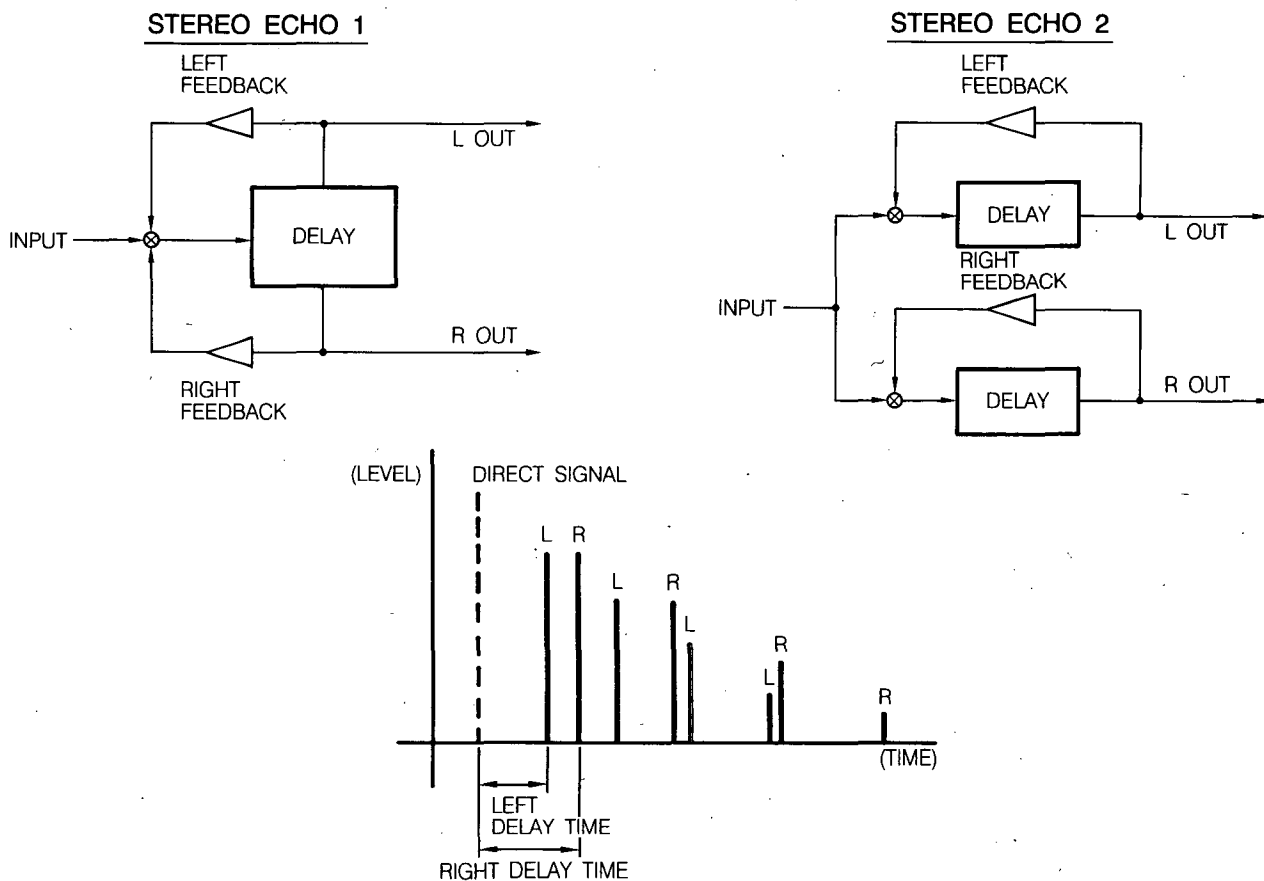
1. LEFT CHANNEL DELAY TIME. RANGE: 0.1–1400.0 msec (ECHO 1), 0.1–740.0 msec (ECHO 2).

Sets the time between the direct signal and the first delay, and also between subsequent delays.

2. LEFT CHANNEL FEEDBACK. RANGE: −95% − +95%

Sets the number of repeats following the first delay signal, from one to virtually infinity. Negative settings create phase-reversed repeats, which can add clarity or thinness to the processed sound. The feedback range is limited to ±95% to avoid distortion or oscillation caused by repeats not attenuated.

3. RIGHT CHANNEL DELAY TIME. RANGE: 0.1–1400.0 msec (ECHO 1), 0.1–740.0 msec (ECHO 2).

Same function as Left Channel Delay Time.

