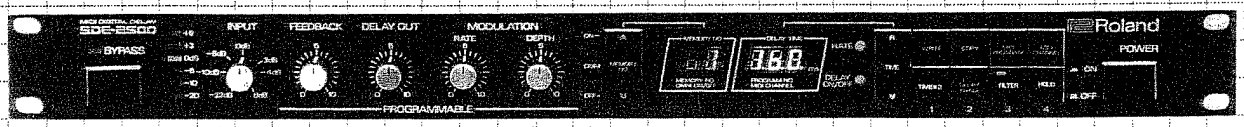
Roland

MIDI

DIGITAL DELAY SDE-2500 Owner's Manual



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Radio and television interference

"Warning – This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception."

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such an interference in a residential installation.

However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at time. If the interference stops, it is caused by either the other device or its I/O cable.

These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.

If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment father away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV.

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:

"How to Identify and Resolve Radio-TV Interference Problems"

This booklet is avilable from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

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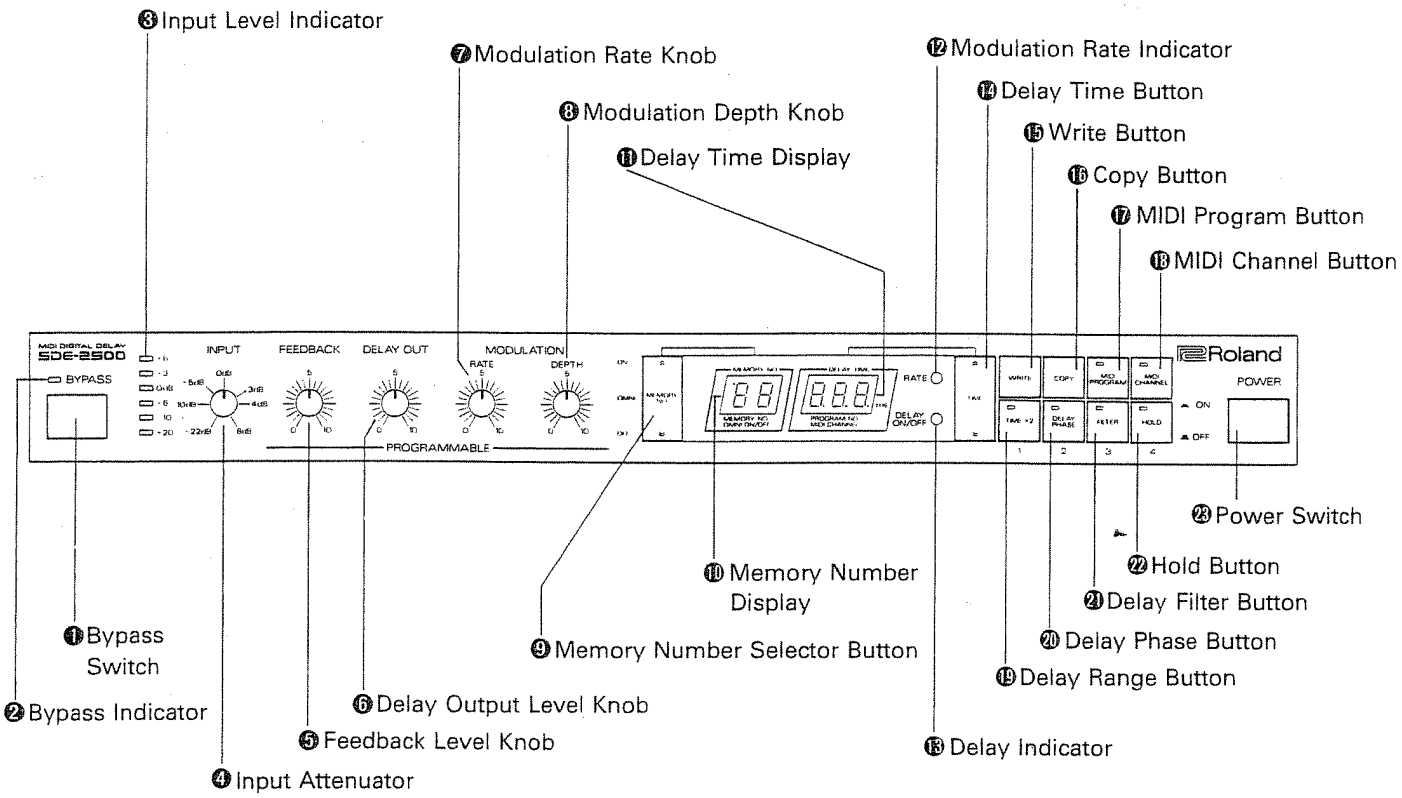
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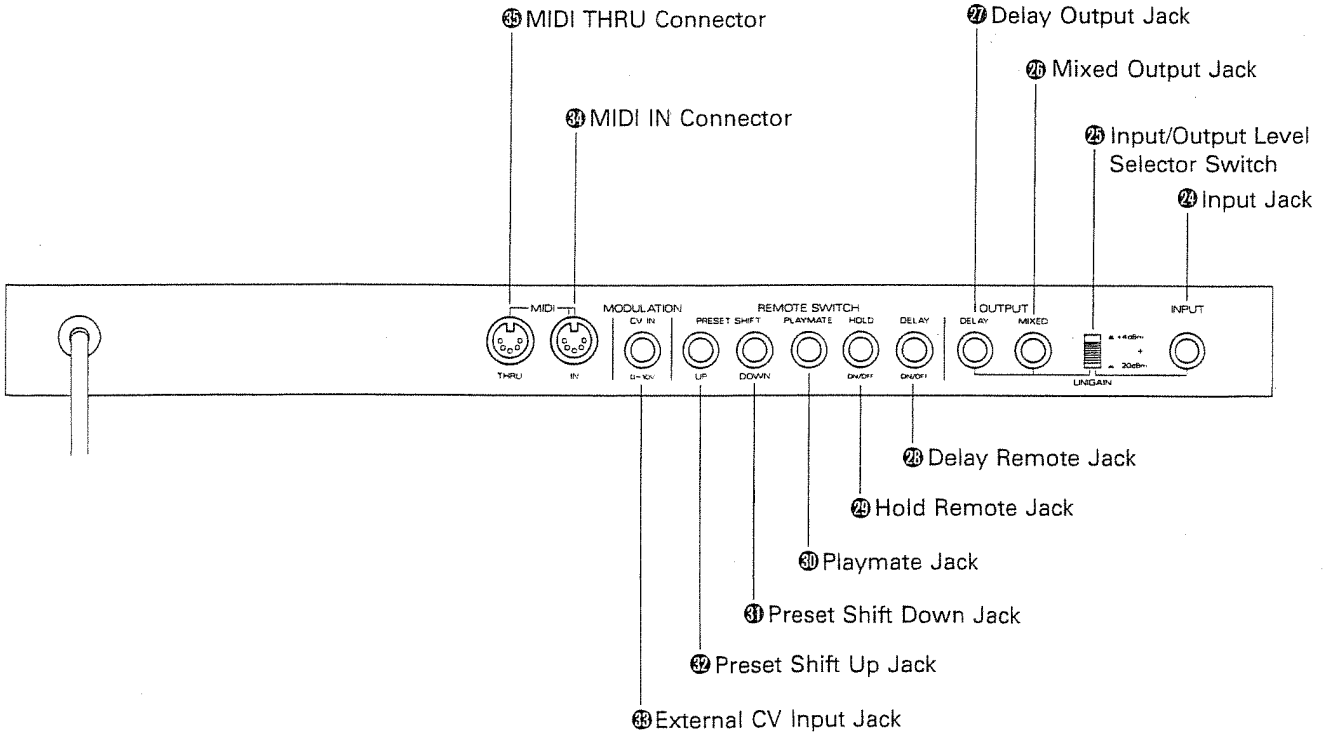
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Please read the separate volume "MIDI" before this owner's manual

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1 Panel Descriptions





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■ OUTLINE

- Featuring 15 bit equivalent digital companding PCM, the Roland SDE-2500 allows dynamic range of wider than 96dB, and total harmonic distortion of better than 0.05%.
- The SDE-2500 has memory capacity that retains 64 different settings of delay effects which can be easily edited by using the controls and switches on the front panel.
- MIDI Program Change message (0 to 127) serves to call the delay effect variations in memory.
- The maximum delay time is 750ms.
- The External CV Input Jack allows remote control by the control voltage externally fed into the unit.
- There are other useful remote control jacks such as Playmate that allows setting the delay time in real time, Delay On/Off, Hold and Preset Shift Jacks.

IMPORTANT NOTES

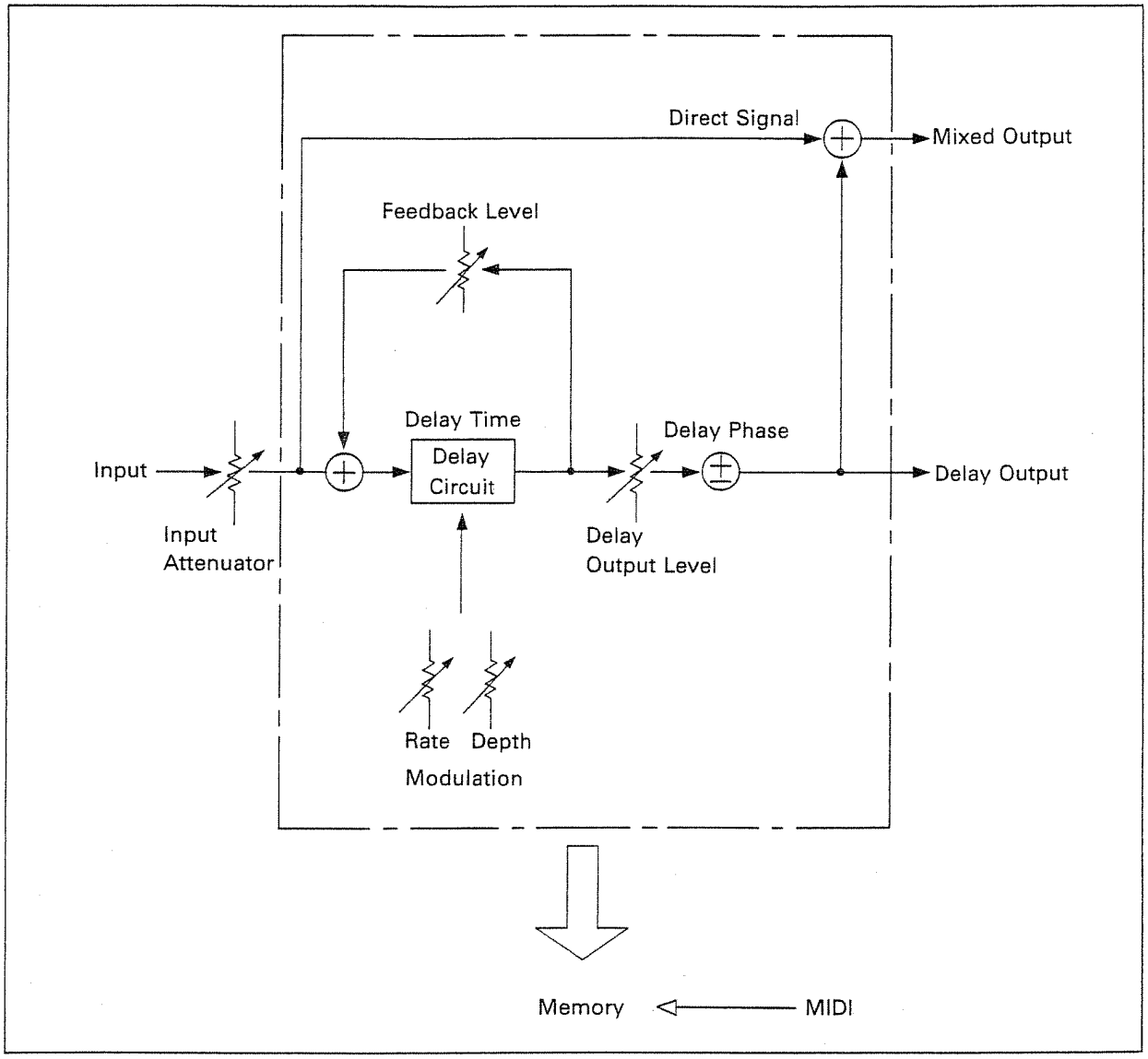
- Please use the appropriate line voltage which is shown on the name plate.
- This unit may get hot while operating, but there is nothing to worry about.
- Avoid using the unit in extreme heat, humidity or where it may be affected by dust.
- Use mild detergent for cleaning. Do not use solvents such as thinner.
- Please avoid placing or dropping anything heavy on the power cable.
- Operating the unit near a neon or fluorescent lamp may cause noise interference. If so, change the angle of the SDE-2500.
- If the unit is not to be used for a long period of time, unplug the cord from the socket.

