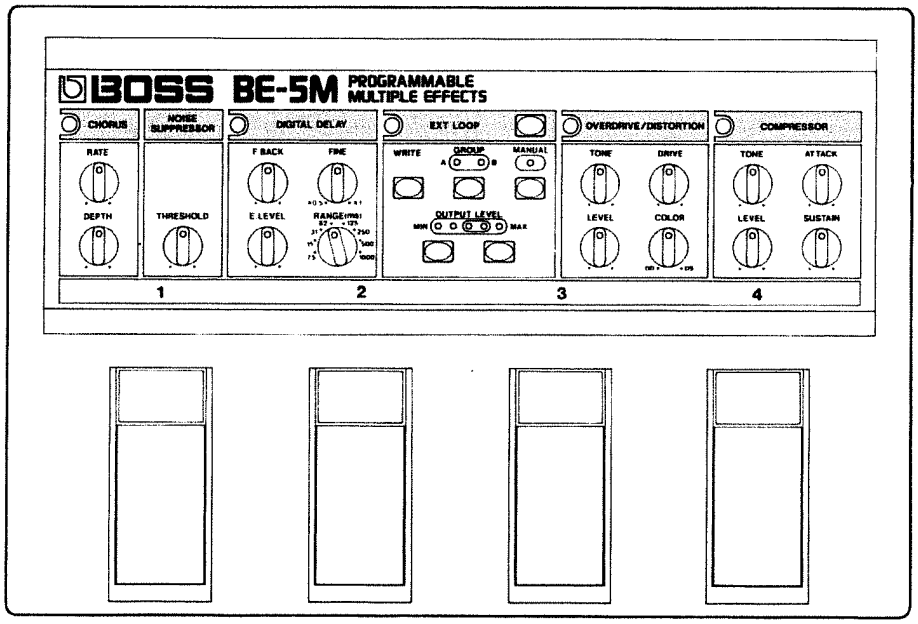
BOSS

BE-5M PROGRAMMABLE MULTIPLE EFFECTS

Owner's Manual



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Thank you for purchasing the BOSS BE-5M Programmable Multiple Effects unit. The BE-5M is a pedal-type unit that includes five different effects.
To make the best use of the unit, please read the owner's manual carefully.

■FEATURES

- The BE-5M is a multiple effects unit that includes five different effects. This frees you from complicated setups which use several different effects devices.
- The BE-5M is a user-programmable unit that allows you to create and store eight different effects programs called PATCHES. You can select any one of the eight Patches you have created simply by pressing the relevant pedal. This will make your live performances more exciting and interesting.
- The Overdrive and Distortion effects can easily be mixed, allowing you to create a wide spectrum of tonal variation.
- The BE-5M features SEND and RETURN jacks which allow you to connect an external effects unit or volume pedal. Limited control of such devices (on/off settings) can be obtained by data written into a Patch.
- The TUNER OUT jack allows connection of an electronic guitar tuner, so that you can tune your instrument without changing the effect settings.
- You can connect headphones directly to the BE-5M (via the PHONES jack) and monitor the sound without using a guitar amplifier.

For Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

PROGRAMMABLE MULTIPLE EFFECTS BE-5M

(Gerät. Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Amtsbl. Vfg 1046/1984

(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan

Name des Herstellers/Importeurs

For the USA

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 a 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 a 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 farther 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 available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4

For Canada

CLASS B **NOTICE**

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B **AVIS**

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Réglement des signaux parasites par le ministère canadien des Communications.

