Copam PC-501

Chapter 2

Hardware Instllation

The hardware installation of PC-501 Turbo is an important procedure, but it is not complicated, and can be accomplished quickly.

All you need is the manual, a small flat blade screwdriver, and a small Philips screwdriver. Pay special attention to the section on setting DIP switches and inserting the jumpers; the rest will be easy.

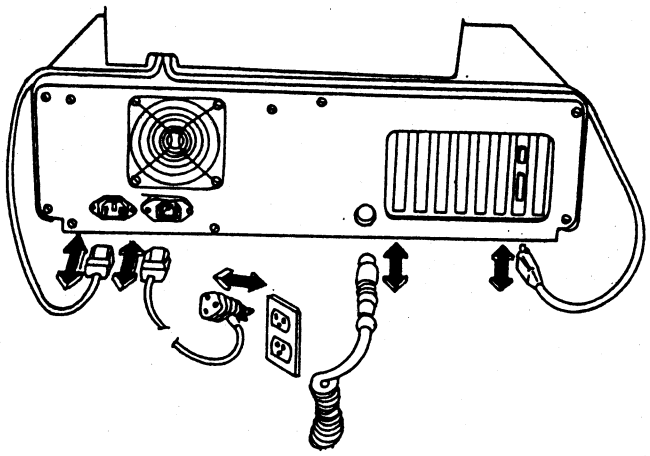
2.1 Preparation

Before assembling the machine, complete the following steps:

1. Turn off the PC-501 Turbo's power switch, and roll up the power cord.

2. All of the exterior equipment including monitor, printer, etc., must be detached from the system unit.

Illustration 2.1



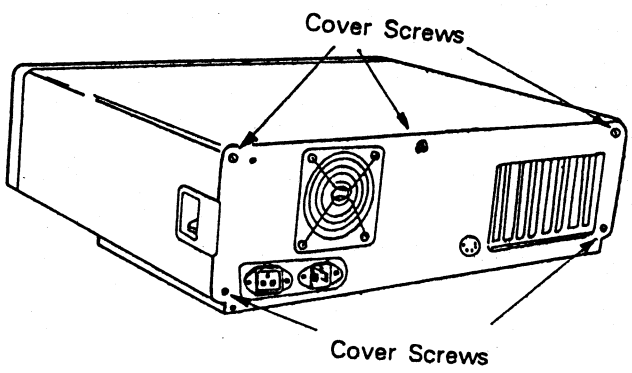
3. Computer hardware is delicate; be careful to handle all parts as gently as possible.

4. Leave the repair of defective parts to a qualified technician.

2.1.1 Removing the Cover

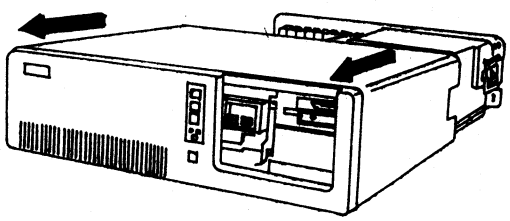
1. Remove the five screws on the back of the system unit.

Illustration 2.2



2. Remove the system unit cover by pulling forward. See illustration 2.2

Illustration 2.2



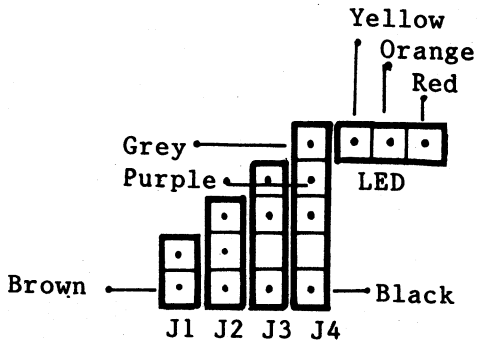
2.2 Internal System Installation

In the section on internal system installation, we discuss the setting of jumpers and DIP switches, the interior connection of disk drives and the power supply.

2.2.1 Setting the Jumpers

There are nine sets of jumper connections on the mainboard. If you want to insert jumper on J1, J4, and LED connector, you must notice the jumpers position and direction. You can distinguish the direction by color line, refer to the illustration below.

Illustration 2.4



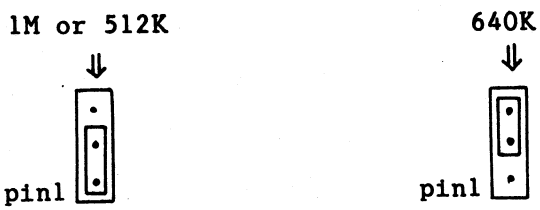
J1: This controls hardware reset. It is connected to the reset button on the front panel by a wired cable.

J2: This is a 3-pin connector which is used to control the RAM (Random Access Memory) mapping on board. According to the J2 setting, the RAM on board will execute variable address mapping.

If you insert a jumper at the 1-2 position, then the RAM capacity is set at 512K (just mounting the RAM chips on Bank A, Bank B) or 1M mode; if you insert a jumper at the 2-3 position, then RAM capacity will be set at 640K. Refer to the illustration below.

Illustration 2.5

		Address		Address
Bank A	256K	000000-03FFFF	256K	000000-03FFFF
Bank B	256K	040000-07FFFF	256K	040000-07FFFF
Bank C	256K	100000-13FFFF	64K	080000-08FFFF
Bank D	256K	140000-17FFFF	64K	090000-09FFFF



J3: This is connected to the speaker on the front panel of the system unit.

J4: This is connected to the keyboard lock, which is on the front panel of the system unit and is used to control the input from the keyboard.

J5: This is connected to the keyboard with a wired cable.

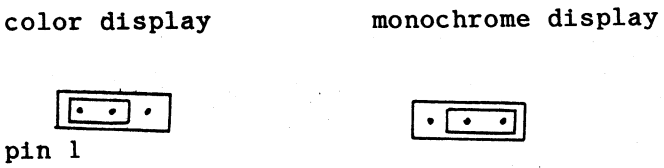
J7: The J7 is a 3-pin connector used to select the type of display card.