## 4. RIGHT CHANNEL FEEDBACK. RANGE: −95% − +95%

Same function as Left Channel Feedback.

5. HIGH DAMP. RANGE: 1–10

Allows you to reduce the high frequency content of the Effect, for a more muted sound.

STEREO FLANGE (EFFECT 11)

This Effect is created by modulating the phases of the L and R delayed sound, The result is a flanging effect that is possible only with digital processing. It can add dramatic thickening and movement to any sound.
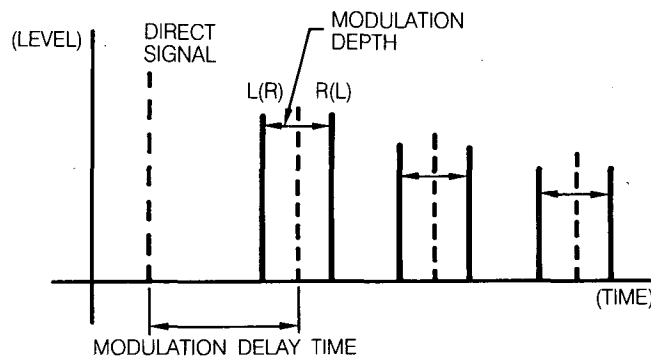
1. MODULATION FREQUENCY. RANGE: 0.1–40.0 Hz

Allows you to set the speed of delay modulation, from a slow subtle timbre change to a fast flutter.

2. MODULATION DEPTH. RANGE: 0–100%

Allows you to set the amount by which the delay is modulated, and hence the depth of the Effect.

3. MODULATION DELAY TIME. RANGE: 0.1–500.0 msecs

Allows you to set the initial delay time. If the delay time is set to a very short time (below 5 msec) a rising and falling pitched tone will result.

4. FEEDBACK GAIN. RANGE: 0–95%

Allows you to set the amount by which the flanged signal is fed back, thereby increasing the complexity of the Effect.

STEREO CHORUS (EFFECT 12)

The Chorus Effect works by varying the delay times and levels of several delayed signals. It can add a vibrant "water" effect to your instrument sound.

1. MODULATION FREQUENCY. RANGE: 0.1–40.0 Hz

Allows you to vary the modulation frequency, from a slow subtle timbre change to a fast flutter.

2. DELAY MODULATION DEPTH. RANGE: 0–100%

Allows you to set the amount by which the delay time is modulated, and hence the depth of the Effect.
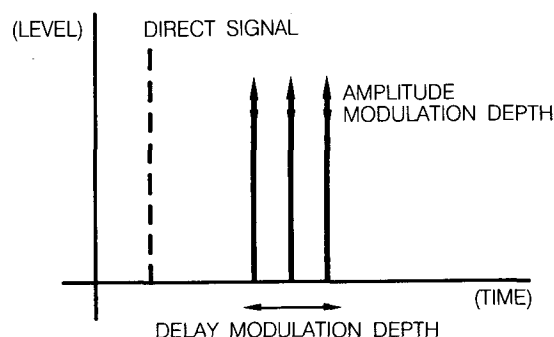
3. AMPLITUDE MODULATION DEPTH. RANGE: 0–100%

Allows you to set the amount by which the level of the delayed signals are modulated, also affecting the depth of this Effect.

ENSEMBLE (EFFECT 13)

This adds an orchestral breadth to your sound-particularly impressive for chordal instruments such as guitars or keyboards.
In principle it functions in the same way as the STEREO FLANGE Effect.

1. MODULATION FREQUENCY. RANGE: 0.1–40.0 Hz

Allows you to set the speed of modulation, from a slow subtle timbre change to a fast flutter.

2. MODULATION DEPTH. RANGE: 0–100%

Allows you to set the amount of modulation, and hence the depth of the Effect.

PAN (EFFECT 14)

This Effect allows you to automatically pan the signal between the left and right channels (in the case of a stereo input, the input is mixed to mono prior to being panned).

You can set the speed, direction and depth of pan.

1. PAN SPEED. RANGE: 0.1–40.0 Hz

Allows you to vary the pan speed from a rapid wobble to an almost imperceptible slow movement.

2. PAN MODE. RANGE: L>R, L<R, L<>R

Allows you to set the direction of pan, left to right, right to left, or moving back and forth between the speakers.

