

PREFIX™

ONBOARD BLENDER

WARNING!

*WE STRONGLY RECOMMEND THAT YOU FAMILIARIZE YOURSELF WITH THE PREAMP CONTROLS **BEFORE** YOU ATTEMPT TO PERFORM WITH THE ONBOARD BLENDER. FAILURE TO DO SO COULD RESULT IN WAVES OF EAR-SPLITTING FEEDBACK AT HIGH LEVELS. (see Quick Start on page 3.)*

FISHMAN®

FISHMAN PREFIX™ ONBOARD BLENDER

This fine instrument is equipped with a FISHMAN PREFIX™ ONBOARD BLENDER™. Please read these instructions carefully. If you have any questions or problems, please call our **CUSTOMER SERVICE LINE** at (978) 988-9665.

The ONBOARD BLENDER™ is a guitar mounted preamp that combines the sounds from a supplied FISHMAN ACOUSTIC MATRIX™ under-saddle pickup and a preamp mounted miniature electret condenser microphone.

The microphone, shock-mounted on the underside of the preamp chassis, captures the elusive natural ambience and resonance of the guitar's sound chamber. The ACOUSTIC MATRIX™ pickup delivers a clear, articulate sound with emphasis on string definition and attack. When combined, the two signals produce a powerful and cohesive acoustic guitar tone that is much greater than the sound of either microphone or pickup alone.

The ONBOARD BLENDER™'s preamp module incorporates a unique "flip-top" battery compartment for easy access. Levels are set by the master VOLUME and BLEND controls. A variable NOTCH filter, shelving BASS & TREBLE, semi-parametric CONTOUR and a PHASE switch are included for precise tone shaping and feedback control. The ONBOARD BLENDER™ can be plugged into any instrument-level audio input with excellent results.

THE PICKUP

The included ACOUSTIC MATRIX™ pickup is made with a unique co-polymer sensing material available exclusively from FISHMAN. This technology is not available from any other manufacturer. The sensing material exhibits a sensitivity and dynamic range that far surpasses all other known materials. The ACOUSTIC MATRIX™ transducer is a fully EMI shielded, multi-layer sandwich of co-polymer strips that run the length of the pickup. This design allows the pickup to sense the motion of the entire saddle length, providing superb string to string balance, as well as sensitivity to both the strings and top of the instrument.

THE MICROPHONE

The microphone, in conjunction with PHASE, NOTCH and CONTOUR controls (see page 6), will provide very high level sound reproduction before feedback. Conveniently shock-mounted to the back of the preamp case, the microphone is acoustically isolated inside the instrument, providing freedom of movement as well as minimal leakage from other instruments on stage.

QUICK START

To successfully combine microphone and pickup signals, it is best to start by presetting the microphone EQ to control feedback, then mixing in the pickup. The PREFIX™ ONBOARD BLENDER™ features three ways to control feedback; a PHASE switch, NOTCH filter and semi-parametric CONTOUR controls.

Follow these steps to achieve a strong, feedback-free microphone response.

1. Before plugging in, set all controls as follows:
 - NOTCH and VOLUME fully counter-clockwise
 - All EQ sliders at center position
 - BLEND slider at MIC position
2. Plug in the instrument (see THE PREAMP section) with your amplifier set as desired.
3. Slowly increase the VOLUME until the guitar and speaker are approximately the same level. Play the lower strings and flip the PHASE switch. Leave the switch in the position that sounds the deepest and clearest. (See page 8)
4. Slowly increase the volume until the instrument starts to rumble or howl with low to mid level feedback (100-200 Hz).
5. Adjust the NOTCH filter until the feedback is eliminated.
6. Slowly increase the VOLUME again, until you hear a squeal (high frequency feedback).
7. Lower the CONTOUR Level all the way down. Slowly adjust the Contour FREQUENCY slider until the feedback is eliminated. Raise the CONTOUR Level slider (if possible) to just below the threshold of feedback.
8. Gradually mix in the pickup signal by adjusting the BLEND slider. The pickup signal will add significant attack and definition to your sound.
9. Adjust the BASS and TREBLE controls as desired.
Please note that these controls will affect pickup signal only.
10. Double check the PHASE switch position until you find the clearest response.
11. Play your guitar as loud as you want.

