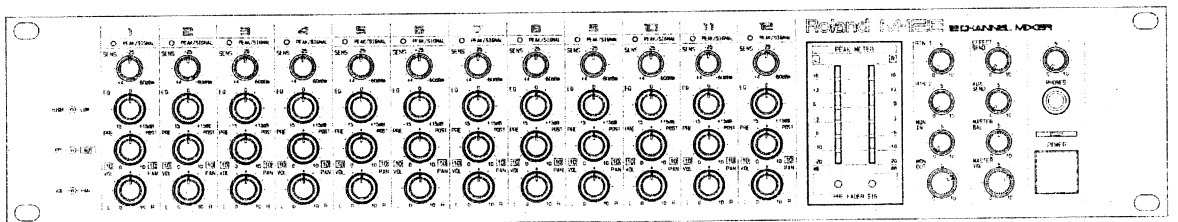




Roland

12CHANNEL MIXER

M-12E

OWNER'S MANUAL



 CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
ATTENTION RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS

WARNING — When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. The product should avoid using in where it may be effected by dust.
8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
9. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
10. Do not tread on the power-supply cord.
11. Do not pull the cord but hold the plug when unplugging.
12. When setting up with any other instruments, the procedure should be followed in accordance with instruction manual.
13. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
14. The product should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the product; or
 - C. The product has been exposed to rain; or
 - D. The product does not appear to operate normally or exhibits a marked change in performance; or
 - E. The product has been dropped, or the enclosure damaged.
15. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

For the USA

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.


SAVE THESE INSTRUCTIONS

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE. GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

The product which is equipped with a THREE WIRE GROUNDING TYPE AC PLUG must be grounded.

Thank you for purchasing the Roland M-12E. The M-12E is a compact, versatile 12 channel mixer of high quality. To take full advantage of this unit, please read this manual carefully.

Features

- The M-12E is rack-mount(2U), 12 channel mixer with microphone inputs and on-board equalizer.
- The M-12E includes two types of send/return jack, one of which can be divided into PRE/POST. Moreover, the Channel Insert(ch.1-4) jacks allow for wider variation in effect processing.
- Similar to other M-series mixers, the M-12E produces high quality sound with low noise output.
- Separate monitor and master outputs are provided allowing for individual level adjustment of each output.
- The monitor input allows signals (such as a click tone from a sequencer) to be monitored through the Monitor Out or headphones.
- XLR connectors (balanced output) are provide for professional applications.
- Send jacks include a Bus In, allowing you to "stack" equipment.
- A newly developed super-linear volume control is employed in the input sensitivity circuit for smooth, accurate level-setting(-60 dBm to +4 dBm).
- Each channel includes a peak signal indicator and the Master Section includes a Peak Meter and Pre-fader Signal Indicator, for accurate level monitoring.

Important Notes

[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.
- Avoid damaging the power cord; do not step on it, place heavy objects on it etc.

[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.
- 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]

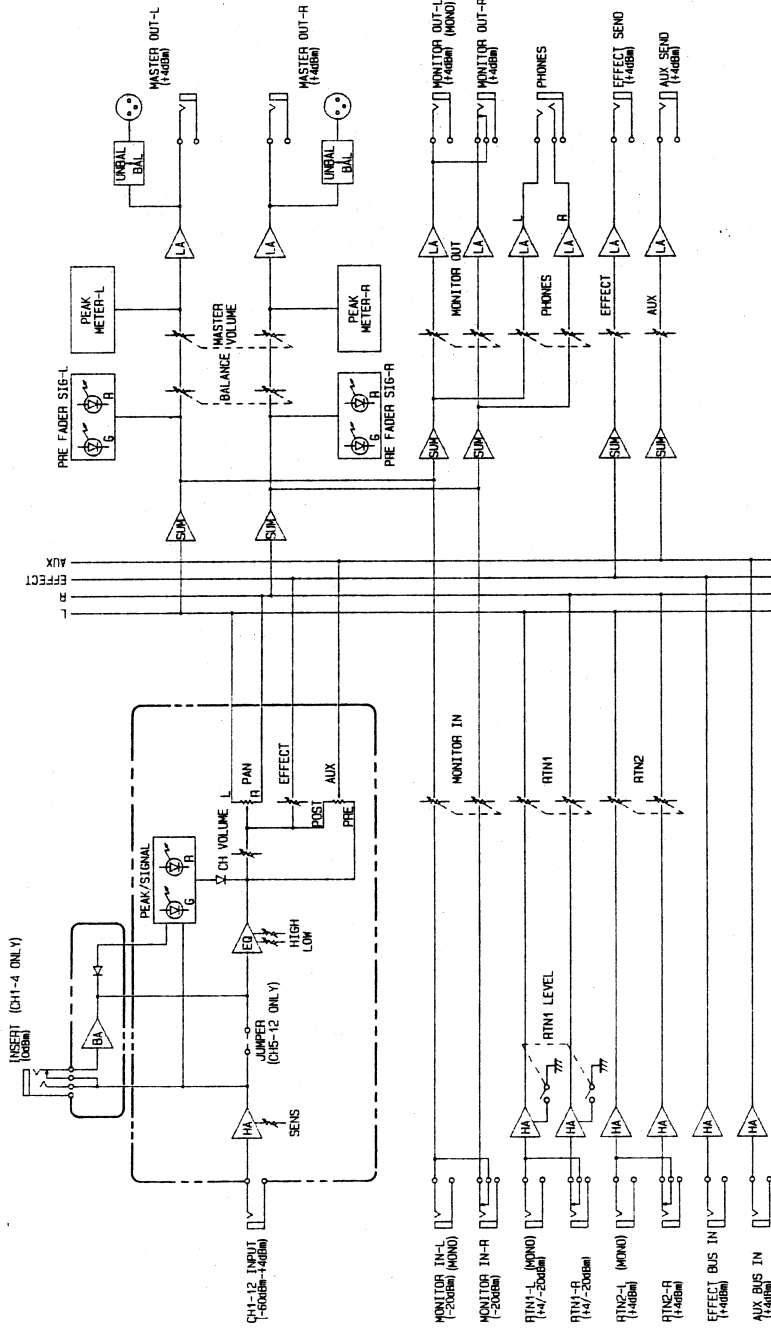
- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
- Never strike or apply strong pressure to the Peak Meter.
- A small amount of heat will radiate from the unit, and thus should be considered normal.
- When replacing the fuse, use only the specified type and size.
- Before using the unit in a foreign country, consult with qualified service personnel.
- Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.