* Please do not pull the cord but hold the plug when unplugging.

- The unit may not operate properly if turned on immediately after turned off. If this happens, simply turn it off, then turn it on again in after about five seconds.
- Please do not disassemble the unit even if it breaks down.

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■ SYSTEM SETUP



INPUT ATTENUATOR: This sets the level of the input signal

DELAY OUTPUT LEVEL: This sets the output level of delay signal, therefore the level balance of the direct and delay signals.

FEEDBACK LEVEL: This adjusts the feedback level of delay signal. Increasing the level will result in more repetition of the delay sounds.

MODULATION: This modulates the delay time, making chorus or flanging effect.

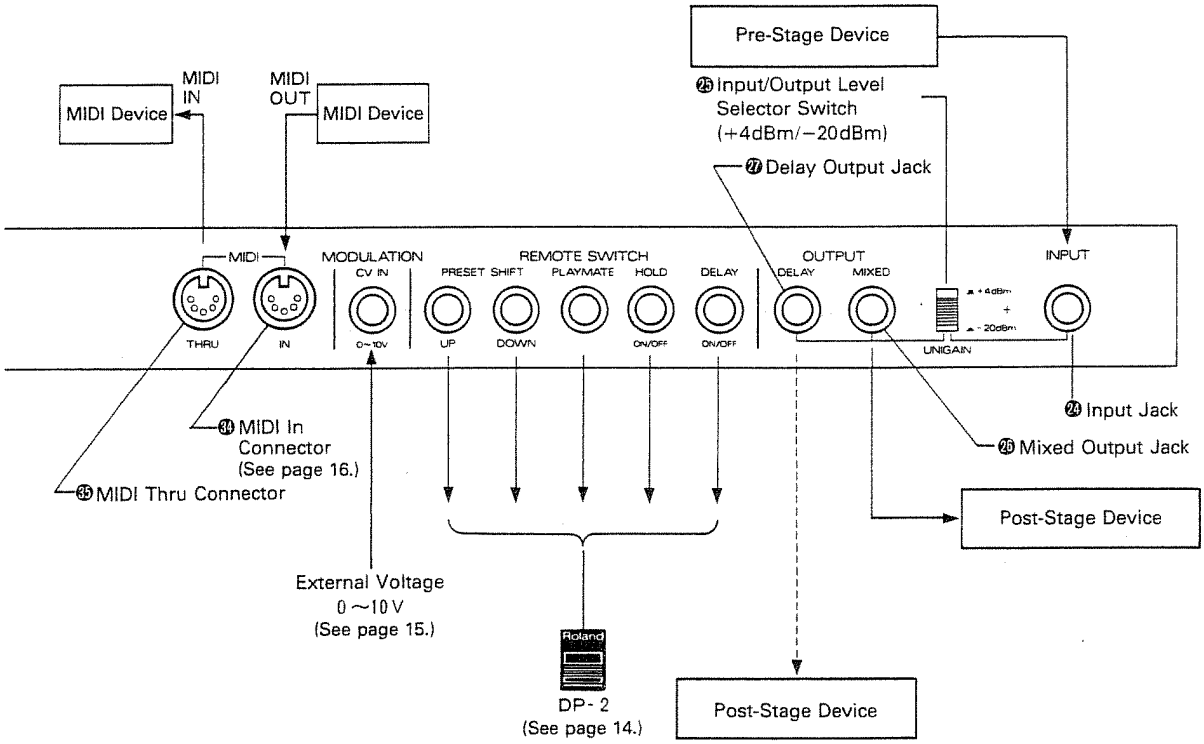
DELAY PHASE: This inverts the phase of delay signal. It can be effectively used together with the Modulation effect.

MEMORY: This can retain the variations of delay settings for later retrieval.

MIDI: MIDI Program Change message can also be used to call the delay settings written in memory.

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2 Connections



㉔ Input Jack
When low-level equipment such as a microphone is used, a preamplifier or mic-amplifier should be used.

㉕ Input/Output Level Selector Switch
Select either position depending on the input/output level of the connected unit.

+ 4dBm: Roland Rack System
Professional Audio Equipment

− 20dBm: Electronic Musical Instrument such as synthesizer.
Consumer-type Audio Equipment, etc.

* Both input and output levels are changed with this switch. Therefore, there is no volume difference between pre-stage and post-stage devices, but it is important to select the appropriate position for delay effect with the least noise and distortion.

㉖, ㉗ Output Jack

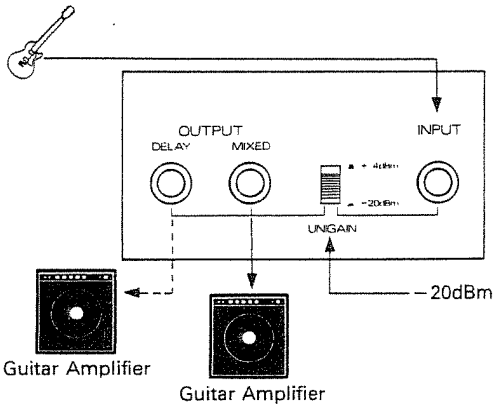
- When only the **MIXED** ㉖ is used: Mixed sound of Delay and Direct is output from **MIXED**.
- When only the **DELAY** ㉗ is used: Only Delay sound is output from **DELAY**.
- When both **MIXED** ㉖ and **DELAY** ㉗ are used: Delay sound is output from **DELAY**, and Direct sound from **MIXED**.

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■ EXAMPLE SETUPS

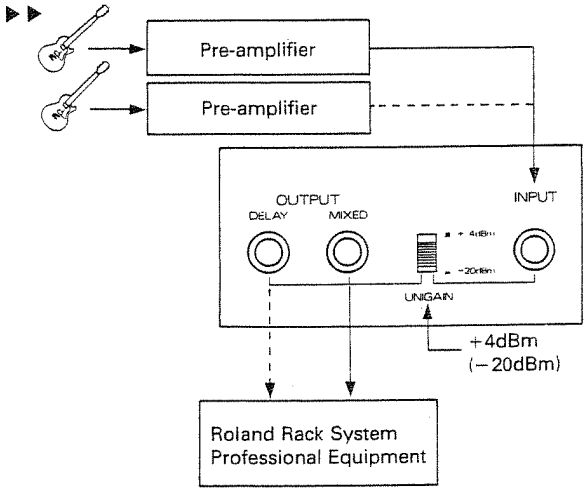
《Electric Guitar》

▶

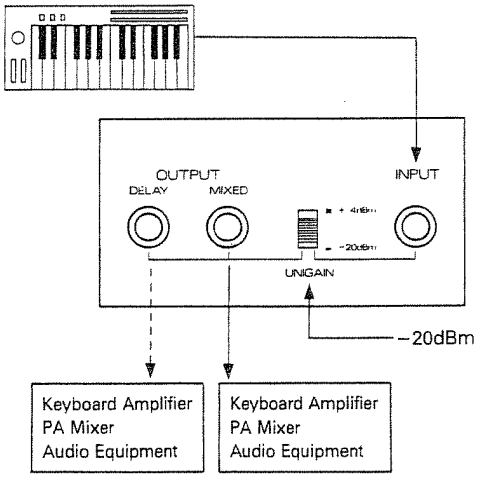


* With the Input/Output Level Selector Switch set to −20dBm, most of the electric guitar can be directly connected.

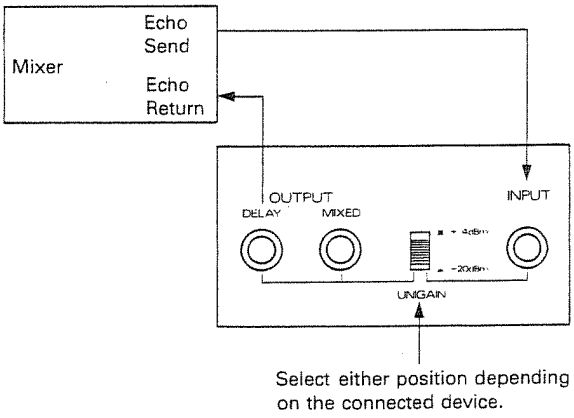
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《Line-level Equipment such as Electronic Keyboard, Audio Equipment, etc.》



《PA, Mixer》

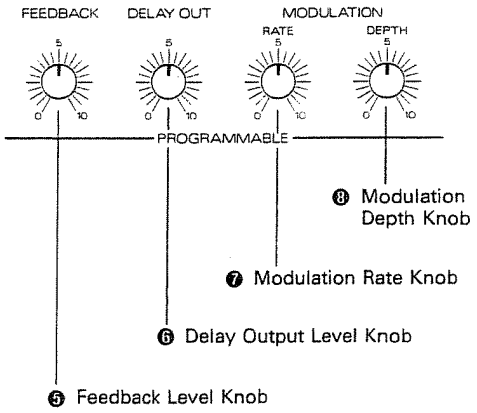


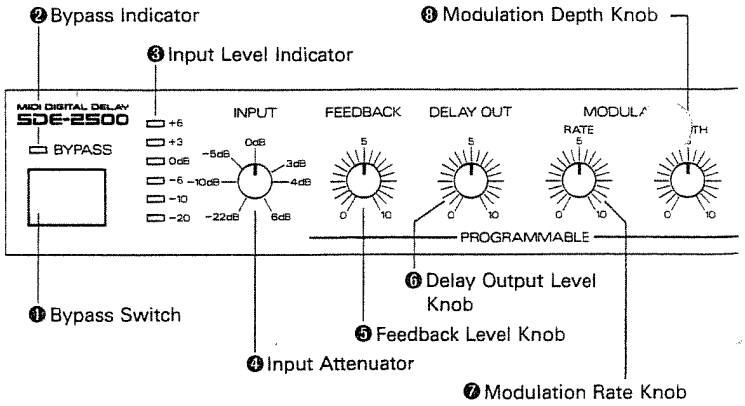
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3 Operation

1. Delay Setting

* The SDE-2500 can retain the delay setting you have made in its memory for later retrieval. (See page 10.) When the delay setting in memory is recalled, however, the following knobgs may be set to the positions which are irrelevant to the recalled setting. So please do not rely on those knob positions. This fact should be remembered when you make a memo of the delay setting you have just called.





