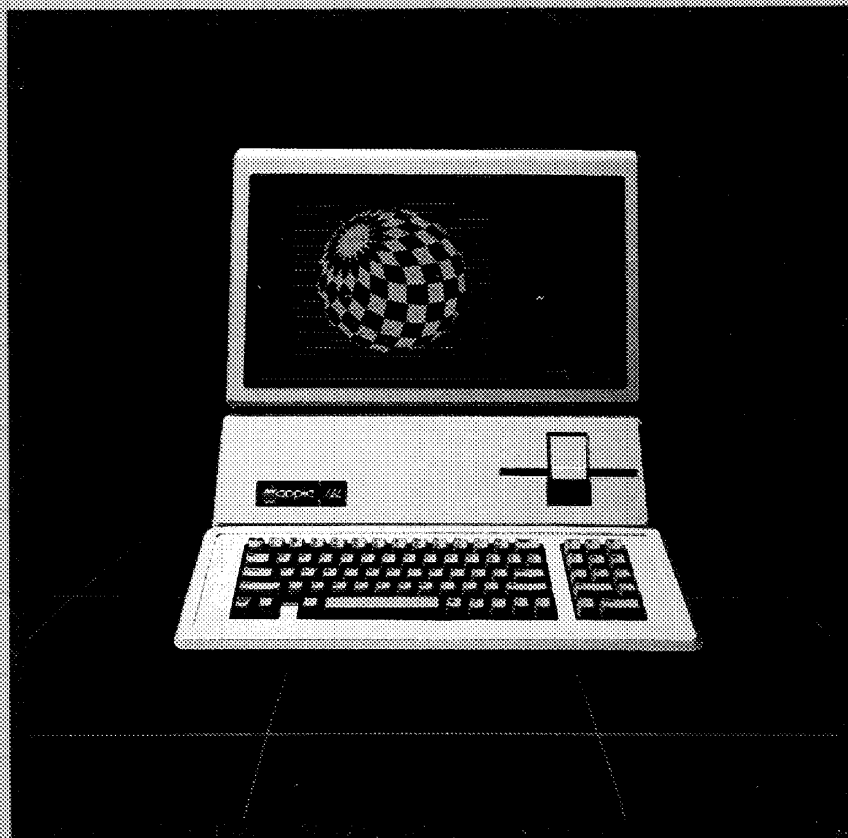


Apple III

Confidence Program



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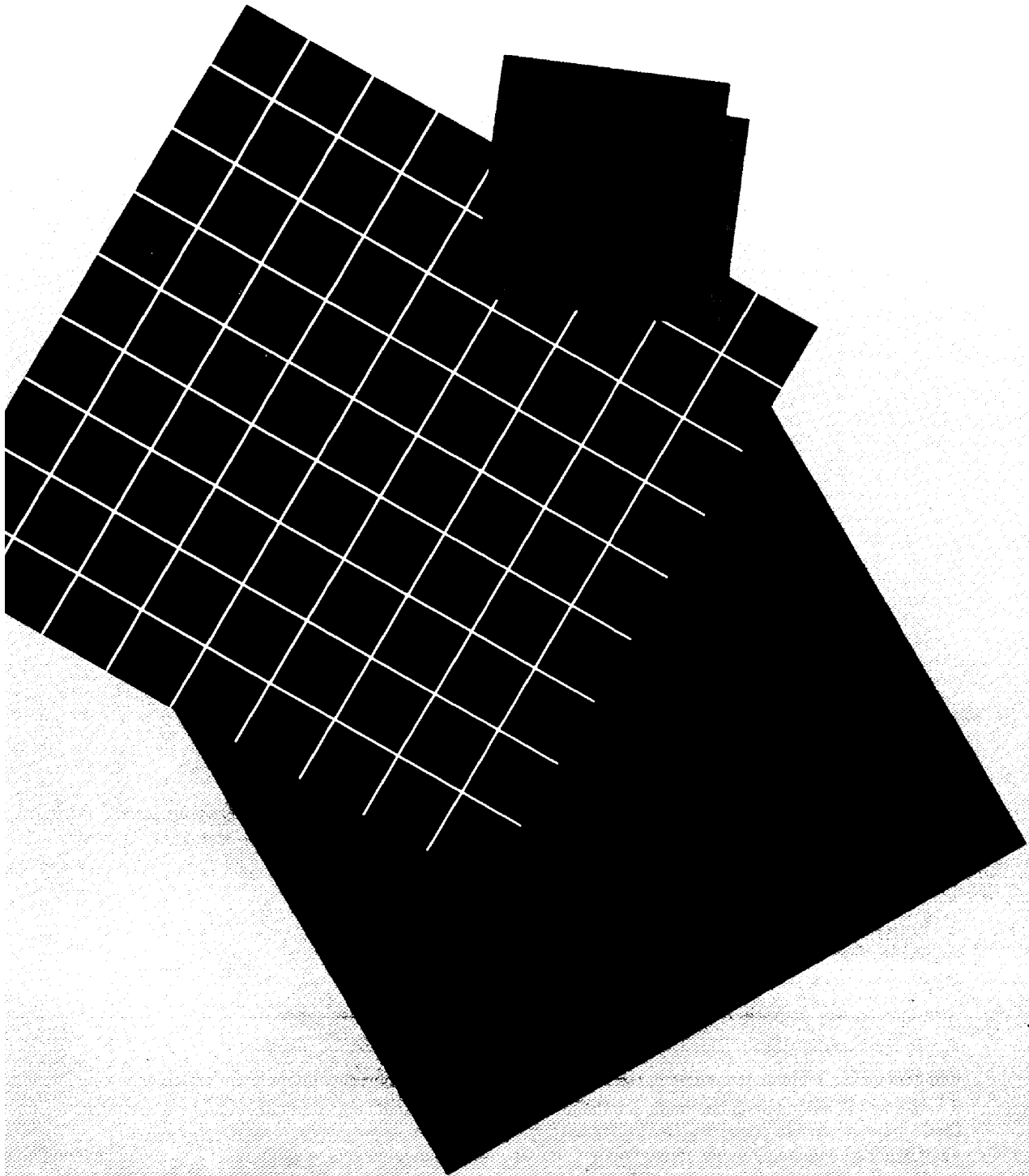
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Apple III Plus

