YAMAHA

PROFESSIONAL DIGITAL DELAY

D5000

OPERATING MANUAL
MANUEL D'UTILISATION
BEDIENUNGSHANDBUCH

Contents

Introduction

With its high-quality 20-bit sound, the Yamaha D5000 Professional Digital Delay is the perfect choice for studio and sound reinforcement applications.

It has four types of effect programs: DUAL (stereo) delay, SINGLE (mono) delay, FREEZE record and playback, and S&H (sample and hold) playback. The large amount of memory allows it to create delay lines or record samples of up to 10 seconds in duration.

The interface is simple and intuitive, with a large, easily-read LCD, allowing you to quickly produce exactly the effect you want. It features 100 program locations for storing your favorite effects for instant recall. For added flexibility, the D5000 can be controlled by MIDI, especially useful with the FREEZE record and playback effect.

Please read this operation manual carefully in order to familiarize yourself with the D5000 and its advanced features – and keep the manual in a safe place for later reference.

Precautions

Avoid excessive heat, humidity, dust, and vibration

Keep the unit away from locations where it is likely to be exposed to high temperatures or humidity - such as near radiators, stoves, in direct sunlight, etc. Avoid locations which are subject to excessive dirt accumulation. Extreme vibrations can cause mechanical damage.

Avoid physical shocks

Strong physical shocks can damage the unit. Handle it with care.

Do not open the unit, or attempt repairs or modifications yourself

This product contains no user-serviceable parts. Refer all maintenance to qualified Yamaha service personnel. Opening the unit and/or tampering with the internal circuitry will void the warranty.

Make sure power is off before making or removing connections

Always turn the power OFF prior to connecting or disconnecting cables. This is important to prevent damage to the unit itself as well as other connected equipment.

Handle cables carefully

Always plug and unplug cables - including the AC cord - by gripping the connector, not the cord.

Clean with a soft dry cloth

Never use solvents such as benzine or thinner to clean the unit. Wipe it clean with a soft, dry cloth.

Always use the correct power source

Make sure that the power source voltage specified on the rear panel matches your local AC mains supply:

> U.S. & Canadian Model: 120V AC, 60 Hz
> General Model: 230V AC, 50 Hz
> UK Model: 240V AC, 50 Hz

Back-up battery

The unit contains a long-life lithium battery which maintains the contents of the user memory locations even when the unit is off. With normal use, the battery should last approximately five years. If the battery voltage falls below a certain level, the message "WARNING LOW BATTERY" will appear on the screen when the power is turned on. If this occurs, have the battery replaced at a qualified Yamaha service center.
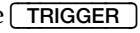
WARNING: DO NOT ATTEMPT TO REPLACE THE BATTERY YOURSELF.

The front panel
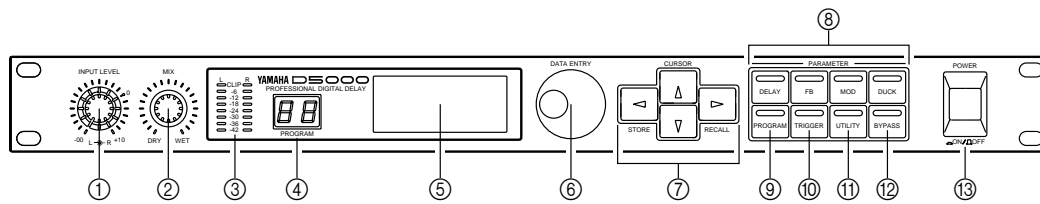
1   **INPUT LEVEL –** The two concentric rotary controls are used to adjust the level of the input signal. The inner control adjusts the left channel and the outer control adjusts the right channel.

2   **MIX –** This control adjusts the amount of effect from DRY (no effect) to WET (full effect).

3   **Input Level Meters (L and R) –** These stereo meters consist of one eight-segment LED per channel. The segments correspond to -42 dB, -36 dB, -30 dB, -24 dB, -18 dB, -12 dB, -6 dB, and CLIP.

NOTE   *The meters come after the A-D converters in the signal chain. Therefore, the CLIP LEDs indicate digital distortion. The input levels should be adjusted so that the CLIP LEDs never light up.*

4   **PROGRAM –** This 2-digit LED indicator shows the current program. When the LEDs are flashing, this indicates that a new program has been selected but not yet recalled.

5   **Screen –** This backlit LCD panel displays the details of the selected parameter.

6   **DATA ENTRY –** The rotary encoder is used to select another program or to modify parameter settings.

7   **CURSOR –** When the Program LED is lit, the [▲] and [▼] keys are used to select a program number, the [◄] ("STORE") key is used to store a program, and the [►] ("RECALL") key is used to recall the selected program.
When the Program LED is turned off, the [◄], [▲], [►], and [▼] keys are used to select the different parameters of a program.

8   **PARAMETER keys –** These keys allow you to select the different parameters for editing. Each key has an LED set in it to provide a quick visual indication of the status of the unit.
The [DELAY] key controls the delay or freeze parameters. Each key press steps through a sequence of display pages, allowing you to set the output level and other parameters.
The [FB] key controls the feedback parameters. Pressing this key more than once switches feedback ON or OFF.
The [MOD] key controls the modulation. Pressing this key more than once switches modulation ON or OFF.
The [DUCK] key controls the duck or gate threshold. Pressing this key more than once switches duck ON or OFF.

9   **PROGRAM key –** The [PROGRAM] key selects one of the 100 stored programs. It has an LED which lights when the key is pressed.

10 **TRIGGER key –** The [TRIGGER] key is used to set the tempo for delay parameters or to operate a freeze or sample and hold program. When the delay DISPLAY UNIT (see page 11) is set to "TEMPO", the LED will flash in time to the current tempo.

11 **UTILITY key –** The [UTILITY] key cycles through a number of display pages, allowing you to set up various system parameters for the unit. It has an LED which lights when the key is initially pressed.

12 **BYPASS key –** The [BYPASS] key, when pressed, causes the input signal to bypass the internal circuitry. It has an LED which lights while BYPASS is active.

13 **POWER –** Press to turn the power ON. The last program will be automatically recalled.

The back panel
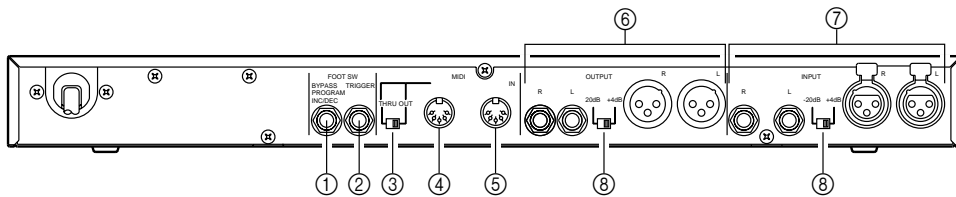
1   **BYPASS or PROGRAM INC/DEC Footswitch Jack** – The function of this jack is determined by the FOOT SW FUNCTION parameter of the UTILITY Mode.
    If it is set to BYPASS, the footswitch duplicates the function of the [BYPASS] key.
    If it is set to PROGRAM, the footswitch allows you to select between a pre-determined range of program numbers.

2   **TRIGGER Footswitch Jack** – A footswitch connected to this jack duplicates the function of the [TRIGGER] key.

3   **MIDI OUT/THRU Switch** – This switch selects either MIDI THRU or MIDI OUT for the MIDI OUT/THRU connector.

4   **MIDI OUT/THRU Connector** – When the MIDI OUT/THRU switch (3 above) is set to OUT, data originated by the D5000 is transmitted to an external MIDI device.
    When the switch is set to THRU, the connector just retransmits data received at the MIDI IN connector.

5   **MIDI IN Connector** – This connector receives data from an external MIDI device.

6   **OUTPUT L/R Connectors** – These are the analog stereo outputs from the D5000. Both the XLR-type connectors and the TRS phone jacks are electrically balanced output connectors.

7   **INPUT L/R Connectors** – These are the analog stereo inputs to the D5000. Both the XLR-type connectors and the TRS phone jacks are electrically balanced input connectors.
    Use the "L" (left-channel) connector when you are using a monophonic sound source. Set the input mode for the source with the INPUT MODE parameter for delay programs (see page 11) or the TRACK parameter for sampler programs (see page 16 and page 20).

8   **Level switches** – Both the input and output connectors may be set to nominal levels of +4 dB or -20 dB. When connecting the D5000 to other equipment, refer to the specifications of the other units in order to match the signal levels correctly.

System structure

The D5000 has three operational modes:

- Program Select Mode - Use this mode to STORE and RECALL programs.

- Parameter Edit Mode - This mode allows you to edit the various operational parameters, the DELAY/FREEZE parameters, the FB (feedback) parameters, the MOD (modulation) parameters, and the DUCK parameters.

  The Parameter Edit Mode performs differently according to which program type is active. DUAL (stereo) and SINGLE (mono) programs are delay programs. You access their parameters with the DELAY , FB , MOD , and DUCK keys. The parameters for the FREEZE and S&H (sample and hold) programs are accessed using the DELAY key only.

- Utility Mode - Customize the operation of the D5000 by modifying the following parameters: SOFTWARE PROTECT, PARAMETER DISPLAY, FOOT SW (footswitch) FUNCTION, MIDI SETUP, MIDI CONTROLLER, MIDI BULK DUMP, PARAMETER COPY, and REPEAT DELAY (This last parameter is only available when the program type is DUAL or SINGLE).

Program Select Mode

About the programs of the D5000

The D5000 has 100 user programs. All of the programs are user-programmable.

There are four types of programs available:

* DUAL (stereo) Delay (refer to the diagram on page 100)
  There are two delay units (A-channel and B-channel) and three taps for each unit. Create a flanger or chorus in perfect stereo, or a ping-pong (channel-to-channel) delay.

* SINGLE (mono) Delay
  This is a single delay with six taps. It can support a delay time that is double the length of a DUAL (stereo) program.

* FREEZE
  The input sound can be recorded and then played back in a variety of ways, including modifying the playback speed, looping, and so on.

* S&H (sample and hold)
  Use the TRIGGER key or a footswitch to control the sample and hold feature. By pressing the key or footswitch, you can sample and play-back in sequence.

Yamaha ships the D5000 with preset programs that illustrate the features of each of the four types of programs. Refer to the list of preset programs on page 30. The preset programs are stored in program numbers 1 to 00 (100). If you have over-written them, they can be recalled by the simple operation detailed on page 28.

Recalling a program

STEREO DUAL
T120 Single 16

Press the PROGRAM key to enter Program Select Mode. The LED on the key will light and the LCD will display the title of the current program.

Select a new program by rotating the DATA ENTRY encoder or by pressing the ▲ or ▼ CURSOR keys.

NOTE   *Pressing and holding any of the CURSOR keys causes the key to repeat*

STEREO DUAL
Double Slap

[RECALL]

The title of the new program is displayed on the LCD along with the flashing "[RECALL]" message. The program number will flash on the PROGRAM LED.