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1 Block Diagram and Signal Flow



1. Channel Section

Signals fed into the input jacks will be sent to the head amplifier. The input sensitivity is controlled by the Sens Control Knob. While a signal is present, the Peak Signal Indicator will be green. When the signal level becomes too high, the indicator will change to red. The signal which is level-adjusted at the head amplifier (some portion of which may be processed through the Channel Insert first) will then be sent to the Channel Equalizer (High/Low). Then it will be sent to the Channel Volume, divided into L and R at the Panpot, then finally sent to the Master Section. Some portion of the signal may be sent to the Effect Volume or AUX Volume (before or after the Channel Volume), before being sent to the Master Section.

2. Master Section

- Return**
The Return input signal will be sent to the head amplifier and to the Return Volume, before being sent to the Master section.
- Master Out**
The signal sent from each channel and Return will be mixed, and level-adjusted at the Master Balance Knob and Master Volume. The signal will then be sent to the Effect Send.

c. Effect Send

Effect signals sent from the Effect Volume of each channel will be mixed, and level-adjusted at the Effect Send Volume. The signal will then be sent to the Effect Send.

d. AUX Send

AUX signals sent from Aux Volume of each channel will be mixed, and level-adjusted at the AUX Send Volume. The signal will then be sent to the AUX Send.

e. Monitor In

Monitor In signals will be level-adjusted at the Monitor In Volume, and mixed with the master signal (signal before being sent to the Master Volume). The signals will then be sent to the Monitor Out.

f. Monitor Out

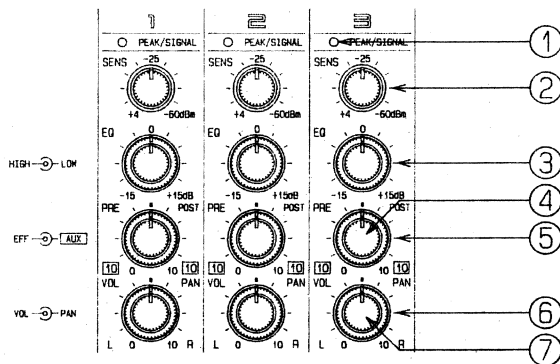
The signals sent from each Channel, Return and Monitor In will be mixed and level-adjusted at the Monitor Out Volume. The signals will then be sent to the Monitor Out.

g. Bus In

Bus In signals will be directly mixed at the mixing circuits of the Effect Send and AUX Send Volume, then finally sent to each Send Out.

2 Panel Description

1. Channel Section



① Peak Signal Indicator

When a signal is fed into an Input Jack, the Peak Signal Indicator will be green. When the input signal level is too high, the indicator will be red. The indicator will be green when the signal is at -20 dB of the rated level (after passing the input sensitivity circuit) and red at -6 dB of the clipping level.

- * The Peak Signal Indicator also indicates signal level from the Channel Insert or that have passed the Channel Equalizer.

② Sens Control Knob

This knob will control the input sensitivity (depending on the level of the input signal). Set this so that Peak Signal Indicator will become constantly green and red during input peaks. If the Peak Signal Indicator do not light at all, raise the Sens Control Knob or increase the input level.

