THE ALESIS MICRO SERIES USER'S GUIDE

FEATURING

MICROVERB® II

MICRO LIMITER®

MICRO GATE®

MICRO EQ

MICRO ENHANCER®

MICRO CUE AMP

INTRODUCTION

THE ALESIS MICRO SERIES
The Essential Signal Processing/Music Production System

MICROVERB®II, MICRO LIMITER,® MICRO GATE,® MICRO EQ, MICRO ENHANCER,® and **MICRO CUE AMP**. Together they represent the culmination of years of research by Alesis to refine the most musical functions of the six most essential music production tools into a powerful, integrated system. Each unit is contained in a compact, cost-effective, interlocking one-third rack space package - designed for maximum efficiency with minimum hassle.

With the Micro Series in your studio, record quality sounds can now be achieved. And, of course, all six units are full stereo (with the exception of **MICRO EQ**), full bandwidth, and designed for fast, trouble-free operation.

Below you'll find a brief description of each unit, followed by setup hints and application ideas to help you get the most from your gear... so you can get the most from your music.

MICROVERB II has revolutionized the recording industry by providing the single most important aspect of music - the controlled creation of ambience. Utilizing 16 bit linear PCM processing, **MICROVERB II** places awesome power in the hands of any engineer, from 4 track bedroom studio hobbyists to seasoned professionals working in world class recording facilities.

The **MICRO LIMITER**, a soft-knee, program-dependent compressor/limiter, adds punch to vocals and instruments, greatly improves the signal to noise ratio of tape recorded tracks, and smooths out fluctuating dynamics. Attack time and compression ratio adjust automatically so you won't waste valuable time searching for the most musically correct settings.

The **MICRO GATE** is a combination noise gate/special effects processor that is useful for eliminating incessant background noise between musical passages, for creating special effects like gated reverb, and for tightening up loose timing in rhythm tracks.

INTRODUCTION *cont'd*

(especially kick drums and bass guitars). The delay and rate controls allow you to set the length of time that the gate stays open and the slope of the gate as it begins to close.

The **MICRO EQ** is a 3 band parametric equalizer complete with switchable bandwidth controls. Perfectly suited for the requirements of stage and studio, the **MICRO EQ** can be used with any electric instrument or microphone requiring tonal alteration.

The **MICRO ENHANCER** can be thought of as an automatic equalizer, used during tracking and mixdown when you need to add brilliance to instruments and to restore presence and clarity lost in the recording process. And the **MICRO ENHANCER** does this without adding distortion, a problem found in other signal enhancers.

The **MICRO CUE AMP** is a two channel headphone amplifier that allows you to expand your headphone monitoring system. It also features a second input which can be used with a guitar or keyboard for private practicing. And you can even chain **MICRO CUE AMPS** together to give you all the additional headphone outputs that you need for bigger sessions.

Next time you listen to a great recording, you will very likely be hearing the **Alesis MICRO SERIES** in use. Certainly you should be using all six **MICRO SERIES** products in your studio and in your next live performance. This manual will show you how.

ACKNOWLEDGEMENTS

FOR MICRO EQ p. 37-40

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INSTALLATION

Before unpacking your new **Alesis MICRO SERIES** unit, take a moment to look through this instruction manual. We've made it brief and informative and it will answer any questions that you might have. Some helpful setup thoughts are included along with some application hints for each unit.

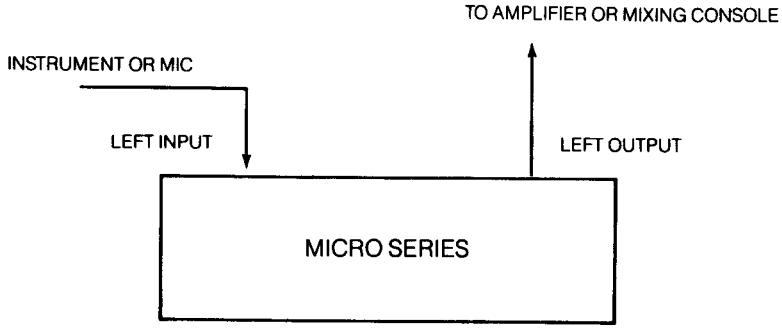
Each **MICRO SERIES** unit is designed and engineered to give you the highest level of professional performance and quality. We've made each unit musical and easy to use so that you can get the most from your music with the least amount of effort.

Instruments, Microphones

The **Alesis MICRO SERIES** has high impedance inputs that are ideally suited for use either with instrument pickups or line level signals. Although microphones can be connected directly into any of the **MICRO SERIES** units, it is recommended that they be connected to a mixing console first and then connected to the **MICRO SERIES** as described in Figures 2 or 3 for quietest operation.

Of the **MICRO SERIES** units that are stereo, such as the **MICROVERB II**, **MICRO LIMITER**, **MICRO GATE**, and **MICRO ENHANCER**, either left or right inputs may be used, but signal will only appear on the same side output (example: left input-left output) since both left and right channels are totally isolated. ***See figure 1***

FIGURE 1 - MONO MICRO SERIES CONNECTION TO INSTRUMENT OR MICROPHONE



INSTALLATION *cont'd*

This is NOT true of the **MICROVERB II**, however. If the left input only of the **MICROVERB II** is used, the input signal will appear as mono (present in both channels) at the dry side of the mix control.

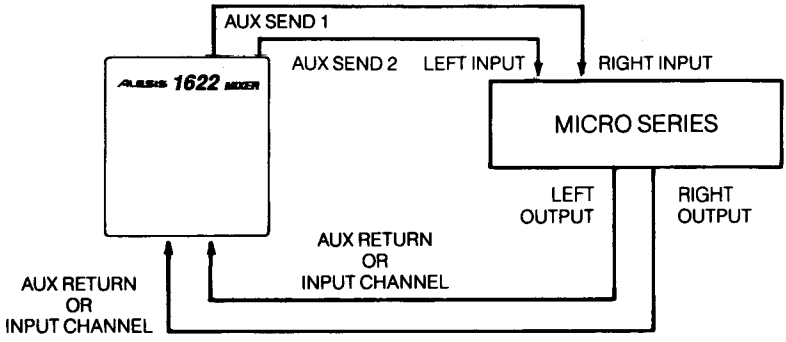
Mixing Consoles

All of the **MICRO SERIES** units can handle mono or stereo sends at all system levels. The input circuitry of the **MICRO SERIES** can easily handle +4dBv levels (+20dBv peaks), while having enough input or output gain to interface with the extremely low signal levels of budget recording systems.

The **MICRO SERIES** units may be connected to the mixing console in several ways.

In the case of the **MICRO ENHANCER** or **MICROVERB II**, the unit can be used to effect several instruments at once by using the auxiliary send and return controls of the console. Simply connect an aux send of the mixing console to either of the inputs of the **MICRO ENHANCER** or **MICROVERB II** (or 2 aux sends connected to both the left and right inputs of the **MICRO ENHANCER** or **MICROVERB II** for stereo operation) and then connect the output of the **MICRO ENHANCER** or **MICROVERB II** back to either the aux returns or input channels. Remember, in this situation, the **mix** control should always be set fully to the right (clockwise) for maximum effect. ***See figure 2***

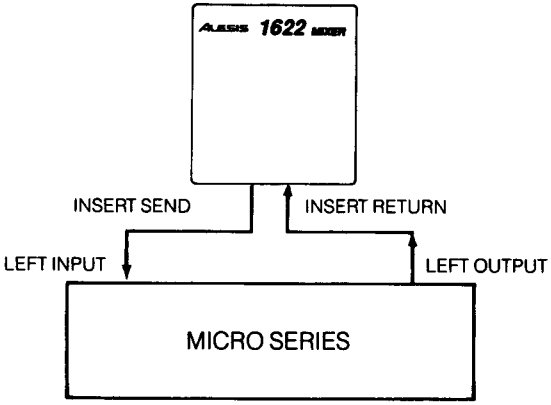
FIGURE 2 - STEREO CONNECTION TO MIXING CONSOLE VIA AUX SENDS



INSTALLATION *cont'd*

The recommended method of interfacing for the **MICRO LIMITER**, **MICRO EQ**, or **MICRO GATE** is to connect the unit directly to the insert send and receive patch points of the channel that is to be effected. This method will work for the **MICRO ENHANCER** and **MICROVERB II** as well, but keep in mind that only one instrument (in mono or stereo) at a time will be effected. ***See figure 3***

FIGURE 3 - STEREO CONNECTION TO MIXING CONSOLE VIA CHANNEL INSERT PATCH POINTS

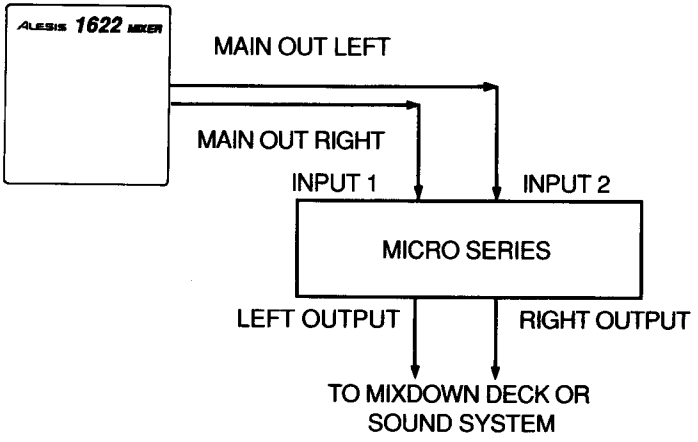


In the case of the **MICROVERB II**, however, dedicating separate units to individual voices or instruments allows you to exercise greater control over the ambience of each sound. An "overall" reverb can then be used to tie all of the sounds together into the same space for uniformity. ***See figure 4***

INSTALLATION *cont'd*

Another way to interface **MICRO SERIES** units to a mixer or recording console would be in-line across the output of your mixing console. ***See figure 4*** This would be the case if you needed to effect the entire mix and would be an especially appropriate use for the **MICRO ENHANCER**, **MICRO LIMITER**, and in some cases, the **MICROVERB II.**

FIGURE 4 - STEREO CONNECTION TO THE MICRO SERIES USING THE MAIN OUTPUTS



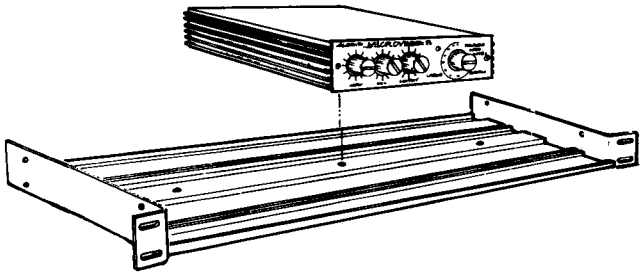
The **MICRO SERIES** units (with the exception of **MICRO EQ**) are especially designed for stereo program material as all of the units are truly stereo with common parameter controls to prevent "center shifting", which means that the balance briefly leans towards one side due to short term peaks on one side of the stereo program.

The **MICRO EQ** can also be connected this way but 2 units must be used since it is a mono unit. **MICRO CUE AMP**(s) can be connected in this manner as well to expand your headphone monitoring capabilities.

INSTALLATION *cont'd*

Mounting

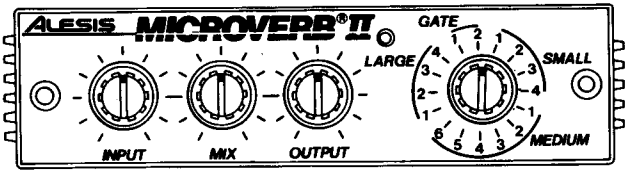
All of the units in the **Alesis MICRO SERIES** are rack-mountable in the **Micro Rack Adapter**, where any three units fit perfectly. Assembly is quick and simple with a single screw securing each device in place. The unique design of the **MICRO SERIES** case allows the devices to lock together to form a solid rack package, or to stand alone as single units.



Power

The **MICRO SERIES** is powered by a remote supply providing 9 volts AC through a 3.5mm plug. This external power supply approach keeps stray magnetic fields from interfering with low level signals, allows easy conversion to alternate power sources (220V), and further reduces the unit's physical size and valuable panel space. Although many **MICRO SERIES** devices could be powered by a single supply, this is not advisable as ground loops could possibly occur between units, leading to excessive hum and noise in the system.

MICROVERB®II



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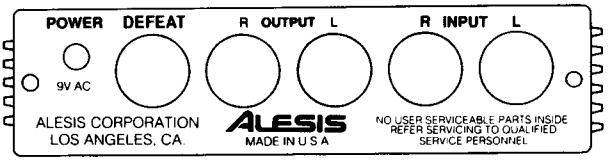


BACK

Description

MICROVERB II is a revolution in the development of digital reverb in that it represents a phenomenal price/performance ratio while reducing the physical size from large, bulky hardware to what you can now hold in the palm of your hand. The 16 programs in **MICROVERB II** are the result of years of exhaustive research by Alesis into the phenomenon of sound as it occurs naturally in space. From small, intimate room settings to large unobstructed spaces to useful gated reverb effects, **MICROVERB II** offers a powerful level of sonic flexibility that will expand and polish the sound of any recording.

Utilizing the Alesis R.I.S.C. (Reduced Instruction Set Computer) architecture, the **MICROVERB II** provides clean, quiet, professional digital reverberation with the cost and simplicity of spring units. The entire digital processing system is contained on a single chip, developed by the Alesis Research Department specifically for the **MICROVERB II**. Using high speed complementary-metal-oxide-semiconductor (CMOS) silicon processing, the **MICROVERB II** chip replaces several circuit cards of components while consuming very little power.

The reverb programs were developed on our interactive room simulation and development system. Philosophically, the objective of reverberation is to enhance a dramatic performance, adding

space, power, and depth. Natural spaces tend to sound more pleasing than the simulated reverb types such as springs and plates, and for this reason, we use room terminology in describing our programs. The programs cover a wide range of sizes and qualities, and include such unnatural concepts as gated and reverse types.

Controls

The **Input** control sets the level of signal that is applied to the **MICROVERB II** and should be set so the **Overload Indicator** reads in the red only on occasional transients.

The **Mix** control determines the amount of *Wet* signal (reverb) or *dry* signal sent to the output. If the **Mix** control is set all the way to the right, then only reverb will be heard. If the **Mix** control is set all the way to the left, then only dry (uneffected) signal will be heard. The 12 o'clock position will result in a 50/50 mixture of dry to reverbed signal.

The **Output** control sets the output level of both channels of **MICROVERB II.** This should be set so that the unit being fed by **MICROVERB II** is not overloaded.

The **Program Select** selects one of **MICROVERB II**'s 16 reverb programs.

MICROVERB II Programs

SMALL 1 AMBIENCE	**MEDIUM 3** MEDIUM ROOM	**LARGE 1** LOW DIFFUSION VOCAL ROOM
SMALL 2 AMBIENCE	**MEDIUM 4** MEDIUM PLATE/STRONG IMMEDIATE ATTACK	**LARGE 2** MEDIUM/LARGE ROOM
SMALL 3 SMALL ROOM	**MEDIUM 5** MEDIUM/LARGE ROOM	**LARGE 3** LARGE ROOM
SMALL 4 SMALL PLATE	**MEDIUM 6** MEDIUM PLATE/SOFTER DELAYED ATTACK	**LARGE 4** ENDLESS SPACE
MEDIUM 1 SMALL/MEDIUM ROOM		**GATE 1** POWER GATE
MEDIUM 2 SMALL/MEDIUM ROOM		**GATE 2** BRIGHT GATE

The **Overload Indicator** is actually a 3 colored LED that shows several input conditions. When the indicator glows amber, the input signal to the **MICROVERB II** is too low and the **Input** level should be increased. When the indicator glows green, the signal presently being fed to the **MICROVERB II** is a usable level. When the indicator glows red, the **MICROVERB II** is being

overloaded and the **Input** control should be decreased.

The **Bypass Jack**, located on the rear panel, bypasses the reverb signal and allows only the dry signal at the outputs. Any SPST type footswitch (such as the reverb footswitch that sometimes comes with amplifiers) will work for this function.