(1) If you intend to use a monochrome display card (including Hercules Card), insert the jumper into the 2-3 position.

(2) If you intend to use a color/graphics display card, insert the jumper into the 1-2 position.

Notice: If you intend to use the E.G.A, P.G.C. card, don't insert any jumper into J7 this position.

Illustration 2.6



J8: Unused.

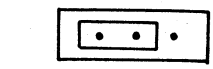
J9: This is used to control the type of keyboard. The J9 is a 3-pin connector.

(1) If you are using the PC-286 Turbo keyboard, do not use the J9.

(2) If you are using an IBM keyboard from PC, PC/XT or other compatible machines, you must insert the jumper into the 1-2 position.

Illustration 2.7

using an IBM keyboard from PC

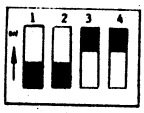


2.2.2 The DIP Switch

There are two sockets on the mainboard provided for the use of EPROM chips. The BIOS programs are loaded into the EPROM chips permanently; the EPROM chips on board are composed of either two 32K (27256) EPROM chips or 16K (27128) EPROM chips.

Illustration 2.8

32K per chip with 2 chips

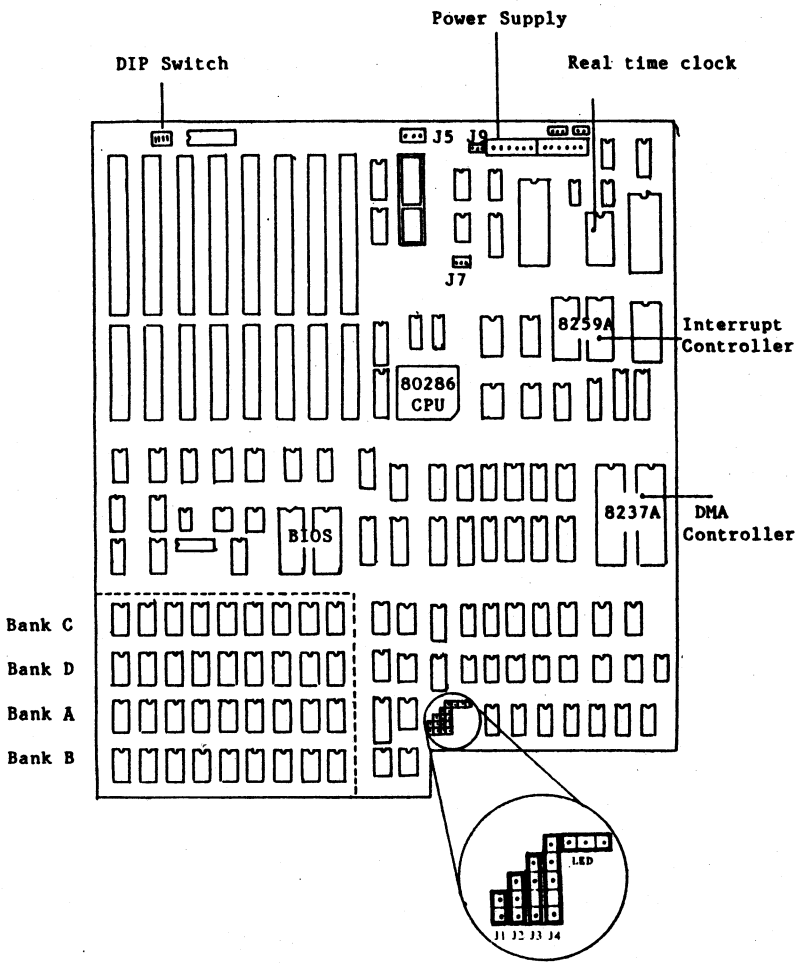


16K per chip with 2 chips

2.2.3 Installing the Interface Card

There are eight expansion slots on the left rear of the system unit. You can select any slot to install your card.

llustration 2.9



2.2.4 Disk Drive Installation

(A) Floppy Disk Drive

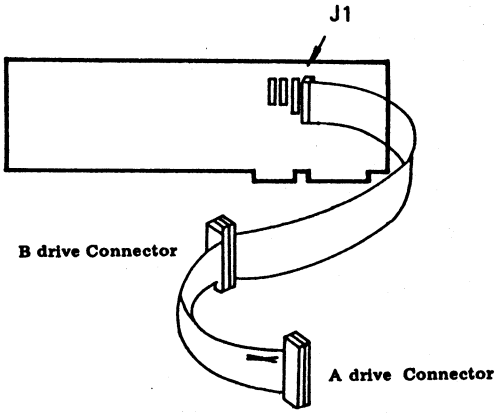
The floppy disk drive should be installed on the right front of the system unit. There are two positions for mounting floppy disk drives. Match the rail with the system unit and insert the floppy disk drive into the proper place. Secure the drive to the system unit with two screws on the front surface. Most of the time, we default the upper one "drive A", and the lower one "drive B".

Select a cable which has three 34-pin connectors. Plug one connector into J1 on the WDC/FDC card. Notice that the cable with a red stripe (some are blue) should be face up, and plugged into pin 1.

Plug the connector in the center of the cable into the gold edge connector of disk drive B.

Plug the connector with twist cable (from pin 9 to pin 15) to the gold edge connector of disk drive A.

