

1541 FLASH!

INSTRUCTION MANUAL

ADDENDA

by

BOB SKYLES

BRYCE NESBITT

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Mountain View, CA 94041 U.S.A.

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The program modifications to the Commodore 64 Kernal ROM and the 1541 Disk Drive operating system ROM are copyrighted by Bryce Nesbitt. All rights reserved.

Introduction

Congratulations on purchasing 1541 FLASH!. This addition to the original 1541 FLASH! adds a switchable disk ROM to the disk drives thereby assuring that any future program protection scheme will be compatible with the 1541 FLASH! by virtue of the fact that you can always return your computer and disk drives to their original operating ROMs. Commodore Business Machines has, at the time of this writing, released 3 different versions of the "kernal" ROM inside the C-64, and 4 different versions of the Operating system ROM inside the 1541 Disk Drive. Since many programmers are very long on paranoia and cleverness, and very short on common sense, there will continue to be programs that will not load with the particular combination of original kernal and operating system ROMs that your Computer and disk drives contain. If this is the situation please contact the publisher of the program.

This instruction consists of 15 pages of installation instructions and 1 page of operating instructions. It is recommended that the operating instructions be cut out of these instructions and pasted onto the last page (page 53) of your original 1541 FLASH! instruction manual.

An addition to the picture of the 1541 FLASH! parts is shown on the next page. This picture shows the 1541 FLASH! Disk Switchboard Assembly that replaces the 1541 Operating ROM Assembly shown on page 30 of the 1541 FLASH! manual and is labeled accordingly.

These instructions replace completely the "Installation, Commodore 1541 Disk Drive" starting on page 41 of the original 1541 FLASH! manual.

INSTALLATION

NEW PART IDENTIFICATION

Shown below is the 1541 FLASH! Disk Switchboard Assembly. This replaces the 1541 Operating ROM Assembly shown on page 30 of the 1541 FLASH! Manual

1541 FLASH! DISK SWITCHBOARD ASSEMBLY

DISK SWITCHBOARD
ASSEMBLY

SWITCHBOARD

MICROCLIPS



New Part 1541 FLASH!

INSTALLATION

Installation, Commodore 1541 Disk Drive

We will now install a 1541 Disk Drive Switchboard with a FLASH! Cable attached into the 1541 disk drive.

- 1) Unplug all cables and peripheral assemblies from your Commodore 1541.
- 2) Place the Commodore 1541 upside down on a well lighted surface. The front edge of the 1541 should be toward you.
- 3) Using the Phillips screwdriver remove the 4 screws located in wells at each corner on the bottom of the 1541. Place tape over the wells where the screws are located. This will keep them in the wells.
- 4) Holding the 1541 together at the sides place it rightside up.
- 5) Now carefully remove the top half of the 1541. This should expose a metal inner cover. Set the top half of the 1541 to one side.
- 6) Now remove the two screws on the left side of the metal cover. Lift the metal cover off and set to one side.
- 7) There are two different styles of electronics boards inside the 1541. Using the drawing shown 2 pages forward locate your style of main electronic board and the two components related to the 1541 FLASH installation. Note that the notch end of all the electronics chips in the 1541 disk drives are toward the rear of the drive

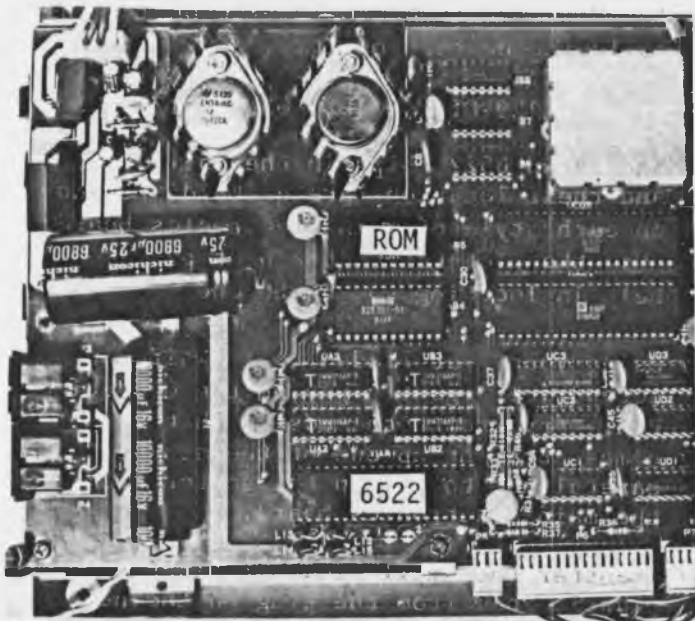
Installation 1541 Disk Drive

- 8) The Operating ROM should have one of the following numbers on it:

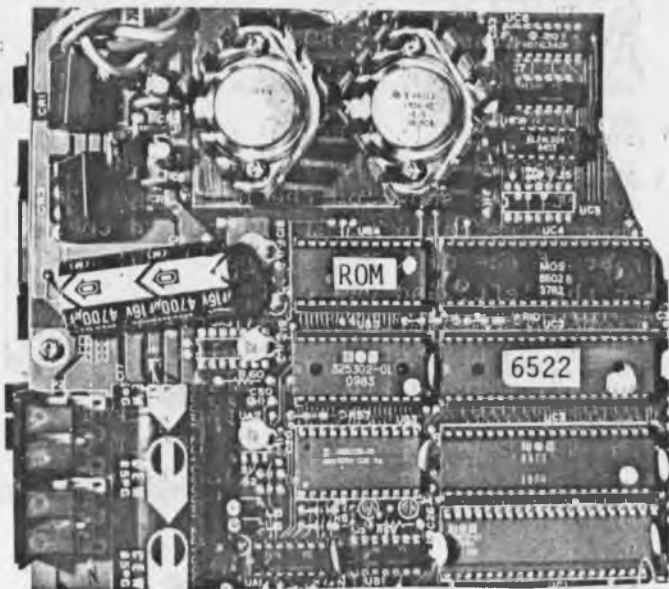
901229-01, 901229-03, 901229-05

- 9) There two 6522 chips in the 1541 drive and their locations are quite different on each style of main electronics board. Use the pictures on the next page to help in locating the right one.
- 10) Using your flat bladed tool (knife or screwdriver) gently pry up the Operating ROM. Pry from both ends so that it comes straight up out of the socket. Be careful not to pry up the socket from the main electronics board.
- 11) Transfer the small piece of black plastic foam from the plug on the new Disk Switchboard Assembly, with FLASH! Cable, plug to the Operating ROM that you have just removed. Make sure that all the pins of the ROM are in the foam. Put this ROM aside in a safe place.
- 12) Now place the 1541 FLASH! Disk Switchboard over the Operating ROM socket. As shown on the next page, the three wire cable should be toward the rear of the disk drive, The FLASH! ROM to the left, and the empty socket to the right. Be sure the 24 pins of the plug are lined up over the 24 holes of the socket. Gently plug the Disk Switchboard Assembly into the socket on the main electronics board. Check the next page for the correct location.
- 13) Remove the black foam from your previously saved 1541 operating ROM and plug it into (with the small notch to the rear) the empty socket on the Disk Switchboard.

Installation 1541 Disk Drive



Rear of Electronics Bd. Type A 1541 Drive

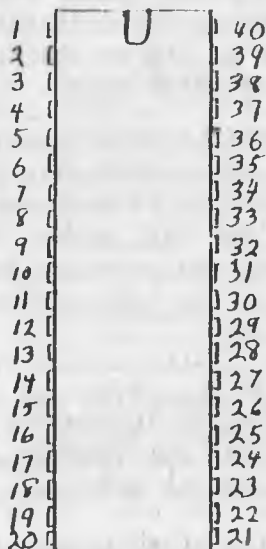


Rear of Electronics Bd. Type B 1541 Drive

Installation 1541 Disk Drive

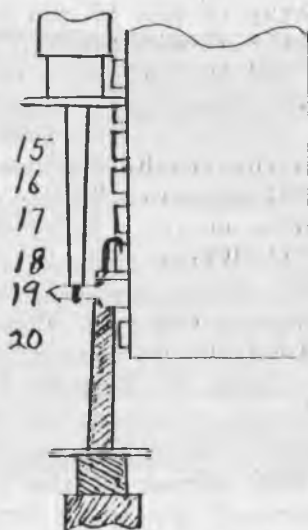
- 14) Using your flat bladed tool (knife or screwdriver) gently pry up the FLASH! Input 6522. Pry from both ends so that it comes straight up out of the socket. Be careful not to pry up the socket from the main electronics board.
- 15) Set the FLASH! Input 6522 in front of you and locate pin 19. The top picture on the next page shows the numbering of the pins.
- 16) Check the picture on the previous page to be sure that you have removed the correct 6522. If you have, use your flat bladed tool to bend pin 19 straight out from the FLASH! Input 6522 chip. Please see the picture on the next page for details of where to bend the pin. Do not attempt to bend the pin back to its original position. It may break if you attempt to return it to its original position. There is no reason to return it to its original position, it is not connected to anything else in the disk drive.
- 17) Return the FLASH! Input 6522 to its original socket. Note the small notch should be on the end toward the rear of the 1541 drive.
- 18) Making sure that all 39, of the 40, pins are lined up, carefully press the FLASH! Input 6522 back into it's original socket.
- 19) Check the pictures on the previous page to assure that you have the FLASH! Input 6522 and the 1541 FLASH! Disk Switch-board Assembly in their proper orientation and location.

