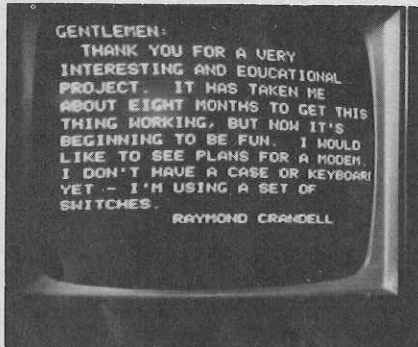


# letters

## TV TYPEWRITER COMMENTS

Finally! I started ordering parts for my TV Typewriter as soon as I received the booklet in September and got it working in June.

Construction was straightforward and I had few problems. I had a few solder bridges that caused trouble, but they were my own fault. I left the plastic spacers on when I soldered the connec-



tor pins, then pushed them up close to the board with a vise. I had trouble with

the Zener-regulated negative supplies so I scrapped them and used LM-320 series regulators instead. I blew out one section of the video combiner (trying to use the self-test on something around -12V, I think) so I bridged across to the unused section and it's still working that way. I have both pages working, but only one at a time because I have only one 7406 clock driver. I used Molex pins for all IC's.

I had a lot of trouble with the 2524's in the main memory. I bought a total of 26 and got just 12 that work properly. Most of the rest seem "slow"—they won't accept information at the rate required but will at a slower rate.

I just finished up CIE's course in Electronics Technology and got my FCC First Class License in June. I consider building the TV Typewriter a valuable extension of my knowledge in digital electronics and well worth the cost. Thank you again for your excellent article.

RAYMOND CRANDELL  
Oakdale, CA

## ANOTHER TV TYPEWRITER

I have enjoyed R-E very much and have read it for many years. I have completed the recent TV Typewriter and I am now on the Mark-8 minicomputer. It



is very interesting, but getting parts up here is like looking for "hen's teeth." Duty on expensive parts also bugs me.

F. G. STONE  
Ontario, Canada

## MINICOMPUTER ANSWERS

Thank you for the latest batch of readers' letters. Some of the questions have  
*(continued on page 22)*

# KICK OUT THOSE "TOUGH DOG" TIME CONSUMING AM-FM STEREOS BEFORE THEY EAT UP ALL YOUR PROFITS.



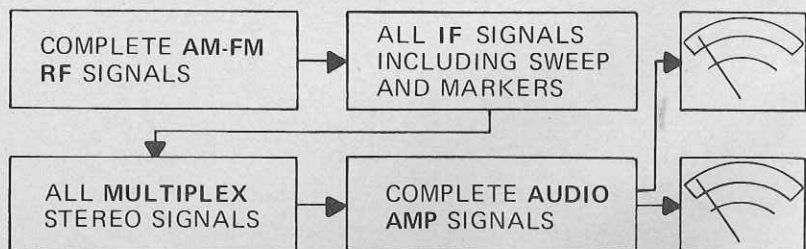
**SG165**  
ONLY \$495

A PROFIT MAKER WITH  
PATENT APPLIED FOR!

WITH THE ONLY COMPLETE AM-FM STEREO ANALYZER ON THE MARKET TODAY... WITH ALL SIGNALS AT BETTER THAN FCC SPECS

ALL 12 SIGNALS THAT YOU NEED TO WALK THE TROUBLE OUT OF ANY AM, AM-FM, AUTO RADIO, OR THE BIGGEST HI FI IN THE BUSINESS.

TAKES THE FEAR OUT OF STEREO SERVICING BY ISOLATING PROBLEMS IN MINUTES WITH:



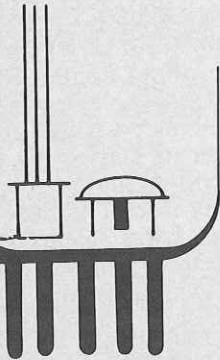
MONITORED BY DUMMY LOADS AND 2 D'ARSONVAL METERS FOR POWER OUTPUT AND TRUE SEPARATION TESTS.

SEE YOUR SENCORE FLPD DISTRIBUTOR FOR A 10 DAY FREE TRIAL.

**SENCORE** 3200 SENCORE DRIVE,  
SIOUX FALLS, SOUTH DAKOTA 57107

Circle 8 on reader service card

**International** ©  
SERVICEMASTER



**The Money Making line with over 2000 types.**

- The most complete range of domestic and foreign consumer and industrial receiving tubes in the world. Classic and antique, too.
- Complete range of replacement Semiconductors.
- Discounted to give you higher profit margins
- Quality your customers can depend on.