❶ Bypass Switch

When this switch is turned on (when the indicator is lighted), the signal fed into the Input Jack ㉔ will be perfectly passed through and sent out from the Output Jack.

* If the Bypass Switch is turned on or off during performance (while the signal is passing through), noise will be noticed, but there is nothing to worry about.

❸ Input Level Indicators

The level of attenuated input signal is indicated here.

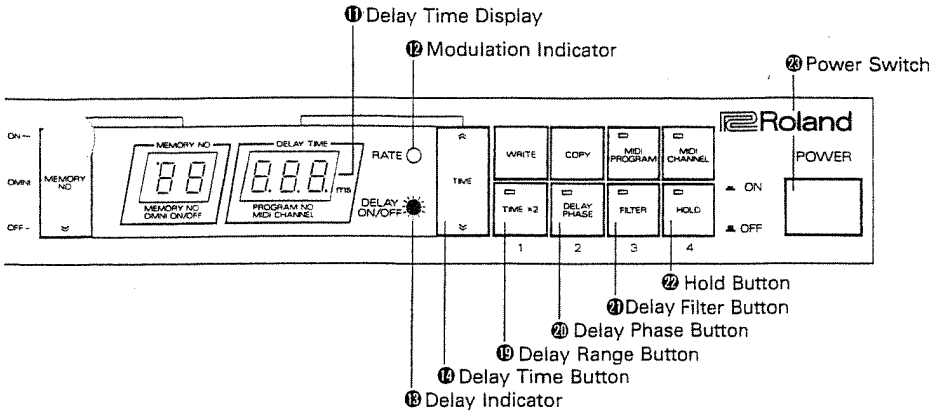
* If the Input/Output Level Selector Switch ㉕ is set to the "+4dBm" and the Input Attenuator ❹ is set to "0dB", feeding +4dBm signal will cause the "0dB" indicator to light up. Likewise, with the same switch ㉕ set to the −20dBm, feeding −20dBm signal will light up the "0dB" indicator.

❹ Input Attenuator

Set this knob to the appropriate position where the Input Level Indicator "+6dB" lights up at its peak. When you cannot manage to do it with this knob, change the position of the Input/Output Level Selector Switch ㉕. (See page 6.)

* When the Input Attenuator is set to "0dB", the output level is equal to the input level (= Gain is UNITY). Even if it is turned fully counterclockwise, the level will not be zero.

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❺ Feedback Level Knob
This adjusts the feedback level of the delay signal.

* If this is set too high, the SDE-2500 may oscillate at high pitch. If so, reduce the level or rotate the knob counterclockwise until the oscillation stops.

❻ Delay Output Level Knob
This adjusts the output level of delay signal.

❼ Modulation Rate Knob
This adjusts the speed of modulation.

❽ Modulation Depth Knob
This adjusts the depth of modulation.

⓮ Delay Time Button
Pressing the upper part of the button ⌃ will advance the number in the Display ⓫, making the delay time longer, and pressing ⌄ will make it shorter. Pressing one side while holding the other side down will quicken the change.

* The current delay time is shown in the Display ⓫.

* When the MIDI Program Button ⓱ or the MIDI Channel Button ⓲ are turned on, the delay time cannot be set.

⓳ Delay Range Button
This selects the delay range as shown below.

	Delay Time	Frequency Characteristic
OFF (×1)	0～375ms	10～17kHz($^{+0.5}_{-3}$dB)
ON (×2)	0～750ms	10～ 8 kHz($^{+0.5}_{-3}$dB)

⓴ Delay Phase Button
Use this button to invert the phase of the delay sound. This is more effective if used with the Modulation.

㉑ Delay Filter Button
When the SDE-2500 is used as an echo machine, this button can be effectively used to obtain realistic echo effect. This is because the frequency characteristic of the delay signal changes.

㉒ Hold Button
By turning this button on immediately after the audio signal is fed into, the delay sound can be repeated. (The Hold function is also obtained using a Pedal Switch. (See page 14.)

* The Hold function turned on with the Hold Button ㉒ can be cancelled by taking the following operation. (This does not apply to the Hold effect obtained by a Pedal Switch.)

- Press the Pedal Switch connected to the Hold Remote Jack ㉙, then release it.
- Call a new delay setting from memory.
- Change the delay time setting.
- Press the MIDI Program Button.

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2. Memory Function

a. Write

The delay setting you have made can be written into memory. The delay setting here includes Delay Time, Delay Output Level, Feedback Level, Modulation (Rate, Depth), and On/Off of Delay Range, Delay Phase and Delay Filter Switches.

* Writing a new delay setting will automatically erase the old one.

Operation

① By using the Memory Number Button ⑨, select the memory number which is the location where the delay setting is to be written.

Pressing the upper part of the button ⌃ will advance a number and ⌄ side will backup one. Pressing one side while holding the other side will quicken the this change.

* 64 is followed by 1.

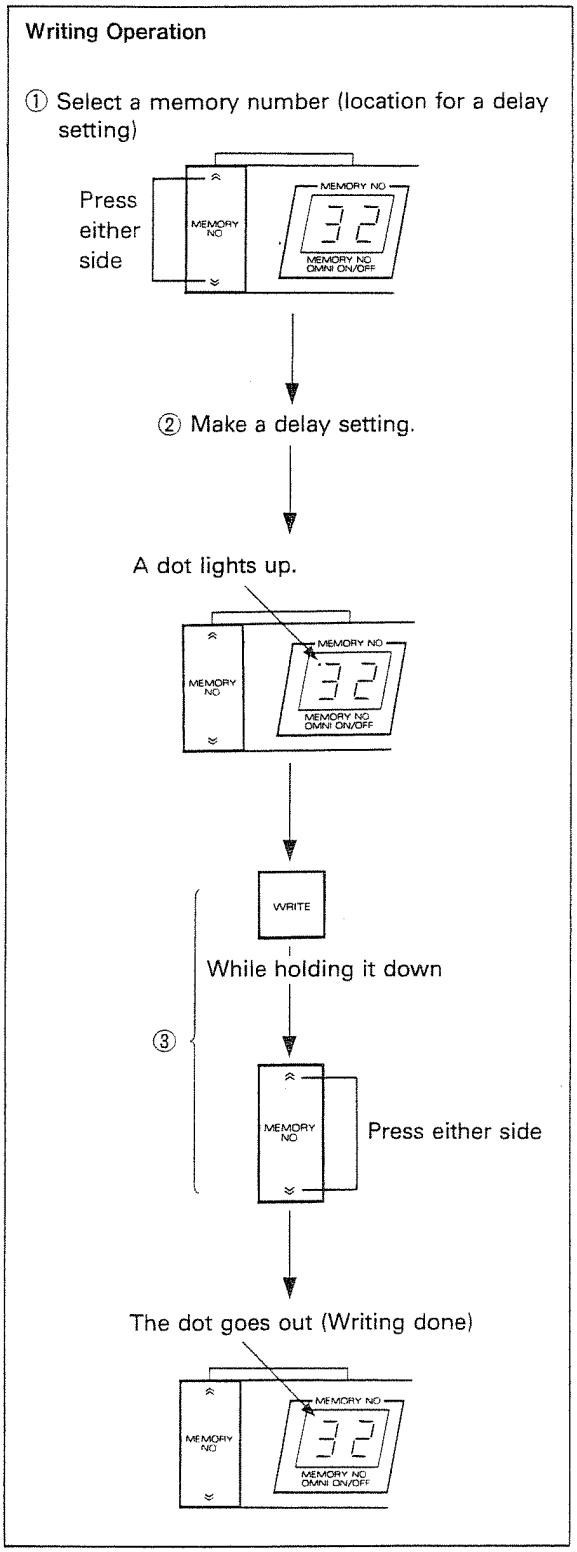
② Set each knob and buttons to your taste.

Now, a dot will appear in the Memory Number Display ⑩.

③ While pressing the Write Button ⑮, push either part of the Memory Number Button ⑨.

Now, the dot in the Memory Number Display ⑩ goes out, showing that the writing is done.

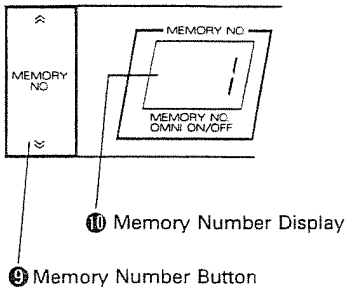
* When the MIDI Channel Button ⑱ is turned on, writing cannot be done.



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b. Recall

Any of the delay settings written in memory can be recalled by using the Memory Number Button ❾. The Memory Number Display ❿ shows the number of the delay setting which is currently recalled.



* The panel setting of the Feedback Level ❺, Delay Output Level ❻, Modulation Rate ❼ and Modulation Depth knobs have nothing to do with those of the called delay setting, whereas the indicators act according to the delay setting currently called.

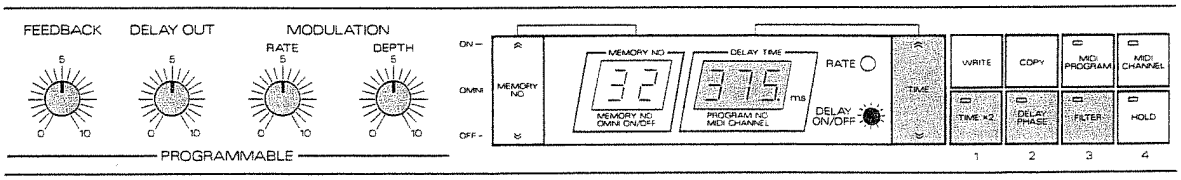
* The delay setting of memory number 1 to 8 can be called using the pedal switch as well. (See "Preset Shift" on page 15.)