NOTE   *If the FB (feedback), MOD (modulation), or DUCK parameters are active for the selected program, the LED in the respective PARAMETER key will flash along with the program number.*

Press the ► "RECALL" CURSOR key.

If you have not made any changes to the previous settings, it will be replaced with the new program.

```
┌──────────────────────┐
│ STEREO ▌ DUAL ▌      │
│ ┌──────────────────┐ │
│ │ Double Slap      │ │
│ └──────────────────┘ │
│   ┌──[RECALL]───┐    │
│   │Are you sure ?│   │
│   └──────────────┘   │
└──────────────────────┘
```

If you have made changes to the previous settings without storing them, the unit will additionally display the message "Are you sure?" on the LCD. Press the ► "RECALL" CURSOR key again to complete your selection. The previous program will be replaced with the new program.

If you made a mistake selecting the new program or you decide you do not want to replace the current program, you can cancel the RECALL operation by pressing any key except the ► "RECALL" CURSOR key.

Storing a program

```
┌──────────────────────┐
│ STEREO ▌ SINGLE ▌    │
│ ┌──────────────────┐ │
│ │ Perc. Pattern    │ │
│ └──────────────────┘ │
│   ┌──[STORE]────┐    │
│   │From: 1→To:28 │   │
│   └──────────────┘   │
└──────────────────────┘
```

Press the PROGRAM key to enter Program Select Mode. The LED on the key will light and the LCD will display the title of the current program.

Press the ◄ "STORE" CURSOR key. The message "[STORE]" will be displayed on the LCD along with a message showing the "From:" and "To:" program numbers.

NOTE	*If the SOFTWARE PROTECT parameter of Utility Mode is not set to OFF, the LCD will temporarily display the message "Protected !" when you attempt to store a program.*

```
┌──────────────────────┐
│ STEREO ▌ DUAL ▌      │
│ ┌──────────────────┐ │
│ │ T120 Single 16   │ │
│ └──────────────────┘ │
│   ┌─Complete !──┐    │
│   │From: 1→To:28 │   │
│   └──────────────┘   │
└──────────────────────┘
```

Rotate the DATA ENTRY encoder or press the ▲ and ▼ CURSOR keys to select the program number that you want for use to storing your settings.

Press the ◄ "STORE" CURSOR key again to confirm that this is what you want to do. The message "Complete !" will briefly appear on the LCD.

Storing a program overwrites the data that was previously stored under that program number. If you decide that you do not want to replace the program or that you made a mistake selecting the program number, you can cancel the STORE operation by pressing any key other than the ◄ "STORE" CURSOR key.

Parameter Edit Mode

The D5000 has four types of effect program. The first two are high-quality, multi-tap digital delays, either DUAL (stereo) or SINGLE (mono). The other two are sampling/playback recorder programs.

Editing a delay program

To edit a delay program, press one of the PARAMETER keys, DELAY , FB , MOD , or DUCK . The first step is usually to select the main delay parameters by pressing the DELAY key.

The D5000 features multi-tap delays. For a DUAL (stereo) delay, there are two delay units with three taps per unit. A SINGLE (mono) delay is a single unit with six taps.

Setting the DELAY parameters

There are three display pages which you access by pressing the DELAY key:

• Page 1: Setting the delay time, level, and pan.

• Page 2: Setting input mode, display units, output level, and high and low pass filters.

• Page 3: Setting the title and controller assignments.

Page 1: Setting delay time, level, and pan

You set the main parameters of your delay effect on this page. You select the number of active taps, the length of the delay, the volume level of each tap, and its channel location in stereo.
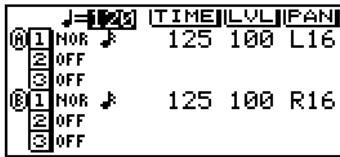
The LCD only displays the parameters that are currently active. Use the ◄ , ▲ , ► , and ▼ CURSOR keys to move from parameter to parameter.

After you have selected a parameter with the CURSOR keys, you can modify the parameter by rotating the DATA ENTRY encoder.
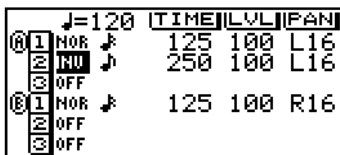
For example, press the ▼ CURSOR key to move to the second tap of the A-channel. Then rotate the DATA ENTRY encoder until the status is set to "INV".

DELAY parameters

STATUS (OFF/NOR/INV)   Select "OFF", positive phase (NOR), or negative phase (INV). When a tap is set to "OFF", it is inactive.

TIME   Set the length of the delay tap. If you change the DISPLAY UNIT parameter on the next page, the value will be altered to match the selected unit.

SECOND   SINGLE (~ 10400.00 ms) or DUAL (~ 5200.00 ms).

DISTANCE   SINGLE (~ 3536.000 m) or DUAL (~ 1768.000 m).

	TEMPO	♩= (25 ~ 250 beats per minute). Select one of the following for the Note parameter: ─ , ♪♪♪³, ♪♪³, ♪ ,♪♪³, ♪., ♪ ,♪♪♪³, ♪., ♩ , ♩., 𝅗𝅥 , 𝅗𝅥., ○ , or ○○ .
	30FRAME	SINGLE (~ 10 s 12 f 00 b) or DUAL (~ 5 s 6 f 00 b).
	25FRAME	SINGLE (~ 10 s 10 f 00 b) or DUAL (~ 5 s 5 f 00 b).
	24FRAME	SINGLE (~ 10 s 9 f 48 b) or DUAL (~ 5 s 4 f 64 b).
LVL (0 ~ 100%)		Set the level of the delay tap.
PAN (L16 ~ L=R ~ R16)		Set the stereo pan position of the delay tap in one of 33 steps. If you set the modulation STATUS parameter to "PAN" (see page 13), this setting will effect it as well.

NOTE   *When TEMPO or FRAME is selected, the digits to the right of the decimal place will not be displayed.*

Changing the TEMPO parameter

Use one of the following methods to modify the TEMPO parameter:

- Manual Input
  Select the parameter with the CURSOR keys, then modify the value by rotating the DATA ENTRY encoder.

- Tap Input (⬓TRIGGER⬓ Key or Footswitch)
  Set the tempo by tapping two beats on the ⬓TRIGGER⬓ key or by pressing two beats with a footswitch connected to the TRIGGER Footswitch Jack on the back panel. The D5000 sets the tempo by counting the interval between the two successive beats.

NOTE   *It is not possible to set tap input if the DUCK parameter SOURCE is set to TRIG.KEY.*

- MIDI Clock Input
  The tempo may be set using the MIDI clock of a connected sequencer, rhythm programmer, or other device.

This parameter sets the TEMPO, not the delay time. You set the Note parameter for each active tap when you edit the program. The delay time is then calculated from the TEMPO parameter and the Note parameter.

NOTE   *You can also fine tune the resulting delay TIME, but that value will be discarded any time you modify the TEMPO or select another value for the Note parameter.*

Page 2: Setting input mode, display unit, output level, and high and low pass filters

This page is used to set the overall output level for your delay. You can also apply low and high pass filters to the effect as well as set the input mode and display units.
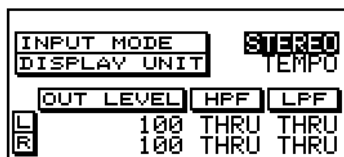
Press the ⬓ DELAY ⬓ key again to select the second display page.

Use the ⬓◄⬓ , ⬓▲⬓ , ⬓►⬓ , and ⬓▼⬓ CURSOR keys to move through the various parameters. Modify the parameter by rotating the DATA ENTRY encoder.

```
INPUT MODE    STEREO
DISPLAY UNIT    TEMPO

OUT LEVEL  HPF  LPF
L  100 THRU THRU
R  100 THRU THRU
```

Page 2 parameters

INPUT MODE (STEREO/ L-MONO)

Set the input mix mode. The following diagram illustrates the different INPUT MODE options.

	STEREO	L-MONO
DUAL Delay		
SINGLE Delay		
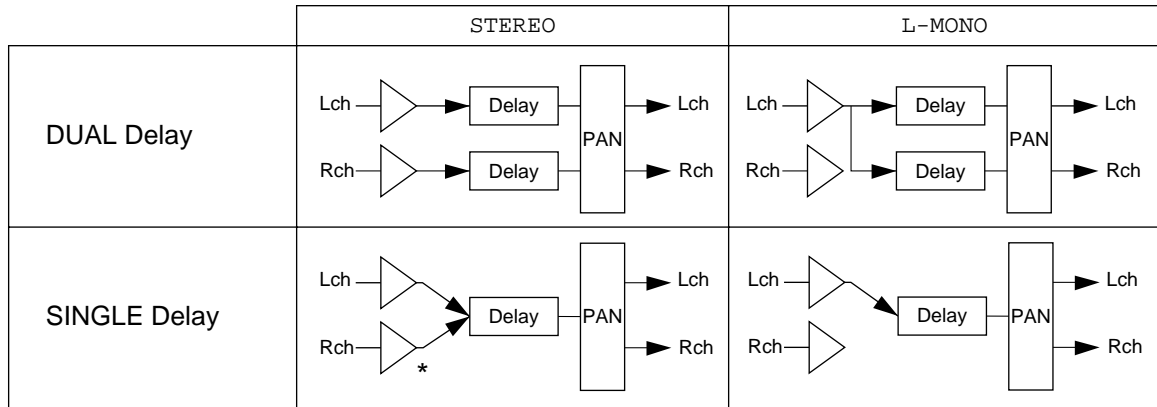
* The levels of the Lch and Rch input signals are halved and mixed.

DISPLAY UNIT (units)   Select the unit that will be used to display the delay time.

SECOND (ms)   Indicates the time in milliseconds.

DISTANCE (m)   Indicates the distance in meters.

TEMPO (Tempo, Note, Time)   Indicates the delay in beats per minute. Time(ms) is also displayed, allowing you to fine tune the delay in milliseconds.

FRAME (s, f, b)   Indicates the delay in frames. The units are Seconds, Frames, and Bits. There are three types of frame: 30FRAME, 25FRAME, or 24FRAME. They differ by the number of frames per second.

OUT LEVEL (0 ~ 100%)   Set the final output level.

HPF (20 Hz ~ 4.0 kHz or THRU)   Set the cutoff frequency for the high pass filter for final output. This high pass filter is applied to the signal in the digital domain, just before the D/A converters.

LPF (400 kHz ~ 20 kHz or THRU)   Set the cutoff frequency for the low pass filter for final output. This filter is also applied to the signal just before the D/A converters.

Page 3: Setting the title and controller assignments

Use this page to edit the name of your delay program. You can set two parameters that can be controlled by a MIDI device. These parameters are set for each individual program. You can also specify the allowable control range.

```
TITLE▓120 Single 16
 CTL.ASSIGN MIN MAX
1        OFF   0 100
2        OFF   0 100
```

Press the ⌈ DELAY ⌉ key again to select the last display page.