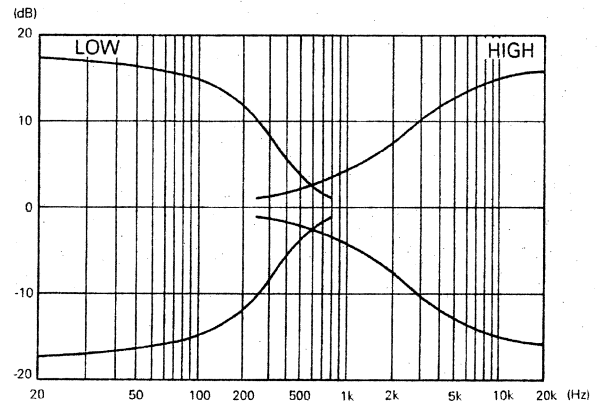
- * The rated input is -60 dBm to +4 dBm.

③ Channel Equalizer Knob

This Knob controls the tone of the input signal. At 0, a flat characteristic is achieved.

HIGH : Adjusts the upper range. With 10 kHz as the center frequency, adjustment can be made within the range of ± 15 dB.

LOW : Adjusts the lower range. With 100 Hz as the center frequency, adjustment can be made within the range of ± 15 dB.



④ Effect Volume

This knob adjusts the level of the signal sent to the Effect Send.

- * The signal sent to the Effect Send is split after the Channel Volume; one portion is sent to the Effect Volume, the other is sent to the Master Out.

⑤ AUX Volume

This knob sets the level of the signal sent to the AUX Send and the position where the signal is split. When this knob is set to the center position, the signal level is zero for both PRE signal (signal before being sent to the Channel Volume) and POST signal (signal after the Channel Volume). Rotating the knob clockwise will adjust the POST signal, while rotating it counterclockwise will adjust the PRE signal.

⑥ Panpot

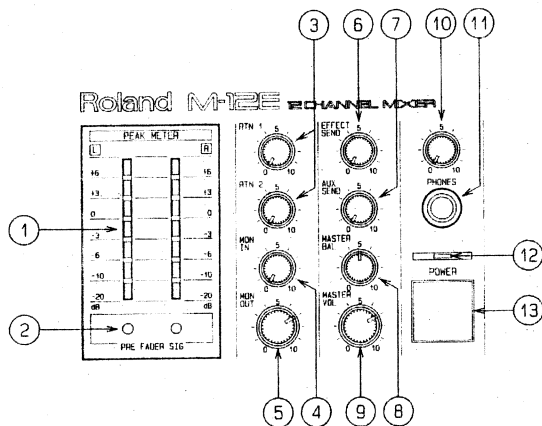
This knob controls the placement of the sound in the stereo image (L+R). At the center position, the sound is in the center of the field.

⑦ Channel Volume

This knob controls the level of the signal sent to each channel.

- * Channel Volume "10" is the rated output.

2. Master Section



① Peak Meter

This is a peak level meter that monitors the output level from the Master Out. When "0 dB" is lit, the rated output level(+4 dBm) is sent from the Master Out.

② Pre-fader Signal Indicators

These will monitor the output from the circuit which mixes the signal(L,R) from each channel. The indicator will be green when the signal level(before the Master Volume) is at -20 dB of the rated level. The indicator will be red at -6 dB of the clipping level.

③ Return Volume

These knobs adjust the level of the signal fed into the Return input.

④ Monitor In Volume

This knob adjusts the level of the signal fed into the Monitor In Jack.

⑤ Monitor Out Volume

This knob adjusts the level of the Monitor Out Jack.

* The rated output of the Monitor Out Volume is "8".

⑥ Effect Send Volume

This knob adjusts the overall level of the effect signal that has been adjusted at the Effect Volume of each channel.

* The rated output of the Effect Send Volume is "8".

⑦ AUX Send Volume

This knob sets the overall level of the AUX signal that has been adjusted at the AUX Volume of each channel.

* The rated output of the AUX Send Volume is "8".

⑧ Master Balance Knob

This knob adjusts the volume balance of the L and R signals sent to the Master Out. At the center position, the sound levels of the L and R are equal.

⑨ Master Volume

This knob determines the overall output level of the mixed signal.

* The rated output of the Master Volume is "8".

⑩ Headphones Volume

This knob adjusts the volume of the headphones.

⑪ Headphones Jack

This jack is for connecting stereo headphones.

* The output signal for the Headphones Jack is taken before the Master Volume.

⑫ Power Indicator

This indicator lights when the unit is switched on.

