



Miked Guitar Cabinet Emulator for pre-amps
and power-amps

OWNER'S MANUAL Microcab II (version 1)

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Release No.1 for <http://www.ada-mp1.com>

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INTRODUCTION

Thank you for purchasing the **ADA MICROCAB II** Miked Guitar Cabinet Emulator. The **MICROCAB II** is designed to deliver the distinct warmth and presence of a "close-miked" guitar speaker cabinet to a mixing console for direct recording or for sound reinforcement. The **MICROCAB II** takes the signal from the output of a guitar preamp or poweramp. Your new **MICROCAB II** will preserve all the tone and fidelity from your guitar, preamp, and effects units, while delivering the frequency response of various speaker cabinets, simulating difficult and time-consuming miking techniques used in recording studios. Please take a few moments to read this manual and familiarize yourself with your new **MICROCAB II**.

IMPORTANT: At this time, please complete and return the enclosed warranty card.

FEATURES

- ✓ Emulates any type or size of guitar cabinet.
- ✓ Stereo inputs and outputs.
- ✓ Stereo pass thru to poweramp or speaker load box.
- ✓ Variable THUMP control allows tuning the cabinet's low resonance.
- ✓ HI BALANCE control emulates mic placement and cabinet brightness.
- ✓ Lightweight design, in one rack space.
- ✓ One year parts and labor warranty

PRECAUTIONS

WARNING: To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

CAUTION: To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

SET UP WARNING: WHEN CONNECTING THE MICROCAB TO THE OUTPUT OF A TUBE POWER AMP OR AN ALL-TUBE HEAD, ALWAYS KEEP A LOAD CONNECTED TO THE OUTPUT OF THE AMP. THE LOAD CAN BE EITHER A "LOAD BOX" OR THE SPEAKER CABINET NORMALLY USED WITH THE AMP. USE THE EXTENSION JACK AT THE SPEAKER CABINET TO CONNECT THE MICROCAB OR USE THE PASS THRU CONNECTORS ON THE MICROCAB TO RECONNECT THE LOAD TO THE POWER AMP.



QUICKSET UP

The MICROCAB II Miked Guitar Cabinet Emulator is designed to accept preamp/effects and poweramp output levels. DO NOT UNPLUG YOUR TUBE POWER AMPLIFIER OUTPUTS from your speakers or load box when using the MICROCAB II !

1. Connect stereo inputs (A & B) on rear panel of **MICROCAB II** to (he outputs of your preamp or effects device using shielded 1/4" phone cables. Or connect 1/4" unshielded phone speaker cables to your power amplifier output(s).
2. Use your choice of the **MICROCAB II's** 1/4" or XLR (balanced) outputs to connect the **MICROCAB II** to the inputs of your recording or sound reinforcement mixing console. For stereo operation, connect outputs A & B to separate inputs on your mixing console.
3. Use ground lift switch if necessary to eliminate any line noise or hum that may be present from poorly-balanced power sources or ground loops in your system.

NOTE: YOU MUST HAVE A GOOD TONE FIRST! SET YOUR PREAMP AND EFFECTS TO GET YOUR BEST TONE USING YOUR WHOLE RIG, INCLUDING THE GUITAR CABINETS, BEFORE PATCHING IN THE MICROCAB II.

USING THE MICROCAB II

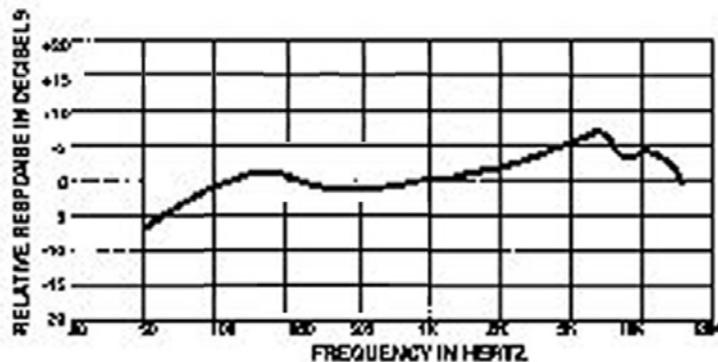
The MICROCAB II can be used in the recording studio to quickly capture "that right tone" just as it sounds coming out of your guitar cabinets. The MICROCAB II is also used for live sound reinforcement to get the exact tone on stage into the house system, without much of the hassle involved in lengthy sound checks and mike placement trial and error, while providing absolute isolation from other instruments on-stage.