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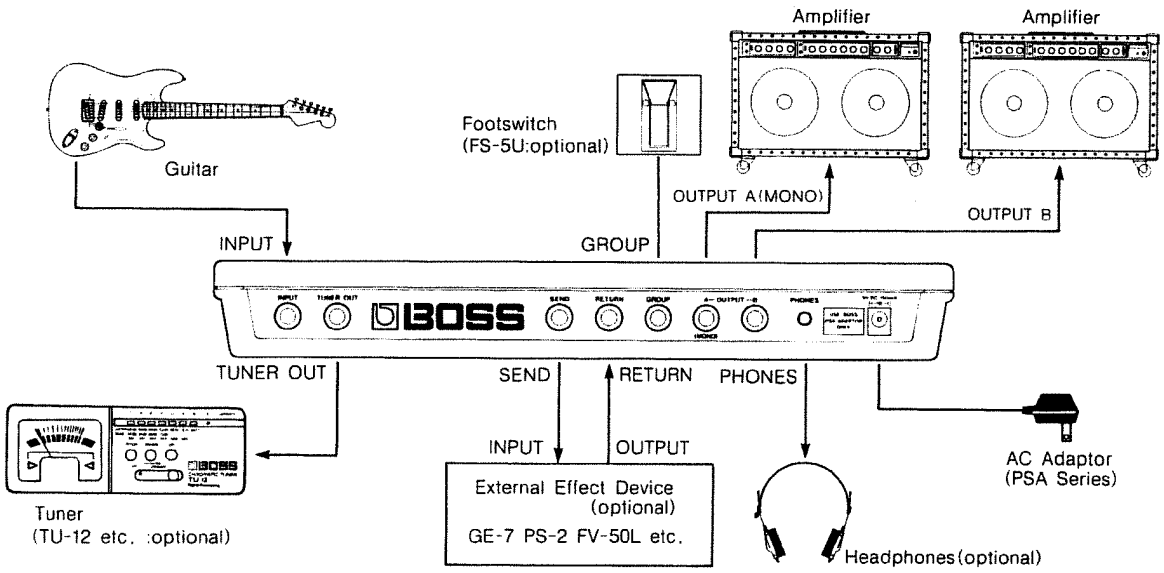
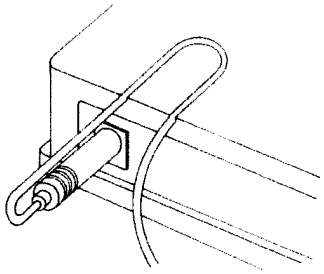
■CONNECTIONS

Set up a guitar and amplifier as shown below. Connect the supplied AC adaptor to the BE-5M. Connecting the AC adaptor will automatically switch the BE-5M on and select the Play mode.



• Wrap the AC adaptor cord around the Cord Hook so that adaptor plug can not be accidentally disconnected.



• One guitar amplifier may be sufficient, but if you wish to obtain a spacious chorus effect, use two amplifiers. When you use only one guitar amplifier, connect it to OUTPUT A (MONO) jack.

■BEFORE YOU USE THE BE-5M

●Three Operation Modes

The BE 5M has three operation modes:

PLAY MODE : This is the standard performance setting. In the Play mode, you can call any Patch by pressing the pedals. By calling a Patch, you can also change various effect factors at the same time.

MANUAL MODE : This mode allows you to set a Patch program.
Select this mode to turn each effect on or off during performance.

WRITE MODE: This mode allows you to write (store) the effect program you have set in the Manual mode.

●About Patches

There are various effect factors which can be written into a Patch.

Effect ON/OFF:

- ○Compressor
- ○Overdrive / Distortion
- ○Digital Delay
- ○Chorus
- ○External effect unit connected to The SEND/RETURN jacks

Output Level

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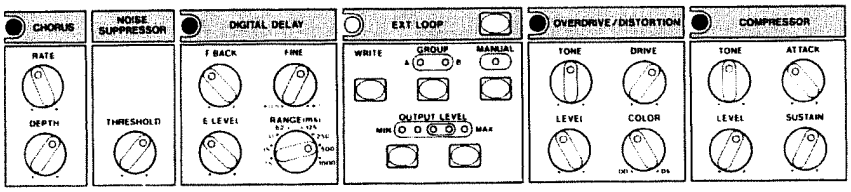
■OPERATION

The Play Mode: Selecting Pre-programmed Patches.

[1] Set the knobs in each effect section as shown below:

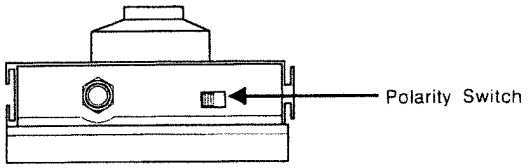


[2] Try changing Patches to see how each one sounds. Four different Patches (1 to 4) can be stored in each group (A and B). Switch between the two groups by pressing the GROUP button. A Number (1 to 4) can be called by pressing the relevant pedal. You can see which Patch is currently selected with the Group and Number indicators. You can also see how the selected Patch is programmed with the indicators of each effect and the Level indicator.

●Selecting a group with an external pedal:

By connecting an unlatch-type footswitch (eg. FS-5U) to the GROUP jack, you can select group A or B by pressing the pedal.

- **Set the Polarity Switch of the FS-5U as shown below to make it correspond to the pedal operation of the BE-5M.**



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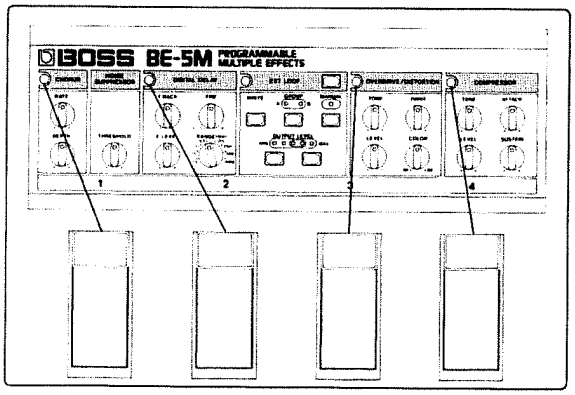
■Effect Programming

The following explains how to set each effect and write it into a Patch.
There are several methods for setting each effect, but the one shown here is one of the most basic procedures.

