

Commodore 910

**3.5" Floppy
Disk Drive**

User's Guide

Commodore 910 3.5" Floppy Disk Drive

User's Guide

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Introduction

The 910 3.5" Floppy Disk Drive is an internal drive that can be installed in the following Commodore computers:

- Colt
- PC 10-III
- PC 10-1
- PC 20-III
- PC 10-2

The 910 connects directly to the motherboard, without the need for a controller card. It can be used as a 360 Kbyte drive for compatibility with other disk drives, such as existing 5.25" drives, or can be reconfigured through software to support a 720 Kbyte capacity. For reconfiguration instructions, please see the section entitled **Using the 910 as a 720 Kbyte Drive**.

This installation guide provides the necessary directions for the handling, installation, and testing of the 910 Disk Drive.

You can install the 910, or have an authorized Commodore dealer install it for you. If you choose to install the 910 yourself, handle the drive carefully to prevent any possible damage.

Warning: Disk drives must be handled carefully, and protected from shock. They should be cleaned every six months to one year, depending on usage. Use a drive cleaning kit, available from your dealer, or have your service center clean it for you. The 910 uses 3.5" double-sided, double-density microdisks, with 135 tracks per inch.

Installing the 910 Floppy Disk Drive

Overview

Since the installation of a second drive is the most popular option, the 910 is set as a second (B:) drive. If you want to use the 910 as your primary (A:) drive refer to the section entitled **Reconfiguring the 910 as Drive A.**

The installation procedure for the 910 is different for each computer, and for the placement of the new drive. There are two different sections in this manual:

- Colt, PC 10-III, PC 20-III.
- PC 10-1, PC 10-2.

Refer to the appropriate section.

Before you begin, make sure that you have all the required parts:

- 910 3.5" floppy disk drive.
- 4 screws.

To install the 910 you will:

1. Remove the computer's cover.
2. Remove the original drive, if necessary.
3. Remove the front panel and bezel plate, if necessary.
4. Install the 910 disk drive.
5. Connect the ribbon cable.
6. Connect the power cable.

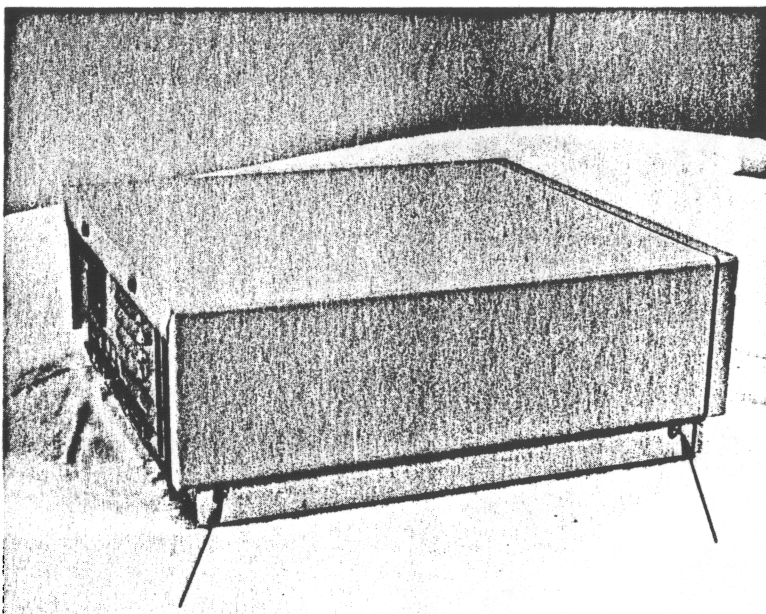
WARNING: Turn the computer off and unplug the power cord before proceeding. Installing the 910 with the power on could cause injury to yourself and damage to the equipment. Commodore will not be responsible for any injury or damage resulting from improper installation procedure. Such improper installation procedure will also void the warranties on the disk drive, and the computer.

Make sure that nothing is attached to the computer. Disconnect all peripherals and power cords, and put them aside.