Use the ⌈◄⌉, ⌈▲⌉, ⌈►⌉, and ⌈▼⌉ CURSOR keys to move through the various parameters. Modify the parameter by rotating the DATA ENTRY encoder.

Page 3: parameters

TITLE (16 characters)

Use the ⌈◄⌉ and ⌈►⌉ CURSOR keys to move along the line of text. Change the letter under the cursor by rotating the DATA ENTRY encoder. The available characters are shown in the following sequence:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
V	W	X	Y	Z		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
q	r	s	t	u	v	w	x	y	z		(	)	[	]	<	>	:	*	+	-	=
/	,	.	'	%	&	!	?	#		0	1	2	3	4	5	6	7	8	9			

CTL.ASSIGN (OFF, Parameter)

Select a parameter to be controlled by the MIDI control change messages.

There are two controller channels, each of which can be assigned any parameter of the current program (see page 25 for details).

MIN/MAX (0 ~ 100%)

Set the range within which the parameter can be modified by the control change messages.

Adding feedback

To create a dense sounding effect, you can add feedback to each of the taps of the delay. You can also invert the phase of the returning signal as well as filter out low and high frequency elements.

```
ON  TYP LVL  HPF  LPF
Ⓐ1 NOR→A  35 THRU THRU
 2 OFF
 3 OFF
Ⓑ1 NOR→B  35 THRU THRU
 2 OFF
 3 OFF
```
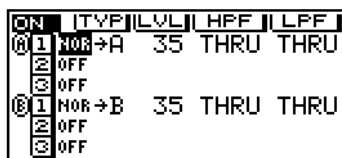
Press the ⌈ FB ⌉ key to select FB (feedback).

Use the ⌈◄⌉, ⌈▲⌉, ⌈►⌉, and ⌈▼⌉ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

Press the ⌈ FB ⌉ key again to enable or disable feedback. The status message in the top corner of the LCD changes from "ON" to "OFF".

Feedback parameters

STATUS (OFF/NOR/INV)

Select "OFF", positive phase (NOR), or negative (INV) phase.

TYP (→A, →B)

Select which channel (A or B) will receive the feedback. This is only available for DUAL (stereo) delay programs.

LVL (0 ~ 100%)

Select the level of the feedback.

`HPF` (20 Hz ~ 4.0 kHz or THRU)	Set the cutoff frequency for the high pass filter for the feedback loop.
`LPF` (400 kHz ~ 20 kHz or THRU)	Set the cutoff frequency for the low pass filter for the feedback loop.

NOTE   *You should ensure the total value of the* `LVL` *parameter of each channel for a DUAL delay or all taps for a SINGLE delay is kept at or below 100. For example, if you have three taps active, set the values for each tap to 30. You can vary the levels (for example: 50-30-20) as long as the total is 100 or lower.*

Modulating the delay

Add modulation to the delay by changing the parameters accessed by the [MOD] key.

Press the [MOD] key to select MOD (modulation).

Use the [◄] , [▲] , [►] , and [▼] CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

Press the [MOD] key again to enable or disable modulation. The status message in the top corner of the LCD changes from "ON" to "OFF".

Modulation parameters

STATUS (OFF/SIN/TRI/ PAN)	Select OFF, sine waveform (SIN), triangle waveform (TRI), or auto pan (PAN). When you select SIN or TRI, the D5000 performs frequency modulation on the signal. If you select PAN, the auto pan program will be effective at the pan position specified by the DELAY parameter PAN (see page 10), and the D5000 will perform amplitude modulation on the signal.
SPD (0.05 ~ 40.00 Hz)	Set the speed (frequency) of the modulation. If you changed the DISPLAY UNIT parameter on the second page of the DELAY function to TEMPO, you can select one of the following for the Note parameter: — , ♪♪♪³, ♪♪³, ♪ , ♪♪³, ♪. , ♪ , ♩♩♩³, ♪., ♩ , ♩., ♩ , ♩., ○ , or ○○ .
DEP (0 ~ 100%)	Set the depth of the modulation.
PHA (0° ~ 350° in 32 steps)	Set the starting phase of the LFO (low frequency oscillator).

Ducking/gating the delay

When you set ducking, the delay effect is only applied to the signal when the input level drops below the threshold you set. If you select the gate, the delay effect is applied to the signal when the control level exceeds the threshold.

You can also use the [TRIGGER] key or a footswitch, or a MIDI Note Off/On message to trigger the duck/gate.

```
ON
TYPE           DUCK
SOURCE     IN(L+R)
TARGET    OUT(L&R)
HOLD            10
RELEASE        110
THRESHOLD       65
```

Press the [DUCK] key to select DUCK.

Use the [▲] and [▼] CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

Press the [DUCK] key again to enable or disable the DUCK function. The status message in the top corner of the LCD changes from "ON" to "OFF".

DUCK parameters

TYPE (DUCK/GATE)
Select the threshold activation level. DUCK means the signal passes until the input level is above the threshold (or when a MIDI Note Off message is received). GATE means the signal passes after the input level is above the threshold (or when a MIDI Note On message is received).

SOURCE (IN(L)/IN(R)/ IN(L+R)/OUT(L)/OUT(R)/ OUT(L+R)/TRIG.KEY/ MIDInote)
Select the source for the trigger signal. When you select one of the IN or OUT settings, the duck or gate is effective depending on the signal level. When TRIG.KEY is set, the [TRIGGER] key or a footswitch connected to the TRIGGER Footswitch Jack on the back panel is used to trigger the duck or gate. If MIDInote is selected, a MIDI Note Off/On message is used as the trigger signal.

TARGET (IN(L)/IN(R)/ IN(L&R)/OUT(L)/OUT(R)/ OUT(L&R))
Select the target direction.

HOLD (2 ~ 21000 ms)
Set the hold time in milliseconds.

RELEASE (2 ~ 21000 ms)
Set the release time in milliseconds.

THRESHOLD (0 ~ 100%)
Select the duck or gate threshold level.

Duck/gate

The duck/gate can be opened by various triggers. Usually the strength of the input signal is used as the trigger. If TYPE is set to GATE, when the input signal is higher than a certain level (threshold), the GATE opens and the signal can pass. As soon as the input signal drops below the threshold, the GATE closes and the signal is cut. If TYPE is set to DUCK, the signal is cut while the input signal is higher than the threshold. As soon as the signal drops below the threshold, the DUCK is opened and the signal can pass.

The threshold is set by the THRESHOLD parameter.

Hold and release

A short input signal, like the one shown below, would cause the GATE to open (or close in the case

of a DUCK) for a very short time. This can sound unnatural, especially if the GATE closes abruptly. There are two parameters which you can adjust, HOLD and RELEASE. By setting a long HOLD time, the gate can be kept open even after the signal has dropped below the threshold. The RELEASE parameter specifies the length of time it takes for the gate to close, causing the signal to gradually cut off.
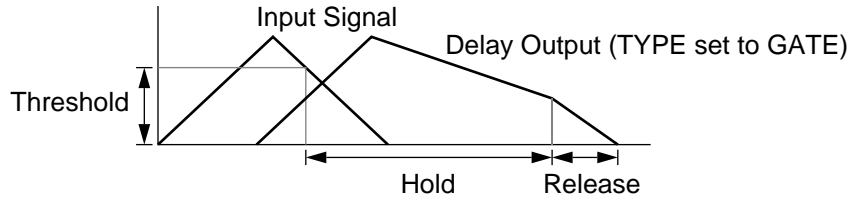
Other triggers

The signal level is not the only way to trigger a duck/gate. The [TRIGGER] key or a footswitch connected to the TRIGGER Footswitch Jack on the back panel, or a MIDI Note On (for GATE) or Note Off (for DUCK) message can also be used. The HOLD and RELEASE parameters work with any trigger.

Re-trigger

If the DUCK/GATE is continuously triggered by any of the other sources, it may be kept from closing. As the GATE responds to a trigger source and will open for the set HOLD time, a trigger received while the GATE is open will act as a "re-trigger", causing the GATE to remain open.

Editing a sampling/playback program

To edit a sampling/playback program, press the ⬚DELAY⬚ key.

FREEZE program

The FREEZE program allows you to sample (digitally record) and playback sounds. You can record in stereo for a maximum of 5.2 seconds or in mono for a maximum of 10.4 seconds. For playback, you can adjust the pitch of the sample by up to ± two octaves.

NOTE	*You cannot store the recorded sample. Once the power is switched OFF, or if you select another program, the recorded sample is erased from memory.*

There are four display pages:

*   Page 1: Setting the recording parameters.
*   Page 2: Setting the playback parameters.
*   Page 3: Setting the pitch and MIDI note number.
*   Page 4: Setting the title and controller assignments.

NOTE	*To access the FREEZE program mode, you need to select one of the factory presets with the PARAMETER COPY command in Utility Mode (refer to the preset list on page 30).*
	The ⬚FB⬚ , ⬚MOD⬚ , and ⬚DUCK⬚ keys are inactive when a FREEZE program is loaded. To access the FREEZE display pages, use the ⬚DELAY⬚ key.

Page 1: Setting the recording parameters

This page allows you to specify the recording parameters for your freeze program.

Press the ⬚DELAY⬚ key to switch to the first page of the FREEZE program.

Use the ⬚▲⬚ and ⬚▼⬚ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

FREEZE RECORD parameters

TRACK (STEREO/L-MONO)   Select stereo or mono recording mode.

                       STEREO   Stereo recording for a maximum of 5.2 seconds.

                       L-MONO   Mono recording for a maximum of 10.4 seconds.

AUTO/MAN (MANUAL/AUTO)   Set the recording method.

                       MANUAL   Press the ⬚TRIGGER⬚ key or step on a footswitch connected to the TRIGGER Footswitch Jack to put the D5000 in standby mode. Recording will start when you press the key or step on the footswitch again.

AUTO   Press the ⟨TRIGGER⟩ key or step on a footswitch connected to the TRIGGER Footswitch Jack to put the D5000 in standby mode. Recording will start automatically when the input signal is higher than the specified threshold.

MODE (RECORD/OVERDUB/ CAPTURE)   Select a recording mode.

RECORD   Create a new recording.

OVERDUB   Combine the new recording with existing data.

CAPTURE   The most recent input signal will be recorded for the maximum recording time (see below).