Since guitar speaker cabinet systems don't have a flat frequency response, some outboard EQ is essential to simulate the characteristic tone and presence of a "live" speaker cabinet.

The ADA MICROCAB II is designed to emulate the presence, tone and coloration found in a variety of modern and vintage speaker cabinets. Further, since the signal at the speaker cabinet is normally brought to your mixing console via a microphone, and not through a direct box (this would sound terrible), the microphone's frequency response must be taken into account. The MICROCAB II emulates this characteristic, delivering the "feel" and tone that has become an integral part of the sound of amplified guitar.

Additionally, the ADA MICROCAB II is capable of emulating the close-miking characteristics of the Shure SM57 microphone—the industry standard for guitar miking in the studio and live sound reinforcement. The SM57 is well-noted for its "proximity effect," or low frequency boost at 180 Hz when placed very near the sound source (see Huber, *Microphone Manual*, Focal Press, 1988, p. 258), further enhancing the "thump" effect of the British-style 4x12 cabinet. Also note, on the next page, that the high frequency response from the Shure SM57 when placed off-axis is greatly attenuated. The shallow comb filter nodes across the mid-frequency band, shown on page 8, is another "live miking" characteristic emulated by the MICROCABII.





The Shure SM57 (note characteristic bump at 180 Hz)

HOW TO GET THE BEST TONE WITH YOUR MICROCAB II

First, ***get your best tone using your whole regular rig, including your speaker cabinets!***

Now, to capture that tone to tape, insert the MICROCAB II between your preamp and your power amp. Remember, you can listen to your regular speaker tone by using the MICROCAB II's pass-thru jacks on the rear panel. These are hardwired directly off the input jacks.

Alternately patch into your power amp's outputs, remembering that vacuum tube power amps always require a load (either the speaker cabinet or a "load box"). The MICROCAB II does not provide a speaker load for tube power amps.

Try the variety of cabinet configuration tone settings offered by the MICROCAB II to obtain the sound you want, starting with the exact speaker configuration that you are using. Use the HI BALANCE tone control on the front panel to adjust the brightness, and the THUMP control to boost or cut the amount of low-frequency resonance, especially if you are emulating a sealed cabinet.

The MICROCAB II offers emulations of 12-inch speakers in 1, 2, and 4-speaker configurations, in both open-back and sealed enclosures. You can also use the VINTAGE settings for a darker-sounding tone coloration.

When using headphones with the MICROCAB II, you may want to adjust the HI BALANCE downward to compensate for high frequency emphasis found in most headphones.

WHAT THE MICROCAB II DOES

The **ADA MICROCAB II** is a tone-shaping device designed to emulate the complex physical and psychoacoustic effects that make up the unique "live" sound of a close-miked guitar cabinet. In the early days of recording, "distant" or "ambient" miking—often using a single room microphone for the entire performance—was the standard; the distinctly modern technique of close-miking adds more immediacy and control over the instrument voice.

There are some "competitive" products on the market, simple band pass filters, cutting highs and some lows. Such speaker emulators can sound "muddy," that is, lacking in definition or "presence." Only the **ADA MICROCAB II** offers true emulation of a classic "close-miked" speaker cabinet. The **MICROCAB II** delivers improved voicing, brilliant presence, "in your face" high-midrange sizzle (1.2 - 1.5 KHz), and the characteristic "thump" (low frequency resonance) found in classic guitar cabinets. Moreover, the **ADA MICROCAB II** offers you the



versatility of having a variety of speaker cabinet tones at your fingertips in one compact single-space rack device.

The purpose of calling the ADA **MICROCAB II** a "miked" guitar cabinet emulator is to distinguish it by features that account for the microphone in the audio path. As the number of speakers is increased in a miked cabinet, the number of signal paths to the microphone increases, adding a comb filter effect to the guitar sound on tape. The sound from these "paths" travels different distances to the microphone element. Therefore, when combined, cancellations and reinforcements are produced across the sound spectrum. This is the source of the "complex" feel to the close-miked guitar cabinet.