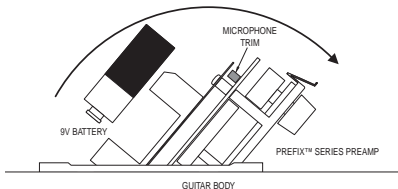
See diagram on page 6

FISHMAN PREFIX™ ONBOARD BLENDER

PREAMP FUNCTIONS

BATTERY COMPARTMENT

Pull the small tab at the top of the ONBOARD BLENDER™ toward you. The body of the preamp will swing out, revealing the BATTERY COMPARTMENT. Insert a fresh 9V alkaline battery.



MICROPHONE TRIM CONTROL

A small circular potentiometer is located on the underside of the preamp just below the battery compartment. This control is used to calibrate the microphone gain in relation to the pickup. To use this control, set the BLEND slider to the center position and, with a small screwdriver, adjust the potentiometer until both the microphone and pickup levels are balanced.

ENDPIN JACK

The ONBOARD BLENDER™ has no ON/OFF switch. It is turned on only when an instrument cable is plugged into the endpin jack. To conserve the battery, remove the instrument cable from the endpin jack when the unit is not being used.

NOTE: Plug an instrument cable into the endpin jack **before** you plug into the sound equipment. Doing so will prevent loudspeaker damage.

BATTERY LOW LED

When plugging into the endpin jack, the LOW BATTERY light will flash momentarily, indicating that the power is on. When the LOW BATTERY light stays on, it is time to change the battery.

CONTROLS

NOTCH FILTER

This is a fixed level, variable-frequency filter for eliminating feedback or unwanted resonance. The affected frequency is variable from 50 to 900 Hz. The

ACOUSTIC GUITAR SYSTEM

NOTCH FILTER is effectively off in the full counter-clockwise position.

VOLUME CONTROL

The VOLUME control affects both microphone and pickup. Goes from very quiet to very LOUD.

BASS CONTROL

This is a boost/cut shelving tone control. This control affects the pickup signal only. The center detent yields a flat response.

CONTOUR This is a wide-range semi-parametric filter. It may be used to shape the instrument's tone or to control feedback (see pages 6 and 7). The CONTOUR control affects both the pickup and microphone.

The CONTOUR Level slider controls the amount of boost or cut applied to the selected Contour FREQUENCY. The center detent yields a flat response.

The Contour **FREQUENCY** slider determines the frequency band that is boosted or cut by the CONTOUR Level control. The frequency is variable between 250 Hz and 10 kHz.

TREBLE CONTROL

This is a boost/cut shelving tone control. This control affects the pickup signal only. The center detent yields a flat response.

PHASE SWITCH

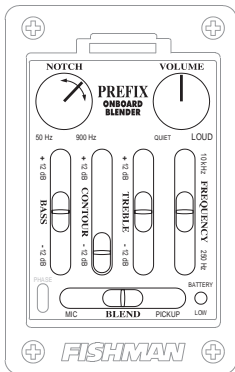
The PHASE switch compensates for acoustic phase differences that often occur between instrument and speaker. It can be used as a tone filter at low volume levels or a feedback filter at high levels. Whenever you play through a different sound system or at a different venue, flip the PHASE switch several times and use your ear to find the optimum setting.

BLEND CONTROL

This control determines the balance between microphone and pickup signals. This control can be used as a feedback "escape hatch" if you ever need to instantly shut off the microphone during a performance.

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SUGGESTED EQ SETTINGS

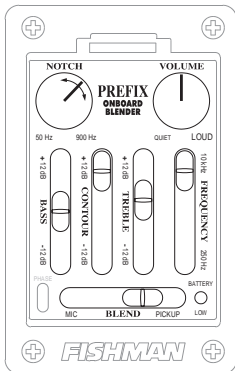


ANTI-FEEDBACK

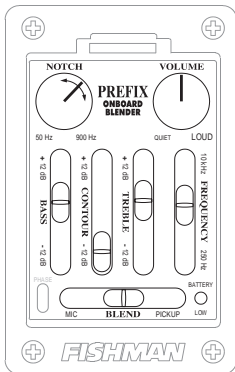
Refer to page 3.

BRILLIANCE

If you are playing through an electric guitar amplifier or have dead strings on the instrument, you can brighten up your sound by setting the Contour FREQUENCY slider to 10 kHz and raising the CONTOUR Level to taste. If you plan to play at high stage volume levels, dial in more pickup than microphone to avoid feedback.