Illustration 2.10



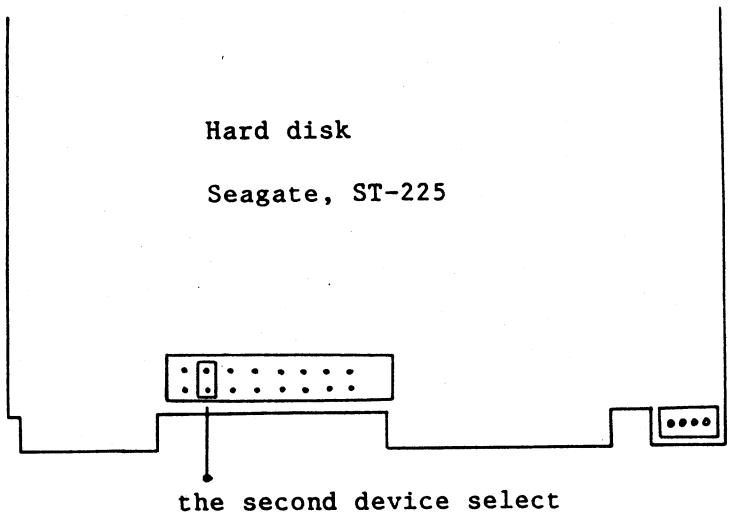
(B) Hard Disk Drive

The hard disk drive should be installed in the center, and close to the front surface of the system unit. Matching the rail with the system unit, insert the hard disk drive into the proper position and secure it with two screws through the front panel.

Note: The following descriptions use the Seagate hard disk drive as an example.

First, you must use a jumper to set the hard disk device select at the right position. Refer to the illustration below

Illustration 2.11



Second, you need to prepare three cables.

1. One cable has three 34-pin connectors. Plug one connector into J2 on the WDC/FDC card. Notice that the cable with a red stripe (some are blue or another color) should be face up, and plugged into pin 1.

   Plug the connector in the center of the cable into the gold edge connector of Drive D. (Note: If you just have one hard disk drive, reserve this connector.)

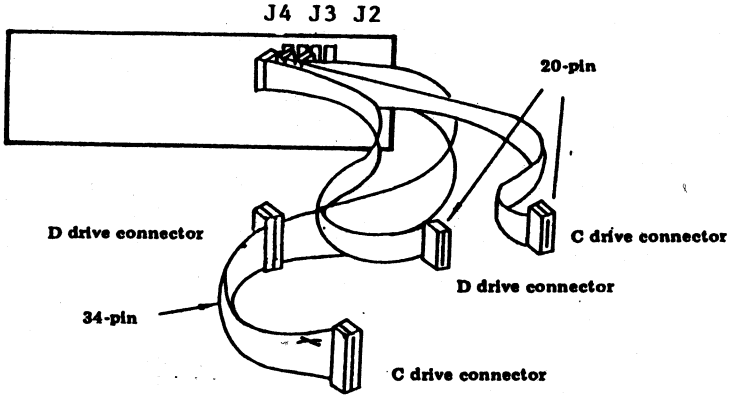
   Plug the connector with twist cable (from pin 9 to pin 15) to the gold edge connector of Drive C.

2. The other two cables each have two 20-pin connectors to be connected with the J3 and J4 positions on the WDC/FDC Card.

   One cable is connected with the J3 it's other end is connected to Drive C.

   The second is connected to the J4 and it's other end is connected to Drive D.

Illustration 2.12



2.2.5 The Interior Connections of the Power Supply

The power supply is located at the right rear of the system unit. Match the cooling fan to the square hole and secure it to the system unit with four screws to the rear panel of the system.

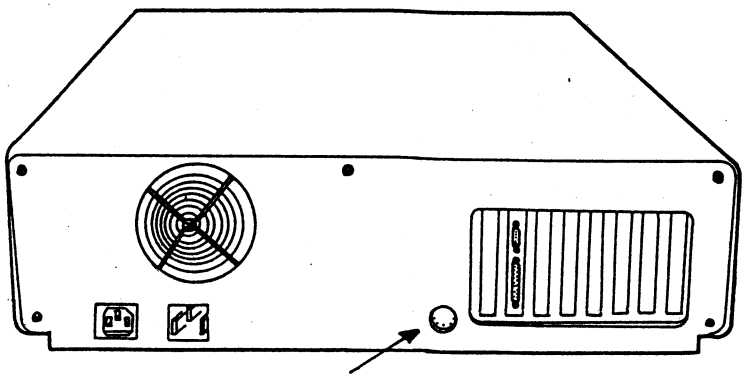
The PC-501 Turbo's power supply has six connectors. Two 6-pin connectors are used to connect with the mainboard, the other four are used to connect with the disk drives.

2.3 Connecting Exterior Peripheral Devices

2.3.1 Connecting the Keyboard

The keyboard connection is located at the rear of the PC-501 Turbo case. Insert the 5-pin plug from the keyboard into the connector. IMPORTANT: Be sure to attach the keyboard before turning the machine on, if it is not attached or if there is a poor connection, the PC-501 Turbo will note keyboard failure and you will have to reboot.

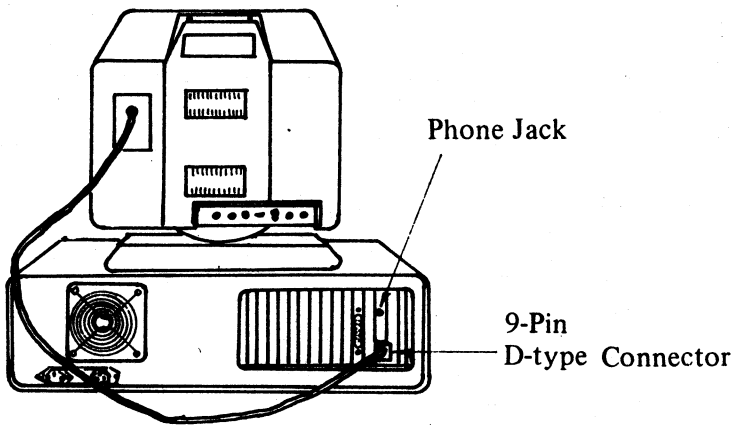
Illustration 2.13



2.3.2 Connecting the Monitor

Find the exterior bracket of the display card on the rear panel of the PC-501 Turbo. If your display card has a phone jack connector then it should be connected with a composite monitor; if your display card has a 9-pin connector then it should be connected with a RGB (color or monochrome) monitor.