3. PAN DEPTH. RANGE: 0–100%

Allows you to set the amount of pan (the audible "width" of pan).
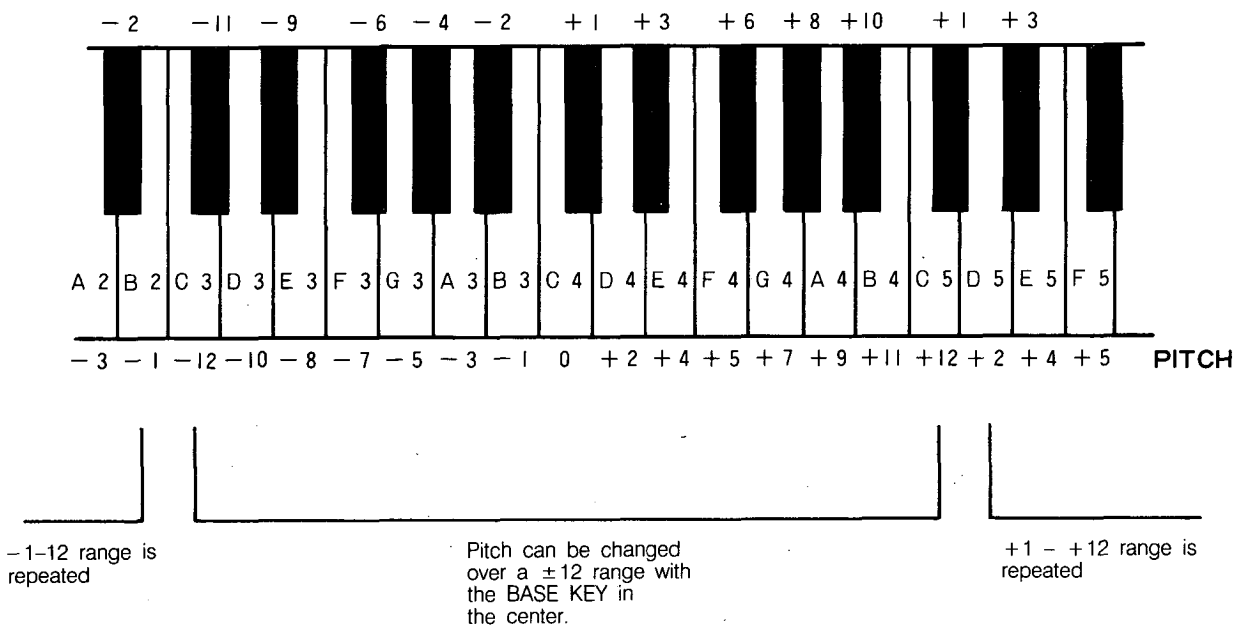
PITCH SHIFT (EFFECTS 15, 16)

Allows you to vary the actual pitch of your input signal, over a range of +/− one octave, in semitone steps. Fine tuning can also be done, in steps of one cent (1/100 semitone). PITCH SHIFT 2 allows you to set two pitch settings, independently for left and right channels. In this way you can produce a three-note chord from a single note, or use fine-tuning to create chorusing or detuning. PITCH SHIFT 1 allows you to set Feedback Gain, to create echoes that slide up or down in pitch.

The Pitch Parameter (in semitone steps only-NOT the Fine Parameter) can be controlled by an external MIDI keyboard. This can allow you to alter the pitch change at each note to produce a specific harmony line, for example. You could also use a MIDI sequencer, programmed with a melody line (or even two) which will control the pitch of one or two harmonies on a vocal line, adding a major 3rd on one note, a minor 3rd on the next, and so on. This is done as follows.

1. Connect the MIDI OUT of your MIDI device to the MIDI IN of the DRV-3000.

2. Set the MIDI channel of the DRV-3000 to match that of the external device, using Utility Function #2.

3. Set the Base Key (Parameter 5 of this Effect). Now, when you press a key on your keyboard, it will alter the Pitch setting. For example, if you have set the Base Key at C4, pressing D4 will raise the Pitch by one tone, while pressing C3 will lower it by one octave. If you play more than one note simultaneously, only the upper note will affect the Pitch setting.

Using Preset 16, two Pitch settings can be controlled, by playing two notes on the keyboard. The higher note will control the Left Channel Pitch setting, and the lower note will control the Right Channel Pitch setting. If you play more than two notes simultaneously, only the upper two notes will affect Pitch settings.

