

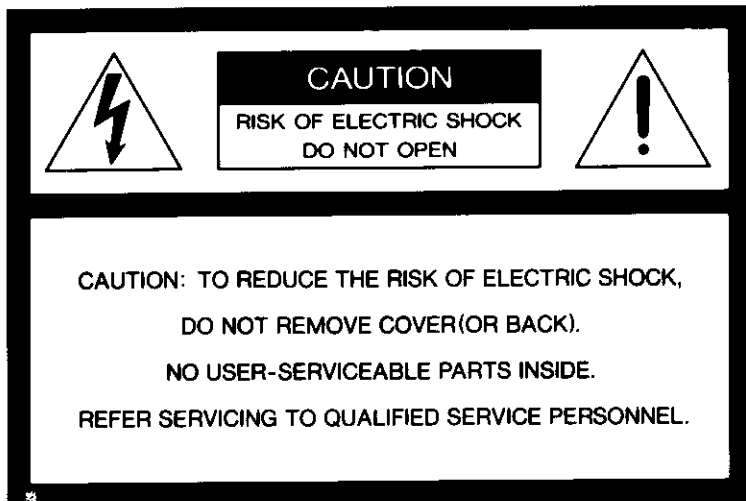
Owner's Manual

MC102

KEYBOARD MIXER



Fostex[®]



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "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 appliance.

"WARNING"

" TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

SAFETY INSTRUCTIONS

1. **Read Instructions** – All the safety and operating instructions should be read before the appliance is operated.
 2. **Retain Instructions** – The safety and operating instructions should be retained for future reference.
 3. **Heed Warnings** – All warnings on the appliance and in the operating instructions should be adhered to.
 4. **Follow Instructions** – All operating and use instructions should be followed.
 5. **Water and Moisture** – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
 6. **Carts and Stands** – The appliance should be used only with a cart or stand that is recommended by the manufacturer.
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- An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. **Wall or Ceiling Mounting** – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
 8. **Ventilation** – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
 9. **Heat** – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
 10. **Power Sources** – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
 11. **Grounding or Polarization** – The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
 12. **Power Cord Protection** – Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
 13. **Cleaning** – The appliance should be cleaned only as recommended by the manufacturer.
 14. **Nonuse Periods** – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
 15. **Object and Liquid Entry** – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
 16. **Damage Requiring Service** – The appliance 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 appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
 17. **Servicing** – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

A WORD BEFORE WE START. . .

● **Cassette tapes**

The MC102's cassette recorder is designed for high bias (CrO₂ or Type II) tapes bearing the 70 μ sec EQ designation. Use Maxell UD-XLII, TDK SA, or equivalent tapes for the best results. Metal tapes should not be used. Avoid 120-minute cassettes, as they can stretch easily; sixty-minute tapes are much stronger, and therefore better suited to recording.

● **Impedances**

Be sure to pay attention to input and output impedances when connecting equipment to the MC102. Mismatching between the MC102's output impedance and the input impedance of a connected PA system, for example, could cause deterioration of the output sound quality, or even serious malfunctions of the PA equipment. Generally speaking, the output impedance of a device sending a signal should be lower than the input impedance of the device receiving it. For a list of the MC102's input and output impedances, see the Specifications on the inside back cover of this manual.

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INTRODUCTION

Thank you for purchasing the Fostex MC102 Keyboard Mixer. The MC102 is a innovative keyboard mixer combining a twelve-channel line mixer section with a high-performance cassette recorder. In addition to two adjustable-gain input channels capable of accepting mike-level input, the MC102 also features a pair of independent AUX send and receive circuits which allow you to connect two different signal processors to the MC102.

The combination of a mixer and a cassette recorder in a compact rack-mount package makes the MC102 the perfect tool for recording rough sketches of tunes and arrangements that come to mind, as well as for the preparation of quick demo tapes. You can use the MC102 to play guitar or bass parts along with backing parts performed automatically using a sequencer or rhythm machine. Or, if you wish, you can play or sing along with the music you have record using the MC102's recorder section. This Owner's Manual describes in detail the use of the MC102. It contains helpful instructions and advice that will come in handy as you put the MC102 to work at the heart of your electronic keyboard system. *Please read the manual carefully and keep it handy for future reference.*

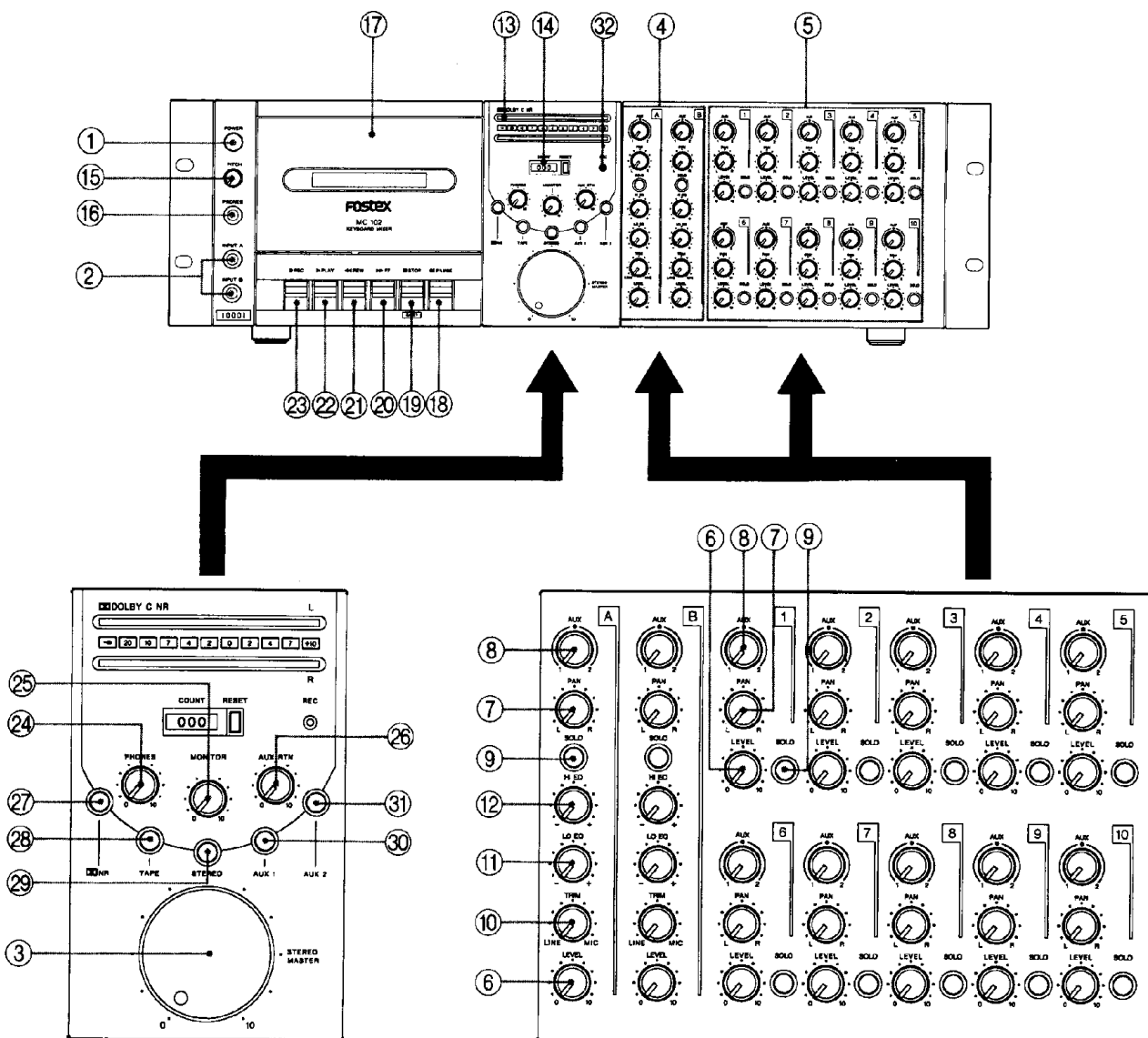
SAFETY PRECAUTIONS

- Never plug the MC102 power cord into an outlet with a voltage other than specified. Should you wish to power the MC102 with a different voltage, consult your Fostex dealer or service center.
- Always grasp the plug of the MC102 power cord directly when removing it from an AC outlet. Never pull on power cords to unplug equipment, as doing so can cause damage to the cords.
- To avoid the risk of electrical shock, never plug or unplug equipment when your hands are wet.
- Do not use the MC102 if the insulation on its power cord is frayed or worn. Should the cord become damaged, unplug the MC102 immediately and have it repaired by your Fostex dealer or service center before attempting to use it.
- Never open the MC102 case or tamper with the components inside. Also, do not spill water or liquids on the MC102, or drop metal objects inside its case. All of these actions pose the danger of electrical shock, and can also cause the MC102 to malfunction. If water or a foreign object should accidentally get inside the MC102, unplug it immediately and contact your Fostex dealer or service center.
- To avoid damage due to power surges, always turn on the MC102's power switch before turning on connected amplifiers or PA equipment. If you connect or disconnect input and output plugs while the MC102's power is on, be sure to turn the corresponding level controls down to their minimum settings.

MC102 CONTROLS AND CONNECTORS

If you've used a mixer before, you should be able to figure out what the MC102's controls do just by looking at their names. Be aware, however, that some of the controls may have certain functions that are particular to the MC102 alone. Before you start using the MC102, therefore, take a few moments to familiarize yourself with the controls and jacks on its front and rear panels.