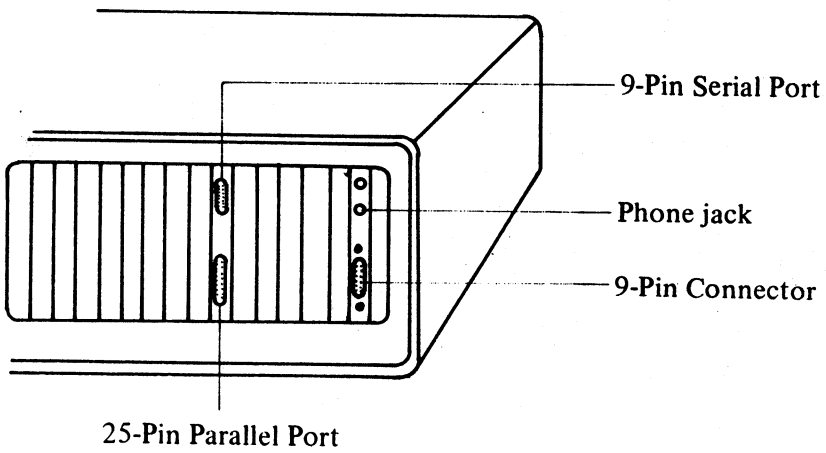
Illustration 2.14



2.3.3 Connecting Optional Peripherals

The PC-501 Turbo can be connected with many kinds of peripheral equipment, such as printers, modems, etc. There is a Serial/Parallel card in the PC-501 Turbo system, it has a RS-232C serial port and a parallel printer port that can be used to connect with other equipment.

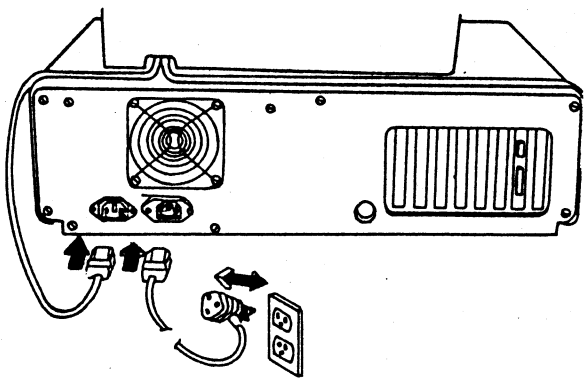
Illustration 2.15



2.3.4 The Exterior Connection of the Power Supply

There are two sockets on the right rear of the system unit. The male (protruding) one is power input, used to connect the power cord. The female (recessed) one is power output, suitable for monitor and printer use.

Illustration 2.16

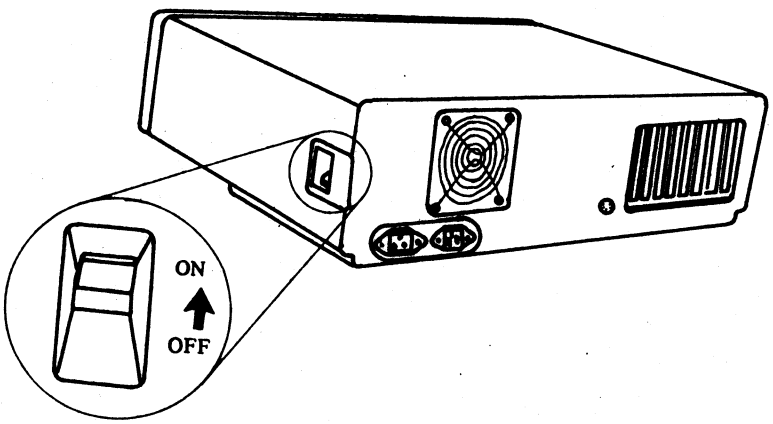


2.4 Switching On the PC-501 Turbo

Before you switch the PC-501 Turbo on, make sure all peripheral devices are properly attached. Then attach the system unit power to the machine. Finally, plug the cord into a wall outlet.

Your machine is ready to go. The last thing you need to do before turning on the power switch is to find the DOS diskette and insert it in drive A. Now you are ready to "boot" your machine and set up the software of the PC-501 Turbo.

Illustration 2.17

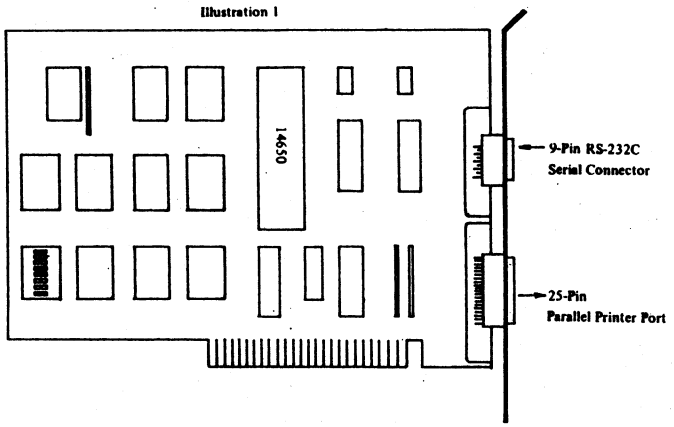


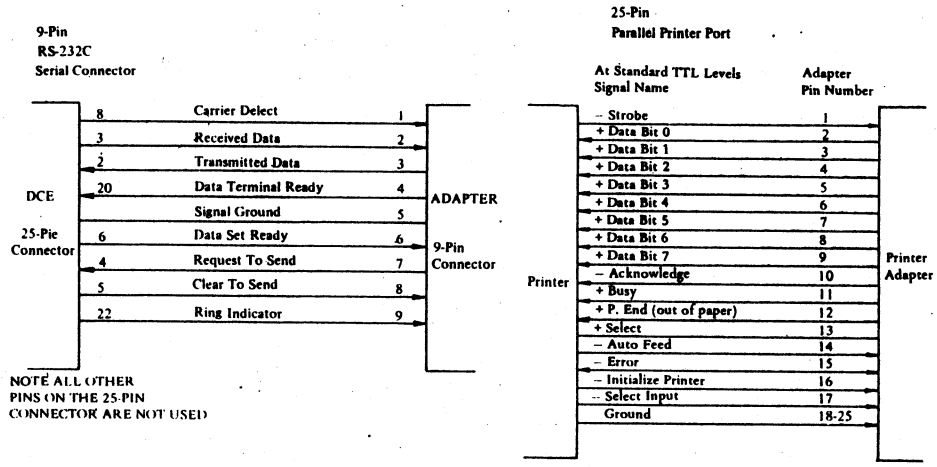
Appendix A

Serial / Parallel Card

The serial/parallel card contains a 9-pin D-type serial port (RS-232C) and a 25-pin D-type parallel printer port. It provides an onboard programmable baud generator. Nine interface lines are available for serial communications between the computer system and the external device.

