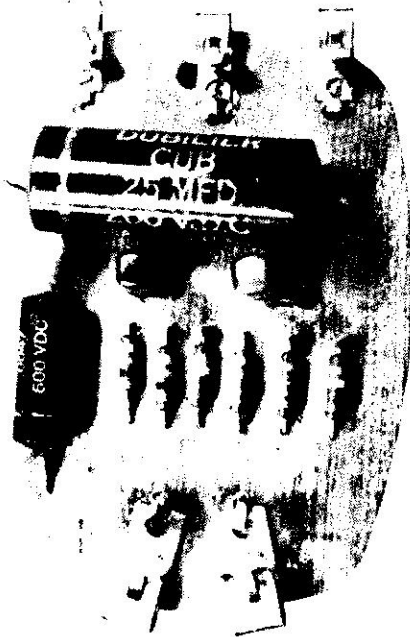
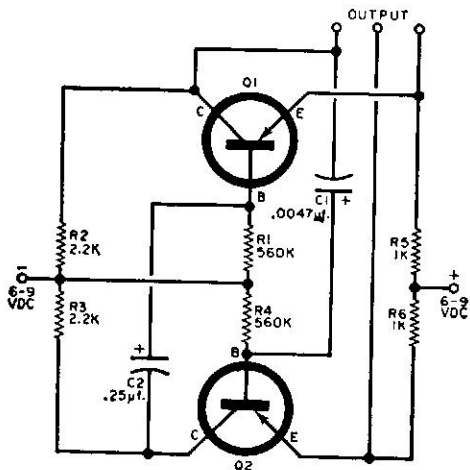


Four-Way Oscillator



Almost nothing is critical about this one-parts values may be varied to give different frequencies and waveforms. CK722's were used for Q1 and Q2.



IF YOU'D like to try your hand at a very intriguing, easy to build, inexpensive transistor project, the "Four-Way Oscillator" is for you. As indicated in the drawings above, it generates square waves (comparable in quality to those produced by a commercial audio square-wave generator), and at least several other waveforms of different frequencies, shapes and strengths. The unit can also serve as a CPO, a grid dipper modulator, or as a go-no-go transistor tester.

A quick look at the schematic tells—story—the Four-Way Oscillator is actually a simplified free-running multivibrator, unusual in that only ten components are required. With the parts values shown, square-wave output of about 800 cps can be taken from the first two terminals at the top. Varying the value of C1 will change the output frequency. Taking the output from different combinations of terminals will give different waveforms and different frequencies. Actually, output can be taken from almost any point in the circuit—it's fascinating to experiment while watching a 'scope or while monitoring the signals with a pair of headphones.

The Four-Way Oscillator makes an excellent tester for small-signal *npn* transistors. Defective units—including those with excessive leakage—will simply not work when used to replace either Q1 or Q2—CK722's in the author's unit. Power supply voltage is not critical, but better square-wave linearity was obtained with 9 volts than with 6. The value of C2 can be made considerably smaller without affecting the circuit; changing resistor values will change the waveforms obtainable.

To keep the cost down, the author's unit was built on a small chip of Formica (kitchen cabinet dealers use them for samples, and they should be available for the asking) measuring 2 1/4" x 3". Holes were drilled to accommodate component leads, transistor sockets, and Fahnestock clips for battery leads and output terminals.

The oscillator makes a handy addition to any test bench.

—L. E. Byfield, K9ADD