

SpeedDemon™

*Speed-up Card
for the Apple II, II+, & IIe Computers
Owner's Manual No. 91001*

*Version 3.03
Revision C Circuit Board
February, 1986*



Products of Micro Computer Technologies

*11926 Santa Monica Blvd. - Ste. E
Los Angeles, CA 90025
(213) 207-9530*

1.0 Introduction

Congratulations on your purchase of SpeedDemon, the speed-up card that makes your Apple II, II+, or IIe run up to 3.5 times faster. SpeedDemon is totally transparent to software and compatible with virtually all accessory cards.

Another outstanding feature of your SpeedDemon is its ease of installation. Just set it for your particular system configuration, and insert it in any empty slot. To ensure trouble-free operation, please carefully read and follow the installation and operation information provided below.

2.0 SpeedDemon Preparation

Some peripherals and accessory cards require the Apple to slow down to normal speed for them to work properly. Examples would include floppy disk drives, joysticks or paddles, voice or music synthesizers and certain modems.

SpeedDemon accommodates these devices by slowing down for 50 milliseconds each time the appropriate slot is accessed. Before you install SpeedDemon, you must tell it which slots require this slow down. This is done by setting the SpeedDemon DIP switch.

2.1 Setting the DIP Switch

The following section requires you to set the DIP switch that is on-board the SpeedDemon. The DIP switch is a Dual In-line Pin (DIP) switch that can be easily set or reset with a sharp object such as a ball point pen. **CAUTION: DO NOT** use a pencil because the graphite in the pencil lead could short-circuit the DIP switch.

See Figure 1. for the location of the DIP switch on the SpeedDemon. The diagrams in Figure 2. reflect the type of DIP switch that may be installed on your SpeedDemon.

Figure 1. SpeedDemon DIP Switch Location

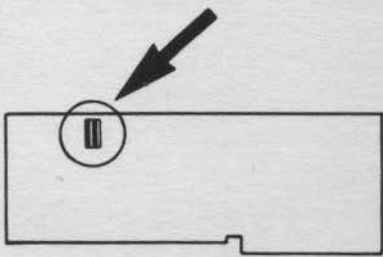
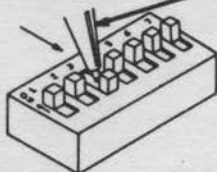


Figure 2. Types of DIP Switches Ball Point Pen



2.2 Systems without a Bank Switch Language Card

For owners who DO NOT have a Bank Switch Language Card* in their Apple, the first seven DIP switches control the access speed of the following:

- Switch 1 — controls — Slot 1
- Switch 2 — controls — Slot 2
- Switch 3 — controls — Slot 3
- Switch 4 — controls — Paddle/Joystick port
- Switch 5 — controls — Slot 5
- Switch 6 — controls — Slot 6
- Switch 7 — controls — Slot 7

OFF — Indicates slot/port is accessed at HIGH speed.

ON — Indicates slot/port is to SLOW DOWN for access.

All slots that can be accessed at HIGH SPEED and all EMPTY slots should have the corresponding DIP switch set to "OFF". In particular, be sure DIP switch number 8 is set to "OFF" (this is the non-bank switch setting).

SPECIAL NOTE about Switch 4:

Switch 4 on the SpeedDemon DIP switch no longer controls the access speed to Slot 4. It now controls how the joysticks and paddles are read.

If switch 4 is in the "ON" position, the SpeedDemon will slow down to normal Apple speed for 50 milliseconds each time the joystick or paddle is accessed. This allows the software to read the joysticks or paddles correctly. If switch 4 is in the "OFF" position, the SpeedDemon will not slow down when they are accessed.

Access to Slot 4 is always at SLOW (normal) Apple speed.

Certain programs, such as Appleworks, use the joystick/paddle locations, even when not using joysticks or paddles. If Switch 4 is set to the "ON" position, these programs will not show any speed for some functions, such as calculations and sorts. Therefore, unless you need joysticks or paddles for your applications, Switch 4 should be set in the "OFF" position.

* A Bank Switch Language Card is a card that adds additional memory to the Apple AND CAN BE PLACED IN ANY SLOT. Examples are the Titan Saturn 128K card and the Legend S-card. These cards must use the special switch settings described in the sections 2.3, 2.4, 2.5

Bank Switch Memory cards that must be placed in slot 0 or in the Auxiliary slot, such as the extended 80 column card, Ramworks II, or the Checkmate Multi-Ram can use the switch setting described in section 2.2 above.

2.3 Systems using a Bank Switch Language Card

For owners who DO HAVE a Bank Switch Language Card in their Apple (such as a Legend S-Card or Titan Saturn 128k Card), switches 1-7 on the SpeedDemon DIP switch take on an entirely different meaning.

Set DIP Switch 8 to the "ON" position to tell the SpeedDemon you have a Bank Switch Language Card in your system.