● Front Panel



● Mixer Section

① POWER SWITCH

(ON ()/STANDBY())

This switch turns the power to the MC102 on and standby.

② INPUT JACKS (A, B)

These jacks input signals to two of the MC102's twelve input channels. The gain of these jacks can be adjusted to input signals from microphones, electric and bass guitars, and other instruments which output low-level signals. The level, panning, and tone for these two channels are adjusted using the controls in INPUT CONTROL SECTIONS A and B ④.

③ STEREO MASTER CONTROL

This knob controls the overall volume of the mixed signals output by the mixer section. It does not affect the level of the sound output by the recorder section.

④ INPUT CONTROL SECTIONS (A, B)

These controls adjust the level, tone quality, and stereo position (panning) of signals input to INPUT jacks A and B ②. The meaning and use of the individual controls in these sections are described together with those in INPUT CONTROL SECTIONS 1 through 10 ⑤.

⑤ INPUT CONTROL SECTIONS (1—10)

These controls adjust the level, tone quality, and stereo position (panning) of signals input to the INPUT jacks ③ on the rear panel. The meaning and use of the individual controls in these sections are described below.

⑥ LEVEL CONTROLS

These knobs adjust the levels of signals input to the corresponding INPUT jacks (② or ③).

⑦ PAN CONTROLS

These knobs adjust the stereo positions of signals input to the corresponding INPUT jacks (② or ③).

⑧ AUX CONTROLS

These knobs select between the MC102's two AUX SEND jacks ③, and adjust the level of the signals from their corresponding mixer channels which are output via the AUX SEND jacks so selected. The level of the signal sent to the AUX SEND 1 jack rises as an AUX SEND control is turned to the left; the level of the signal sent to the AUX SEND 2 jack rises as the control is turned to the right. No signal is sent to either of the AUX SEND jacks when the control is centered.

⑨ SOLO SWITCHES

These switches are used mainly when adjusting the levels of individual channels. When a SOLO switch is pressed, the signal for the corresponding channel is sent to the monitor section.

⑩ TRIM CONTROLS

These knobs adjust the levels of signals input to INPUT jacks A and B ② to match the output levels of instruments connected to these jacks.

⑪ EQUALIZER LO CONTROLS

These knobs adjust the tone of signals input to INPUT jacks A or B by boosting or cutting frequencies at 100 Hz. Frequencies below this point are boosted as these knobs are turned to the right, or cut as they are turned to the left. The signal's low frequencies are left unmodified when the control is centered.

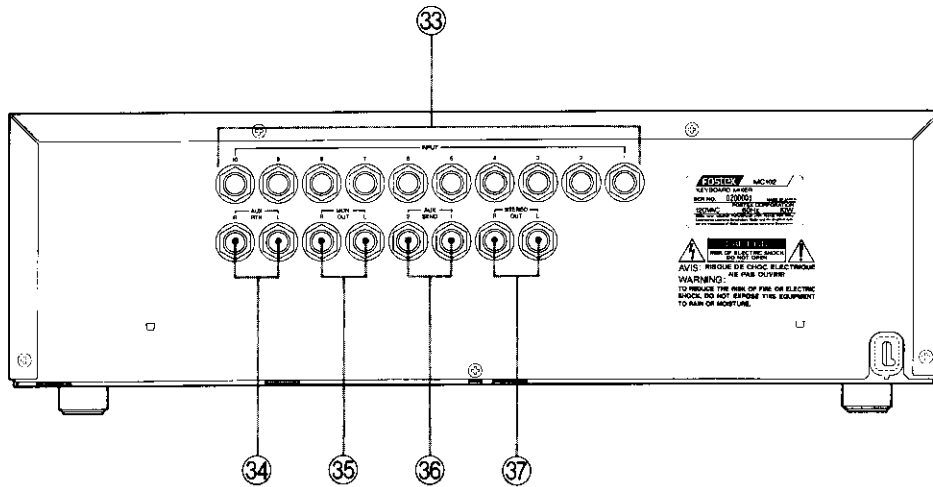
⑫ EQUALIZER HI CONTROLS

These knobs adjust the tone of signals input to INPUT jacks A or B by boosting or cutting frequencies at 10 kHz. Frequencies above this point are boosted as these knobs are turned to the right, or cut as they are turned to the left. The signal's high frequencies are left unmodified when the control is centered.

● Recorder/Monitor Section

- ⑬ **LEVEL METER**
This meter displays the level of signals input to the monitor section.
- ⑭ **TAPE COUNTER & RESET BUTTON**
The tape counter marks the passage of tape running time. Pressing the reset button resets the counter to 000.
- ⑮ **PITCH CONTROL**
This knob lets you make fine adjustments to the pitch (that is, the tape speed) during playback. You can adjust the pitch within a range of $\pm 10\%$.
- ⑯ **PHONES JACK**
You can connect a set of stereo headphones to this standard stereo phone jack. The level of the sound output from this jack is adjusted by the PHONES control ⑳.
- ⑰ **TAPE DECK**
This is the tape transport mechanism. This tape deck operates in exactly the same manner as any common stereo tape deck.
- ⑱ **PAUSE BUTTON**
Press this button to pause tape playback or recording in progress. You can also set the MC102 in record standby mode by pressing the PAUSE button before pressing the RECORD button ㉓.
- ㉑ **STOP/EJECT BUTTON**
Press this button to stop tape playback or recording in progress. Press it a second time while the deck is stopped to eject the tape.
- ㉒ **FAST FORWARD BUTTON**
Press this button to advance the tape at high speed.
- ㉓ **REWIND BUTTON**
Press this button to advance the tape at high speed.
- ㉔ **PLAY BUTTON**
Press this button to play back music you have recorded.
- ㉕ **RECORD BUTTON**
Press this button to begin recording. (You don't have to press the PLAY button ⑰ to begin recording: it is pressed automatically together with the RECORD button.) You can also set the MC102 in record standby mode by pressing the PAUSE button ⑱ before pressing the RECORD button.
- ㉖ **PHONES CONTROL**
This knob adjusts the volume of the headphone signal output via the PHONES jack ⑯.
- ㉗ **MONITOR CONTROL**
This knob adjusts the volume of the signal output by the monitor section via the MONITOR OUT jacks ㉙.
- ㉘ **AUX RETURN CONTROL**
This knob adjusts the levels signals input to the AUX RETURN jacks ㉚.
- ㉙ **DOLBY NR SWITCH**
This switch turns the MC102's Dolby C noise reduction function on and off.
- ㉚ **TAPE MONITOR SWITCH**
This switch determines whether the sound of a tape being played by the TAPE DECK ⑰ will be output by the monitor section via the MONITOR OUT jacks ㉙.
- ㉛ **STEREO MONITOR SWITCH**
This switch determines whether the signal output by the mixer section via the STEREO OUT jacks ㉞ will also be output via the MONITOR OUT jacks ㉙.
- ㉜ **AUX 1 MONITOR SWITCH**
This switch determines whether the signal input to the AUX SEND 1 jack ㉞ will be output by the monitor section via the MONITOR OUT jacks ㉙.
- ㉝ **AUX 2 MONITOR SWITCH**
This switch determines whether the signal input to the AUX SEND 2 jack ㉞ will be output by the monitor section via the MONITOR OUT jacks ㉙.
- ㉞ **RECORD INDICATOR**
This LED lights to indicate when the MC102 is recording or in record standby mode.

● Rear Panel



③③ INPUT JACKS (1—10)

These jacks are used to input signals to channels 1 through 10. They are usually connected to instruments, such as synthesizers and rhythm machines, which output line-level signals. The level and panning for these ten channels are adjusted using the controls in INPUT CONTROL SECTIONS 1 through 10 ⑤.

③④ AUX RETURN JACKS (L, R)

These jacks are generally used to input the signals returned by signal processors connected to the AUX SEND jacks ③⑥. The level of the signals input to these jacks are adjusted by the AUX RETURN control ②⑥.

③⑤ MONITOR OUT JACKS (L, R)

These jacks output the stereo signal from the monitor section. The level of the signal output by these jacks is adjusted by the MONITOR control ②⑤.

③⑥ AUX SEND JACKS (1, 2)

These jacks output the combined signals from channels which have been switched to one of the AUX SEND circuits. The levels of the signals output by these jacks are adjusted individually for each channel by the AUX controls ⑧.

③⑦ STEREO OUT JACKS (L, R)

These jacks output the mixed stereo signal produced by the mixer section. The level of the signal output by these jacks is set by the STEREO MASTER control ③.

WHAT YOU CAN DO WITH THE MC102

Because the MC102 combines a cassette recorder with a twelve-channel mixer, it is a handy tool for a variety of applications. Below are three examples of things you can do with your MC102.

- **Mixing for live performances**

The MC102 is capable of mixing up to twelve channels' worth of line input. Two of its input channels can also be adjusted to accept input from microphones, electric and bass guitars, and other instruments which output low-level signals. In this manual, we will explain the procedures used to mix input from a variety of instruments using the sample setup described below.

SOUND SOURCE	OUTPUT	CHANNELS
Drum machine	Stereo	1 and 2
Keyboard 1 (bass line)	Mono	3
Keyboard 2 (main backing)	Stereo	4 and 5
Keyboard 3 (strings)	Stereo	6 and 7
Keyboard (lead synth)	Mono	8
Return from digital delay	Stereo	9 and 10
Electric guitar	Stereo	A and B

The MC102's two AUX SEND jacks ③⑥ let you connect two different signal processors, so you can select the most appropriate effect for each sound source. In our example, we will be connecting a digital reverb processor to the AUX SEND 1 jack, and a digital delay to the AUX SEND 2 jack.