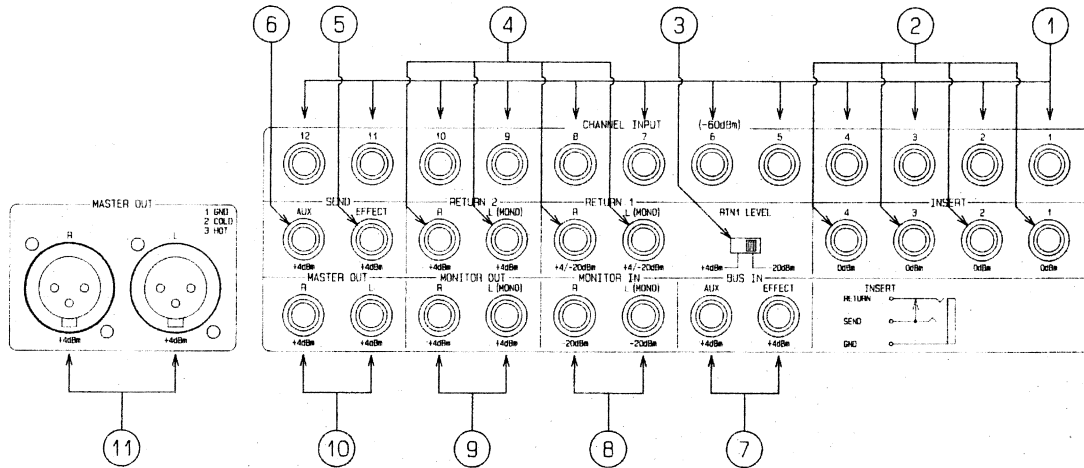
⑬ Power Switch

Press this switch to turn the unit on, and press it again to switch it off.

* Before switching the unit on or off, be sure to set the Master Volume to zero.

* The unit contains a mute circuit; no sound will be heard for approx 3 seconds after the unit is turned on.

3. Rear Panel



① Input Jacks

Microphones or musical instruments can be connected using standard phone plugs.

* This unit employs unbalanced input jacks.

② Insert Jacks

These are input and output jacks for connecting an effect unit to a channel. They can also be used for Channel Direct Out.

* When these jacks are being used for channel direct output, no signal is sent to the Master Section.

* Signal is taken after passing the input sensitivity circuits, before being sent to the Equalizer section.

* To connect an effect device, use an Insert Cable (PCS-31: optional). To use direct output, use standard phone plugs.

③ Return 1 Level switch

This switch selects the input level for Return 1. Change the position depending on the unit connected to the mixer.

* Input level of +4 or -20 dBm can be selected.

④ Return Jacks

These are input jacks for the return signal from an effect device. They can also be used as AUX inputs. The Return Jacks are stereo, but if only the L jack is used, it will work in monaural.

⑤ Effect Send Jack

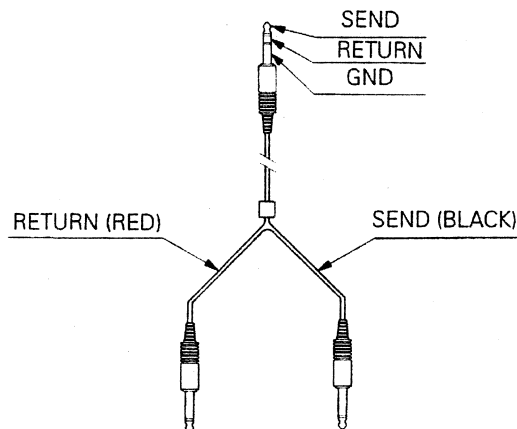
This is the jack from which the signal is sent to the effect device.

⑥ AUX Send Jack

This is the jack from which the signal is sent to an effect device or monitor amp.

⑦ Bus In Jack

This jack allows you to mix the signal directly with the Effect Send and AUX Send. When stacking two mixers, you can increase the number of input channels by sending signals from the Send Jack on the second mixer to the Bus In Jack on the first mixer.



⑧ Monitor In Jacks

These jacks allow signal input for Monitor Out or Headphones Out only (e.g. sequencer's click tone). The Monitor In Jacks are stereo, but will work in monaural when only the L jack is used.

⑨ Monitor Out Jacks

These jacks provide output of the signals from the input of each channel or Monitor In. The Monitor Out Jacks are stereo, but will work in monaural when only the L jack is used.

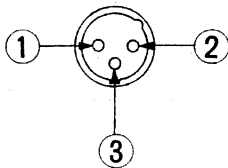
⑩ Master Out Jacks

These jacks are for connection to a power amplifier, etc. These jacks provide output of the final mixed signal.

⑪ Master Out Connectors

These XLR (balanced type) connectors are for connecting a power amplifier, etc.

* There are two types of pin assignment for the XLR connector; American and European. This mixer uses the American standard; 1st: ground, 2nd: cold, 3rd: hot. Before connecting the mixer to another unit, study the pin assignment.