If you play a note more than one octave from the Base Key, the resulting Pitch setting will still be within the +/− 1 octave range of this Effect as the following diagram shows:

| −2 | −11 | −9 | −6 | −4 | −2 | +1 | +3 | +6 | +8 | +10 | +1 | +3 |

| A 2 | B 2 | C 3 | D 3 | E 3 | F 3 | G 3 | A 3 | B 3 | C 4 | D 4 | E 4 | F 4 | G 4 | A 4 | B 4 | C 5 | D 5 | E 5 | F 5 |

| −3 | −1 | −12 | −10 | −8 | −7 | −5 | −3 | −1 | 0 | +2 | +4 | +5 | +7 | +9 | +11 | +12 | +2 | +4 | +5 | **PITCH** |

−1–12 range is repeated

Pitch can be changed over a ±12 range with the BASE KEY in the center.

+1 − +12 range is repeated

1. PITCH. RANGE: −12 − +12 semitones

Allows you to set the pitch change in semitone steps. Preset 16 has independent Left and Right channel Pitch change Parameters.

2. FINE. RANGE: −100 − +100 cents

Allows you to "fine-tune" the Pitch change in increments of one cent. Combined with Parameter 1, this means that you can set the Pitch change at any point within a +/− one octave range. Preset 16 has independent Left and Right channel Fine Parameters.

3. DELAY. RANGE: 0.1–1300.0 msec (PITCH SHIFT 1) 0.1–600.0 msec (PITCH SHIFT 2)

Allows you to delay the pitch-changed signal. For example, using Preset 16 you can set two different pitch changes and two different long delays, to create a three-note arpeggio from a single note input. Preset 16 has independent Left and Right channel Delay Parameters.

4. FEEDBACK GAIN. RANGE: 0–95% (PITCH SHIFT 1)

This Parameter is on Preset 15 ONLY. It allows you to create a number of repeats following the first pitch-changed signal, from one to virtually infinity. Each repeat will be changed in pitch from the previous repeat.

5. BASE KEY. RANGE: OFF, C1–C6

Allows you to set a note on an external MIDI keyboard which will be used as the base note from which Pitch changes can be selected, as described earlier. When OFF is selected, pitch cannot be controlled from a MIDI keyboard.

MIDI AND THE UTILITY MODE

The Utility Mode allows you to set eight functions on the DRV-3000, including MIDI functions.

To enter the Utility Mode, press the UTILITY key. The LCD will show the first Utility function. Subsequent pressings of the UTILITY key allow you to step through the Utility functions, then exit the Utility Mode. You can also exit the Utility Mode without having to step through all the Utility functions, by holding down the UTILITY key, or by pressing a PROGRAM key or an EFFECT key.

FUNCTION #1: TITLE EDIT

This allows you to enter a new name for a Program. Before selecting this function, you should select the Program you wish to name (or rename).

1. When you select this function, the present Program name will be displayed. The cursor will appear at the first character space.

Cursor

```
_  [PROGRAM]
   TITLE EDIT
```
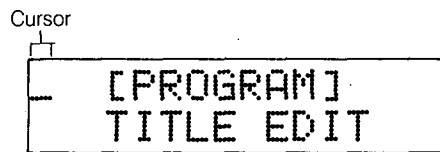
2. To enter the first new character, use the Nudge keys to step through the available characters, until you reach the required character. The available characters are displayed in the following order:

(NOTE: The DRV-3000 is manufactured for worldwide distribution, and there Japanese characters are included.)

3. Once the desired character has been selected, press PARAMETER to move the cursor to the next space, and select the next character.

4. Continue entering characters until the name is complete. If you wish to change any character, the PARAMETER key can be used to move the cursor, and the Nudge keys can be used to change the character.

5. When you exit the Utility Mode, the new name is stored.

FUNCTION #2: MIDI RECEIVE CHANNEL

This allows you to set the MIDI channel on which the DRV-3000 will receive MIDI data (for example, when using a MIDI keyboard to change Programs or select Pitch Change values). MIDI data can be sent on any one of 16 MIDI channels. The DRV-3000's MIDI Receive Channel should be set to the same MIDI channel as the external MIDI device. You can also turn MIDI reception OFF, or set it to OMNI (to receive MIDI data on all 16 MIDI channels).

1. When you select this function, the current MIDI Receive Channel setting will be displayed.

```
 MIDI CONTROL
RECEIVE ch =   1
```
Current MIDI Receive Channel setting

2. Use the Nudge keys to step through the available MIDI Receive Channel settings until the desired setting is reached. Settings are displayed in the following order:
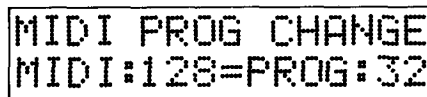
> OMNI
> MIDI Channels 1 thru 16
> OFF

FUNCTION #3: MIDI PROGRAM CHANGE

This allows you to assign each of the 32 Programs on the DRV-3000 to a corresponding MIDI Program number on a MIDI keyboard. This enables you to assign just the right Program to each voice on your keyboard, and have them selected automatically just by pressing a voice change (Program change) key on your keyboard.