* 16 different delay settings are preprogrammed in the memory number 1 to 16.

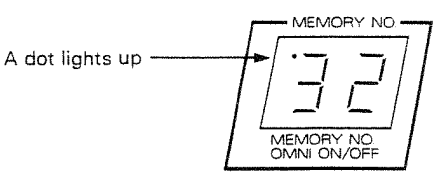
About Edit

You can easily edit any delay setting written in memory. Simply call a delay setting and edit it using relevant buttons and knobs as shown below. While the editing is being done, the Display ❿ shows a dot at its upper left.

* The editing operation does not automatically edit the existing delay setting unless an appropriate writing procedure is taken.



* Take a usual delay setting operation. The settings of the gray color knobs and buttons above are written into memory.



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c. Copy

Operation

① Call the delay setting that you wish to copy.

② If you wish to edit the called delay setting, do it now.

③ Press the Copy Button ⑯.

The Displays ⑩ and ⑪ flashes.

④ Select the new location with the Memory Number Selector Button ⑨.

Now, the flashing of the Memory Number Display ⑩ stops and glows steadily, but the Delay Time Display ⑪ remains flashing.

⑤ While holding the Write Button ⑮ down, push either the upper or lower part of the Number Selector Button ⑨.

Now, the copy is done and the Delay Time Display ⑪ stops flashing and glows steadily.

⑥ Pushing the Copy Button ⑯ instead of taking step ⑤ will cancel the Copy mode, therefore, copying is not done.

Now, the Displays ⑩ and ⑪ stop flashing and glow steadily.

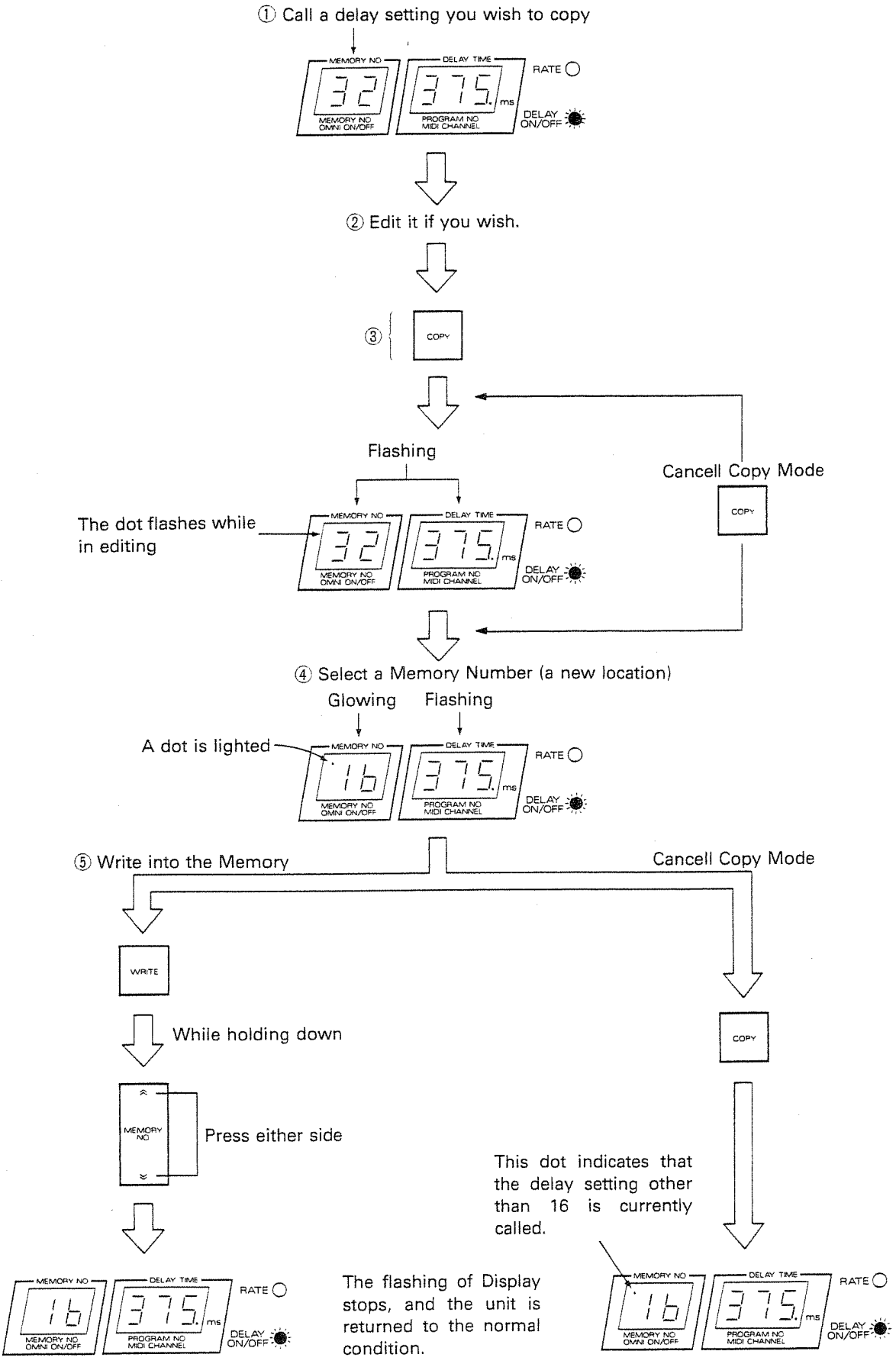
* When the MIDI Program Button ⑰ or the MIDI Channel Button is turned on, copy function does not work.

* While in the Copy mode (from step ③ to ⑤), the buttons or knobs ⑤, ⑥, ⑦, ⑧, ⑭, ⑲, ⑳ and ㉑ stop functioning. That is, it is no use to try to do further more editing after pressing the Copy Button in step ③.

* If you use the MIDI Program Button ⑰, MIDI Channel Button ⑱ or Playmate Jack ㉚ while in the Copy mode, the copy mode will be cancelled.

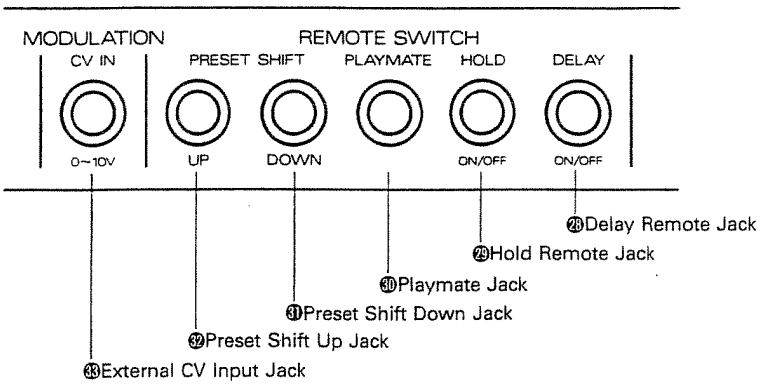
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Example) Copying Delay Setting 32 to Memory Number 16



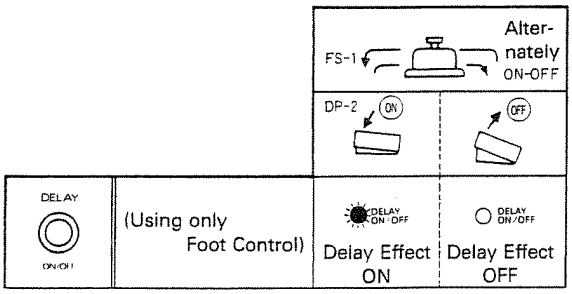
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3. Remote Control



a. Delay On/Off

Connect the Foot Switch FS-1 or Pedal Switch DP-2 to the Delay Remote Jack ㉘, and the delay signal can be on or off by pressing the pedal.



b. Hold On/Off

Connect the Pedal Switch DP-2 to the Hold Remote Jack ㉙, and Hold effect can be on or off by pressing the pedal. While the pedal is being depressed, the Hold Indicator ㉒ lights up and the effect is on.

* When the Hold effect is turned on with the above remote control function, the following functions are not available. (This does not apply to when the Hold is turned on with the Hold Button ㉒.)

- Recalling a delay setting (including Preset Shift and recalling with MIDI)
- Delay time control (including Playmate)
- On/Off of the MIDI Program Button ⑰

c. Playmate

Connect the Pedal Switch DP-2 to this jack, and you can set a delay time of any length just by pressing the pedal in such timing.

Operation

① Connect the DP-2 to the Playmate Jack ㉚.

② Depress the pedal.

Now, the Delay Time Display responds with 0. 0. 0. , showing that the delay effect is now off, ready to be set in real time.

③ Press the Pedal twice.

The built-in computer sets the delay time according to the time between the first pressing and the second.

The longest delay time you can set in the SDE-2500 is 0.75 seconds (750ms).

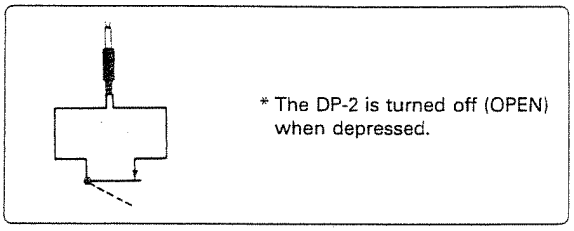
* When the MIDI Program Button, the MIDI Channel Button or the Hold effect with Remote Button is turned on, the above Playmate function will not work.

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d. Preset Shift

Connect the Pedal Switch DP-2 to the Preset Shift Up Jack ㉜ or to the Down Jack ㉛, or connect two DP-2's to both jacks, and the delay settings of memory numbers 1 to 8 can be sequencially called just by pressing the pedal(s). Pressing the pedal will advance or back up one number.

When the delay setting other than memory number 1 to 8 (9 to 64) is currently in use, pressing the pedal connected to the Up Jack will call number 1, and pressing the one connected to the Down Jack will call 8.

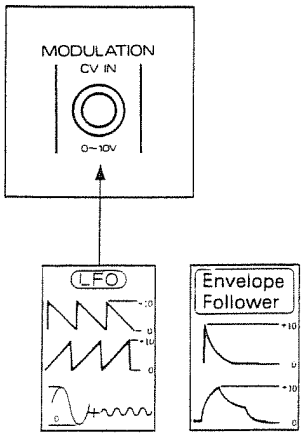


* The DP-2 is turned off (OPEN) when depressed.