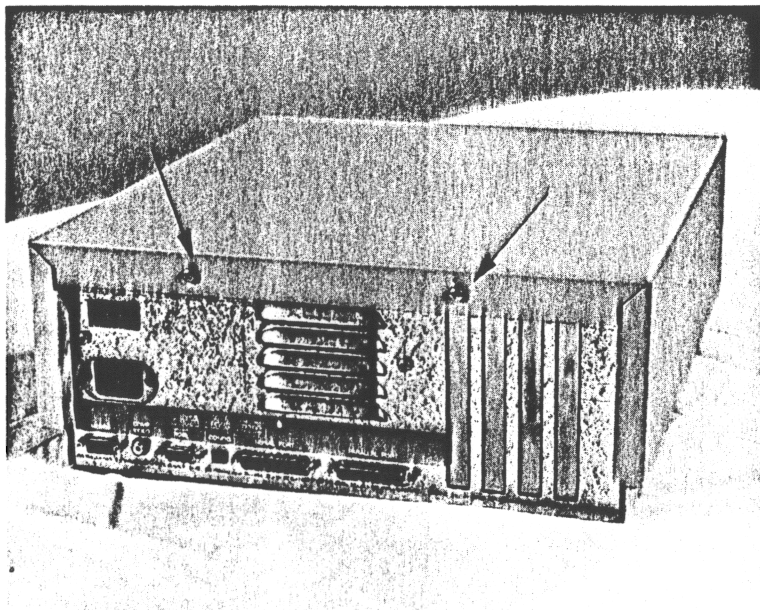
Colt, PC 10-III, PC 20-III

1 Removing the Cover

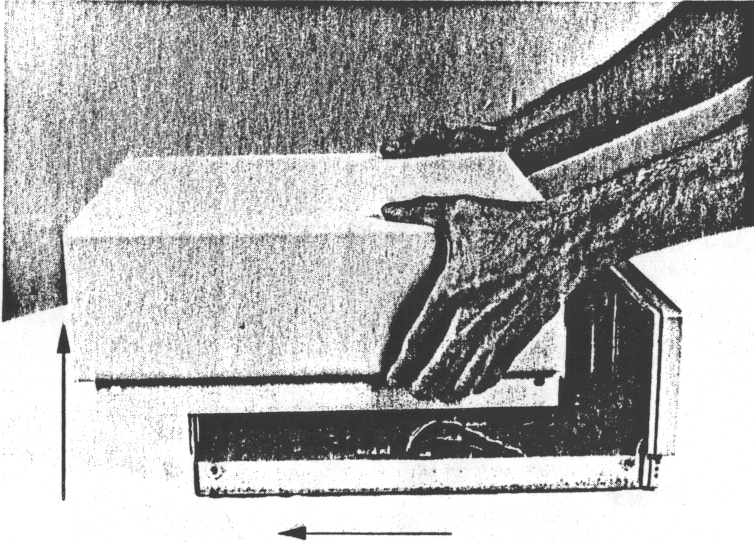
Remove the two screws at the base of the right and left sides of the computer, as shown below.



Remove the two screws in the rear that hold the cover to the computer. Put the screws and washers aside for later.



To remove the cover, turn the computer so that you are facing the front. Grasp the cover on both sides, slide it away from you and lift up, as shown below.

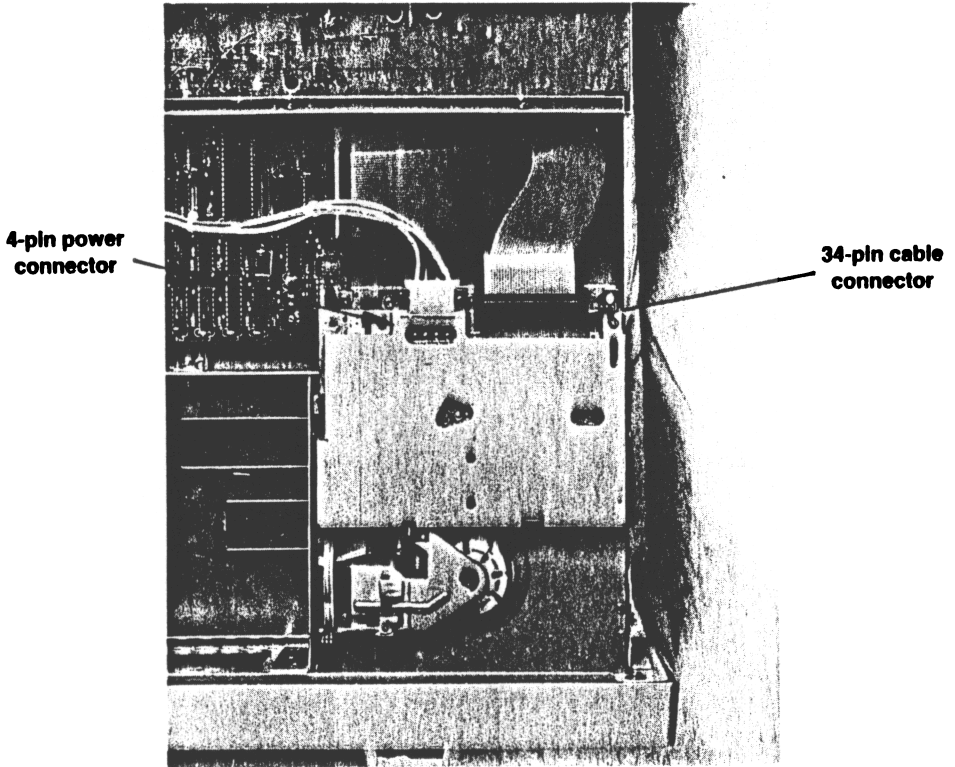


If the cover seems stuck initially, do not force it. Shift the cover away from you, alternating pressure on each side. If the cover becomes stuck while sliding it or lifting it, check to see if any wires or cables are caught on the cover. Carefully untangle them and continue removing the cover.

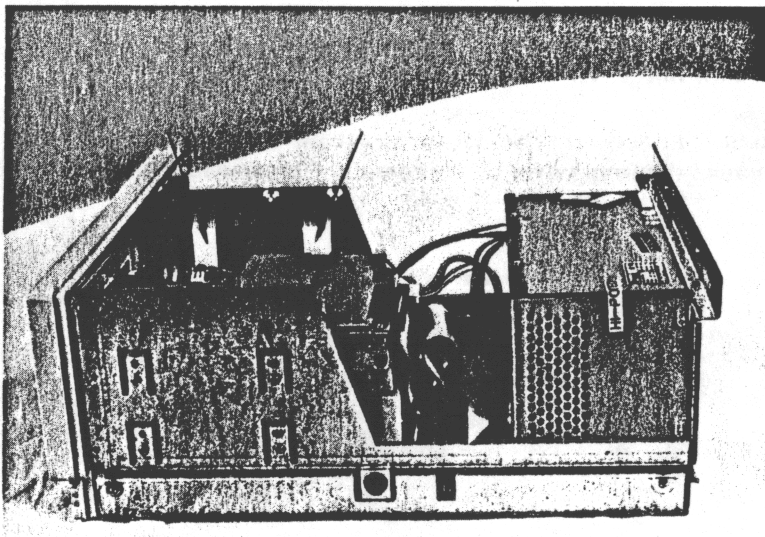
If you have a hard disk drive in your computer, you may have to remove it in order to reach the disk drive screws during installation and removal. If you find that this is the case, remove the four screws holding the disk drive and, leaving the cable connected, move the hard drive out of the way. After the new disk drive is installed and tested, replace the hard drive.