Operation

MICROVERB II is easy to use in almost any application. Simply do the following:

1. Apply a signal to either the left input jack for mono (used with a single instrument), or both left and right jacks for stereo.
2. Increase the **Input** control until the **Red** LED briefly lights on occasional program peaks. The LED should remain "green" most of the time. This indicates that there is sufficient level to maintain a good signal to noise ratio.
3. Increase the **Output** control until there is sufficient output level.
4. Adjust the **Mix** control until the desired ratio of dry to wet signal is achieved. **REMEMBER**: *In cases were the **MICROVERB II** is used with the aux sends of a recording console, the **Mix** control should remain all the way to the right (all wet signal).*
5. Select your program of choice.

As a good rule of thumb for selecting programs, rhythmic instruments such as drums and instruments with ostinato (quickly repeating) type patterns usually work best with smaller programs. Long melodic lines and pads generally sound better with larger rooms. *Remember, however, that this is only a starting point. Use your ears and select the program that sounds best to you!*

How to use MICROVERB II in your studio

The 16 programs in **MICROVERB II** offer a wide range of ambient spaces. Its compact, affordable format means that even the smallest 4 track studio can own more than one **MICROVERB II**. One of the greatest differences between home recordings and

MICROVERB®II *cont'd*

top flight record productions is in the quality and number of high performance reverb processors. Simply stated, the big studios have a lot of digital reverbs and the smaller studios usually don't. **MICROVERB II** changes all that.

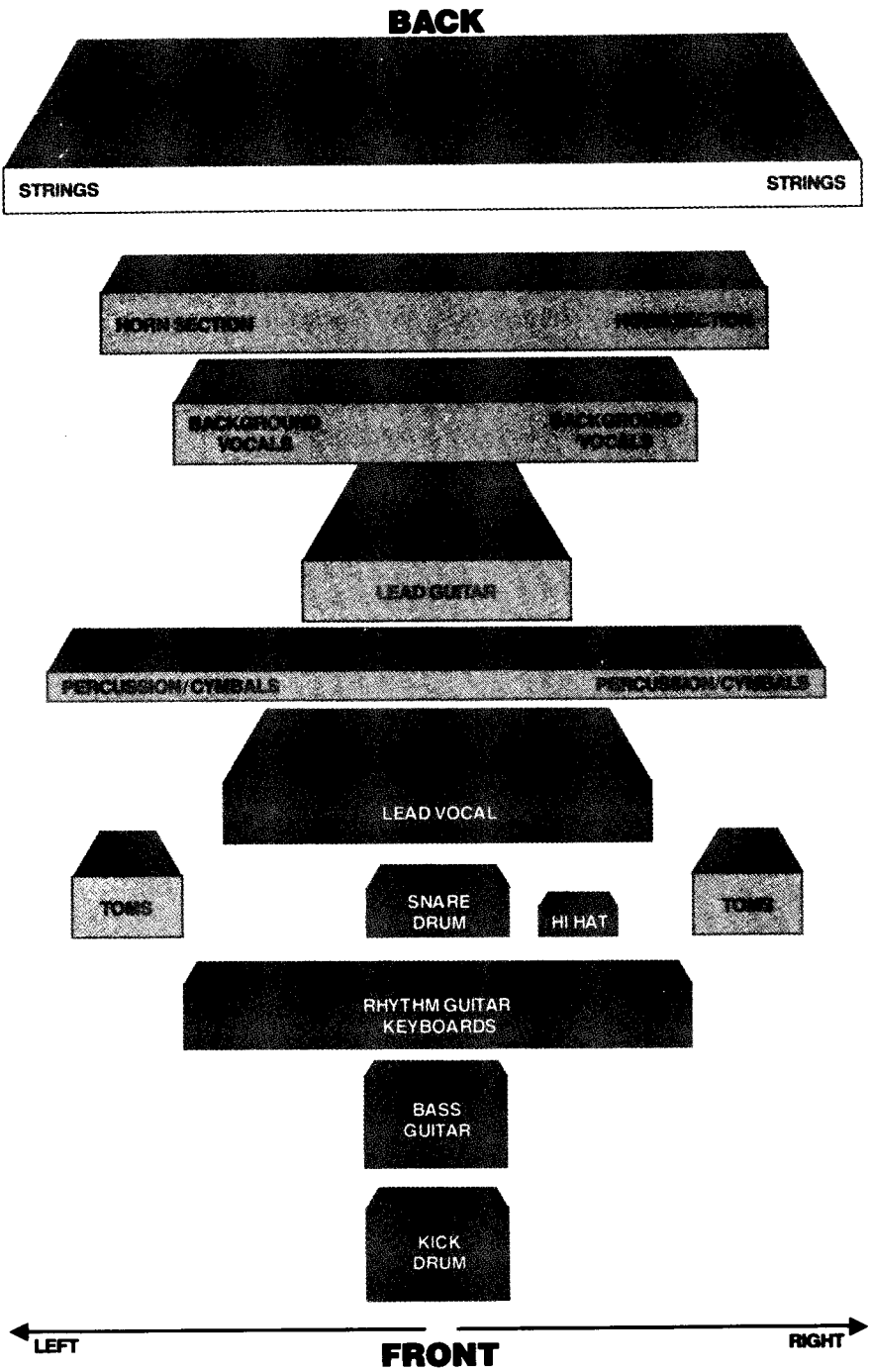
The illustration shows a typical reverb assignment for a no holds barred record production. While this setup may not represent the capabilities of your own recording efforts, it does illustrate why modern recordings sound so spacious and dramatic. The 16 bit processor in MICROVERB II allows you to create this sense of space with crystalline clarity and great resolution.

These programs were chosen for the purpose of creating a 'sound stage' for the musical performance. There is a well defined sense of three dimensional space that is occupied by each instrument: left to right and front to back. The blocks in the illustration indicate the physical placement of each instrument, and the spreading of the sound due to the psychoacoustic imaging characteristics of each program. Notice that the small programs have more of a centered spatial image while the large programs are wider, more open and spacious.

Recommended programs are listed by number next to each instrument. These program suggestions are based on current popular uses of digital reverb, but use your imagination and please experiment. Musical style, personal taste and creativity are your guidelines. This mix uses 9 MICROVERB II programs simultaneously. The affordability of MICROVERB II easily brings at least a portion of this mix within the reach of *all* studios.

The mix control settings apply to either the mix control on MICROVERB II for stand alone operation, or the settings can apply to the sends and receives of a mixing console. IMPORTANT! When used with the sends and receives of a mixing console the mix control on MICROVERB II should *always* be set fully clockwise, and the returns on the console panned hard left and right for the full stereo effect.

		MIX CONTROL	
	PROGRAM	**% Dry**	**% Wet**
SNARE DRUM	GATE 1 or 2	50	50
LEAD VOCAL	MEDIUM 4 OR LARGE 1	60	40
BACKGROUND VOCALS	MEDIUM 5	50	50
LEAD INSTRUMENTS (guitar, sax, synth, etc.)	LARGE 1	50	50
RHYTHM GUITAR AND KEYBOARDS	SMALL 1 or 2	50-0	50-100
HORN SECTION	LARGE 2	60-50	40-50
STRINGS	LARGE 1	50-0	50-100
PERCUSSION AND CYMBALS	LARGE 1 OR MEDIUM 2	60-70	40-30
TOMS	MEDIUM 3	50	50
KICK DRUM	SMALL 1	90	10
BASS GUITAR	SMALL 2	90	10
HI HAT	SMALL 1 or 2	80	20



Relative depth of the Soundstage (a function of wet/dry mix ratio and depth of reverb program).

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MIDDLE

FRONT

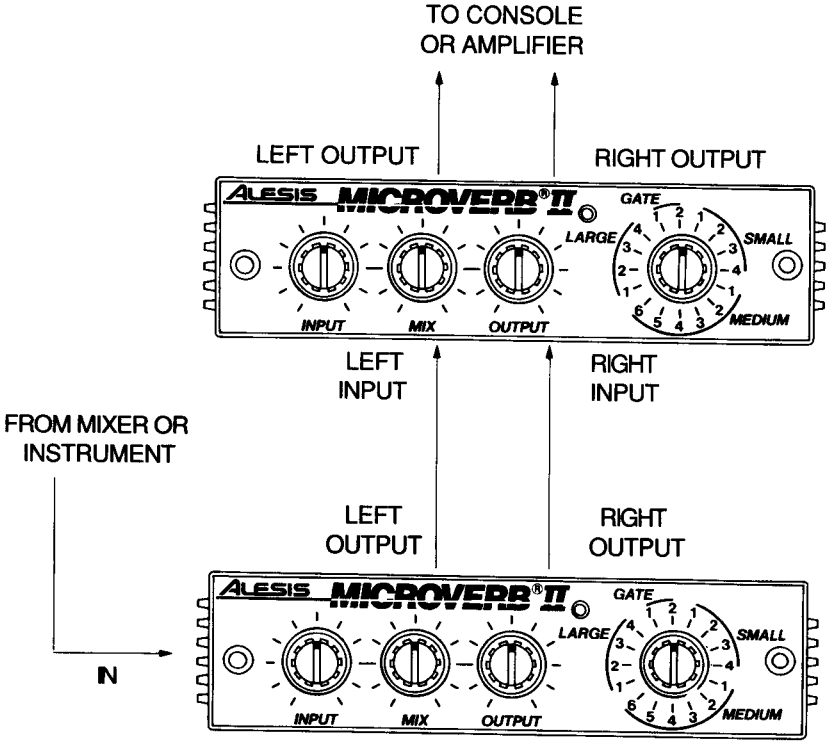
The width of each block represents the left to right stereo imaging. The front to back dimension of each block represents the relative sense of depth created by each MICROVERB program. The height of each block roughly indicates the frequency response of each instrument group. The shading (dark, medium and light) indicates each instrument's front to back placement in the mix, which is dependent on the wet/dry ratio of the mix control or reverb returns.

MICROVERB®II *cont'd*

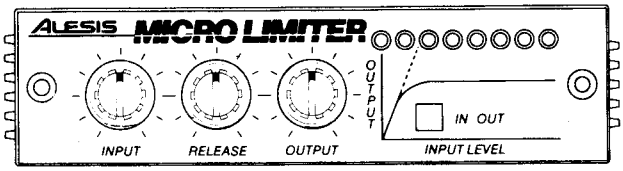
STACKING MICROVERB IIs

If 16 programs aren't enough, try stacking **2 MICROVERB IIs** together for a nearly endless number of reverb possibilities. Try starting with a Small Room feeding into a Medium or Large Room, then let your imagination run wild. ***See figure 5***

FIGURE 5 - STACKING MICROVERB IIs



MICRO LIMITER®



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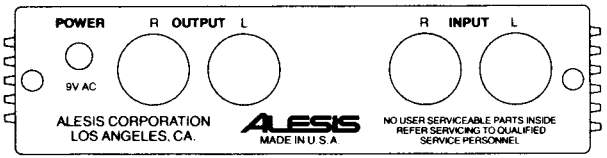


BACK

Description

The **Alesis MICRO LIMITER** is a true stereo in/stereo out compressor/limiter which is used for automatic gain riding, peak limiting, and special effects on both live and recorded instruments and vocals.

A compressor/limiter, which can be thought of as an automatic fader, very quickly reduces gain and attenuates the signal once it exceeds a predetermined level. The number of dB increase of the input signal needed to cause a 1 dB increase in the output signal of the compressor/limiter is called the *compression ratio.* Thus, for a ratio of 4 to 1, an 8 dB increase of input produces a 2 dB increase in output.

The **MICRO LIMITER** can be thought of as a compressor when the green LED s are lit because of the low compression ratio (2:1 to 8:1). A compressor is usually used to even out the volume fluctuations of an instrument or vocal and sometimes for special effects (See Applications).

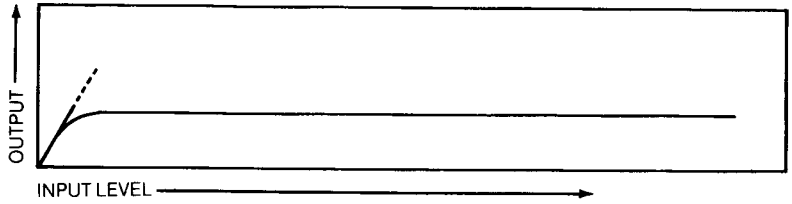
A compression ratio of 10:1 or above changes the compressor into a limiter. A limiter is used to prevent short term peaks (which add little information to the program material) from overloading amplifiers or tapes. It also can be used for certain types of special effects (See Applications). Once the yellow LED s are fired, the unit becomes a true limiter with the fourth LED indicating

MICRO LIMITER®cont'd

a compression ratio of about 16:1. Since we at Alesis feel that the **MICRO LIMITER** is more easily and quickly set up by just listening, we have eliminated these designations from the front panel of the unit.

The **MICRO LIMITER** employs the "soft-knee" approach, which means that there is always some compression applied to all signals, regardless of level, but the compression ratio is very low for low level signals and automatically increases as the signal level increases. ***See figure 6***

FIGURE 6



The **MICRO LIMITER** also employs program dependent attack time which allows the unit to be more musical sounding than other compressor/limiters on the market. Because of the unique characteristics of its detection circuitry, which have been especially tailored for use with a rhythm section, the unit can be thought of as a "power box", adding punch to bass and drums with very few of the undesirable side effects normally associated with compressor/limiters.

Unlike many other compressor/limiters on the market which require extensive technical knowledge for operation, the **MICRO LIMITER** was designed specifically with the musician in mind so it is both quick and easy to use and requires little training to achieve the desired results.

Controls

The **input** control sets not only the level entering the **MICRO LIMITER**, but also determines the the amount of limiting which will be applied. Therefore, the more input to the unit, the higher the

compression ratio. This ratio is indicated by the input LED's in conjunction with the graph on the front of the unit.

The **release** time control determines how quickly the limiter recovers from a signal applied to the input. Farthest to the left is the fastest release time while full to the right is the slowest.

The **output** control is provided for matching levels so that no signal level is lost due to the effects of limiting.

An **in/out** switch allows you to bypass the **MICRO LIMITER** for comparison purposes, if necessary.

Operation

Although specific operation of the **MICRO LIMITER** will vary per instrument or effect desired, basic operation of the **MICRO LIMITER** is the same. First, apply a signal to the unit's right or left input jack (or both jacks for stereo), taking care to use the same side for the output. Depress the **in/out** switch to the "in" position.

To determine the right amount of limiting, it is best to look at the meters on your console or tape machine and listen to the results. This is covered more in the next section (see application). Be aware that too much limiting will cause the program material to seem dull and lifeless.

Next, adjust the **release** time by starting with the control full to the left (counterclockwise). This is the most critical adjustment so it must be made carefully for best results. As a general rule, signals that are percussive or have a high treble content (like drums) should have a shorter release time, or the control set more to the left. Program that contains a lot of low frequencies (like bass) should have a longer release time, or the control set more to the right.

Care should be taken when the **release** control is set too far to the left (release time too short) as this setting may result in a

slight amount of harmonic distortion. Also, a phenomena called "pumping" or "breathing" might occur. This means that if a rapid succession of peaks were fed into the limiter (a staccato guitar or synth part, for instance), the limiter would respond to each peak of the signal, causing a rapid rise in background noise as the gain is increased after each peak. Both of these conditions are a by-product of the limiting process and can occur with any limiter. However, these conditions may never occur during your particular use as they are dependent on the type of instrument fed into the **MICRO LIMITER,** and the style of music played, as well as the setting of the **release** control. *Simply turn the release control a bit to the right and either the slight distortion or "pumping" and "breathing" will go away!*

If the **release** control is set too far to the right (release time too long), the program may sound dull and lifeless as a result of squashed dynamics. *When in doubt as to how to set the release control, it's better to keep it on a shorter setting (towards the left) since the* **MICRO LIMITER** *is most forgiving in operation at this point and you will most likely get the desired results.*

Finally, set the **output** control by switching the **in/out** control in, then out, and adjust the **output** control until the level is the same regardless of the position of the switch.

Application

The **MICRO LIMITER** can be made to perform several different functions, depending upon control settings. These are:

1. Even out the volume differences between registers on instruments. An example of this would be that some bass guitar strings are louder than others on some instruments. The use of a **MICRO LIMITER** produces a smoother bass line by matching the volumes of the different notes.

2. Minimize the changes in volume when a vocalist or instrumentalist momentarily changes his distance from the mike.

MICRO LIMITER®cont'd

3. Allow an instrument to be recorded hotter onto tape by preventing transients (high level peaks) from pinning the meter.

