

2. GETTING STARTED

2.1 AC LINE CONNECTION AND INITIAL SETUP

RAMCHECK comes with a universal power supply, which can be used in domestic or international markets. Connect the output plug of the enclosed AC adapter to the power jack at the rear of RAMCHECK.

To activate RAMCHECK, press the ON/OFF switch. When turned on, the **green** LED (power on) indicator is illuminated and the display shows the internal Power-On-Self-Test, the product copyright notices and the program version number, as in the following screen:



An in-depth manual offering additional detailed information on RAMCHECK's functions is available in the CD companion that accompanied your tester.



The unit then stops at the STANDBY mode where you are prompted with the following message to insert a module and start the test:



RAMCHECK automatically recognizes the adapters, which are mounted on its Expansion Port. When an adapter is connected, such as the RC 144 Adapter or RC SIMM Adapter, the STANDBY message will change to reflect the presence of the adapter after the first test:



2.2 THE DEMO MODE

The Demonstration program provides a detailed overview of RAMCHECK's operation. It also familiarizes you with the display messages, graphics, and audible signals used by RAMCHECK while a variety of faults are simulated.

- DO NOT INSERT A MODULE WHEN USING THE DEMO PROGRAM - all display sequences are internally generated.
- The DEMO mode is initiated by pressing F3 in the STANDBY mode. The program is designed to be self-explanatory. Each screen is displayed for a preset amount of time.
- Press ↑ to accelerate the demo pace. Pressing F1 will restart the DEMO mode. If you would like to go back to a previous screen, you may press ←, or if you choose to add additional time to the current screen, you may press ↓.

- The DEMO mode incorporates portions of the actual program during which the keys function in a prescribed way corresponding to the currently demonstrated feature. During such demonstrations, you may need to either press the ESC key to move on, or simply elect to wait a few moments for the DEMO to continue on its own.
- At the end of the demonstration, RAMCHECK returns to the STANDBY mode. You may leave the DEMO mode at any time by pressing ESC. It may be necessary to press ESC more than once to end the DEMO if it is during a demonstration feature.

After reviewing the demonstration, you should be familiar with RAMCHECK's basic operation and capabilities.

2.3 OVERVIEW OF RAMCHECK OPERATION

You start the test procedure by pressing F1 to initiate the BASIC test. Although it lasts only a few seconds, the BASIC test provides you with a lot of information on the module under test.

```

BASIC TEST AAAAAAAAAA
BYTES: B1 |IIIIIIIIII| B9
00:05.2 100MHZ UBF%
16Mx72 SDRAM B2/0

BASIC TEST 55555555
BYTES: B1 |AAAAAAAAAA| B9
00:03.9 63/150NS %
16Mx72 FPM B2/1

```

As shown above, RAMCHECK is testing an unbuffered ('UBF') SDRAM module at 3V and identifies it as being 16Mx72. The screen also indicates a speed of 100MHz.

RAMCHECK also tests EDO & FPM devices without the need for special setup. As seen in the adjacent screen, RAMCHECK is testing the module at the 5V-voltage level, identifies its size as being 16Mx72 and states that it operates in Fast Page Mode. The speed notation of 63/150nS indicates that the module has an access time of 63nS, and a cycle time of 150nS (Please refer to Appendix D for further information on Cycle Time Measurement).

A dynamic graphic representation of the individual bytes and the HEX test patterns is shown as the test progresses. Every memory cell of the DUT (Device Under Test) is fully tested several times to insure detection of all "stuck at" type failures. The BASIC TEST is followed by a few structure screens.

The BASIC TEST is sufficient for most of your memory testing needs, so you can press ESC to terminate the current test.

You may leave the module on for the next major test, the EXTENSIVE test, which gives you a more thorough and comprehensive procedure. This test lasts a few minutes depending upon module size.

Within the EXTENSIVE test are different individual test phases. The initial phase is Voltage Cycling, which uses varying patterns on the DUT, while the voltage is applied at different levels from 3.0V to 3.6V (or 4.50V through 5.50V if applicable). The MODE Analysis test follows, giving information on the detection of FAST PAGE, EDO MODE, and SDRAM as well as other DRAM modes of operation. Next is the Voltage Bounce test, which repeatedly reads and writes to the module while the voltage is bounced from the upper and lower extremes. The MARCH UP/DOWN test then begins testing for adjacent cell interference, using data patterns that are more likely to reveal such a problem. Following are the two comparative test phases: Relative Refresh and Relative Spikes. Relative Refresh tests for data retention between refresh cycles. The figure given is only for comparative measurements, and is not an absolute value, that is, a chip having a relative value of '5' retained data integrity twice as that with a value of '4'. The Relative Spikes test phase performs a data retention test while the module is subjected to various sizes of voltage spikes. The next phase in the EXTENSIVE TEST is the CHIP HEAT MODE, which is designed to raise the module's temperature. The FINAL TEST portion of the EXTENSIVE TEST will then test the 'heated' module to determine if any speed drift or other temperature related problems have occurred.

The AUTO-LOOP test follows the EXTENSIVE test. This test will continuously test the module with different patterns of data bits.

```
AUTO-LOOP      33CC33CC
LOOP#3980      B2/0
19:30:46.3     133MHZ
16Mx72        3.15V  SDRAM
```

The AUTO-LOOP test will terminate only when an error is encountered, or when the user intervenes and stops the test manually. Therefore, the AUTO-LOOP test provides you with perfect BURN-IN capabilities.