2 Removing the Original Disk Drive

If you are replacing a drive, locate the 4-pin power connector and the 34-pin cable connector, as shown below. Disconnect both by carefully pulling each connector away from the drive.



Locate and remove the four screws that attach the drive to the drive housing, as shown below.

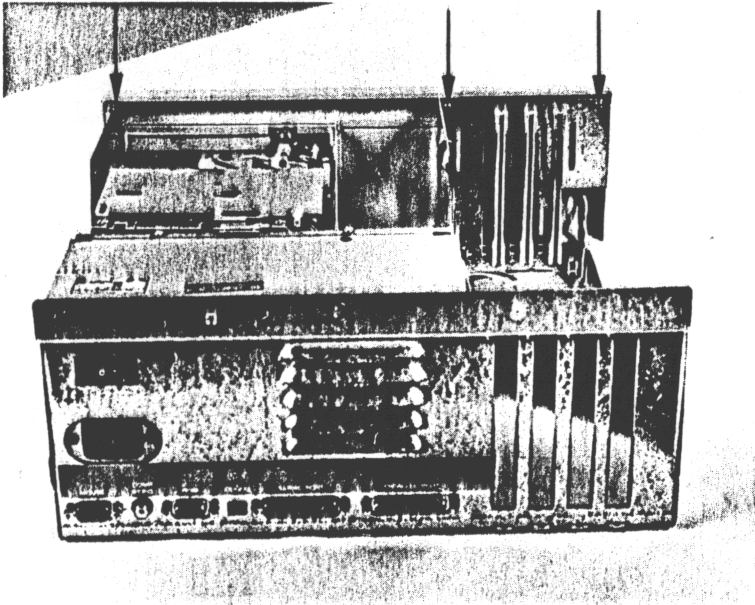


Carefully slide the drive out of the front of the computer. Never force the drive or drag the bottom across anything. Slide it slowly and support its weight. Put the drive and the screws aside, in a safe place.

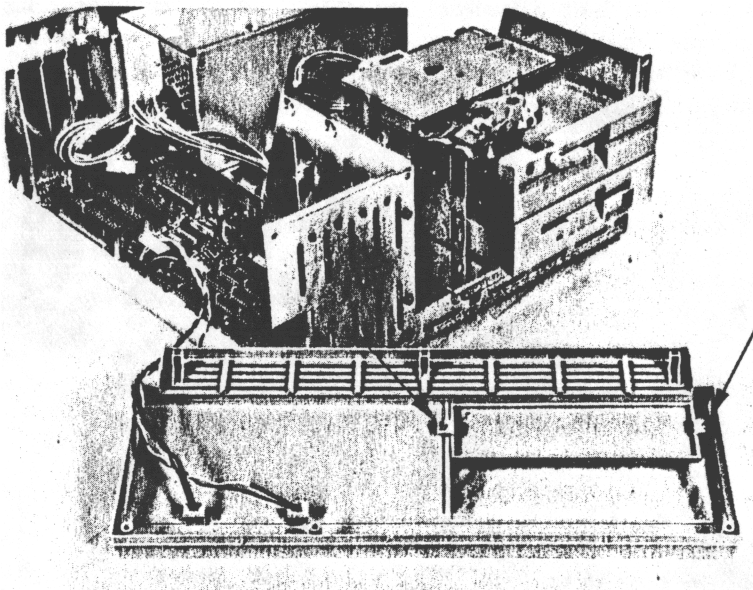
3 Removing the Bezel Plate

If you are installing a second drive, you must remove the protective plastic plate on the front panel, to open the drive slot. If you are replacing a drive, you need only remove the old drive and install the new one, as explained below.

To install a second drive, locate and remove the three screws that connect the front cover to the computer, as shown below.



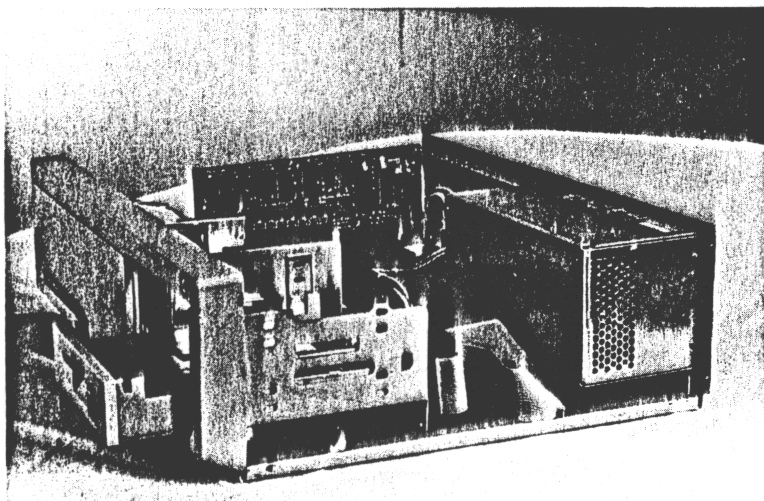
While taking care not to disconnect the wires that connect the front cover to the motherboard, lift the top edge of the front cover away from the computer, and pull it out as shown below.



Remove the screws and the bezel plate as indicated above. Replace the front cover and the three screws. You may wish to save the bezel plate in the event you might ever remove a drive.