**Confidence
Program**



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Apple Part #030-0367

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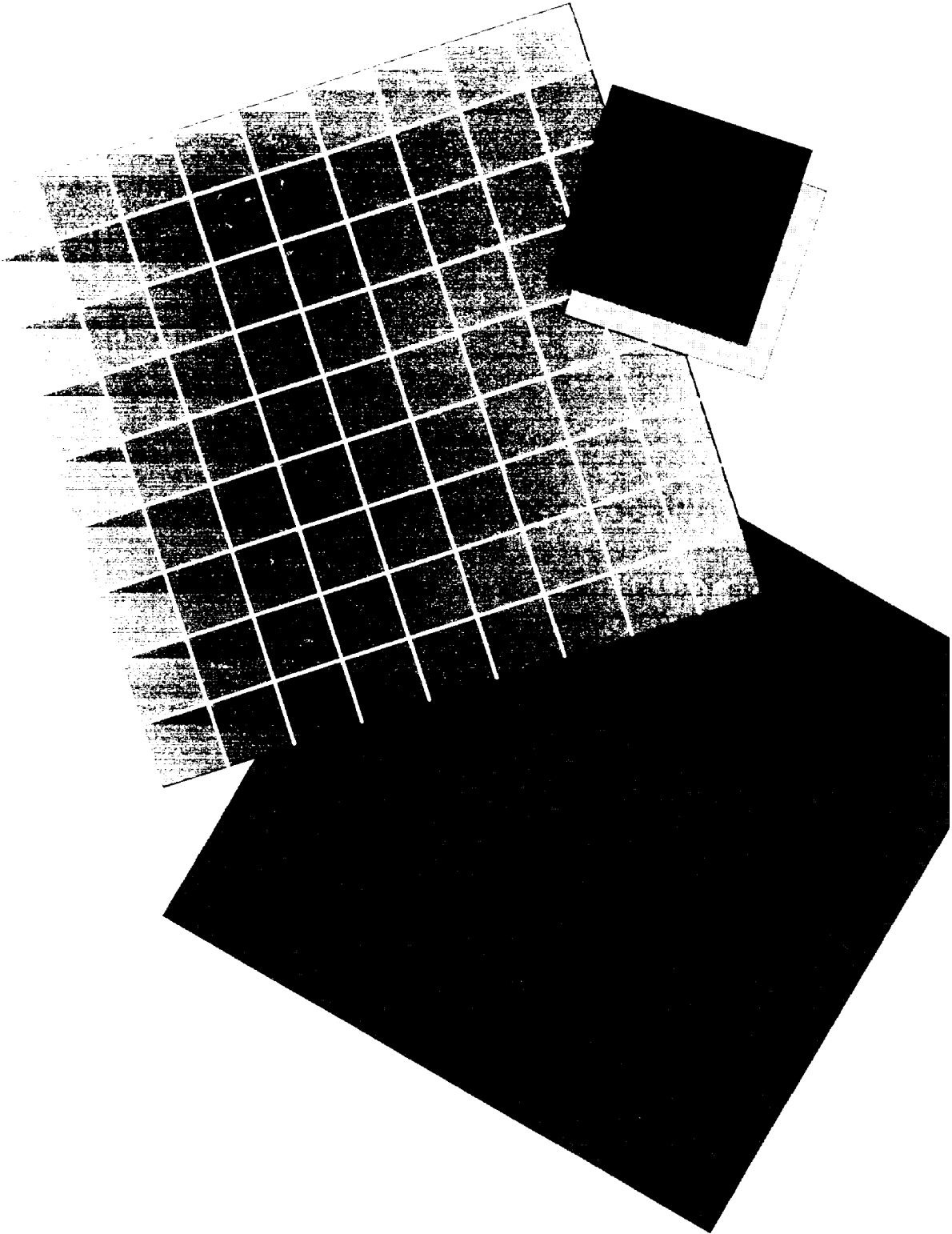
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Instructions for Use