For the name of your local distributor call (516) 293-1500

Or write,

**International Components Corporation**

105 Maxess Road,  
Melville,  
New York 11746

**International**  
SERVICEMASTER

RADIO-ELECTRONICS

## LETTERS (continued from page 16)

been asked and answered in my other letters to you. The one point that they seem to pick up is that the connections should not be made between pins 9 through 16 between the Input Multiplexer Module and the Address/Manual Module.

This should be included as soon as possible to prevent problems with operation of the computer.

Other answers are as follows:

1. Booklet page 6, fourth paragraph, last line should be: On the following boards, install the B jumpers and only resistors R1-R4 and R21.
2. Connections are made to the Molex 09-52-3081 connectors with stripped leads or male connectors Molex 09-64-1081.
3. The Interrupt Switch register is now the only source of interrupt instructions. An external encoder could be used and bussed with the switches, but this would require external circuitry as shown in the booklet.

One reader, Stephen L. Diamond, expressed interest in forming a Mark-8 software users group. That's fine with me if he wants to do it. You can suggest that readers and builders contact him direct at 311 Carl Street, San Francisco, CA 94117.

Most of the other questions are trivial. I should have a final calculator PC layout soon and I have been giving some serious thought to using one of the new Intel 8080 chips which is more powerful than the 8008.

I also have a cassette unit and a small calculator-type printer ready to be hooked up to my Mark-8.  
JONATHAN A. TITUS

### MORE MEMORY

I've just received your complete instructions for the Mark-8 minicomputer and not being well versed in the construction or operation of computers, I'm confused on a point you might help me clarify. On page 2, you indicate that the microprocessor can directly address up to 16,424 words of 16K; however, on page 3, you state that the Mark-8 may be used with up to four memory modules for a maximum of 4K of storage space. Why is the storage space only one-fourth of the addressable capacity of the microprocessor? Is it possible to add on more than four memory modules?

In any case, this is the most exciting project I've seen in a long time and I fully intend to build it and the TV Typewriter. I would greatly appreciate a reply to this letter.

BRUCE E. BLAKESLEE  
Scotch Plains, NJ

*While the Intel 8008 microprocessor chip can directly address up to 16K of memory, using the memory printed circuit boards for the Mark-8, only 4K may be used. This keeps costs down for small systems by using the 1101 type RAM. Other types of memories may be used since the read/write signal is available as are the 14 address lines: D0-D7, A, B, C, D, A12 and A13. These may be used*

to add up to the 16K memory.

*Larger memories may be built using cassette units or external shift registers. etc., but most systems don't require more than 4K.*

JONATHAN A. TITUS

### MINICOMPUTER PARTS

Concerning the Mark-8 minicomputer article, I have found a couple of sources of supply for a couple of the parts which might be of value to your readers.

The Molex connectors are once again available from Force Electronics, 343 South Hindry Avenue, Inglewood, CA 90301. The price is 35c each for Molex number 09-52-3081.

If any one has trouble locating the 8263 and 8267 IC's, they are available for \$5.00 and \$2.00 respectively from one of your advertisers: James Electronics, P.O. Box 822, Belmont, CA 94002.

DENNIS E. CRUNKILTON  
Mare Island, CA

### REPLACEMENT IC's A PROBLEM

I have a problem which I am sure other repair shops have also had on occasion to come across at one time or another. Maybe your staff could answer me or it could be made into an article in the future.

Quite a few times I have had to replace integrated circuits, but have been unable to find listings for a replacement. For example, I recently had a set which needed an IC replaced and it was manufactured by General Electric. However, it was not listed in the current GE catalog. I wrote to GE to find out where I could obtain this particular part and they advised me as follows:

"... General Electric Company is no longer a manufacturer or supplier of integrated circuits. This product line was discontinued some time ago. Other companies have purchased the right to manufacture most of the original GE types, however, some of these have never been manufactured since GE discontinued operations on this product. Some replacements are available, however, in many cases the only available units must come from some surplus parts supplier..."

I think this is a bad situation. A company, not only GE, makes parts, discontinues them and a repair shop gets a unit which needs one of these discontinued parts to be replaced and he is stuck. I know, myself, that I can't afford to spend months and months trying to locate a surplus parts supplier. I try to repair my sets as soon as possible—not make the customer wait indefinitely while I try to obtain discontinued parts. At least if a company discontinues parts, they should have a cross-reference to equivalent parts.

LOUIS P. FOSHAY  
Pomona, NY

R-E

### IN THIS ISSUE

If new electronic circuits turn you on, don't miss the article on the new Magnavox TV remote-control system—it's different, it's digital, it's on page 44.