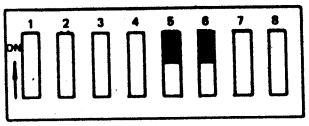
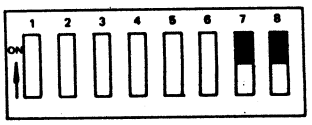
Illustration 1





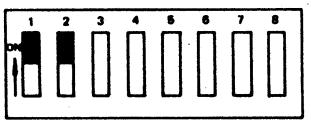
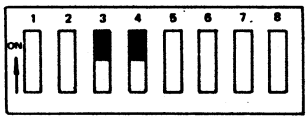
The serial port may be addressed as either communication port 1 (COM1) or communication port 2 (COM2), as defined by the switch setting. See Table 1.

Illustration 2

Port	I/O Address	IRQ#	Switch Seeting
COM1	3F8-3FF Hex	IRQ4	
COM2	2F8-2FF Hex	IRQ3	

The parallel outport may be addressed as printer 1 (LPT1) or printer 2 (LPT2), as defined by the switch setting. See Table 2.

Illustration 3

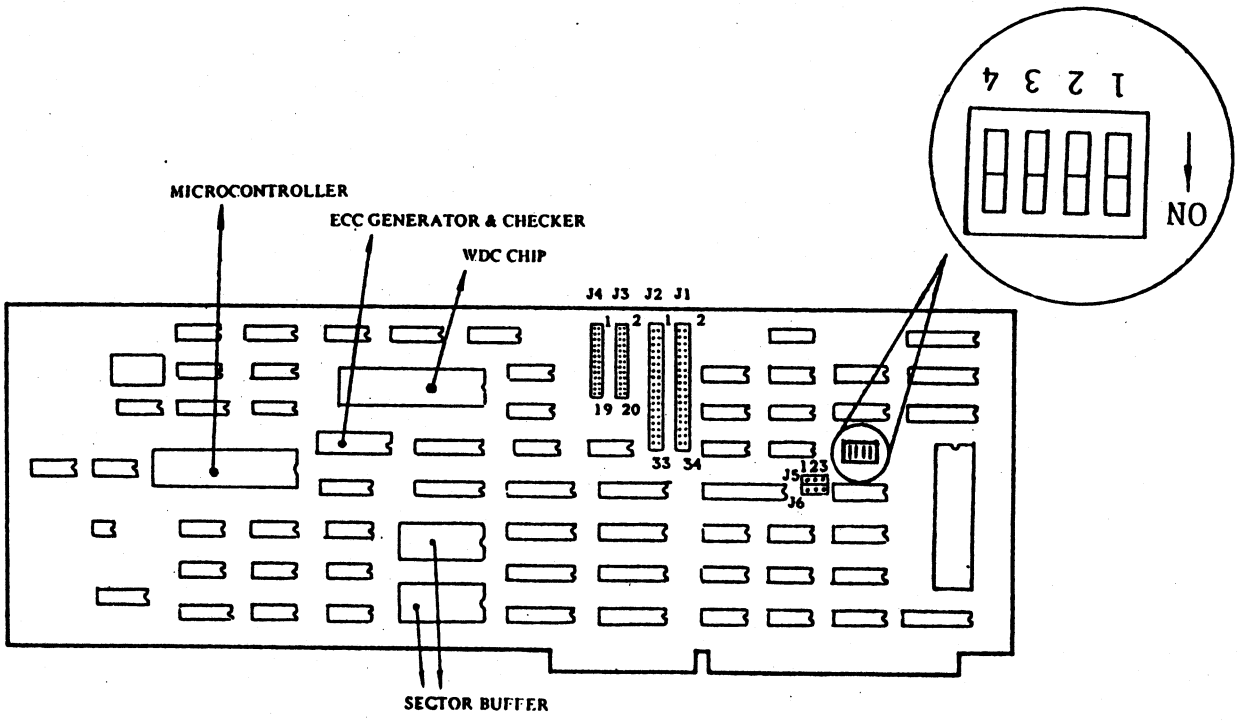
Port	I/O Address	IRQ#	Switch Setting
LPT1	378-37F Hex	IRQ7	
LPT2	278-27F Hex	IRQ5	

Appendix B

FDC/WDC Card

The disk drive card is used to connect with the disk drive. The installation of disk drives are discuess in detail in Chapter 2. This section we discuess how to adjust the DIP Switch on the FDC/WDC Card.

Illustration 1

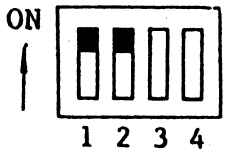


B.1 Setting the DIP Switches

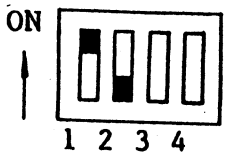
We suggest that you adjust DIP switches and set jumpers first, then install the FDC/WDC Card. Because there is limited space in the host machine, it is not convenient to change settings when the card is mounted in the expansion slot.

