



micro chorus



**Musical
Products Group**

**Operation
Manual**

MXR TECHNOLOGY

All products developed by MXR are a result of extensive experience in creative audio engineering. MXR products are designed by individuals who are actively involved in every facet of music, from performance through recording to playback. This sustained awareness of current trends and needs, combined with innovative design and construction techniques, allows MXR to produce carefully thought out products that are unique, versatile, and reliable. New ideas are constantly being tested, and existing products are subject to regular re-evaluation so you can be sure they reflect the latest technology.

There are MXR products to suit the needs of everyone involved with music. A wide variety of effects units, from a

basic stage unit to our highly sophisticated studio signal processors, are available to enhance any musical performance. Also included in the MXR line are products designed to improve the quality of sound in home stereo component systems. MXR is constantly striving to serve all areas of the world of music. The same care and attention is given to all MXR products, whether they are used in the home, in recording studios, or during live musical performances. All MXR products are designed and manufactured in the U.S.A. and carry a full warranty.

The MXR Micro Chorus is a versatile battery-powered signal processing device designed for the performing musician. Incorporating state-of-the-art analog time-delay technology, the Micro Chorus provides both chorus and vibrato effects in a small reliable package.

The chorus effect is produced by passing the incoming signal through a variable time-delay circuit and then mixing this delayed signal with the original "dry" signal. This provides a composite signal that differs from the input signal in that a second apparent source has been added.

The time delay provided by the Micro

INTRODUCTION

Chorus can be swept at slow speeds to create a thick twelve-string effect or at fast speeds to generate a vibrato (pitch variation) effect. The RATE control varies the intensity of the effect and automatically decreases the sweep width as the sweep speed is increased. The Micro Chorus is designed for low power consumption and operates consistently even at low battery levels.

We recommend that you first read this manual to learn more about the Micro Chorus and its controls. Note that when actual labels are referenced, they will be indicated by all capital letters (e.g. the RATE control). The section on Theory of Operation is provided for technical reference.

INSTALLATION

The MXR Micro Chorus is designed for in-line connection between a musical instrument, such as an electric guitar, and an amplifier using cords with standard two-conductor ¼" phone plugs.

In virtually all cases, the Micro Chorus should be placed near or at the end of a chain of effects devices. This will enhance the other effects and improve the overall signal-to-noise performance.

The Micro Chorus is powered by a single nine volt battery. Although the unit is designed for low power consumption, the battery will occasionally need replacement. The actual battery life will depend on how often the unit is used. A

weak chorus effect indicates that it is time to replace the battery. In fact, if at any time you suspect that your Micro Chorus is malfunctioning, try replacing the battery before returning the unit for repair. To replace the battery, remove the four screws securing the bottom cover. One more note concerning the battery life - the input jack on the Micro Chorus also serves as the power switch. Therefore, be sure to unplug the cord to the input when not in use to ensure maximum life from your battery.

If the unit is to be shipped or stored for a long period of time (months), the battery should be removed to prevent possible damage from battery leakage.

OPERATION

The MXR Micro Chorus is very easy to use. This discussion explains the functions of the two controls: the RATE control and the bypass switch.

The RATE control adjusts the speed at which the delay time is swept between its two extremes. With the control fully counterclockwise, the slowest sweep speed is selected. Turning the control clockwise makes the Micro Chorus sweep faster. The sweep width is automatically decreased as the sweep rate is increased to provide the most useful effect.

The bypass switch is a positive-action push-type footswitch that allows you to

bypass the effect when desired. The switch does not remove the input impedance of the unit from the signal path.



APPLICATIONS

This discussion introduces some of the many effects possible with the MXR Micro Chorus. This is only a starting point. Experiment.

Chorus (multiple voicing) Effects

Set the RATE control anywhere between the fully counterclockwise position and about "2 o'clock." A wide range of chorus effects may be produced at these lower sweep rates. Effects ranging from a subtle twelve-string simulation to rich thick textures are possible.

Vibrato Effects

Set the RATE control anywhere between "2 o'clock" and the fully clockwise

position. Vibrato is created by slight variations in pitch. The Micro Chorus produces this effect at higher sweep rates.

THEORY OF OPERATION

The MXR Micro Chorus, like most currently available electronic delays, constitutes a sampled-data system. The incoming signal is sampled at discrete instants of time. Employing analog delay technology, the samples are then transferred through a bucket-brigade device (BBD) as analog quantities of charge. The charges are shifted down a series of charge-storing elements at a rate determined by the "sampling frequency." Thus the information contained in the charges is delayed by a controlled amount before the charges are converted back into a copy of the original signal.

The amount of time delay in the Micro

Chorus is controlled by an internal low-frequency oscillator whose sweep rate is determined by the RATE control. After being delayed for a variable amount of time, the signal is then mixed equally with the undelayed input signal to create the chorus effect.

NOTES

SPECIFICATIONS

Maximum Input Level	+ 4 dBV
Maximum Output Level	+ 8 dBV
Input Impedance	1 M ohm
Output Impedance	470 ohms
Dynamic Range	greater than 90 dB
Bandwidth	18 kHz
Delay Range	5.1 - 7.3 ms
Sweep Rate	0.1 - 8 Hz
Power Requirements	9 volt battery, 2.5 ma

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All products in the MXR Musical Products Group are warranted to function properly for a period of one year from the date of purchase. If any unit fails to function properly within the warranty period, free repair, and the option of replacement or refund in the event MXR is unable to repair the unit, are MXR's only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, ac-

FULL WARRANTY

cident, or neglect. MXR retains the right to make such determination on the basis of factory inspection. Products returned to MXR must be shipped prepaid. This warranty remains valid only if repairs are performed by MXR and provided that the serial number on the unit has not been defaced or removed. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

MXR Innovations, Inc.
740 Driving Park Avenue
Rochester, New York 14613
(716) 254-2910