• If you are not accustomed to using effect units, refer to "Sample Settings".

①Press the MANUAL button to select the Manual mode.
The MANUAL indicator will light.

② Switch on any of the four effects by pressing the corresponding pedal.
The indicator of that effect will light.



CHORUS DIGITAL DELAY OVERDRIVE / DISTORTION COMPRESSOR

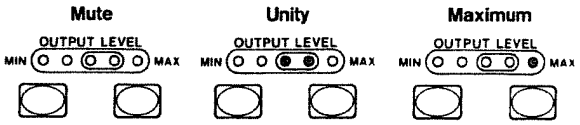
③ Adjust the intensity of the effect using the relevant controls.
Refer to "Panel Descriptions".

④ Repeat steps ② and ③ until you have set all the effects you want.

• If you wish to adjust the setting of the external effect unit, press EXT LOOP (the EXT LOOP indicator will light). Then switch on the external effect unit itself.

⑤ Switch on all the effects you will use simultaneously and adjust each as necessary.

⑥Set the output level of the BE-5M using the OUTPUT LEVEL buttons.
The output level of the BE-5M can be set over 32 steps.
The current level is roughly indicated by the five Output Level LEDs.



⑦ To write (store) the settings (On/Off and output level) of each effect, press the WRITE button.
The Group and Number indicators will flash, indicating that the unit is in the Write mode.

• If you do not wish to write the effect settings you have made, press the MANUAL button to return to the Play mode. (The MANUAL indicator will go out). Effect settings (On/Off and output level) will revert to the previous settings.

⑧ Using the GROUP button and a pedal, select the destination Patch where the effect program is to be written.

⑨ Press the WRITE button, and the effect program is written into the Patch. The unit is returned to the Play mode.

• If you wish to cancel writing, press the MANUAL button. The unit will return to the Manual mode.

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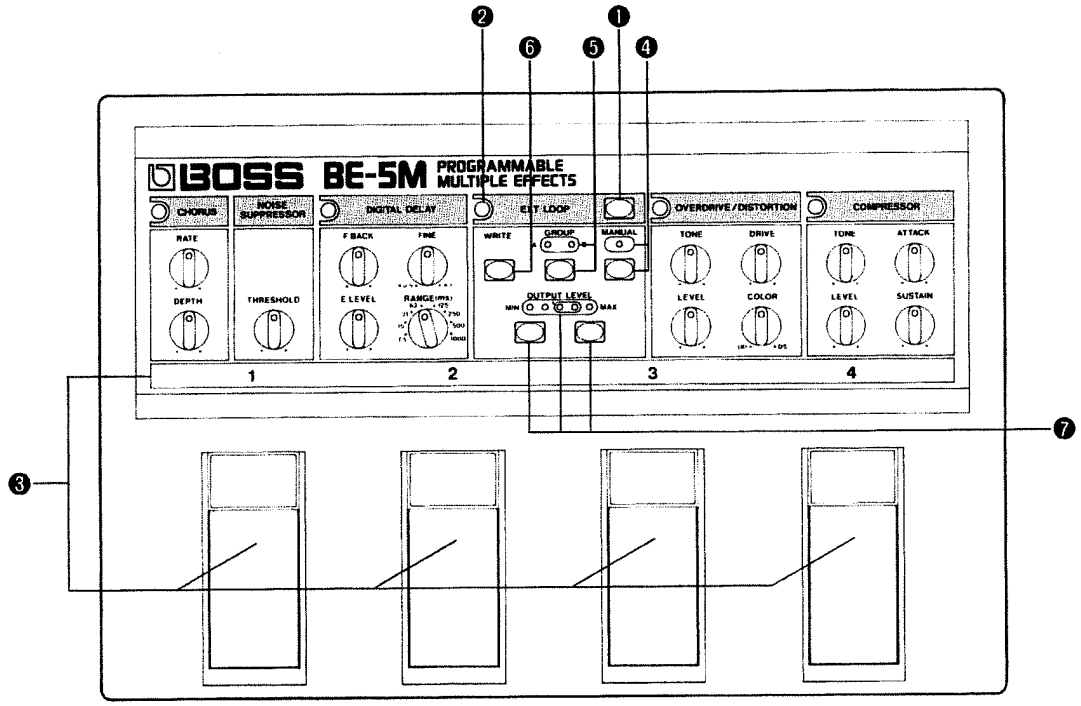
■PANEL DESCRIPTIONS

≪ Front Panel ≫



❶EXT LOOP (External Loop) Button
To turn an external effects unit (connected to the SEND/RETURN jacks) on and off, press this button while in the Manual mode.