There is a set of DIP switches on the FDC/WDC Card which is used to set the disk drive type, such as the disk drive's capacity and rolling speed. Set your DIP switch according to the following instructions:

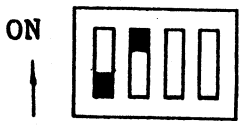
Illustration 2
Setting Drive A type



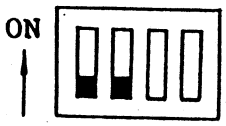
Speed:360 RPM
Capacity:1.2 MB



Speed:360 RPM
Capacity:360 KB

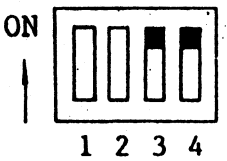


Speed:360/300 RPM
Capacity:1.2 MB

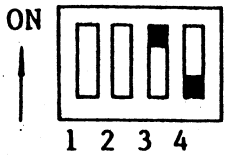


Speed:360/300 RPM
Capacity:360 KB

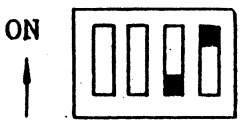
Setting Drive B type



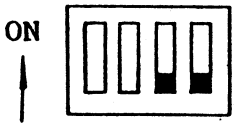
Speed:360 RPM
Capacity:1.2 MB



Speed:360 RPM
Capacity:360 KB



Speed:360/300 RPM
Capacity:1.2 MB



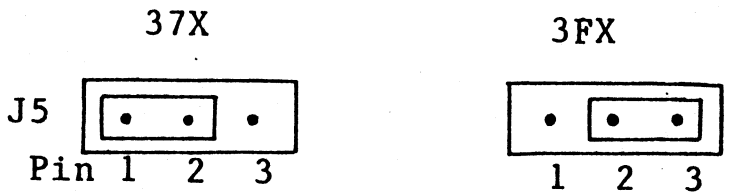
Speed:360/300 RPM
Capacity:360 KB

B.2 To determine I/O port address

There are two connectors, J5 and J6, on the WDC/FDC Card. They are used to determine I/O port address.

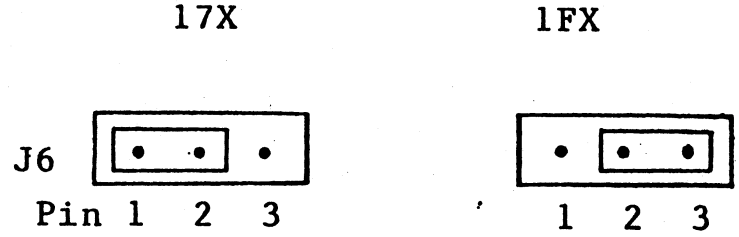
J5 is a 3-pin connector. To select 37X as the floppy disk drive's I/O port address, insert a jumper into the 1-2 position. To select 3FX as the floppy disk drive's I/O port address, insert a jumper into the 2-3 position. Factory configuration normally sets a jumper in the 2-3 position.

Illustration 3



J6 is a 3-pin connector. To select 17X as the hard disk drive's I/O port address, insert a jumper into the 1-2 position. To select 1FX as the hard disk drive's I/O port address, insert a jumper into the 2-3 position. Factory configuration normally sets a jumper in the 2-3 position.

Illustration 4



Appendix C

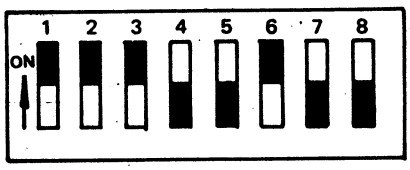
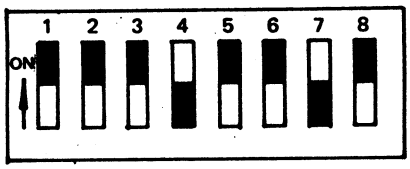
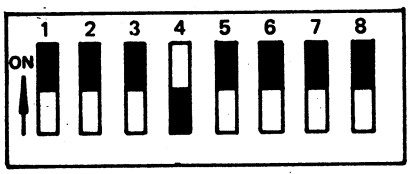
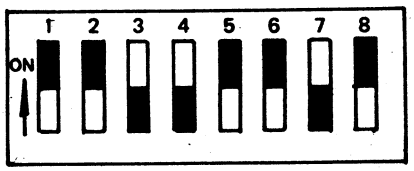
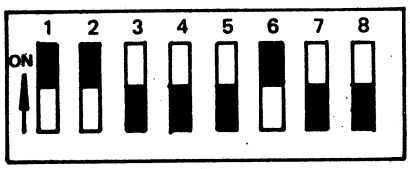
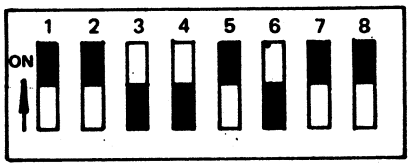
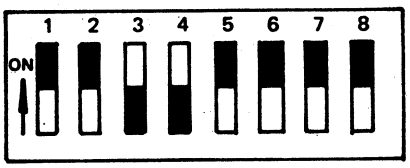
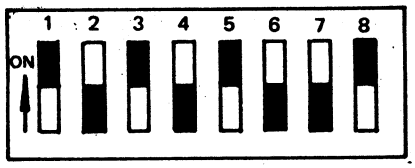
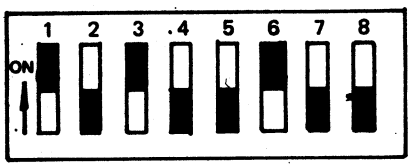
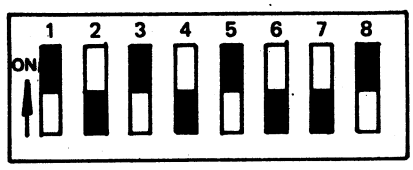
Memory Card

