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# Phase

Two & six stage phaser / vibe guitar effect pedal

User Manual  
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## INTRODUCTION

Thanks for purchasing a Diamond Phase 2 & 6 stage phase / vibe. The Phase provides the ability to select either a deep '70s swirl 6 stage JFET phase shift effect, or a more subtle 2 stage alt-rock effect, with the added versatility of being able to remove the direct signal path in 'vibe' mode for unique pulsing effects.

*Remember to protect your hearing and wear appropriate hearing protection when playing loud...*

## DESIGN BACKGROUND

The Phase has been one of our longest running 'on the drawing board' projects, with initial development starting even before the Memory Lane got underway in the fall of 2004. A number of different underlying phase shift topologies came and went before settling on a modification of the classic JFET / opamp phase shift stage. As design continued on in early 2007, we also decided to throw out our announced 'Phase FM' envelope controlled phaser design as too complicated and finicky. In the



end, we decided on a simpler classic phaser design with several elements of added versatility: foot control of LFO speed, simple mono operation with separate direct out, overall volume control, and a 'vibe' setting implemented by removing the direct signal path from the mix. We were nearing final production PCB's in the spring/summer of 2007 when a customer suggested that the ability to provide either 2 or 6 phase shift stage operation would be a really great feature. We quickly modded one of our prototypes, and fell in love with the subtler 2 stage sound. Production came to a halt as we reworked the box mold, screen print graphics and PCB and managed to get a revised prototype Phase out to summer NAMM 2007. Moving forward through fall 2007, the Phase again fell victim to the Memory Lane - this time development work on the new Memory Lane 2 kept the final production touches on the Phase from happening until after winter NAMM 2008, when one final frequency balance change was made to the design and the Phase finally began full production.

## FEATURES

- selectable 2 / 6-stage JFET phaser
- versatile control over depth, speed and feedback regeneration
- Phase / Vibe mode switch (Vibe mode is also a kill-dry mode for use in amplifier parallel FX loops)
- output volume control
- Pure sinusoidal LFO waveform, speed adjustable from 0.2 to 10 Hz
- Auto-buffered direct signal output path - buffers a 2nd dry output channel only when plug is inserted in DIRECT output, completely removes buffer for true bypass operation in mono mode
- all analog circuitry
- LED indication of LFO speed
- expression pedal control of LFO speed
- Vishay JFET, Burr-Brown audiophile opamps and Panasonic polypropylene capacitors
- genuine Hammond cast aluminium 4.7 x 4.7 x 1.0 inch case

## CONTROLS

The Phase is an easy to use pedal - however, the user friendly control set allows for a wide variety of phase and vibe sounds.

### *SPEED*

This sets the speed of the Low Frequency Oscillator (LFO) within a range of .2 to 10Hz- from a very slow sweep to a fast ‘wobble’. Speed can also be controlled via an expression plugged into the EXT jack located next to the input. Note that the LED provides a visual reference to the speed setting even when the pedal is bypassed.

### *DEPTH*

This control determines the intensity of phase modulation. Low settings provide a more subtle effect while high setting allow for very prominent ‘swirl’.

### *REGEN*

This control allows a portion of the output signal to be fed back into the input of the circuit. This feedback produces frequency peaks that alter the character of the effect.

### *VOL*

This control allows the user to match the level of the bypassed sound and the sound with the pedal engaged. Additionally, the range of the VOL control allows for an increase or a decrease in level if desired. The VOL control is particularly useful when using the pedal in VIB mode. In this mode the dry (unaffected) signal is removed from the mix resulting in a lower overall level which can then be increased using the VOL.

## SWITCHES

### *2 / 6 STG*

This toggle alternates between 2 or 6 stages of phasing. 2 stages provides a subtle sweep while 6 stages is a much deeper ‘swirl’ reminiscent of 70’s prog rock.

### *PHS / VIB*

When switched to VIB the dry signal is removed from the output mix. The resultant sound has more ‘throb’ and less sweep. VIB mode is also useful in conjunction with amps that feature a parallel effects loop- because dry signal is being mixed with the effect at the amplifier, VIB mode helps to preserve the phase effect.

### *ON / OFF*

This switches the entire effect circuit between bypass and in-circuit operation, with a green LED indicating that the effect is bypassed and a red LED indicating the effect is engaged.

## INPUT / OUTPUT JACKS

### *INPUT*

The input jack is located on the right side of the pedal and is indicated by the “<” symbol. Plug in your guitar, the output of another pedal or the ‘send’ of your effects loop into this jack.

### *EXP*

The EXP or expression jack is located on the right side of the pedal below the INPUT jack. Plug in an expression pedal to manually control SPEED ‘on the fly’.

### *DIR*

The DIR output is located on the left side of the pedal and provides a buffered dry signal to send to a second amp in a stereo setup or effects chain.

### *OUTPUT (mono)*

This output is located on the lower left side and is indicated by the “<” symbol. It provides a dry signal when the pedal is bypassed and an effected signal when the pedal is engaged. Plug the output of this jack into your amp, the input of another effect or into the ‘return’ of your effects loop.

## POWERING

### *ADAPTER*

The Phase comes standard with a 24V switching power supply. This power supply will work anywhere in the world (some locales may require a simple physical adapter).

### OTHER POWER OPTIONS

The Phase can also be powered using power supplies such as the Pedal Power 2 Plus or Juicebox. Power supplies with a dedicated 18-24V output that provide at least 100ma of current can be used. Note that the output must be center positive or a polarity reversing cable must be used!! Power supplies that do not have a 18-24V output can be used with a special cable available from [www.diamondpedals.com](http://www.diamondpedals.com) that combines 2 9V outputs and reverses their polarity. In order to use this method, the 9V outputs of your power supply must be electrically isolated from each other. If you are unsure, please contact the manufacturer of your power supply.

### PRESETS

The Phase controls provide many tonal possibilities. As a starting point, here are a few presets:

*Spinning Rotor*  
 Volume: 12 o'clock  
 Stages: 2  
 Regen: 12 o'clock  
 Mode: PHS  
 Depth: 3-4 o'clock  
 Speed: 3-4 o'clock



*Vibey*  
 Volume: 2-3 o'clock  
 Stages: 2  
 Regen: OFF  
 Mode: VIB  
 Depth: 12 o'clock  
 Speed: 2 o'clock



*Throb and Swirl*  
 Volume: 12 o'clock  
 Stages: 6  
 Regen: OFF  
 Mode: PHS  
 Depth: 12 o'clock  
 Speed: 2 o'clock