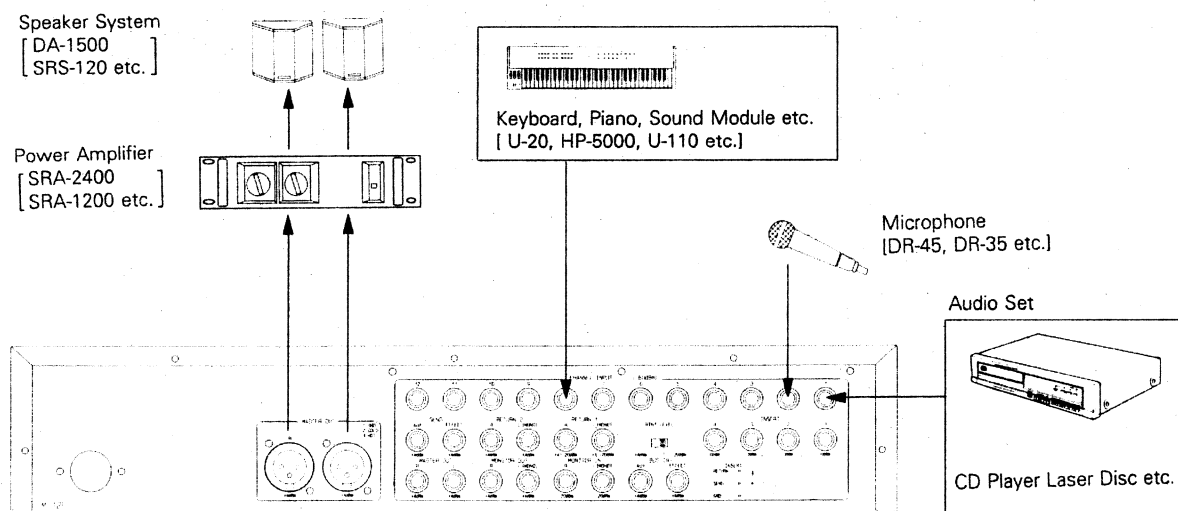
1:GND
2:COLD
3:HOT

3 Connections and Operation

■ Basic Procedure:

- ① Make sure that the mixer is switched off, then connect the power cable to the AC power jack.
- ② Set up all the peripheral units (refer to the diagram of the connections).
- ③ Set all the control knobs and volumes to zero.
- ④ Make sure that all the connections are correct and secure. Turn all peripheral units on first, then the M-12E. (To switch off the units, proceed in the reverse order.)

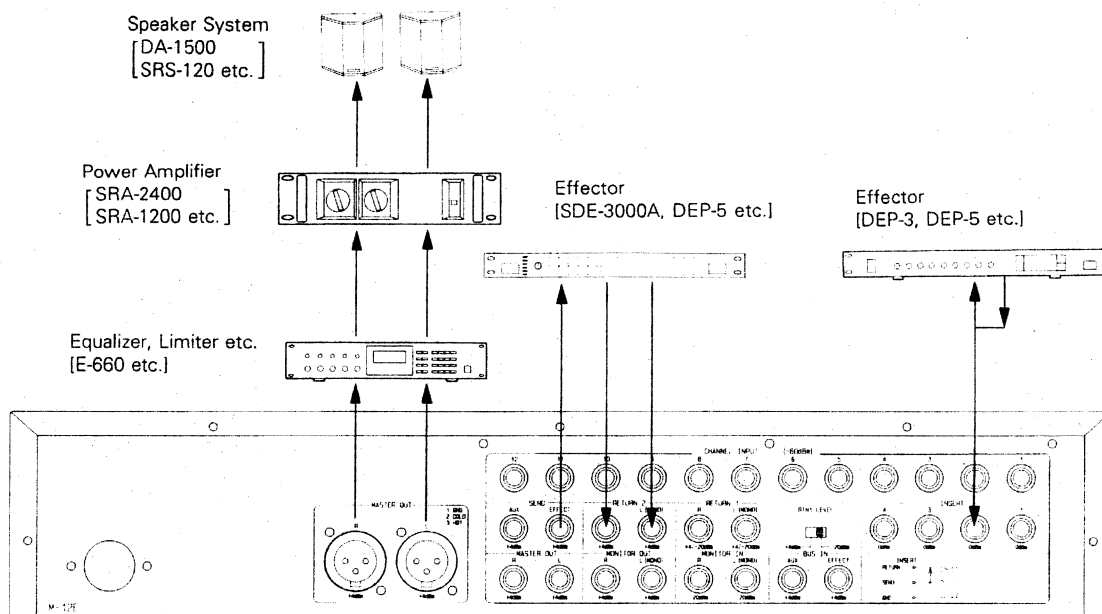
1. Basic setup with microphones, electronic musical instruments, speakers, etc.



■ Mixing with microphones, electronic musical instrument, etc.

- ① While playing the instrument, set the Channel Volume to "7".
- ② Raise the Master Volume to an appropriate level, then adjust the volume of each instrument using the Sens Control knob.
- * The appropriate level is one in which the Peak Signal Indicator become constantly green and red during input peaks.
- ③ After finished to adjust the level of all instruments, adjust the overall volume with the Master Volume.
- ④ Control the tone with the Channel Equalizers.
- * If the Peak signal Indicator (or Pre-fader Signal Indicator) becomes red too frequently, readjust the Sens Control Knob.
- ⑤ Adjust the volume balance (L+R) with the Panpot.
- ⑥ Adjust the relative volume level of each channel with the Channel Volume. When necessary, adjust the overall volume with the Master Volume again.

