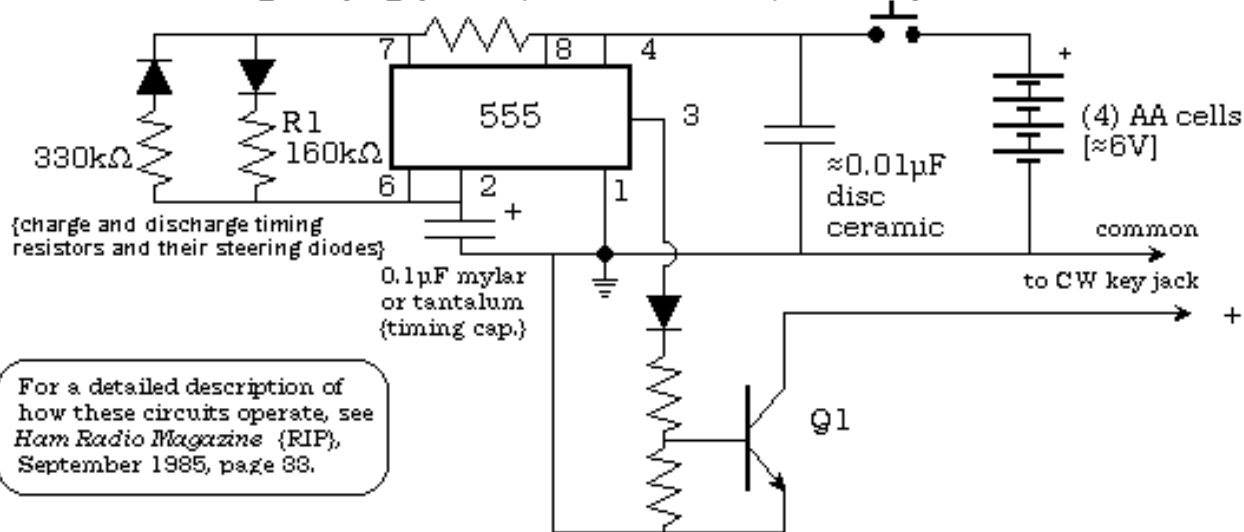


## 9

## Tuning Pulser for SSB Amplifiers

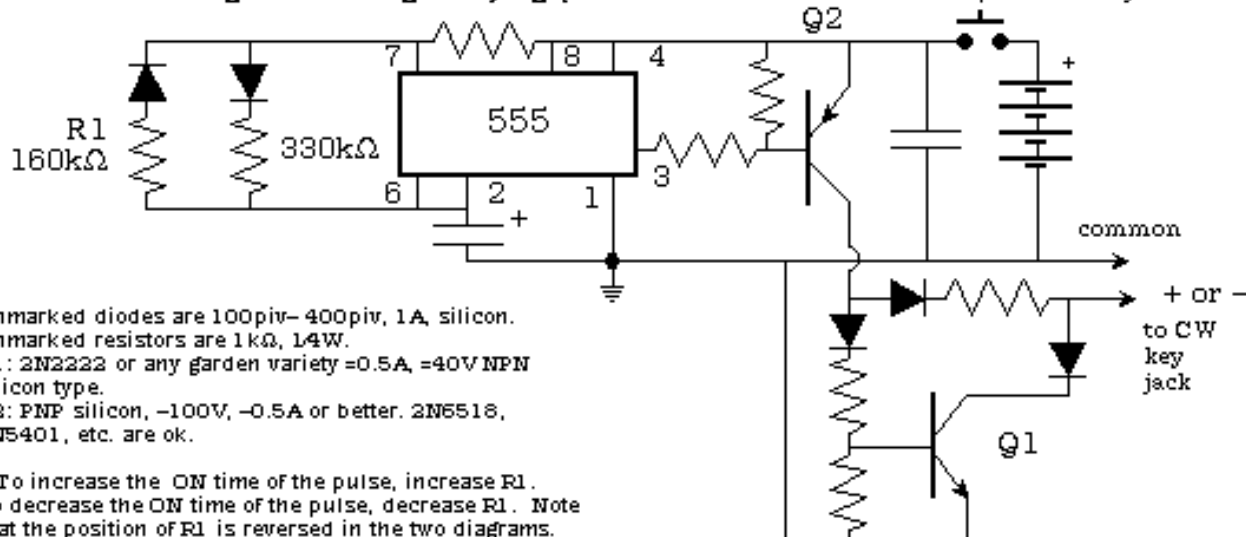
Richard L. Measures, AG6K

**For Positive Voltage Keying** [virtually all transistor-output radios]:



For a detailed description of how these circuits operate, see *Ham Radio Magazine* (RIP), September 1985, page 83.

**For Positive or Negative Voltage Keying** [TS-830S and other tube-output radios]:



Unmarked diodes are 100piv-400piv, 1A, silicon.  
Unmarked resistors are 1kΩ, 1/4W.  
Q1: 2N2222 or any garden variety =0.5A, =40V NPN silicon type.  
Q2: PNP silicon, -100V, -0.5A or better. 2N5516, 2N5401, etc. are ok.

To increase the ON time of the pulse, increase R1.  
To decrease the ON time of the pulse, decrease R1. Note that the position of R1 is reversed in the two diagrams. This is due to the effect of Q2 which inverts the 555's output pulse in the circuit that is capable of switching positive or negative voltages.

Either one of these circuits produces a continuous pulse string with an ON time of =12ms and an OFF time of =24ms — for a duty cycle of 0.333. The resultant pulse rate is roughly 28 per second — fast enough to produce a fairly smooth meter indication during tune-up. This allows one to tune up a SSB amplifier safely and more linearly at the higher voltage-SSB tap.

➡ To tune-up any g-g amplifier:

1. The transceiver must be in CW mode, the amplifier is off.
2. Key the pulser and adjust the CW peak power for the same peak power level that will be used on SSB. Not all transceivers have adjustable peak power on SSB. For example, the TS-440S and TS-830S allow the operator to set the peak CW power but they do not have a means of setting the peak SSB power to anything other than maximum. If you own such a radio, adjust the CW power level until the ALC meter just begins to move. This indicates that the radio's maximum peak power capability has been reached.

3. To be on the safe side, unless you already know where to preset it, initially set the amplifier's Load control to about 25% of maximum capacitance [75% of maximum loading]. This assures that the grid-current will not run amuck during the initial tune-up. Switch the amplifier on.

4. Key the pulser. Alternately adjust the amplifier's Tune and Load controls for maximum power output. A relative power indicator is all that's needed.

5. When you are fairly sure that the maximum relative power output has been achieved, the linearity of the amplifier may be further improved if you adjust the Load capacitor for slightly more loading—enough to cause the power indicator to drop about 2%. More loading usually, but not always, means a higher number on the Load capacitor's panel scale. If you are not sure if this convention was followed in your amplifier, maximum loading is minimum C and minimum loading is maximum C.

Note: When the pulser is in use, the amplifier's I meters will indicate only about a third of the actual I. For example, if the grid-I meter indicates 50mA with the pulser on, the real grid-I is: 3 x 50mA=150mA.