4 Installing the Disk Drive

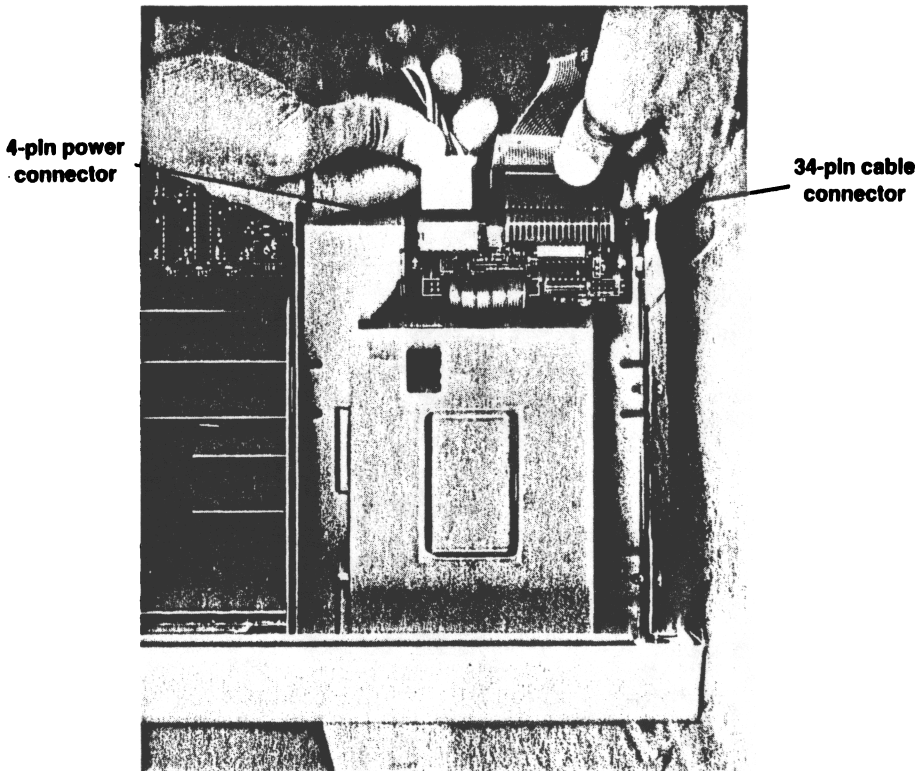
While keeping the 910 level, insert the back end, the end with the cable connectors, into the lower drive slot, as shown below. Gently slide the drive in until the front end is flush with the front cover. If at anytime the drive seems to catch on something, gently lift it up and back, and then continue insertion. Due to ongoing improvements, your drive may not look identical to the one shown below.



There are two sets of holes provided on the drive and on the disk drive housing. The drive will attach by its bottom set of holes. The model of your computer will determine which set of holes on the drive housing should be used. If you have a Colt, use the bottom set of holes on each drive slot. If you have a PC 10-III or PC 20-III, use the set that makes the drive level. Install the four screws. When this is complete, go to the section entitled **Connecting the Ribbon Cable**.

5 Connecting the Ribbon Cable

The 910 connects to the motherboard with a 34-pin flat ribbon cable, located behind the drive housing and in front of the metal box containing the power supply. Locate the ribbon cable and hold it so that the colored stripe is on the right, towards the side of the computer. Note that the cable has two connectors. The one closer to the motherboard will connect to the bottom drive, and the one at the end of the cable will reconnect to the top drive. Align the connector with the tab at the right rear of the disk drive, as shown below. The connector is keyed so that it can only fit the correct way. Gently slide the connector onto the tab. If the ribbon cable does not fit over both tabs, call your Commodore dealer.



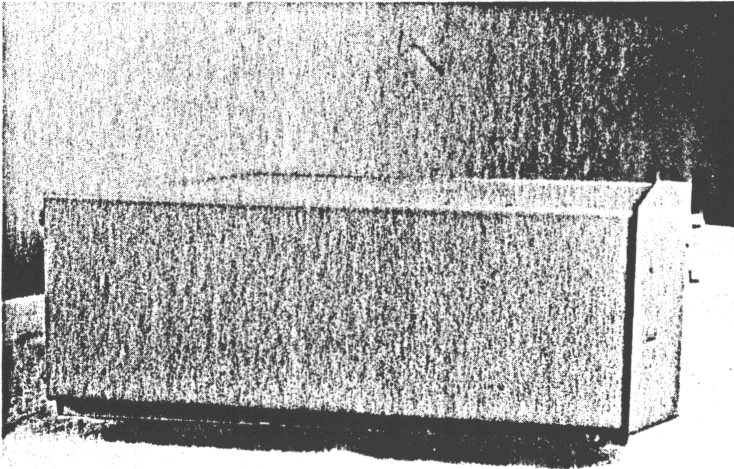
6 Connecting the Power Cable

The 910 connects to the power supply with a 4-pin power cable, located on the left side of the power supply housing at the rear of the computer. There will be two sets of cables, one for each drive, each ending in a plastic connector. Align the connector, as shown above, with the connector at the rear of the disk drive. Note that both connectors have a rounded top or bottom. Align the connector so that it is oriented the same way as the one on the drive. Turn to the section entitled **Testing the Disk Drive**.