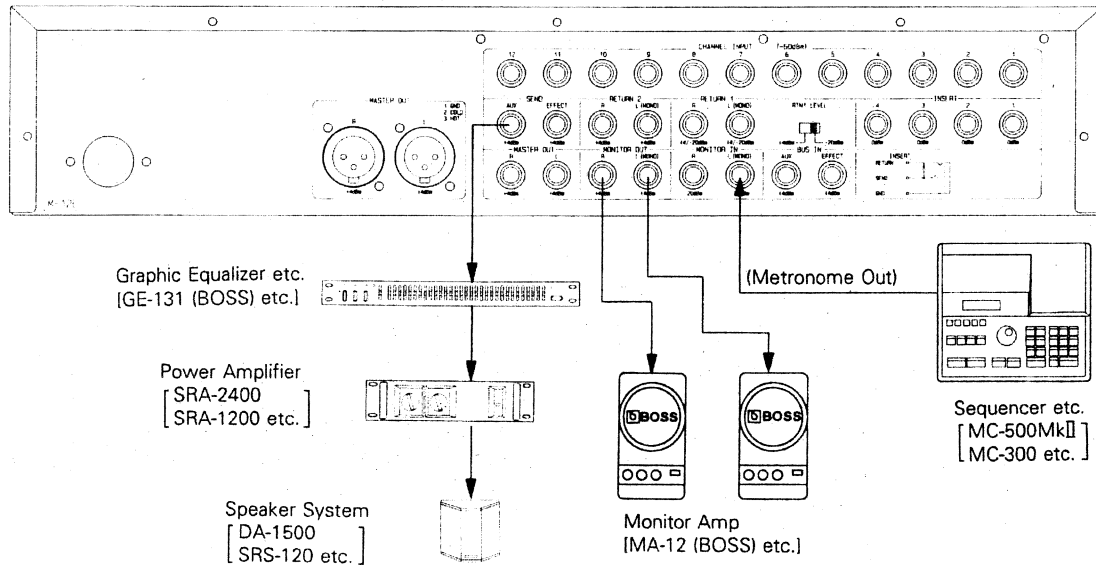
2. Setup example with effects device.



■ Effect Processing with delay, reverb, etc.

- ① Raise the Effect Volume of the desired channel to an appropriate level. Set the overall output level using the Effect Send Volume in the Master Section and the input level meter on the effect device.
 - ② Adjust the level from the effect device with the Return Volume.
- * The direct sound is processed within the mixer, so return only the effect sound to the mixer.
 - * The signal from the Effect Send will be taken after passing the Channel Volume.
 - * By connecting an effect device to the Channel Insert Jack, an effect signal can be directly mixed at the channel.
 - * When a separate unit (e.g. equalizer etc.) is connected between the mixer and power amplifier, you can control overall sound or tone quality.

3. Monitoring (Fold back) / Monitoring with Monitor Out.



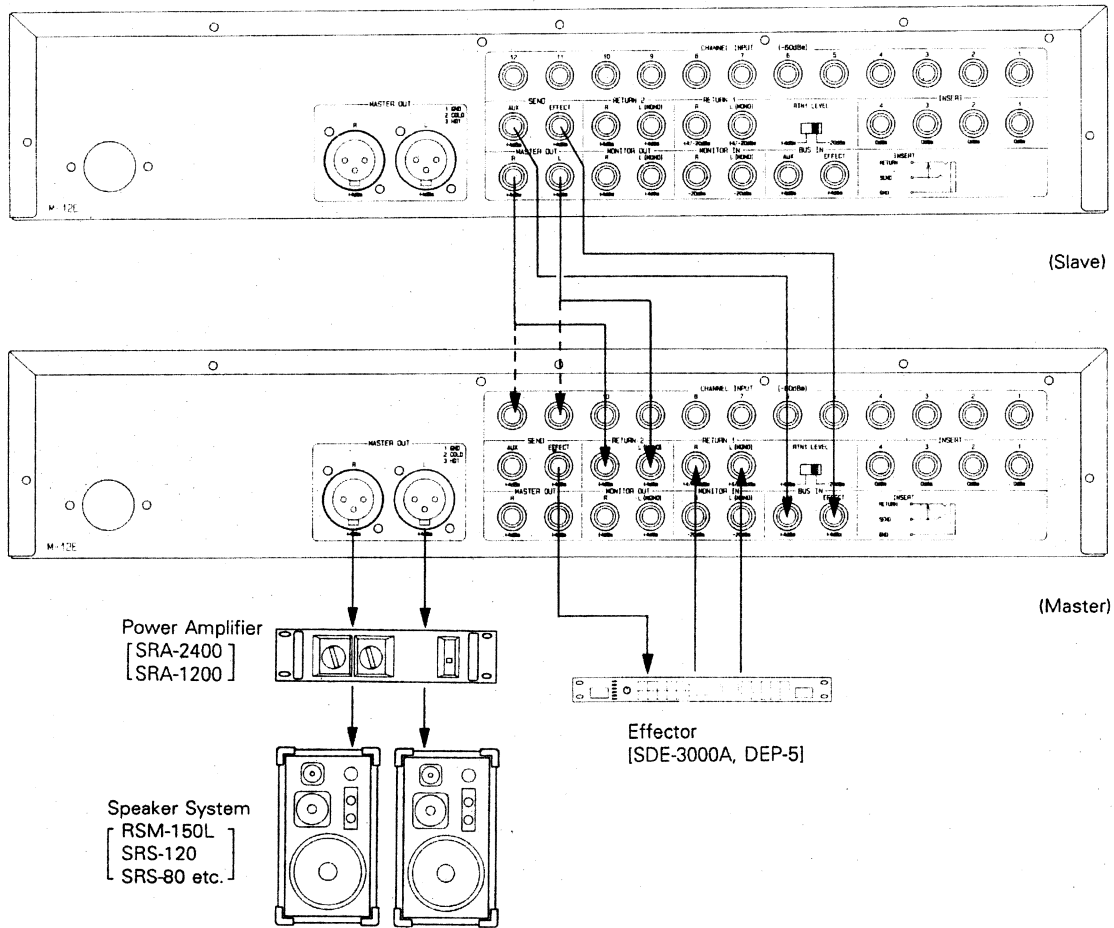
■ Monitoring (Fold back)