❷EXT LOOP Indicator
Lights when the external effects unit is turned on by the BE-5M.

❸Pedal Switches/Number Indicators
The pedal switches work differently depending on the currently selected operation mode .

In the PLAY mode :
The pedals are used for selecting Patches. The Patch number selected will be indicated by the corresponding Number indicator (1 to 4) on the pedal board.

In the MANUAL mode :
The pedals are used for activating each effect. The Number indicators will continually go out.

In the WRITE mode :
The pedals are used for specifying the destination Patch number. The destination Patch number indicator (1,2,3 or 4) will flash.

❹MANUAL Button/Manual Indicator
Press the MANUAL button to select the Manual mode (the Manual indicator will light). To return to the Play mode, simply press the MANUAL button again (the indicator will go out).

❺GROUP Button/Group Indicators (A/B)
Use this button to select group A or B. The indicator of the selected group will light.

❻WRITE Button
Press the WRITE Button to select the Write mode.
It is in this mode that you write (store) the settings made in the Manual mode into a Patch.

❼OUTPUT LEVEL Buttons/Output Level Indicators
Pressing the [<] button decreases the output level while pressing the [>] button increases the level. The output level can be adjusted over 32 steps and is roughly indicated by one of the five LEDs.

- **Headphones volume will change depending on the output level you select.**

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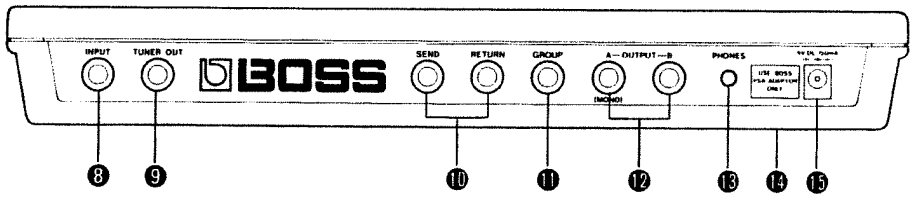
≪ Rear Panel ≫



⑧INPUT Jack
This jack accepts the input from your guitar.

⑨TUNER OUT Jack
A guitar tuner can be connected to this jack. This allows you to tune your instrument (with a direct sound) without having to unplug anything.

⑩SEND Jack, RETURN Jack
If you wish to use an additional effect unit or volume pedal between the Overdrive/Distortion and Digital Delay effects on the BE-5M, connect it to the SEND/RETURN jacks. The external device can be turned on or off by control data written into a Patch.

●Using a Volume Pedal (FV-50L)
You can use a volume pedal in connection with the BE-5M. This will allow you to achieve a number of additional effects while leaving your hands free. And when a tuner is connected to TUNER OUT, you can set the volume pedal to minimum and still tune your guitar (the TUNER OUT signal is not affected by volume settings).

●Using an Equalizer (GE-7)
By using an equalizer (GE-7), you can gain more control over the tone of your instrument. You can also create interesting tonal effects by emphasizing a specific frequency range.

●Using a Pitch Shifter (PS-2)
A Pitch Shifter is an effect device which takes the input signal of an instrument and produces a parallel musical interval (a fourth, fifth, octave etc. above or below the original.). This allows you to play harmonies by yourself. Using such a device in connection with the BE-5M would create a world of possibilities.

⑪GROUP Jack
By connecting an unlatch-type footswitch (eg. FS-5U) to this jack, you can switch between the two Patch groups (A and B) with the pedal.

⑫OUTPUT A (MONO) / B
You can connect an amplifier to each output if desired. If you are only using one amplifier, however, connect it to OUTPUT A (MONO).

- **One guitar amplifier may be sufficient, but if you wish to obtain a spacious chorus effect, use two guitar amplifiers.**

⑬PHONES Jack
Connect a set of headphones to this jack for private practice or monitoring.

- **If you are using headphones and listen at an exceedingly high volume, oscillation may occur. If this happens, turn the volume level down.**

⑭Cord Hook
By looping the AC adaptor cord around the Cord Hook, you can prevent the cord from being accidentally disconnected.

⑮AC Adaptor Jack
Connect the supplied AC adaptor (PSA-120, 220 or 240) to this jack.

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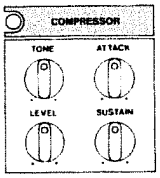
COMPRESSOR



This effect reduces the dynamic range of input signals by making low level (soft) signals louder and high level (loud) signals softer. The use of compression makes it easier to sustain a sound without causing distortion.

