THREE-PART MEMORY TEST PROGRAM

GENERAL

Three new Z-80 Memory Test Routines have been written to allow the operator to initially or periodically test the memory chips in his system. The first routine checks the system memory and prints out the extent of the contiguous groups of memory. This routine checks for proper memory jumpering. The second routine generates a randomized pattern throughout memory and then reads back and compares for identical data patterns. This test checks for bad IC's, unsoldered pins, and shorted address pins. The third routine progressively writes a short subroutine through memory and then executes the subroutine. This routine checks for slow memory. The routines check various Op/System areas and require that the Three-Part Memory Test Program be reloaded to rerun a routine or to run another routine. The bottom 1K of memory is not tested by these routines.

ROUTINE 1

After the Three-Part Memory Test Program has been loaded, press option "1" on the keyboard. The TV will momentarily blank while the system analyzes the amount of memory presently on the system. The result will then appear on the screen as octal address range(s). If the memory has problems, the display may indicate a large number of contiguous good areas of memory. The user should then correct the situation by running Routine 2 to discover the problem. After the user fixes the problem, he should then re-run Routine 1. The memory extent results must exactly match your intended jumper and memory mapping plans or your software needs. Non-match, resulting in either missing memory areas or memory overlapped, will cause very misleading programming errors.

ROUTINE 2

Press option "2" after loading (or reloading) the Three-Part Memory Test Program. The system will display an asterisk in the upper left corner of the screen while the first random pattern is being written into memory. The system then clears the asterisk and begins displaying Octal addresses in the upper left corner of the TV. The addresses are those memory locations that have checked "ok" so far on this run. When memory locations without memory are located, the last valid address will be displayed for a few seconds (or fractions of a minute) until more memory is located. If all tests "ok", an alpha (α) is displayed on the TV and a new random pattern is loaded into memory.

Several problems can be found with this test. Like the original memory test, bad IC's will have their board number and IC location printed on the screen. However, in addition, IC's with unsoldered pins will be similarly indicated. Therefore, when an IC is indicated as "bad", first check for unsoldered socket pins and bent leads; then suspect the 2102 memory. Other problems can be found with this test but the precise interpretation down to the faulty area is much more difficult.