

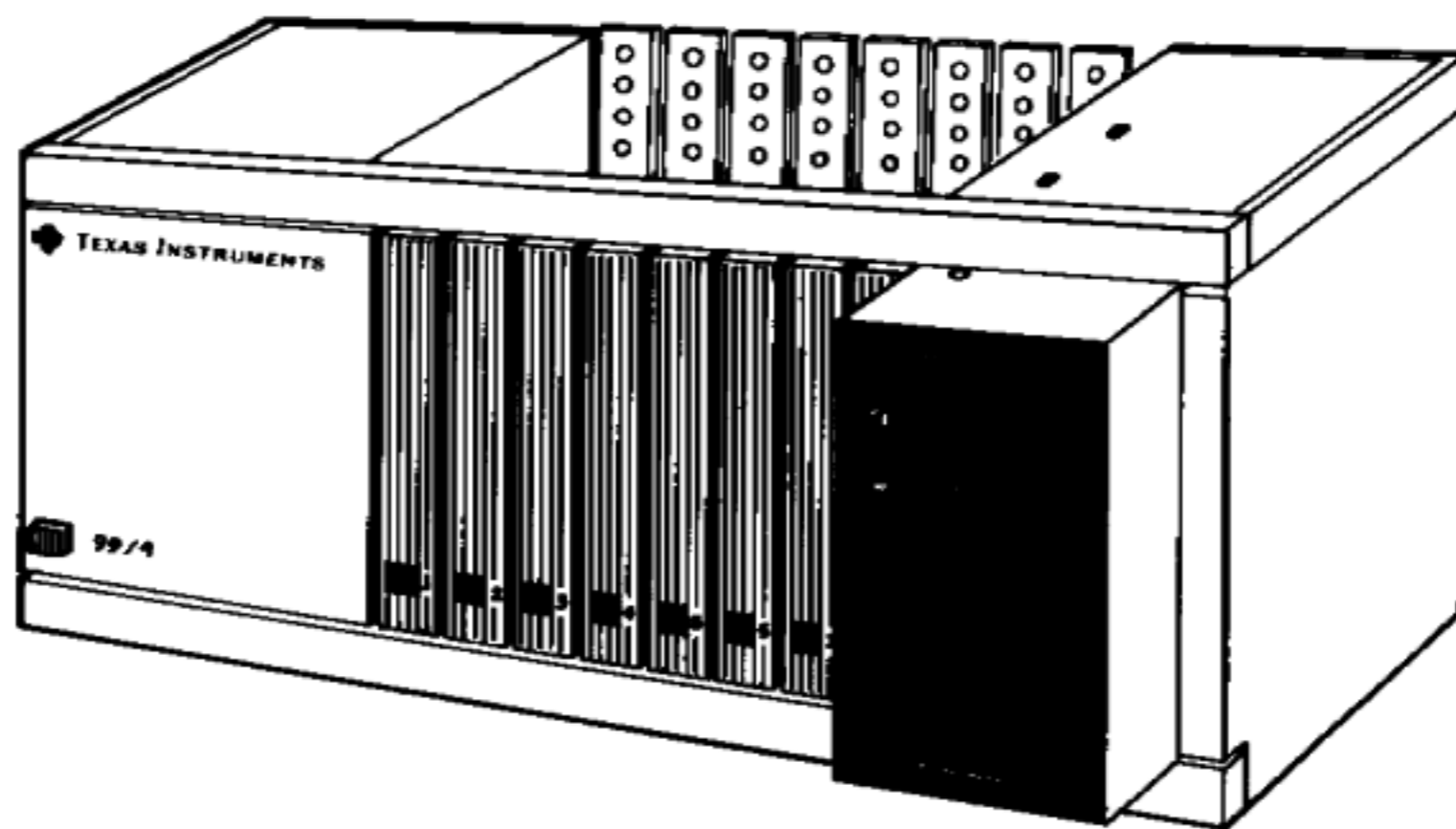
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# ***Disk Memory Drive***

**Model No. PHP1250**



**IMPORTANT**

Record the serial number from the Disk Memory Drive and the purchase date in the space below. The serial number is identified by the words "SERIAL NO.". Always reference this information in any correspondence.