4. Make a vocal or instrument "sit" better in the mix by decreasing the signal peaks and increasing the lower volume parts. This actually enables the signal to be made significantly louder in the mix while increasing the overall signal level meter only slightly

5. Increase the "punch" of certain instruments such as bass or drums, by allowing the peak portion of the signal through while limiting the rest.

6. Increase the sustain of an instrument such as electric guitar by compressing its dynamic range.

7. Stop distortion due to temporary overloading by controlling transients.

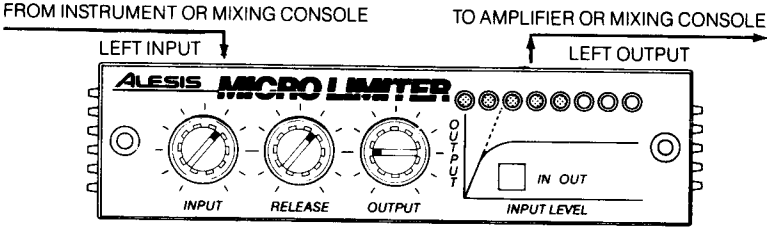
In the examples below, we can bypass the normal technical explanations by simply *watching the meters and listening.* This will get you the best results from your **MICRO LIMITER** with the least amount of hassle.

MICRO LIMITER for adding punch to an instrument

Adjust the **input** control until the instrument (or instruments) begins to brighten on the attack portion of the signal. This should be at about the first red LED. Be careful not to limit the signal too much as it will start to become very dull and lifeless. Also, be careful as to the setting of the **Release** control (Remember: more bass = longer setting). The **MICRO LIMITER**, unlike any other limiter on the market, is optimized for rhythm section work (bass and drums) allowing you to add the maximum punch while keeping undesirable side effects to a minimum. ***See figure 7***

MICRO LIMITER®cont'd

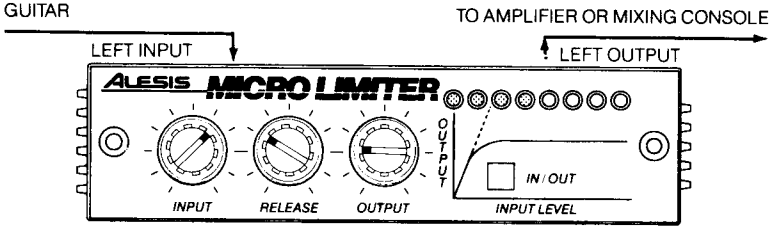
FIGURE 7



MICRO LIMITER for adding sustain for electric guitar

Adjust the **Input** control until the instrument "snaps" on the attack portion of the signal. Now increase the **Release** control until the desired amount of sustain is achieved (this may be all the way to the right). ***See figure 8***

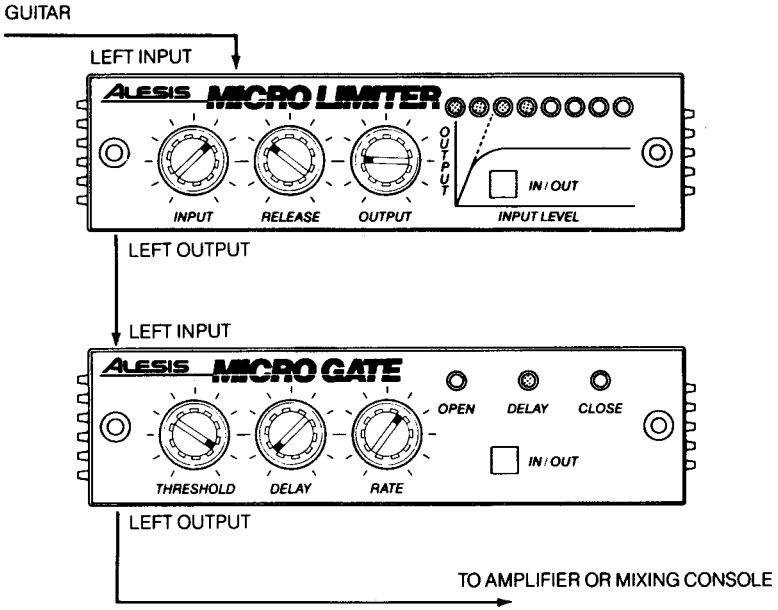
FIGURE 8



An unfortunate by-product of the increased release time is that the noise level will gradually surge to a high level when no signal is present. This may be overcome by inserting a **MICRO GATE** after the **MICRO LIMITER** to eliminate the noise. ***See figure 9***

MICRO LIMITER® *cont'd*

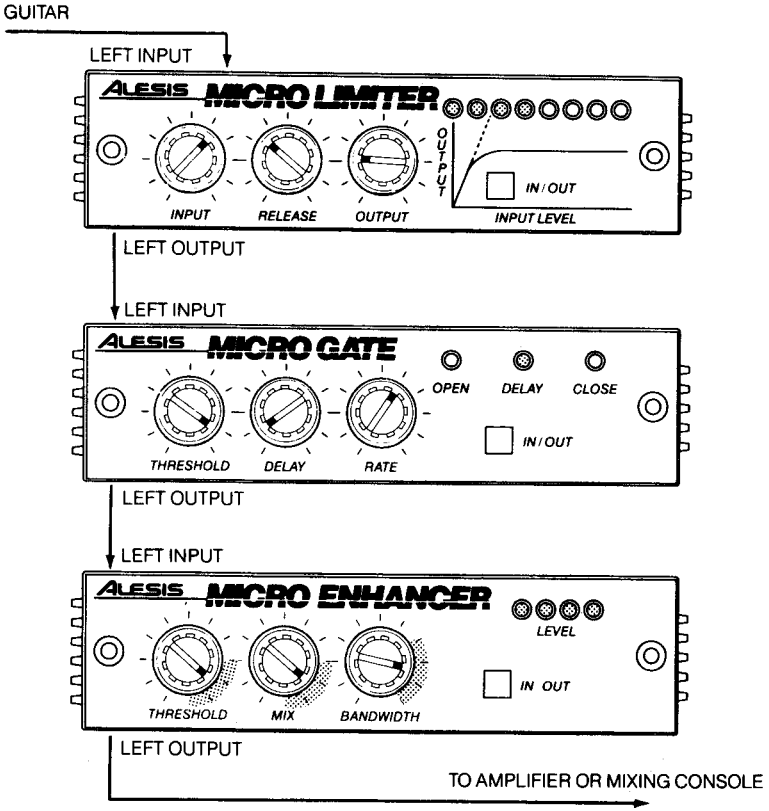
FIGURE 9



Another possible by-product of increased release time is that the input signal may become dull due to fact that the **MICRO LIMITER** continues to hold on to a note while the next one is played, which prevents transients from making it through. However, with the addition of a **MICRO ENHANCER** after your **MICRO LIMITER** and **MICRO GATE** you have the perfect setup for long, sustaining guitar! ***See figure 10***

MICRO LIMITER® *cont'd*

FIGURE 10



MICRO LIMITER for controlling level of an instrument or vocal

With the **in/out** switch in the "out" position, watch the VU or level meter, and/or listen to the differences in volume between notes. The VU or level meter will show a large amount of movement. Now switch **MICRO LIMITER** into the circuit and begin to increase the **Input** control until the notes all sound relatively the same, and the level meter is reacting less wildly to the signal. The meter should be moving somewhat, since if it stays in one position then it would be an indication that the signal is becoming overlimited

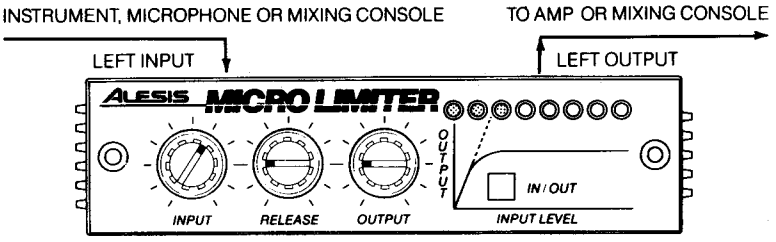
MICRO LIMITER® *cont'd*

and will lack dynamics.

Now adjust the **Release** and **Output** controls as in the section marked operation. ***See figure 11***

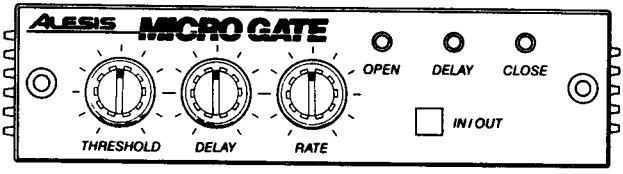
As a guide, only the first three or four LED s should be lit during this application.

FIGURE 11

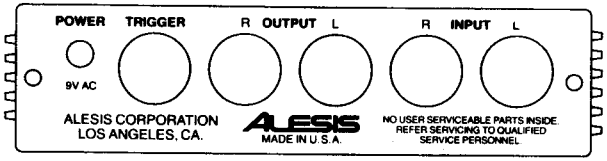


When set up in this manner, the **MICRO LIMITER** will act as a very effective peak limiter. This means that the **MICRO LIMITER** can be used to stop any distortion from occurring in any subsequent effects stages (any device plugged in after it) due to overload. The **MICRO LIMITER** performs well in this application because of its "soft knee" signal detection characteristics, which means that the higher the signal peak is, the more limiting there will be.

MICRO GATE®



FRONT



BACK

Description

The **Alesis MICRO GATE** is a true stereo in/stereo out noise gate. As the name suggests, a noise gate is sort of an electronic fence gate. When there is enough pressure on the gate (the signal is loud enough), the gate will open to let the signal through. You can control how much level it will take to open the gate (or how much pressure), how long the gate will stay open, and how fast it will close. Because of this amount of control, the **MICRO GATE** can be set to eliminate any noises, clicks, or buzzes which might be a component of the signal by closing the gate (turning off) either when a signal is not present, or when the signal drops below a preset threshold (or pressure). The **MICRO GATE** will not actually eliminate all noise that is a component of the signal, just the noise that exists when the signal is not present. This is true of any gating device.

It can also be used for a variety of special effects such as gating the reverb on a snare drum to achieve the popular 80's style drum sound effect, or tightening up the sound of a live drum kit by suppressing leakage between drum mics.

MICRO GATE®cont'd

Controls

The **Threshold** control sets the point at which the **MICRO GATE** will open (let the signal through). Turning this control clockwise (to the right) lowers the threshold point, making the gate easier to trigger.

The **Rate** control determines how fast the **MICRO GATE** will close, with the fastest position being all the way to the right (clockwise). This can also be thought of as a release time control.

A **Delay** control allows the user to determine how long the **MICRO GATE** will wait before closing after a signal has dropped below the threshold.

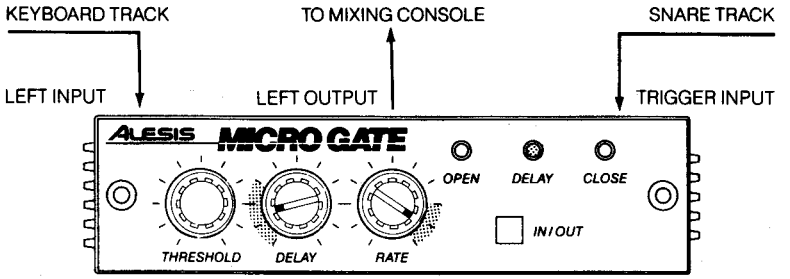
A series of colored LED s are also included to indicate the current status of the **MICRO GATE**. A red "**Close**" LED indicates that the gate is closed and no signal is being allowed through. A green "**Open**" LED indicates the the gate is open, having risen above the threshold point, and signal is flowing freely through the unit. The yellow "**Delay**" LED indicates that the signal has dropped below threshold and the **MICRO GATE** is waiting for a period of time (determined by the delay control) before closing.

An **External Trigger** input can also be found on the rear panel. This input is sometimes called a "key" input. The function of the **External Trigger** input is to allow the **MICRO GATE** to open by being triggered from a source other than the one plugged into the inputs. An example of this is when an instrument track (such as a keyboard), which has been played with imprecise rhythm, can be tightened up and the track saved by triggering (or "keying") from another instrument which was played with more precise time. In this case, the output of the snare drum track is plugged into the **Trigger Input** of the **MICRO GATE** which then has the keyboard track plugged into its normal inputs. Every time the snare drum hits, the gate will open allowing the sound of the keyboard through in perfect sync. The length of time that the keyboard stays on will be determined by adjusting both the **Rate** and **Delay**

MICRO GATE® *cont'd*

controls. ***See figure 12***

FIGURE 12



An **In/Out** switch is provided to bypass the **MICRO GATE** if desired, or for comparison purposes.

Operation

After connecting your **MICRO GATE** (refer to the section on installation), make sure that the unit is ready for operation by making sure that the **in/out** switch is depressed. This is important since the status LED's will flash even if the gate function is bypassed.

While applying a signal to the **MICRO GATE**, turn the **Threshold** control slowly to the right until the green **"Open"** LED flashes. Now slowly turn the **Rate** control to the right until the gate turns off at the exact moment that the signal stops. This adjustment is critical since the signal will sound "chopped" if set too far to the right, and not enough noise will be eliminated if set too far to the left. As a final step, turn the **Delay** control slowly to the right (starting from full counterclockwise) until the smoothest transition from open to closed gate is achieved.

As a general rule, percussive types of instruments (like drums) will require shorter rates, while sustaining types of instruments (like guitars or pianos) will require longer rates. The **Delay** control is most useful for these sustaining types of programs as it will

allow you to maintain the signal length without the "chopped" effect while keeping the noise floor to an absolute minimum.

Be careful also that the gate doesn't "chatter", which means that the gate is being triggered by spurious noise, clicks, and pops caused by the **Threshold** being set just a bit too low. A cure for this is to connect a **MICRO LIMITER** before the gate in order to set the signal to a strong, constant level. This is especially true when gating drums, when leakage from other drums (toms picked up by the kick drum mic, for instance) will often cause the gate to open prematurely.

Application

The **MICRO GATE** is useful in many everyday recording and performing situations. Below are just a few of the most common ways to put this device to use.

Please remember that the control settings will vary depending upon the actual equipment used, the style of music being played, and the particular playing style of the musician. The settings are nominally correct however, and should serve as a reasonably good starting point.

MICRO GATE with individual instruments or microphones

The **MICRO GATE** can be used as a noise suppressor (or "noise gate") with either guitars, basses, keyboards, or microphones when recording or playing live. When set up correctly, the **MICRO GATE** will turn off at the end of each signal envelope thereby keeping annoying hums and buzzes out of the system.

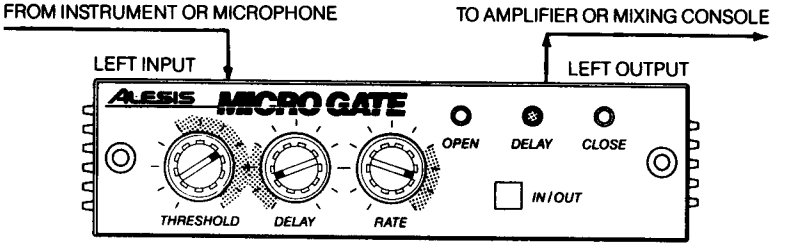
Plug the guitar, keyboard, or other instrument directly into either the left or right input of the **MICRO GATE**. Now plug the same side output (if you used the right input then you must use the right output) directly into either a mixing console or amplifier.