TRG.DLY (-1000 ~ +1000 ms)   Set the delay between triggering and the actual recording. This parameter is only effective with the AUTO recording method. The default value is TRG.DLY = 0 which means recording begins simultaneously with the trigger. If a negative value is specified, sound sampled before the trigger occurs is also stored.
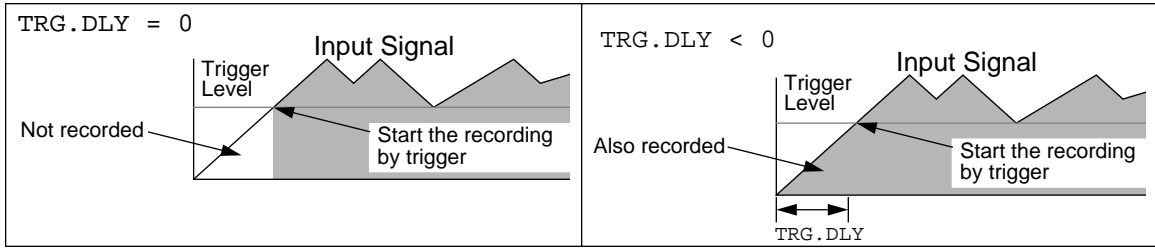
When the D5000 is in standby mode, the bar graph at the bottom of the LCD will have the message "REC. READY" displayed on it. During the recording process, the bar graph indicates the current status. Upon completion of the recording, the message "OK" will be displayed on the bar graph.

NOTE   *If the recording mode is set to* OVERDUB, *the standby message will be "*OVER DUB READY*". If you change the* TRACK *from* STEREO *to* L-MONO *(or the opposite) after recording, it is not possible to overdub on the existing data.*

If you select the CAPTURE recording mode, the D5000 begins recording as soon as you press the ⟨TRIGGER⟩ key or step on a footswitch connected to the TRIGGER Footswitch Jack. You cannot stop the recording until it has recorded the default amount (5.2 seconds in stereo or 10.4 seconds in mono) and the bar graph display has stopped moving. Recording will continue until you press the ⟨TRIGGER⟩ key or step on the footswitch again.

Page 2: Setting the playback parameters

```
| FREEZE PLAY        |
|MODE      MOMENTARY |
|START         0.00  |
|END        5200.00  |
|LOOP          0.00  |
```

Press the DELAY key again to switch to the second page of the FREEZE program.

Use the ▲ and ▼ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

FREEZE PLAY parameters

MODE (MOMENTARY/ CONTINU./INPUT TRG)

Select the playback mode.

MOMENTARY   The playback loop is activated while you press the TRIGGER key or step on a footswitch connected to the TRIGGER Footswitch Jack, or when a MIDI Note On message is received. Playback stops when you release the TRIGGER key or footswitch, or a Note Off message is received.

CONTINU.   Playback starts while you press the TRIGGER key or step on a footswitch connected to the TRIGGER Footswitch Jack, or when a MIDI Note On message is received. Playback continues for the specified number of loops. To stop playback immediately, press the TRIGGER key or step on the footswitch again.

INPUT TRG   When the input level is higher than a specified threshold, the D5000 will playback the data the specified number of times.

START (ms)   Select the start point of the playback. For stereo, select a value between 0.00 and 5200.00. For mono, select a value between 0.00 and 10400.00.

END (ms)   Select the end point of the playback. See above for the parameter values.

LOOP (ms)   Set the loop point. See above for the parameter values.

NUMBER (0 ~ 100)   Set the number of loops for the CONTINU. and INPUT TRG modes. This parameter does not appear on the LCD in MOMENTARY mode.

TRG.MASK (0 ~ 1000 ms)   Set a delay that must elapse before the playback loop can be triggered. This parameter only appears when INPUT TRG mode is set.

Setting the start and end points for playback

Your recorded sample may contain silence or otherwise unneeded sounds at either the beginning or end. Use the START and END parameters to move the playback points to tailor the sample to your needs. If you set the END parameter to a lower value than the START parameter, the sample will be played in reverse.
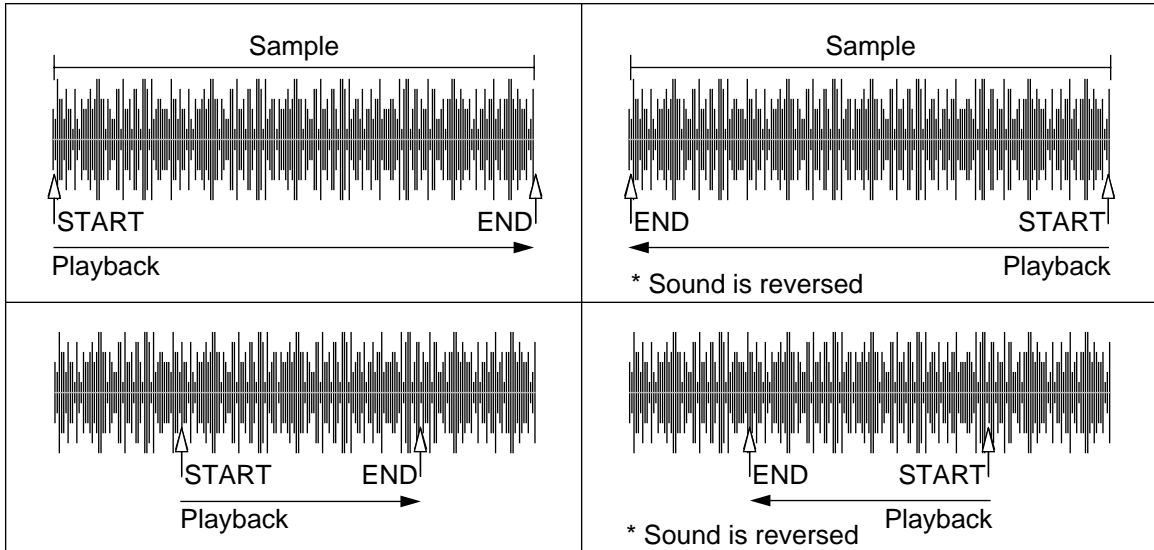
Playback loop

You can set a loop point within the sample. This sets the start point for repeats after the first playback.

Page 3: Setting the pitch and MIDI note number

```
| FREEZE PITCH    |
PITCH       Unison
FINE            0
BASE KEY       OFF
```
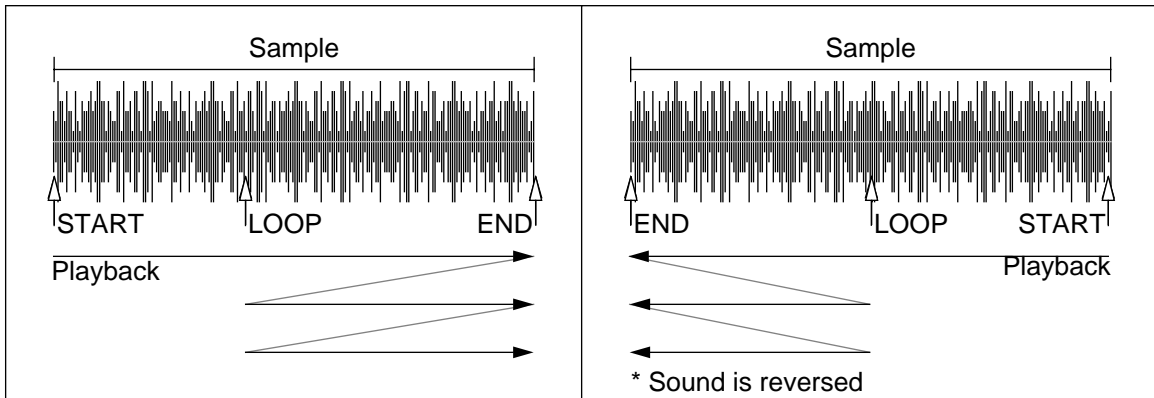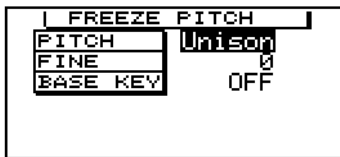
Press the [DELAY] key again to select the third page of the FREEZE program.

Use the [▲] and [▼] CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

FREEZE PITCH parameters

PITCH (↓↓ Oct ~ Unison ~ ↑↑ Oct)

Set the pitch for playback. The D5000 can adjust the pitch by plus or minus two octaves. When you change the pitch, the playback time of the sample is also changed. As the pitch drops, the playback time increases, and when the pitch is increased, the playback time is shortened.

FINE (-100 ~ +100)   Fine tune the pitch by ±100 cents.

BASE KEY (OFF, C 1 ~ C 6)   Specify the note that will be centre frequency for MIDI Note On messages. The D5000 calculates the pitch change as the difference between the BASE KEY and the note number of the pressed key. For example, if the BASE KEY is set to "C3", then pressing C3 will produce a Unison playback, while pressing C4 will shift the pitch up one octave, and pressing G2 will produce a pitch change of 5 semitones down.

NOTE	*If the* BASE KEY *parameter is set to* OFF, *pitch change cannot be controlled via MIDI Note On messages.*

Page 4: Setting the title and controller assignments

This page is identical to Page 3 of the DELAY program (see page 11).

S&H (sample and hold) program

A sample and hold program allows you to record a sound (sample) and then play it back repeatedly (hold). You can record in stereo for a maximum of 5.2 seconds or in mono for a maximum of 10.4 seconds.

There are two display pages:

-    Page 1: Setting sample and hold parameters.
-    Page 2: Setting the title.

NOTE	*To access the S&H (sample and hold) program mode, you need to select one of the factory presets with the PARAMETER COPY command in Utility Mode (refer to the preset list on page 30).*
	The FB *,* MOD *, and* DUCK *keys are inactive when an S&H program is loaded. To access the S&H display pages, use the* DELAY *key.*

Page 1: Setting the sample and hold parameters

```
|SAMPLE & HOLD
TRACK      STEREO
NOR/REV    NORMAL

    STOP
```

Press the DELAY key to access the first display page of the S&H (sample and hold) program.

Use the ▲ and ▼ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

Sample and hold parameters

TRACK (STEREO/L-MONO)   Select stereo or mono recording mode.

                 STEREO   Stereo recording for a maximum of 5.2 seconds.

                 L-MONO   Mono recording for a maximum of 10.4 seconds.

NOR/REV   Set the playback direction. NORMAL plays the sample back in the normal direction. REVERS plays the sample back in reverse.

The sample and hold function is controlled by the [TRIGGER] key or by a footswitch connected to the TRIGGER Footswitch Jack.

```
┌─────────────┐      ┌─────────────┐      ┌─────────────┐
│ [TRIGGER] key│      │ [TRIGGER] key│      │ [TRIGGER] key│
│     or      │      │     or      │      │     or      │
│ Footswitch  │      │ Footswitch  │      │ Footswitch  │
└─────────────┘      └─────────────┘      └─────────────┘

  STOP ▼      RECORD      ▼   PLAYBACK (Loop)   ▼  STOP
```
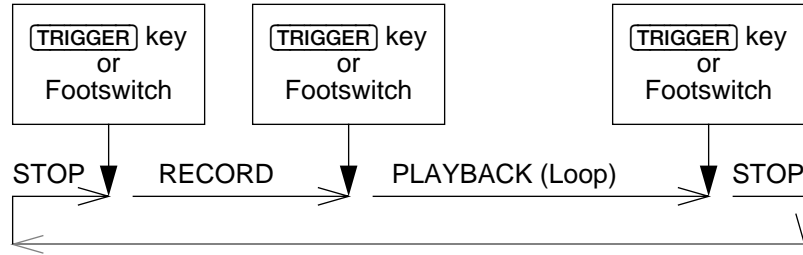
As you press the [TRIGGER] key or step on the footswitch, the LCD will display the following sequence of messages:

STOP   Indicates that the S&H function is ready to begin recording. Press the [TRIGGER] key or step on the footswitch to begin recording.