Installation 1541 Disk Drive



FLASH! Input 6522 with pin numbers

White to pin 19



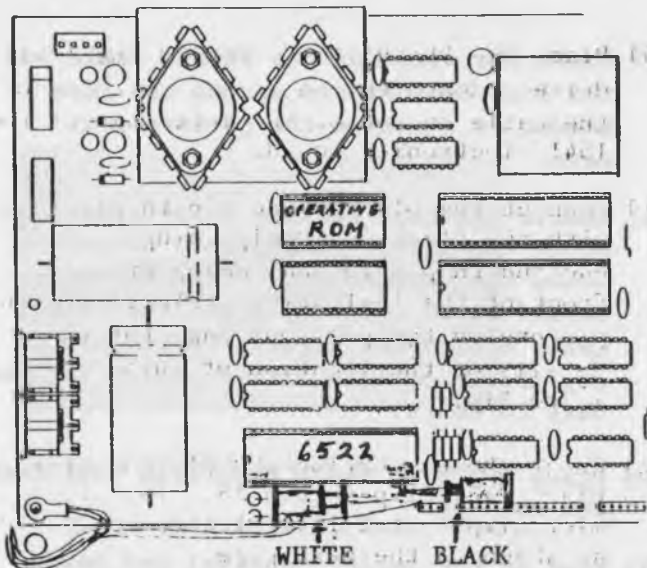
Black to pin 18

FLASH! Input 6522 Chip with pin 19 bent

Installation 1541 Disk Drive

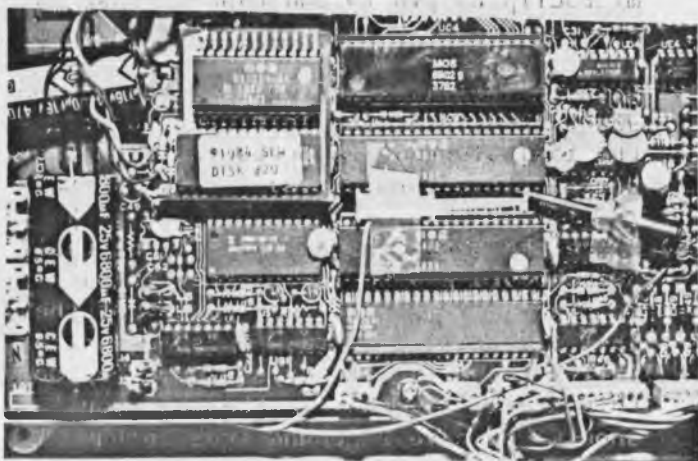
- 20) Place the FLASH! Cable behind the 1541 drive. Route the unjacketed portion of the cable on top of the left edge of the 1541 electronics board.
- 21) Connect the black microclip to pin 18, with the black microclip going underneath pin 19 and coming from the front of the 1541 drive. Please see the picture on the previous page for the details of the location of this microclip.
- 22) Check the connection and placing of the black microclip to pin 18. Tape the microclip to the 1541 electronics board as shown on the next page.
- 23) Connect the white microclip to pin 19 as shown on the previous page.
- 24) Check the connection of the white microclip to pin 19 and tape it down as show on the next page.
- 25) With the Phillips screwdriver remove the screw located at the left rear corner of the 1541 electronics board (next to the serial cable connectors)
- 26) Place the screw through the FLASH! Cable-Switchboard ground lug. Screw it back in place at the left rear corner of the 1541 electronics board. On some earlier 1541's there is already a ground lug on this screw. If that is the case you should now have 2 ground lugs on the left rear corner of the 1541 electronics board.