Proceed as in the above section (Operation), taking care to set

MICRO GATE® *cont'd*

the **Rate** control to where the signal of the instrument or microphone is not "clipped" when the gate closes. ***See figure 13***

FIGURE 13

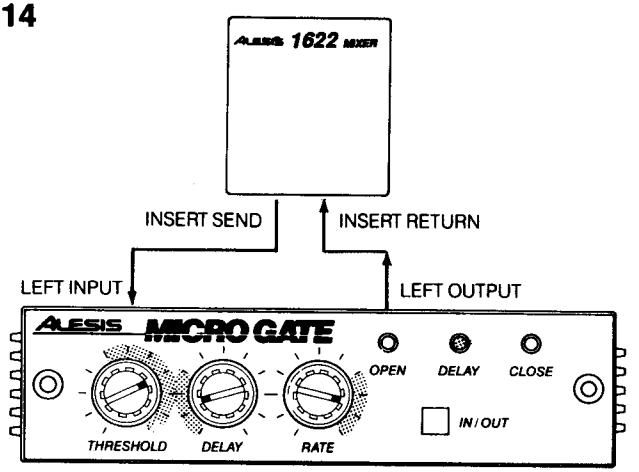


MICRO GATE with a mixing console

The **MICRO GATE** can also be used to eliminate noise and buzzes, and generally "tighten-up" recorded tracks by being plugged into the insert send and returns of the input channels of a mixing console. ***See figure 14***

If the mixing console does not have insert jacks, or if the insert

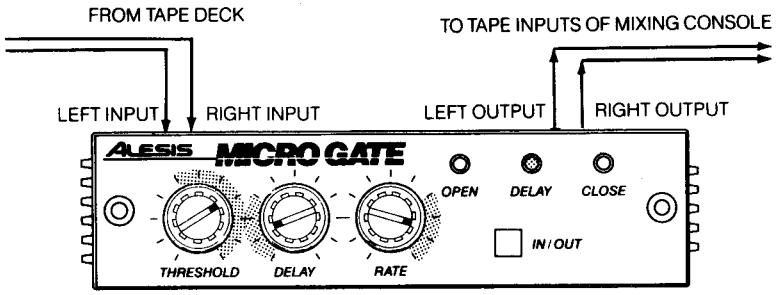
FIGURE 14



MICRO GATE® *cont'd*

jacks are dedicated to another effect, it is possible to plug the **MICRO GATE** in between the outputs of the tape machine and the tape inputs of the console. ***See figure 15*** Operation is the same as the above example.

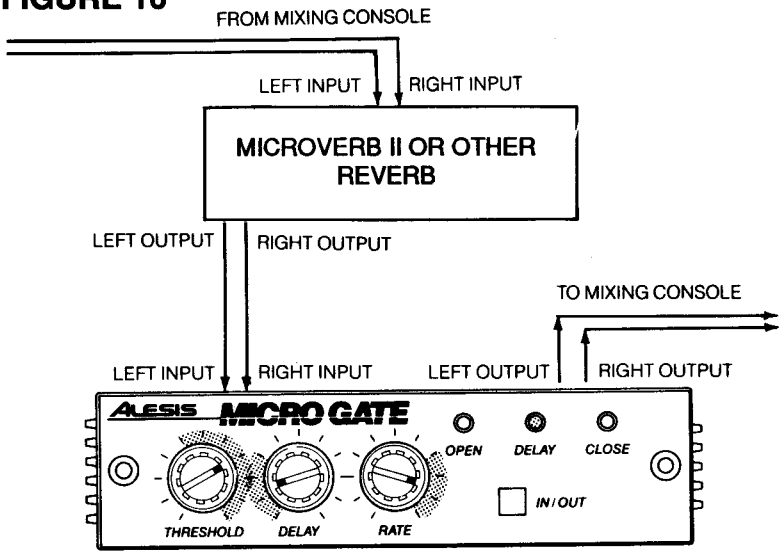
FIGURE 15



MICRO GATE as a variable decay for MICROVERB II or other reverbs

The use of a **MICRO GATE** in conjunction with a **MICROVERB II** or any other reverb with fixed decay characteristics will open up a whole new realm of flexibility. ***See figure 16***

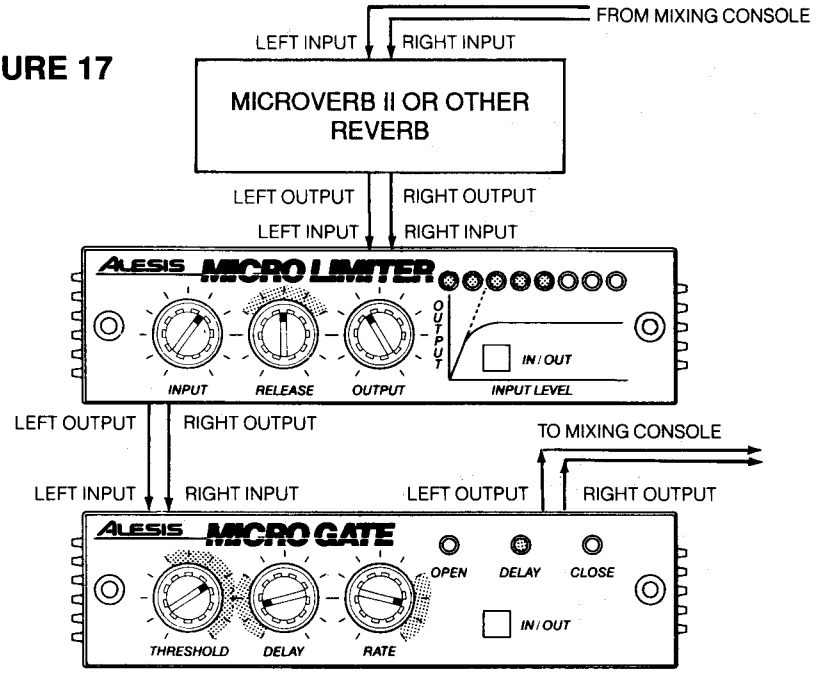
FIGURE 16



MICRO GATE® *cont'd*

To vary the reverb decay time, turn the **Threshold** control to the right until the green "**Open**" LED is lit, then slowly turn the rate control clockwise until the desired decay time is achieved. The "correct" reverb time is usually determined by the tempo of the music, and how busy the arrangement is. For example, if many instruments use the same reverb or the parts contain fast passages with lots of 16th notes, the mix will usually sound muddy and confused if the reverb time is too long. In this case, just turn the **Rate** control a bit more to the right to shorten the decay time, which will leave the sense of spaciousness while lessening the muddiness. The correct length would be when the reverb of each successive note dies just as the next note sounds. It's also possible to create your own special effect gated drum sounds, as heard on most contemporary records. First, select a large room type program (or any medium or large program that sounds good to you) on the digital reverb. The best programs for this effect have the smoothest decay tails (the gate will "chatter" if the tail isn't smooth). Now turn the **Rate** control far to the right so that the gate closes abruptly, making sure that the reverb length is

FIGURE 17



MICRO GATE® *cont'd*

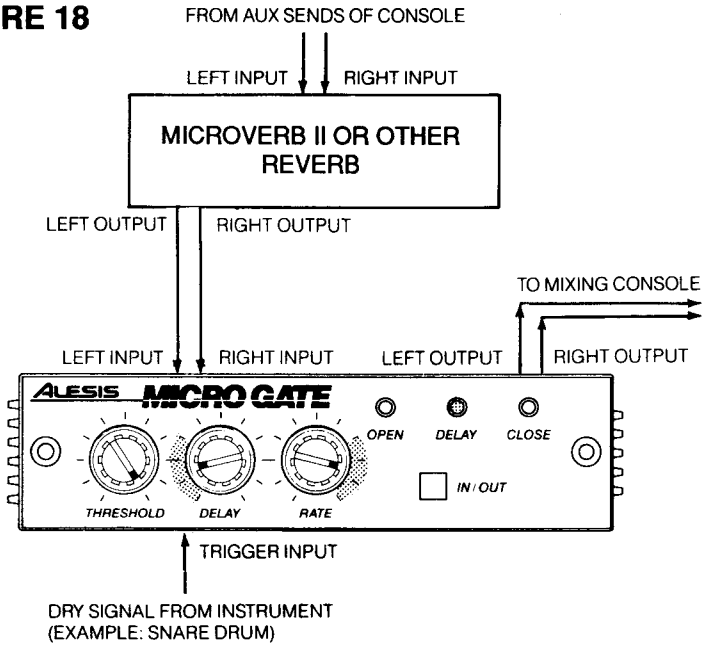
not so long as to spill over onto the next drum beat. Vary the delay control for a smoother release if necessary. For an even more striking effect, insert a **MICRO LIMITER** between the reverb and the **MICRO GATE**. ***See figure 17***

The limiter should be set for maximum "punch" settings with a high degree of limiting (at least the first red LED should light). Set the release time starting at about halfway. The object here is to set the release time (rate control) as long as necessary to keep the reverb "tail" smooth.

MICRO GATE using the trigger function for gated reverb

Another way to achieve a gated instrument sound (like a snare drum) with a minimum of gate chatter is to feed the trigger input of the gate with the dry signal of the instrument while gating the reverb in the above fashion. This assures the ultimate in chatter-free operation as the rate is now controlled by the envelope of the instrument itself. ***See figure 18***

FIGURE 18



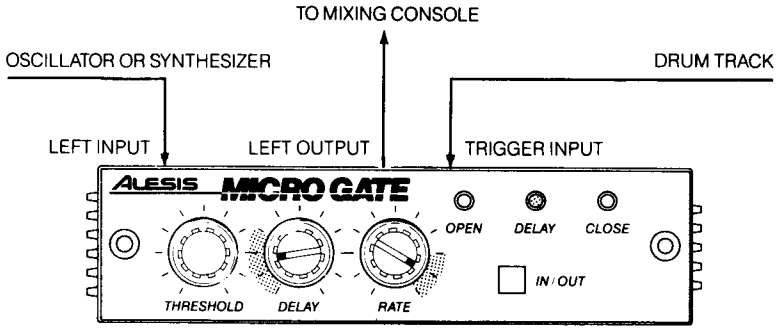
MICRO GATE® *cont'd*

MICRO GATE using the trigger function for special effects

Although the **MICRO GATE** trigger function is usually used for syncing effects between two instruments ***see figure 19,*** it can also be used for several interesting special effects and enhancements.

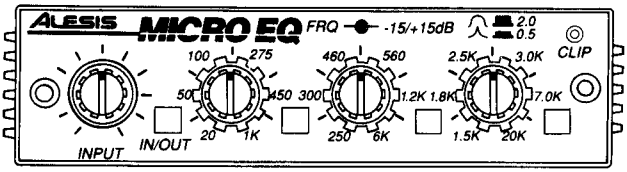
The most common of these is the tuning and fattening of a drum (a kick drum, for instance) by adding a low oscillator tone of about 60hz (i.e. from a synthesizer) to the drum which is then synced by the **MICRO GATE**. A signal from the drum is then applied to the **Trigger** input causing the gate to open when the drum hits. The output of the **MICRO GATE** should then be mixed back into the drum sound at the mixing console. By tuning the oscillator between 40 and 80 Hz, you will be able to add both a fullness to the drum as well as tune the drum to a specific pitch.

FIGURE 19

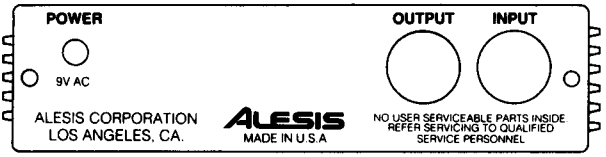


A variation to the above would be to inject white noise from a synthesizer instead of an oscillator tone. This would add more snap or "snares" to a snare drum. ***See figure 19***

MICRO EQ



FRONT



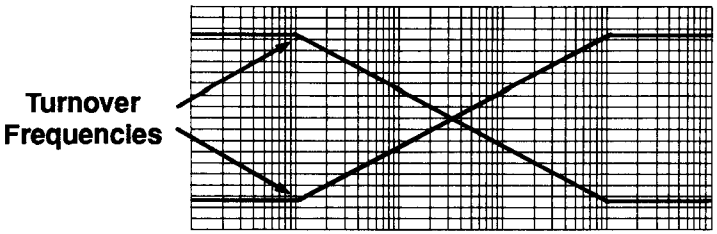
BACK

Description

The **Alesis MICRO EQ** is a mono 3 band semi-parametric equalizer with sweepable frequencies and switchable bandwidth controls.

Equalization, or EQ, is the ability to control the harmonic balance, or timbre, of an instrument, and can be used to compensate for frequency deficiencies in either microphones or sound equipment. There are three different types of equalizers, all of which you are probably familiar with.

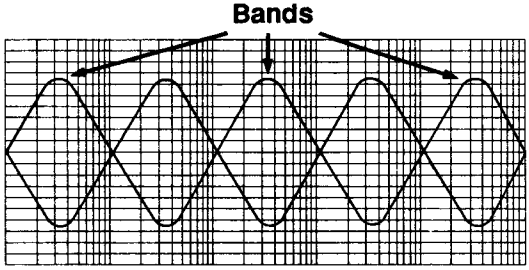
The most common type of equalizer is the *Shelving* type. This is the simple bass and/or treble control normally found on stereo systems, guitar amplifiers, etc. The term shelving refers to the amplitude plateau, or shelf, beginning at the turnover point(s) (100 Hz and 10kHz in the diagram) and extending to the high (or low) end limit of the equalizer. The frequencies below (or above) the turnover point of the shelf are also affected, but less and less so the further away from the turnover point.



MICRO EQ cont'd

The second type of equalizer is the *Graphic Equalizer* which most people have seen on sound systems, some home stereos, and many guitar type amplifiers. This device gets its name from the fact that the control settings actually form a graph of the frequency spectrum. While shelving equalizers work on broad sections of the frequency bandwidth, a graphic equalizer is slightly more sophisticated than the Shelving equalizer as it divides the frequency spectrum into sections called bands. ***See figure 20***

FIGURE 20

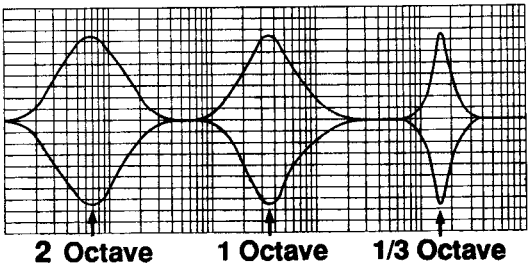


The range of frequencies boosted or cut in each band is referred to as the *bandwidth*. This *bandwidth* is normally measured in musical octaves, so on a simple graphic equalizer containing only 5 bands, each band would have a 2 octave bandwidth, and a more sophisticated graphic equalizer with 31 bands would have a 1/3 octave bandwidth.

Generally speaking, a 1/3rd octave equalizer is normally used for room tuning and feedback control while a 1 or 2 octave equalizer is used for normal tonal shaping. ***See figure 21***

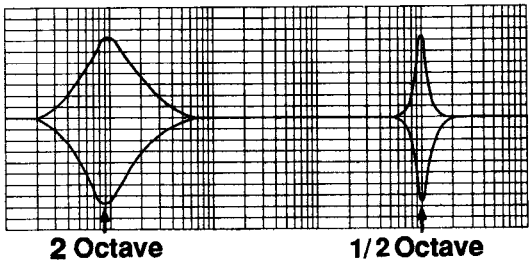
MICRO EQ cont'd

FIGURE 21



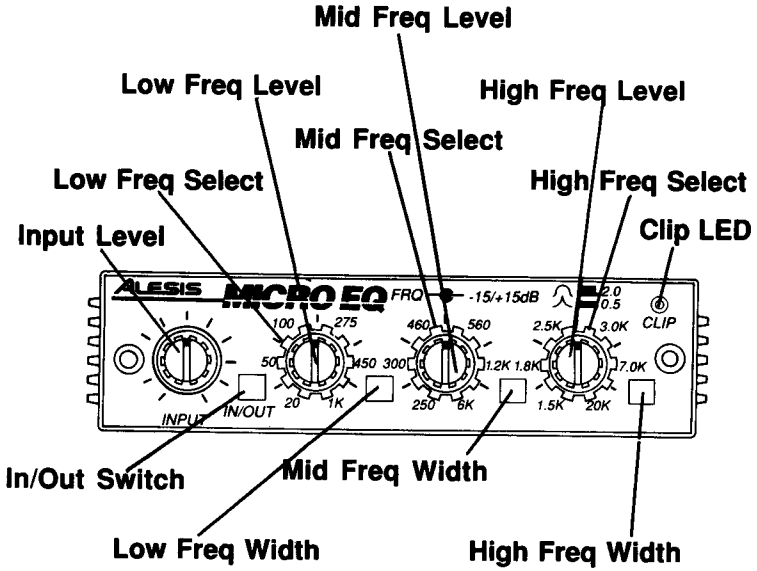
By far the most versatile equalizer is the *parametric* type such as the **MICRO EQ.** While the graphic EQ always has a bandwidth that is fixed, the parametric allows for the bandwidth to be varied. This means that far fewer equalizer sections are required for either tonal shaping or feedback suppression since the offending frequencies can be dialed in precisely. Although many parametric equalizers have a continuously variable bandwidth, it has been found that a switchable bandwidth from wide to narrow is not only sufficient but far easier and faster to use. Hence, the **MICRO EQ** is designed with a bandwidth control switchable from 2 octave (wide) to 1/2 octave (narrow), and thus is referred to as *semi-parametric.* ***See figure 22***

FIGURE 22



MICRO EQ *cont'd*

Controls



The **Input** control sets the level of signal that is applied to the **MICRO EQ**. Since adding large amounts of equalization can sometimes lead to overload of the units connected after the **MICRO EQ**, the **Input** control will serve to maintain a distortion free signal by controlling the overall input level.