<u>PHP1250</u>	<u>                    </u>	<u>                    </u>
<b>Model No.</b>	<b>Serial No.</b>	<b>Purchase Date</b>

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## **INTRODUCTION**

The Texas Instruments Disk Memory Drive is a high-speed, high-volume memory device. Utilizing a 5¼ inch diskette\*, the disk drive can rapidly locate, read from, and write to any position or file on the diskette. The disk drive spins the diskette at a constant speed and, under the direction of the TI Disk Drive Controller\*, places the magnetic read/write head at the desired position on the diskette.

This manual contains only the set-up, service, and warranty information for the Disk Memory Drive. For instructions regarding setup, test, and operation of the complete disk system, please refer to the *Disk Memory System* manual included with the Disk Drive Controller.

Depending on the type of disk drive you are using, two possible configurations exist for setting up the system. You can have one internal disk drive that fits inside the Peripheral Expansion System and up to two external drives. Or, you can have up to three external drives connected to the system.

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## *Disk Memory Drive*

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### **SET-UP INSTRUCTIONS**

Once you've unpacked the unit, you're ready to insert the Controller Card into the peripheral system. (Save the packing material for storing or transporting the unit.) The steps involved in inserting and checking the operation of the Disk Drive Controller Card, an internal disk drive, and external disk drives are included in this section. Please read this material completely before proceeding.

**CAUTION**

Electronic components can be damaged by static electricity discharges. To avoid damage, do not touch the connector contacts.

The Peripheral Expansion System unit has eight slots into which accessory cards can be inserted. The Peripheral Expansion Card must occupy slot number 1. (For information on setting up the peripheral system, refer to the Peripheral Expansion System owner's manual.) If you have an internal Disk Memory Drive (Model PHP1250) in the Peripheral Expansion System unit, the Disk Drive Controller Card must occupy slot number 8. Other cards can be inserted in any of the remaining slots.

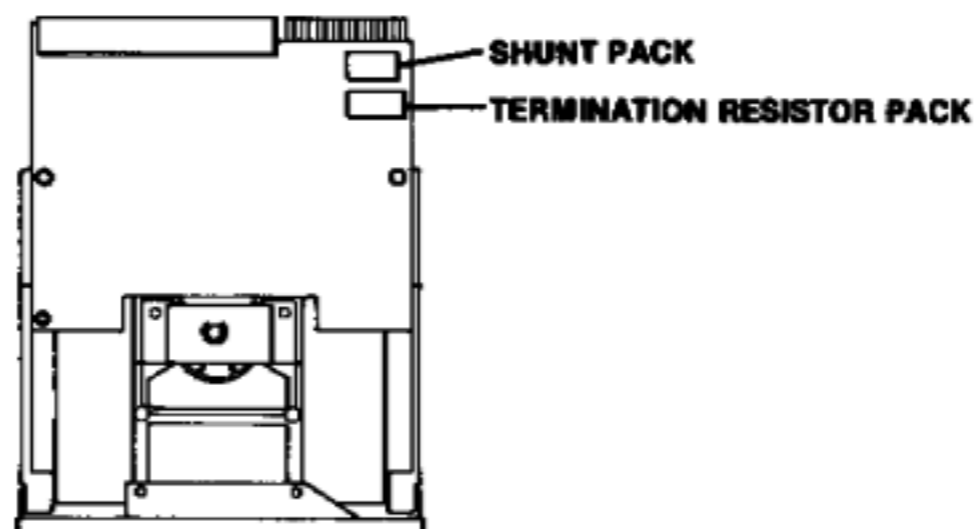
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## Disk Drive Information

As it comes from the factory, a disk drive is ready to run as the only drive on your system. If you are using more than one drive, complete the following steps for all but one of the drives. The last external drive should be connected without being altered.