- ① Rotate the AUX Volume of each channel to "PRE". Adjust the output level of the sound you wish to monitor.
 - ② Adjust the overall volume with the AUX Send Volume in the Master Section.
- * No matter where the Channel Volume or Master Volume is set, you can adjust the mixing balance of the monitor or volume.
 - * By connecting an equalizer or limiter between the mixer and power amplifier, you can control overall sound or tone quality.

■ Monitoring with Monitor Out:

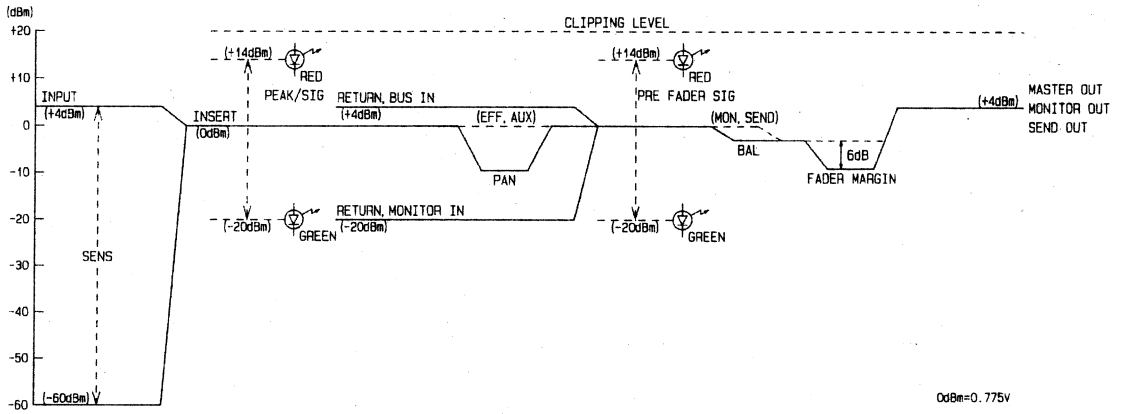
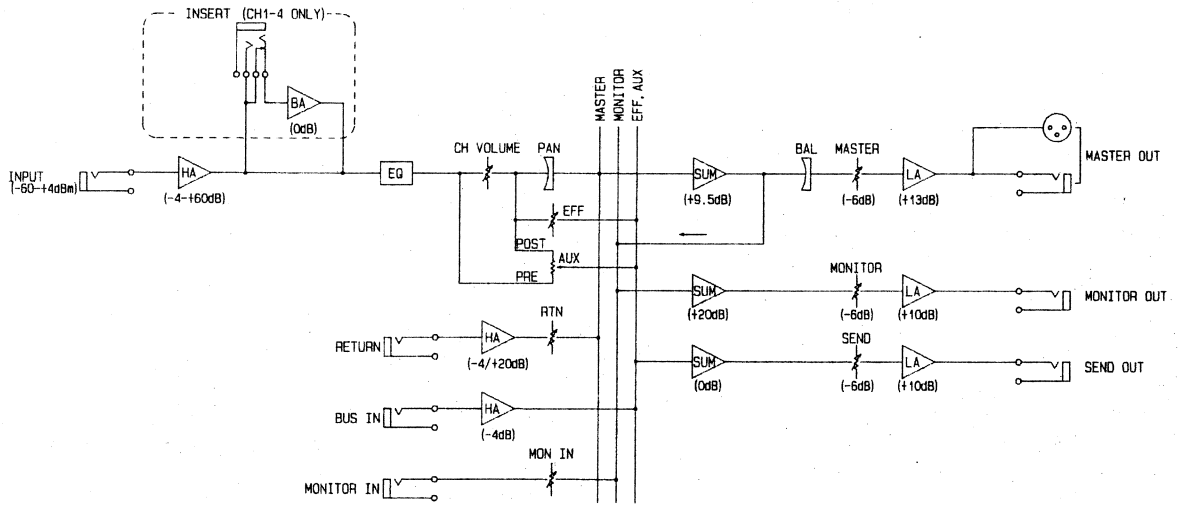
1. After adjusting the volume of each channel, adjust the monitor volume with the Monitor Out Volume control.
 2. Raise the Monitor In Volume to balance with the channel volume.
- * The signal fed into the Monitor In will not be sent from the Master Out.
 - * The Peak Meter does not indicate the signal sent from the Monitor In.
 - * You can adjust the monitor volume regardless of the position of the Master Volume.
 - * By connecting an equalizer or limiter between the mixer and power amplifier, you can control the overall sound or tone quality.

