

In addition to this installation manual, the 20 MB Hard Disk kit includes:

- \* The Hard Disk Drive.
- \* One 20-pin hard disk Data Cable.
- \* Four rubber grommets and four shoulder screws for installing the Hard Disk Drive in the middle drive slot of a Tandy 3000 or Tandy 3000 HD. (These are not required for a Tandy 3000 HL installation.)
- \* A Media Error Map (attached to the top of the Hard Disk Drive).

#### INSTALLATION

CAUTION: Static electricity can destroy integrated circuits. Be sure to discharge any built-up static electricity by touching a grounded, metal object before handling the Hard Disk Drive or touching any of the computer's logic boards.

If you have any doubts about your ability to install this drive, have the service technicians at your Radio Shack Service Center install it for you. Doing this not only ensures expert installation, but also enables the technicians to quickly check to be sure all the equipment is functioning properly.

Use the following procedures to install the 20 MB Hard Disk Drive in your computer. Before you begin the installation, remove the "Factory Detected" Media Error Map (in its plastic envelope) that is attached to the top of the Disk Drive. For easy access to the Media Error Map, attach it to the top of your computer's drive tower. You should also make note in the back of the Installation and Operation Manual of the Media Error Map information.

NOTE: If you are installing the 20 MB Hard Disk Drive in a Tandy 3000 HL, you must install the Universal Mounting Kit that is provided with your computer before you begin this procedure. Refer to the Universal Mounting Kit installation manual for instructions.

#### REMOVING THE COVER

If you have not already done so, remove the system unit cover for access to the computer's internal components. Follow these steps to remove the cover:

1. Be sure your computer and all peripherals are turned off. Disconnect the power cord from the back of the computer.
2. Remove the three large cover mounting screws from the computer's back panel. Remove cover by sliding the entire housing toward the front of the computer.

The cover removal procedure is illustrated in the Installation and Operation Manual supplied with your computer.

NOTE: If your computer has a fan in front of the unit, you might find it easier to remove and replace the cover if you first remove the fan filter. Unfasten the Velcro tab that secures the filter to the bottom of the unit housing, and pull the filter straight down to remove it. Be sure to replace the fan filter after you complete the installation.

## PREPARING THE HARD DISK DRIVE

To prepare the Hard Disk Drive for installation, set the correct Drive Select and Drive Termination status. The proper Drive Select and Drive Termination settings for the 20 MB Hard Disk Drive depend on whether it is a primary or secondary hard disk drive. The settings are shown in the following chart and illustrations.

PRIMARY DRIVE	SECONDARY DRIVE
Jumper the leftmost pair of pins. Be sure the Terminator Resistor is installed for a one-HD system. Remove the Terminator Resistor for a two-HD system.	Jumper the second (from the left) pair of pins. Be sure the Terminator Resistor is installed.

NOTE: If you already have a hard disk installed and are installing the 20 MB Hard Disk as a secondary drive, you might find it easier to configure this drive as the non-terminal drive. To do so, leave the installed hard disk terminated (no change to the drive termination status) and remove the Terminator Resistor from this (secondary) drive.

For a Tandy 3000 HL installation, you are now ready to install the Hard Disk Drive. Skip the next two sections of this manual. If you are installing the Hard Disk Drive in a Tandy 3000 or a Tandy 3000 HD, refer to the next section "Removing the Drive Tower."

## REMOVING THE DRIVE TOWER

For easy drive installation in a Tandy 3000 or Tandy 3000 HD, you can remove the chassis that houses the disk drives (the drive tower). Before you remove the drive tower, note the location of and disconnect any cables attached to the internal drives. Then, remove the four screws that secure the tower to the bottom and the three screws that secure the tower to the front of the computer chassis.

NOTE: It is not necessary to remove the drive tower for a Tandy 3000 HL installation.

Carefully lift the drive tower up and out of the system unit. For a Tandy 3000 HD, you are now ready to install the Hard Disk Drive. If you are installing the Hard Disk Drive in a floppy-based Tandy 3000, refer to the next section, "Removing the Load Resistor."

## REMOVING THE LOAD RESISTOR

If your computer is a floppy-based Tandy 3000, a Load Resistor is attached to the side of the bottom drive slot. Pull apart the white cable connector to disconnect the Load Resistor from its cable. Now, remove the two screws that secure the Load Resistor from its cable. Now, remove the two screws that secure the Load Resistor to the side of the drive tower. Remove the Load Resistor and store it in a safe place. If you later remove the hard disk(s) from your computer for a floppy-only system, you must reinstall the Load Resistor.