### **DO THE FOLLOWING ONLY IF YOU ARE USING TWO OR THREE DRIVES!**

1. **WARNING: ALL POWER CORDS MUST BE DISCONNECTED FROM THE POWER OUTLETS DURING THE FOLLOWING PROCEDURE!**
2. To remove the cover, do one of the following.
  - *Internal Disk Drive* — On the side of the disk drive is a tab located near the back of the drive. On the back of the drive is a hole designed to help lift the tab to remove the disk drive cover. Remove the cover by lifting the tab and then sliding out the drive's contents.
  - *External Disk Drive* — On all but one of your drives, use a Phillips-head screwdriver to remove the six screws that hold the cover. Lift the cover off.
3. Locate the main printed circuit board. On it, locate the termination resistor pack. It has 14 leads and looks like an integrated circuit. (Note: The main boards look slightly different on the internal and external drives, but the pack is in the same place on each.) Be careful not to disturb the strapping pack (or shunt pack, which is also removable) located very near the resistor pack.



4. Remove the termination resistor pack by prying each end up slightly with a small screwdriver and then lifting it out. Pull straight up.
5. Save the single drive termination resistor pack so that you can reinsert it if the drive is ever to be used again as a single or last disk drive. If you do replace the pack, note that if the socket for the resistor pack has more holes than there are pins on the pack, the pack should be installed toward the outer edge of the circuit board, leaving the unused holes toward the center of the board.
6. Replac on the drive, aligning and tightening the screws carefully. DO NOT O ANY UNIT WITHOUT REPLACING THE COVER.

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## Disk Memory Drive

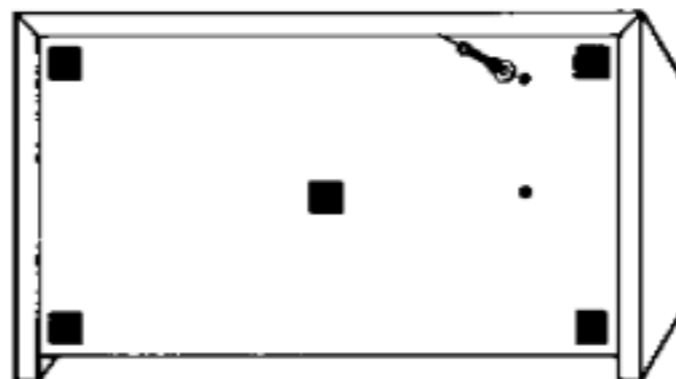
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The procedure for setting up the Disk Memory System depends on the type of disk drive(s) you have.

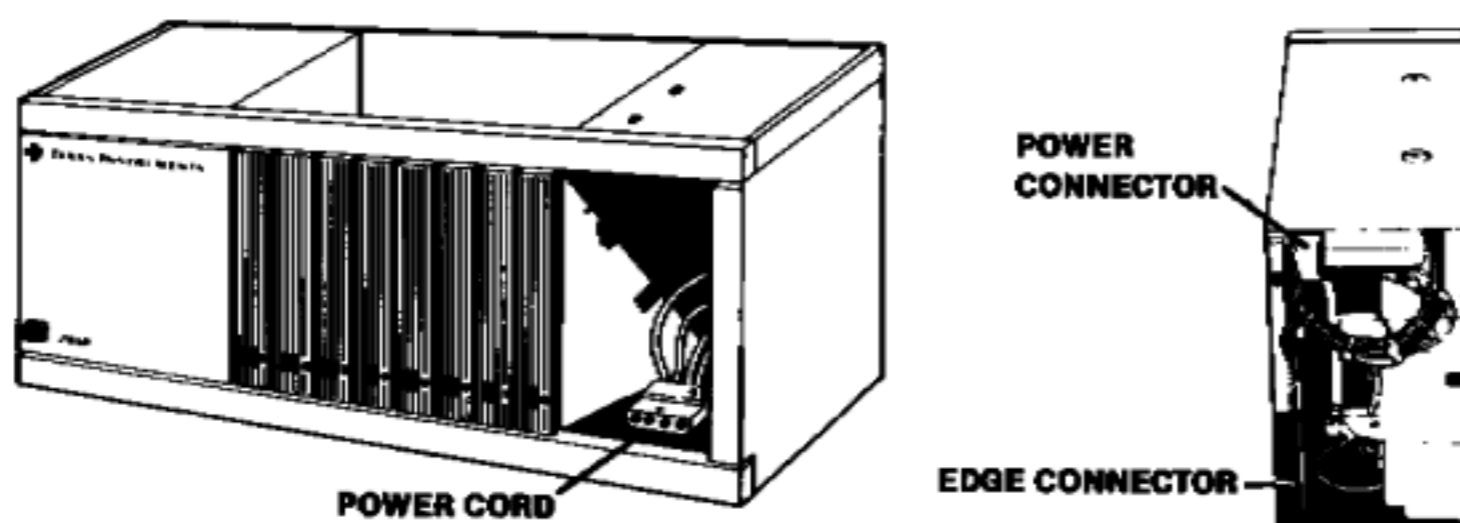
- If you have an internal drive only, see "Connecting the Controller Card to an Internal Disk Drive."
- If you are using an internal disk drive with one or more external disk drives, follow the directions in "Connecting the Controller Card to Both Internal and External Disk Drives."
- If you have one or more external drives and no internal drive, follow the directions in "Connecting the Controller Card to External Disk Drives."

