

BETTER LINEARITY DURING 50-MHz SSB TRANSMIT WITH THE KENWOOD TS-690S TRANSCEIVER

Kenwood's TS-690S uses a signal (50T), derived from the T8V transmit control line, to bias IC1, the 10-W driver module that drives the radio's 50-W, 6-m final amplifier. By the time the T8V signal makes its way through several connectors on its way to IC1, it measures only about 7.2 V—not enough to bias IC1 into linear operation. Significant crossover distortion results, producing a scratchy-sounding 50-MHz SSB signal.

The manufacturer's data sheet on IC1 is rather vague, but consistently shows a bias value of 9 V. I ran tests of bias versus linearity on IC1, and found that the circuit produced significant crossover distortion at bias values below about 8 V. Its linearity is acceptable at and above 8 V, but is best at 9 V.

My solution (Figure 1) provides the full 9 V for optimum linearity. It's easy to implement and requires only three parts: a resistor, a Zener diode and a Darlington transistor.

The changes add a high current level shifter between the 50T control voltage and IC1's bias input pin. IC1 requires about 140 mA of bias current when biased at 9 V in transmit. The extremely high current gain of the Darlington transistor is needed to supply this current while "stealing" minimum current from the Zener diode.

I supported the three parts by their leads and installed them close to IC1 and the associated circuit board (X45-3420-00), and arranged them compactly so they cleared the metal shield that goes over the board.

John Pelham, W1JA, Suwanee, Georgia

QST's TS-150S/TS-690S Product Review (April 1992, pages 67-71) found no trace of such 6-m SSB distortion in the TS-690S tested. To paraphrase the old saying, if your particular radio ain't broke, don't fix it.—Ed

A COUNTING BAR GRAPH FOR THE WD00 ID TIMER

Why waste all of the unused 4017 decade counter outputs in John Conklin's timer circuit? Upgrade the circuit by simply connecting one segment of a 10-element LED bar-graph display (Radio Shack 276-081) to each of the 4017 outputs. This modification provides constant visual feedback during the timing cycle, as well as relieving CW operators from having to discern the timer's 1 s piezo buzzer beep from QRM.

See Figure 2. Wire the 10 LED cathodes together and connect them to ground via a single dropping resistor (470 Ω in my version, which is powered from a 9-V battery for portability). Each bar-graph segment lights separately for its portion of the 10-minute cycle. The buzzer still buzzes as in the original circuit.

This modification also speeds timer cali-

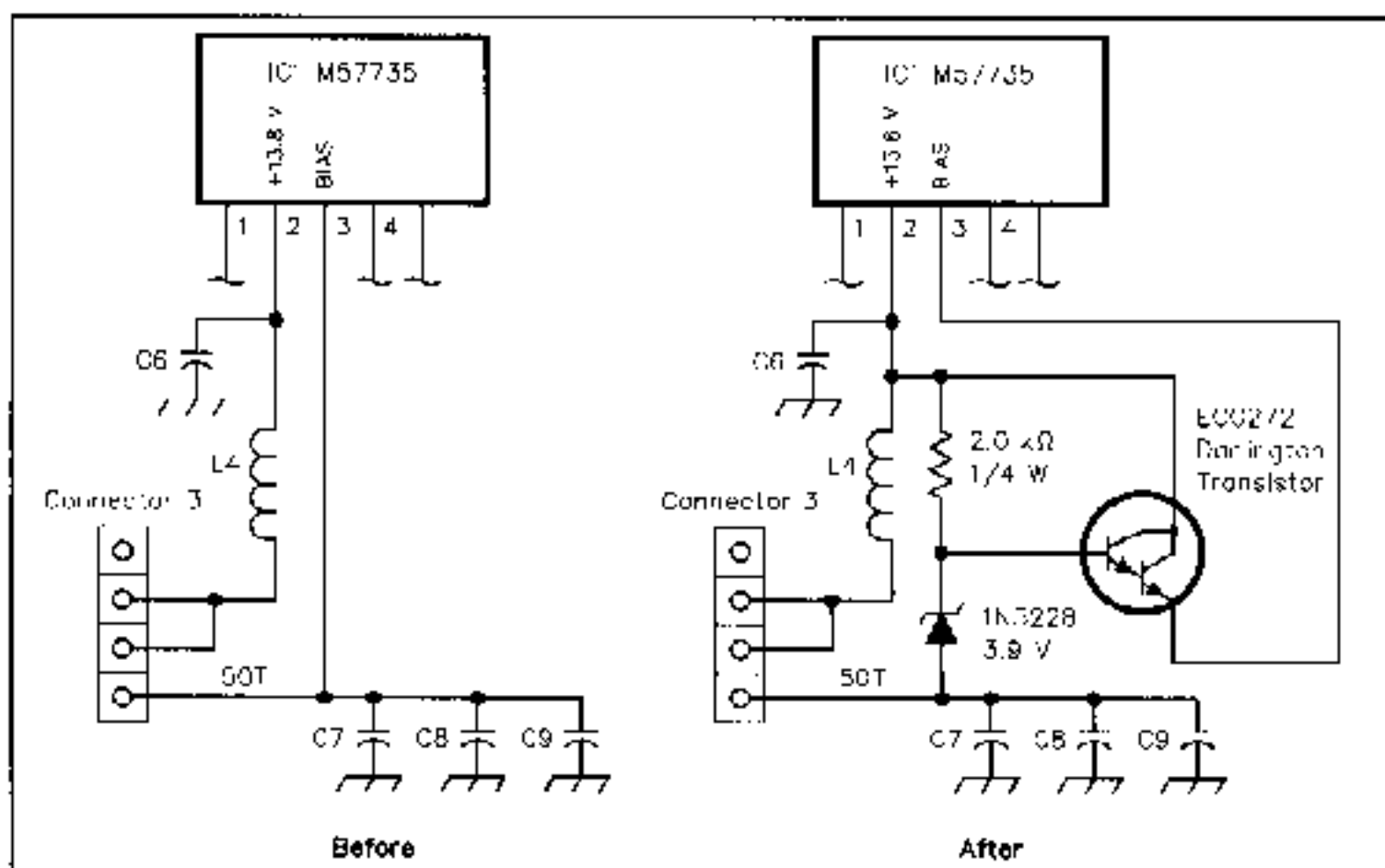


Figure 1—Before and after: How John Pelham rebiasd his TS-690S's 6-m driver IC for better linearity and a cleaner SSB signal.

