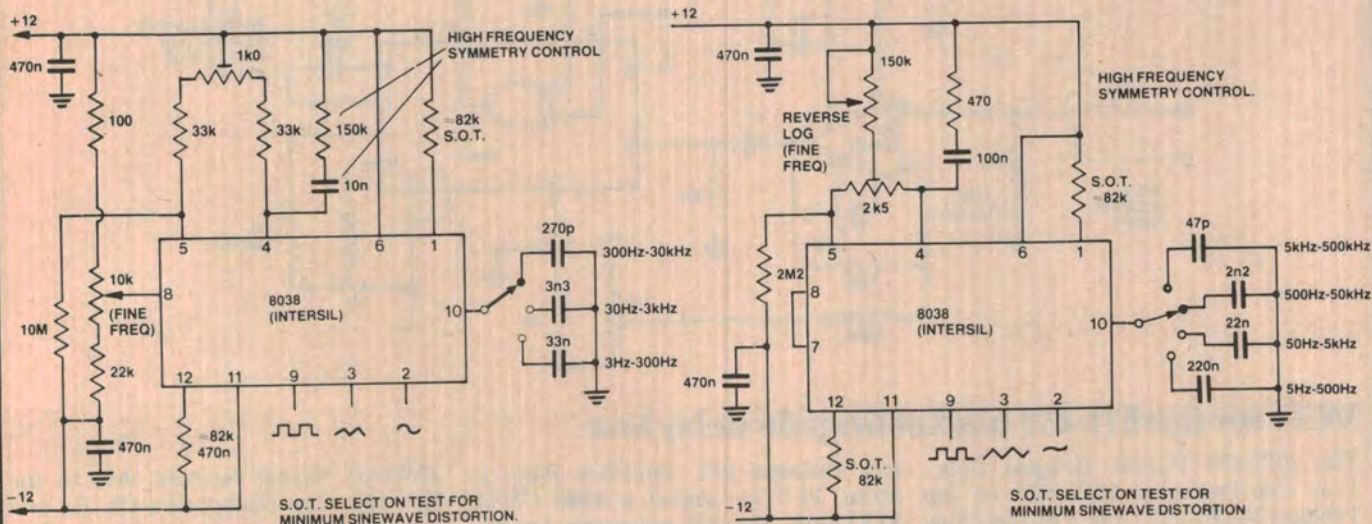


# Ideas for Experimenters

These pages are intended primarily as a source of ideas. As far as reasonably possible all material has been checked for feasibility, component availability etc, but the circuits have not necessarily been built and tested in our laboratory. Because of the nature of the information in this section we cannot enter into any correspondence about any of the circuits, nor can we produce constructional details.



## Improving performance of the 8038 function generator

When using the popular 8038 Function Generator IC in a switched range oscillator, connect a series RC network between pin 4 and the positive supply rail to retain waveform symmetry when operating on the higher frequency ranges. This avoids the need for re-adjusting or switching the symmetry

control resistors along with the frequency determining capacitor.

The bypassing RC network on pin 4 is proportioned to counteract the distorting effects of the IC's internal parasitic circuit paths on the high frequency charge-discharge characteristic when the frequency determining ca-

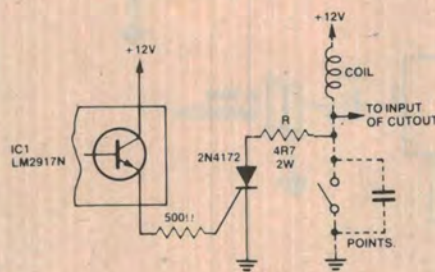
pacitor is less than 1nF. Values are given for two typical circuit configurations. The maximum rate of frequency sweep is reduced in this circuit, with all other IC functions being unaffected.

This suggestion comes from **R. Beaumont of Pennant Hills, NSW.**

## Over-rev safety cutout

In the ETI-322 Over-rev Alarm project (March 1980, p.45), it was pointed out that for road use, the alarm should never be used to cut the ignition. However, **N. Pollock of Sandringham, Vic.** points out that many high performance engines used in racing cars and boats have a very small speed margin between maximum power and physical destruction! For such engines, used in competition, it may be desired to have an over-rev ignition cutout to prevent the otherwise very expensive consequences of a missed gear change or a broken propeller shaft.

An ignition cutout cannot simply turn off the low tension supply to the ignition system since this would deprive the cutout of its engine speed information. This problem is easily overcome for a capacitor discharge ignition system



but requires somewhat more work for a conventional system. The following suggestions should assist those wishing to convert the ETI-322 project to a cutout.

For a CDI system (referring to the original article) Q1 can be used to pull the gate of the CDI's SCR to ground, but a germanium transistor (i.e. AC127) should be used so that its c-e voltage hard-on is lower than 0.6 V else the SCR may still trigger. Alternatively, Q1

could drive a relay, the contacts of which short the SCR gate to ground in the CDI. Mount the relay close to the SCR. It is suggested that R7 be reduced to 1k.

For a conventional ignition system, the circuitry shown here should do the trick. The output stage of IC1 in the ETI-322 alarm is taken via a 500 ohm resistor to the gate of a 2N4172 SCR, shunting the points. The resistor R (4R7, 2W) effectively shunts the points when the engine exceeds the rev limits, and its value must be low enough to prevent spark production, but high enough to leave sufficient signal for the input comparator on the LM2917 in the ETI-322 alarm. It should be noted that a cutout of this type will have some small delay in operation when the engine speed is increasing rapidly. To reduce this delay it is suggested that C4 be removed and C3 reduced in value.