### Connecting the Controller Card to an Internal Disk Drive.

1. Turn off the computer console and all attached devices.
2. **WARNING: TO AVOID DAMAGING ACCESSORY CARDS, WAIT TWO (2) MINUTES AFTER TURNING OFF THE UNIT FOR THE POWER TO DISCHARGE BEFORE PROCEEDING.**
3. Remove the top from the peripheral system by lifting the back edge of the top and pulling up.
4. Carefully place the Peripheral Expansion System on its left side (the disk drive compartment now should be at the top).



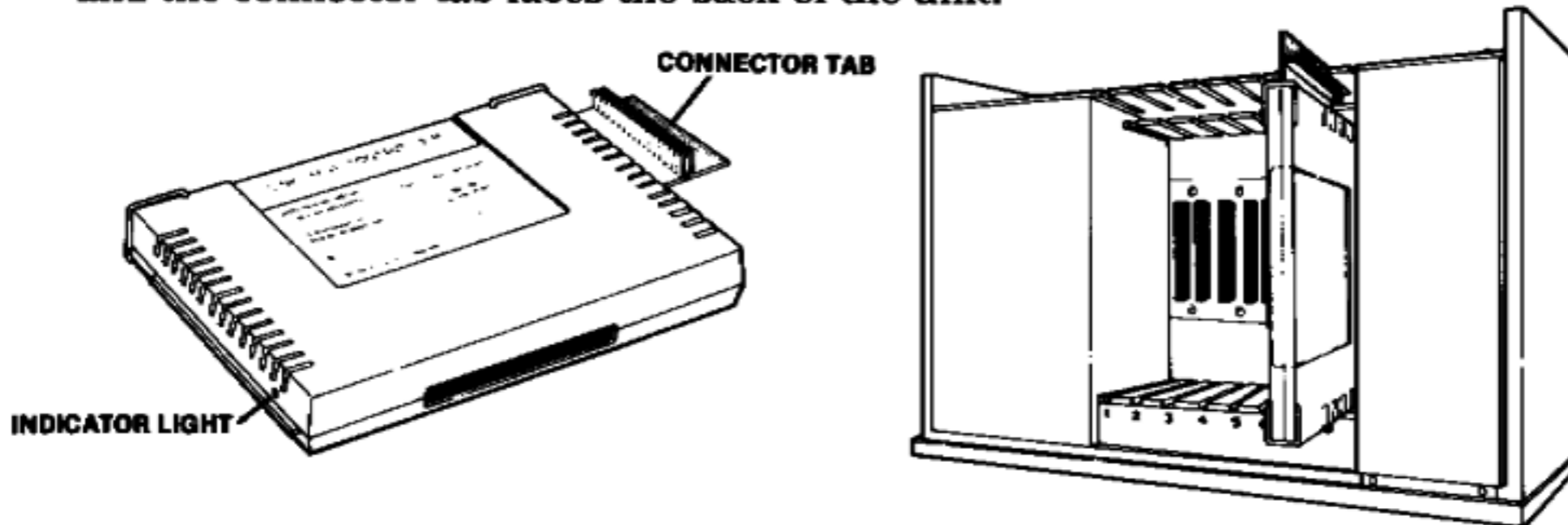
5. Two screws which support the front casing of the disk drive compartment are located on the top and bottom of the peripheral system. Remove these screws and place the peripheral system in its proper upright position.
6. Remove the front casing from the opening of the disk drive compartment.
7. A three-wire power cord is inside the compartment. One end of this cord is connected to the peripheral system. Plug the loose end of the cord into the four-pin connector on the back of the disk drive.