- **Quick recording of demo tapes using mixed sound**

After you've set the mixer levels for your instruments and rehearsed the tune a few times, you'll be ready to start recording. Since the MC102 features a built-in recorder, there's no need to fiddle around with cables before you can begin your first take: the MC102's recorder is always ready and waiting for you to start recording.

You might also want to try using the PITCH control ⑮ to create interesting effects. You could record with the PITCH control set low to slow the tape speed. When the tape is played back at normal speed, the pitch will rise. Try experimenting with the MC102's PITCH control and its other functions as you get to know it, to see how it can help you create the sound you're looking for.

- **Using demo tapes as a backing for solo play**

The MC102 lets you add new instruments or different musical parts while playing back the music you've recorded on a cassette tape. You can even use the MC102 for simple multitrack recording by mixing the taped sound with new parts, then recording the mixture with another tape deck.

● Steps to Using the MC102

The procedures for using the MC102's various functions can be divided into a few basic steps, as shown in the simple flowchart below. Over the next few pages, we will explain these steps using the representative instruments listed on the preceding page. Try following along with each step using your own instruments, in order to get a feel for the MC102's controls and connectors.

1. **MAKING CONNECTIONS** (page 8)
Connect sound sources, amps, and signal processors.
2. **USING THE MIXER** (page 10)
Set levels, process signals, and adjust overall balance.
3. **RECORDING** (page 14)
Recheck overall balance and record.
4. **CASSETTE PLAYBACK** (page 15)
Play back recorded music.
5. **MIXING DURING PLAYBACK** (page 16)
Adjust balance between recorder and mixer, and record with another deck.

● Making Connections

Before you can do anything, you must connect the instruments to the MC102. Connect instruments as shown in the illustration to the right. (Feel free to try other connection methods once you've become accustomed to the MC102 controls and connectors.) Be sure to turn the corresponding LEVEL controls ⑥ down if you connect your instruments while the MC102's power is turned on.

• Signal processors

In our example, we are using two very common types of signal processors: a digital reverb and a digital delay. The reverb processor is useful in adding warmth and acoustic presence to the sounds created by digital instruments. The signal output by the AUX SEND 1 jack ③⑤ is sent to the input jack of the reverb processor. The reverb returns a stereo signal which is input at the AUX RETURN jacks ③④.

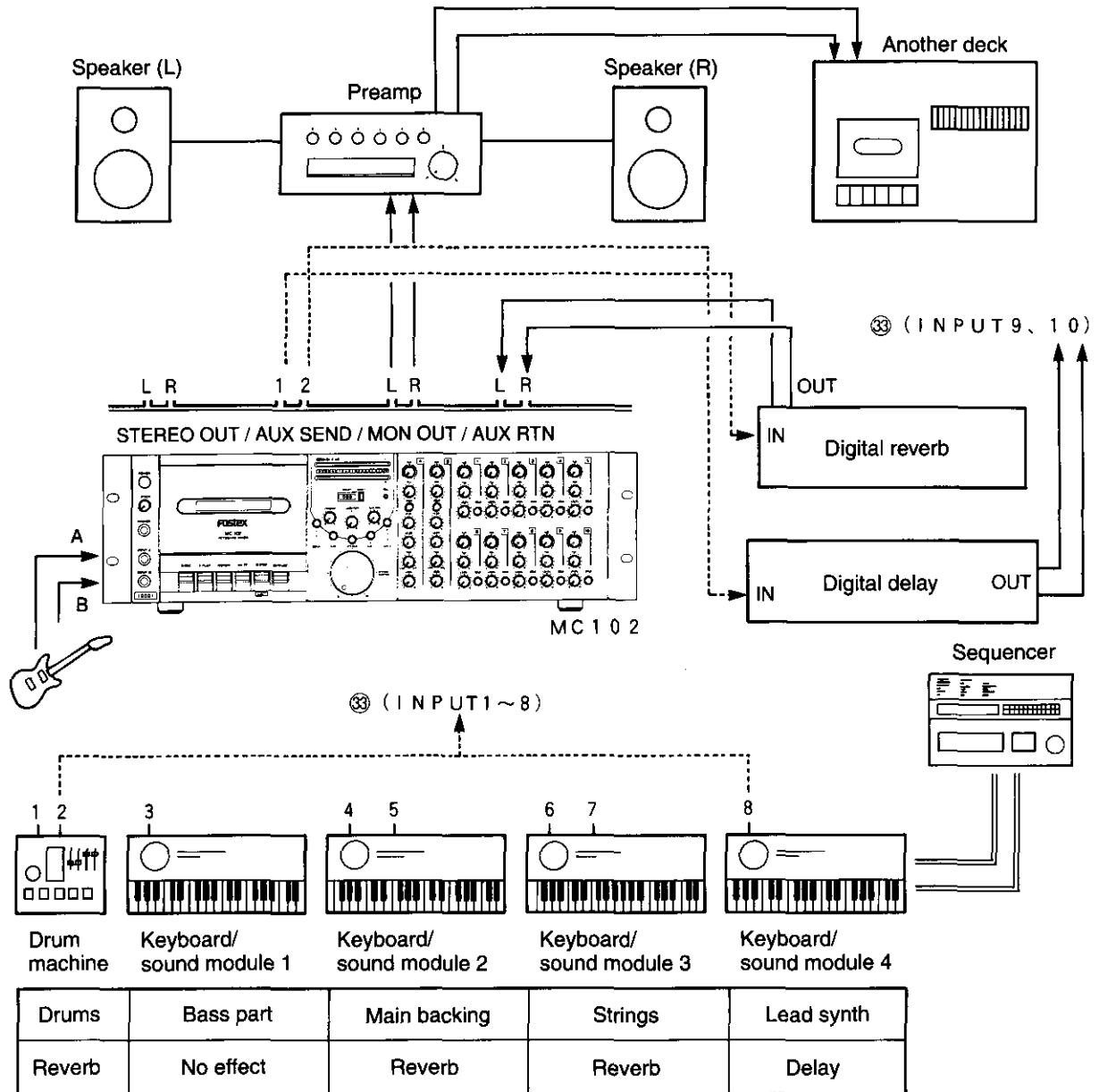
We selected the digital delay to add depth to the sound of our lead synthesizer. As with the reverb, the input jack of the delay receives the signal output by the AUX SEND 2 jack ③⑥. Since both of the AUX RETURN jacks ③④ are occupied by the reverb, however, the stereo signal from the delay must be returned to two of the MC102's input channels. In our example, we have used channels 9 and 10 for that purpose.

• Monitor speakers

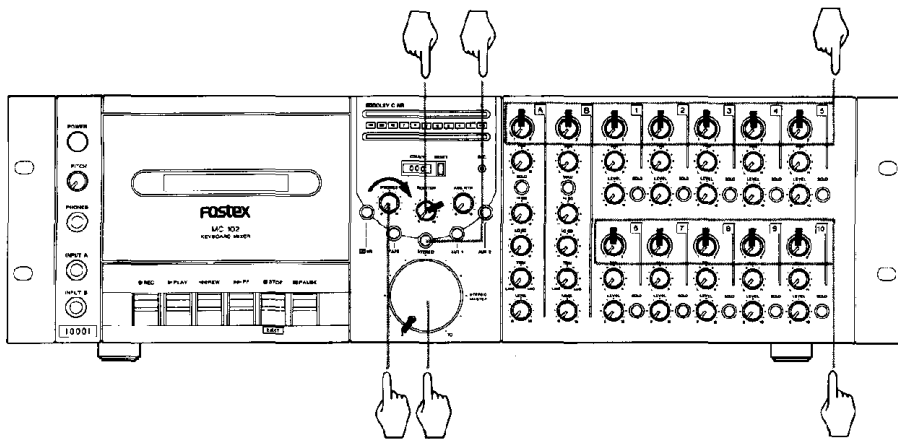
You will probably want to use your amps to monitor both the sound from the mixer section and that output by the MC102's recorder. Since the sound from the recorder cannot be output from the STEREO OUT jacks ③⑦, you will have to connect the MC102 to an amplifier using the MONITOR OUT jacks ③⑤ in order to the output from either the tape or the mixer section.

The STEREO OUT jacks ③⑦, which directly output the signal from the MC102's mixer section, are therefore used as auxiliary outputs.

BASIC OPERATION



● Using the Mixer

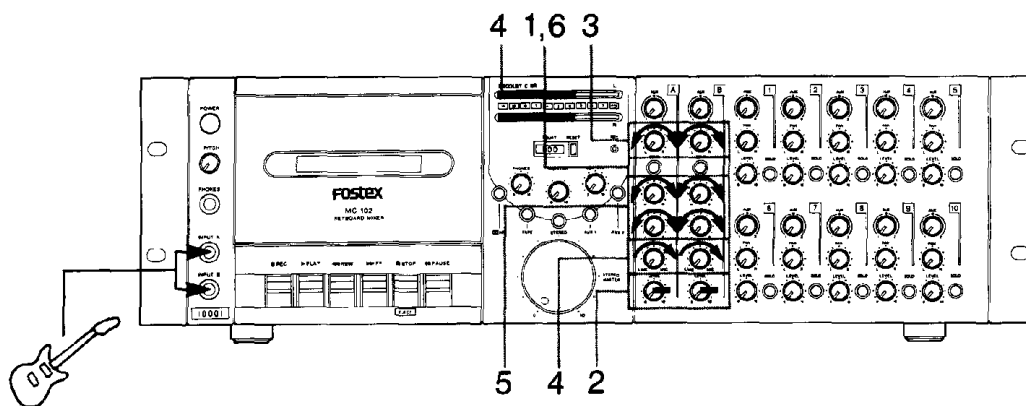


MC102 CONTROL SETTINGS WHEN USING THE MIXER

Once you have connected your instruments, you must set the input levels for each. Before you begin, however, be sure to make the following control settings, as they will help you set the levels of individual channels.

