

Memory board parts list, page 6; D2, D3, D7 should be 1N4001.

The power transformer is available from Signal Transformer Company, One Junius Street, Brooklyn, N.Y. 11212, at \$6.00 plus postage.

Molex sockets are available from Force Electronics, 343 Hindry Avenue, Inglewood, Calif. 90301. The sockets (09-52-3103) are 34¢ each. The matching pins (09-64-1101) are 39¢ per 10-pin assembly. Minimum order \$10.00 plus 50¢ postage.

Here are some additional comments from Don Lancaster which may help answer other reader questions:

A color TV set has a video bandwidth of only 2.5 MHz; a black and white set has slightly more. This limits the number of characters per line to 32 or possibly 40, if an unmodified stock TV is to be used, particularly an economy one. Commercial terminal systems of 72 or 80 characters per line use special video systems with bandwidths of almost 10 MHz.

More memory can be added, but since the memory is the most expensive part, it very much ups the cost. Considering the limitations on video bandwidth and overscan on an unmodified TV, it would be difficult to do more than 512 characters per page. Of course, if you want to modify the TV, you can get denser displays.

If you want an all-the-time fixed memory, use a read-only-memory or a data selector instead of the shift registers used. There is no memory device I know of that is cheap enough to use with the TV typewriter, can be written into very rapidly and simply, and still keeps its information when power is disconnected. Mag core comes close, but is complex and hard to use on a small system. So do erasable ROM's, but it takes a while to program them. Next year, we'll probably see better devices; right now, I don't know of any. Most terminal applications don't need memory through power-down times anyway, and those that do can run on standby power.

At least 1/3 and preferably 1/2 the scan in each direction must be saved for retrace and blanking, particularly on economy TV's.

To obtain full interlace (the only time you either need or want full interlace is when you must superimpose your message on top of an existing, uncontrollable program source), you get horizontal and vertical signals from the system you are going to superimpose the characters on. These must be separate and not combined as EIA sync. They also must be TTL compatible. You compare the two horizontal outputs with a phase detector such as the Motorola MC4044 and derive an error signal to correct the 4.56 MHz oscillator phase lock loop style. The crystal is removed and replaced with a capacitor and the voltage control input is driven by the error output of the phase detector. Cost of this modification is under \$10, but custom engineering is involved for each application.

Baudot and EBDIC and SELECTRIC codes are generated on the keyboard simply by redefining the key matrix, and possibly adding a flip flop or two. At the TV TYPEWRITER end, you have to add a read-only-memory such as the Harris PROM 0512 and another flip flop to convert to ASCII, or you can sometimes use commercial code converters.

We are trying to work up add-on's, but I am swamped with work right now, and they won't be immediately available. Custom engineering at this time, even at our incredibly exorbitant rates, simply isn't available. My thanks to the incredible number of readers responding to this project.