●SUSTAIN Control

This knob adjusts the length of time a sound will continue to be heard.

(↻) **Increases the sustain time.**

(↺) **Shortens the sustain time. When it is set to the minimum setting, a limiter like effect (effect that suppresses high input levels) will be obtained.**

●ATTACK Control

This knob adjusts the initial portion (attack) of the picking sound.

(↻) **Accentuates the initial sound. It is easier to articulate sounds in a quick passage if the attack sound is sharp (well defined).**

(↺) **De-emphasizes the initial sound.**

●TONE Control

This knob controls the tone of the compressor sound.

(↻) **Sharpens the sound by emphasizing treble frequencies.**

(↺) **Softens the sound by cutting treble frequencies.**

●LEVEL Control

This knob sets the volume when the Compressor is switched on. Adjust the control to minimize the volume change that occurs when the Compressor is turned off.

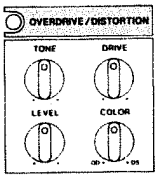
(↻) **Increases the volume.**

(↺) **Decreases the volume.**

●COMPRESSOR Indicator

This indicator lights when the Compressor is switched on.

OVERDRIVE/DISTORTION



These effects create a distorted sound. The overdrive and distortion effects can be mixed.

●COLOR Control

This knob controls the volume balance between the overdrive and distortion sounds.

(↻) **Increases the distortion sound.**

(↺) **Increases the overdrive sound.**

* **By rotating the knob completely clockwise (or counterclockwise), only the distortion (or overdrive) sound will be obtained.**

●DRIVE Control

This knob adjusts the depth of distortion.

(↻) **Increases the distortion depth.**

(↺) **Decreases the distortion depth.**

●TONE Control

This knob controls the tone of the overdrive/distortion sound.

(↻) **Sharpens the sound by emphasizing treble frequencies.**

(↺) **Softens the sound by cutting treble frequencies.**

●LEVEL Control

This knob sets the volume when the Overdrive/Distortion effect is switched on. Adjust to minimize the volume change that occurs when the effect is turned off.

(↻) **Increases the volume.**

(↺) **Decreases the volume.**

●OVERDRIVE/DISTORTION Indicator

Lights when the Overdrive/Distortion effect is switched on.

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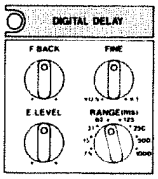
DIGITAL DELAY



This device can create multiple echo or special chorus effects by digital manipulation of the input signal. By varying the delay time, you can create a sound followed by multiple repeats or slap echo sounds or other special effects. Delay time is variable from 3.8 to 1000ms.

●RANGE Selector

This knob selects one of the following delay times which can later be adjusted with the FINE control knob. By selecting a short delay time, you can create a slap echo effect (a doubling of the input signal). By selecting a longer delay time, a multiple echo effect can be obtained.
7.5, 15, 31, 62, 125, 250, 500, 1000ms

●FINE Control

This knob provides fine adjustment of the selected delay time.

[↻] **Increases the delay time (MAX. delay time selected at RANGE x 1.0).**

[↺] **Decreases the delay time (MIN. delay time selected at RANGE x 0.5).**

●FEEDBACK Control

This knob adjusts the feedback level of the delayed sound.

[↻] **Increases the amount of feedback.**

[↺] **Decreases the amount of feedback. At the minimum setting, a single delay effect (one repeat) will be obtained.**

• Setting the feedback level too high may cause oscillation.

●E.LEVEL (Effect Level) Control

This knob controls the volume of the delayed sound.

[↻] **Increases the volume of the delayed sound. At maximum, the volume of the delayed sound is equal to the direct signal input.**

[↺] **Decreases the volume of the delayed sound. At minimum, only the direct sound is heard.**

●DIGITAL DELAY Indicator

This indicator lights when the Digital Delay is switched on.

NOISE SUPPRESSOR



This device reduces the noise and hum caused by the guitar's pickups. When set properly, the device reduces noise without affecting the instruments natural tone or decay.

●THRESHOLD Control

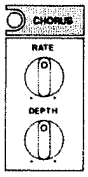
This control sets the threshold level (the volume level where the Noise Suppressor starts working). Set the control so that the guitar sounds natural.

[↻] **Raises the threshold level.**

[↺] **Lowers the threshold level.**

• If the threshold level is set too high, no sound will be heard if you play the guitar with a low volume setting.

CHORUS



This effect creates a spacious, rich sound.

• An even richer chorus effect can be obtained by using two guitar amplifiers. The effect sound is sent from OUTPUT A and the direct sound is sent from OUTPUT B. The two sounds heard from the speakers at the same time create the spacious chorus effect. (Space compounding system)

●RATE Control

This knob sets the speed of the chorus effect.