2.4 Bank Switch Language Card Location

A. Bank Switch Language Card Location

DIP Switches 1-3 encode the location of your Bank Switch Language Card. Use the following table to find the appropriate setting for your system:

DIP SWITCH			BANK SWITCH CARD LOCATION
1	2	3	
OFF	OFF	OFF	SLOT 0
OFF	OFF	ON	SLOT 1
OFF	ON	OFF	SLOT 2
OFF	ON	ON	SLOT 3
ON	OFF	OFF	SLOT 4
ON	OFF	ON	SLOT 5
ON	ON	OFF	SLOT 6
ON	ON	ON	SLOT 7

If you have TWO bank switch cards in your system, one of them must reside in slot 0, and the other must be in the slot selected by DIP switches 1-3 above.

SPECIAL NOTE: Because the first three switches are used to encode the location of the Bank Switch Language Card, you can no longer control the speed of all the slots. Specifically you cannot control slots 1, 3, or 6. These slots will now always run FAST except for Slot 6 which will always run SLOW.

2.5 Speed Control of Slots with a Bank Switch Language Card

B. Speed Control of Slots

Slot number 6 has been singled-out for your floppy disk controller card. It will now always run slow down for disk access. DIP switch number 6 has been re-assigned to control the speed of Slot Number 2. DIP Switches number 4-7 now control the access speed to the remaining slots in the following pattern:

Switch 4	—	controls	—	Paddle/Joystick Port
Switch 5	—	controls	—	Slot 5
Switch 6	—	controls	—	Slot 2
Switch 7	—	controls	—	Slot 7

As discussed in the previous section, if the switch is "ON", SpeedDemon will SLOW DOWN for normal Apple speed for 50

milliseconds. If the switch is "OFF," SpeedDemon will access the slot at HIGH SPEED.

The slot containing your Bank Switch Language card should be set to the "OFF" position.

SPECIAL NOTE: Please note that the slot containing the SpeedDemon should be set to the "OFF" position. Any slot (except the auxiliary slot in the Apple IIe) can accommodate the SpeedDemon, including Slot 3.

3.0 Installation

Installation procedures for the SpeedDemon is extremely simple and straightforward. Follow these steps:

1. Turn the Power "OFF".
2. Remove the top cover of your Apple Computer.
3. Holding SpeedDemon by the edges, insert it into ANY available slot (except the Auxiliary Slot in the Apple IIe).

SPECIAL NOTE: IIe owners with Extended Memory or 80-column cards in the auxiliary slot may want to take advantage of placing the SpeedDemon in Slot 3, usually an un-useable slot.

4. Replace the cover of your Apple Computer.
5. Turn the Power "ON".

Note that the SpeedDemon logo appears briefly at the top of the screen, and the normal Apple "beep" has now become a short high-pitched "chirp". This indicates SpeedDemon is properly engaged.

CAUTION: NEVER REMOVE THE SPEEDDEMON OR ANY OTHER PERIPHERAL CARD WHILE THE APPLE IS TURNED "ON". DOING SO MAY CAUSE EXTREME ELECTRICAL DAMAGE TO YOUR APPLE COMPUTER SYSTEM.

4.0 Disengaging the SpeedDemon

SpeedDemon can be easily disengaged (turned "OFF") from the keyboard. Turn the power "ON" and quickly press the ESC key before the Apple "beep" (note that the "beep" has returned to normal), then press CONTROL/RESET to re-boot.

To re-activate SpeedDemon, you must turn power "OFF" and then "ON" again.

For software engineers, SpeedDemon can also be disengaged with a POKE command either from the keyboard in direct mode, or from software, as shown below:

```
FROM BASIC _____ POKE 49274,0  
ASSEMBLY LANGUAGE _____ STA 5C07A
```

(Press CONTROL/RESET after the POKE or STA to continue.)

CPM cards—High speed CPM cards (4 Mhz to 6 Mhz) that run out of their own on-board memory can run concurrently with SpeedDemon. Standard 2 Mhz CPM cards that run out of Apple memory must have SpeedDemon disengaged when running. When in doubt, try running SpeedDemon with your CPM card, and if a problem results, disengage SpeedDemon.

5.0 Maintenance

Your SpeedDemon is maintenance free. The high-speed chips used in the SpeedDemon will become relatively warm while running. This is normal and should not cause you alarm. The only recommendation is for you to make sure your Apple receives adequate air flow from the rear. This is especially necessary if you have a "fully loaded" Apple.

6.0 SpeedDemon Self-Test

Another key feature of the SpeedDemon is a built-in Self-Test program. To run the self-test, simply turn Power "ON" and quickly press the "1" Key before the Apple "beep" (within 2 seconds).

The self-test consists of 10 separate tests. The SpeedDemon will automatically sense the memory configuration of your system and will skip those tests that DO NOT apply. As the self-test progresses, the number of the current test, those passed and those skipped are printed on the screen.

If the self-test detects a problem, either with the SpeedDemon or with the Apple's memory, it will make a piercing noise, print FAIL on the screen and stop. If this happens, or if the time taken to run a particular test is substantially different from that shown in Table 1., call M.C.T.'s Technical Support for immediate assistance. (See Section 8. for Telephone number.)

When the self-test is completed, press Control/Reset to boot the disk and proceed as normal.