The Apple III Plus Confidence disk contains five test programs. These programs check to see that your Apple III's disk drives, memory, and other components work properly. The test programs are designed to give you confidence: confidence that your Apple III is working as it should, and confidence in your ability to operate the Apple III.

You should use the Apple III Confidence disk when you set up your Apple III for the first time. You should also use it if you ever suspect that your Apple III is not operating properly.

Before You Use This Program

If you have not already done so, unpack your Apple III and set it up according to the instructions in Chapter 1 of the *Apple III Plus Owner's Guide*. Before you try to use the Confidence disk you should have

- connected the video monitor,
- attached any external disk drives, and
- plugged the Apple III and monitor into grounded three-prong outlets.

Back Up Your Disks

There is always a chance that a disk will be damaged and become unreadable. If you make spare, or backup, copies of your important disks, you will always have a good copy to rely on if one is accidentally damaged.

If you have not already done so, turn to Chapter 5 of the *Apple III Plus Owner's Guide*. Follow the instructions in the section "The Copy Volume Command and Disk Backup" to make a backup copy of your System Utilities disk.

Use the same procedure to make a backup copy of your Confidence disk. Substitute the words *Confidence disk* wherever the *Owner's Guide* refers to the Utilities disk.

Prepare Test Disks

If your Apple III has no external disk drives, you don't need to prepare any disks for use with the Confidence Program.

If your Apple III has external disk drives, follow the instructions in the section "Format a Volume" in Chapter 5 of the *Apple III Plus Owner's Guide* to format (prepare for use) one blank disk for each external drive that is connected to your Apple III.

These disks will be used to test the disk drives. If you don't have enough blank disks, format just one. Then you can use this single disk to test your external disk drives one at a time.

Using the Confidence Program

Start up, or boot, the Apple III Plus Confidence disk as follows:

1. Turn the Apple III's power switch to off.
2. Turn on your monitor.
3. Insert the backup copy of the Confidence disk in the built-in drive, close the drive door, and turn on the Apple III's power.

2 Confidence Program



If the power is on, you can also start up the Confidence disk by pressing CONTROL-RESET (hold down the CONTROL key while you press the RESET button).

If the message

ROM TYPE ERROR

appears on the screen, skip down to the section “ROM Error.”

Almost immediately, a list of tests appears on the screen. This screen of information is the **main menu**. The first test in the list, Machine Status, is highlighted; this test is said to be **selected**. Use the ↑ and ↓ keys to select different tests. Whenever this menu, or any other, is on the screen, you can use the ↑ and ↓ keys to select the option you desire. Once you have selected an option, you can accept it by pressing the RETURN key.

Use an arrow key to select the third option, Disk Tests, then press the RETURN key. You are now looking at the Disk Test Menu.

Anytime you want the program to stop what it is doing and display the previous menu, press the ESCAPE key. Press the ESCAPE key now to return to the main menu.