4. Stacking example



* Connecting two or more mixers to increase the number of channels is called "stacking". The above diagram shows an example of stacking using two M-12Es. By stacking, effects processing for two (or more) mixers can be accomplished by one effects device.

4 Level Diagram



5 Input/Output Standard

■ Input Standard

Input Jack		Input Sensitivity	Rated Input Level	Input Impedance	Recommended Source Impedance	Type of Connector
CHANNEL INPUT (SENS=MAX)	CH1~12	-66 dBm (0.39 mV)	-60 dBm (0.78 mV)	5.5 kΩ	Less than 1 kΩ	PHONE
INSERT (RETURN)	CH1~4	-6 dBm (388 mV)	0 dBm (775 mV)	20 kΩ	Less than 2 kΩ	STEREO PHONE
RETURN	RTN 1 (LEVEL: -20 dBm)	-26 dBm (38.8 mV)	-20 dBm (77.5 mV)	20 kΩ (STEREO) 10 kΩ (MONO)	Less than 2 kΩ (STEREO) Less than 1 kΩ (MONO)	PHONE
	RTN 2	-2 dBm (615 mV)	+4 dBm (1.23 V)	20 kΩ (STEREO) 10 kΩ (MONO)	Less than 2 kΩ (STEREO) Less than 1 kΩ (MONO)	PHONE
MONITOR IN	MON IN	-26 dBm (38.8 mV)	-20 dBm (77.5 mV)	10 kΩ (STEREO) 5 kΩ (MONO)	Less than 1 kΩ	PHONE
BUS IN	EFFECT,AUX	-2 dBm (615 mV)	+4 dBm (1.23 V)	10 kΩ	Less than 1 kΩ	PHONE

■ Output Standard

Output Jack	Rated Output Level	Non-Clip Max. Output	Output Impedance	Recommended Load Impedance	Type of Connector
MASTER OUT (BALANCED)	+4 dBm* ¹ (1.23 V)	+20 dBm* ¹ (7.75 V)	600 Ω	More than 600 Ω	XLR Connector (XLR-3-32)
MASTER OUT (UNBALANCED)	+4 dBm* (1.23 V)	+20 dBm (7.75 V)	300 Ω	More than 3 kΩ	PHONE
MONITOR OUT	+4 dBm (1.23 V)	+20 dBm (7.75 V)	1 kΩ (STEREO) 500 Ω (MONO)	More than 10 kΩ More than 5 kΩ	PHONE
INSERT (SEND) (CH1-4)	0 dBm (775 mV)	+20 dBm (7.75 V)	200 Ω	More than 2 kΩ	PHONE
SEND (EFFECT/AUX)	+4 dBm (1.23 V)	+20 dBm (7.75 V)	300 Ω	More than 3 kΩ	PHONE
PHONES	—	100 mW+100 mW* ²	100 Ω	More than 8 kΩ	STEREO PHONE

@ : 0 dBm=0.775 Vrms

*1 : 600 Ω Loaded

*2 : Both Channels 100 Ω Loaded

6 Specifications

Frequency Response	10 Hz - 60 kHz ⁺¹ ₋₂ dB (SENS=MIN)
Total Harmonic Distortion:	Less than 0.03% (SENS=MIN, 20 Hz - 20 kHz at rated output)
Noise Level:	(Input short, IHF-A, Typ.)
Input Equivalent Noise:	-124 dBm
Residual Noise	-101 dBm [All Faders :min] -79 dBm [Master Fader :max] [All Channel Faders :min] -78 dBm [Master Fader :max] [All Channel Faders :max] [All SENS. :min] -41dBm [Master Fader :max] [All Channel Faders :max] [All SENS. :max]
Cross Talk	Less than -70 dB (1kHz between channels) Less than -60 dB (1kHz between L and R)
Equalizer	
HIGH EQ	±15 dB (10 kHz shelving type)
LOW EQ	±15 dB (100 Hz shelving type)
Power	AC 117 V / 220 V / 240 V (50 / 60 Hz)
Consumption	26 W (117 V) / 32 W (220 / 240 V)
Dimensions	482 (W) x 281 (D) x 88 (H) mm 19" x 11-1 / 16" x 3-7 / 16"
Weight	6.0 kg / 13 lb 4 oz

* Specifications are subject to change without notice.

M - 12E Corrections

Please make the following correction in the M - 12E Owner's Manual.

Page 5:

2. Master Section
(b) Master Out

Error: The signal will be sent to the Effect Send.
Correction: The signal will be sent to the Master Out (L/R).

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UPC

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