An **In/Out** switch allows the user to bypass the **MICRO EQ** for comparison purposes.

The **Lo Freq Select** (the outer ring of the dual concentric knob) allows you to select any frequency between 20 Hz and 1kHz.

The **Lo Freq Level** (the inner ring of the dual concentric knob) allows you to either boost or attenuate any frequency selected by the **Lo Freq Select** knob up to a maximum of ±15dB.

The **Lo Freq Width** controls the bandwidth curve to select the one best suited for your application. With the switch in the "out"

MICRO EQ *cont'd*

position, the bandwidth is 2 octave while with the switch in the depressed position, the bandwidth is 1/2octave.

The **Mid Freq Select** (the outer ring of the dual concentric knob) allows you to select any frequency between 250 Hz and 6kHz.

The **Mid Freq Level** (the inner ring of the dual concentric knob) allows you to either boost or attenuate any frequency selected by the **Mid Freq Select** knob up to a maximum of ±15dB.

The **Mid Freq Width** operates identically to the **Lo Freq Width** switch.

The **Hi Freq Select** (the outer ring of the dual concentric knob) allows you to select any frequency between 1.5k and 20kHz.

The **Hi Freq Level** (the inner ring of the dual concentric knob) allows you to either boost or attenuate any frequency selected by the **Hi Freq Select** knob up to a maximum of ±15dB.

The **Hi Freq Width** operates identically to the **Lo Freq Width** switch.

The **Clip** LED lights when the **MICRO EQ** is being fed too hot a signal, and therefore overloaded. When this occurs, turn down the **Input** control until the **Clip** LED no longer fires.

Operation

The best way to use your **MICRO EQ** is as follows:

1. Start by turning the **Level** control of the desired frequency band (low, mid, or high) to maximum.
2. Sweep the frequencies with the **Frequency Select** knob until you find the frequency that you wish to cut. (If the **Clip** LED should light, turn down the **Input** control).
3. Now, back off the **Level** control until the new amplitude results in a pleasing sound.

MICRO EQ *cont'd*

4. Depress the **Width** switch (lo, mid, or high) to see if the result is more satisfying in the 1/2 octave (in) position or 2 octave (out).

If you should find that you are adding large amounts of EQ in all 3 bands, then the overall effect is the same as simply raising the volume level. In this case, do the following:

1. Start by turning the **Level** control of the desired frequency band (lo, mid, or high) to maximum.
2. Sweep the frequencies with the **Frequency Select** knob until you find the frequency that you wish to cut. (If the **Clip** LED should light, turn down the **Input** control)
3. Now, back off the **Level** control until you are *cutting* the level instead of boosting.
4. Depress the **Width** switch (lo, mid, or high) to see if the result is more satisfying in the 1/2 octave (in) position or 2 octave (out).

As with any signal processor, the **MICRO EQ** should be used with discretion since too much EQ, indiscriminately used, can make the sound worse instead of better. Although it is a wonderful device and will help your sound a lot, remember that a little goes a long way.

Below is a chart that will help you zero in on the key frequencies of some popular instruments.

Remember: The chart serves only as a starting point. Ultimately, you must use your ears as a guide.

Bass Guitar	**Attack or pluck is increased at 700 or 1kHz, bottom added at 60 or 80 Hz, string noise at 2.5kHz**
Bass Drum	**Slap at 2.5kHz, bottom at 60 or 80 Hz, air at 10kHz**

MICRO EQ *cont'd*

Snare	Fatness at 240Hz, crispness at 1 to 2.5kHz, bottom at 60 or 80 Hz
Hi hat and Cymbals	Shimmer at 7.5 to 10kHz, clang or gong sound at about 200 Hz
Toms	Attack at 5kHz, fullness at 240Hz
Floor toms	Attack at 5kHz, fullness at 80 or 120 Hz
Electric Guitar	Body at 240Hz, clarity at 2.5kHz
Acoustic Guitar	Body at 240Hz, clarity at 2.5kHz, bottom at 80 or 120Hz
Piano	Bass at 80 or 120Hz, presence at 2.5 to 5kHz, air at 10kHz, honky-tonk sound at 2.5kHz as bandwidth is narrowed, resonance at 40 to 60hz
Horns	Fullness at 120 or 240 Hz, shrill at 7.5 or 5kHz
Voice	Fullness at 120Hz, boominess at 200 to 240 Hz, presence at 5kHz, sibilance at 7.5kHz, air at 12 to 15kHz
Harmonica	Fat at 240Hz

Conga	**Resonant ring at 200 to 240Hz, presence and slap at 5kHz**

In summary, the frequency spectrum can be divided up into six important sections. The following is de Gar Kulka's description reprinted from his article in Recording Engineer/Producer Magazine:

1. The very low bass between 16 and 60 Hz which encompasses sounds which are often felt more than heard, such as thunder in the distance. These frequencies give the music a sense of power even if they occur infrequently. Too much emphasis on this range makes the music sound muddy.

2. The bass between 60 and 250 Hz contains the fundamental notes of the rhythm section, so EQing this range can change the musical balance, making it *fat* or *thin*. Too much boost in this range can make the music sound *boomy*.

3. The midrange between 250 and 2000 Hz contains the low-order harmonics of most musical instruments and can introduce a telephone-like quality to music if boosted too much. Boosting the 500 to 1000 Hz octave makes the instruments sound horn-like, while boosting the 1 to 2kHz octave makes them sound tinny. Excess output in this range can cause listening fatigue.

4. The upper midrange between 2 and 4kHz can mask the important speech recognition sounds if boosted, introducing a lisping quality into a voice and making sounds formed with the lips such as "m", "b", and "v"

indistinguishable. Too much boost in this range, especially at 3kHz, can also cause listening fatigue. Dipping the 3kHz range on instrumental backgrounds and slightly peaking 3kHz on vocals can make the vocals audible without having to decrease the instrumental level in mixes where the voice would otherwise seem buried.

5. The presence range between 4 and 6kHz is responsible for the clarity and definition of voices and instruments. Boosting this range can make the music seem closer to the listener. Adding 6dB of boost at 5kHz makes a mix sound as if the overall level has been increased by 3 db. As a result of this effect, many record companies and mastering engineers make a practice of adding a few db of boost at 5kHz to make their product sound louder. Reducing the 5kHz content of a mix makes the sound more distant and transparent.

6. The 6 to 16kHz range controls the brilliance and clarity of sounds. Too much emphasis in this range, however, can produce sibilance on vocals.

Application

Since the **MICRO EQ** can be used with any electric instrument or microphone requiring tonal alteration, here are some generic suggestions as to setup. Since each instrument will sound different due to the uniqueness of the instrument itself, the type of music being played, the arrangement, and the touch of the player, you must use your ears (and the above chart) to ultimately find the correct settings.

MICRO EQ with Rockman™

The Rockman™ has become a staple of home recording studios thanks to its ease of use and great sounds. When connected directly into a console, however, the sound of the Rockman™ does differ from what you normally hear in the headphones due to

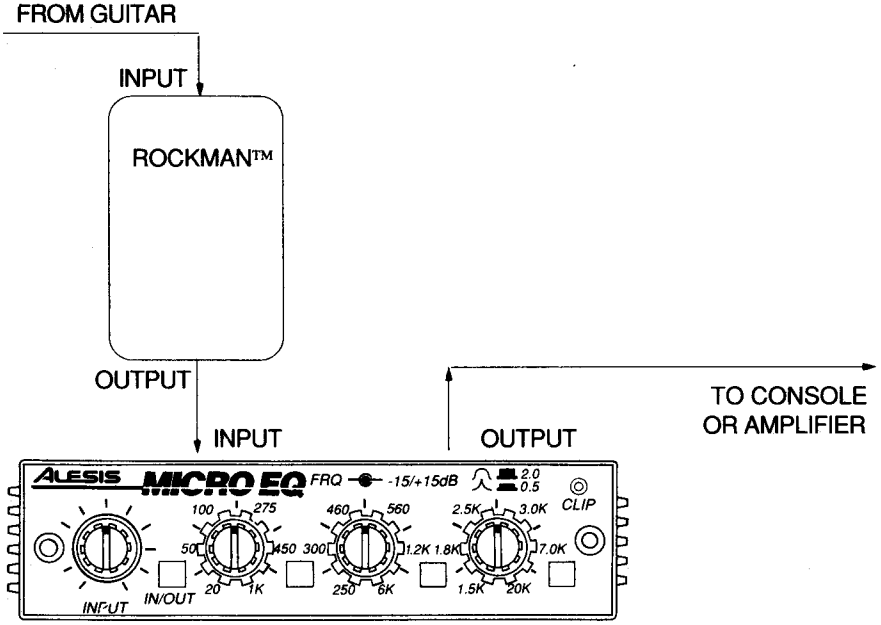
MICRO EQ *cont'd*

the tonal coloration that the supplied headphones provide. Therefore, Scholz R&D suggest that you make the following EQ adjustments when going direct.

+3 to +6 at 4kHz
+3 to +6 at 500Hz
-4 to -6 at 200Hz

The **MICRO EQ** provides the perfect accompaniment for the Rockman™, restoring the lost tonal qualities that you are used to. *Use 2* ***MICRO EQ****'s for stereo.*

FIGURE 23 - MICRO EQ WITH ROCKMAN™

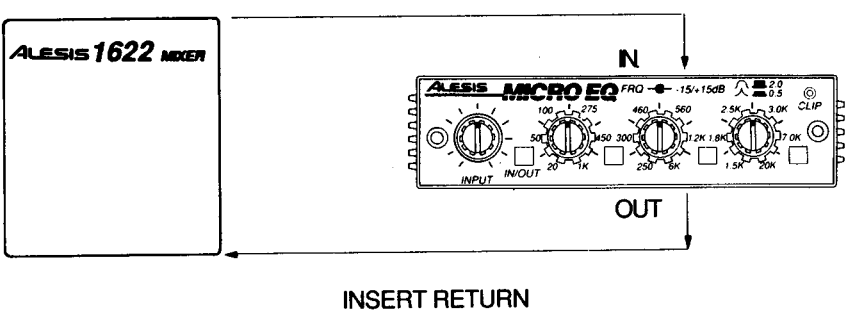


MICRO EQ Connected to a Recording Console

Generally speaking, it is best to use the insert jacks of a console when you want to use the **MICRO EQ** on an instrument. This allows for the individual control of the signal of just one vocal or instrument without using an aux send, which can be better used for sending signal to either a **MICROVERB II** or **MICRO ENHANCER**.

MICRO EQ *cont'd*

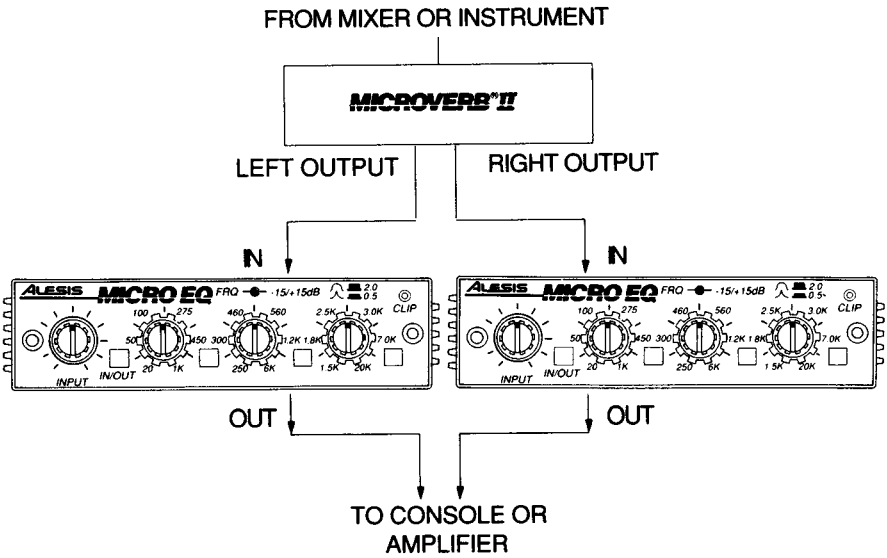
FIGURE 24 - MICRO EQ CONNECTED TO RECORDING CONSOLE



MICRO EQ With Reverbs Such As MICROVERB II

Many times a reverb sound is required that is artificially bright. The **MICRO EQ** can easily provide any coloration that might be required to enhance your mix. Connect as follows:

FIGURE 25 - MICRO EQ WITH REVERB



MICRO EQ *cont'd*

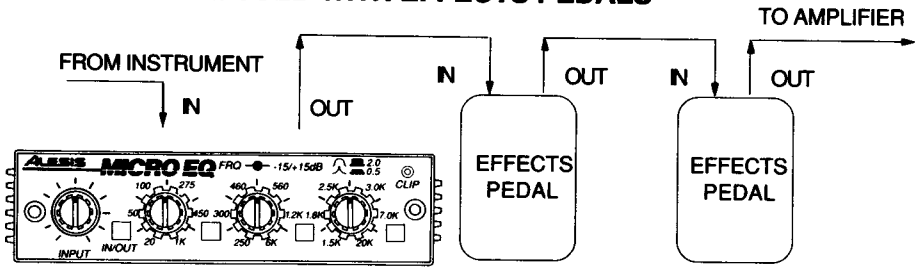
MICRO EQ In-Line With Other Effects

To restore a loss of high end, which is sometimes a by-product of effects pedals, the **MICRO EQ** should be connected first in series before any other effects. This will ensure that only the instrument signal is EQed and not any noise from the pedals.

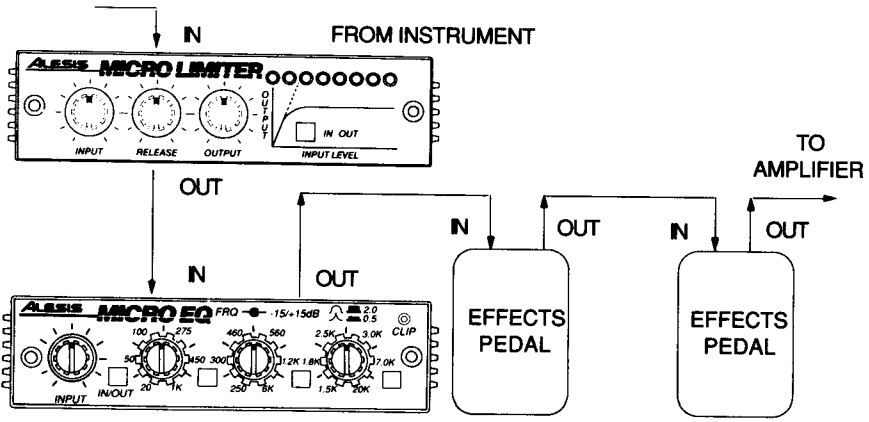
The exception to this is when both a **MICRO LIMITER** and a **MICRO EQ** are used at the same time. In this case, the limiter should be first in line in order to keep the signal constant to all the effects.