Whenever you are unsure of what to do, you can get help by holding down the ⌘ key and typing a question mark at the same time. (The key is the one with an outline of an apple on it.) You'll see a summary of the choices available to you.

Press ⌘ -? to see the help summary for the main menu. Then press ESCAPE to clear the help summary from the screen and return to the main menu.

ROM Error

If the message

ROM TYPE ERROR

appears on the screen when you try to start up the Confidence disk, the test disk and your Apple III are not compatible, and you won't be able to use any of the tests on this disk. The program checks for a specific version of an integrated circuit chip called a ROM (Read Only Memory) and gives this error message if it is unable to find it.

Please contact your dealer for further information and assistance.

How the Tests Talk to You

When the program starts to test a portion of your Apple III, it places a set of boxes on the screen, each corresponding to a specific test the program will perform. Each time your Apple III passes a test, a check mark appears in the corresponding box. If the Confidence Program detects any kind of error, it places the highlighted message

ERR

in the corresponding box and writes the highlighted words

fault detected as shown above

across the bottom of the screen. Then the program stops.

If the Confidence Program detects an error in one of its tests, you should repeat the test to confirm the error and then contact your dealer for further information and assistance.

In addition, please remember that no set of test programs can check for every possible problem. If your system passes all of the tests and you still suspect that there is a problem with your Apple III or its disk drives, please contact your Apple dealer for assistance.

Make the Test Disks

If you don't have any disk drives other than the one that is internal to the Apple III, skip this section. Otherwise, you should already have one blank, formatted disk for each external disk drive.

To make the test disks:

1. From the main menu, select the Disk Test option, then accept the selection by pressing the RETURN key.
2. Select the Make External Drive Test Diskette option, then accept it by pressing the RETURN key.
3. Insert a formatted disk in drive 2, then press RETURN. Watch carefully for the message

CONFIGURATION COMPLETE

to flash across the top of the screen, and for the disk drives to stop whirring.

Repeat this step for each test disk to be made.

If the message

DISK I/O ERROR

appears in the lower-left corner of the screen and the list of test programs reappears, your disk was not previously formatted. If this happens, follow the instructions in the section "Prepare Test Disks."

4. After you've made all the test disks you need, press the ESCAPE key twice to return to the main menu.

Before you continue with the program, insert a test disk in each external disk drive.

Test 1: Test the Machine Status

From the main menu, use the ↑ and ↓ keys to select the Machine Status option, then press the RETURN key to accept it.

The program indicates each successful test by placing a check on the screen. If your Apple III passes all of the machine status tests, your Apple III tells you, literally. You'll hear your Apple III say, "I'm OK. Machine status normal."

If any problem is detected,

- the highlighted message

`fault detected as shown above`

appears at the bottom of the screen,

- the highlighted message

`ERR`

appears in one of the boxes on the screen, and

- the program stops.

Press the ESCAPE key once to return to the main menu.

If any problem is detected, repeat the test to verify the fault; then contact your dealer.

Test 2: Test the Memory

From the main menu, use the ↑ and ↓ keys to select the Memory Test option, then press the RETURN key to start the memory test program.

The grid of white blocks on your screen represents the memory in your Apple III. The blinking, and occasionally moving, apple tells you that the memory test is being performed.

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If a memory fault is detected,

- the apple stops blinking and moving,
- the white block corresponding to the faulty area of memory disappears, and
- the highlighted message

`fault detected as shown above`

is displayed at the bottom of the screen.

If these symptoms appear, repeat the test to verify the fault before contacting your dealer. Otherwise, let the pass counter in the upper-right corner of the screen count up a few repetitions of the memory test, then press the ESCAPE key once to return to the main menu.

Test 3: Test the Disk Drives

To prepare for the disk drive test, follow these steps:

1. Use the ↑ or ↓ key to select the Disk Tests option, then press the RETURN key to see the Disk Test Menu.
2. If you have any external disk drives, be sure there is a test disk in each external drive.

Test Disk Drive Operation

From the Disk Test Menu, use the ↑ and ↓ keys to select the Seek/Read/Write/Speed option, then press the RETURN key to run this test.

Whenever a disk drive passes a test, the program places a check mark in the appropriate box on the screen. If there are empty boxes beneath a disk drive that is checked as being on-line (a drive is on-line if it has a formatted disk in it), the disk in that drive is not a test disk. Place a test disk in the drive and repeat the test.