RECORD   The D5000 is recording a sample. If the recording time has exceeded the maximum, the earliest sampled data will be overwritten by the latest sampled data. While it is recording, the D5000 will not output any "WET" sound.

           Press the [TRIGGER] key or step on the footswitch to stop recording. The D5000 will start playback of the sampled data.

PLAY   The sampled data will playback in a continuous loop. Press the [TRIGGER] key or step on the footswitch to stop playback.

Page 2: Setting the title
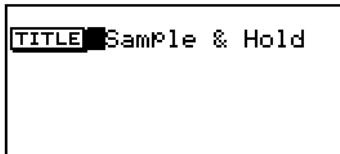
TITLE▮Sample & Hold

Press the [DELAY] key again to select the second display page.

Use the [◄] and [►] CURSOR keys to move along the line of text. Change the letter under the cursor by rotating the DATA ENTRY encoder. See page 12 for the list of available characters.

Utility Mode

The `UTILITY` key allows you to access the system parameters. Each time you press the key, the D5000 cycles to the next command:

```
  ┌──→ SOFTWARE PROTECT ──→ PARAMETER DISPLAY ──→ FOOT SW FUNCTION ──┐
  │                                                                   │
REPEAT DELAY                                                    MIDI SETUP
  ↑                                                                   │
  └── PARAMETER COPY ←── MIDI BULK DUMP ←── MIDI CONTROLLER ←─────────┘
```
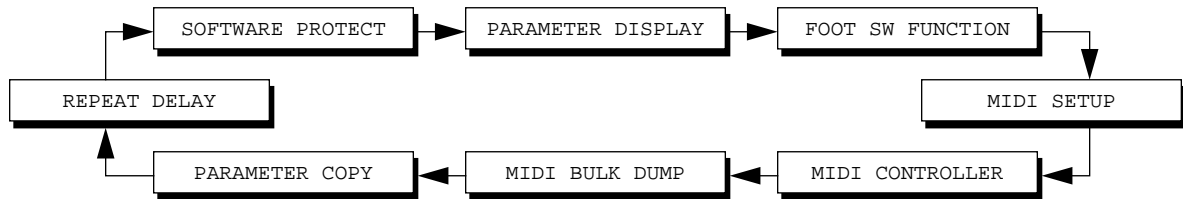
Until you select one of the other modes, the LED set in the `UTILITY` key remains lit.

NOTE	*The "REPEAT DELAY" function is not accessible when FREEZE or S&H (sample and hold) programs are active.*

SOFTWARE PROTECT

```
┌─────────────────────┐
│ SOFTWARE PROTECT    │
│ MODE        OFF     │
│                     │
└─────────────────────┘
```

Press the `UTILITY` key to select the SOFTWARE PROTECT command.

Change the MODE from "OFF" to "PROGRAM" or "OPERATION" by rotating the DATA ENTRY encoder.

When SOFTWARE PROTECT is set to "PROGRAM", it is not possible to store new programs. If you attempt to store a program, the message "Protected !" will appear on the LCD.

When SOFTWARE PROTECT is set to "OPERATION", the following operations are inactive.

- Recalling programs from the front panel (pressing the `►` "RECALL" CURSOR key).
- Storing programs.
- Editing program parameters.
- Changing the status of FB, MOD, and DUCK from OFF to ON (and the opposite).
- Turning BYPASS ON and OFF with the `BYPASS` key.
- Setting tap tempo (see page 10).
- Receiving MIDI bulk data.
- Parameter Copy (Utility Mode).
- Repeat Delay (Utility Mode).

If you attempt to perform one of these inactive operations, the message "Protected !" will appear on the LCD.

NOTE	*As an exception to the above,a MIDI Program Change message will perform correctly as will program recall using the footswitch.*

PARAMETER DISPLAY

```
┌─────────────────────────┐
│ PARAMETER DISPLAY        │
│ MODE        NORMAL       │
│                          │
│                          │
└─────────────────────────┘
```

Press the [UTILITY] key to select the PARAMETER DISPLAY command.

Change the MODE from "NORMAL" to "DETAIL(AUTO)" or "DETAIL(HOLD)" by rotating the DATA ENTRY encoder.

When the PARAMETER DISPLAY is set to "DETAIL(AUTO)" or "DETAIL(HOLD)", the parameters are displayed in a large, easy-to-read font in a pop-up sub-window. A bar graph is also displayed, giving you a visual indication of the parameter's status.

```
┌─────────────────────────┐
│ ♩=      TIME LVL PAN     │
│ Delay Status(A) 1        │
│ o─•─•─o                  │
│            NOR           │
│                          │
└─────────────────────────┘
```

If the value is set to "DETAIL(AUTO)", the pop-up sub-window will be displayed on the LCD as long as you are adjusting the parameter. It will disappear if you press one of the [◄] or [►] CURSOR buttons, or after 3 seconds have passed without further rotation of the DATA ENTRY encoder.

If it is set to "DETAIL(HOLD)", the pop-up sub-window will remain displayed until you press one of the [◄], [▲], [►], or [▼] CURSOR buttons, or select another function.

The advantage of this feature will become apparent the first time you work on an effect in a dimly-lit recording studio or concert hall.

FOOT SW (footswitch) FUNCTION

```
┌─────────────────────────┐
│ FOOT SW FUNCTION         │
│ BYP/PGM    BYPASS        │
│                          │
│                          │
└─────────────────────────┘
```

Press the [UTILITY] key to select the FOOT SW (footswitch) FUNCTION command.

Use the [▲] and [▼] CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

FOOT SW FUNCTION parameters

BYP/PGM (PROGRAM/BYPASS) Sets the function of the BYPASS - PROGRAM INC/DEC footswitch jack.

	BYPASS	The footswitch duplicates the function of the [BYPASS] key.
	PROGRAM	The footswitch allows you to select between a pre-determined range of program numbers.

FROM (1 ~ 00) When PROGRAM is selected, use this item to set the starting program number. If BYPASS is selected, this parameter does not appear.

TO (1 ~ 00) When PROGRAM is selected, use this item to set the last program number. If BYPASS is selected, this parameter does not appear.

When the FOOT SW FUNCTION is set to PROGRAM, the D5000 switches to the next program each time you press the footswitch. When the last program in the range (TO) is the current program, when you press the footswitch again, it will select the first program again.

For example, if you set the FROM parameter to 70 and the TO parameter to 75, each time you press the footswitch the program changes to the next one in order:

```
BYP/PGM  PROGRAM              70 → 71 → 72 → 73 → 74 → 75
FROM          70
TO            75
```
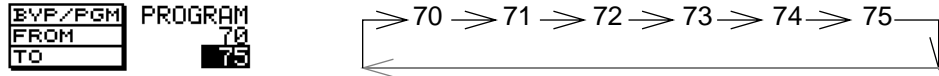
If you set the FROM parameter to 75 and the TO parameter to 70, the change is in reverse order:

```
BYP/PGM  PROGRAM              75 → 74 → 73 → 72 → 71 → 70
FROM          75
TO            70
```
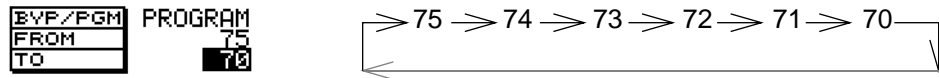
MIDI SET-UP

The D5000 has seven MIDI program change tables set in banks "A" to "G". Each table contains a list of MIDI program numbers and the corresponding D5000 effect program. You can customize each table for your requirements.

```
    MIDI  SETUP
CH      OMNI

BANK       A
PGM        1
D5000      1
```

Press the ⎡UTILITY⎤ key to select the MIDI SETUP command.

Use the ⎡▲⎤ and ⎡▼⎤ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

MIDI SET-UP parameters

CH (OMNI, 1 ~ 16, OFF)

Select the MIDI channel for both input and output.

If you select OMNI (the default), the D5000 will receive MIDI events on all 16 channels and transmit on channel 1.

If you select one of the channels from 1 to 16, the D5000 receives and transmits on the selected channel.

Selecting OFF disables MIDI reception and transmission.

BANK (A ~ G)

Select a program change table.

PGM (1 ~ 128)

Select the MIDI program number. As you change the MIDI program number by rotating the DATA ENTRY encoder, notice how the D5000 program number changes correspondingly.

D5000 (1 ~ 00, ---)

Select the D5000 program number. You can assign any D5000 program number to the current MIDI program number. When the D5000 receives a MIDI Program Change message with that MIDI program number, it will switch to the corresponding D5000 program number. When "---" is selected, the D5000 will ignore any transmissions for the corresponding MIDI program number.

NOTE   *The D5000 has seven program change tables. The tables come preset from the factory with MIDI program numbers 1 to 100 directly mapped to the D5000 program numbers 1 to 00 (100) and MIDI program numbers 101 to 128 mapped to the D5000 program numbers 1 to 28.*

MIDI CONTROLLER

Each D5000 program (except for Sample and Hold programs) can accept input from two MIDI controllers. These parameters allow you to assign a MIDI controller number to the controller channels of the programs (see page 12).

```
┌─────────────────────────┐
│  MIDI CONTROLLER        │
│  ┌─┐ ▛▀▀▜              │
│  │1│ ▌OFF▐             │
│  ├─┤ OFF                │
│  │2│                    │
│  ┌───┐                  │
│  │CLK│ OFF              │
│  └───┘                  │
└─────────────────────────┘
```
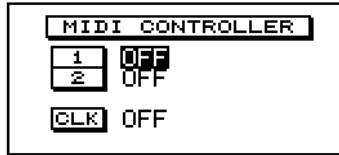
Press the ⌈ UTILITY ⌉ key to select the MIDI CONTROLLER command.

Use the ⌈▲⌉ and ⌈▼⌉ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

MIDI CONTROLLER parameters

CONTROLLER (OFF, 1 ~ 31, 64 ~ 95, KEY NOTE, KEY VEL., CH PRES.)	Set a controller number for each controller assignment (1 and 2).

Control change number:
```
01 MOD.WHEEL
02 BREATH
•
•
•
95
<< KEY NOTE
<< KEY VEL.
<< CH PRES.
```

CLK (OFF/ON)	Enable or disable the MIDI clock. When it is enabled, the clock of the external MIDI device controls the TEMPO, delay time, modulation speed, and other clock based functions.

NOTE	*If you set both controller assignments to the same MIDI controller number, you can control the parameters assigned in the program simultaneously.*

MIDI BULK DUMP

```
┌─────────────────────────┐
│   MIDI BULK DUMP        │
│  ┌────┐                  │
│  │ITEM│ ▛▀ALL▜          │
│  └────┘                  │
│  ⌜Press [STORE]⌝         │
└─────────────────────────┘
```

Press the ⌈ UTILITY ⌉ key to select the MIDI BULK DUMP command.

