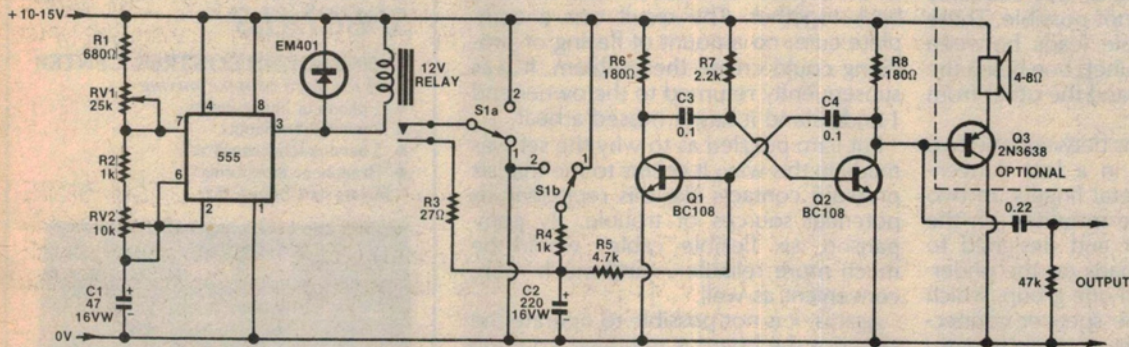


# Up/Down Glide Tone Generator



An up/down glide tone generator can be simply realised by combining the versatile 555 timer with a multivibrator. The circuit can produce a large variety of audible effects, which are obtained by varying the component values around both the 555 timer and the multivibrator.

By adding a simple output stage the device can directly drive a loudspeaker, and could be used as the "hooter" of a burglar alarm. However the current drain is greatly increased, so it is not recommended that it be powered from dry batteries when so modified.

Referring to the circuit it will be seen that Q1 and Q2 are connected in a normal free-running multivibrator configuration, except that R5, the base return resistor or Q1, is connected to the junction of C2 and R4.

Varying the DC potential across C2 will change the operating frequency of the multivibrator. Raising the voltage increases the frequency, lowering it vice versa. If the relay contacts are closed it will be seen that S1a determines whether the initial potential across C2 is zero or Vcc; at the same time S1b returns R4 to either Vcc or zero, ie the converse of S1a.

When the relay contacts open the potential across C2 gradually changes to the other state, the rate of change being determined by the time constant of C2 and R4; thus varying the frequency of oscillation, and providing the "glide", up or down as selected by S1.

The 555 timer is used as a free-running astable with its mark/space ratio adjustable by means of RV1 and RV2. Its output pulses are used to energise the relay which controls the multivibrator. With RV1 and RV2 set to give a

mark/space ratio of about 1:10, and with S1 in position 1, the resultant sound is similar to a warship's action siren.

As R4 serves to control the rate of frequency change, if this is made variable even more interesting sounds can result. In fact the permutations and combinations that may be obtained by varying C1, C2, C3, C4, R4, R5, R7, RV1 and RV2

are limited only by the user's imagination.

The modification for the simple output stage is to add a PNP transistor, Q3, connected as an emitter follower to drive the loudspeaker. Signal from Q2's collector is fed directly to the base of Q3, whilst its own collector is connected to the zero voltage rail.

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