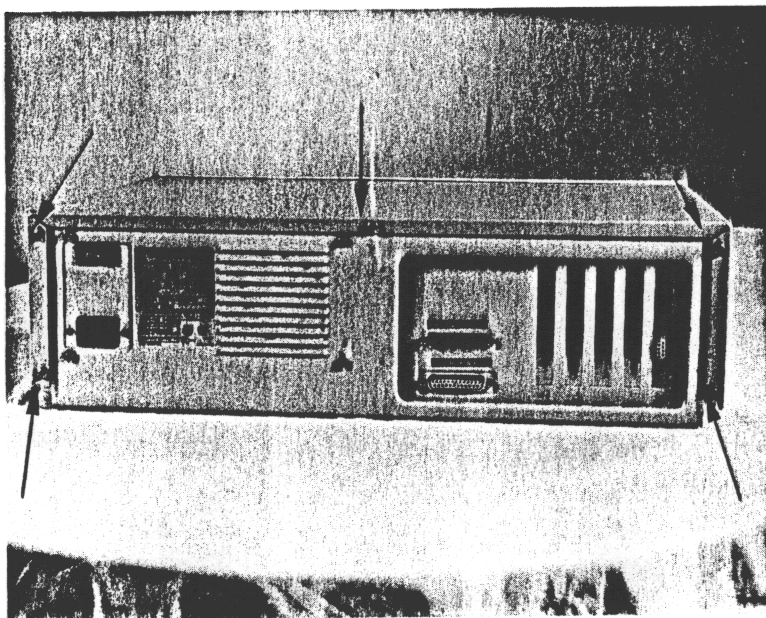
PC 10-1, PC 10-2

1 Removing the Cover

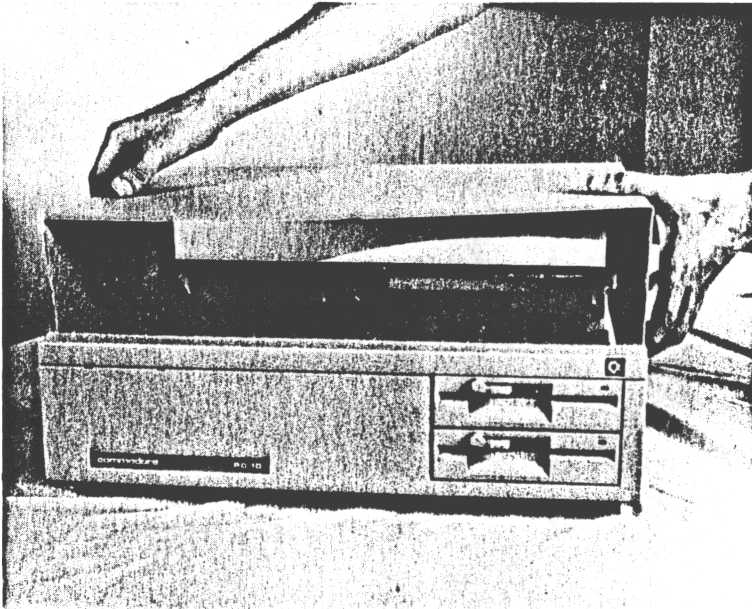
Remove the screw at the base of the right and left sides of the computer, as shown below.



Remove the screws in the rear that hold the cover to the computer. There will be five around the perimeter, as shown below. Put the screws and washers aside for later.



To remove the cover, turn the computer so that you are facing the front. Grasp the cover on both sides and lift it upwards, as shown below.

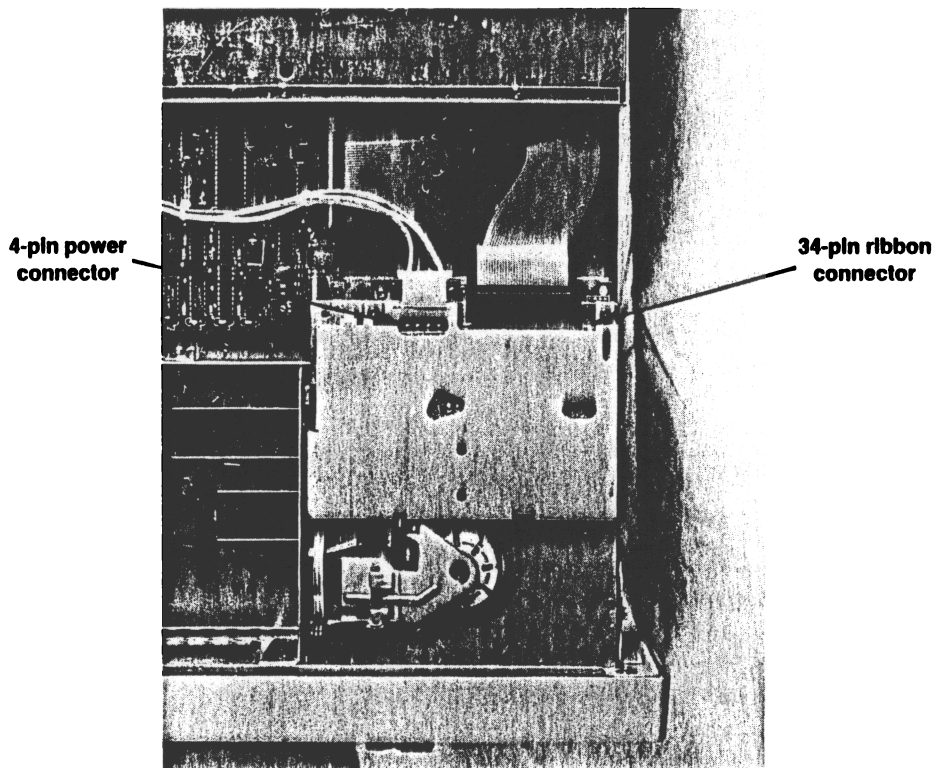


If the cover seems stuck initially, do not force it. Shift the cover away from you, alternating pressure on each side. If the cover becomes stuck while sliding it or lifting it, check to see if any wires or cables are caught on the cover. Carefully untangle them and continue removing the cover.

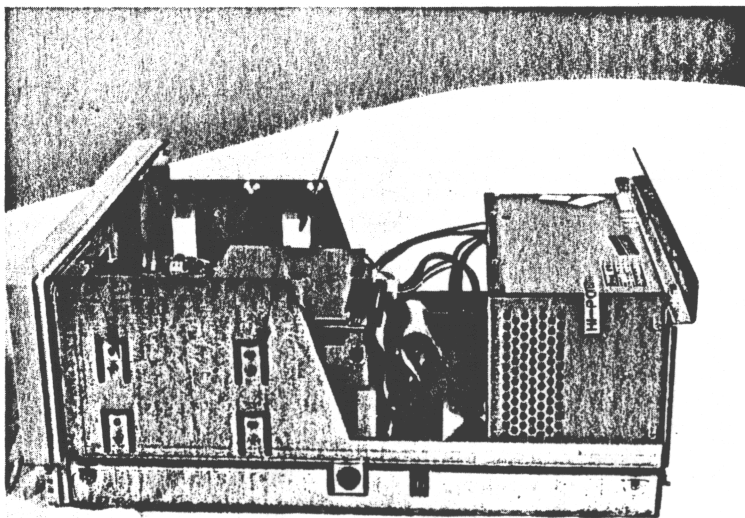
If you have a hard disk drive in your computer, you may have to remove it in order to reach the disk drive screws during installation and removal. If you find that this is the case, remove the four screws holding the disk drive and, leaving the cable connected, move the hard drive out of the way. After the new disk drive is installed and tested, replace the hard drive.