Table 1. SpeedDemon Self-Test

<u>TEST NO.</u>	<u>DESCRIPTION</u>	<u>TIME PER TEST</u> (minutes: seconds)
Test 0	0 Page PAL/Memory	00:00.04
Test 1	Opcode Test	00:00.17
Test 2	Lang. Card + PAL Test	00:00.29
Test 3	Lang. Card Memory	00:58.00
Test 4	Aux Card PAL Test 1	00:00.08
Test 5	Aux Lang. Card Memory	02:00.00
Test 6	Aux Main Memory	02:07.00
Test 7	Aux Card PAL Test 2	00:00.10
Test 8	Main Memory Sync	00:54.00
Test 9	Main Memory Test	01:46.00

The Apple Computer can be tested by running the above self-test with SpeedDemon turned "OFF". Turn power "ON" and quickly press the "T" key before the Apple "beep". The Apple test will run the same as described above, but will take about 13 minutes to complete.

7.0 Questions

If you have any questions concerning your SpeedDemon, feel free to call our Technical Support Staff at M.c.T. If a technical problem arises, please do the following BEFORE calling:

1. Run both SpeedDemon and Apple self-tests (the "1" test and the "T" test, described in the SELF-TEST section) and record the results.
2. Be ready to describe what accessory cards you have and in which slots.
3. Note the serial number of your SpeedDemon.
4. Call M.c.T.'s Technical Support Staff. (See Section 8. for telephone number.)

8.0 RMA Procedures

M.c.T. will repair or replace a SpeedDemon free of charge if it proves defective due to workmanship or materials during the warranty period of one year. Once SpeedDemon is out of warranty, M.c.T. will replace defective hardware components for cost plus shipping and handling. If you have a defective SpeedDemon, please do the following:

1. Call M.c.T.'s Customer Service Department at (213) 829-3641 and be prepared to furnish the following information:
 - Reason for return.
 - Serial number of the SpeedDemon board.
 - Your name and address.
2. Obtain a "Return Merchandise Authorization" (RMA) number from Customer Service.
3. Mail the SpeedDemon in the original box or an equivalent with the RMA number clearly printed on the outside to:

M.c.T.
c/o Customer Service Dept.
11926 Santa Monica Blvd. - Ste. E
Los Angeles, CA 90025

SPECIAL NOTE: NO PRODUCT RETURNS ARE ACCEPTED WITHOUT AN RMA NUMBER. BE SURE IT IS CLEARLY PRINTED ON THE OUTSIDE OF YOUR PACKAGE.

If the warranty has expired, you will be notified as to the cost of repairs, and payment must be made BEFORE the work is completed. There are NO user serviceable parts, and any attempt to repair a SpeedDemon yourself will void the warranty.

9.0 Limited Warranty

M.c.T. warrants this M.c.T. Microcomputer Product to be in good working order for a period of three years from the date of purchase from M.c.T. or an Authorized M.c.T. Microcomputer Product Dealer. Should this Product fail to be in good working order at any time during this three year warranty period, M.c.T. will, at its option, repair or replace this Product at no additional charge except as set forth below. Repair parts and replacement Products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and Products become the property of M.c.T. This limited warranty does not include service to repair damage to the Product resulting from accident, disaster, misuse, abuse, or non-M.c.T. modification of the Product.

Limited Warranty service may be obtained by first calling an Authorized M.c.T. Service/Exchange Center and receiving a "Return Merchandise Authorization" (RMA) number. The Product with its correct RMA number must then be returned to the center within that one year period. If this Product is delivered by mail, you agree to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location and to use the original shipping container or equivalent.

Once this Product is out of warranty, M.c.T. will replace defective hardware components for cost plus shipping and handling. Contact M.c.T.'s Customer Service Department (213) 207-9530 or write to: M.c.T. Customer Service Department, 11926 Santa Monica Boulevard, Suite E, Los Angeles, California 90025, for further information.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

If this Product is not in good working order as warranted above, your sole remedy shall be repair or replacement as provided above. IN NO EVENT WILL M.c.T. BE LIABLE TO YOU FOR ANY DAMAGES, INCLUDING LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE SUCH PRODUCT, EVEN IF M.c.T. OR AN AUTHORIZED M.c.T. MICROCOMPUTER PRODUCT DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY. Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, so the above limitations or exclusions may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

This limited warranty applies to hardware products only.

M.c.T. may make improvements and/or changes in the product(s) and/or the program(s) described in this manual at any time and without notice.

Requests for copies of this manual and for technical information about the system should be made to your authorized M.c.T. microcomputer product dealer.

Although all information presented here has been carefully checked and edited by technical personnel, M.c.T. makes no guarantee concerning its validity or completeness, and will not be responsible for the use thereof. Changes are periodically made to the information herein; these changes will be incorporated in the new editions of this publication.

Apple II, II+, IIe are registered trademarks of Apple Computer, Inc.

SpeedDemon is a registered trademark of M.c.T.

Legend-S Card is a registered trademark of Legend Industries, Ltd., Titan Saturn 128k Card is a registered trademark of Titan Technologies, Inc.

Copyright ©1985 M.c.T. All rights reserved, including those to reproduce this book or parts thereof in any form without written permission in writing from M.c.T.