For example, you might have Program 1 assigned to voice 12 on your keyboard. Then, for a solo, you might switch to voice 22, automatically selecting Program 17 on the DRV-3000. Then, when you switch back to voice 12 for the rest of the song, Program 1 will again be selected on the DRV-3000.

1. When you select this function, the LCD will display the Program that was selected the last time this Function was used, and the MIDI Program number to which it was assigned.

```
MIDI PROG CHANGE
MIDI:128=PROG:32
```
MIDI Program number   DRV-3000 Program number

2. Use the Nudge keys to select the number of the MIDI Program. RANGE: 1 – 128. The DRV-3000 Program that is currently assigned to the selected MIDI Program will also appear on the LCD.

3. Use the PARAMETER key to move the cursor to the DRV-3000 Program number, and use the Nudge keys to select the number of the Program which is to be assigned. RANGE: 1 – 32.

4. You can now use the PARAMETER key to move the cursor, and the Nudge keys to set numbers, and continue assigning DRV-3000 Programs to MIDI Programs.

FUNCTION #4: SWITCH PROGRAM CHANGE

This allows you to select a range of Programs (for example, Programs 12 thru 24) from the 32 available Programs. You can then use the pedal switches (see Utility Functions #5 and #6) to step through these Programs. This provides you with another convenient way of selecting Programs during a performance.

1. When you select this function, the LCD will display the previously selected Switch Program Change settings.

```
┌─────────────────┐
│ SW PROG CHANGE  │
│ RANGE 12 TO 24  │
└─────────────────┘
        └┬┘      └┬┘
     Lower limit  Upper limit
```
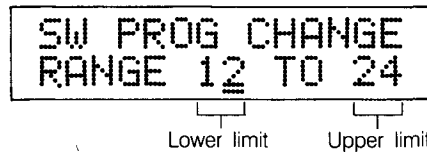
2. Use the Nudge keys to select the lower limit of the desired Program range. RANGE: 1 – 32.

3. Use the PARAMETER key to move the cursor to the upper limit position, and use the Nudge keys to select the upper limit of the desired Program range. RANGE: 1 – 32.
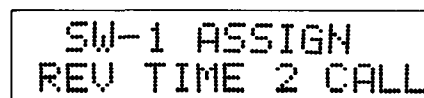
FUNCTION #5: SWITCH 1 ASSIGN

This allows you to use an optional pedal switch, connected to the SWITCH 1 input on the rear of the main unit, for either of two useful functions.

PROGRAM UP: You can select Programs (as selected in Utility Function #4) by stepping UP through the selected Program range. In our previous example, you would step from Program 12 to 24, then begin again at Program 12.

REVERB TIME 2 CALL: You can switch the reverb time of a reverb type Program to a second pre-selected "Reverb 2" time. For example, you might suddenly use a longer reverb during a solo. After the solo, you would then press the pedal switch a second time to return to your original reverb time. The reverb 2 time is a Parameter and can be set when you are editing a Program.

1. When you select this function, the LCD will show the current switch 1 setting. Use either one of the Nudge keys to switch between Program Up and Reverb Time 2 Call.

```
┌─────────────────┐      ┌─────────────────┐
│ SW-1 ASSIGN     │      │ SW-1 ASSIGN     │
│ PROGRAM UP      │      │ REV TIME 2 CALL │
└─────────────────┘      └─────────────────┘
```

FUNCTION #6: SWITCH 2 ASSIGN

This allows you to use a second optional pedal switch, connected to the SWITCH 2 input on the rear of the main unit, for either of two useful functions.

PROGRAM DOWN: You can select Programs (as selected in Utility Function #4) by stepping DOWN through the selected Program range. In our previous example, you would step from Program 24 to 12, then begin again at Program 24.

EFFECT CANCEL: You can cancel the Program currently in use (just as you can with the EFFECT CANCEL key on the remote control) so that you hear only the direct sound. You can also cancel the entire signal (direct plus processed sound). These two options are set using Utility Function #7.