2 Removing the Original Drive

Locate the 4-pin power connector and the 34-pin cable connector, as shown below. Disconnect both by carefully pulling each connector away from the drive.



Locate and remove the three screws that attach the drive to the drive housing, as shown below.

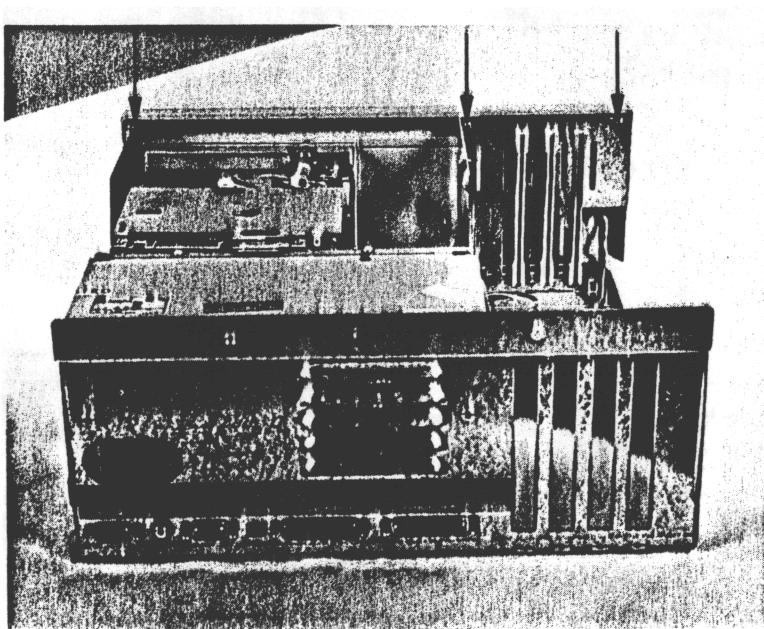


Carefully slide the drive out of the front of the computer, as shown below. Never force the drive or drag the bottom across anything. Slide it slowly and support its weight. Put the drive and the screws aside, in a safe place.

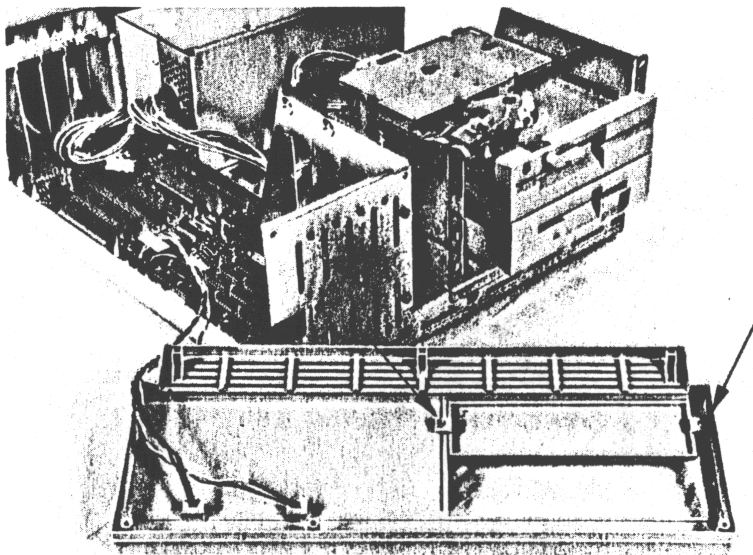
3 Removing the Bezel Plate

If you have a PC 10-1 and are installing a second drive, you must remove the protective plastic plate on the front panel, to open the drive slot. The original drive must be removed before the front cover and bezel plate can be removed. If you are replacing a drive in a PC 10-2 you need only remove the old drive and install the new one.

If you are installing a second drive, locate and remove the three screws that connect the front cover to the computer, as shown below.



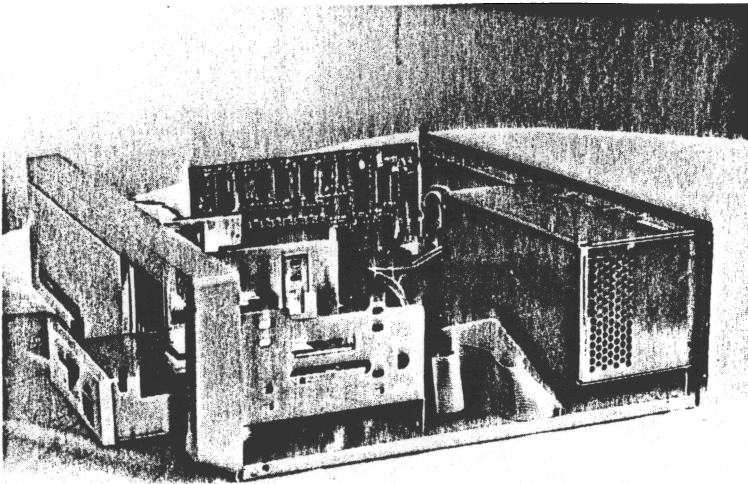
While taking care not to disconnect the wires that attach the front cover to the motherboard, lift the top edge of the front cover away from the computer, and pull it out as shown below.



