DAP (Drive Acceptance Program) Documentation

This article last reviewed: 15 December, 1987

NOTE: The DAP (Drive Acceptance Program) is an obsolete diagnostic. It has been replaced with the Apple 5.25 Inch Drive Diagnostic. Refer to the Disk Drives Technical Procedures for complete information on the current Apple 5.25 Inch Drive Diagnostic.

The following article describes how the DAP works and what it is designed to do. For a description of how to run the DAP test or what to replace if a failure occurs, search on "HTS and GTS and the disk drive product name".

TEST SEQUENCE AND DESCRIPTION

1. WRITE PROTECT TEST (the digit 1 appears above the selected drive) -

When the right arrow key is detected, several things happen on the screen. The diskette icon is erased, the drive door icon flashes to a closed position, and the IN.USE lamp icon lights as the first test begins. The digit "1" appears above the drive to indicate the test step.

The write protect test reads and saves a copy of sector 5 on track 16 of the test diskette. This helps prevent accidental data loss if the wrong diskette is accidentally inserted. The write-protect test does not bother with the write-protect switch since this may differ in various drives and controllers. Rather, it attempts to write a sector and then reads the sector back. If the read detects the data pattern written, the drive is failed in step one. In the case of failure (i.e. the write is successful) the original sector is re-written to the diskette. If writing does occur, the big "X" fail sign is overlayed on the drive image. This same indication is used for failure of any of the remaining tests.

2. WRITE AND READ TEST -

A. SPEED (The digit 2 appears): The first write test makes 16 D-SPEED passes over track 30. The test is self-adjusting, allowing a variance of +- 26 WOZ counts for Apple II+, IIe and IIc systems, and +- 10 WOZ counts for the Apple III in emulation mode. (If the test fails at the beginning of the test, the drive circuitry may be unable to read/write.)

B. WRITE AND VERIFY TRACKS 31,32,33 (The digit 3 appears): The write test writes patterns to all sectors of tracks 31,32,33 and then attempts to read the track. After each read it compares the read data pattern to the pattern written to verify a good write and read.

3. DYSAN DDD DISKETTE TESTS -

A. SPIN ECCENTRICITY (spindle wobble, collet problems; displays digit 4): Tests tracks 21 and 24. An even amount of error has been encoded on each of these DDD tracks. A properly centered head should read each sector with equal ease or difficulty. Irregularity here generally indicates collet problems or possibly spindle wobble. The program allows for some errors. If the test shows more failures than the limit allows, the user will be prompted to re-insert the DDD. On Disk II and Disk III drives it is best if the DDD is "double clamped". Failure here can also indicate excess noise from nearby equipment or a worn DDD diskette.

B. RADIAL ALIGNMENT (head properly centers on track; displays digit 5): This test reads tracks 0, 5, 16, 19, 30 and 32. Each of these tracks has been encoded with errors which are progressively further from the center track (by one mil) with each sector. A properly aligned drive will have a diminishing ability to read sectors and a perfectly positioned head will be unable to read the sectors furthest away from the center of the track. (Since the Digital Diagnostic Diskette checks alignment at six locations, it is possible that the error will not be detected with the Disk Alignment Aid.)

C. HYSTERISIS (physical slope in arm motion; displays digit 6): This test calibrates the drive, reads tracks 5 and 30, goes to track 34 and then reads tracks 30 and 5. A properly adjusted and functioning drive will not develop more than +- 2 mils of error on reads when the head moves from the opposite direction. Errors discovered here are due to physical slop or wear in the hardware. Failure of this test can often indicate that the guide rails need cleaning.

D. AZIMUTH (ability of head to detect data with 21-42 minutes of error in the angle of data placement; displays digit 7): This test calibrates and moves to track 34. This track has been encoded with data written with angular error which alternates direction with each sector and increases from 21 to 42 minutes of error. The inability to read this data indicates a faulty head. In most cases all sectors are read easily by the heads in Apple drives.
Copyright 1988 Apple Computer, Inc.

Keywords: hts

==========

This information is from the Apple Technical Information Library.

19960215 11:05:19.00

Tech Info Library Article Number: 1523