FIGURE 26

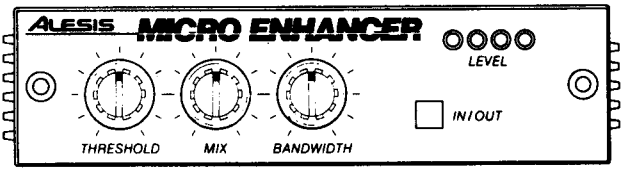
A. MICRO EQ USED WITH EFFECTS PEDALS



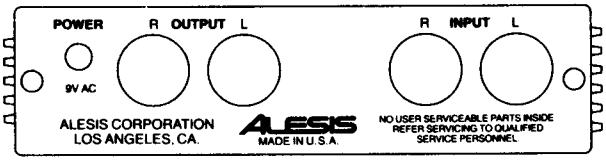
B. MICRO EQ AND MICRO LIMITER USED WITH EFFECTS PEDALS



MICRO ENHANCER®



FRONT



BACK

Description

The **Alesis MICRO ENHANCER** is a stereo in/stereo out device that adds high frequency information (high end) to program material in a different way than a normal high frequency equalizer. Unlike most other equalizers, which boost noise as well as the signal, the **MICRO ENHANCER** only boosts treble information when it already exists in the program material, thus adding the high end sparkle without boosting noise. Also, the **MICRO ENHANCER** differs from, and is superior to, other types of psychoacoustic enhancers on the market since others use a distortion process which is ultimately objectionable.

The **MICRO ENHANCER** can be thought of as a dynamic semi-parametric equalizer, in a boost only mode, as it is capable of performing many of the functions of a parametric. By varying the balance between the **Threshold**, **Mix**, and **Bandwidth** controls, a wide variety of treble boost effects may be achieved, all without the addition of any noise normally associated with equalizers, or distortion elements normally associated with psychoacoustic enhancers.

Controls

The **Threshold** control, in conjunction with the multicolored

MICRO ENHANCER® *cont'd*

LED s, determines the slope, or the way the **MICRO ENHANCER** will work on high and mid frequencies.

The **Mix** control determines how much high frequency information is added to the signal going through the unit.

The **Bandwidth** control determines how much treble or mid-range is added to the signal. With the **Bandwidth** control counterclockwise (all the way to the left), only the very high frequencies are added; with the **Bandwidth** control at maximum (all the way to the right) upper and lower midrange frequencies are added as well.

An **In/Out** switch allows the user to bypass the **MICRO ENHANCER** for comparison purposes, if so desired.

Operation

After connecting your **MICRO ENHANCER** (refer to the section on installation), begin by turning the **Threshold** control to the right (clockwise) until the red LED lights. Make sure that the **In/Out** switch has been pressed to the "in" position or the LED s will not fire. This unit's LED s are not your typical input level indicators, but indicate the slope, or the way the **MICRO ENHANCER** will work on high and mid frequencies. This means that the sound will differ if the threshold is set so that the first green LED is lit from the sound when the red LED is lit. This is due to the fact that more high frequency energy is triggered as more LED s are triggered (the slope is altered). ***See figure 27A/27B***

FIGURE 27A

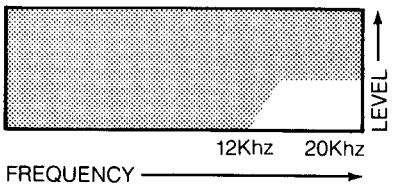
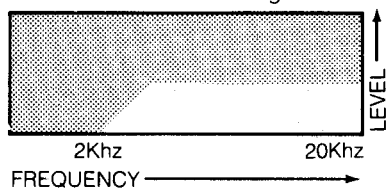


FIGURE 27B



MICRO ENHANCER® *cont'd*

Now begin to turn the **Mix** control to the right (clockwise) until the desired amount of high frequency boost is achieved. You can think of the **Mix** control as an amount control, as this is the one that will add the amount of high frequency boost desired to the signal (or signals) that you send to the **MICRO ENHANCER** .

Now turn the **Bandwidth** control until the desired balance of highs and midrange is achieved. Start with this control all the way to the right (clockwise) or at full *bandwidth*, and adjust it until the instrument or microphone reaches the point of greatest clarity. *Be careful to avoid adding excessive midrange which will make an instrument OR vocal sound harsh.* See the next section for more specific applications.

In order to compare the enhanced sound to the original sound, depress the **In/Out** button.

You should experiment with different settings of the **Threshold** control and LED indicators as the sound will vary dramatically between various settings of the **Threshold**, **Mix,** and **Bandwidth** controls. Also, don't be afraid to drive the unit hard so as to keep the red LED on all the time as this is when the **MICRO ENHANCER** is operating at its maximum.

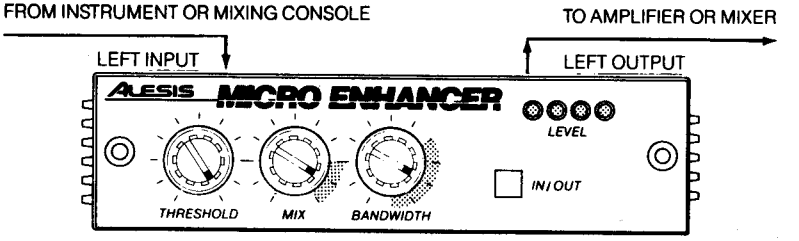
Application

The **MICRO ENHANCER** is an extremely versatile device and may be used in a variety of applications. During recording or playing live, the **MICRO ENHANCER** can be used as the ultimate, and quietest treble booster on guitars, keyboards, and vocal and instrument mics.

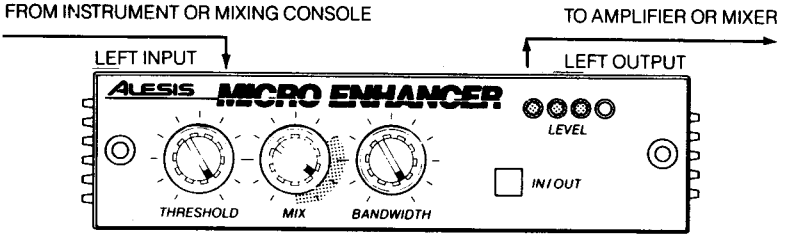
Here are just a few possibilities and helpful hints. Please remember that the control settings will vary depending upon the actual equipment used, the style of music being played, and the particular playing style of the musician. The settings are nominally correct however, and should serve as a reasonably good starting point.

MICRO ENHANCER® *cont'd*

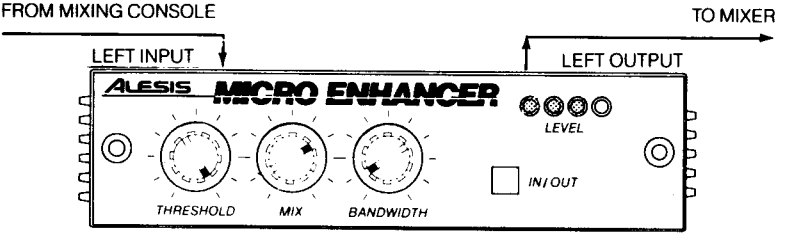
MICRO ENHANCER on Guitar
FIGURE 28



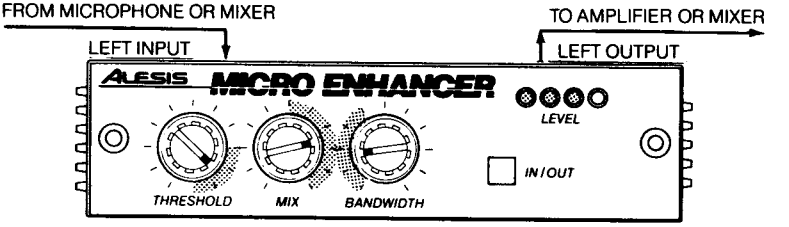
MICRO ENHANCER on Electric Bass
FIGURE 29



MICRO ENHANCER on Acoustic Piano
FIGURE 30



MICRO ENHANCER on Vocals
FIGURE 31

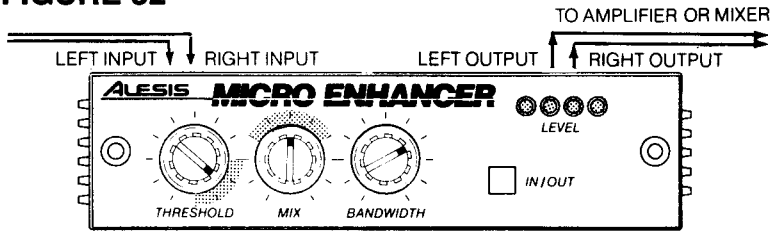


MICRO ENHANCER® *cont'd*

MICRO ENHANCER on Guitar through a Rockman™

The **MICRO ENHANCER** restores the high end that is lost when plugging the Rockman™ directly into an amplifier or mixing console. This is because there is a certain amount of treble boost provided by the headphones supplied with the Rockman™ that is missing when the headphones are not used. Now you can hear your guitar/Rockman™ in all its glory with the help of the **MICRO ENHANCER**. ***See figure 32***

FIGURE 32

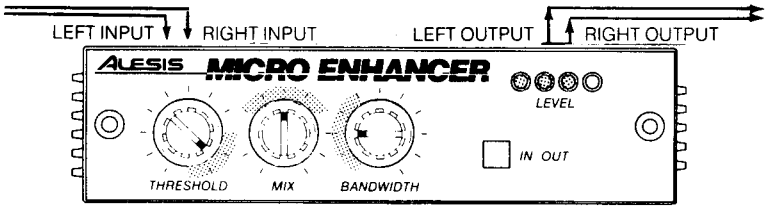


MICRO ENHANCER during mixdown

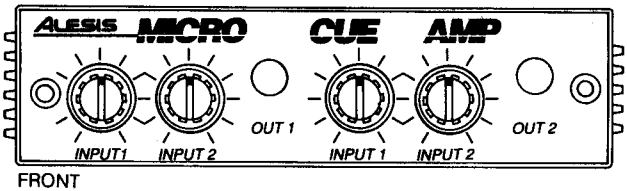
The **MICRO ENHANCER** can be used to add high end sparkle and presence when mixing. This is particularly useful in home recording formats where limited bandwidth and distortion in the recording process robs important high frequency information that gives presence, crispness, and punch to home recording efforts.

Connect the left and right outputs of the mixing console directly to the inputs of the **MICRO ENHANCER**, then plug the outputs of the **MICRO ENHANCER** directly into the mixdown tape deck. ***See figure 33***

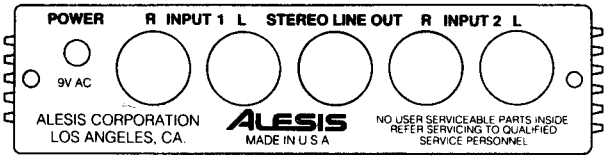
FIGURE 33



MICRO CUE AMP



FRONT



BACK

Description

The **Alesis MICRO CUE AMP** is a headphone amplifier equipped with 2 separate headphone channels and designed to accept up to 2 stereo low level signals and boost them to a comfortable listening level. These 2 separate stereo inputs are complete with their own level controls on each headphone channel and give you the ability to mix 2 sources together for a wide range of applications.

The **MICRO CUE AMP** also allows the user to chain multiple units together to expand the headphone monitoring capabilities of any recording setup.

Controls

The **Input 1** control determines the amount of amplification that the signal applied to the input 1 jack on the back panel will receive. The left-hand **Input 1** control determines the level for the **Out 1** headphone jack. The right-hand **Input 1** control determines the level for the **Out 2** headphone jack.

The **Input 2** control determines the amount of amplification that the signal applied to the input 2 jack on the back panel will

MICRO CUE AMP *cont'd*

receive. The left-hand **Input 2** control determines the level for the **Out 1** headphone jack.
The right-hand **Input 2** control determines the level for the **Out 2** headphone jack.

The **MICRO CUE AMP** features 2 separate headphone output jacks, each with independent level control over inputs 1 and 2.
Out 1 is a stereo headphone output with the volume controlled by the left **Input 1** and **Input 2** controls.
Out 2 is a stereo headphone output with the volume controlled by the right **Input 1** and **Input 2** controls.

The **green LED** indicates that the unit is on.

The **Input 1 Jacks** on the back panel are a stereo jack which can be used for connection to the stereo auxiliary sends of a mixing console, or used as an input for an instrument such as guitar or keyboard for private practicing.

The **Input 2 Jacks** on the back panel are a stereo jack which can be used for connection to the stereo auxiliary sends of a mixing console, or used as an input for an instrument such as guitar or keyboard for private practicing. The **Input 2 Jack** is also paralleled with the **Stereo Line Out Jack** for chaining additional **MICRO CUE AMPS** together.

Stereo Line Out is used for chaining additional **MICRO CUE AMP** units together. Only the signal applied to **Input 2** is available at the **Stereo Line Out.**

Operation

After connecting your **MICRO CUE AMP** (refer to the section on installation), simply insert your headphones into either **Out 1** or **Out 2** on the front panel, and turn the **Input 1** and/or **Input 2** control until the desired headphone volume is reached. **MICRO CUE AMP** will adequately drive any set of headphones, either low (8 ohms) or high (600 ohms) impedance.

MICRO CUE AMP *cont'd*

Please Note: *If you are connecting just one source to your **MICRO CUE AMP**, make sure that the unused input control is turned counterclockwise (to the left, or off). This will prevent any unwanted, stray noises from being heard.*

Application

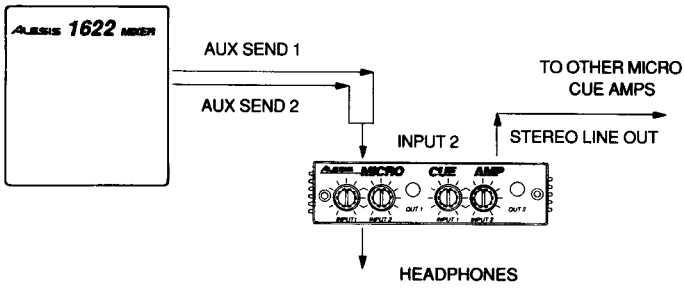
The Alesis MICRO CUE AMP is a convenient and inexpensive time saver, suitable for numerous applications. This little box will come in handy wherever an extra set of headphones is need, so don't limit yourself only to these examples.

MICRO CUE AMP Used For Additional Headphone Outputs

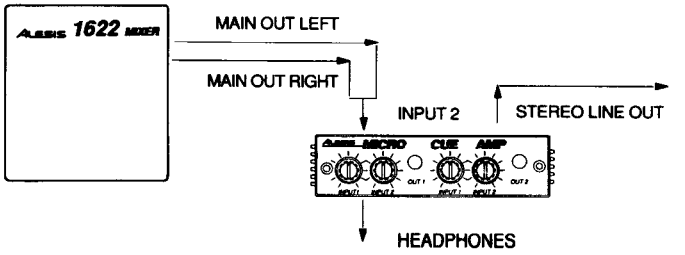
The **MICRO CUE AMP** is perfect for adding additional headphone outputs to a system. Below are several methods to accomplish this. *Remember: The MICRO CUE AMP has stereo input jacks. Therefore, sends 1 and 2 or main outs must terminate in a stereo plug.*

FIGURE 34 - MICRO CUE AMP/CONSOLE INTERFACE

A. USING THE AUX SENDS



B. USING THE MAIN OUTPUTS

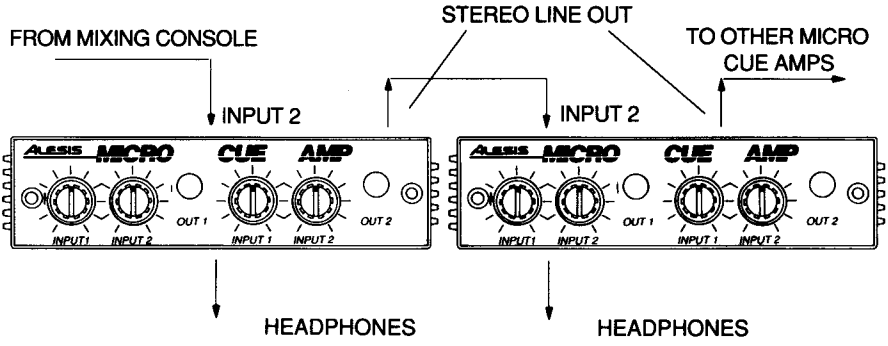


MICRO CUE AMP *cont'd*

Chaining MICRO CUE AMPS Together

Several **MICRO CUE AMPS** may be connected together in order to add an unlimited number of headphone outputs to a system. ***Remember: The Stereo Line Out jack is paralleled with Input 2, so Input 2 must always be used as the main input when being used in this application.***

FIGURE 35 - CHAINING MICRO CUE AMPS

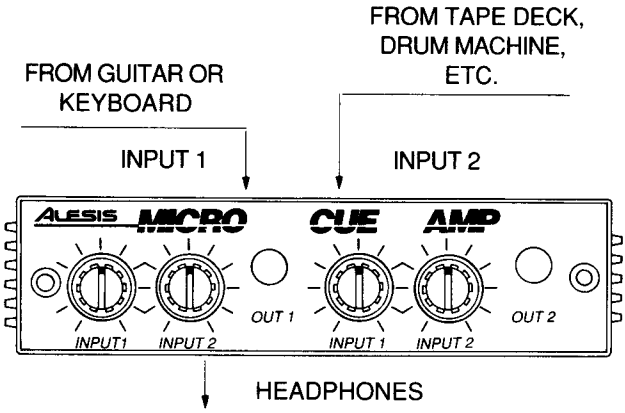


MICRO CUE AMP Used For Quiet Practicing With An Instrument

MICRO CUE AMP makes the perfect private rehearsal monitor system. Simply connect as shown on the next page, turn up the volume, and go for it!