[↻] **Quickens the chorus effect.**

[↺] **Slows the chorus effect.**

●DEPTH Control

This knob sets the depth of the chorus effect.

[↻] **Makes the chorus effect deeper.**

[↺] **Makes the chorus effect shallower.**

●CHORUS Indicator

This indicator lights when the Chorus effect is switched on.

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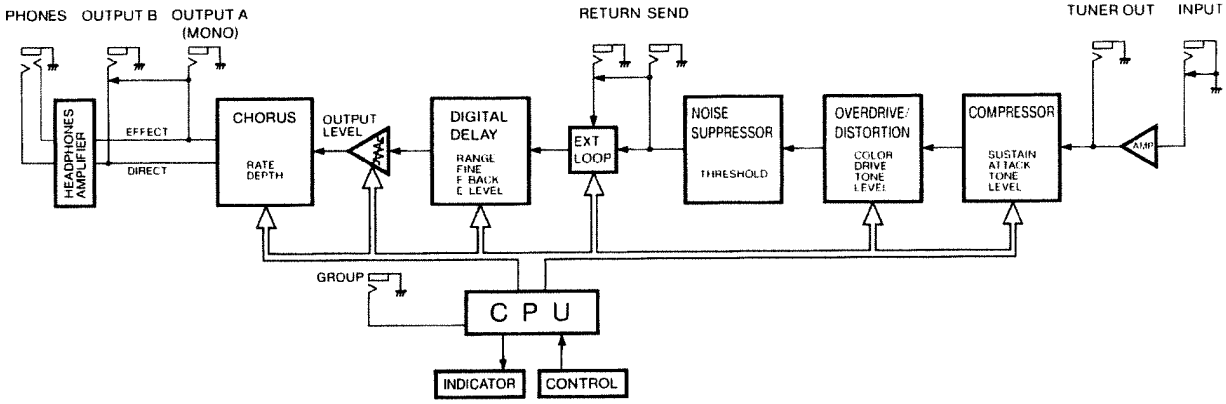
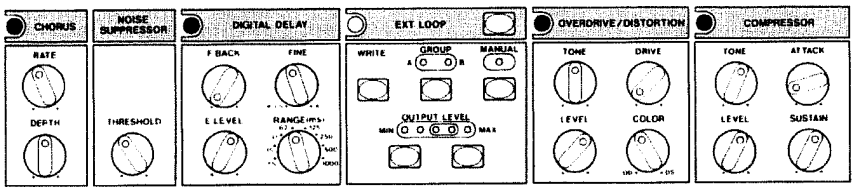
■BLOCK DIAGRAM