MICROCAB II

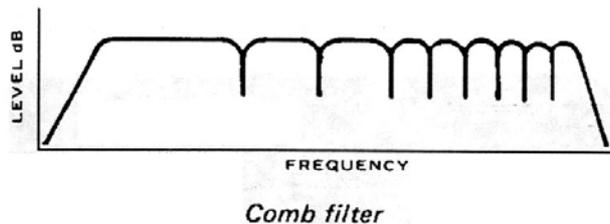
**Miked
Guitar Cabinet
Emulator**
For Preamps and Poweramps



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The "thump" or low frequency resonance in guitar cabinets mentioned above is perhaps the most powerful characteristic in live amplified guitar performance. Most cabinets are like the 4x12 (an array of four 12" speakers as is used in British-style stack-type cabinets) with no ports (holes as in hi-fi loudspeaker enclosures) and no open backs. The frequency produced by such a speaker cabinet array is around 200 Hz (abbr. for Hertz or cycles per second). The frequency is near the human chest cavity resonant frequency. The ADA **MICROCAB II** is unique in its ability to reproduce this power and "live" feel in a direct situation—again giving "more tone to tape!"



GLOSSARY OF AUDIO TERMS

(From *the CAMEO Dictionary of Creative Audio Terms*, Gary Davis & Associates, 1979)

Coloration

Non-uniform frequency response resulting in distortion of the tonal quality of the source.

Close Miking

A technique for recording or sound reinforcement whereby the microphones are placed close to vocalists and to instruments or small groups of instruments. Close miking provides a great deal of presence and detail for the nearby sound source(s), while avoiding leakage from more distant sound sources. Most of today's popular music recordings use close microphone techniques.

Comb filter

A comb filter has a series of very narrow, deep notches where signals are attenuated. When the frequency response of such filters is graphed they resemble a hair comb.

Directivity factor

For a loudspeaker, this is a measurement of how much the speaker focuses the sound in a given direction. Directivity is measured by taking the ratio of the average sound level throughout 360 to the maximum sound level in front of the speaker (at a given distance and frequency).

Distant miking

A microphone placement technique where one or more mics are located at a distance of at least several feet from the performers. Distant microphone placement allows a greater area to be covered using fewer microphones than close mic placement, and is ideal for some types of recording. Distant mic placement usually will not provide the presence and detail possible with close mic placement, although each technique has its advantages.

Hass effect

Also known as the "precedence effect," this psychoacoustic phenomenon was first described by Helmut Hass. The Hass effect describes our ability to perceive the location of a sound source based on the relative level and arrival time of the sound in each ear.



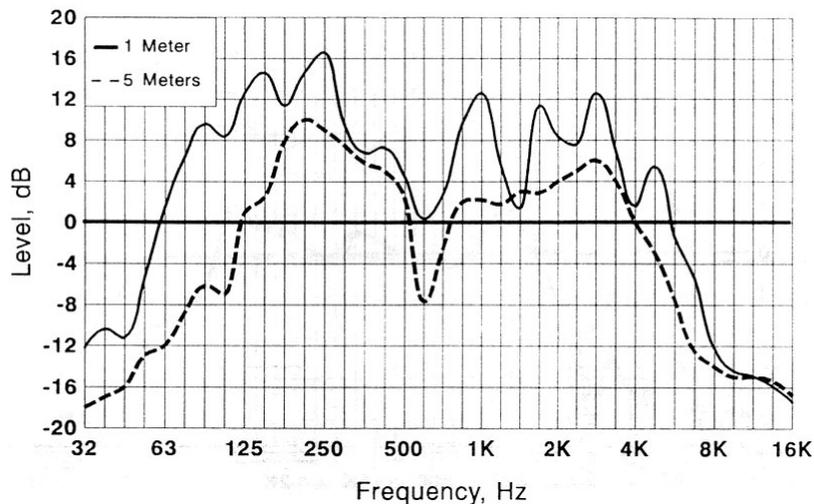
Presence Range

Refers to that area of the audio frequency spectrum which affects the perceived presence of the sound. Assuming there is no echo or reverb, presence or the feeling of being "up front" will be determined by the relative balance of those frequencies falling roughly in the 2 kHz to 5 kHz range.

