

Fig. 1. The Fuzzbox goes between the amplifier's speaker taps and the speaker voice coil terminals.

contact push-button switch (*S1*), a power diode such as a GE 1N91 (*D1*), and a 0.05- $\mu$ F, 50-volt ceramic disc capacitor (*C1*). In operation, the unit is connected between the output of the guitar amplifier and the speaker, and the combination diode-capacitor acts as a simple wave-forming circuit.

The normal waveform produced by a guitar is relatively free of harmonic content. When the switch is pressed, the diode clips alternate peaks of the applied signal, and the signal is further shaped by the capacitor to produce a sawtooth-like waveform rich in harmonics. This enables the Fuzzbox to pro-

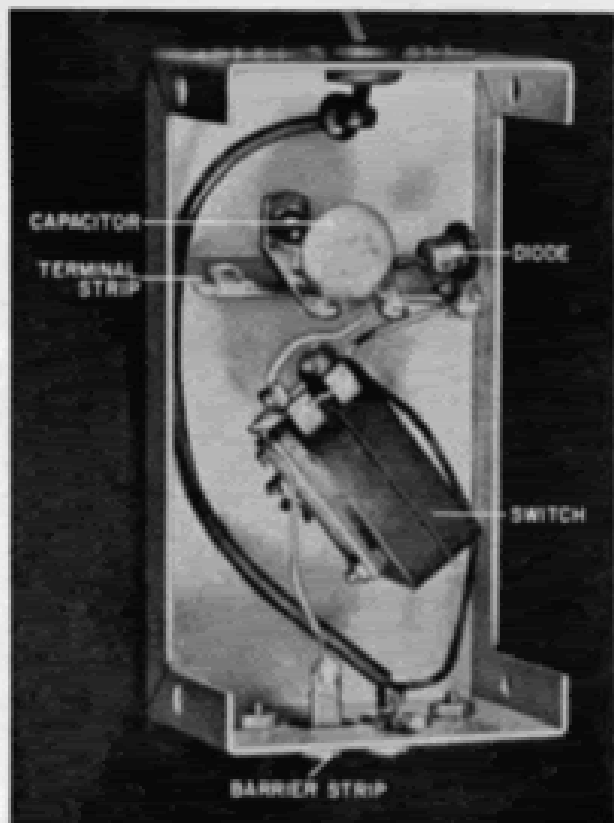


Fig. 2. For easy access, the push button is mounted on top of the box, while the diode and capacitor are wired on a terminal strip below the deck.

duce overtones which sound as if they were tearing your speaker to shreds, while actually reducing, slightly, the amplifier output power.

**Construction.** For professional appearance, the Fuzzbox should be mounted in a small presentable enclosure—a 4"  $\times$  2"  $\times$  1½" aluminum box of the gray hammettone type will do nicely. The push-button switch can be mounted on the top of the box for easy access, and the other two components connected via a terminal strip as shown in Fig. 2. A barrier strip can be mounted through a cutout on the chassis for easy connection to external circuits.

An alternate construction method is to use a footswitch with the few components mounted inside the switch. Also, the diode and the capacitor can be included in the guitar amplifier and controlled from a switch located outside the amplifier.

No shielding is required as the circuit is not susceptible to hum pickup, and no special precautions need be taken. But you must use a power diode for *D1*, since miniature low-power diodes cannot take the high power levels produced by most guitar amplifiers. Incidentally, slightly different sounds are produced by different types of diodes, and you may wish to experiment with some of the power types for the best sound. However, the author has found the GE 1N91 to be quite satisfactory.

**Installation and Use.** The Fuzzbox is connected between the amplifier speaker taps and the speaker voice coil, with the switch wired in the "hot" or ungrounded lead. Also, be sure to make connections to the proper speaker impedance taps to prevent excessive power losses.

In addition to its "fuzz"-producing function, the Fuzzbox can be used as an aid in tuning a 12-string guitar. For if a pair of strings is not tuned an octave apart, as they should be, you will hear a distinct beat that can be overcome only by properly tuning the instrument.

And remember, the Fuzzbox is designed for single-string application, and will not reproduce chords satisfactorily. Have mercy on your audience by using the Fuzzbox as it should be used. —