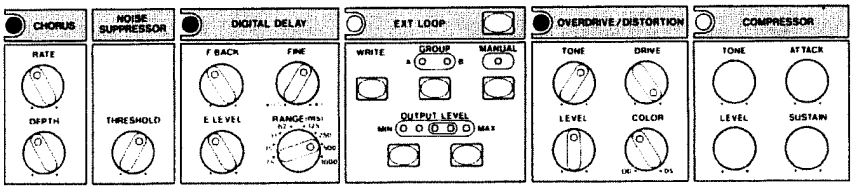


■SETTING SAMPLES

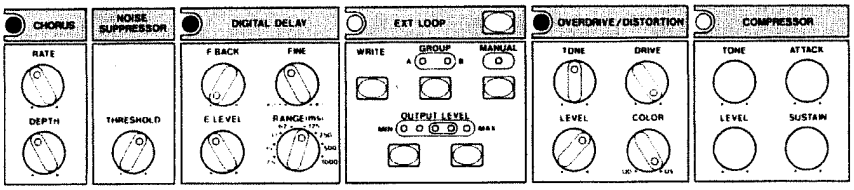
●Beat Rock



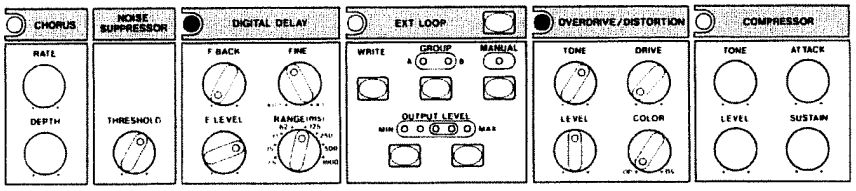
●Hard Rock



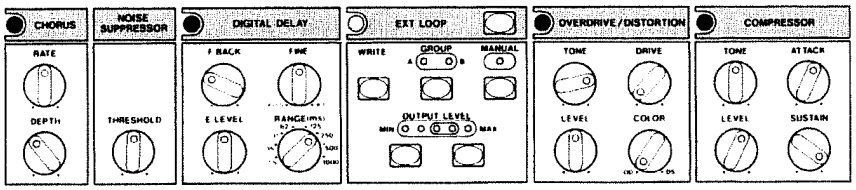
●Heavy Metal



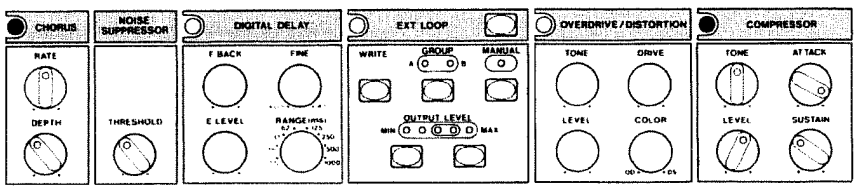
●Rock'n'roll



●Fusion



●Cutting



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■IMPORTANT NOTES

When using an AC adaptor, use only the specified device(PSA-120,220 or 240).
Use of any other power adaptor could result in damage, malfunction,or electric shock.

POWER SUPPLY

- When making any connections with other devices, always turn off the power to all equipment first; this will help prevent damage or malfunction.
- Do not use this unit on the same power circuit with any device that will generate line noise, such as a motor or variable lighting system.
- The power supply required for this unit is shown on its nameplate. Ensure that the line voltage of your installation meets this requirement.
- Avoid damaging the power cord; do not step on it, place heavy objects on it etc.
- When disconnecting the AC adaptor from the outlet, grasp the plug itself; never pull on the cord.
- If the unit is to remain unused for a long period of time, unplug the power cord.

PLACEMENT

- Do not subject the unit to temperature extremes (eg. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas or areas that are subject to high vibration levels.
- Using the unit near power amplifiers (or other equipment containing large transformers) may induce hum.
- This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.
- Do not expose this unit to temperature extremes (eg. direct sunlight in an enclosed vehicle can deform or discolor the unit) or install it near devices that radiate heat.

MAINTENANCE

- For everyday cleaning wipe the unit with a soft, dry cloth (or one that has been slightly dampened with water). To remove stubborn dirt, use a mild neutral detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the risk of discoloration and/or deformation.

ADDITIONAL PRECAUTIONS

- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
- Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.
- This unit is equipped with a circuit protection device. A brief interval after power up is required before the unit will operate.

■SPECIFICATIONS

●Patches
8 Patches (each capable of turning an external device on or off).

●Controls
[1] Compressor
Sustain, Attack, Tone, Level
[2] Overdrive/Distortion
Color, Drive, Tone, Level
[3] Digital Delay
Range, Fine, Feedback, Effect Level
[4] Noise Suppressor
Threshold
[5] Chorus
Rate, Depth
Pedal Switch × 4
External Loop Button
Manual Button
Group Button
Write Button
Output Level Button × 2

●Indicators
Compressor Indicator
Overdrive/Distortion Indicator
External Loop Indicator
Digital Delay Indicator
Chorus Indicator
Number Indicator × 4
Group Indicator (A/B)
Output Level Indicators (5 points)

●Nominal Input Level
Input : -20dBm
Effect Return : -20dBm

●Input Impedance
Input : 1MΩ
Effect Return : 470kΩ

●Nominal Output Level
Tuner Output : -20dBm
Effect Send : -20dBm
Outputs A/B : -20dBm

●Output Impedance
Tuner Output : 2.2kΩ
Effect Send : 1kΩ
Outputs A/B : 1kΩ

●Recommended Load Impedance
Tuner Output : 20kΩ or greater
Effect Send : 10kΩ or greater
Outputs A/B : 10kΩ or greater
0dBm = 0.775Vrms

●Digital Delay
System : Analog logarithm compression + 12 bit quantization(At 1000msrange : analog logarithm compression + 8 bit quantization)
Delay Time : 3.8 to 1000ms
Frequency Characteristics : Delay = 35 Hz to 10 kHz ($^{+1}_{-3}$ dB)
Residual Noise : Less than -90dBm (IHF-A: Fine set to "x 0.5")

●Chorus
Frequency Characteristics :
60 Hz to 14 kHz ($^{+1}_{-3}$ dB)
Residual Noise : Less than -90dBm (IHF A)

●Jacks
Input Jack,
Tuner Out Jack,
Send Jack,
Return Jack,
Group Jack,
Output Jacks A(MONO)/B,
Headphones Jack,
AC Adaptor Jack,

●Power Supply
DC9V: AC Adaptor

●Power Consumption
150 mA (maximum)

●Dimensions
300 (W) × 200 (D) × 40 (H) mm
11-13/16" (W) × 7-7/8" (D) × 1-5/8" (H) inches

●Weight
970 g (excluding AC adaptor)
2.2 lbs

●Accessories
Owner's Manual
AC Adaptor (PSA-120, 220 or 240)

• Specifications are subject to change without notice.