Use the ⌈▲⌉ and ⌈▼⌉ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

BULK DUMP parameters

ITEM (ALL/SYSTEM/ PROGRAM/BANK)	Select the bulk data type you want to dump.
NO. (ALL, Program, or Bank)	If the ITEM parameter is set to "PROGRAM", you can select a program number from 1 to 00 (100). Otherwise select a bank from A to G.

BULK DUMP procedure

The D5000 should be correctly connected to an external MIDI device, for example, a MIDI data filer such as the Yamaha MDF2. Set the desired parameters. Make certain that the external MIDI device is ready to receive your data.

To execute the MIDI bulk dump request, press the ◄ "STORE" CURSOR key. While the bulk dump is in progress, the message "BULK OUT..." will be displayed at the bottom of the screen.

Receiving bulk data

The D5000 can also receive ("load") bulk data from another D5000, a MIDI data filer, a computer, or other MIDI device. In order to successfully receive data, you must perform the following steps:

- Set the SOFTWARE PROTECT parameter to OFF (see page 22).

- Check that the MIDI channel is either OMNI or the same channel as the transmitting device (see page 24).

- Execute the bulk dump command on the external MIDI device.

NOTE	*The received bulk data will replace all data stored in the corresponding memory locations. Before you execute the remote bulk dump command, PLEASE BE CERTAIN THIS IS WHAT YOU INTEND TO DO.*

PARAMETER COPY

The D5000 has 100 factory preset programs available. Use this command to select one of these programs (refer to the preset list on page 30). When you press the ◄ "STORE" CURSOR key, the preset program you selected is loaded for you to edit.

Press the UTILITY key to select the PARAMETER COPY command.

Use the ▼ CURSOR key to move to the PGM parameter. Select a preset program to copy by rotating the DATA ENTRY encoder.

To execute the copy, press the ◄ "STORE" CURSOR key.

NOTE	*In order to save your changes, you will need to execute the procedures shown on page 8.*

Copying channels

If you have loaded a DUAL (stereo) program, there is are two additional parameters in the PARAMETER COPY command that allow you to copy the data of one channel to the other.

Select the parameter "(A)-DATA" or "(B)-DATA" by rotating the DATA ENTRY encoder. Note that the TO parameter is set to the other channel.

Use the ▼ CURSOR key to move to the ITEM parameter. Select the data you want to copy. The default is "ALL DATA". You can also choose "DELAY", "FB", or "MOD".

NOTE	*You can not access the TO parameter. It is either "EDIT AREA", "(B)-DATA", or "(A)-DATA" depending on the selected FROM parameter.*

REPEAT DELAY

This command is only available for the delay programs. It allows you to very rapidly create linear delay programs. If you select a FREEZE or an S&H (sample and hold) program, this display page will not appear.

Press the ⬚ UTILITY ⬚ key to select the REPEAT DELAY command.

Use the ⬚▲⬚ and ⬚▼⬚ CURSOR keys to move through the various parameters. Modify the selected parameter by rotating the DATA ENTRY encoder.

To execute the repeat delay, press the ⬚◄⬚ "STORE" CURSOR key.

You can check the effect on the TIME and LVL parameter of each tap of your delay program by pressing the ⬚ DELAY ⬚ key.

REPEAT DELAY parameters

REPEAT (1 ~ 6)	Set the number of repeats.
	Dual 1 ~ 3 repeats.
	Single 1 ~ 6 repeats.
DELAY (0 ~ 5000 ms, 0 ~ 1700 m, ♫³ ~ o)	Set the delay in milliseconds (time interval between repeated sounds), metres, or note length.
DECAY (1 ~ 100)	Set the decay in percentage (level of the last repeated sound).

When you apply the Repeat Delay by pressing the ⬚◄⬚ "STORE" CURSOR key, it sets the TIME and LVL value for the specified taps. For example:
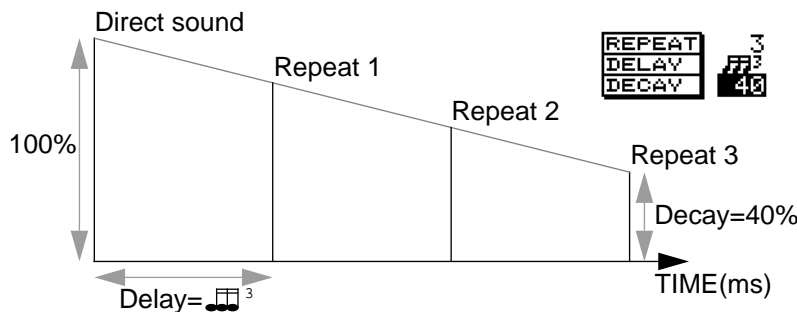
This results in the following delay program:

NOTE   *If you apply Repeat Delay to a delay program that has feedback turned on, the feedback level may be boosted, causing an unpleasant howling. For the best results, turn the feedback off.*

How to initialize the D5000

You can reset all programs and system parameters back to their original factory settings with the following procedure:

*   While pressing the ◄ "STORE" CURSOR key, turn the power on.
*   The LCD will display the message "Press [RECALL] to initialize".
*   Press the ► "RECALL" CURSOR key. The message "Initializing now..." will momentarily appear on the LCD. Then the D5000 will default to Program Select Mode.

WARNING   *PLEASE BE CERTAIN THAT THIS IS WHAT YOU INTEND TO DO. Any custom programs you have created will be lost when the D5000 is reset to its factory settings.*

Error Messages

WARNING LOW BATTERY	The voltage of the internal lithium battery has dropped below a serviceable level. Take the unit to a qualified Yamaha service center to have the battery replaced.
WARNING DATA ERROR	When the internal lithium battery is exhausted, the contents of the internal memory will be lost. Take the unit to a qualified Yamaha service center to have the battery replaced.
E0 ~ E3	When the power is turned on, the D5000 performs a self-test diagnostic. If any faults are discovered, one of the error numbers E0 to E3 will be displayed on the PROGRAM LED. Take the unit to a qualified Yamaha service center for repair. Do not forget the error number – the service technician needs that number in order to speed up diagnosis of your unit.

Specifications

Audio quality ("WET" circuit)	Frequency Response	20 Hz to 20 kHz +/-1.0 dB
	Dynamic Range	greater than 100 dB
	Hum and Noise	less than -76 dB
	Distortion	less than 0.007% (max. level at 1 kHz)
Inputs	Number of channels	2 (balanced)
	Nominal input level	+4/-20 dBm (switchable)
	Maximum input level	+24 dBm (switch at +4 dB setting)
	Input impedance	20 kΩ
Outputs	Number of channels	2 (balanced)
	Nominal output level	+4/-20 dBm (switchable)
	Maximum output level	+24 dBm (switch at +4 dB setting)
	Output impedance	150Ω
A/D and D/A converters	A/D resolution	20-bit linear
	D/A resolution	20-bit linear
	Sampling frequency	50 kHz
	Propagation delay	2.8 ms
Number of memory locations		100 (all user-programmable)
MIDI control	Program change	Program select (receive)
	Control change	Parameter control (receive)
	Note On/Off	Freeze control, Trigger (receive)
	Bulk dump	System, program, bank (send & receive)
	Bulk dump request	System, program, bank (receive)
	Condition set-up	Bank change (receive)
	MIDI clock	Tempo control (receive)
	Parameter change	Parameter control (send, receive)
	Parameter value request	Parameter data (receive)
Power requirements	USA and Canada	120 V AC, 60 Hz
	General	230 V AC, 50 Hz
	UK	240 V AC, 50 Hz
Power consumption		25 W
Dimensions (w x d x h)		480 x 336.4 x 45.2 mm
Weight		4.7 kg

Preset Program Library

Program number	Title	Type	Input Mode	Explanation
1	T120 Single 15	DUAL delay	STEREO	Simple delay program with single active tap. TEMPO specified.
2	T120 1/4 & 1/8			Simple delay program with two active taps. TEMPO specified.
3	Double Slap			Basic delay program. TIME specified.
4	Short Single			
5	Short Double			
6	Medium Double			
7	Long Single			
8	Long Double			
9	Long FB Double			
10	Long FB Duck			
11	Long FB Gate			
12	Light Vocal			Delay program adding echo and thick effects to vocals.
13	Vocal Template 1			
14	Vocal Template 2			
15	Vocal Template 3			
16	Ambience	SINGLE delay		Delay program adding a more dimensional feeling.
17	Dimension	DUAL delay		
18	Mod. Dimension			
19	T120 Six 8ths	SINGLE delay		Delay program applying echo reflections according to the selected tempo.
20	T120 Six 4ths			
21	T60 Mod. Bounce			
22	T120 Bounce			
23	T120 Triplets 1	DUAL delay		
24	T120 Triplets 2			
25	T120 Triplets 3			
26	Chord Pan 1			
27	Chord Pan 2			
28	Perc. Pattern	SINGLE delay		
29	Accent Pattern	DUAL delay		
30	Accent Loops			
31	Spaced Pairs			
32	Chorus Delay 1			Delay program adding modulation effects.
33	Chorus Delay 2			
34	Fast Wow			
35	Mod. Bends	SINGLE delay		
36	Stereo Chorus	DUAL delay		Basic modulation program.
37	Stereo Flange			
38	Stereo Auto Pan			
39	Stereo Tremolo			
40	Deep Flange 1			Heavily modulated program.
41	Deep Flange 2			
42	Wild Flange			
43	Auto Pan Delay	SINGLE delay		
44	Deep Tremolo	DUAL delay		
45	Guitar Delay		L-MONO	Delay program for serially-connected monaural-out put instruments, such as guitars, basses, etc. Programmed for aggressive playing.
46	Mod. Delay 1			
47	Mod. Delay 2			
48	Mod. Delay 3			
49	R->L Repeat Pan	SINGLE delay		
50	Random Bounce	DUAL delay		
51	Random Echo	SINGLE delay		
52	Light Chorus			
53	Light Flange	DUAL delay		
54	Long Wow			
55	Gated Loop			
97	Sample & Hold	S&H		Sampling program for duplicating part of a performance.
98	Capture Freeze	FREEZE		Mono freeze program records the latest sounds for 10.4 seconds.
99	Mono Freeze			Mono freeze program records 10.4 seconds.
00	Stereo Freeze		STEREO	Stereo freeze program records 5.2 seconds.

* As shipped from the factory, the program numbers from 56 to 96 contain the same programs as from 1 to 41.