Remove the bezel plate as indicated above. Replace the front cover and the three screws. You may wish to save the bezel plate in the event you might ever remove a drive.

4 Installing the Disk Drive

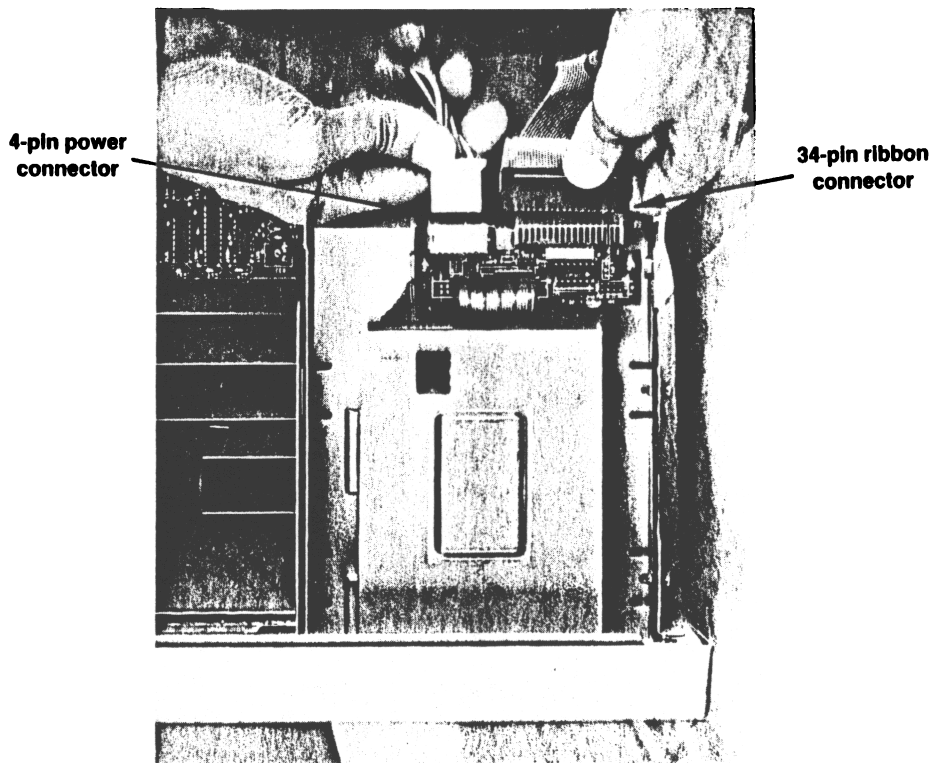
While keeping the 910 level, insert the back end of the drive, the end with the cable connectors, into the drive slot, as shown below. Gently slide the drive in until the front end is flush with the front cover. If the drive seems to catch on something, gently lift it up and back, and then continue insertion. Due to ongoing improvements, your drive may not appear identical to the one shown below.



There are two sets of holes provided to attach the 910 to the disk drive housing. The drive will attach by its bottom set of holes to the bottom set of holes on the disk drive housing. Install the three screws.

5 Connecting the Ribbon Cable

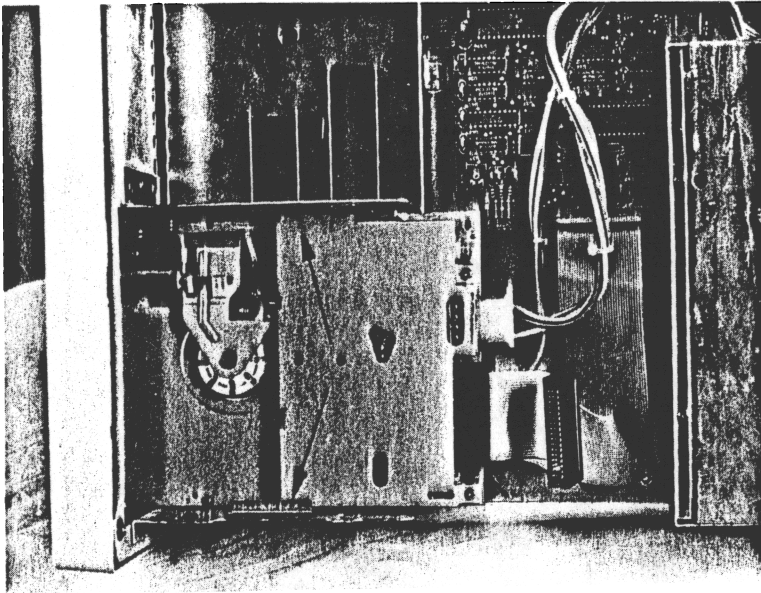
The 910 connects to the motherboard with a 34-pin flat ribbon cable, located behind the drive housing and in front of the metal box containing the power supply. Locate the ribbon cable and hold it so that the colored stripe is on the right, towards the side of the computer. Note that the cable has two connectors. The one closer to the motherboard will connect to the bottom drive, and the one at the end of the cable will reconnect to the top drive. Align the connector with the tab at the right rear of the disk drive, as shown below. The connector is keyed so that it can only fit the correct way. Gently slide the connector onto the tab. If the ribbon cable is not long enough to fit over both tabs, call your Commodore dealer.



6 Connecting the Power Cable

The 910 connects to the power supply with a 4-pin power cable, located on the left side of the power supply housing at the rear of the computer. There will be two sets of cables, one for each drive, each ending in a plastic connector. Align the connector, as shown above, with the connector at the rear of the disk drive. Note that both connectors have a rounded top or bottom. Align the connector so that it is oriented the same way as the one on the drive.

Replace the original drive, if required, following the same procedure used with the 910. Make sure that the drive rests on the tracks, shown below, and that it does not contact the lower drive during installation. Then turn to the section entitled **Testing the Disk Drive**.