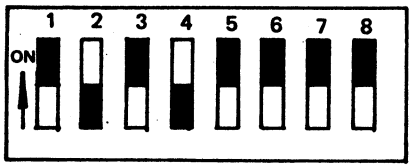
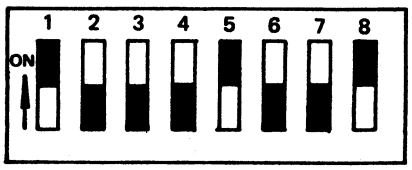
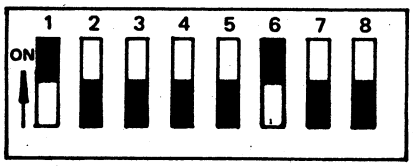
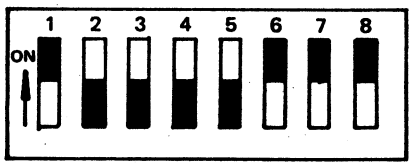
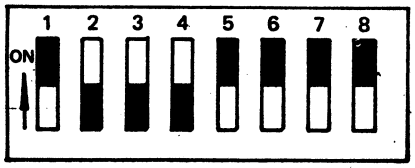
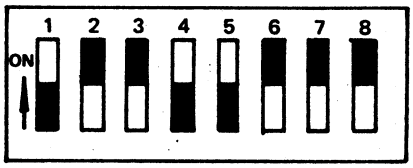
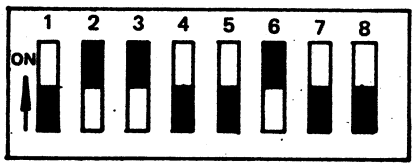
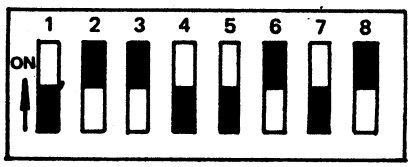
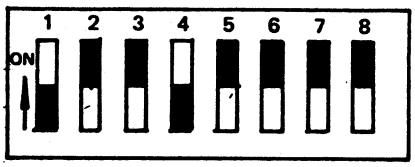
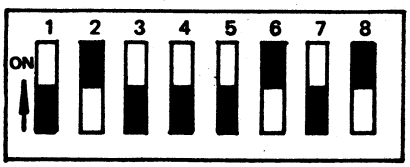
The memory card provides 2MB memory expansion. It contains eight banks with 256K bytes memory each. 72 DRAM modules are set in the bank area. DRAM refreshes timing and address, which are generated on the system board. Memory expansion is protected by parity check.

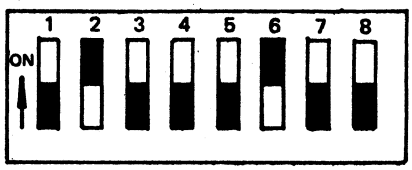
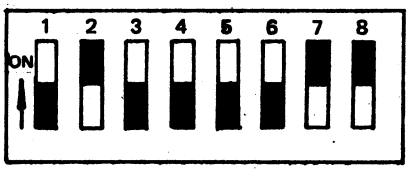
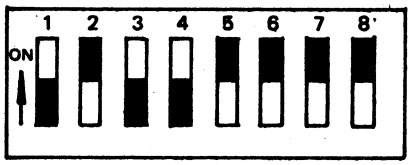
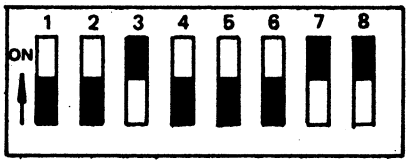
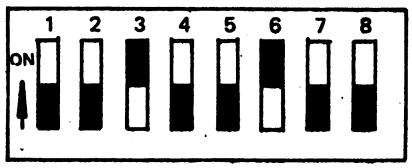
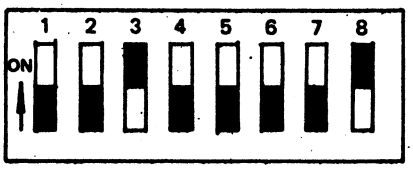
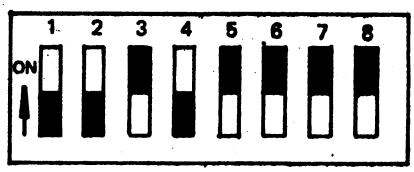
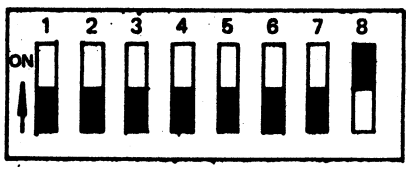
There are two sets of DIP switches on the memory card. Before using the card, don't forget to adjust the DIP switches according to the memory the system unit now has.

If you set the RAM of the mainboard at 1MB (insert a jumper in the 2-3 position of J2), then your starting address on the memory board is 1.5M (including 0.5M RAM for BIOS operation). If you set the RAM of the mainboard at 640K, (insert a jumper at the 1-2 position of J2), then your starting address on the memory board is 1M.
Refer to the illustration below to adjust your DIP switches.

Illustration

Starting Address	Switch 1	Switch 2
1.0M		
1.5M		
3.0M		
3.5M		
5.0M		

Starting Address	Switch 1	Switch 2
5.5M		
7.0M		
7.5M		
9.0M		
9.5M		

Starting Address	Switch 1	Switch 2
11.0M		
11.5M		
13.0M		
13.5M		

Appendix D

About PC-501

The PC-501 Turbo is similar to the earlier PC-501. The major difference between them is that the model PC-501 does not have a choice of processing speeds, its processing speed is 6 MHz. The procedures described in the this manual are also applicable to the PC-501.