If the program detects an error,

- the highlighted message

`fault detected as shown above`

appears at the bottom of the screen, and

- the box containing the highlighted word

`ERR`

indicates the problem area.

If you see these messages, you should repeat the test before contacting your dealer.

Press the ESCAPE key once to return to the Disk Test Menu.

Test for Disk Switch Detection

Every floppy-disk drive for the Apple III has a switch that indicates whether or not the disk in that drive is write-protected. The Apple III can also use this switch to detect the removal of a disk from its drive. Use this test to be sure that the write-protect switch works and that the disk drive is able to detect switched disks.

1. Make sure there is a test disk in each external drive.
2. From the Disk Test Menu, use the \uparrow or \downarrow key to select the Disk Switch Detection Test option, then press RETURN to run this test.
3. Follow the instructions displayed on the screen. Your built-in drive is named .D1; your external disk drives are .D2, .D3, and .D4.

When the program asks, *even though the disk drive light is on*, open the drive door and pull the disk out. You need to pull the disk less than an inch, or until you hear a little click.

If the program detects an error,

- the highlighted message

`fault detected as shown above`

appears at the bottom of your screen, and

- the highlighted word

`ERR`

appears in the disk switch box of any problem drive.

If you do not hear a little click when you pull out a disk, the write-protect switch in that drive is not working.

If you get an error, contact your dealer for further assistance.

Press the ESCAPE key twice to return to the main menu.

Test 4: Test the Video Display

The video test displays a series of images on your monitor's screen. If you have a black-and-white monitor, the images will be in black, white, and shades of gray. If you have a monochrome screen, the images will be in black and shades of the screen color—for example, on a green-phosphor screen, the images will be in black and shades of green. If you have a color screen, some images will appear in black-and-white, and others in color.

1. From the main menu, select the Video Tests option and press the RETURN key.
2. For each video test, press RETURN once to see the image. Press RETURN again to go on to the next video test.
3. To end the video tests at any time, press ESCAPE.

Since there is no way for the Apple III to test an image that appears on the screen, you need to examine each figure for obvious inconsistencies or gaps. If you find any, check the settings of the controls on your monitor and retry the test. If you still have a display problem, contact your dealer.



If you are testing an Apple III Plus, you can run the video tests with or without text interlace switched on.

The first eight video tests display halftone images of the Apple III. A halftone image is composed of dots of one color on a background of a different color. On a black-and-white screen, each color appears as a distinct shade of gray. If you have a monochrome screen, you should see shades of the screen color.

In the following tables, the Resolution column indicates the number of dots that fit on the screen, number of dots per horizontal line first, number of horizontal lines per screen second. The page numbers refer to the specific area of memory in which the image is stored.

Test	Graphic Mode	Resolution	Colors
1	Apple II Hires	280 × 192, Page 1	White on Black
2	Apple II Hires	280 × 192, Page 2	White on Black
3	Apple III Color Hires	280 × 192, Page 1	Blue on Orange
4	Apple III Color Hires	280 × 192, Page 2	White on Dark Green
5	Apple III Super Hires	560 × 192, Page 1	White on Black
6	Apple III Super Hires	560 × 192, Page 2	White on Black

Tests seven and eight also display halftone images of the Apple III. The background is black, and the foreground is divided into four colored horizontal bands: magenta, blue, dark green, and orange, from top to bottom. On a black-and-white monitor and on monochrome screens, the bands go from dark to light.

7	Apple III Color Hires	140 × 192, Page 1
8	Apple III Color Hires	140 × 192, Page 2

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The next two tests display solid areas of color, the second with text. If you have a color monitor, you can use these images to adjust its color. If you have a black-and-white monitor, the solid areas should appear as progressive shades of gray. If you have a monochrome display, the bands should appear as shades of the screen color.

9	Apple III Color Bars	140 × 192
10	Apple III Color Text	140 × 192

When you have completed all of the video tests, return to the main menu by pressing the ESCAPE key once.