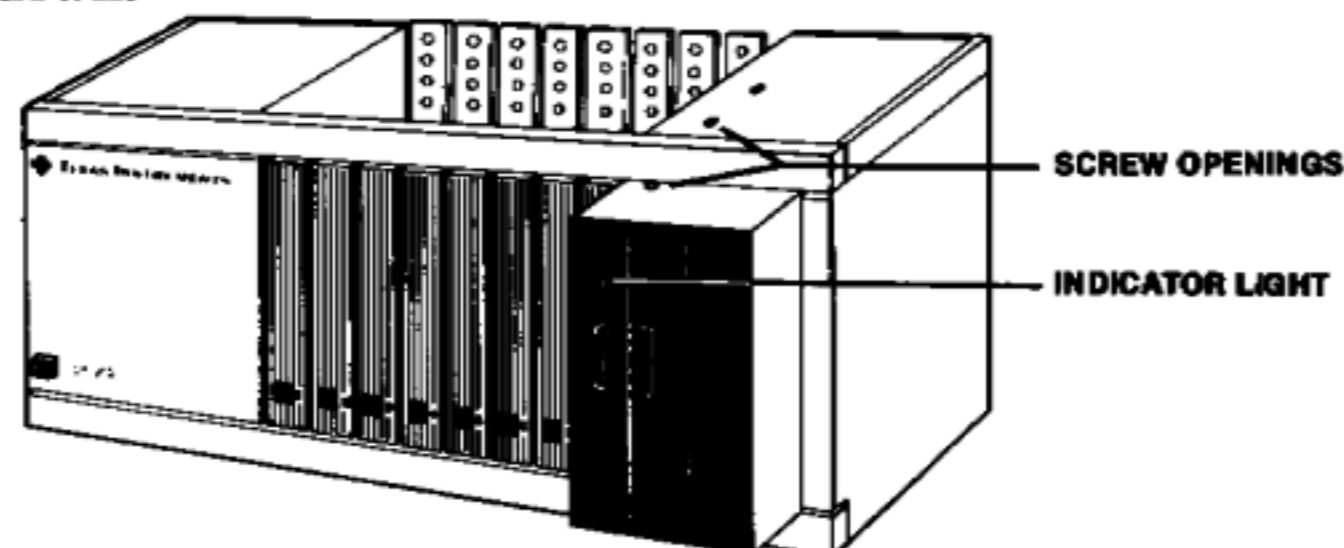
8. The connector cable included with the internal disk drive is designed to connect the drive to the Controller Card. Insert the connector cable through the opening at the back of the disk drive compartment so that the end with the edge connector is inside the compartment and the end with the 34-pin connector is by slot number 8.



9. Next, note that the label identifying the Disk Drive Controller Card is on the top of the card. On the front of the card is an indicator light. The light can be seen from the front of the peripheral system unit when the card is active. Hold the Disk Drive Controller Card so that the indicator light faces the front of the peripheral system and the connector tab faces the back of the unit.