ACOUSTIC GUITAR SYSTEM



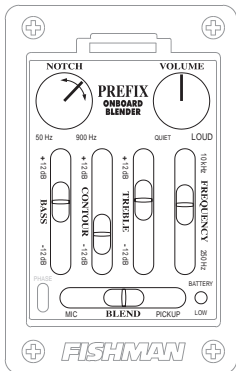
MID CUT

You can scoop out harsh midrange by setting the FREQUENCY slider slightly above center with the CONTOUR Level cut to taste below the center detent. Often the desired mid-cut will fall into the same frequency range as potential microphone feedback. This is your lucky day!

You can also cut midrange (pickup only) by boosting the BASS and TREBLE sliders to realize an "implied" mid-cut at 800 Hz.

FINGERSTYLE

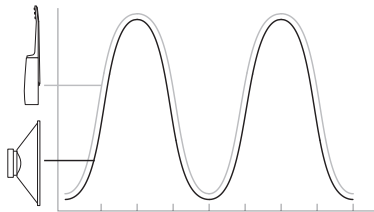
This setting will add fullness to the bass and definition to the treble.



WHAT IS PHASE?

Phase is the relationship between two signals or soundwaves originating from the same instrument.

For our purposes, phase relationships are expressed as being either "in phase" or "out of phase". *In phase* tends to enhance, while *out of phase* tends to suppress the natural characteristics and acoustic tendencies of an instrument. A simple way to determine the quality of phase (in or out) of two sounds is to compare phase switch settings at low volumes.

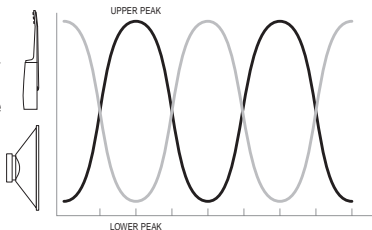


IN PHASE

In phase is when the waveforms of two sounds originating from the same instrument are similarly aligned in time. Similar phase is like looking at yourself in a mirror: your reflection directly follows your movement.

OUT OF PHASE

Out of phase is when the waveforms of two sounds originating from the same instrument are aligned such that the upper peak of one wave occurs at the same moment in time as the lower peak of the other. *Out of phase* is like looking at yourself in a live video monitor; the image you see is similar, but the perspective is shifted. When you move to the right, the image appears to move to your left.



WHY DO I NEED A PHASE SWITCH ?

The phase switch is useful for two reasons:

1. Due to the interactive and changing nature of phase, acoustic amplification depends on maintaining optimum phase relationships between amplified instruments, sound systems and venues.
2. Since an industry standard for polarity has not been established for all sound equipment, the phase switch can compensate for any unintentional differences that might occur between instrument and sound system.

APPLICATIONS

In any situation where the mic'ed instrument faces a loudspeaker, there will be an interactive phase relationship between the two. This usually occurs with stage amps, side fill and floor monitors at close distances.

• LOW VOLUME AMPLIFICATION

At low volumes, when a mic'ed instrument and speaker are at similar levels and are *in phase*, the sound is full and solid, with the lower frequencies emphasized.

When a mic'ed instrument and speaker are *out of phase* at low levels, the bass frequencies cancel out to some extent. The resulting sound is somewhat unnatural and unbalanced compared to *in phase*.

• HIGH VOLUME LEVELS

At high volume levels, when a mic'ed instrument and speaker are *in phase*, the sound pressure from the speaker will excite the instrument's sound chamber, creating a feedback loop at the instrument's lowest octave. This "cavity resonance" feedback can be dealt with by putting the mic'ed instrument and speaker out of phase or by adding equalization.

A. USING THE PHASE SWITCH TO REDUCE FEEDBACK.

Inverting the PHASE switch will put the mic'ed instrument and speaker *out of phase* with each other, cancelling the low frequency feedback.

If you move from your position on stage more than a few feet, you may have to invert the PHASE switch again to maintain an *out of phase* relationship between the mic'ed instrument and speaker.

Continued ...