Block diagram/Schéma de principe/Blockdeagramm

Single

D5000   Block Diagram (mono type)
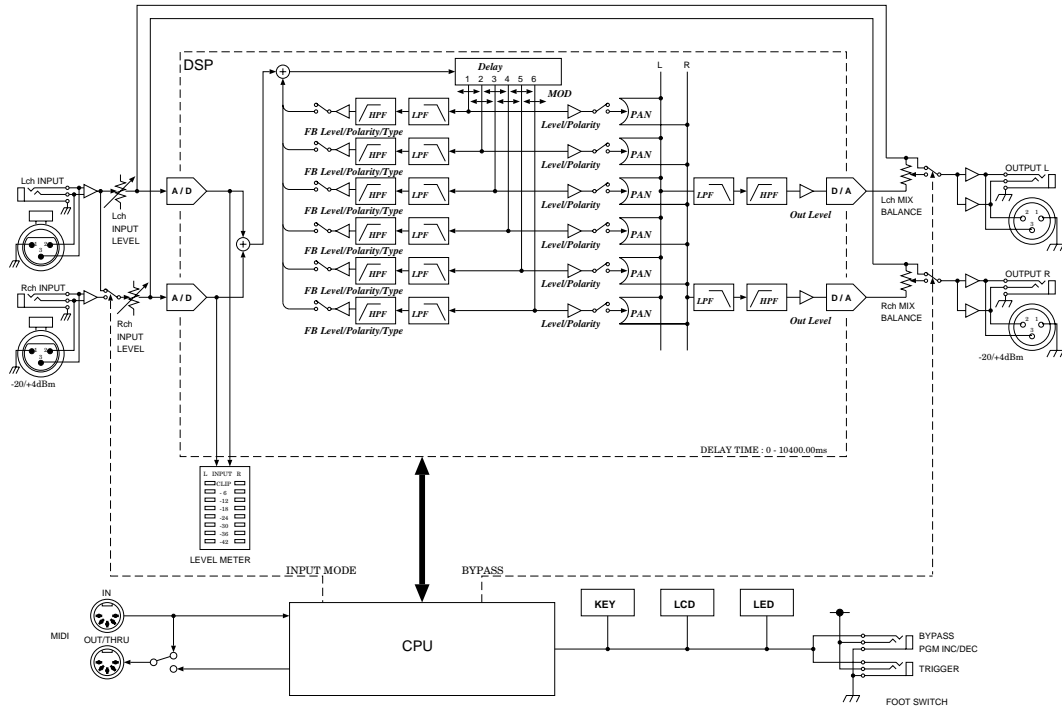
Stereo

D5000   Block Diagram (stereo type)

D5000
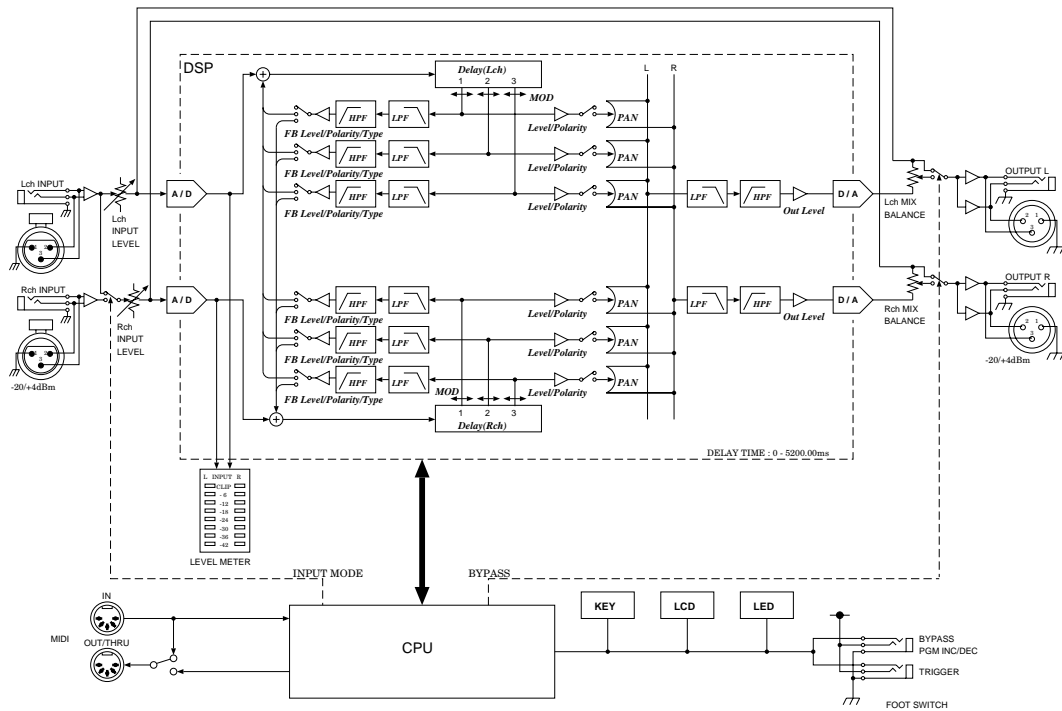
Dimensions/Abmessungen

440

6.4

50

230.5

28.5

D:336.4

305.4

3.6

21

W:480

H:45.2

44

1.2

348
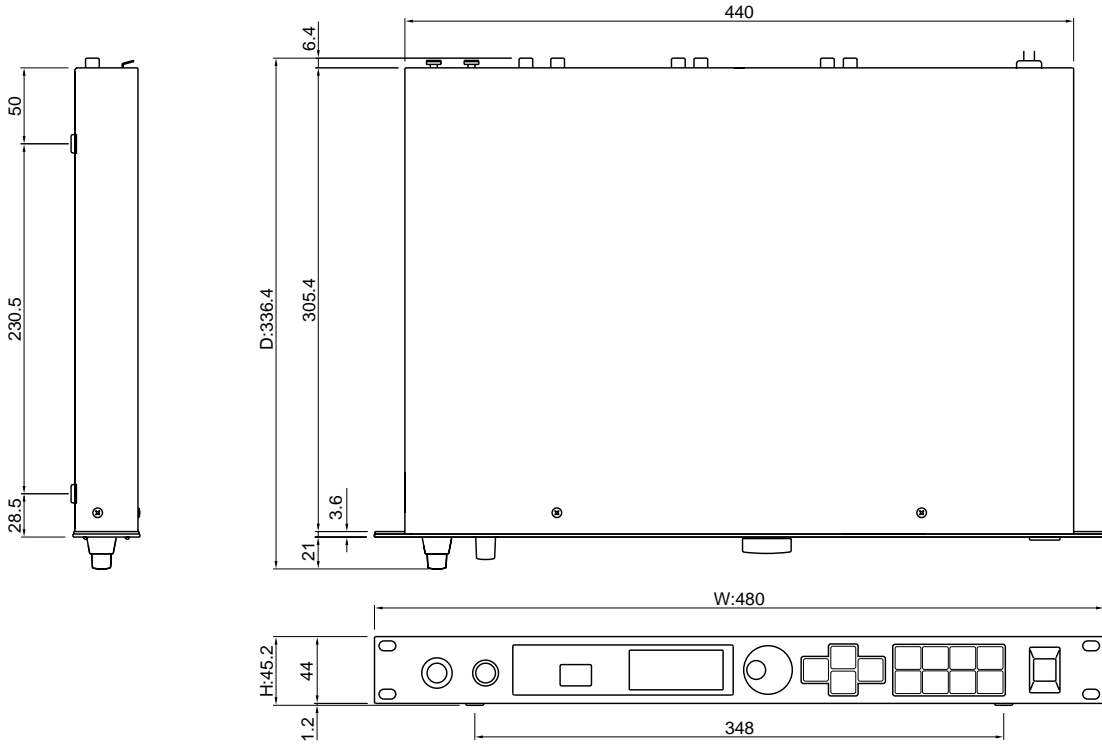
MIDI Data format

1. Transmission Conditions

```
                                  MIDI CH        ○   OFF
BULK DATA (F0H,43H,0nH) ─────────────○
                                      ○────── OMNI, 1~ 16    ◇         ⟫ MIDI OUT
                                                          CH = ?
```
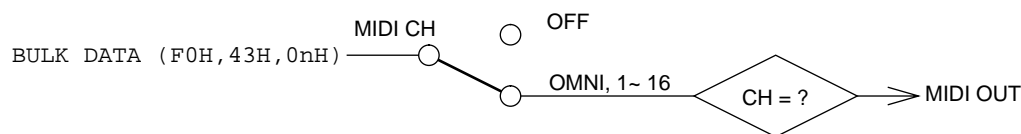
2. Transmission Data

1) System Exclusive Messages

① Program Bulk Data

When a MIDI BULK DUMP operation is performed with the "PROGRAM" ITEM selected or when a Program Bulk Data Request message is received, the data is transmitted on the currently set MIDI channel. If the program is set to "ALL", data is transmitted from program 1 to program 00 (100).

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0000nnnn	(0nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
Byte Count (MSB)	00000010	(02H)	
Byte Count (LSB)	00101000	(28H)	
Header	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01001101	(4DH)	ASCII "M"
Program	0ppppppp		p = 1 (program 1) ~ 100 (program 00)
Data	0ddddddd		
	...		296 Bytes
	0ddddddd		
Checksum	0eeeeeee		
EOX	11110111	(F7H)	

② Program Change Bank Bulk Data

When a MIDI BULK DUMP operation is performed with the "BANK" ITEM selected or when a Program Change Bank Bulk Data Request message is received, the data is transmitted on the currently set MIDI channel. If the bank is set to "ALL", data is transmitted from bank A to bank B.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0000nnnn	(0nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
Byte Count (MSB)	00000001	(01H)	
Byte Count (LSB)	00000101	(0AH)	
Header	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01010100	(54H)	ASCII "T"
Bank Number	0zzzzzzz		z = 1 ~ 7(1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G)
Data	0ddddddd		
	...		128 Bytes
	0ddddddd		

Checksum	0eeeeeee		
EOX	11110111	(F7H)	

③   System Set-up Bulk Data

When a MIDI BULK DUMP operation is performed with the "SYSTEM" ITEM selected or when a System Set-up Bulk Data Request message is received, the data is transmitted on the currently set MIDI channel.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0000nnnn	(0nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
Byte Count (MSB)	00000000	(00H)	
Byte Count (LSB)	00010101	(15H)	
Header	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01010011	(53H)	ASCII "S"
	00100000	(20H)	ASCII " "
Soft Version Number	0vvvvvvv		v = 1
	0rrrrrrr		r = 0
Data	0ddddddd		
	...		9 Bytes
	0ddddddd		
Checksum	0eeeeeee		
EOX	11110111	(F7H)	

④   Parameter Change

When a Parameter Value Request message is received, the parameter data is transmitted on the currently set MIDI channel.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0001nnnn	(1nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Group/Sub Group	00011110	(1EH)	
Device Code	00000011	(03H)	
Parameter Number	0nnnnnnn		1st byte
	0nnnnnnn		2nd byte
Parameter Data	0ddddddd		
	...		8 bytes
	0ddddddd		
EOX	11110111	(F7H)	