## INSTALLING THE HARD DISK DRIVE

The procedure for installing the Hard Disk Drive varies for a Tandy 3000 primary and secondary hard drive installation as well as for a Tandy 3000 HL installation. Following are the instructions for each of these procedures. Use the appropriate procedure to install the Hard Disk Drive in your computer.

#### TANDY 3000 (PRIMARY DRIVE)

If you are installing the Hard Disk Drive as a primary drive in a Tandy 3000, attach the four Shock Isolators that come with the Hard Disk Controller board to the bottom set of mounting holes on the sides of the Hard Disk Drive.

Now, slide the Hard Disk Drive into the bottom slot of the computer's drive tower. Do not let the drives slide against one another as you install the Hard Disk Drive. Use the four machine screws provided with the Hard Disk Controller kit to secure the Hard Disk Drive to the drive tower.

If you are adding another disk drive, you should also install it at this time. Refer to the installation instructions that come with the drive to install a secondary hard disk or floppy disk drive.

You are now ready to install the Hard Disk Controller board and complete all connections. Proceed with the "Connecting the Cables to the Controller Board" section of this manual.

#### TANDY 3000 AND TANDY 3000 HD (SECONDARY DRIVE)

If you are using the Hard Disk Drive as a secondary drive in a Tandy 3000 or Tandy 3000 HD, install the four grommets that come with this Hard Disk Drive kit in the mounting holes in the middle drive slot of the computer's drive tower.

Now, slide the Hard Disk Drive into the middle slot of the computer's drive tower. Do not let the drives slide against one another as you install the Hard Disk Drive. Use the four shoulder screws provided with this kit to secure the Hard Disk Drive to the drive tower.

You are now ready to install the Hard Disk Controller board and complete all connections. Proceed with the "Connecting the Cables to the Controller Board" section of this manual.

#### TANDY 3000 HL

For a Tandy 3000 HL installation, follow the instructions in the Universal Mounting Kit manual (provided with your computer) to install the hard disk. Attach the two Mounting Brackets and four of the Shock Isolators provided with the Universal Mounting Kit to the bottom set of mounting holes on the sides of your Hard Disk Drive.

If you are installing a secondary hard disk drive, the Mounting Brackets are already installed in your computer. In this case, remove the bracket/disk drive assembly. Then, follow the instructions in the Universal Mounting Kit manual to attach the drive to the brackets.

Now, slide the bracket/disk drive assembly into the computer's drive tower. Use the four shoulder screws provided with this Hard Disk Drive kit to secure the bracket and disk drive(s) to the drive tower. You are now ready to install the Hard Disk Controller board and complete all

connections. Proceed with the "Connecting the Cables to the Controller Board" section of this manual.

#### CONNECTING THE CABLES TO THE CONTROLLER BOARD

CAUTION: A low humidity environment and walking on carpeted floors, among other things, can build up static electricity on you. Discharge any built-up static electricity by touching a grounded, metal object before you begin.

The Hard Disk Controller board is difficult to access after it is installed. Therefore, you should set the jumpers and connect the cables to the Hard Disk Controller board for installation.

NOTE: When connecting an external hard disk, you must use the cables provided in the Hard Disk External Cable Kit (25-4063). If you plan to connect an external hard disk, skip Steps 2-5 of this section, and refer to the External Hard Disk Cable Installation Manual for the proper cable connections.

1. Check the Hard Disk Controller board to be sure the pins are connected as follows:

E2 to E3      E5 to E6      E7 to E8

If the jumper settings are not correct, remove and re-position the jumpers.

2. Connect the 34-pin Floppy Disk Cable to Connector J1 on the Hard Disk Controller board.

NOTE: Do not force these cables when connecting them to the Hard Disk Controller board. The connectors on the 3000 are keyed so that you can insert them in only one direction. The Tandy 3000 HL connectors are NOT keyed; however, take care to connect the cables gently.