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Continued from Page 9

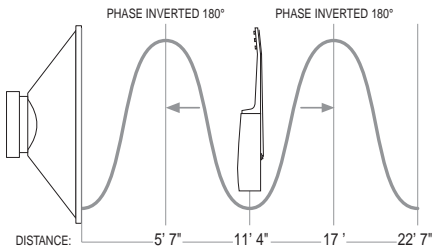
Here's why:

A typical guitar has a cavity resonance of about 100 Hz. This is the frequency that generally feeds back when a mic'ed guitar and speaker are *in phase*.

100 Hz has a wavelength of about 11 feet.

Phase inverts 180° for every 1/2 a frequency's wavelength. In this case, 1/2 the wavelength is about 5 1/2 feet.

If you set your PHASE switch to eliminate cavity resonance (*out of phase*) and then move 5 1/2 feet towards or away from the speaker, you will effectively put the mic'ed guitar/speaker relationship at 100 Hz back *in phase*; in the line of fire for low frequency feedback.



The PHASE switch on the ONBOARD BLENDER™ in effect electronically "moves" your instrument's position relative to the speaker by inverting the phase 180° every time you flip it.

B. USING THE NOTCH FILTER TO REDUCE FEEDBACK

Notching out instrument cavity resonance will eliminate the low frequency feedback problem completely. The advantages to using notching equalization are:

- The physical distance from the speaker will no longer be a factor for potential low frequency feedback.
- The mic'ed instrument/speaker can remain *in phase*, maintaining a more natural and balanced response.

ACOUSTIC GUITAR SYSTEM

SPECIFICATIONS

Nominal Input Level:	-20 dBV
Input Overload:	(20 Hz - 20 kHz)-2 dBV
Input Impedance:	20 M Ohms
Output Impedance:	Less than 3.5 k Ohms
Nominal Output Level:	-12 dBV
THD:	Less than .04 %, -20 dBV input
Signal to Noise Ratio:	77 dB (A weighted referred to nominal -20 dBV input)
Current Drain:	Less than 4 mA
Power Supply:	9V Alkaline battery (estimated 140 hours continuous use with low battery indicator at 6.5V)
Notch Filter Range:	50Hz - 900 Hz (-15 dB)
Bass Control Range:	± 12 dB at 60 Hz ± 3 dB at 350 Hz
Treble Control Range:	± 12 dB at 10 kHz ± 3 dB at 2.4 kHz
Contour Control Range:	± 12 dB (adjustable from 250 Hz to 10 kHz) Q = 0.5

PICKUP ONLY

All specifications subject to change without notice.

PREFIXTM
**ONBOARD
BLENDER**

LIMITED WARRANTY

INSTALLATION BY A QUALIFIED PROFESSIONAL REPAIRMAN IS STRONGLY RECOMMENDED. FISHMAN TRANSDUCERS WILL NOT BE RESPONSIBLE FOR ANY DAMAGES THAT MAY RESULT FROM IMPROPER INSTALLATION.

The FISHMAN PREFIX™ ONBOARD BLENDER ACOUSTIC GUITAR SYSTEM is warranted to function for a period of One (1) Year from the date of purchase. If the unit fails to function properly within the warranty period, free repair and the option of replacement or refund in the event that FISHMAN is unable to make repair are FISHMAN's only obligations. This warranty does not cover any consequential damages or damage to the unit due to misuse, accident, or neglect. FISHMAN retains the right to make such determination on the basis of factory inspection. Products returned to FISHMAN for repair or replacement must be shipped in accordance with the Return Policy, as follows. This warranty remains valid only if repairs are performed by FISHMAN. This warranty gives you specific legal rights and you may also have other rights which may vary from state to state.

RETURN POLICY

To return products to FISHMAN TRANSDUCERS, you must follow these steps...

1. Call FISHMAN TRANSDUCERS at 978-988-9199 for a Return Authorization Number ("RAN").
2. Enclose a copy of the original Bill of Sale as evidence of the date of purchase, with the product in its original packaging and a protective carton or mailer.
3. FISHMAN TRANSDUCERS' technicians will determine whether the item is covered by warranty or if it instead has been damaged by improper customer installation or other causes not related to defects in material or workmanship.
4. Warranty repairs or replacements will be sent automatically free of charge.
5. If FISHMAN TRANSDUCERS determines the item is not covered by warranty, we will notify you of the repair or replacement cost and wait for your authorization to proceed.



FISHMAN TRANSDUCERS®

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