

tester for 6146 tubes

Since many popular exciters and transceivers use 6146 tubes, and since it is not easy to find a tube tester to accommodate this tube, there is a need for a simple tester to evaluate the condition of 6146 transmitting tubes. This is particularly important when speech processors are used — they tend to raise the average power input, thus shortening tube life. The circuit shown in **fig. 1** uses junk box parts, but will provide a very acceptable 6146 tube tester.

In this tester an ac bias for the grid is provided from the filament winding. It must be polarized. It must be

polarized properly, *i.e.*, the grid must be going positive as the plate is going positive. To check this, reverse the filament connections. Choose the

more as indicated on the meter. Note that this meter indication is the average of half-wave rectified current. Tubes providing 90 mA or less should

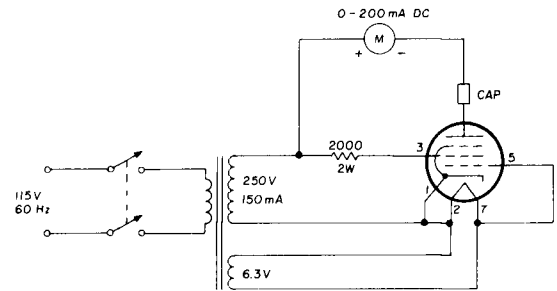


fig. 1. Simple tester for 6146 transmitting tubes is easily built from junk-box parts.

one which yields the greatest plate current. The tester is then ready for use.

A good tube will draw 115 mA or

be discarded or, at most, kept for emergency spares. The tester is also useful for balancing pairs of tubes.

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programmable accessory for electronic keys

Since completing the programmable accessory for electronic keys, August, 1975, *ham radio*, I've struggled to get it operational with my WB4VVF keyer,¹ achieving only intermittent success. The problem has always centered around the memory address and the READ/WRITE control line.

As I've discovered, the READ/

Therefore, since it turned out that the clock pulse from Q2's collector will directly drive U9A, both U8 and U11A are no longer required. The READ/WRITE switching is still done with S3 as seen in **fig. 2**.

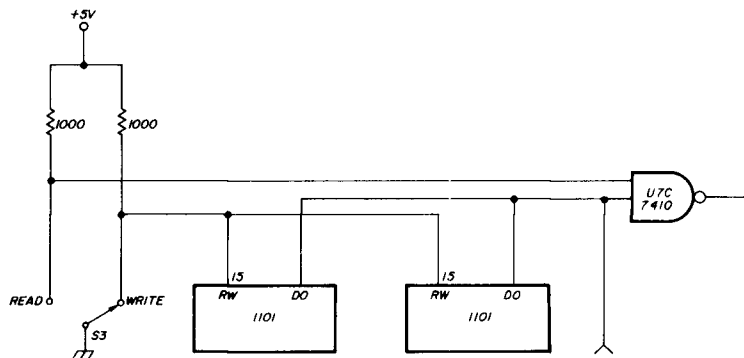
Another problem was that the output pulse from U11B was fast enough to feedthrough the first binary counter in U12 and trigger the second binary counter simultaneously. This prevented full address of the memories. Bypassing pin 4 of U11B with a 1000 pF capacitor cured the problem.

simple frequency counter

The frequency counter described by K4JIU in February, 1978, *ham radio*, page 30, has proven to be a simple, but useful, design. Unfortunately, after building the counter on the board supplied by Mr. Bordon, the counter wouldn't operate above about 30 MHz on the 50-MHz range, or above 300 MHz on the 500-MHz range. Discussions with the author indicated that the problem probably revolved around the waveform presented to the 7208. The Intersil data sheet stated that the optimum input waveform should have a 50 per cent duty cycle. This is the case in the 5-MHz range. But, when using the 74196 prescaler, the Q_D output has an 80 per cent duty cycle.

One possible cure is to use the Q_C output from the 74196 to drive the counter. This will give a duty cycle of 60 per cent. This change also requires that the nonscaled 5-MHz input be loaded through Data Input C instead of Data Input D. The change is accomplished by cutting the foil runs at pins 12 and 13 of U3 and using pieces of insulated wire to connect the foils to pins 2 and 3 respectively. After the change, there will be no connections to pins 12 or 13.

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WRITE line of the memories does not have to be synchronously pulsed with the address locations, merely taking the R/W line to +5 volts during the READ is sufficient.

1. James Garrett, WB4VVF, "The WB4VVF Accu-Keyer," *QST*, August, 1973, page 19.

Since programmable memory address was not required, 7493s were substituted for 74193s. Additionally, sockets must be changed from 16 pin to 14 pin. The 7493 is somewhat cheaper and more available from suppliers.

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