3. Connect the 34-pin Hard Disk Controller Cable to Connector J5 on the Hard Disk Controller board.
4. Connect your primary drive's 20-pin Data Cable (included with the hard disk kit) to Connector J4 on the Hard Disk Controller board.
5. If you have two internal hard disk drives installed, connect the secondary drive's Data Cable to Connector J3 on the Hard Disk Controller board.
6. After you connect these cables, fold them over as shown in the illustration.

#### INSTALLING THE HARD DISK CONTROLLER BOARD

Now you are ready to install or (re-install) the Hard Disk Controller board. Follow these steps to install this board.

1. Select an empty, full-size option slot in which to install the Hard Disk Controller board. The best location for this board (so that the drive cables can easily reach the drive) is usually Slot 9 in a Tandy 3000 or Slot 7 in a Tandy 3000 HL.
2. If you are installing the Hard Disk Controller board for the first time in a Tandy 3000 HL, you must remove the slot cover, Remove the screw from the

slot cover on the computer's back panel. then, tilt the slot cover away from the opening, and lift it out. (Follow the instructions in the Hard Disk Controller Installation Manual to disconnect the Floppy Disk Controller.)

If you are installing the Hard Disk Controller board in a floppy-based Tandy 3000, first remove the Floppy Disk Controller board from Slot 9. (Refer to the Hard Disk Controller Installation Manual for instructions.)

If you are re-installing the Hard Disk Controller board in a Tandy 3000 HD, you use the open Slot 9.

3. Slip the front edge of the Hard Disk Controller board into the plastic card guide at the front of the computer, and insert the board's metal mounting bracket into the option slot opening. As you slide the front end of the board down the card guide, push the board's edge connector firmly into the option slot socket. Be sure the board is fully seated.
4. Use the screw you removed previously to secure the Hard Disk Controller board's mounting bracket to the back panel of the computer.

#### COMPLETING THE INSTALLATION

Connect all internal disk drive cables to complete the Hard Disk Controller board installation. Do not force the cables as you connect them. These cables are keyed to connect in only one way. Try not to twist the cables as you connect them. The easiest way to assure that the disk drive cables lay flat is to thread them under the power cables.

1. Disconnect the main power connector from the main logic board by pressing in on the tabs as you lift the connector.
2. Connect your primary drive's Data Cable to the 20-pin card edge on your primary hard disk drive. (This cable is connected to J4 on the Hard Disk Controller board.)
3. If you have two internal hard disk drives installed, connect your secondary drive's Data Cable to the 20-pin card edge on your secondary hard disk drive. (This cable is connected to J3 on the Hard Disk Controller board.)
4. Connect one of the Hard Disk Controller Cable's edge connectors to the 34-pin card edge on you primary hard disk drive. (This cable is connected to J5 on the Hard Disk Controller board.)

You can connect either of the two edge connectors to the primary hard disk drive. However, it is easier to connect a secondary hard disk drive if you use the middle connector for the primary (bottom) drive and the end connector for a secondary (middle) drive.

5. If you have two internal hard disk drives installed, connect the remaining edge connector on the Hard Disk Controller Cable to the 34-pin card edge on the secondary hard disk drive.
6. Connect the Floppy Disk Cable's end edge connector to the 34-pin card edge on your primary floppy disk drive. (This cable is connected to J1 on the Hard Disk Controller board.)

7. If you have two floppy disk drives installed, connect the middle edge connector on the Floppy Disk Cable to the 34-pin card edge on Drive B.
8. Connect the 4-pin power cables to your internal disk drives. These power cables are identical and can be connected interchangeably to any internal disk drives.
9. If you previously removed the drive tower, replace the drive tower. Use the screws you removed to secure it to the computer chassis. Be sure that no cables are under the drive tower when you replace it.
10. Re-connect the main power cable connector to the main logic board.
11. For a Tandy 3000 or Tandy 3000 HD installation, connect (or re-connect) the black and orange hard disk drive LED cable to Connector J6 on the Hard Disk Controller board. Be sure the connector is oriented so that the two cables are toward the back of the computer. (Refer to the Hard Disk Controller Installation Manual for instructions if you have not yet installed the hard disk drive LED.)
12. After all internal cables are properly connected, replace the cover,. With the lip of the cover under the lower rail on the system unit's frame, slide the entire housing toward the back of the computer. Replace the cover mounting screws on the computer's back panel. Replace the fan filter if you previously removed it.
13. Re-connect all peripheral cables to the appropriate connectors on the back of the computer. Re-connect the power cord.

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