Testing the Disk Drive

In order to be certain that the 910 is properly installed, the disk drive should be tested, before the cover is replaced. For this test you will need a blank, unformatted disk.

Check all the connections to ensure that none have become loose during installation. Connect the monitor and the keyboard, and plug the system into the power outlet. Do not touch the insides of the computer while the power is on.

To test the new disk drive, you will format the blank disk. This will confirm that the 910 is reading and writing properly.

Start the system and boot it with your MS-DOS disk. You will then receive a prompt.

After the MS-DOS prompt type: **format a: or b:** (depending on how the drive is set).

Press Enter.

The system will respond:

**Insert new diskette for drive A: or B:
and strike ENTER when ready**

Insert the blank disk in the new drive. Press return. The system will respond:

Head:0 Cylinder:0

The system will count the heads and cylinders during the format and then will respond:

Format complete

Format another diskette (Y/N)?

Type: n

If the system does not format correctly, and you are certain that all the cables are connected, start the test with a second blank disk to determine if the first disk was defective. If there is still a problem, contact your dealer for assistance.

For additional information on the Format command refer to the MS-DOS manual.

Using the 910 as a 720 Kbyte Drive

You can use the 910 as a 360 Kbyte drive, or you can reconfigure the system to use the 910 as a 720 Kbyte drive. To use the 910 as a 720 Kbyte drive you will need to modify the config.sys file on your boot disk, whether it is a hard disk or a floppy disk. Your computer uses the information in this file to determine if any special system configuration is required during the boot sequence. For further information on the boot sequence or the config.sys file, refer to MS-DOS manual.

To use the 910 as a 720 Kbyte drive:

Reboot the system with the MS-DOS disk in the A drive. This can be done by pressing the **Ctrl**, **Alt**, and **Del** keys at the same time. Make sure that you are using a copy of MS-DOS 3.2 or a later revision.

At the **A>** prompt type: **edlin config.sys** (press **Enter**).

At End of input file

• type: **l** (press **Enter**).

Note: If you are using the 910 as the A drive, in the following line replace **/d:01** with **/d:00**.

At **1:** • type:

drivparm = /d:01 /f:02 /h:02 /s:09 /t:80
(press **Enter**).

At **2:** • press **Ctrl** and **C** at the same time.

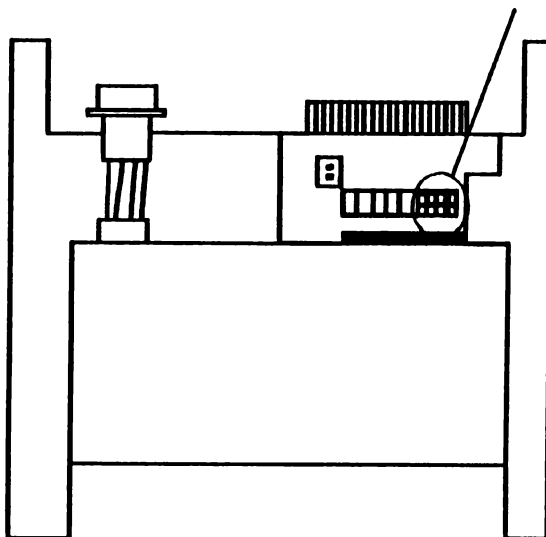
At • type **e** (press **Enter**).

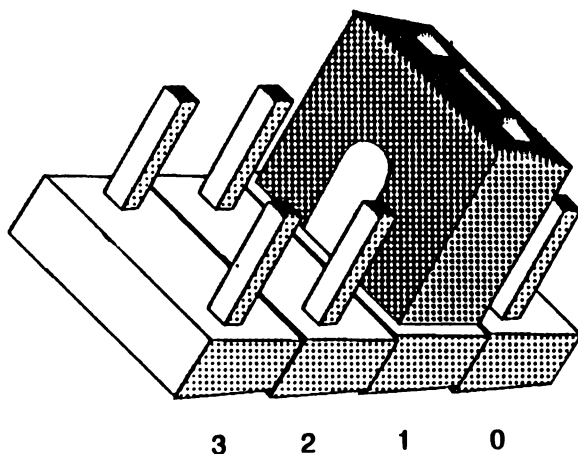
Reboot the system by pressing **Ctrl**, **Alt**, and **Del** at the same time.

Reconfiguring the 910 as Drive A

The 910 is set as a second (B:) drive. If you want to use the 910 as your primary (A:) drive you can reset the drive, or have your dealer or service center reset it for you. To reset the drive, locate the set of jumper pins between the rear of the drive and the 34-pin ribbon connector as shown below. The jumper, the black plastic block, is on the second set of pins from the right, labeled **1**. To change the drive to the **A** setting, pull the jumper straight off, and replace it on the pins marked **0**.

If your drive does not look like the one shown, call your dealer or service center for resetting information.





Technical Specifications

- 3.5 inch, 135 tracks per inch, double-sided, double-density, micro floppy disk drive.
- 1 Mbyte unformatted capacity, 720 Kbyte formatted capacity in 8 cylinders and 160 tracks.
- Data transfer rate of 250 Kbits per second.
- Power supplied by the computer.

34-pin Ribbon Cable Signal Interface			
Pin Number			
Signal	Ground	Signal	Direction
2	1	Not Used	
4	3	Not Used	
6	5	Select 3	Input
8	7	Index	Output
10	9	Select 0	Input
12	11	Select 1	Input
14	13	Select 2	Input
16	15	Not Used	
18	17	Direction	Input
20	19	Step	Input
22	21	Write Data	Input
24	23	Write Gate	Input
26	25	Track 00	Output
28	27	Write Protect	Output
30	29	Read Data	Output
32	31	Side Select	Input
34	33	Not Used	

4-pin Power Cable Interface	
Pin Number	Power Name
1	+ 12 V DC
2	ground
3	ground
4	+ 5 V DC





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