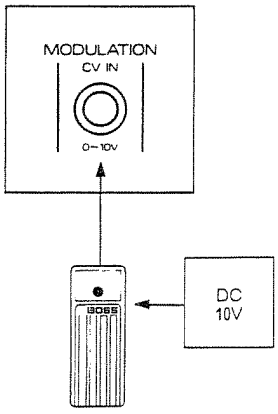
e. Modulation CV

* Plugging in the External CV Input Jack ㉝ will automatically cut the built-in LFO signal.

- Modulation by external signal



- Remote control for the delay time



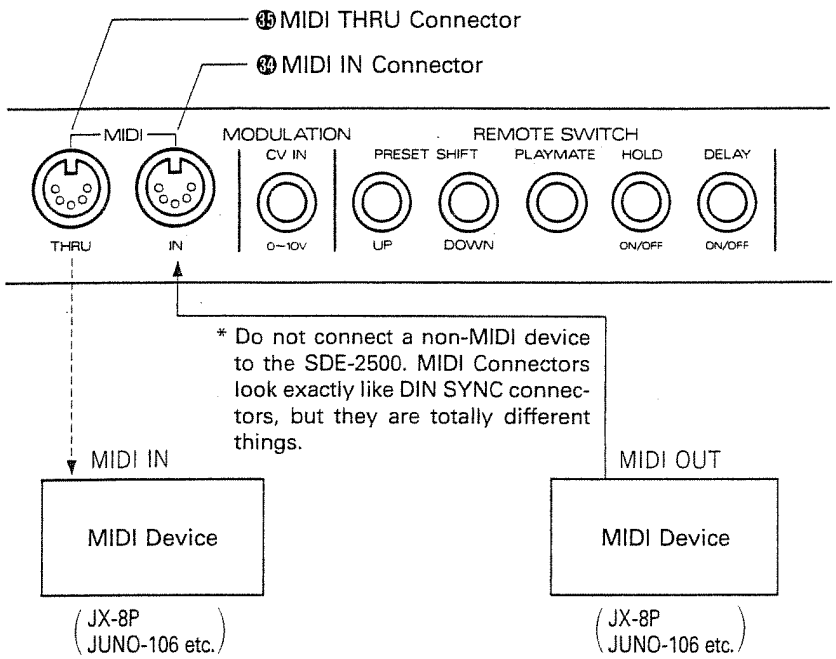
Foot Volume
(FV-200 etc.)

* The deeper the pedal is pressed, the shorter the delay time becomes.

* Be sure to input the enternal CV (10V) to the Input Jack of the Foot Volume.

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4. Calling a delay setting using MIDI



Any delay setting in the SDE-2500's memory (memory number 1 to 64) can be called by an appropriate program change message (0 to 127) sent from the MIDI device. First, set the MIDI Channel number and OMNI ON or OFF mode, then make combination of the program change number on the external MIDI device and the memory on the SDE-2500. (Refer to "MIDI" for the details of MIDI Channel, OMNI ON/OFF and Program Change message.)

* When MIDI signal is being fed in continuously, the Display may momently goes out, but there is noting to worry about.

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1) How to set a MIDI Channel and OMNI ON/OFF

① Push the MIDI Channel Button ⑱.

The indicator on the MIDI Channel Button lights up. The Memory Number Display ⑩ shows " 0 " if OMNI ON, and nothing is shown if OMNI OFF, and the Delay Time Display ⑪ shows the current MIDI Channel number (1 to 16).

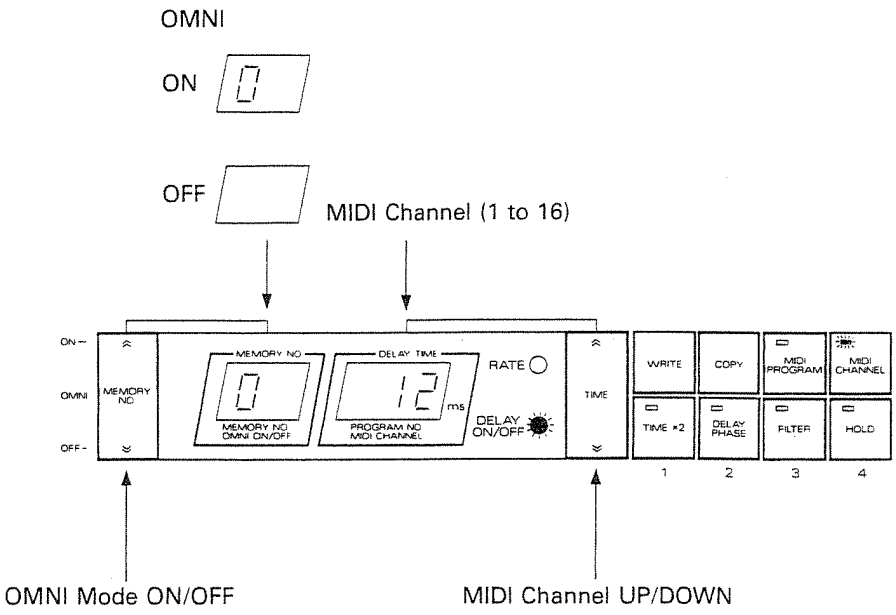
② With the Delay Time Button ⑫, set an appropriate MIDI channel number. Pressing ∧ side will forward a number and ∨ side will backup one.

③ With the Memory Number Selector Button ⑨, set either OMNI ON or OFF. Pressing the ∧ side will select OMNI ON, and ∨ side change to OFF.

④ Push the MIDI Channel Button ⑱.

The indicator of the button goes out, and the Displays ⑩ and ⑪ will retrun to the normal indication.

* While the MIDI Channel Button is turned on, the delay time cannot be altered. Other parameters can be edited, but the dot does not appear in the Display even while editing. (As described before in this manual, the dot usually appears while in editing.)



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2) How to make the combination of the memory numbers on the SDE-2500 and the program change numbers on the external MIDI device.

① Push the MIDI Program Button ⓱.

The indicator on the button lights up. The Delay Time Display ⓫ shows the program change number previously set, and the memory number that corresponds to that is shown in the Memory Number Display ⓾. That is, the delay setting of that memory number is called.

② Using the Delay Time Button ⓮, change to the program change number you like.

Pressing ∧ side will forward a number, and pressing ∨ side will backup one. Also, pushing one side while holding the other side down will quicken the change.

③ By using the Memory Number Button ⓽, call the memory number (1 to 64) that should make a pair with the program change number currently called.

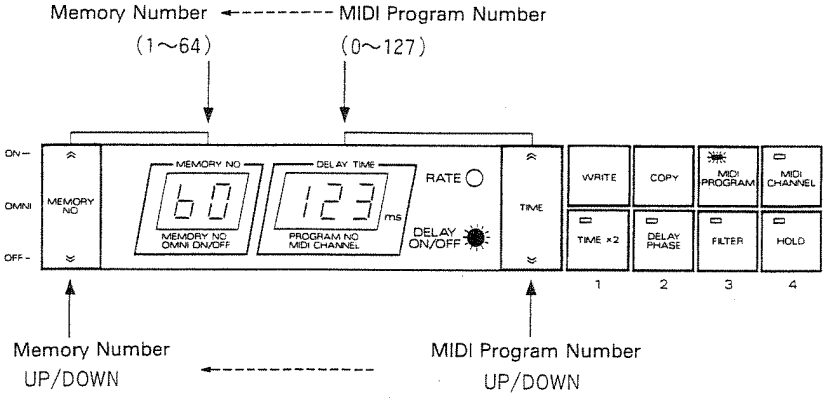
④ To make other pairs, repeat steps ② and ③ as many times.

⑤ Push the MIDI Program Button ⓱.

The indicator on the button goes out and the Delay Time Display ⓫ returns to the normal indication.

* Please note that once the MIDI Program Button ⓱ is turned on, the memory number of the delay setting previously in use has been replaced with a different one.

* When the MIDI Program Button ⓱ is on, delay time cannot be altered.



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Number Tables 1 to 4

In this manual we regard the combination of program change numbers and memory numbers as a table, and call it Number Table. The SDE-2500 actually can memorize up to four Number Tables. (See the picture below.) You may program four tables and use them as required.

1		2		3		4	
Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number
1	0	64	0	8	0	6	0
2	1	63	1	16	1	35	1
3	2	62	2	32	2	7	2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
64	127	0	127	64	127	58	127

For instance, if the four Number Tables are set as shown above, and the Table 1 is in use, program change number 0 will call the memory number 1. If the Table 2 is used, program change number 0 will call memory number 64.

Turning the SDE-2500 on will automatically selects the number table that had been used when turned off.

▶ How to change the Number Tables

The Delay Range Button ⓳, Delay Phase Button ⓴, Delay Filter Button ㉑ and Hold Button ㉒ serve as number buttons that select corresponding Number Tables 1, 2, 3 and 4. While holding the relevant button down , turn the unit on.

* When the unit is turned on, the Delay Time Display ⓫ shows a flashing number of the selected number Table for a few seconds. (While this flashing number is shown in the display, the SDE-2500 cannot receive MIDI signal.)

5. Cautions

1) In the following conditions, delay sound is completely muted, therefore, only the direct sound is heard.

- When you have changed the delay time: The delay sound is muted as long as the Delay Time Button is depressed, and still muted up to 400ms even after the button is released.

- When a new delay setting is called (including by using MIDI): The delay sound is muted up to 400 ms.

2) For about 6 seconds after the unit is turned on, the muting circuit functions, therefore either direct or delay sound is not heard.

3) For about 2 seconds after the SDE-2500 is turned on, the Display will show flashing numbers. During this time, the Feedback Level ❺, Delay Output Level ❻, Modulation Rate ❼ and Depth ❽ knobs do not work at all, therefore editing the delay setting with these knobs is not possible.

* Usually, moving the knob settings while the unit is turned off will not affect the delay setting. Therefore, when the unit is turned on, the exact delay setting will come back regardless of the position of those knobs. It, however, does not apply to the case when the unit is turned off during the edit mode.

* To avoid any confusion, you may write the delay setting you have made into memory.

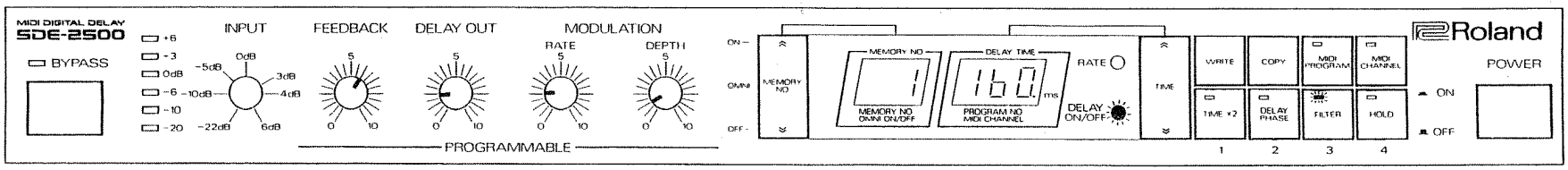
Battery Backup

The SDE-2500 features battery backup system that retains the data in memory even when turned off. This is fully supported by a battery which is to last more than 5 years, but it depends on how many months had been passed before it was purchased. Also, please have your local Roland dealer do the job.