1. When you select this function, the LCD will show the current switch 2 setting. Use either one of the Nudge keys to switch between Program Down and Effect Cancel.

```
SW-2 ASSIGN
PROGRAM DOWN
```

```
SW-2 ASSIGN
EFFECT CANCEL
```

FUNCTION #7: EFFECT CANCEL MODE

This allows you to select two cancel modes, which are operated by the EFFECT CANCEL key on the remote control unit, or by pedal switch 2 (see Utility Function #6). The modes are as follows:

MODE 1 lets you cancel the entire output (direct plus processed sound).
MODE 2 lets you cancel the processed sound ONLY, so that you hear just the direct sound.

This makes it easy to compare the processed sound to the original sound.

1. When you select this function, the LCD will show the current Effect Cancel setting.

```
EFFECT CANCEL
MODE 1
```

2. Use either one of the Nudge keys to switch between Effect Cancel Modes 1 and 2.

FUNCTION #8: INITIALIZE PROGRAMS 1-16

This allows you to return the Effects, Parameters, Serial/Parallel settings, Level settings and names of Programs 1 thru 16 to their original, preset values.

1. When you select this function, the LCD will advise you to use the UP key to execute the initialize function (at this point you can, if you wish, cancel this function by exiting the Utility Mode):

```
INIT PROG 1-16
LOAD BY*UP*KEY
```

2. Press the UP key. The LCD will show

```
INIT PROG 1-16
*SET UP*
```

This indicates that Programs 1 thru 16 have been initialized. The LCD will then show the function that was selected prior to entering the Utility Mode.
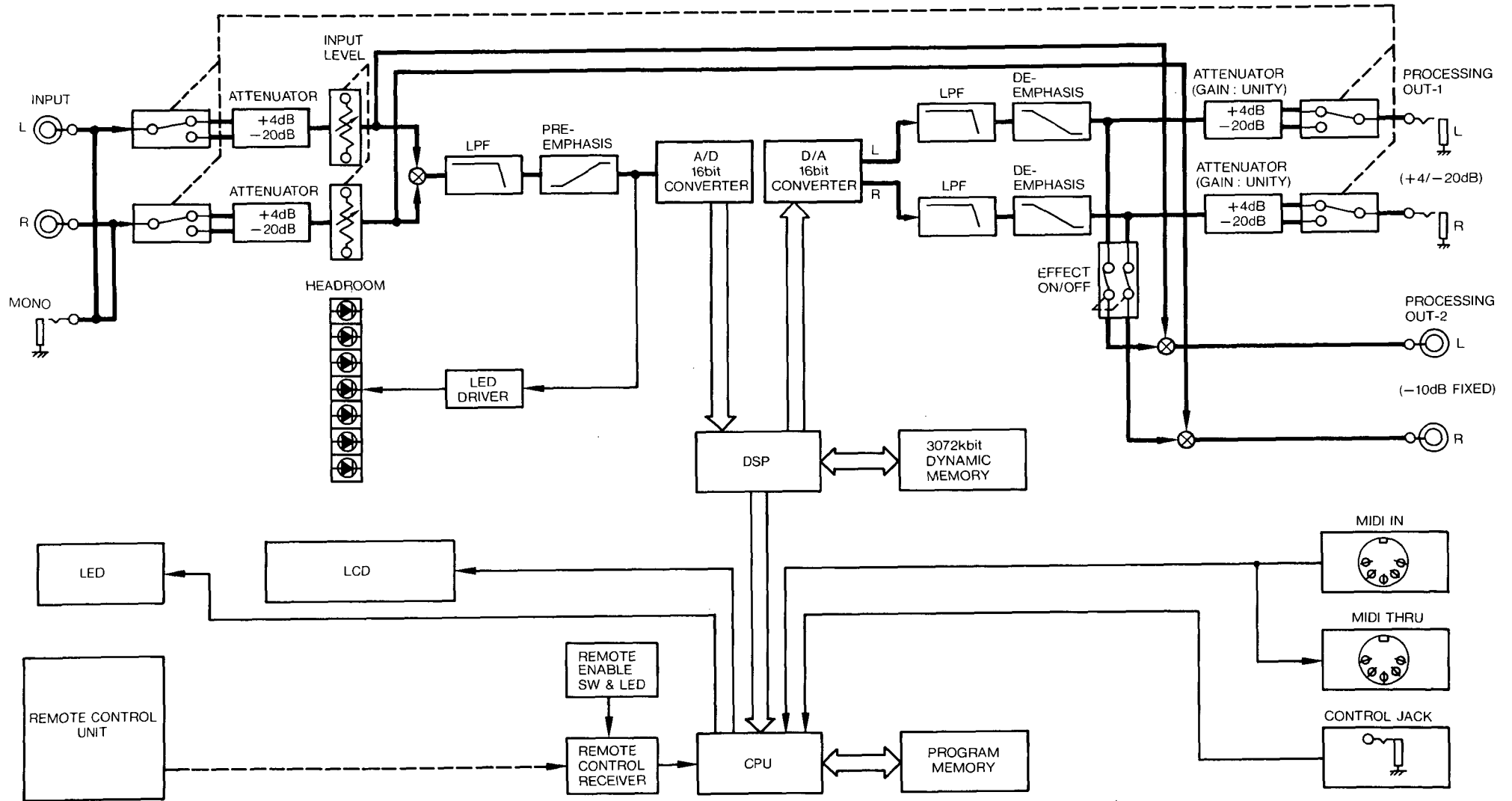
PARAMETER CHART