Test 5: The Continuous Test

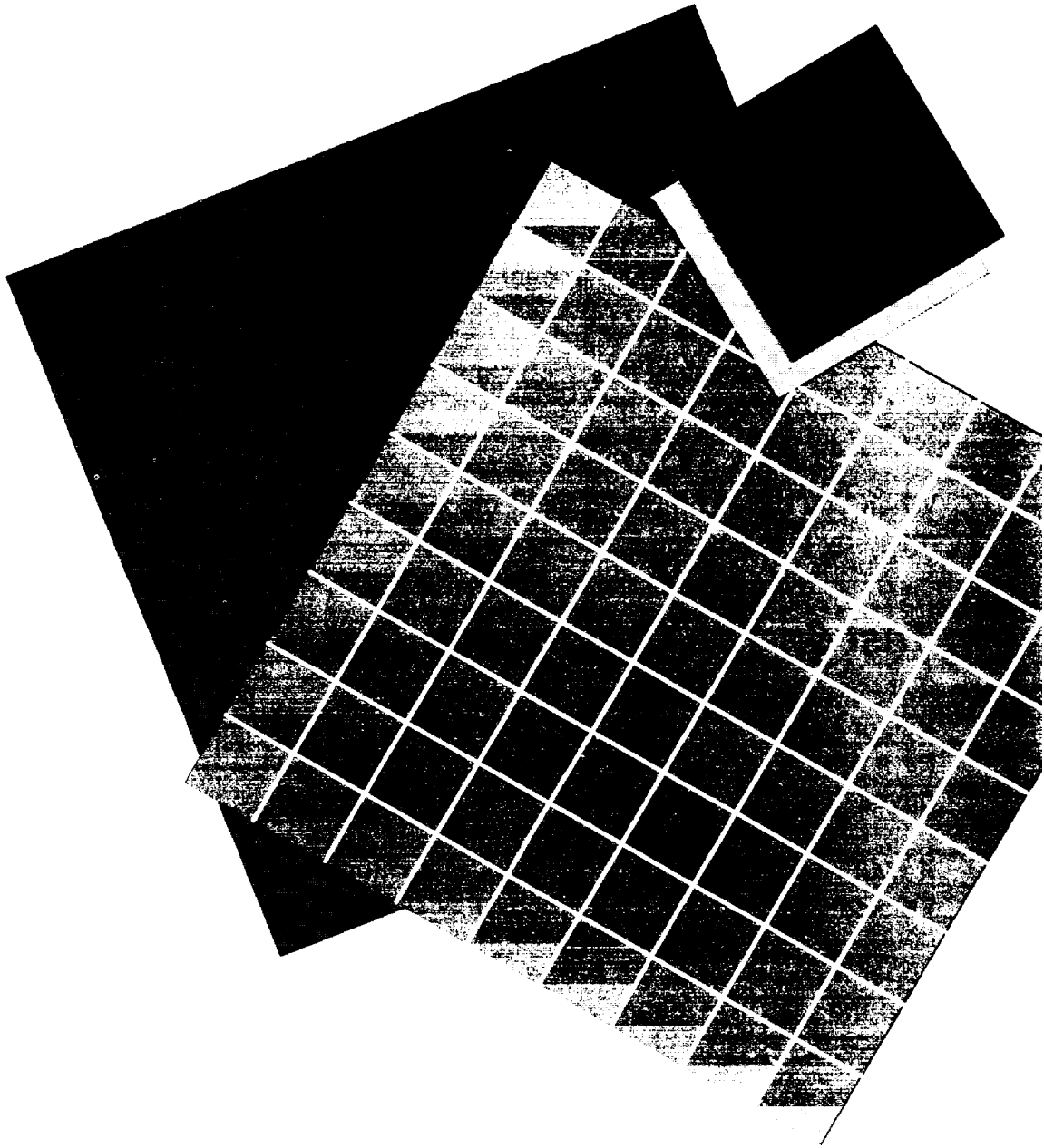
If your system is working well, it is better not to use this test. Using it for a prolonged period of time puts unnecessary wear on your disk drives.

If your Apple III seems to have an intermittent problem, you can use the Continuous Test. This program cycles through tests 1, 2, and 3, counting the number of cycles and displaying this number in the upper-right corner of the screen until you press the ESCAPE key to stop the test. The longer you leave this program running, the better chance it has of catching an intermittent problem.

To run the Continuous Test follow these steps:

1. Make sure that there is a test disk in each external disk drive.
2. From the main menu, select the Continuous Tests option and press the RETURN key.
3. Type Y for sound during testing, N for no sound.
4. Let it run for a while (for example, overnight).