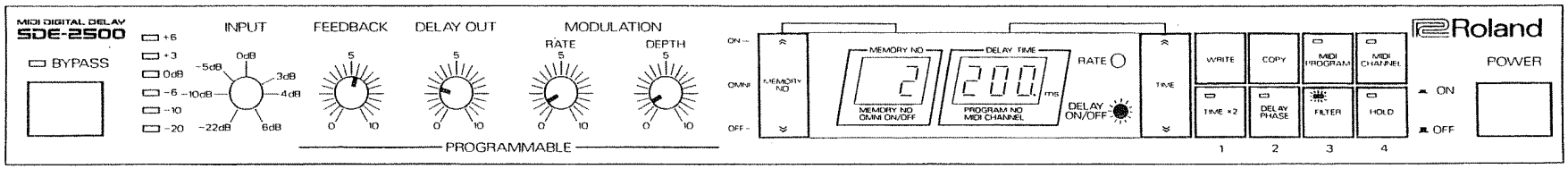
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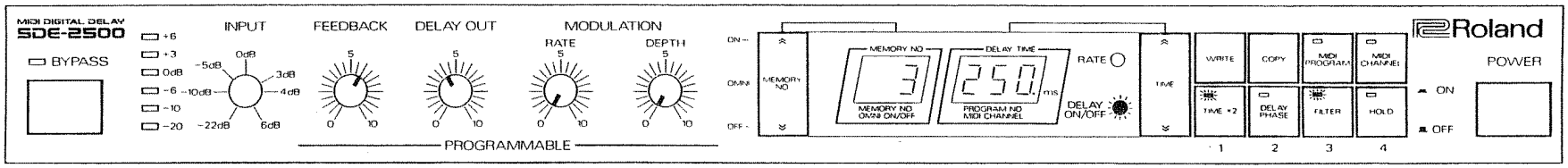
1. Echo I



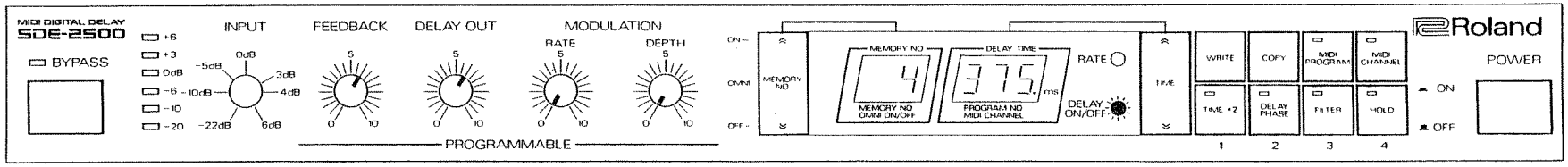
2. Echo II



3. Echo III

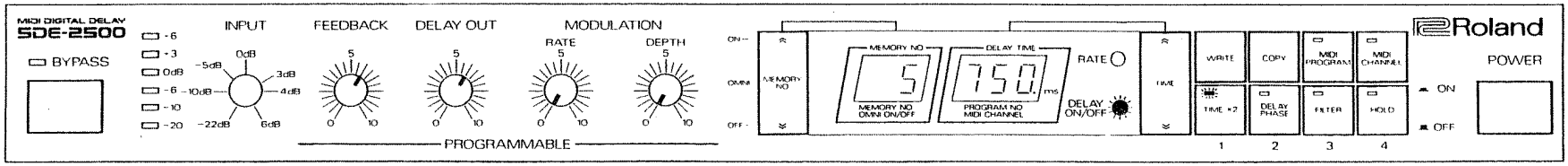


4. Echo IV

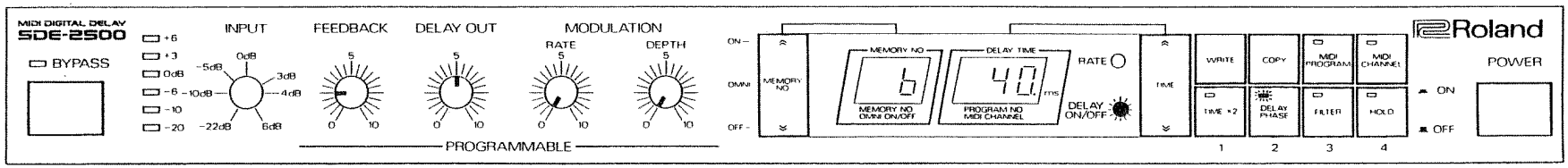


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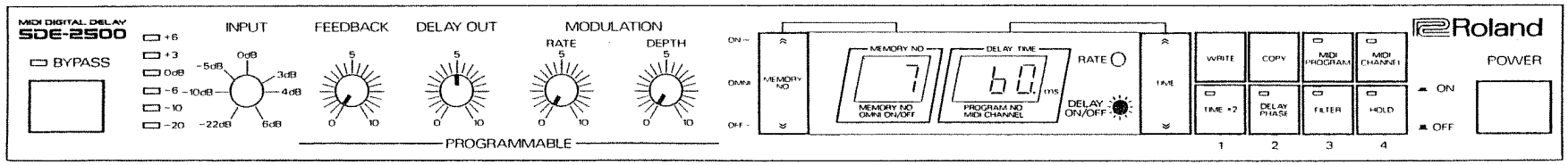
5. Echo V



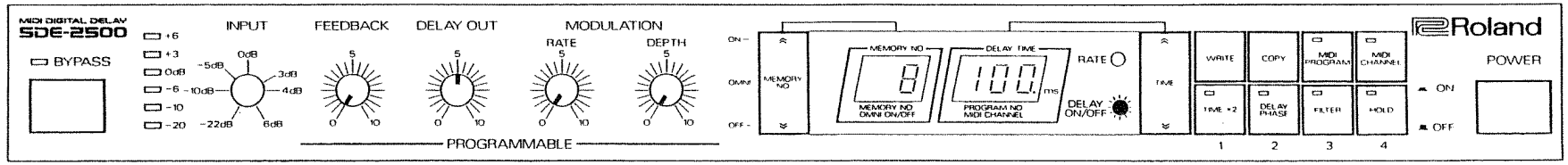
6. Doubling I



7. Doubling II

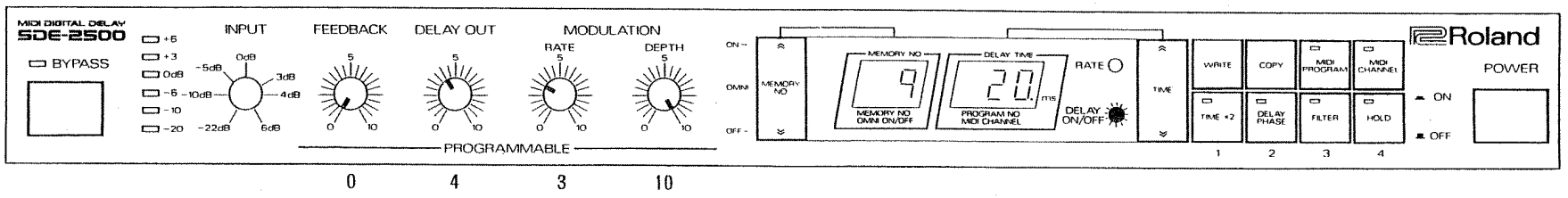


8. Doubling III

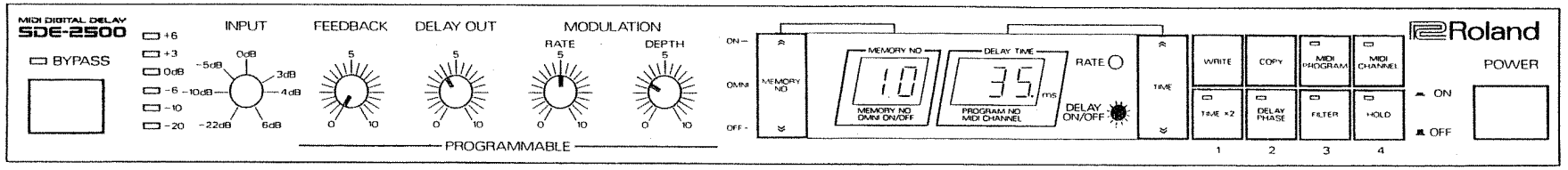


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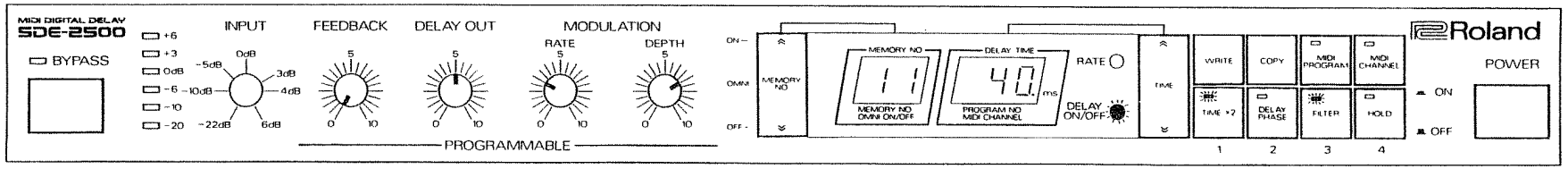
9. Chorus I