EFFECTS 1 - 10

EFF. No.	TITLE	PARAMETERS								
		1	2	3	4	5	6	7	8	9
1	HALL 1	REV. TIME	H. DAMP	PRE DLY	HPF	LPF	REV. TIME 2			
		0.3~99.0s	1~10	0.1~500.0ms	THRU、32Hz~1.0kHz	1.0kHz~16kHz、THRU	0.3~99.9s			
		2.7s	7	27.0ms	THRU	12kHz	5.0s			
2	HALL 2	REV. TIME	H. DAMP	PRE DLY	HPF	LPF	REV. TIME 2			
		0.3~99.0s	1~10	0.1~500.0ms	THRU、32Hz~1.0kHz	1.0kHz~16kHz、THRU	0.3~99.9s			
		1.8s	2	24.0ms	50Hz	8.0kHz	1.0s			
3	HALL 3	REV. TIME	H. DAMP	PRE DLY	HPF	LPF	REV. TIME 2			
		0.3~99.0s	1~10	0.1~500.0ms	THRU、32Hz~1.0kHz	1.0kHz~16kHz、THRU	0.3~99.9s			
		1.4s	4	12.0ms	THRU	THRU	0.4s			
4	PLATE	REV. TIME	H. DAMP	PRE DLY	HPF	LPF	REV. TIME 2			
		0.3~99.0s	1~10	0.1~500.0ms	THRU、32Hz~1.0kHz	1.0kHz~16kHz、THRU	0.3~99.9s			
		2.2s	2	10.0ms	630Hz	14kHz	4.7s			
5	GARAGE	REV. TIME	H. DAMP	PRE DLY	HPF	LPF	REV. TIME 2			
		0.3~99.0s	1~10	0.1~500.0ms	THRU、32Hz~1.0kHz	1.0kHz~16kHz、THRU	0.3~99.9s			
		1.0s	4	14.0ms	35Hz	5.0kHz	11.0s			
6	EARLY REF 1	→ HALL	ROOM SIZE	LIVENESS	PRE DLY	LPF				
		RANDOM	0.1~20.0	0~10	0.1~1300.0ms	1.0kHz~16kHz、THRU				
		REVERSE	1.5	8	8.0ms	THRU				
		PLATE								
7	EARLY REF 2	HALL	ROOM SIZE	LIVENESS	PRE DLY	LPF				
		RANDOM	0.1~20.0	0~10	0.1~1300.0ms	1.0kHz~16kHz、THRU				
		REVERSE	20.0	5	10.0ms	THRU				
		→ PLATE								
8	P-EQ/DRIVER	HPF	FREQ. 1	GAIN 1	WIDTH 1	FREQ. 2	GAIN 2	WIDTH 2	LPF	DELAY
		THRU、32Hz~1.0kHz	315Hz~12kHz	-18~18dB	1.0~5.0	315Hz~12kHz	-18~18dB	1.0~5.0	1.0kHz~16kHz、THRU	0.1~1400.0ms
		700Hz	400Hz	+13dB	1.0	2.5kHz	+12dB	1.9	7.0kHz	0.1ms
9	STEREO ECHO 1	Lch DLY	Lch F. B.	Rch DLY	Rch F. B.	H. DAMP				
		0.1~1400.0ms	-95~95%	0.1~1400.0ms	-95~95%	1~10				
		666.6ms	+26%	500.0ms	-24%	1				
10	STEREO ECHO 2	Lch DLY	Lch F. B.	Rch DLY	Rch F. B.	H. DAMP				
		0.1~740.0ms	-95~95%	0.1~740.0ms	-95~95%	1~10				
		487.0ms	-60%	513.0ms	+60%	1				