Installation 1541 Disk Drive



FLASH! Cable and Microclip locations

Type A 1541 Electronics Board



FLASH! Cable and Microclip locations

Type B 1541 Electronics Board

Installation 1541 Disk Drive

- 27) Route the wires of the FLASH! Cable and the Disk Switchboard around the fuse holder as shown in the picture next page.
- 28) Remove the tape backing cover paper and stick the small switch board directly below the fuse holder. The switch should be on the bottom and the FLASH! Cable toward the right. Do not place any strain on this strain relief for the next 24 hours.
- 29) Place the Disk Drive back with your C-64 and monitor.
- 30) Plug in the serial cable(s) and power cable. Lifting up your computer, plug in the 6 pin plug at the end of the FLASH! Cable into the keyed connector on the bottom side of the cable card. The black wire should be closest to the computer and the green wire farthest away from the computer.
- 31) Switch the switch on the small board attached to the Disk Switchboard toward the white wire. Switch the switch on the C-64 CableCard toward the C-64.
- 32) Turn on your computer system and observe the 1541 FLASH! copyright message.

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W/1541 FLASH! 38911 BYTES FREE

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READY.

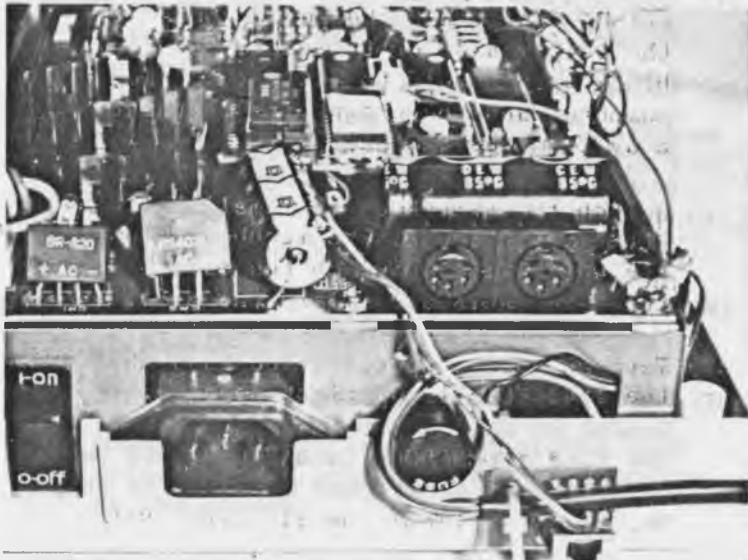
- 33) Place a program diskette into the disk.

Installation 1541 Disk Drive



Detail FLASHI Cable Attachment

Small Switch Board Rear 1541



Rear View 1541 Disk Drive

Wire Routing

Installation 1541 Disk Drive

- 34) Type on the keyboard:

SYS 65526 <RET>

@I <RET>

@S <RET>

- 35) Observe the initialization of the disk drive and the printout of the directory on the screen.

- 36) Reload the program from the disk that you loaded in step 25 (page 40) of the C-64 installation instructions. Time the load cycle. The program should load three times faster than previously.

- 37) Type: POKE 148,64 :OPEN 1,8,15,"Z8S" and then strike the <RETURN> key.

- 38) Reload the program from step 36 above. Time the load. It should be 3 times slower than in step 34 above. It probably is already getting difficult to consider loading all your programs at this slow speed.

- 39) Type: POKE 148,0 :OPEN 1,8,15,"Z8F" and then strike the <RETURN> key.

- 40) Reload the program from disk that you loaded in step 36 and 38 above. Time the load cycle. The program should load three times faster than the load in step 36.

- 41) Turn off your C-64 and then switch the small switch on the CableCard away from the computer

Installation 1541 Disk Drive

- 42) Turn on your C-64 and observe the original Commodore 64 turn-on message. You should see:

*** COMMODORE 64 BASIC V2 ***

64K RAM SYSTEM 38911 BASIC BYTES FREE

READY

- 43) Now Type: OPEN1,8,15,"Z8S" and strike the RETURN key.
- 44) Reload the program from step 36 above. Time the load. It should be about 3 times slower than in step 36 above. By this time it probably is getting very tedious to load at the slow speed.
- 45) Remove the diskette from the disk drive. Turn off the Disk Drive. Switch the switch on the Disk Switchboard Assembly toward the black wire.
- 46) Turn on the disk drive. Place a program disk into the disk drive and type on the keyboard:

OPEN1,8,15,"IO" <RET>

LOAD "\$",8 <RET>

LIST <RET>

- 47) Observe the initialization of the disk drive and the printout of the directory on the screen.
- 48) Once again, reload the program from step 36 above. Time the load. It should be about 3 times slower than in step 36 above. By this time it most certainly is getting very tedious to load at the slow speed.