bration. With the bar graph functioning, you need only wait long enough to be sure the first bar lights for 1 minute, since each of the rest lights for an equal amount of time (1 LED time unit \times 10 LEDs = total time cycle). —Thomas P. Aughenbaugh, NY6Q, Big Bear Lake, California

PacTOR BACKSPACE WITH THE KANTRONICS KAM+

I like my Kantronics KAM+ TNC, but it doesn't support the backspace character in

PacTOR. With backspace, you're able to edit text you've already sent to the station you're working.

Even though Kantronics told me that the current firmware (V 6.1P) won't support a backspace in PacTOR, I decided to experiment. On the off chance that some of the packet commands would work in PacTOR, I tried sending a series of Control-V Control-H characters for each backspace I required. It works!

I use a terminal program called QMODEM,

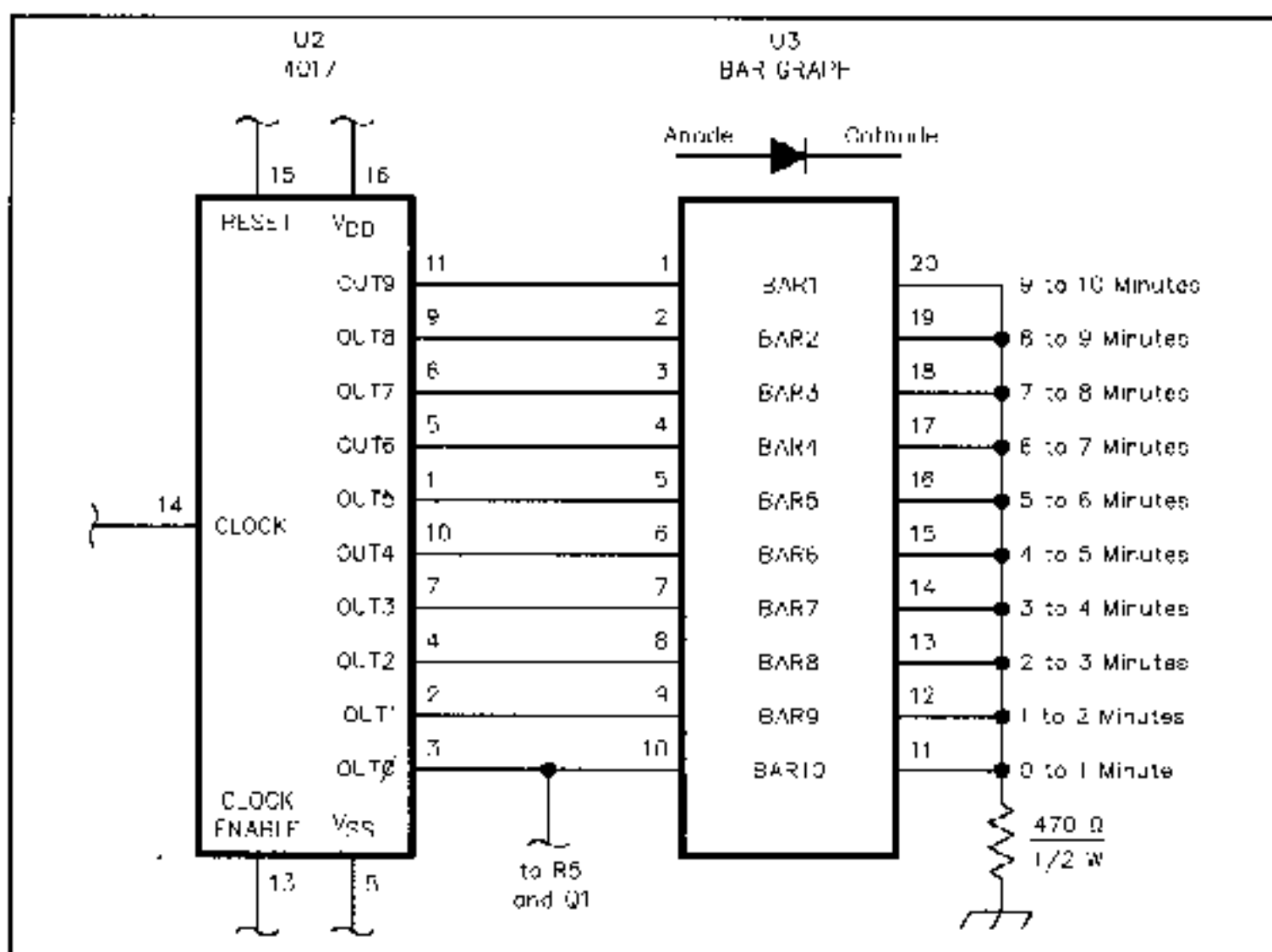


Figure 2 Tom Aughenbaugh's version of John Conklin's ID timer (November 1993 Hints and Kinks) sequentially lights a bar-graph IC's 10 segments when wired as shown here. U3 is a Radio Shack 276-081.

1. J. Conklin, "10-Minute ID Timer Revisited," Hints and Kinks, QST, Nov 1993, p B2.