MICRO CUE AMP *cont'd*

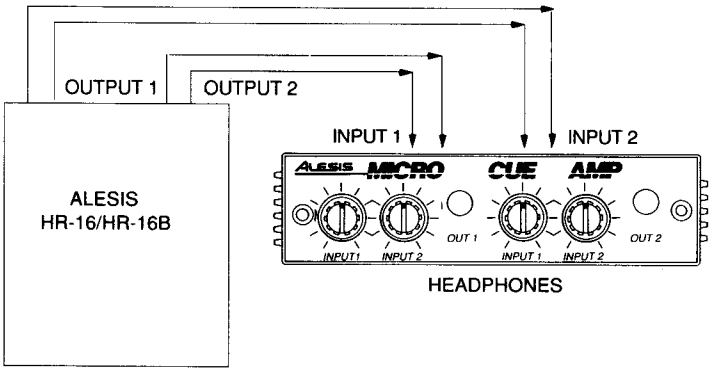
FIGURE 36 - MICRO CUE AMP WITH ELECTRIC INSTRUMENTS



MICRO CUE AMP Used For Stand-Alone Drum Machine Programming

Many times in the middle of a hot session, new drum machine parts are required. Instead of using up valuable studio time for programming, the **MICRO CUE AMP** can be pressed into service for a private programming session while your expensive studio time is better used on other recording.

FIGURE 37

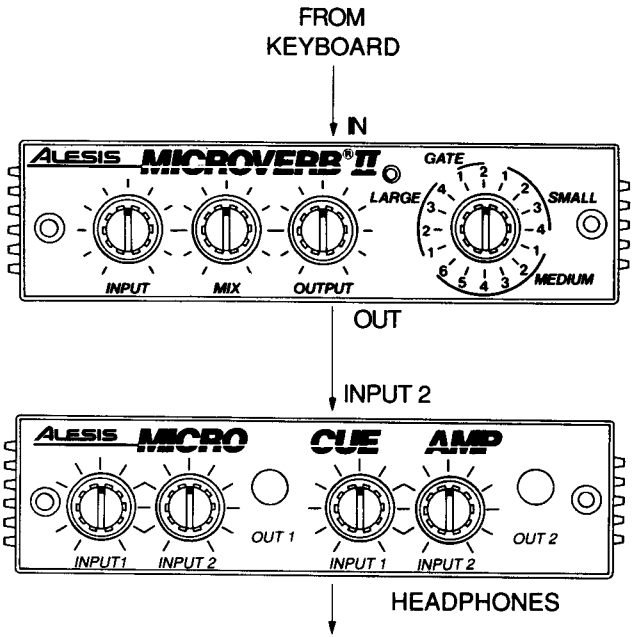


MICRO CUE AMP *cont'd*

MICRO CUE AMP Used For Stand-Alone Synthesizer Programming

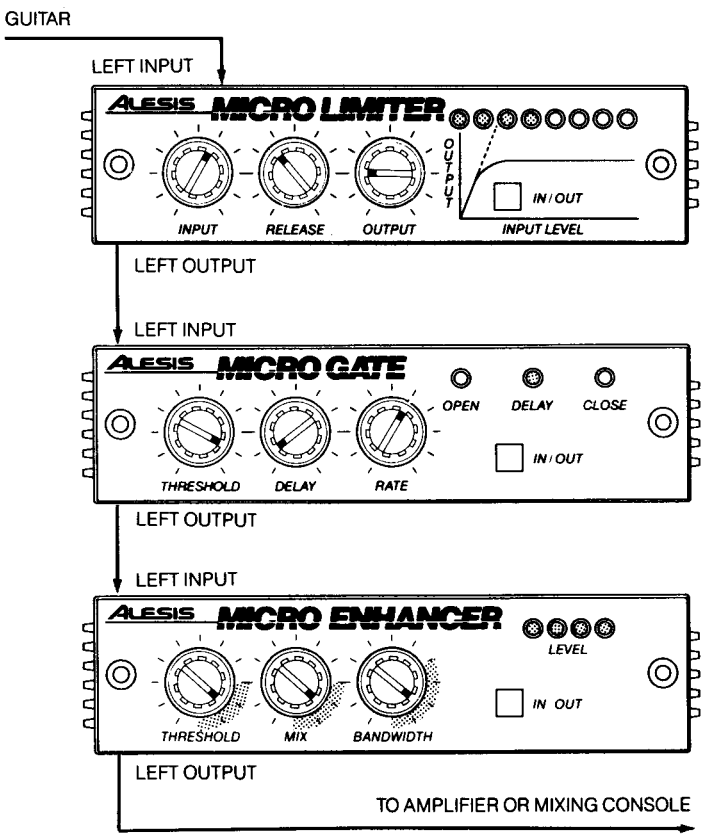
As in the above example, the **MICRO CUE AMP** is the perfect companion device for synthesizer programming situations. Add a **MICROVERB II** and you have a studio quality monitoring environment to make your programming a snap.

FIGURE 39 - MICRO CUE AMP FOR KEYBOARD PROGRAMMING



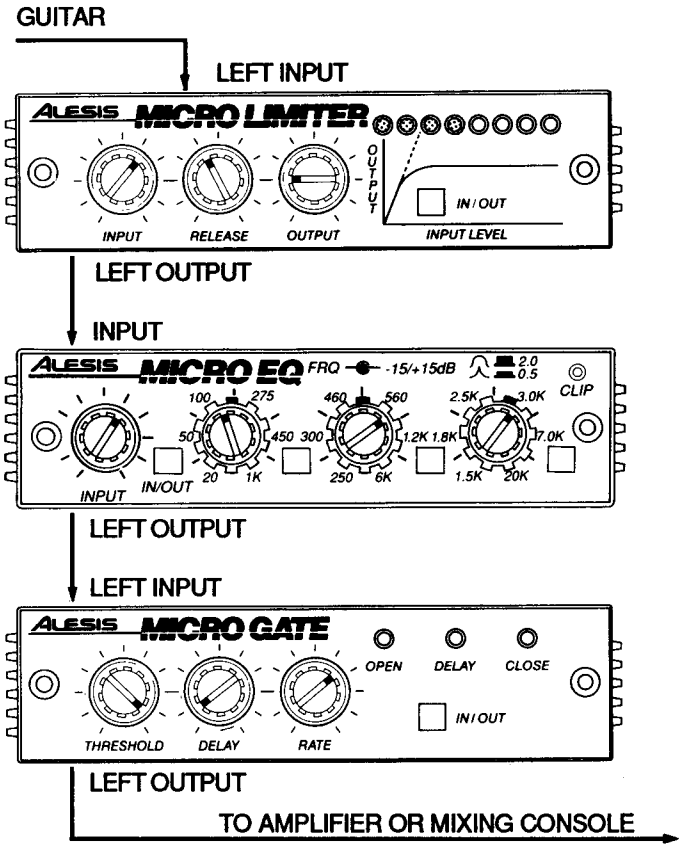
SYSTEM SET-UPS

FIGURE 40 - GUITAR OR KEYBOARDS - A
(MICRO LIMITER to MICRO GATE to MICRO ENHANCER)



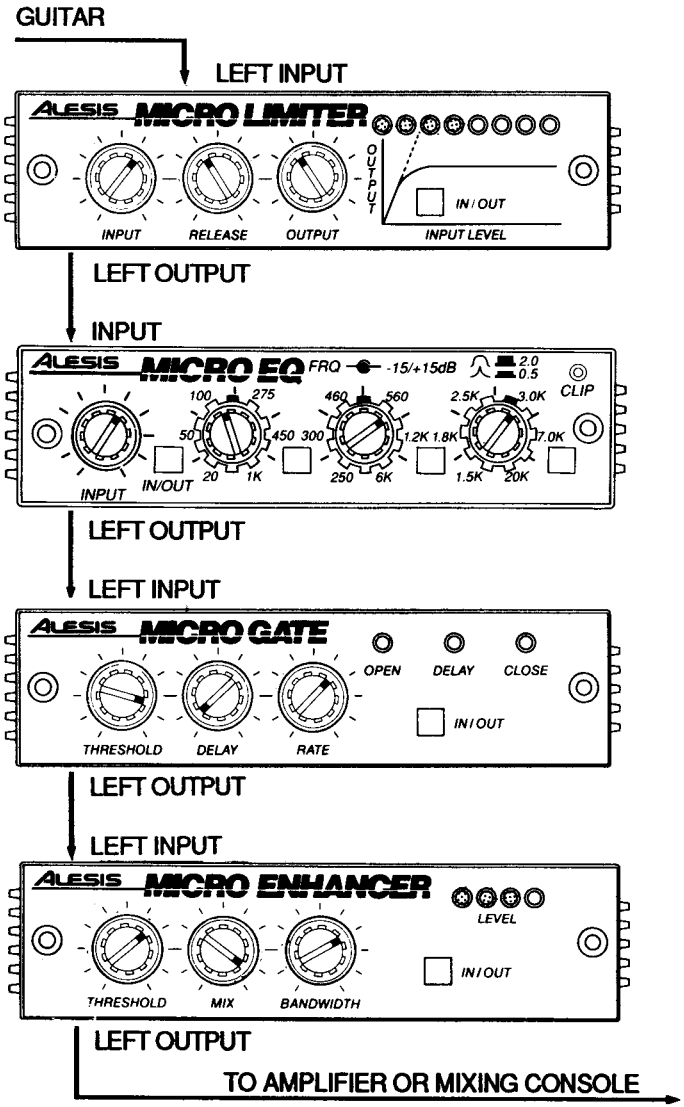
SYSTEM SET-UPS

FIGURE 41 - GUITAR OR KEYBOARDS - B
(MICRO LIMITER to MICRO EQ to MICRO GATE)



SYSTEM SET-UPS

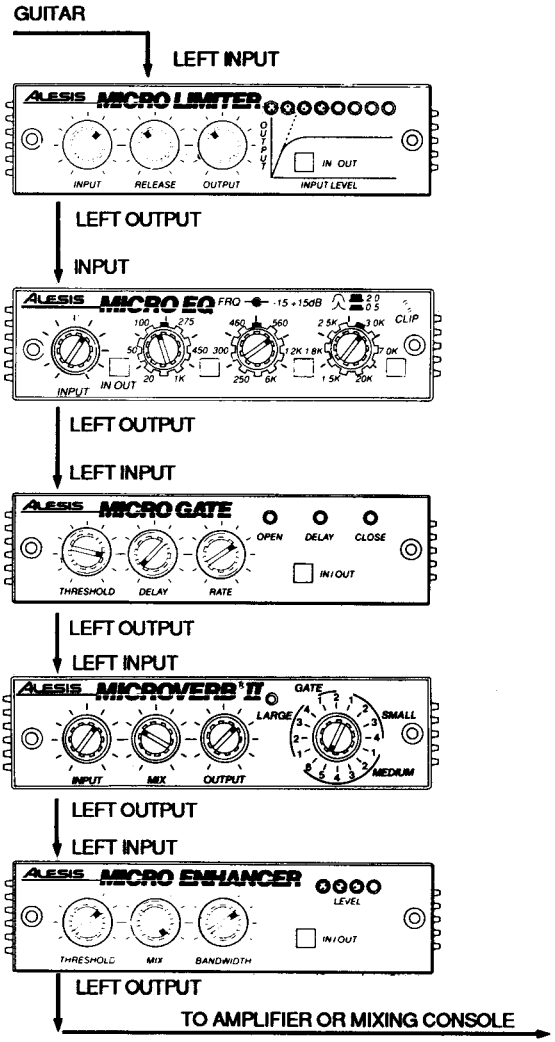
FIGURE 42 - GUITAR OR KEYBOARDS - C
(MICRO LIMITER to MICRO EQ to MICRO GATE to MICRO ENHANCER)



SYSTEM SET-UPS

FIGURE 43 - GUITAR OR KEYBOARDS - D

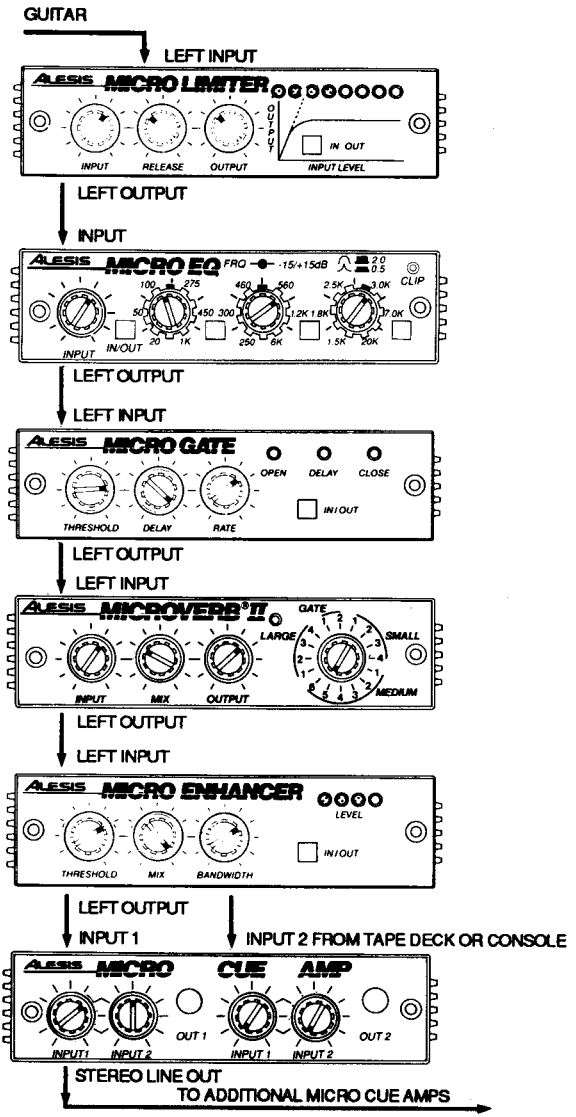
(MICRO LIMITER to MICRO EQ to MICRO GATE to MICROVERB II to MICRO ENHANCER)