- Raise the MONITOR control ②⑤ to a level of 7 or 8.
- Turn the STEREO MONITOR switch ②⑨ off or the STEREO MASTER control ③ all the way down.
- Turn the AUX control ⑧ for each channel all the way down. (Until you are used to MC102, you should wait to apply effects only after adjusting the input level for each channel.)
- After you have completed all level adjustments, raise the headphone volume to an appropriate level using the PHONES control ②④.

[1] Set the input level for the electric guitar.

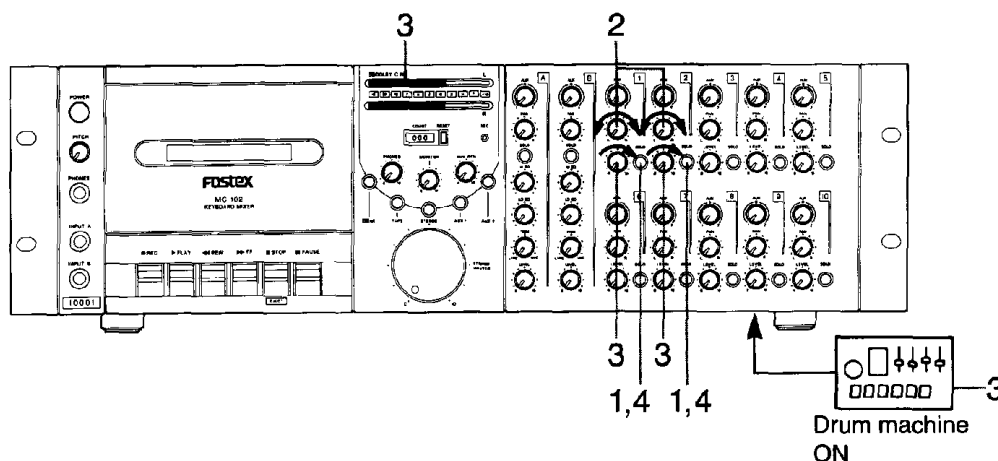


Use the procedure below to set the level, panning, and equalization of a guitar connected to channels A and B. (In this example, we assume that the signal from the electric guitar has already been processed by effects devices which output a stereo signal.)

1. Turn on the SOLO switches ⑨.
2. Raise the LEVEL controls ⑥ to a level of 7 or 8.
3. Set the stereo position using the PAN controls ⑦. Generally speaking, you will want to pan channel A all the way to the left, and channel B all the way to the right.
4. While playing the guitar, gradually raise the TRIM controls ⑩ until the LEVEL meter ⑬ peaks at 0 or 2.
5. Adjust the tone using the EQUALIZER HI ⑫ and LO ⑪ controls.
6. Once you have set the basic input level, turn the SOLO switch ⑨ off again.

You will want to make final adjustments to the guitar's input level later, after you have set the basic levels for your other sound sources.

[2] Set the input levels of other sound sources.



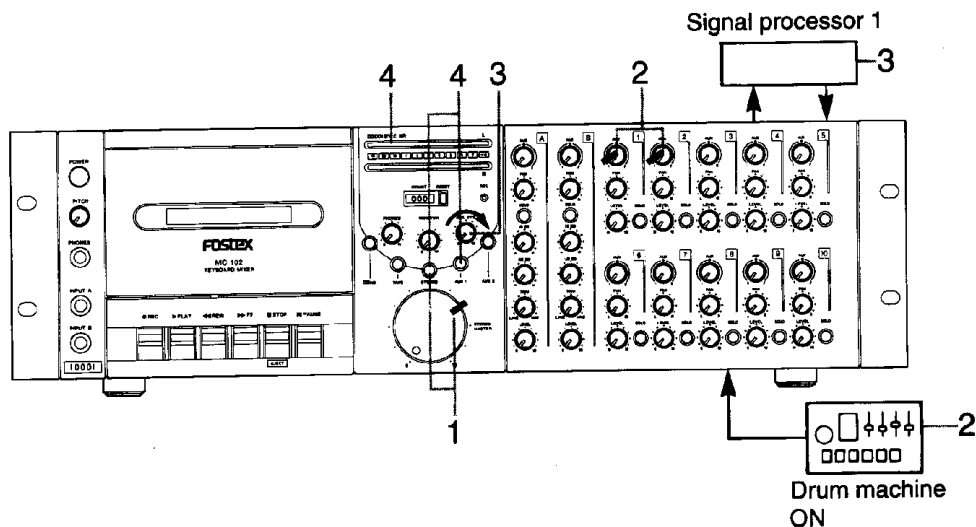
Use the procedure below to set the input level and panning for drum machines, synthesizers, or sound modules connected to channels 1 through 8. We will use the drum machine connected to channels 1 and 2. Run through the procedure separately for every other part. (Keep in mind that you must use the controls of two channels for stereo parts, or only one channel for monaural parts.)

1. Turn on the SOLO switches ⑨.
2. Set the stereo position using the PAN controls ⑦. (For stereo parts, you will probably want to pan one channel all the way to the left, and the other all the way to the right.)

3. Start the drum machine playing, then raise the LEVEL controls ⑥ until the LEVEL meter ⑬ peaks at around 0 or 2.
4. Once you have set the basic input level, turn the SOLO switch ⑨ off again.

You will want to make final adjustments to these input levels later, after you have set the basic levels for every sound source.

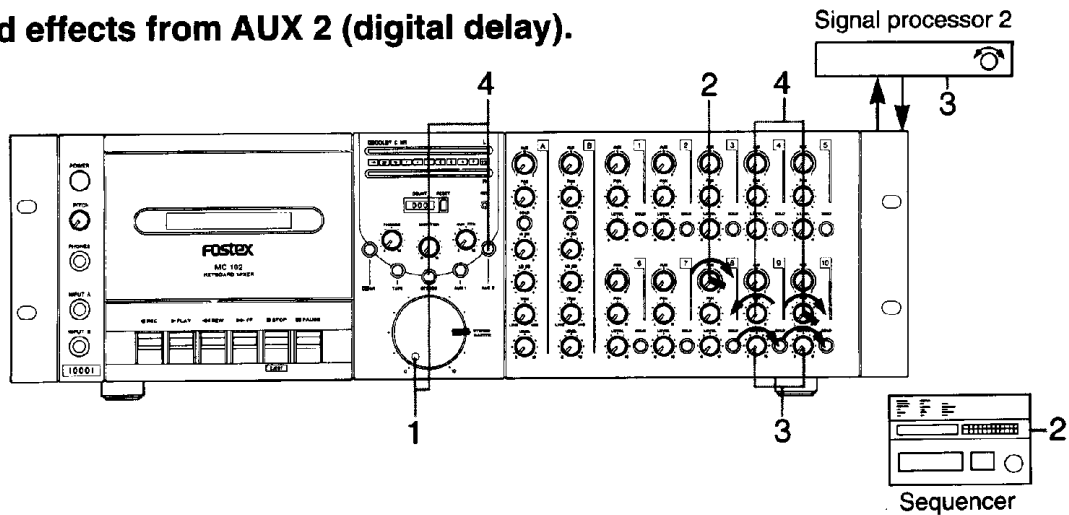
[3] Add effects from AUX 1 (reverb).



Use the procedure below to adjust the send and return levels for the signal processor connected to the AUX SEND 1 jack ⑳. We will again take the drum machine connected to channels 1 and 2 as an example. You would use the same method to add reverb to the keyboards connected to channels 4, 5, 6 and 7. (Keep in mind that you must use the controls of two channels for stereo parts, or only one channel for monaural parts.)

1. Turn the STEREO MONITOR switch ㉑ on, and raise the STEREO MASTER control ③ to a level of 7 or 8.
2. Start the rhythm machine playing, then turn the AUX control ⑧ about 80% of the way to the left.
3. Set the input level of the signal processor connected to the AUX SEND 1 jack ㉒. Then raise the AUX RETURN control ㉓ gradually until the reverb effect level is appropriate.
4. You can turn on the AUX 1 MONITOR switch ㉔ to monitor the signal being sent to the AUX 1 signal processor and check its level using the LEVEL meter ⑬. When doing so, be sure to turn the STEREO MONITOR switch ㉑ off.

[4] Add effects from AUX 2 (digital delay).