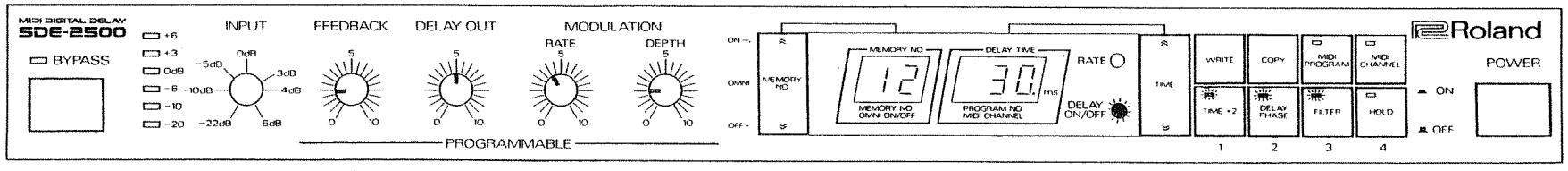
10. Chorus II



11. Chorus III

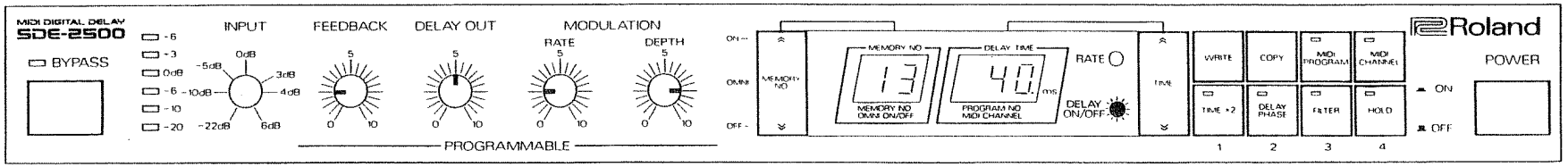


12. Chorus IV



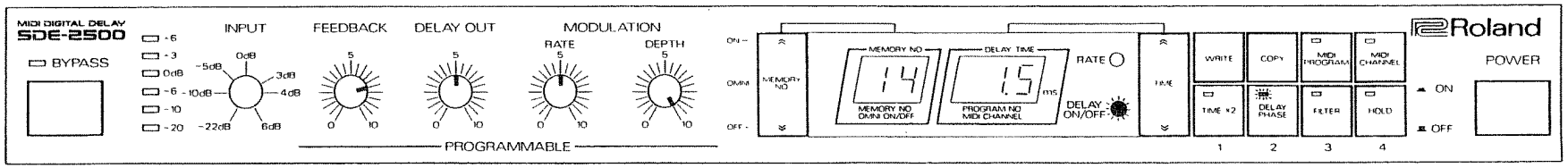
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13. Chorus V



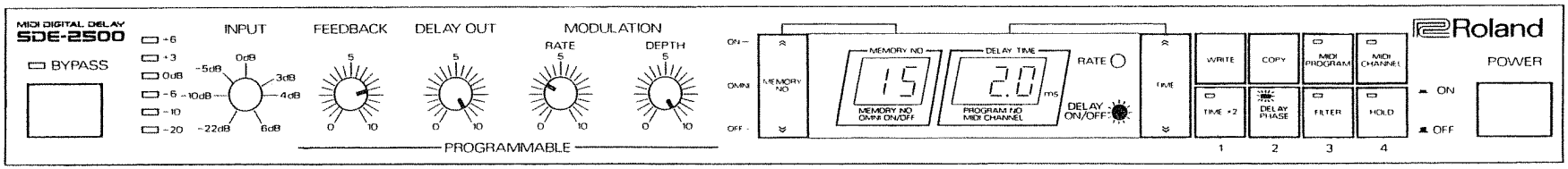
2 5 2 8

14. Flanger I



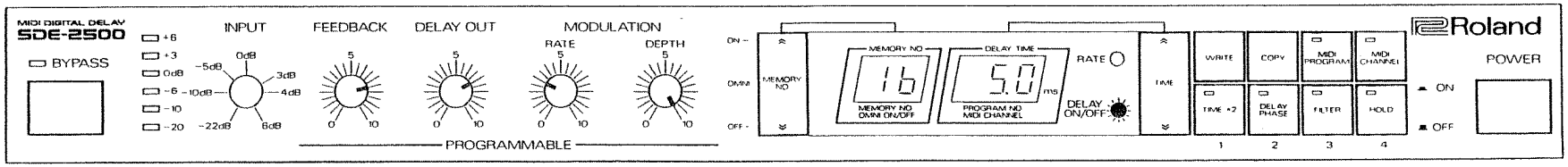
7.5 5 5 10

15. Flanger II



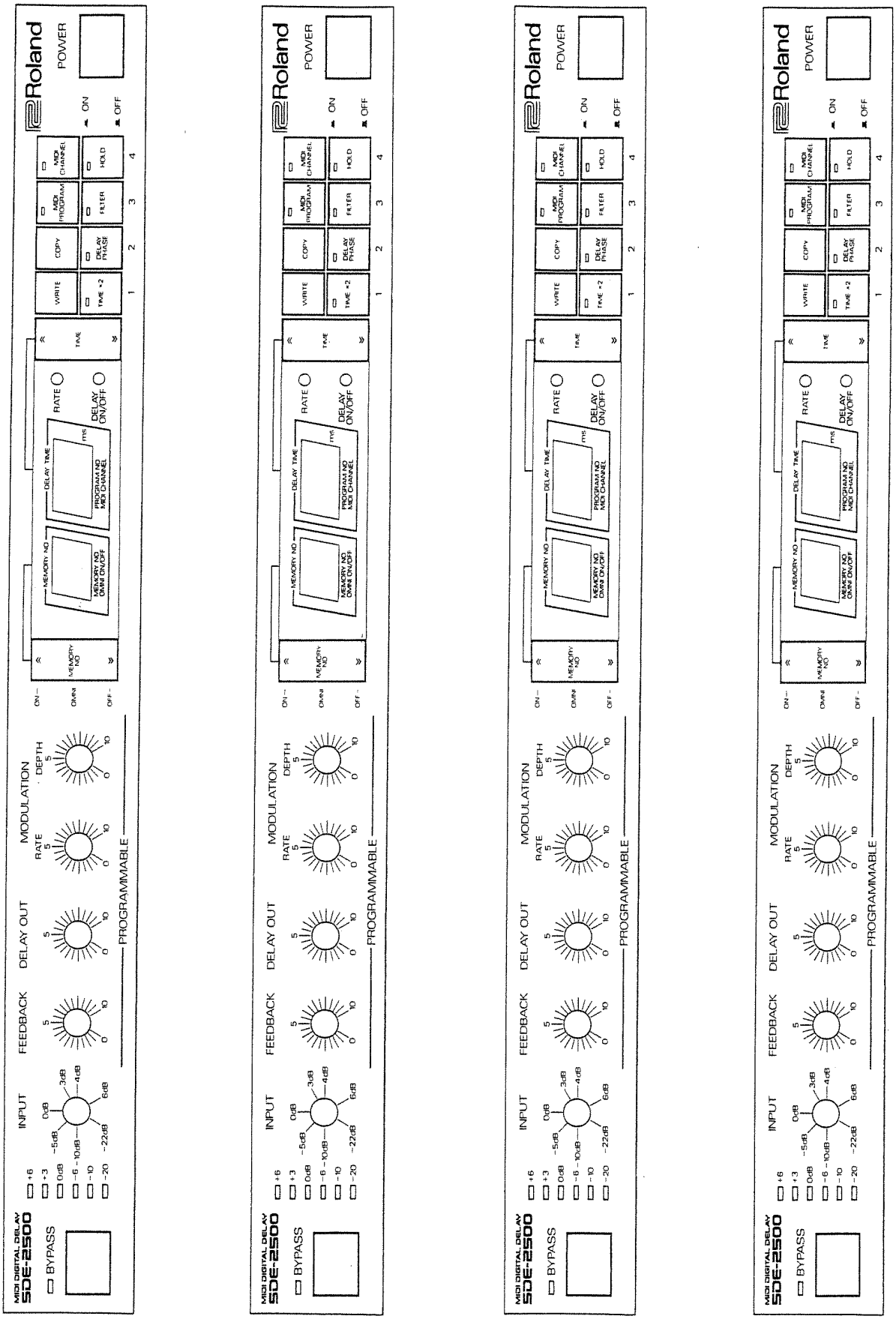
7.5 10 3 10

16. Flanger III



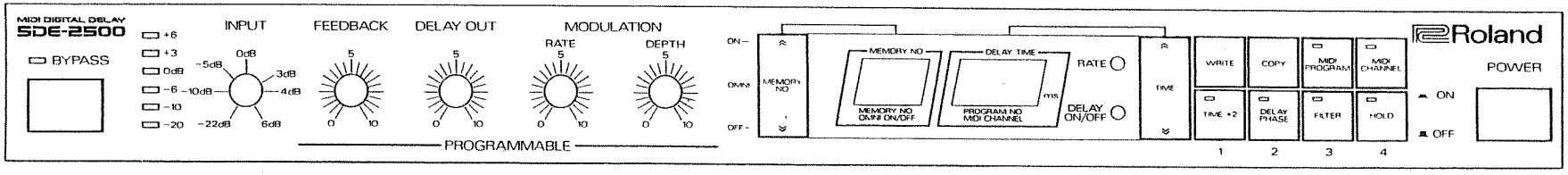
7.5 7 3 10

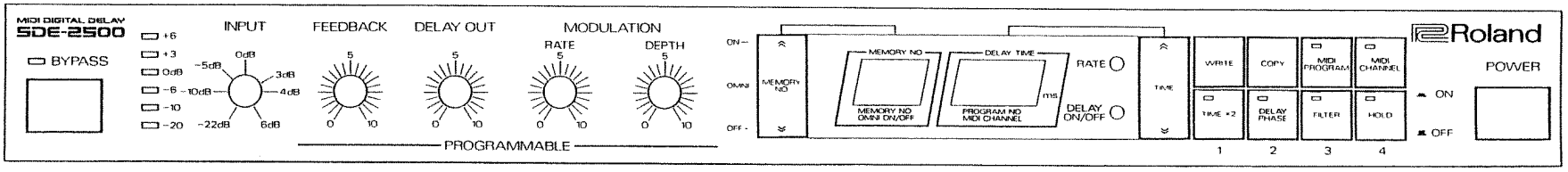
Memo

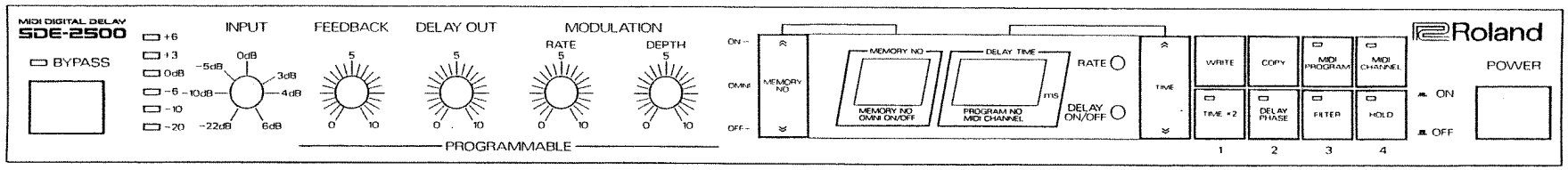


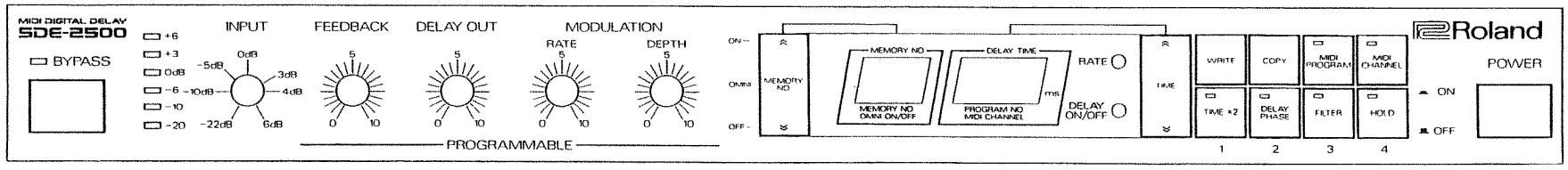
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Number Table Memo

