

# FUZZ BOX

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**T**HE effect of fuzz is to provide change in the tone produced of a guitar or other sound source so adding colour or interest to a particular musical statement.

The particular unit to be described uses cheap and readily available components and compares very favourably, both in cost and performance, with its commercial counterpart.

## FUZZ PRODUCTION

In the Fuzz Unit circuit of Fig. 1 the pre-amplifier TR1 magnifies the incoming signal via the socket JK1 and this is passed in turn to a Schmitt trigger consisting of TR2 and TR3.

The action of this circuit is to amplify and square up the signal thus adding distortion to give the characteristic fuzz sound.

To protect the base/emitter junction of TR2 from reverse bias breakdown a diode, D1, is connected.

## TONAL VARIATIONS

To introduce some variation in tone a low pass filter C3 is connected to the negative line from C4. The function of this is to shunt some of the higher frequency components of the square wave and so the tone of the output depends upon its value.

In the prototype a 0.22 $\mu$ F capacitor was used to provide a fairly mellow tone. If the value of this is decreased to 0.1 $\mu$ F or lower, the tone becomes harsher. Obviously, the choice here will depend on personal requirement.

## CONSTRUCTION

Small circuit components are mounted and wired on a 3 $\frac{1}{2}$ in  $\times$  2 $\frac{1}{2}$ in piece of Veroboard as shown in Fig. 2.

It should be noted that input and output leads from the control panel sockets are screened so as to prevent hum pick-up which might cause unwanted triggering of the Schmitt circuit.

## THE UNIT IN USE

When using the unit, it should be borne in mind that while the guitar volume control will not affect the level of fuzz produced, if it is set too low the Schmitt will not trigger and there will be no output to the amplifier at JK2 at all.

It is possible to make a lot of unpleasant noise with a fuzz unit. This can be avoided by never playing "fuzzed" chords or over indulging in the effect in musical passages where fuzz just does not fit in. ★

## COMPONENTS . . .

### Resistors

R1	1.5M $\Omega$	R6	1.5k $\Omega$
R2	10k $\Omega$	R7	6.8k $\Omega$
R3	220k $\Omega$	R8	1.5k $\Omega$
R4	2.7k $\Omega$	R9	15k $\Omega$
R5	5.6 $\Omega$		

All 10%,  $\frac{1}{4}$  watt carbon

### Capacitors

C1	5 $\mu$ F elect. 25V
C2	0.1 $\mu$ F polyester
C3*	See text
C4	5 $\mu$ F elect. 25V

### Transistors

TR1	BC169C
TR2/TR3	2N2926 (G) (2 off)

### Diodes

D1	DD000
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### Miscellaneous

JK1, JK2	Standard jack sockets (2 off)
S1	On/off toggle switch. Control knobs
	Veroboard 3 $\frac{1}{2}$ $\times$ 2 $\frac{1}{2}$ in 0.15in matrix, B1-PP3
	9V battery. Battery connectors

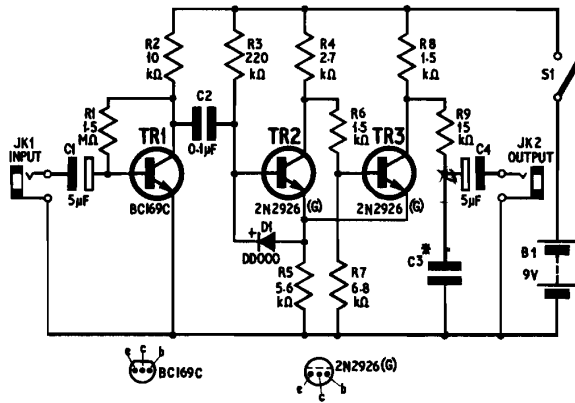


Fig. 1. Circuit diagram of Fuzz Box

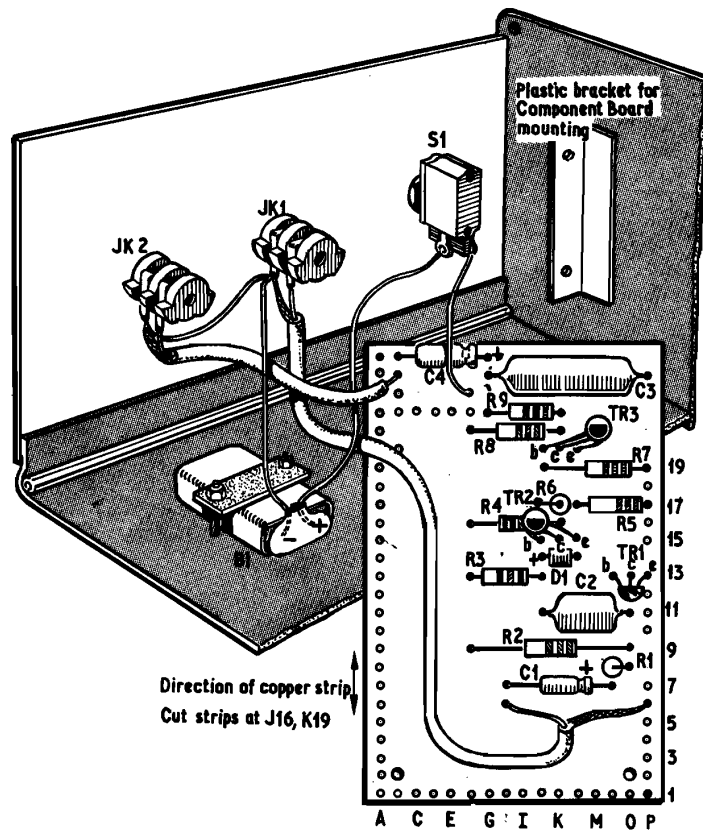


Fig. 2. Veroboard component assembly details and control panel interwiring