Voicing

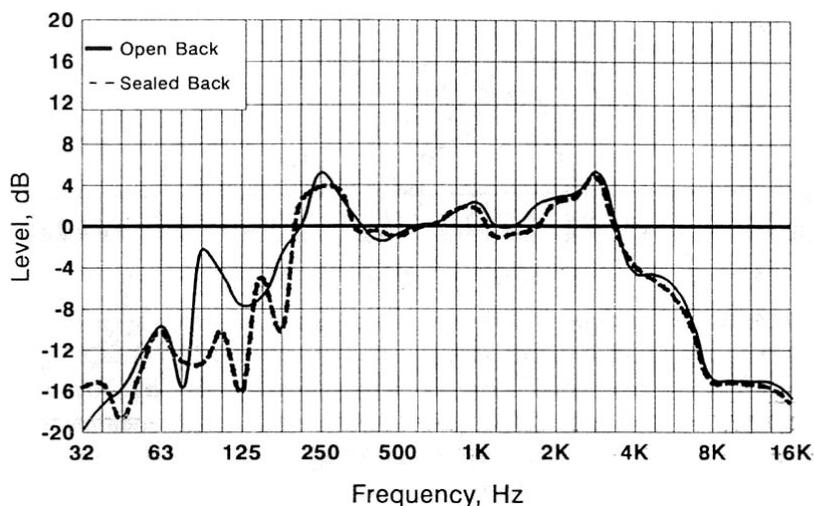
Refers to the careful equalization of a speaker/amplifier system as in a recording studio monitor or sound reinforcement, system to achieve a particular sound or effect.

GRAPH A / Vintage 4x12 / Close/Far Miked



Above graph shows increasing tonal complexity of a 4x12 Vintage cabinet as the microphone is moved closer to the speaker cabinet. At 5 meters, note fewer peaks, less low range "thump," and less mid-hi range notches in the lower, dashed line. The greater the coloration of the signal, the richer (and livelier) your tone will be.

GRAPH B / Close Miked 2x12 / Open Back/Sealed Back

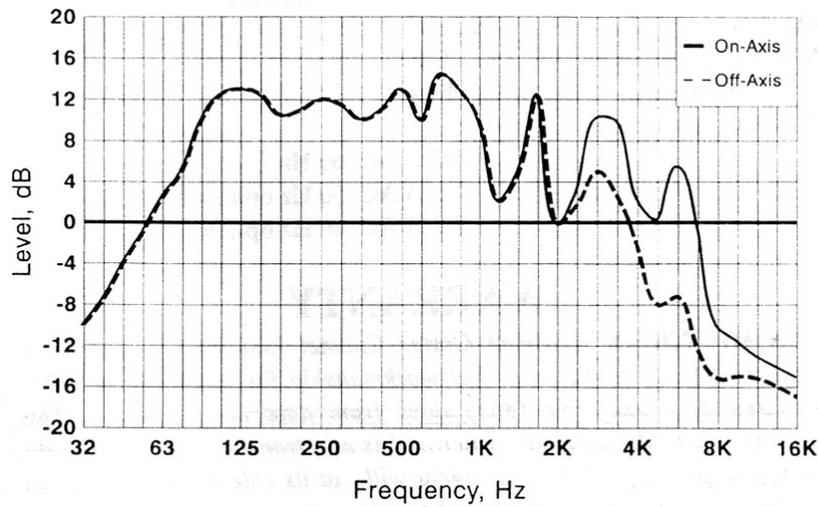


Above graph compares response from an open back (solid line) vs. sealed back (dashed line) 2x12 speaker cabinet. Note uneven and lower level response below 200 Hz in sealed



cabinet, resulting in more complex and "darker" tone. The MICROCAB II offers eight types of open/sealed enclosures.

GRAPH C 4x12 / Sealed Cabinet / Off-Axis/On-Axis Miking



This graph compares on-axis (solid line) vs. off-axis (dashed line) response characteristics in a close-miked 4x12 sealed cabinet. Note lower off-axis response above 2 kHz. resulting in less "brightness." This response difference can be emulated in the MICROCAB II by adjusting the **HI BALANCE** tone control.

SPECIFICATIONS

- Dimensions: 1 rack unit x 5" deep
Width 19"
Depth 5"
Height 1-3/4"
- Weight: 2.5 lbs., 4.5 lbs., shipping
- Maximum Input: +20 dBV
- Maximum Output: +19 dBm
- Input Impedance: 50k ohms
- Power Consumption: 4 Watts,
117 VAC 60 Hz
220 VAC 50 Hz optional
100 VAC 60 Hz optional