⑤   All Bulk Data

When a MIDI BULK DUMP operation is performed with the "ALL" ITEM selected, the data is transmitted on the currently set MIDI channel. All program data, all program change bank data, and all system set-up data will be transmitted in the following order:

① Program Bulk Data - **program** 1 **to program** 00 **(100)**
② Program Change Bank Bulk Data - **bank** A **to bank** B
③ System Set-up Bulk Data

---

3. Reception Data and Conditions
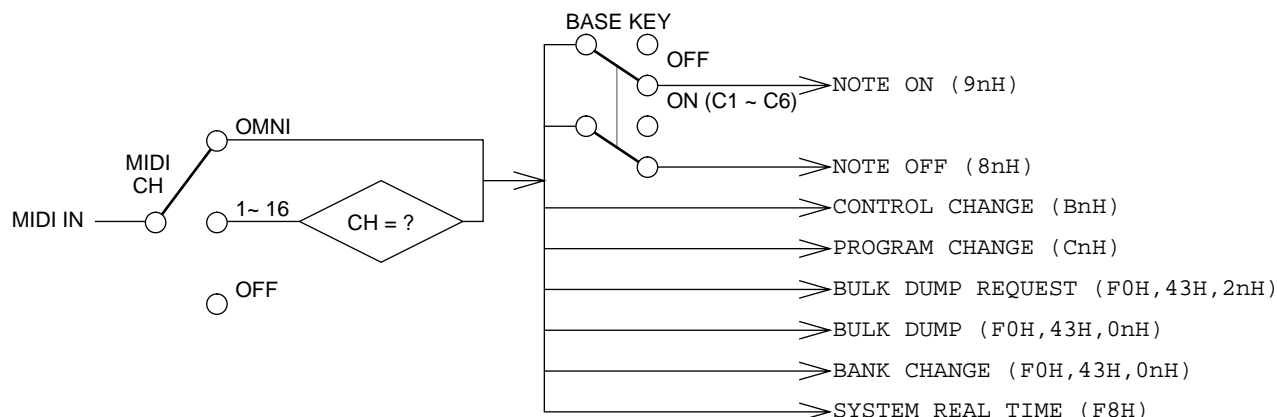
4. Reception Data

1) Channel Voice Messages

① Note Off

Received on the currently set MIDI channel (if set to OMNI, all channels received). When a delay program is active or a FREEZE program is set to record, the incoming data can be used as a trigger signal. The velocity value is ignored. Data cannot be received when the BASE KEY parameter is set to OFF.

Status	1001nnnn	(9nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Note Number	0kkkkkkk		k = 0 (C-2) ~ 127(G8)
Velocity	0vvvvvvv		v = 0 ~ 127

② Note On

This message is only effective when the FREEZE program is set to playback

Status	1001nnnn	(9nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Note Number	0kkkkkkk		k = 0 (C-2) ~ 127(G8)
Velocity	0vvvvvvv		v = 0 ~ 127

③ Control Change

Received on the currently set MIDI channel. When a message is received, the value of the assigned effect parameter is changed according to the control value.

Status	1011nnnn	(BnH)	n = 0 (channel number1) ~ 15 (channel number 16)
Control Number	0ccccccc		c = 1 ~ 95
Control Value	0vvvvvvv		v = 0 ~ 127

④ Program Change

Received on the currently set MIDI channel. When a message is received, the corresponding program is recalled from the program change table of the current bank.

Status	1100nnnn	(CnH)	n = 0 (channel number1) ~ 15 (channel number 16)
Program Number	0ppppppp		p = 0 ~ 127

2) System Exclusive Messages

① Program Bulk Data Request

Received on the currently set MIDI channel. When a message is received, the data for the requested program number is transmitted.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0010nnnn	(2nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"

	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01001101	(4DH)	ASCII "M"
Program	0ppppppp		p = 1 (program 1) ~ 100 (program 00)
EOX	11110111	(F7H)	

② Program Change Bank Bulk Data Request

Received on the currently set MIDI channel. When a message is received, the data for the requested bank is transmitted.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0010nnnn	(2nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01010100	(54H)	ASCII "T"
Bank Number	0zzzzzzz		z = 1 ~ 7 (1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G)
EOX	11110111	(F7H)	

③ System Set-up Bulk Data Request

Received on the currently set MIDI channel. When a message is received, the system set-up data is transmitted.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0010nnnn	(2nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111110	(7EH)	
	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01010011	(53H)	ASCII "S"
	00100000	(20H)	ASCII " "
EOX	11110111	(F7H)	

④ Parameter Value Request

Received on the currently set MIDI channel. When a message is received, the data for the corresponding parameter change is transmitted.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0010nnnn	(2nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Group/Sub Group	00011110	(1EH)	
Device Code	00000011	(03H)	
Parameter Number	0nnnnnnn		1st byte
	0nnnnnnn		2nd byte
EOX	11110111	(F7H)	

⑤ Bank Change Request

Received on the currently set MIDI channel. When a message is received, the specified bank is called up.

Status	11110000	(F0H)	
ID Number	01000011	(43H)	
Sub Status	0000nnnn	(0nH)	n = 0 (channel number1) ~ 15 (channel number 16)
Format Number	01111100	(7CH)	Condition set-up
Byte Count (MSB)	00000000	(00H)	
Byte Count (LSB)	00001101	(0DH)	

D5000

Header	01001100	(4CH)	ASCII "L"
	01001101	(4DH)	ASCII "M"
	00100000	(20H)	ASCII " "
	00100000	(20H)	ASCII " "
	00111000	(38H)	ASCII "8"
	01000001	(41H)	ASCII "A"
	00110110	(36H)	ASCII "6"
	00110011	(33H)	ASCII "3"
Data Name	01010101	(55H)	ASCII "U"
	00100000	(20H)	ASCII " "
Version Number	0vvvvvvv		v = 1
	0rrrrrrr		r = 0
Bank Number	0zzzzzzz		z = 1 ~ 7 (1=A, 2=B, 3=C, 4=D, 5=E, 6=F, 7=G)
Checksum	0eeeeeee		
EOX	11110111	(F7H)	

⑥ Program Bulk Data

The data format for transmission is the same as for "Program Bulk Data".

⑦ Program Change Bank Bulk Data

The data format for transmission is the same as for "Program Change Bank Bulk Data".

⑧ System Set-up Bulk Data

The data format for transmission is the same as for "System Set-up Bulk Data".

3) System Real Time Messages

① Timing Clock   11111000   (F8H)

When a delay program is loaded, the tempo parameter is set automatically by the timing clock.

② Active Sensing   11111110   (FEH)

If playback is started with a MIDI Note On message in the FREEZE program and active sensing is interrupted, playback will be stopped.

D5000 Parameter List

PROGRAM No. _____   DATE: _____ . _____ . _____

TITLE: _____   PROGRAMMER: _____

INPUT MODE: *STEREO . L-MONO*   TYPE: *DUAL . SINGLE* _____

DISPLAY UNIT: *SECOND. DISTANCE. TEMPO. 30FRAME. 25FRAME. 24FRAME*   TEMPO: _____

DELAY

			NOTE	TIME	LEVEL	PAN
A	1	OFF. NOR INV				
A	2	OFF. NOR INV				
A	3	OFF. NOR INV				
B	4	OFF. NOR INV				
B	5	OFF. NOR INV				
B	6	OFF. NOR INV				

FB

OFF. ON				LEVEL	HPF	LPF
A	1	OFF. NOR INV	A . B			
A	2	OFF. NOR INV	A . B			
A	3	OFF. NOR INV	A . B			
B	4	OFF. NOR INV	A . B			
B	5	OFF. NOR INV	A . B			
B	6	OFF. NOR INV	A . B			

MOD

OFF. ON			NOTE	SPEED	DEPTH	PHASE
A	1	OFF. SIN TRI. PAN				
A	2	OFF. SIN TRI. PAN				
A	3	OFF. SIN TRI. PAN				
B	4	OFF. SIN TRI. PAN				
B	5	OFF. SIN TRI. PAN				
B	6	OFF. SIN TRI. PAN				

DUCK   [OFF . ON]

TYPE	
SOURCE	
TARGET	
HOLD	
RELEASE	
THRESHOLD	

OUTPUT

	OUT LEVEL	HPF	LPF
L			
R			

CONTROL ASSIGN

	PARAMETER	MIN	MAX
1			
2			

comment:
_____
_____
_____
_____
_____
_____
_____

```
+-----------------+---------------+---------------+-----------------+
|                 | Transmitted   | Recognized    |  Remarks        |
|       Function ...|             |               |                 |
+-----------------+---------------+---------------+-----------------+
|Basic    Default | x             | 1 - 16, off   | memorized       |
|Channel  Changed | x             | 1 - 16, off   |                 |
+-----------------+---------------+---------------+-----------------+
|         Default | x             | OMNIoff/OMNIon| memorized       |
|Mode     Messages| x             | x             |                 |
|         Altered | ************* | x             |                 |
+-----------------+---------------+---------------+-----------------+
|Note             | x             | 0-127         |                 |
|Number : True voice| ***********  | x             |                 |
+-----------------+---------------+---------------+-----------------+
|Velocity Note ON | x             | x             |                 |
|         Note OFF| x             | x             |                 |
+-----------------+---------------+---------------+-----------------+
|After   Key's    | x             | x             |                 |
|Touch   Ch's     | x             | x             |                 |
+-----------------+---------------+---------------+-----------------+
|Pitch Bender     | x             | x             |                 |
+-----------------+---------------+---------------+-----------------+
|        1 ~ 95   | x             | o             |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|  Control        |               |               |                 |
|                 |               |               |                 |
|  Change         |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
|                 |               |               |                 |
+-----------------+---------------+---------------+-----------------+
|Prog             | x             | o 0 - 127     |*1               |
|Change : True #  | ***********   | x             |                 |
+-----------------+---------------+---------------+-----------------+
|System Exclusive | o             | o             |Bulk Dump        |
|                 |               |               |Parameter Change |
+-----------------+---------------+---------------+-----------------+
|System : Song Pos.| x            | x             |                 |
|       : Song Sel.| x            | x             |                 |
|Common : Tune    | x             | x             |                 |
+-----------------+---------------+---------------+-----------------+
|System    :Clock | x             | o             |                 |
|Real Time :Commands| x           | x             |                 |
+-----------------+---------------+---------------+-----------------+
|Aux  :Local ON/OFF| x            | x             |                 |
|     :All Notes OFF| x           | x             |                 |
|Mes- :Active Sense| x            | o             |                 |
|sages:Reset      | x             | x             |                 |
+-----------------+---------------+---------------+-----------------+
|Note: *1 = For program 1 ~ 128, program number of D5000 is        |
|           selected.                                              |
|                                                                  |
|                                                                  |
+------------------------------------------------------------------+
```

```
    Mode 1 : OMNI ON,  POLY   Mode 2 : OMNI ON,  MONO      o : Yes
    Mode 3 : OMNI OFF, POLY   Mode 4 : OMNI OFF, MONO      x : No
```

YAMAHA