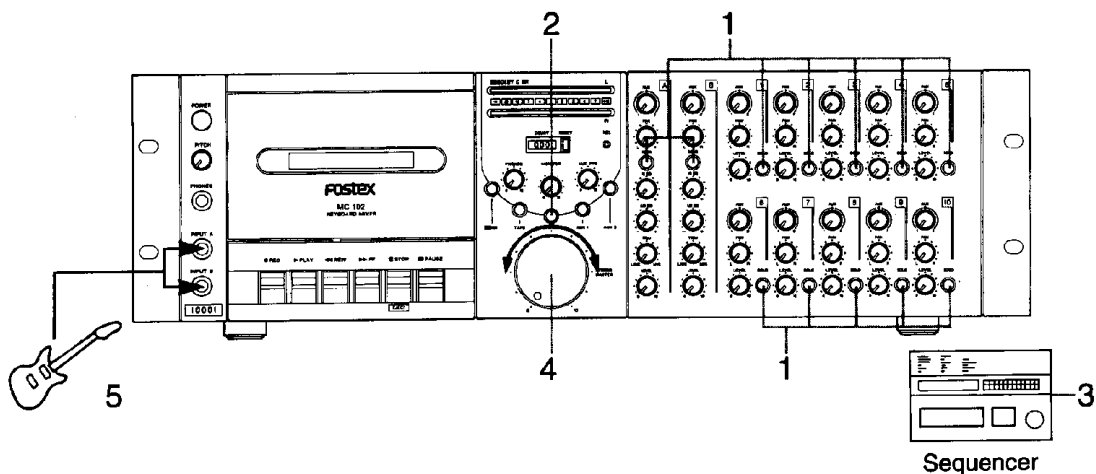
Use the procedure below to adjust the send and return levels for the signal processor connected to the AUX SEND 2 jack ③⑥. (You will recall that this processor returns its signals to input channels 8 and 9.) We will use the lead synth connected to channel 8 as an example. (Keep in mind that you must use the controls of two channels for stereo parts, or only one channel for monaural parts.)

1. Turn the STEREO MONITOR switch ⑲ on, and raise the STEREO MASTER control ③ to a level of 7 or 8.
2. Start playing the synth, and turn the channel 8 AUX control ⑧ about 80% of the way to the right.
3. Set the input level of the signal processor, then raise the LEVEL controls ⑥ for channels 9 and 10 gradually until the delay effect level is appropriate.
4. You can turn on the AUX 2 MONITOR switch ⑳ to monitor the signal being sent to the AUX 2 signal processor and check its level using the LEVEL meter ⑬. When doing so, be sure to turn the STEREO MONITOR switch ⑲ off.

CAUTION!

Don't turn the AUX controls ⑧ for channels 9 and 10 to the right. If you do so, the signal returned by the digital delay will be sent back to it again, creating a feedback loop. This will of course produce a howling effect that can damage your headphones and speakers — not to mention your eardrums!

[5] Adjust the overall balance.

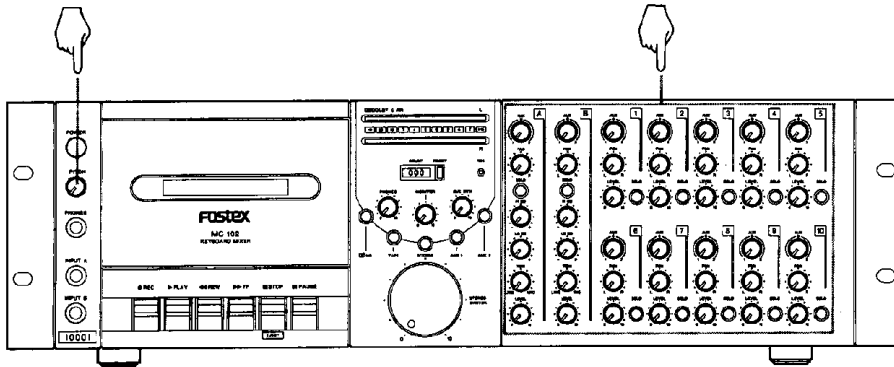


Once you have set the basic input and effect levels using procedures ① through ④ above, you can go over the settings again to adjust the overall balance.

1. Make sure that the SOLO switches ⑨ for all channels are turned off.
2. Turn the STEREO MONITOR switch ⑲ on.

3. Start your sequencers, playing all the instruments at once.
4. Raise the STEREO MASTER control ③ to set the overall output level.
5. Play the electric guitar and adjust its input level as well.

● Recording



MC102 CONTROL SETTINGS WHEN RECORDING

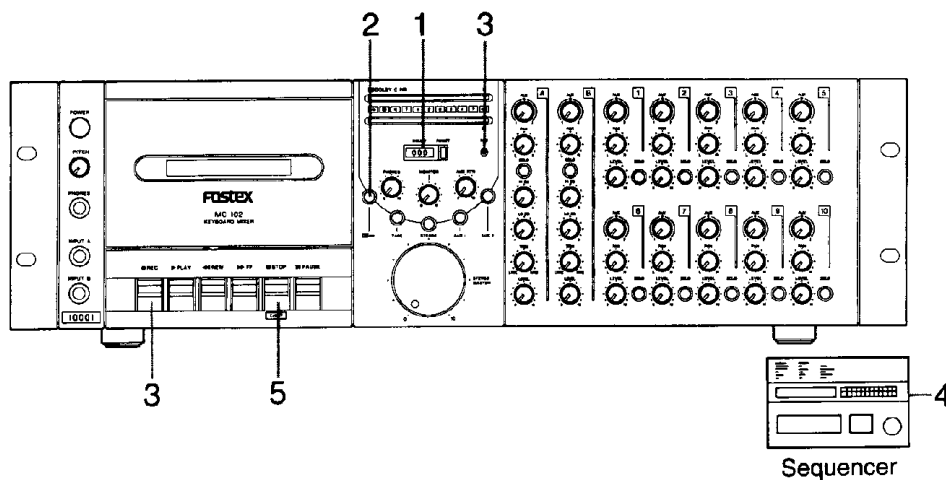
After you have adjusted the input levels for all of the instruments connected to the MC102, you can go ahead and record them. Before you begin recording, however, be sure to make the following control settings:

- Set the MONITOR ②⑤, AUX ⑧, and PHONES ④ as described at the start of the preceding chapter.
- Center the PITCH control ⑮ at 0. (It is possible to achieve interesting effects using different PITCH control settings; however, the 0 setting should be used for most recording.)

[1] Recheck the overall balance.

Start playing your instruments and check their balance once again before you start recording. The procedure is the same as that described on the preceding pages.

[2] Start recording.

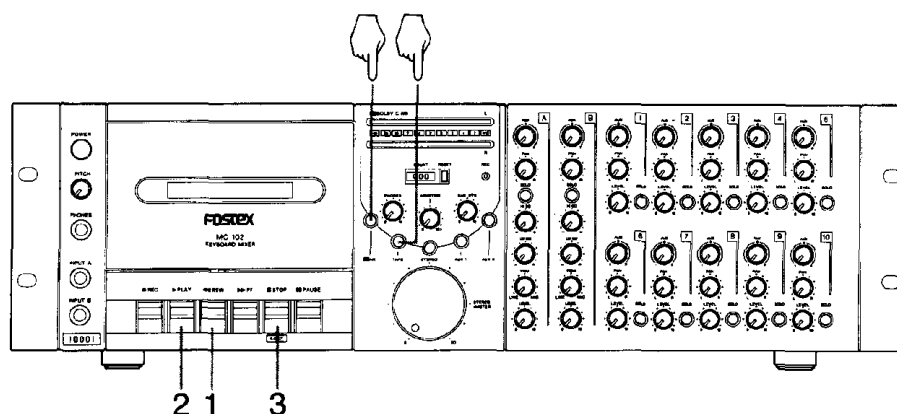


The recording procedure is much the same as that of the familiar stereo tape deck. Here we will run briefly through of the steps involved.

1. Press the COUNTER RESET button ⑭ to reset the tape counter to 000.
2. Press the DOLBY NR switch ⑳ to record using Dolby noise reduction.
3. Press the RECORD button ㉓ to begin recording. The RECORD indicator ㉔ will light to indicate that the MC102 is recording.
4. Start your sequencer and begin your performance.
5. Press the STOP/EJECT button ㉑ when you're done recording.

You can set the MC102 in record standby mode before you begin recording by pressing the PAUSE button ㉒ before pressing the RECORD button ㉓. If you use this function, you can then start recording whenever you're ready by pressing the PAUSE button ㉒ a second time.