EFF. No.	TITLE	PARAMETERS								
		1	2	3	4	5	6	7	8	9
11	STEREO FLANGE	MOD. FREQ.	MOD. DEPTH	MOD. DLY	F. B. GAIN					
		0.1~40.0Hz	0~100%	0.1~500.0ms	0~95%					
		0.3Hz	90%	10.8ms	59%					
12	STEREO CHORUS	MOD. FREQ.	DLY MOD.	AMP MOD.						
		0.1~40.0Hz	0~100%	0~100%						
		0.2Hz	65%	62%						
13	ENSEMBLE	MOD. FREQ.	MOD. DEPTH							
		0.1~40.0Hz	0~100%							
		0.5Hz	60%							
14	PAN	PAN SPEED	PAN MODE	PAN DEPTH						
		0.1~40.0Hz	L→R,L←R,L↔R	0~100%						
		0.4Hz	L↔R	100%						
15	PITCH SHIFT 1	PITCH	FINE	DELAY	F. B. GAIN	BASE KEY				
		−12~12	−100~100	0.1~1300.0ms	0~95%	OFF C1~C6				
		+3	0	180.0ms	75%	C3				
16	PITCH SHIFT 2	L PITCH	L FINE	L DLY	R PITCH	R FINE	R DLY	BASE KEY		
		−12~12	−100~100	0.1~600.0ms	−12~12	−100~100	0.1~600.0ms	OFF C1~C6		
		−5	0	0.1ms	+7	0	0.1ms	C3		

BLOCK DIAGRAM

SPECIFICATIONS

Input	Lch +4dBm (+18dBm MAX) /–20dBm (–6dBm MAX) 20KΩ Rch +4dBm (+18dBm MAX) /–20dBm (–6dBm MAX) 20KΩ MONO +4dBm (+18dBm MAX) /–20dBm (–6dBm MAX) 50KΩ

Output	PROCESSING 1
	OUT 1 Lch +4dBm (+18dBm MAX) /–20dBm (–6dBm MAX)
	                  1KΩ GAIN UNITY
	OUT 1 Rch +4dBm (+18dBm MAX) /–20dBm (–6dBm MAX)
	                  1KΩ GAIN UNITY
	PROCESSING 2
	OUT 2 Lch –10dBm 1KΩ (+4dBm MAX)
	OUT 2 Rch –10dBm 1KΩ (+4dBm MAX)

Frequency response	10Hz -- 100KHz +0, –3dB DIRECT 20Hz -- 20KHz +0, –3dB EFFECT
Dynamic range	101dB (IHF-A) DIRECT 89dB (IHF-A) EFFECT

Distortion (THD)	0.004% DIRECT
	          (AT PROCESSING 2 1KHz 0dBm)
	0.006% EFFECT
	          (AT PROCESSING 1 1KHz +14dBm)

Quantization	16bit A/D Linear conversion (1ch) 16bit D/A Linear conversion (2ch)
Sampling Frequency	44.1 KHz
Power supply	AC 117, 220, 240V 50/60 Hz
Power consumption	25W
Dimensions (W x D x H)	482.6 x 313.3 x 88 mm (19" x 12.33" x 3.54") (EIA 2U RACK)
Weight	5.1kg (11lbs. 4oz)
Supplied accessories	Remote control unit Battery (SUM-3) x 2 Bind tapping screw (M5 x 16) x 4 Washer (Ø5) x 4

When mounting the unit in the rack, remove the felt legs from the bottom plate, then install the unit in the rack.

● Note that all specifications are subject to change without notice.

NOTICE
Korg products are manufactured under strict specifications and voltages required by each country. These products are warranted by the Korg distributor only in each country. Any Korg product not sold with a warranty card or carrying 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.

LITIUMPARISTO ━━━━━━━━━━━━━━━━━━━━━
Pariston saa vaihtaa ainoastaan huoltohenkilöstö saman valmistajan vastaavalla tyypillä. Virheellisestä käsittelystä syntyy räjähdysvaara.

VARNING ━━━━━━━━━━━━━━━━━━━━━━━━━
Denna apparat har LITHIUM BATTERI. Byte av batteri får endast ske av fackman. Felaktig hantering kan förorsaka explosion. Vid byte får endast batteri av samma typ och fabrikat monteras.

ADVARSEL ━━━━━━━━━━━━━━━━━━━━━━━━
Dette produktet inneholder lithium batteri som bare må skiftes ut av kvalifisert personell. Ukyndig behandling kan forårsake eksplosjon. Batteriet må erstattes av samme type fra samme produsent.

ADVARSEL ━━━━━━━━━━━━━━━━━━━━━━━━
Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, og som beskrevet i servicemanualen.