If a fault is detected, the tests stop and the error is highlighted as described in tests 1, 2, and 3. If this occurs, retry the tests and then contact your dealer.



Test Descriptions

This section of this document describes, in more technical terms, exactly what happens when you run each of the tests on the Confidence disk. Unless you are already familiar with the hardware of the Apple III, you won't want to read this.

The Machine Status Test

The machine status test

- determines the amount of Random Access Memory in your Apple,
- determines the number of disk drives attached to your Apple,
- checks each drive for a test disk,
- checks to see if any test disks are write-protected,
- checks the baud rate and control registers of the ACIA (serial port), and
- checks the operation of the two 6522 interface adaptors.

The check of the operation of each 6522 includes the following tests:

- **CLR:** Tests the interrupt enable register for clear or reset.
- **SET:** Checks the adaptor's ability to enable interrupts.
- **FLAGS:** Checks the interrupt register flags by clearing them.

- **TIMERS 1 & 2:** Checks the operation of the timers by loading each with a constant, and comparing elapsed time as measured by the timer against elapsed time as measured by a software timing loop.
- **SHIFT REG:** Loads an eight-bit pattern into the shift register, then compares the shifted output to the load pattern.
- **IRQ:** Tests the expanded interrupt logic.
- **I/O NMI:** Verifies that no peripheral slot interrupts are asserted.

The Memory Test

While this test is running, the screen represents the Random Access Memory (RAM) that is currently in the Apple III. The left side of the screen displays the number of each 32K bank and the associated memory addresses (64K to 256K). The numbers across the top of the screen indicate the 256-byte page within each bank. If a problem is detected, the block corresponding to a single page disappears.

The "Extension (8F)" bank is a test of the extended addressing mode that accesses bank 0.

The Memory test performs the following tests:

- **TEST ZPAGE/ALT STACK PAGE:** This tests the zero page and its companion stack page in the \$1000 to \$1FFF range of memory.
- **TEST RAM:** This RAM test is performed only on the RAM that does not contain the program being executed. This is not a thorough test of the RAM. The program checks to see that RAM is where it is expected to be by writing patterns of ones and zeros to all parts of memory, and then reading them back again.

The pages of memory that are present are indicated on the screen by white rectangles. Missing or nonfunctioning RAM shows up as missing rectangles within a bank.

If an entire bank is missing, the row for that bank is marked on the screen by a horizontal line of dashes.

- **TEST INDIRECT ADDRESSING:** The opcode extension that provides virtual indirect addressing is tested for every functioning bank of memory.

The Disk Test—Seek/Read/Write/Speed

This test checks every function (except disk switch) of each on-line drive that has a test disk in it. The program will not perform the Write or Speed tests on write-protected or non-test disks.

- **SEEK:** This test seeks blocks 16, 128, and 248 on the disk currently selected by the program. If a seek fails, an error message appears, but the program continues testing the other drives.
- **READ:** This test reads data from blocks 16, 128, and 248 of the disk currently selected by the program. If a read error is detected by the disk interface routines, an error is displayed.
- **WRITE:** After the read test is successfully completed, data is written to blocks 16, 128, and 248, and then read to verify that the write was successful. The test is repeated with an alternating data pattern to test that overwriting is successful.
- **SPEED:** The drive's speed is compared to the current Apple III disk drive specification.

The Disk Test—The Disk Switch Test

This test checks the write-protect switch and disk-switch circuitry of the disk drives that are on-line. The screen asks you to pull out the disk in the highlighted drive. When the write-protect switch is triggered, you are prompted to reinsert the disk and close the door. As soon as you do this, a check appears on the screen.

If the write-protect switch is not working, nothing will happen when you pull the disk out.

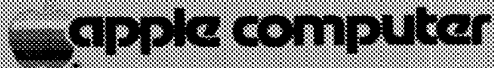
The Disk Test— Make External Drive Test Diskette

This is not a test. This option allows you to make the external drive test disks required by the Write and Speed tests.

Each external test disk has a unique pattern placed in Block 0 so that the program can recognize a test disk and write only to a test disk. The Confidence disk is a test disk.

The Continuous Test

When you select this test, the program asks you whether or not you want sound. After you reply, it cycles through the Machine Status, Memory, and Seek/Read/Write/Speed tests until the ESCAPE key is pressed or until an error is detected. Each successful pass through the cycle causes the pass counter in the upper-right corner of the screen to be incremented by one.



20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171-576
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