

Delay-Type Effects

Delay effects manipulate time. In delay effects, the signal is delayed for some amount of time. There are many types:

- (1) Delay (Echo) – Delay produces an echo effect. For this to be perceivable, the delay must be longer than about 50ms. A delay involves an input level control, a delay circuit (which samples the input and retains it for a specified amount of time before releasing it), a feedback control (which routes the signal back to the delay input and thus creating repeated echoes), a dry/wet mix control, and an output level. Care must be taken not to allow the feedback to get too high. If it does, a constant howl will develop which could be damaging to your speakers. A hold button may also be present which simply holds the sample until it is released. One use of the delay involves the echoes to appear in tempo with the song. Multi-tap delays involve several delays that do not have to be exact multiples of each other.

Modulation Depth and Speed controls are usually added to make the delay unit more versatile. The modulation depth may be used to control the intonation of pitch. The modulation speed control may be used to vary the sample clock rate. With these controls, the following remaining delay type effects may be created:

- (2) Vibrato – Vibrato is achieved by reducing the delay to only a few milliseconds (less than 10ms), removing the dry signal completely, and applying modulation speed and depth to the signal. No feedback is required.
- (3) Phase Shift – This “smokey-like” effect is similar to vibrato. All you need to do is mix the untreated portion back in.
- (4) Flanging – Creates a “whooshing” effect. Same as phasing just add some feedback.
- (5) Chorus – Chorus creates a thickening or doubling effect. The delay time is usually set to around 10-50ms. Only a slight bit of modulation of the delay time is necessary. The wet and dry signals should be equally mixed.

Any of the above effects may be fitted with a phase invert switch. This switch inverts the phase of the signal being routed back to the input. This will accentuate a different set of harmonics producing a change in the color of the sound.