10. Carefully align the card with slot number 8 with the connector tab facing the back of the peripheral system. Slide the card halfway down into the slot.
11. Attach the 34-pin connector of the disk drive cable to the 34-pin connector on the side of the tab on the Controller Card.
12. Firmly press the Controller Card into the slot until the connection is made. Then take up any slack in the cable by pulling the excess through the opening into the disk drive compartment.
13. Attach the edge connector of the disk drive cable to the 34-pin connector tab on the back of the disk drive.
14. Slide the disk drive into the compartment so that the red indicator light is in the top left-hand corner. *Note:* Align the screw openings on the top and bottom of the peripheral system with the holes in the disk drive. If they do not line up, the drive may be in upside down.



15. Again, carefully place the peripheral system on its left side. Two extra screws are included with the internal disk drive. These screws are to be used to secure the drive in the peripheral system. Insert two screws into the openings on the bottom of the peripheral system. After they are secure, place the peripheral system in its proper upright position, and insert the other two screws in the openings on the top of the system.
16. Replace the top on the peripheral system by sliding the front edge under the extension on the front of the unit. Firmly press down on the back edge of the top. Do not run the system without the top in place: the top ensures proper ventilation. *Note:* If the top does not fit properly, remove the card and realign it in the slot, remembering to press down firmly until the connection is made.

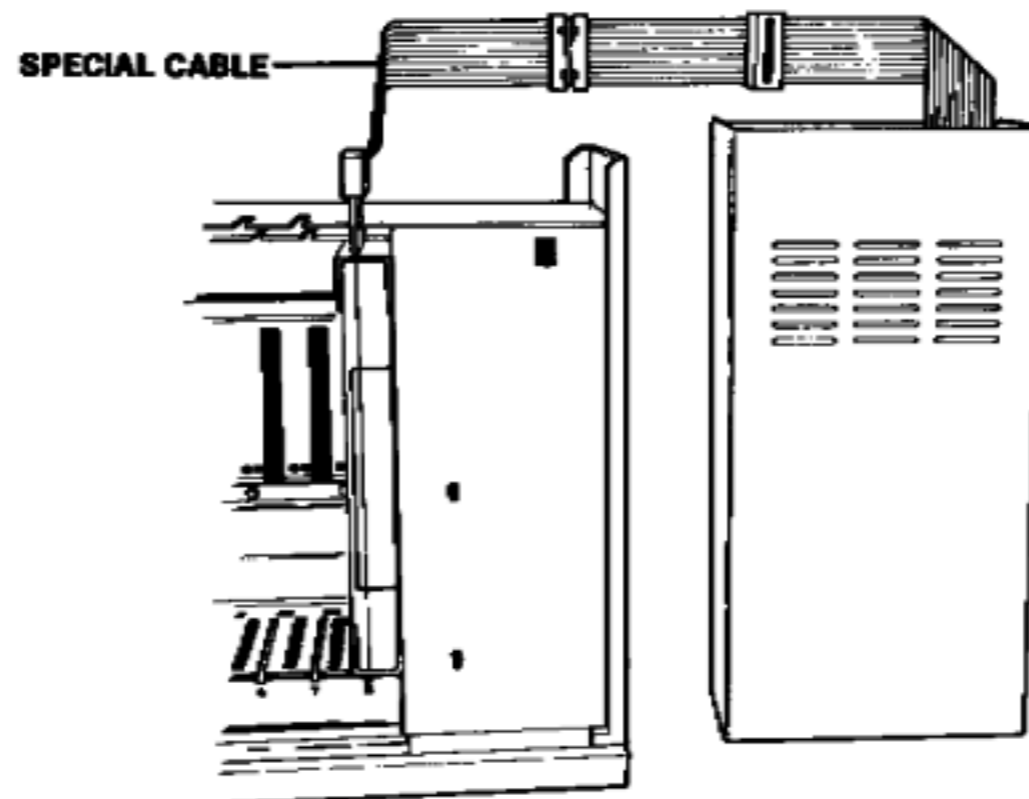
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## Disk Memory Drive

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### Connecting the Controller Card to Both Internal and External Drives