Installation 1541 Disk Drive

- 49) If one of these tests does not work correctly, recheck the installation starting at step 7.
- 50) If you are still having trouble, replace your original Kernal ROM in the C-64 and the original Operating ROM in the 1541 Disk Drive. Test that this has returned the computer and disk drive to their original condition. Every 1541 FLASH! is tested before leaving the factory, but mistakes can happen. Notify your local dealer for test and/or possible replacement of the 1541 FLASH!.
- 51) In case of trouble you may also contact:

SKYLES ELECTRIC WORKS

**231-E South Whisman Road
Mountain View, CA 94041**

or you may call:

1-415-965-1735

between the hours of 1 and 5 PM Pacific Coast time.

Installation 1541 Disk Drive

- 52) Remove the diskette from the drive and turn off the computer system. Unplug the serial cable(s), FLASH! cable (from the CableCard at the computer), and power cable.
- 53) Carefully replace the metal inner cover on the 1541 Disk Drive. The 2 small sheetmetal screws are used to attach it on the left side.
- 54) Replace the plastic top cover on the 1541 disk drive. Some minor adjustment of the wires exiting the rear of the disk drive via the fuse holder may be necessary.
- 55) Holding the two halves together, turn the 1541 disk upside down.
- 56) Insert the four screws into the the four corner wells on the bottom of the 1541.
- 57) This completes the installation of the the 1541 FLASH! into the disk drive.
- 58) Place the Disk Drive back with your C-64 and monitor. Plug in the serial cable(s) and power cable. Plug in the new FLASH! Cable attached to your disk drive.
- 59) Switch the switch on the small board attached to the Disk Switchboard toward the white wire. Switch the switch on the C-64 CableCard toward the C-64.

Installation 1541 Disk Drive

- 60) Turn on your computer system and observe the 1541 FLASH! copyright message.

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READY.

- 61) Place a program diskette into the disk.

- 62) Type on the keyboard:

SYS 65526 <RET>

@I <RET>

@S <RET>

- 63) Observe the initialization of the disk drive and the printout of the directory on the screen.

- 64) Reload the program from the disk that you loaded in step 25 (page 40) of the C-64 installation instructions. Time the load cycle. The program should load three times faster than previously.

- 65) This completes the installation of the 1541 FLASH!. Please now read the section of the manual covering the "Easy Everyday Commands".

Disk Switchboard Commands

Command Manual Switch on Back of Disk Drive

There is a small switch on the back of the 1541 disk drive directly below the fuse holder. Normally the switch is positioned to the right (toward the power cord) as viewed from the front of the disk drive. If you wish to return the 1541 disk drive to its original condition before the 1541 FLASH! was installed, switch the switch to the left (away from the power cord, toward the serial cable) as viewed from the front of the disk drive. If this is done you must change the C-64 as described on page 7 of the 1541 FLASH! instruction manual.

UNDOCUMENTED FEATURE 1541 DISK DRIVE

No more head banging!! To eliminate the head banging against the stop with protected programs, disk errors, and other occasions type, before you use the disk drive:

```
OPEN 1,8,15:PRINT#1,"M-W"CHR$(106)CHR$(0)
CHR$(1)CHR$(154):CLOSE1 <RET>
```

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ERRATA:

or

"Into every manual a few grievous errors doth sneak."

Please make the following corrections to your original 1541 FLASH! manual

Page iii, The sixth and last two lines of DOS Commands should read:

```
@UJ  <RET> . . . . (1541 soft reset) . . 11
@Z8S  <RET> . . . . (1541 slow load) . . 13
@Z8F  <RET> . . . . (1541 FLASH! load) . 13
```

Page 11, Middle of page should read:

```
@UJ  <RET>
```

Page 13, The last DOS Commands should read:

```
DOS Command  @Z8S  <RET>
```

```
DOS Command  @Z8F  <RET>
```

Page 18, The command under Miscellaneous should read:

```
OPEN1,8,15,"SO:FRED,JOE,MARY,SUE"
```