Illustration 1

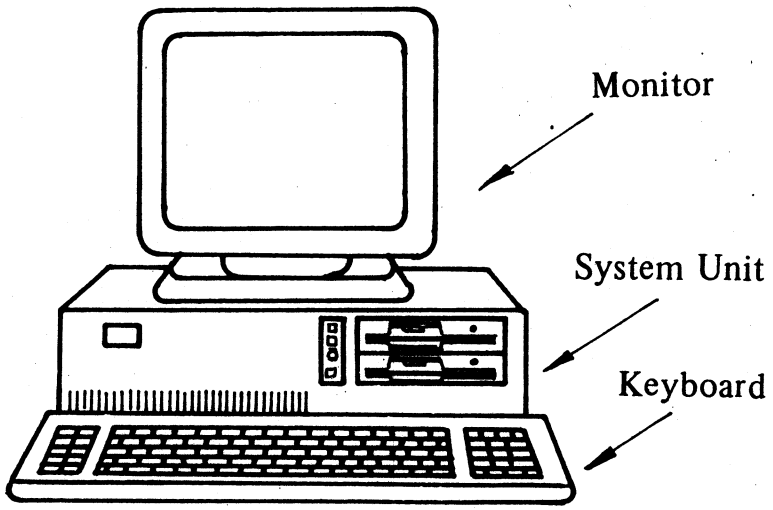
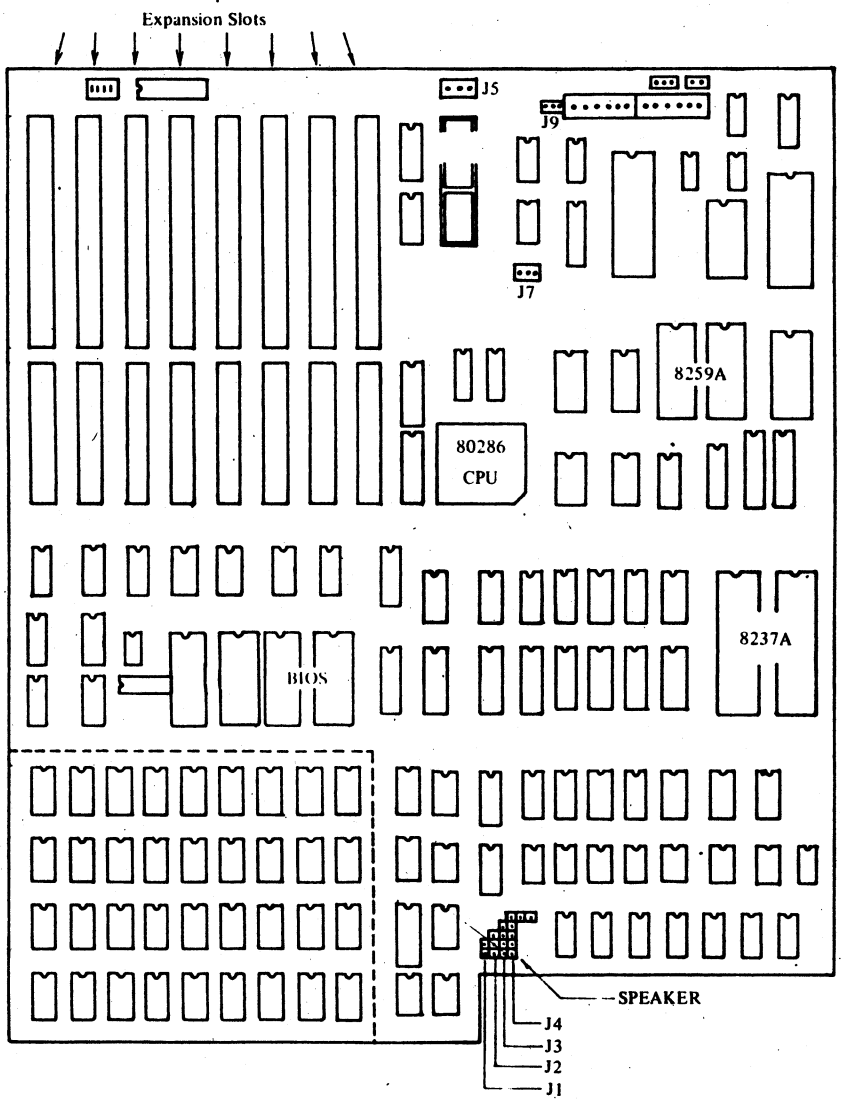


Illustration 2

The mainboard of PC-501

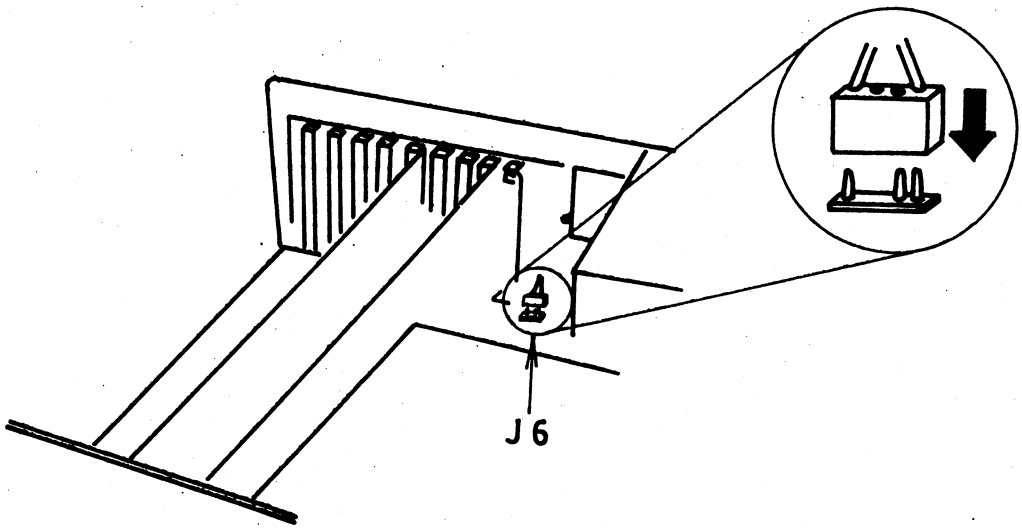


Besides the operator-selectable processing speeds, there are several differences between PC-501 Turbo and the PC-501. See the following:

* The keylock function of the PC-501 disables only the keyboard, not the hardware reset function.

* The connector positions (J1-J9) on the PC-501 Turbo's mainboard are a little different from the PC-501. The PC-501 Turbo has a rechargeable battery for real-time clock/calendar on the mainboard, so the J6 position is no longer used. The PC-501 has a battery box providing the power for the real-time clock/calendar, and requires a connection at J6.

Illustration 3



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