● Cassette Playback



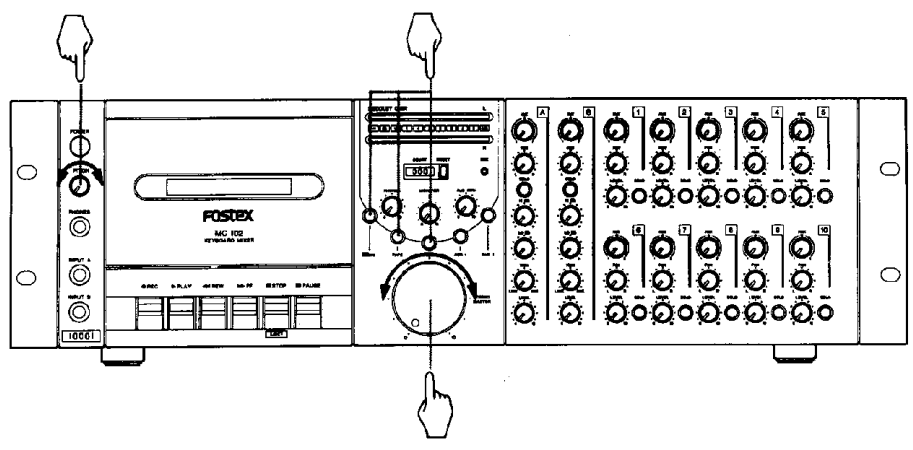
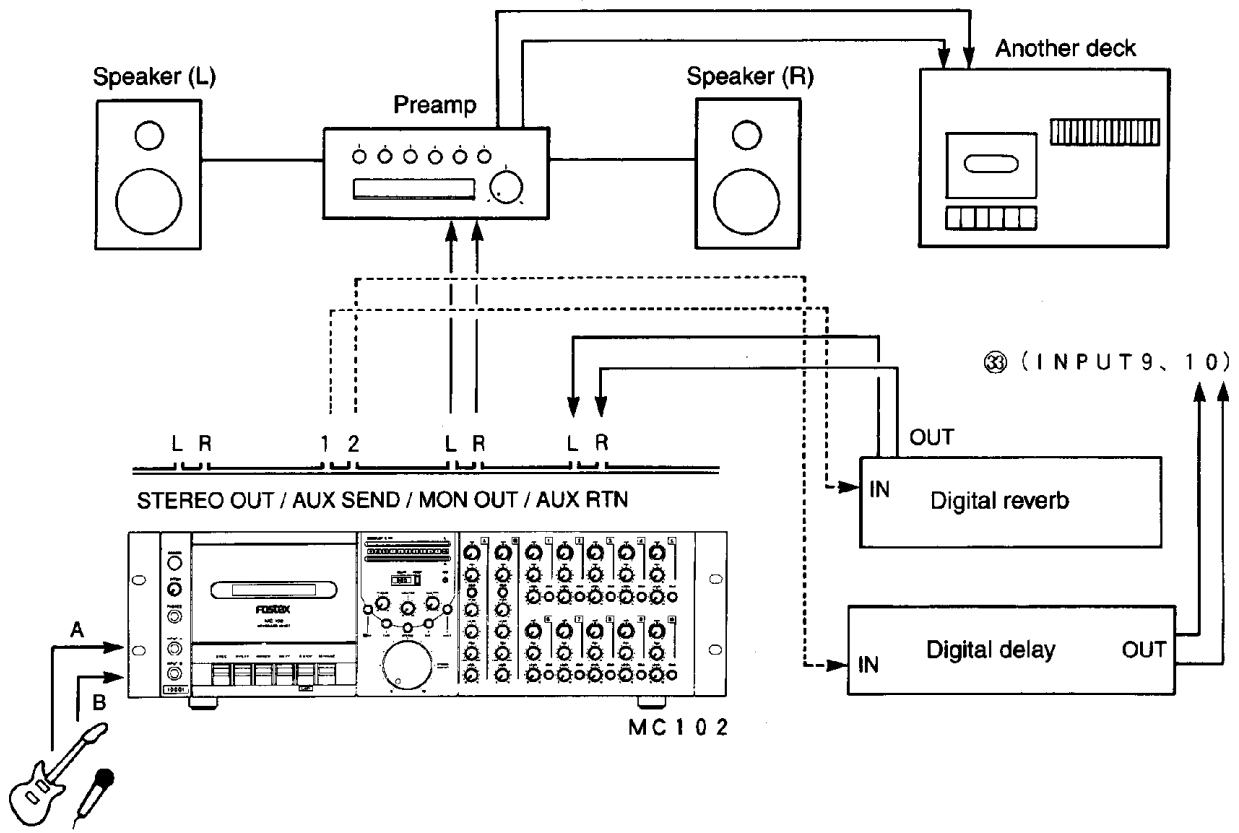
MC102 CONTROL SETTINGS DURING CASSETTE PLAYBACK

The procedure for playing back music you've recorded is much the same as that of the familiar stereo tape deck. However, there are a couple of preparatory steps that you should perform before pressing the PLAY button ㉒.

- Be sure to turn on the DOLBY NR switch ⑳ if the tape you're playing was recorded using Dolby noise reduction.
 - Turn the TAPE MONITOR switch ㉔ on to output the sound from the tape deck via the MONITOR OUT jacks ㉕.
1. Use the REWIND ㉑ or FAST FORWARD ㉒ buttons to shuttle the tape to the beginning of the song you want to play.
 2. Press the PLAY button ㉒ to start the tape.
 3. Press the STOP/EJECT button ㉑ to stop playback.

Use the PAUSE button ㉒ to pause the playback in progress, or to restart a playback which you have paused.

MIXING DURING PLAYBACK

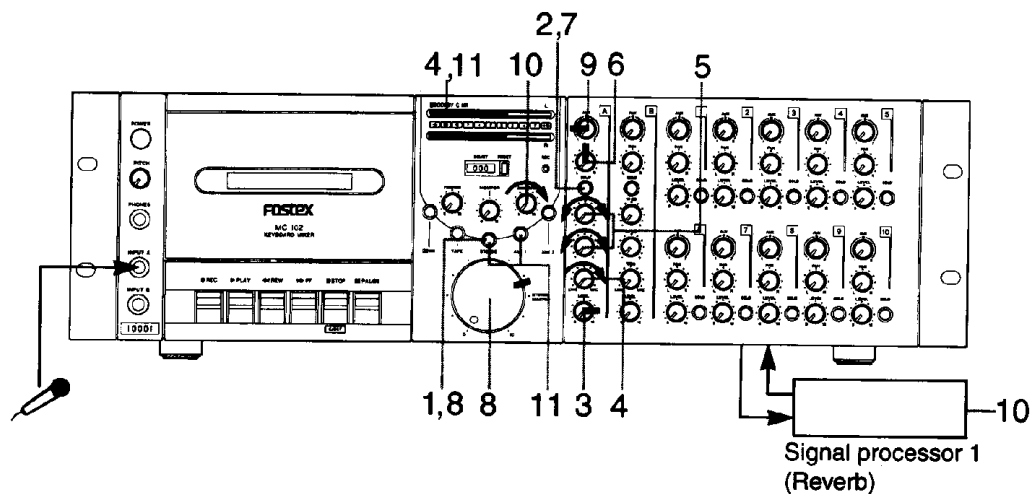


MC102 CONTROL SETTINGS WHEN MIXING DURING PLAYBACK

With the MC102, you can add new instruments or parts to a song you have already recorded. This allows you to create pre-recorded background music that you can play solos or sing along with, either for live performances or additional recording. Here we explain how you might use the MC102's microphone input capacity to sing the vocals for a song that you've performed and recorded yourself. Start by connecting your instruments as shown in the illustration on the next page.

- You will have to turn on both the TAPE MONITOR ⑳ and STEREO MONITOR switches ㉑ to output the sound from both sources via the MONITOR OUT jacks ㉒.
- You can adjust the level of the mixer section output (i.e., the microphone) using the STEREO MASTER control ③. The level of the tape output is fixed.

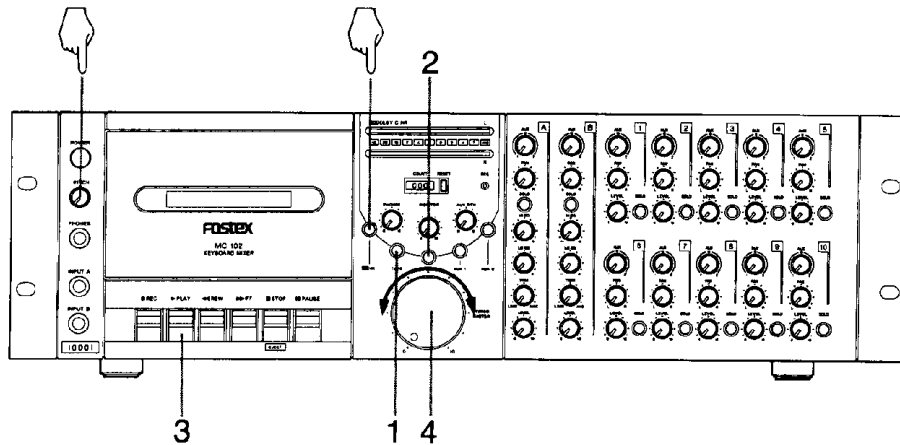
[1] Adjust the microphone input level.



You can plug a microphone into the INPUT jacks ② for either channel A or channel B. We will use channel A here.

1. Turn off the STEREO MONITOR switch ㉑.
2. Turn on the SOLO switch ⑨ for channel A.
3. Raise the LEVEL control ⑥ for channel A to 7 or 8.
4. While singing or speaking into the microphone, raise the channel A TRIM control ⑩ gradually (by turning it in a clockwise direction) until the LEVEL meter ⑬ peaks at 0 or 2.
5. Adjust the tone using the EQUALIZER HI ⑫ and LO controls ⑪.
6. Center the PAN control ⑦ for channel A.
7. Once you have completed the microphone level setting, turn off the SOLO switches ⑨.
8. Turn the STEREO MONITOR switch ㉑ on, and raise the STEREO MASTER control ③ to a level of 7 or 8.
9. While again singing or speaking into the microphone, turn the channel A AUX control ⑤ about 80% of the way to the left.
10. Set the input level of the signal processor connected to the AUX SEND 1 jack ㉒. Then raise the AUX RETURN control ㉔ gradually until the reverb effect level is appropriate.
11. You can turn on the AUX 1 MONITOR switch ㉓ to monitor the signal being sent to the AUX 1 signal processor and check its level using the LEVEL meter ⑬. When doing so, be sure to turn the STEREO MONITOR switch ㉑ off.

[2] Mix the vocals with tape playback.