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Information

●When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

U. S. A.
Roland Corp US
7200 Dominion Circle
Los Angeles, CA. 90040 - 3647
U. S. A.
☎ (213)685 - 5141

CANADA
Roland Canada Music Ltd.
(Head Office)
13880 Mayfield Place
Richmond B. C., V6V 2E4
CANADA
☎ (604)270 - 6626

Roland Canada Music Ltd.
9425 Transcanadienne
Service Rd. N.,
St Laurent, Quebec H4S 1V3
CANADA
☎ (514)335 - 2009

Roland Canada Music Ltd.
346 Watline Avenue,
Mississauga, Ontario L4Z 1X2
CANADA
☎ (416)890 - 6488

AUSTRALIA
Roland Corporation
(Australia)Pty. Ltd.
(Head Office)
38 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
☎ (02)982 - 8266

Roland Corporation
(Australia)Pty. Ltd.
(Melbourne Office)
50 Garden Street
South Yarra, Victoria 3141
AUSTRALIA
☎ (03)241 - 1254

NEW ZEALAND
Roland Corporation (NZ)Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3
NEW ZEALAND
☎ (09)398 - 715

UNITED KINGDOM
Roland(UK)Ltd.
Amalgamated Drive
West Cross Centre, Brentford,
Middlesex TW8 9EZ,
UNITED KINGDOM
☎ (81)568 - 4578

GERMANY
Roland Elektronische
Musikinstrumente
Handelsgesellschaft mbH.
Oststrasse 96,
2000 Norderstedt
GERMANY
☎ 040/52 60 090

BELGIUM/HOLLAND/ LUXEMBOURG
Roland Benelux N. V.
Houtstraat 1
B - 2431 Oevel - Westerlo
BELGIUM
☎ (0032)14 - 575811

DENMARK
Roland Scandinavia as
Langebrogade 6
Box 1937
DK - 1023 Copenhagen K.
DENMARK
☎ 31 - 95 31 11

SWEDEN
Roland Scandinavia as
DanvikCenter 28 A, 2 tr.
S - 131 30 Nacka,
SWEDEN
☎ 08 - 702 00 20

NORWAY
Roland Scandinavia
Avd. Norge
Lilleakerveien 2
Postboks 95 Lilleaker
N - 0216 Oslo 2
NORWAY
☎ 02 - 73 00 74

FINLAND
Fazer Musik Inc.
Länsituulentie
POB 169
SF - 02101 Espoo
FINLAND
☎ 0 - 43 50 11

ITALY
Roland Italy S. p. A.
Viale delle Industrie 8
20020 ARESE MILANO
ITALY
☎ 02 - 93581311

SPAIN
Roland Electronics
de España, S. A.
Bolivia 239
08020 Barcelona
SPAIN
☎ 93 - 308 - 1000

SWITZERLAND
Musitronic AG
Gerberstrasse 5, CH - 4410
Liestal
SWITZERLAND
☎ 061/921 16 15

Roland CK (Switzerland) AG
Hauptstrasse 21/Postfach
CH - 4456 Tenniken
SWITZERLAND
☎ 061/98 60 55
Repair Service by Musitronic AG

FRANCE
Musikengro
102 Avenue Jean - Jaures
69007 Lyon Cedex 07
FRANCE
☎ (7)858 - 54 60

Musikengro
(Paris Office)
Centre Region Parisienne
41 rue Charles - Fourier,
94400 Vitry s/Seine
FRANCE
☎ (1)4680 86 62

AUSTRIA
E. Dematte &Co.
Neu - Rum Siemens - Strasse 4
A - 6021 Innsbruck Box 591
AUSTRIA
☎ (0512)63 451

GREECE
V. Dimitriadis & Co. Ltd.
2 Phidiou Str., GR 106 78
Athens
GREECE
☎ 1 - 3620130

PORTUGAL
Casa Caius Instrumentos
Musicais Lda.
Rua de Santa Catarina 131
Porto
PORTUGAL
☎ 02 - 38 44 56

HUNGARY
Intermusica Ltd.
Warehouse Area 'DEPO'
Budapest. P.O. Box 3,
2045 Torokbalint
HUNGARY
☎ (1)1868905

BRAZIL
Foresight Corporation
Rua Coronel Octaviano
da Silveira
136 05522 Sao Paulo, SP
BRAZIL
☎ (011)843 - 9377

As of NOV. 8. 1990

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Products of Roland

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2604054200

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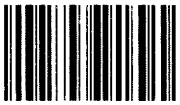

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