SYSTEM SET-UPS

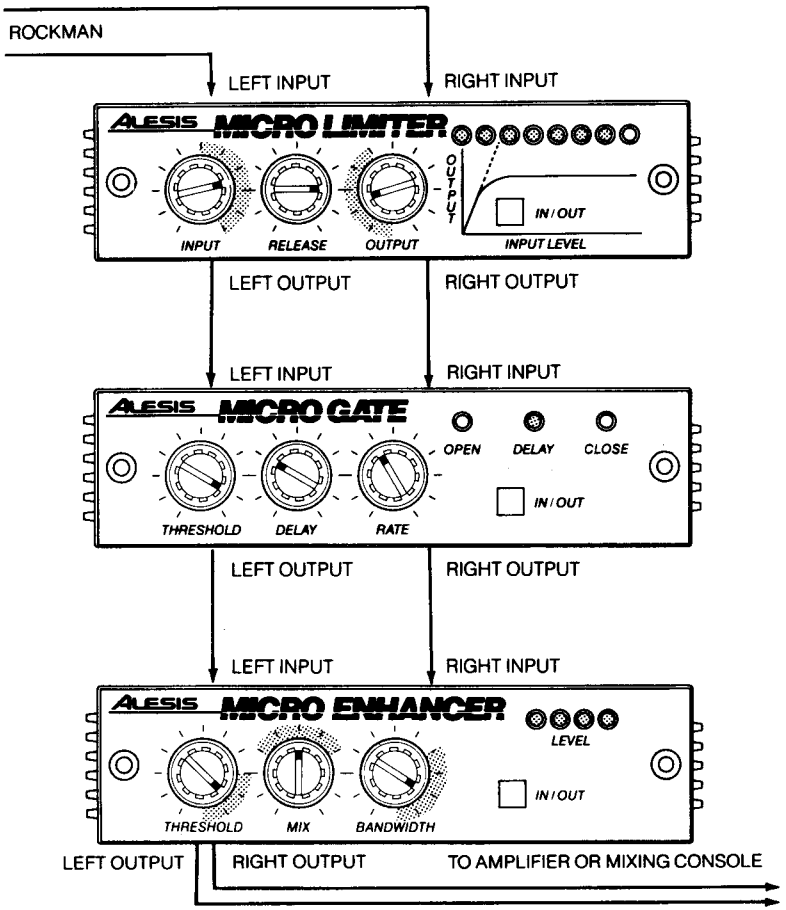
FIGURE 44 - GUITAR OR KEYBOARDS - E

(MICRO LIMITER to MICRO EQ to MICRO GATE to MICROVERB II to MICRO ENHANCER to MICRO CUE AMP)



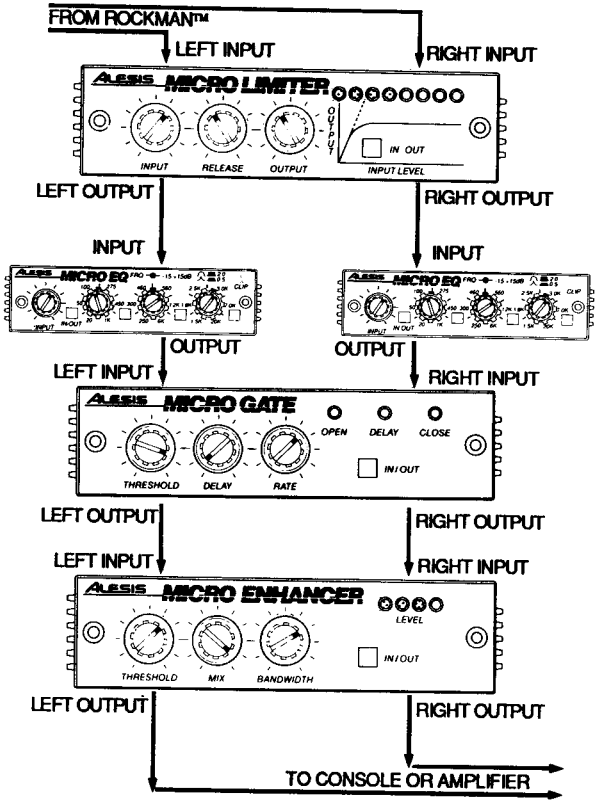
SYSTEM SET-UPS

FIGURE 45 - with Rockman™ - A
(MICRO LIMITER to MICRO GATE to MICRO ENHANCER)



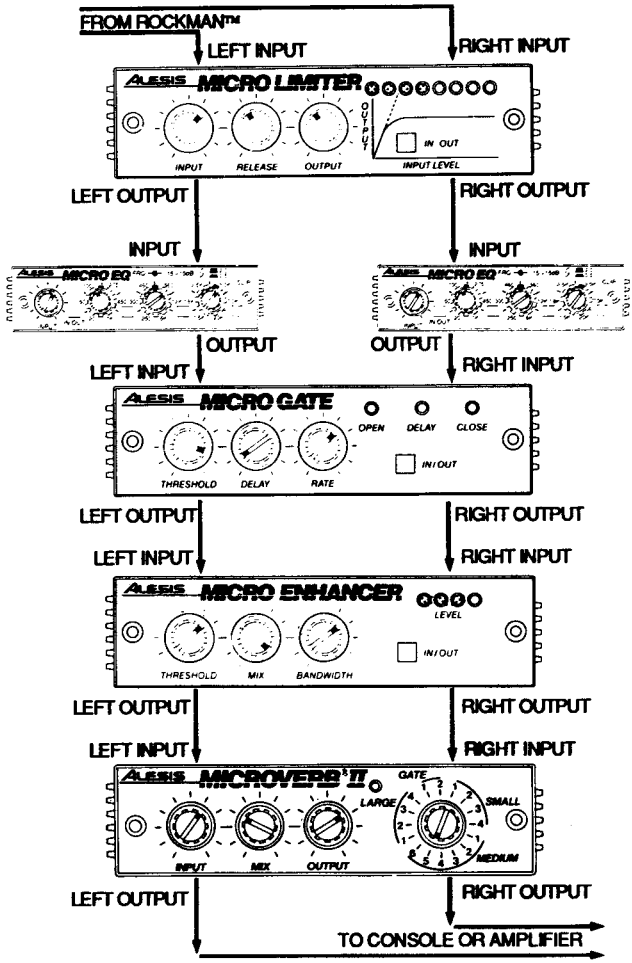
SYSTEM SET-UPS

FIGURE 46 - with Rockman™ - B
(MICRO LIMITER to MICRO EQ to MICRO GATE to MICRO ENHANCER)



SYSTEM SET-UPS

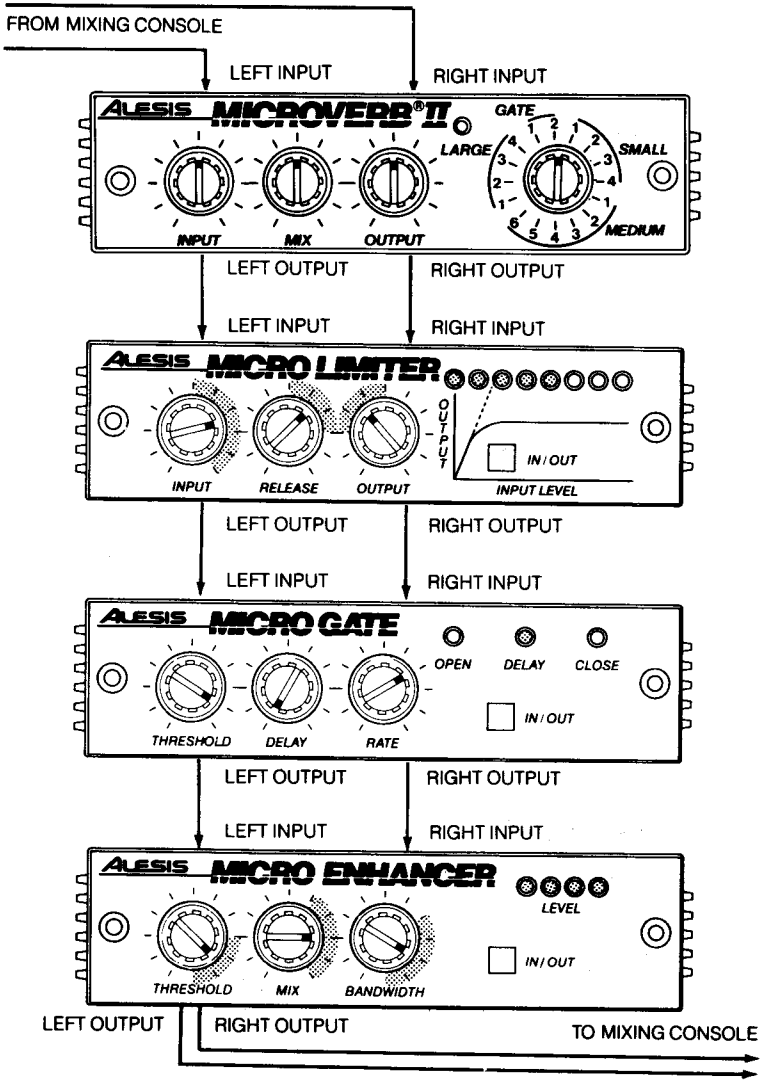
FIGURE 47 - with Rockman™ - C
(MICRO LIMITER to MICRO EQ to MICRO GATE to MICRO ENHANCER to MICROVERB II)



SYSTEM SET-UPS

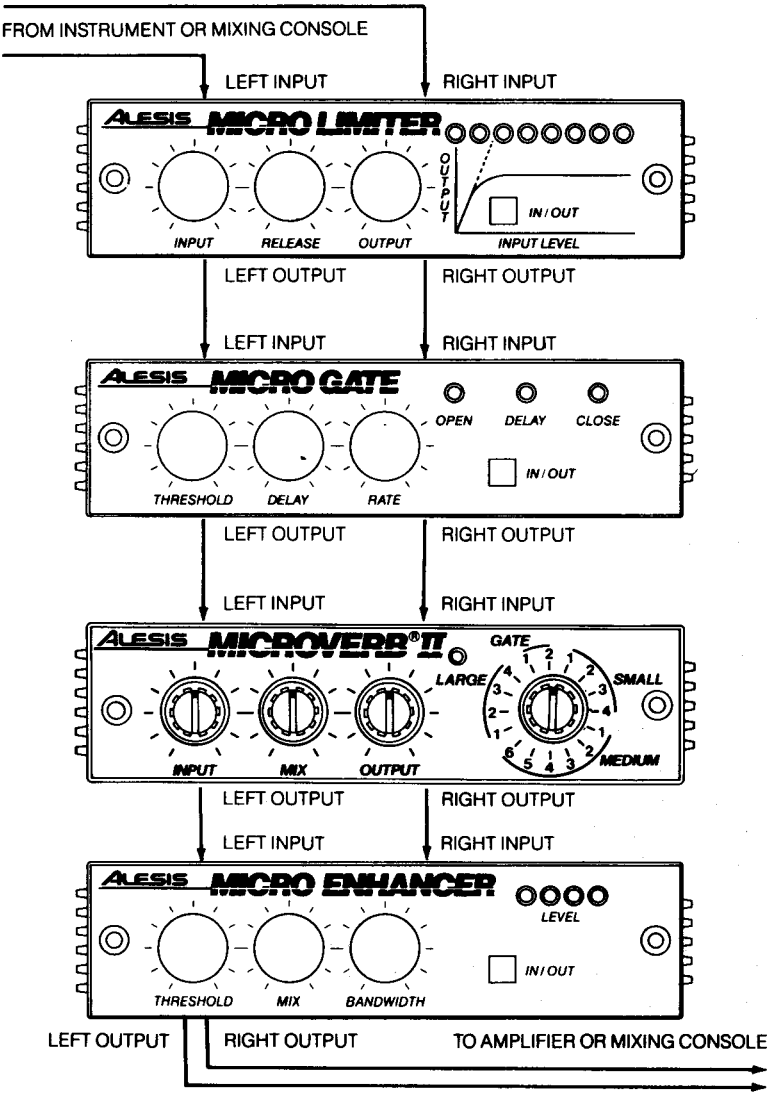
FIGURE 48 - GATED REVERB

(MICROVERB II to MICRO LIMITER to MICRO GATE to MICRO ENHANCER)



SYSTEM SET-UPS

FIGURE 49 - DURING RECORDING OR LIVE PERFORMANCE (MICRO LIMITER to MICRO GATE to MICROVERB II to MICRO ENHANCER)



For best performance with the least system noise, this is the recommended order for connecting all of the units of the **Micro Series** together. The settings are up to you.

SPECIFICATIONS

MICRO ENHANCER

FREQUENCY RESPONSE/20Hz to 20kHz
DYNAMIC RANGE /100dB
DISTORTION/<.1% THD at 1kHz 0dB
SIGNAL LEVELS/-10 DB to +4 dB nominal
INPUT IMPEDANCE/1Meg Ohm each channel
CONNECTIONS/2x1/4" phone jack inputs, 2x1/4" phone jack outputs, 1x1/8" power jack input
POWER/9 volts A.C. 5 Volt Amperes external transformer
BANDWIDTH OF ENHANCED SIGNAL/min 12kHz to 20kHz max 2kHz to 20kHz

MICRO GATE

FREQUENCY RESPONSE/20Hz to 20kHz
DYNAMIC RANGE /100dB
DISTORTION/ < .2% THD at 1kHz 0dB
SIGNAL LEVELS/-10 DB to +4 dB nominal
INPUT IMPEDANCE/1Meg Ohm each channel
CONNECTIONS/2x1/4" phone jack inputs, 2x1/4" phone jack outputs, 1x1/4" phone jack trigger, 1x1/8" power jack input
POWER/9 volts A.C. 5 Volt Amperes external transformer
ATTACK TIME/1ms
OPENING TIME/5ms
DELAY TIME/min <2ms, max 1.5 sec.
CLOSING TIME/min <2ms, max 2 sec.
RELEASE/min 20ms, max 2.5 sec.

MICRO LIMITER

FREQUENCY RESPONSE/20Hz to 20kHz ± 1 dB
DYNAMIC RANGE/Input 100dB, output dependent on Ratio
DISTORTION/< .2%THD at 1kHz 0dB
SIGNAL LEVELS/-10dB to +4 dB nominal
CONNECTIONS/2x1/4" phone jack inputs, 2x1/4" phone jack outputs, 1x1/8" power jack input
POWER/9 volts A.C. 5 Volt Amperes external transformer
ATTACK TIME /Program dependent 150ms to 0.5ms
RELEASE TIME/min 10ms, max 500ms
RATIO/1:1 to infinity

MICRO EQ

FREQUENCY RESPONSE/20Hz to 20kHz
FREQUENCY RANGES/Low Freq -- 20Hz to 1kHz, Mid Freq -- 250Hz to 6kHz, High Freq -- 1.5kHz to 20kHz--All bands ±15dB
DISTORTION/<.1% THD at 1kHz 0dB
DYNAMIC RANGE /100dB
CONNECTIONS/1x1/4" phone jack input, 1x1/4" phone jack output, 1x1/8" power jack input
POWER/9 volts A.C. 5 Volt Amperes external transformer
SIGNAL LEVELS/-10 dB to +4 dB nominal
INPUT IMPEDANCE/1Meg Ohm

MICRO CUE AMP

FREQUENCY RESPONSE/20Hz to 20kHz
DISTORTION/<.2% THD at 1kHz 0dB
SIGNAL TO NOISE RATIO /100dB
CONNECTIONS/2x1/4" phone jack inputs, 2x1/4" phone jack outputs, 1x1/8" power jack input, 2x1/4" ring-tip-sleeve stereo outputs
POWER/9 volts A.C. 5 Volt Amperes external transformer
OUTPUT POWER/310mW into 600 OHMS, 260mW into 30 OHMS, 95mW into 8OHMS
INPUT IMPEDANCE/1Meg Ohm each channel

MICROVERB II

FREQUENCY RESPONSE/20kHz (Dry), 15kHz (Reverb) ± 2dB
DYNAMIC RANGE/90dB
DISTORTION/.1% (Typical)
SIGNAL LEVELS/Input: -10 to +20dBV Peak, Output: +8.5 dBV Peak (Reverb), Output: +20 dBV Peak (Dry)
INPUT IMPEDANCE/1 MEGOHMeach channel, 500kOHM, Mono Input
CONVERSION SCHEME/16 Bit Linear PCM
PROCESSING MEMORY/32 Kilobytes
PROCESSOR SPEED/3 Million Oper./Sec.
FORMAT/Input: Matrixed Stereo, Full Imaged Stereo
DEFEAT/External, SPST Switch (not supplied)
LEVEL INDICATION/Orange: Power indication, Green: Signal Present, Red: Overload
CONTROLS/Input Gain, Mix Ratio, Output Level, Program
PROGRAMS/16
CONNECTIONS/Stereo Inputs: 1/4" Phone, Stereo Outputs: 1/4" Phone, Defeat: 1/4" Phone, Power: 3.5mm Phone
POWER/ 9V AC, 5Volt-Amperes

ALESIS LIMITED WARRANTY

ALESIS CORPORATION ("ALESIS") warrants this product to be free of defects in material and workmanship for a period of 90 days from the date of original retail purchase. This warranty is enforceable only by the original retail purchaser.

To be protected by this warranty, the purchaser must complete and return the enclosed warranty card within 14 days of purchase.

During the warranty period ALESIS shall, at its sole and absolute option, either repair or replace free of charge any product that proves to be defective on inspection by ALESIS or its authorized service representative.

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