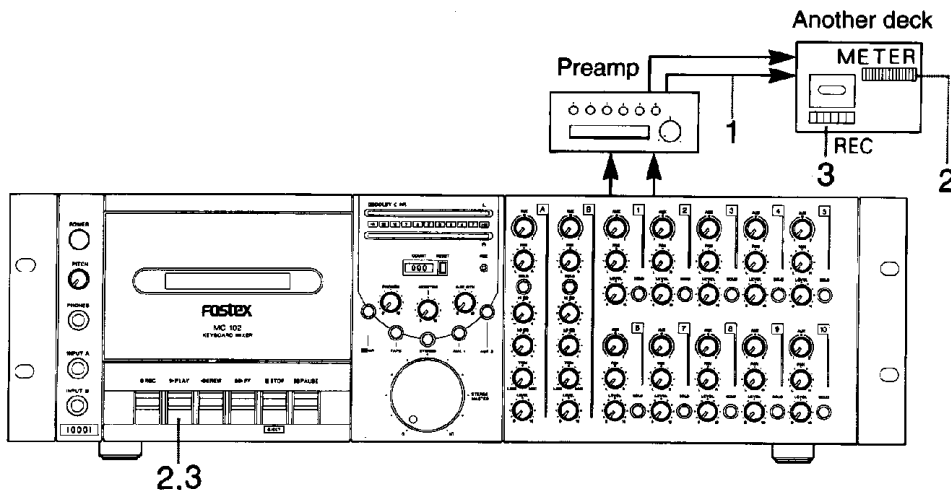


Once you've set the basic microphone level, you can begin playback. The procedure for beginning playback is the same as that described in the preceding chapter. When you add microphone input, however, there are a few differences that you should keep in mind.

- Be sure to turn on the DOLBY NR switch (27) if the tape you're playing was recorded using Dolby noise reduction.
- You can use the PITCH control (15) to fine-tune the pitch of the tape playback to a key that's easy for you to sing in.

1. Turn on the TAPE MONITOR switch (28).
2. Turn on the STEREO MONITOR switch (29).
3. Press the PLAY button (22).
4. Use the STEREO MASTER control (3) to adjust the level of the microphone to match the tape level.

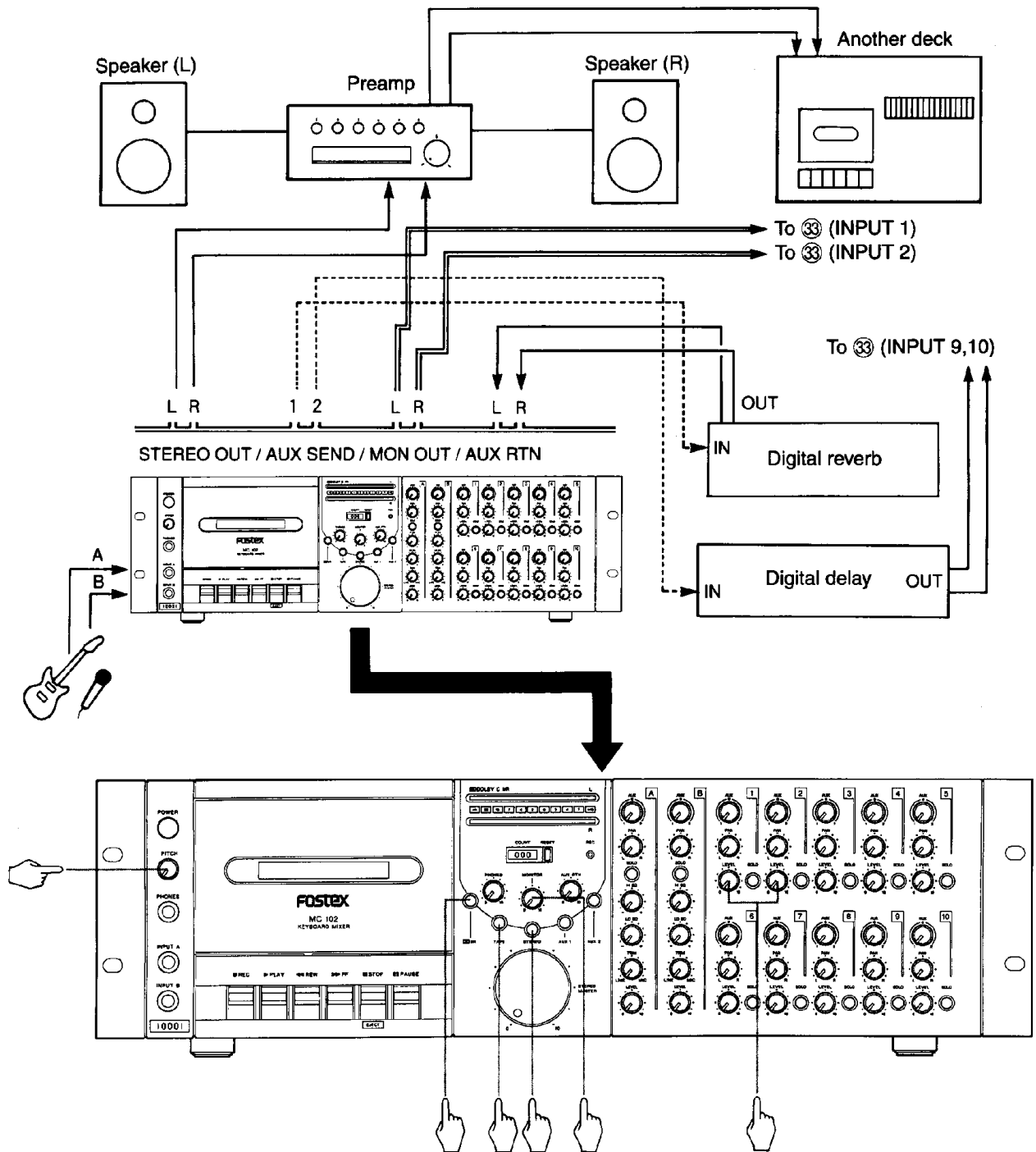
[3] Record playback and vocals with another deck.



You can record your combined tape playback and vocals by following the three easy steps described below.

1. Connect another tape deck to your preamp as shown in the illustration below.
2. Start the MC102 recorder playing as described above, and adjust the input level of the recording deck.
3. Once you have adjusted the input level, start the other deck recording. Then start the MC102 playback from the beginning, and begin singing.

PLAYING BACK VIA THE MIXER



MC102 CONTROL SETTINGS WHEN PLAYING BACK VIA THE MIXER

In the preceding section you saw how to use the STEREO MASTER control ③ to balance the sound you mix through the mixer section with the playback of a previously recorded tape. You can do this because the two signals are combined and output via the MONITOR OUT jacks ⑳. However, this means that you cannot use the MONITOR control ㉔ to adjust the volume of the tape output without also changing the volume of the mixing section output.

You can get around this problem by rerouting the tape output back through the mixer. Doing so will give you full control over the volume and stereo position of the tape output, and make it easier to fine-tune the balance between the tape playback and other mixer output. It will also allow you to apply reverb and other effects to the tape deck output, if you desire.

To accomplish this, you must make the connections shown in the illustration above. (We have connected the MONITOR OUT jacks ⑳ to the INPUT jacks ㉑ for channels 1 and 2 as an example. You could connect it to any of the other channels, if you wish.)

- Be sure to turn on the DOLBY NR switch ㉗ if the tape you're playing was recorded using Dolby noise reduction.
- As before, you can use the PITCH control ㉕ to fine-tune the pitch of the tape playback.
- Turn the TAPE MONITOR switch ㉘ on to output the sound from the tape deck via the MONITOR OUT jacks ⑳.
- Turn the STEREO MONITOR switch ㉙ off.
- Adjust the volume of the tape output using both the MONITOR control ㉔ and the LEVEL controls for input channels 1 and 2.

CAUTION!

Never turn on the STEREO MONITOR switch ㉙ when the MONITOR OUT jacks ⑳ are connected to any of the INPUT jacks ㉑. If you do so, the signal output by the MONITOR OUT jacks will be routed into the monitor section again, creating a feedback loop that can damage your headphones and speakers. The combined output from the tape deck and the mixer section will be output from the STEREO OUT jacks ㉚; there is thus no reason to send the output from the mixer section to the MONITOR OUT jacks.

MAINTENANCE

Your MC102 needs the same attention required by all electronic equipment. Keep the MC102 dry, clean, and free of dust, and protect it from extremes of temperature and humidity. In addition, you should clean the deck mechanism and demagnetize the heads regularly in order to keep the MC102 in top operating condition.

Cleaning the Head, Rollers, and Capstans

As you use the MC102's recorder, its recording/playback head, pinch rollers, and capstans will gradually become coated with oxide residue from the tapes as they pass over these mechanisms. This residue can inhibit the performance of the head. Even invisible amounts of oxide can cause noticeable decreases in high-range response. At the same time, buildups of oxide residue and dust on the rollers and capstans can lead to increased wow and flutter — in extreme cases, they can even destroy your tapes.

To remove oxide residues from the head, guides, and capstans, wipe the parts with a cotton swab soaked in an isopropyl alcohol-based cleaning solution. Use a rubber cleaning solution to clean the pinch rollers. Be very careful not to get any of the alcohol-based cleaner on the pinch roller, since it will corrode the rubber.