( )

1		2		3		4	
Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number

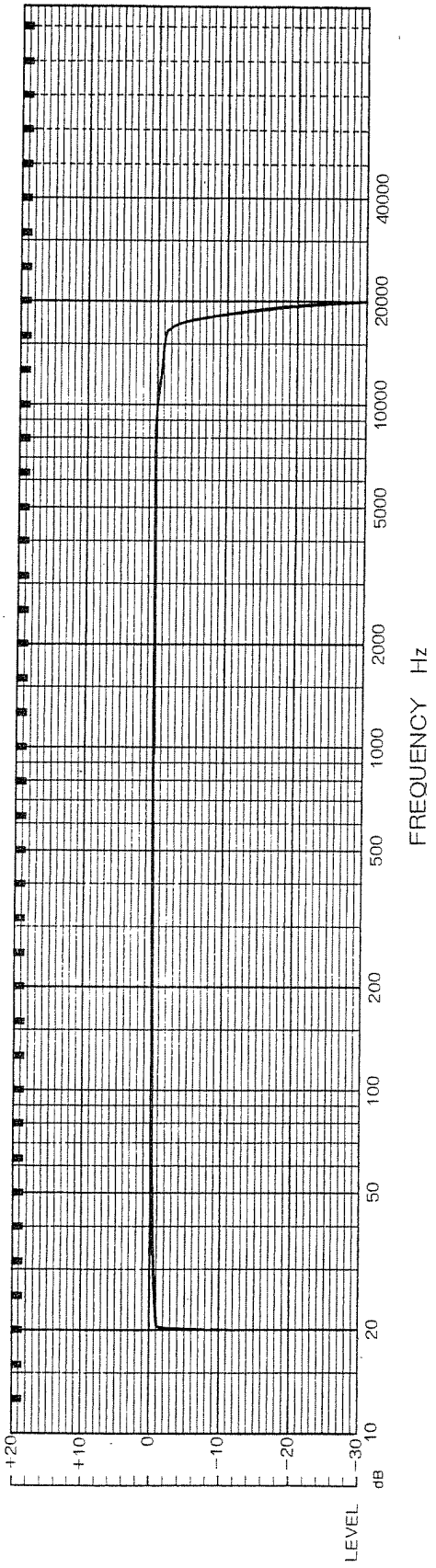
( )

( )		( )		( )		( )	
Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number	Memory Number	Program Number

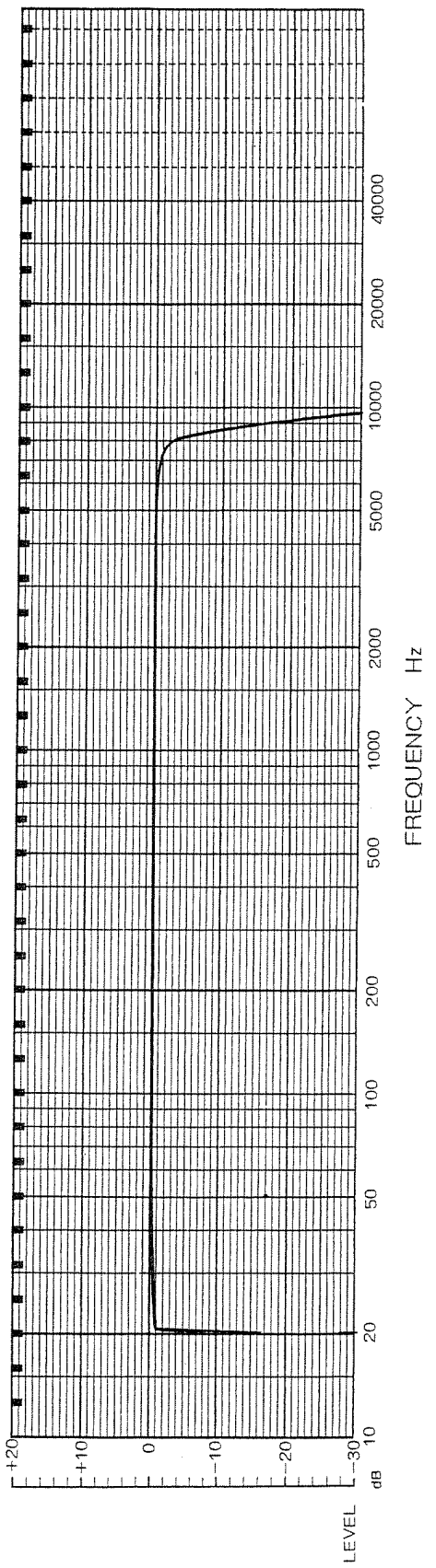
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Frequency Characteristic

DELAY RANGE ×1

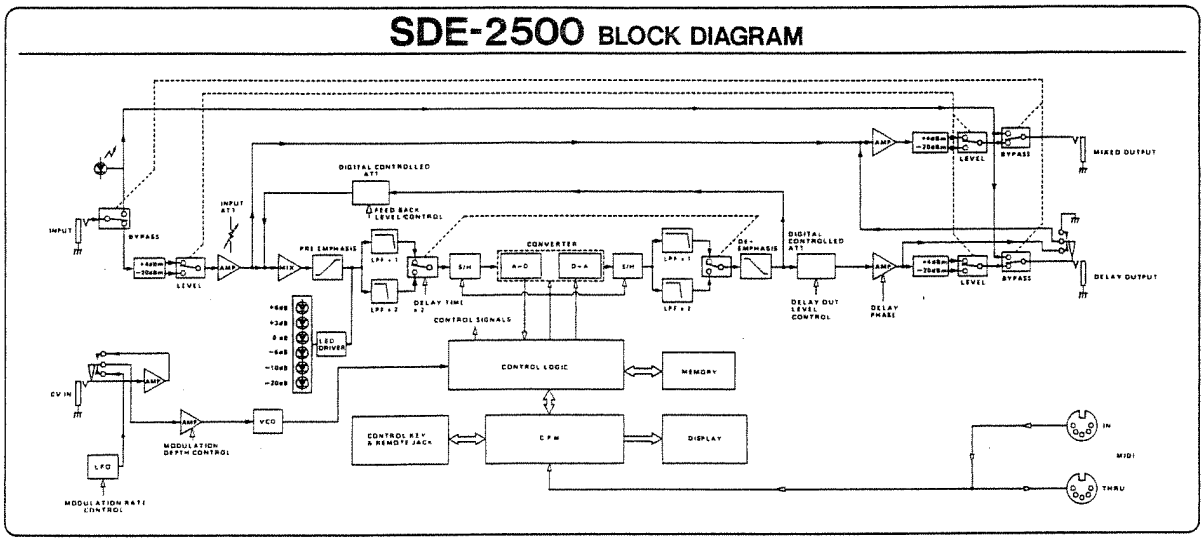


DELAY RANGE ×2



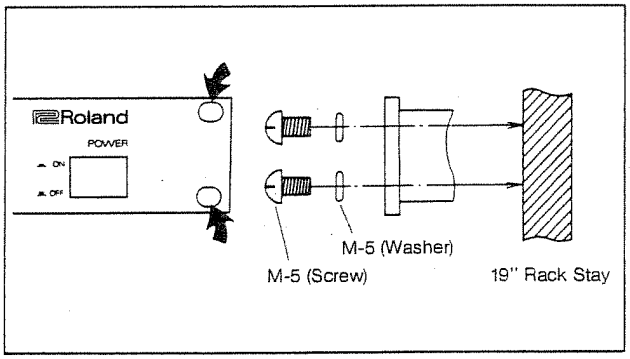
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Block Diagram



Fixing to the 19'' Rack.

Use 5mm screws.



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5 Specifications

Digital Delay • SDE-2500

< **Input** >

• Input Level	+ 4dBm
	−20dBm
• Input Impedance	56kΩ (+4dBm)
	560kΩ (−20dBm)

< **Output** >

• Output Level	+ 4dBm
	−20dBm
• Output Impedance	100Ω (+4dBm, Mixed, Delay)
	650Ω (−20dBm, Mixed, Delay)

< **CV IN** >

• Operating Voltage (Maximum Input Voltage)	0 to +10V (±20V)
• Input Impedance	100kΩ

< **General Performance** >

• Delay Time Range	0to 375ms/0 to 750ms
	0.1ms Step (0 to 10ms)
	1ms step (10ms to 750ms)
• Frequency Characteristic	10 Hz to 100 kHz, +0, −1dB (Direct)
	10 Hz to 17 kHz +0.5, −3dB (Delay 0 to 375ms)
	10 Hz to 8 kHz, +0.5, −3dB (Delay 0 to 750ms)
• S/N (IHF A)	93dB (Direct) at rated input/output, 84dB (Delay) at rated input/output
• Dynamic Range	112dB over (Direct) 96dB over (Delay)
• THD	0.008% under (Direct) 1kHz, at rated input
	0.05% under (Delay) 1kHz

< **Controls** >

Input Attenuator
Feedback Level Knob
Delay Output Level Knob
Modulation Rate Knob
Modulation Depth Knob
Memory Number Selector Button (Up, Down)
Delay Time Button (Up, Down)

< **Switches** >

Write Switch
Copy Switch
MIDI Program Switch
Delay Range Switch
Delay Phase Switch
Delay Filter Switch
MIDI Channel Switch
Hold Switch
Bypass Switch

< **Display/Indicator** >

Delay Time Display
MIDI Program Indicator
MIDI Channel Indicator
Hold Indicator
Memory Number Display
Modulation Rate Indicator
Delay Filter Indicator
Delay Range Indicator
Delay Phase Indicator
Bypass Indicator
Delay Indicator

< **Jacks** >

Input
Output (Mixed, Delay)
Delay (On/Off)
Hold (On/Off)
Playmate
Preset Shift (Up/Down)
External CV Input
MIDI In
MIDI Thru

< **Consumption** >

19 W

< **Dimensions** >

482(W) × 47(H) × 326(D) mm
19(W) × 1-13/16(H) × 12-13/16(D) in.
19″ Rack mount (EIA-1U)

< **Weight** >

4.5 kg/11 lb.

< **Accessories** >

Connection Cable × 2

*Specifications are subject to change without notice.

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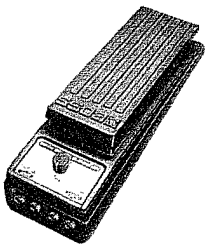
Options



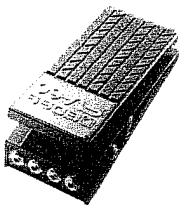
Foot Switch FS-1



Pedal Switch DP-2



Foot Volume FV-200



FV-60

Roland

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