

 **Commodore**<sup>®</sup>  
**AMIGA**<sup>®</sup> **590**

*RAM Test Disk*

*User's Guide*



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# A590 RAM Test Disk

These instructions are for testing RAM chips installed in the A590. Please refer to the **A590 User's Guide** for the RAM chip installation procedure. **Be certain to use only CMOS 256K x 4 DRAMS, 120 ns or faster.**

The A590 RAM Test Disk allows you to test the configuration of your A590 RAM to make sure that your Amiga 500 is reading all of the available A590 memory correctly.

Note that your A590 was tested with two megabytes of RAM at the factory before it was shipped, to ensure that it operates correctly. You will want to test any RAM you have installed in the A590.

**WARNING: Always turn off all power to the Amiga 500 and the A590, and disconnect all power cables before connecting or disconnecting the A590. Connecting or disconnecting the A590 with the power on can cause catastrophic failure and will void all warranties on the Amiga 500 and the A590.**

## Running the Test Program

To start the test procedure, turn off the power to the Amiga, insert the A590 RAM Test Disk, and then turn on the power to the Amiga.

**Do not attempt to run the A590 RAM Test after other programs have been run on the Amiga.**

The A590 RAM Test Disk is autobooting and will display instructions for running the ram test.

There are two ways to run the test:

1. Single Pass
2. Continuous

To run a single pass of the test, type the following at the CLI/SHELL prompt:

**A590\_RAM\_TEST**

To run a continuous test, type the following at the CLI/SHELL prompt:

**A590\_RAM\_TEST L**

Both commands will bring up the test screen. This screen will show the test's progress as it tests the RAM.

If the program will not run, or if it starts to run and the system freezes or gurus, the problem is most likely within your first 512K of RAM. In this case, refer to the section **In Case of Trouble**.

## **Test Program Display**

When the test screen appears, you will see several headings across the top of the display.

**HUNK SIZE** shows the amount of memory that is being tested. The program performs five different tests on each 512 kilobyte section of memory. These 512 kilobyte sections are listed under **HUNK SIZE**. Since the system and test program use approximately 100 kilobytes of RAM, the size of the first hunk will be less than 512 kilobytes.

**LOCATION** shows the starting and ending address of the memory hunks being tested.

**TEST** shows which test is being performed. The tests are:

- **U** — longword unique address test and refresh test
- **1** — test all bits with the pattern 1111111111111111
- **0** — test all bits with the pattern 0000000000000000
- **A** — test all bits with the alternate pattern 1010101010101010
- **5** — test all bits with the alternate pattern 0101010101010101

As each test is completed, a mark is made under the **PASS** or **FAIL** column. If a test is completed without any problems, a + sign is put under **PASS**. If all tests are completed successfully, there will be five + signs for each row. The testing procedure for an A590 configured with two megabytes should take approximately 45 seconds.

## Interpreting Failures

If a test fails, a - (minus) sign is put under **FAIL**. The column that the - sign appears under shows which test failed. For example, if the - sign appears under the **U**, it means that the unique address test failed. Note that if one test fails it is probable that several tests will fail.

An **X** will appear under the **FAILED BIT** header to help you determine where the problem lies. When the test is complete, the **FAILED BIT TO IC DESIGNATOR MAP** appears at the bottom of the screen. This map, given at the end of these instructions, will help you determine the actual chip location of the problem. This map only appears if a failure occurs.

Note: If certain pins on a chip are damaged or not fully inserted, the map will not be displayed. The program will only display the number of failures.

As an example, if an **X** appears in the fifth column under **FAILED BITS** in the third row, the failure occurred when the system was testing the RAM at address range 0x300000 to 0x37ffff (hex).

HUNK SIZE	LOCATION START	LOCATION END	TEST PATTERN	PASS U10A5	FAIL U10A5	FAILED BITS 0123456789ABCD			
68210	217DF0	27FFFF		+	+	+	+	+	
80000	280000	2FFFFFF		+	+	+	+	+	
80000	300000	37FFFF		-	-	-	-	-	X
80000	380000	3FFFFFF		+	+	+	+	+	

You can find the location of the chip on the IC Designator Map by looking at the third row under the fifth column. The chip number that appears at this intersection corresponds to the **Uxx** location of the RAM chip. In this case the chip is U23. Note that each chip represents 4 bit positions per column.

The IC Designator Map is shown at the end of these instructions.

## Performing Continuous Tests

You can set up the test so that it repeats indefinitely. To do this, type the following at the CLI prompt:

```
A590_RAM_TEST L
```

The **L** signifies **Loop** and may be typed in upper or lower case. When the test is looping, the number of completed passes and the number of failures are displayed in the upper right corner of the screen. You can abort the test at any time by pressing the space bar and then the Return key. If there was a failure the IC Designator Map will appear.

## In Case Of Trouble

Check that the RAM chips are properly installed. Make sure that the chips are inserted in the proper direction and that all of their pins are straight. Check to see if any pins are curled under or not completely inserted. If you find a bent pin, remove the chip, carefully straighten the pin, and then reinsert the chip. Run the test again to see if the problem has been corrected.

If you cannot resolve a failure, take your A590 to an Authorized Commodore Service Center.



# IC DESIGNATOR MAP

## FAILED BITS TO IC DESIGNATOR MAP

address range	bits			
	0 1 2 3	4 5 6 7	8 9 a b	c d e f
200000-27ffff	U14	U15	U16	U17
280000-2fffff	U18	U19	U20	U21
300000-37ffff	U22	U23	U24	U25
380000-3fffff	U26	U27	U28	U29

**WARNING:** The above map does not represent the physical layout of the RAM chips in the A590. The physical layout is shown below.

U28	U29	U27	U26	2 MEG
U24	U25	U23	U22	2 MEG
U20	U21	U19	U18	1 MEG
U16	U17	U15	U14	512 K





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