These cleaning agents are available at most audio equipment and musical instrument stores. Be sure to use only cotton swabs designed for cleaning audio equipment, as swabs with too small a cotton content will scratch the heads, while swabs that are packed too loosely can leave damaging cotton fibers in the mechanism.

Never use organic solvents (such as lacquer thinners) to clean the heads, capstans, or guides. Also, do not use silicone lubricants on the pinch roller, as doing so will increase wow and flutter.

Demagnetizing the Head

After long periods of use, the head will begin to develop a magnetic field in addition to the oxide residue described above. This magnetism can degrade the response of the head and lead to increased noise during recording or playback. If left unchecked, it can even create noise on tapes that you play, rendering them useless.

Use a hand demagnetizer to demagnetize the head of your MC102's recorder. Always use caution when demagnetizing the head: while demagnetizing is necessary to the life of the head, it is also a potentially dangerous operation that can ruin the head and destroy the MC102's circuitry if performed incorrectly. Follow the instructions included with your demagnetizer to the letter. Also, keep recorded tapes away from the demagnetizer when using it, since it can destroy them.

General Cautions

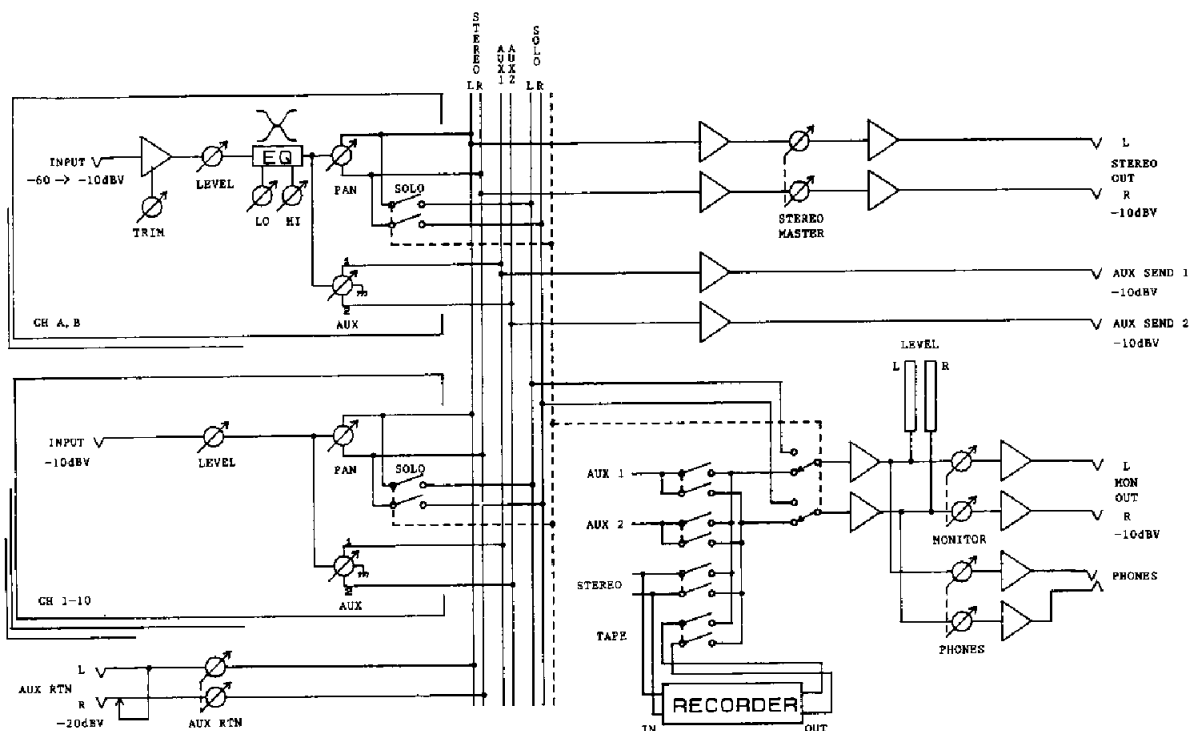
Demagnetize the head and clean the transport mechanism of your MC102 as described on a regular basis.

Above all, don't smoke near your MC102! Recording studios generally forbid smoking in the control room, and for a very good reason: the particles of dust produced by burning tobacco may be invisible to you, but they are as obstructive as rocks and boulders to the MC102's sensitive electronic equipment.

TROUBLESHOOTING GUIDE

	Problem	Solution
SOUND QUALITY OR VOLUME	● WOW OR FLUTTER	1. Clean the pinch rollers and capstans thoroughly. 2. Try a new tape. (Use a high-quality brand.)
	● POOR PLAYBACK SOUND QUALITY	1. Clean the tape deck's record/playback head. 2. Check to be sure you're using the right kind of tape (70 μsec EQ designation). 3. Make sure the DOLBY NR switch ⑰ is turned on if the tape was recorded with Dolby noise reduction.
	● POOR SOUND OUTPUT/ EXCESSIVE NOISE	Check the LEVEL control ⑥ setting. The LEVEL meter ⑬ should not peak above 2 constantly.
	● PLAYBACK AT DIFFERENT PITCH	Make sure the PITCH control ⑮ is set to the same level as when the tape was recorded.
	● NO SOUND FROM HEADPHONES	Check the position of the PHONES control ⑳.
RECORDING	● CAN'T PRESS RECORD BUTTON	Check whether the record protect tabs have been removed from cassette.
DECK OPERATION	● TAPE DOESN'T MOVE	Make sure that the tape is set in the deck properly.
	● CAN'T TURN POWER ON	Make sure the MC102 is properly plugged in.

BLOCK DIAGRAM



SPECIFICATIONS

INPUTS A, B

Microphone impedance	10 k Ω or less
Input impedance	20 k Ω
Nominal input level	Mike:-60 dBV (1 mV) Line:-10 dBV (0.3 V)

INPUTS 1—10

Input impedance	10 k Ω
Nominal input level	-10 dBV (0.3 V)

AUX RTN (L,R)

Input impedance	20 k Ω
Nominal input level	-20 dBV (0.1 V)

AUX SEND 1, 2

Output load impedance	10 k Ω or greater
Nominal output level	-10 dBV (0.3 V)

STEREO OUT (L,R)

Output load impedance	10 k Ω or greater
Nominal output level	-10 dBV (0.3 V)

MONITOR OUT (L,R)

Output load impedance	10 k Ω or greater
Nominal output level	-10 dBV (0.3 V)

HEADPHONE OUT (STEREO)

Load impedance	8—50 Ω
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RECORDING TAPE

Length	C-60 or C90 cassette
Type	IEC Type II high-bias position (TDK SA, Maxell UD-XLII, etc.)

NOISE REDUCTION

Dolby C*

TAPE SPEED

4.75 cm/sec (1 7/8 ips)

WOW/FLUTTER

\pm 0.1% (IEC/ANSI)

FAST WIND TIME

Approx. 120 sec
(C-60 tape)

PITCH CONTROL

\pm 10%

RECORDING TIME

60 min (C-60 tape)

FREQUENCY RESPONSE

Mixer 20 Hz—20 kHz

Recorder 40 Hz—14 kHz

SIGNAL/NOISE RATIO

70 dB (Dolby ON WTD)

(Recorder)

ERASURE RATIO

70 dB or greater (at 1 kHz)

HEADS

Rec/play x 1, Erase x 1

POWER REQUIREMENT

120 VAC, 60 Hz, 10W

230/240 V \sim , 50 Hz, 10W

DIMENSIONS (W x D x H)

482 x 201.5 x 141.5

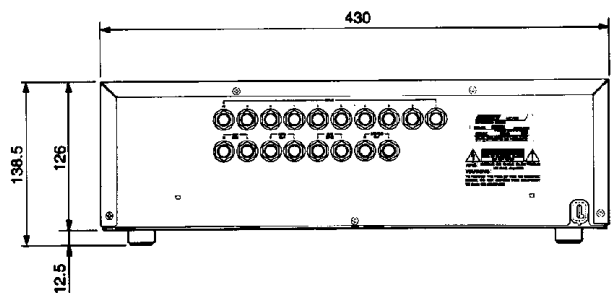
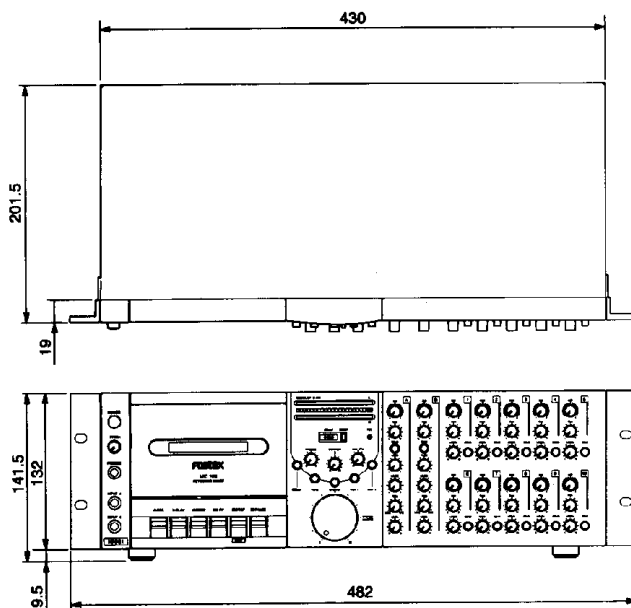
(panel size 132)mm

Approx. 5 kg

Specifications subject to change without notice.

* Dolby C noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

EXTERNAL DIMENSIONS



Fostex

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