1. If your disk system includes both an internal disk drive (Model PHP1250) and one or more external drives (Model PHP1850), first remove the termination pack from the internal drive and install the internal drive and the Controller Card, following the instructions in the preceding section.
2. Use the special cable included with the Controller Card to connect the external drive(s) to your system. Connect one end of the cable to the connector tab that extends from the back of the peripheral system, making sure that the pins on the tab align with the holes on the connector cable.
3. Attach the adapter board included with the Controller Card to the other end of the cable.
4. Each external drive has an attached cable with two connectors, one at the end of the cable and one near the middle of the cable. Attach the end of the disk drive cable to the adapter board on the Controller's cable.
5. If you are using two external drives, insert an adapter board into the connector in the middle of the first disk drive's cable.
6. Connect the end of the second external drive's cable into the adapter board of the first external drive's cable. All but the last disk drive (if you are using more than one drive) should have their termination packs removed. The drive farthest from the controller should be the one that is not modified. *Note:* It may be necessary to rotate the adapter board in order to insert it. It goes in easily if you have it positioned correctly.



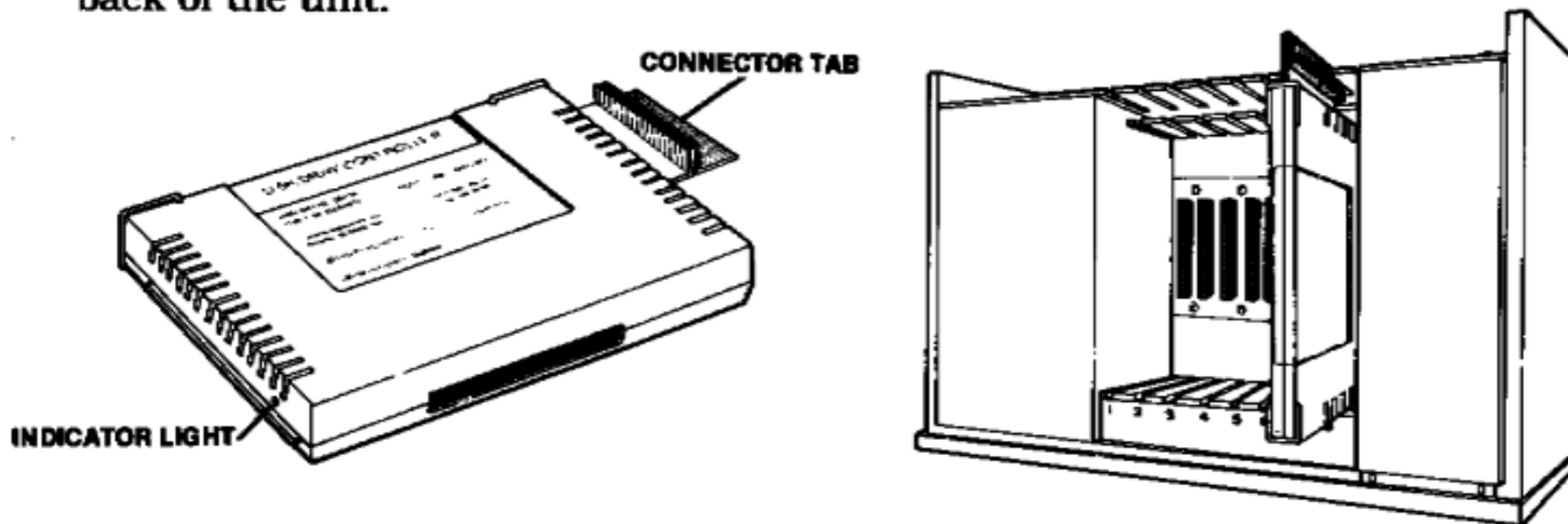
The internal drive in the Peripheral Expansion System is considered DSK1. The first external drive, the one connected directly to the Controller Card, is DSK2. The third disk drive (farthest from the Controller) is DSK3. The labels provided with your drive(s) can be used to identify each drive.



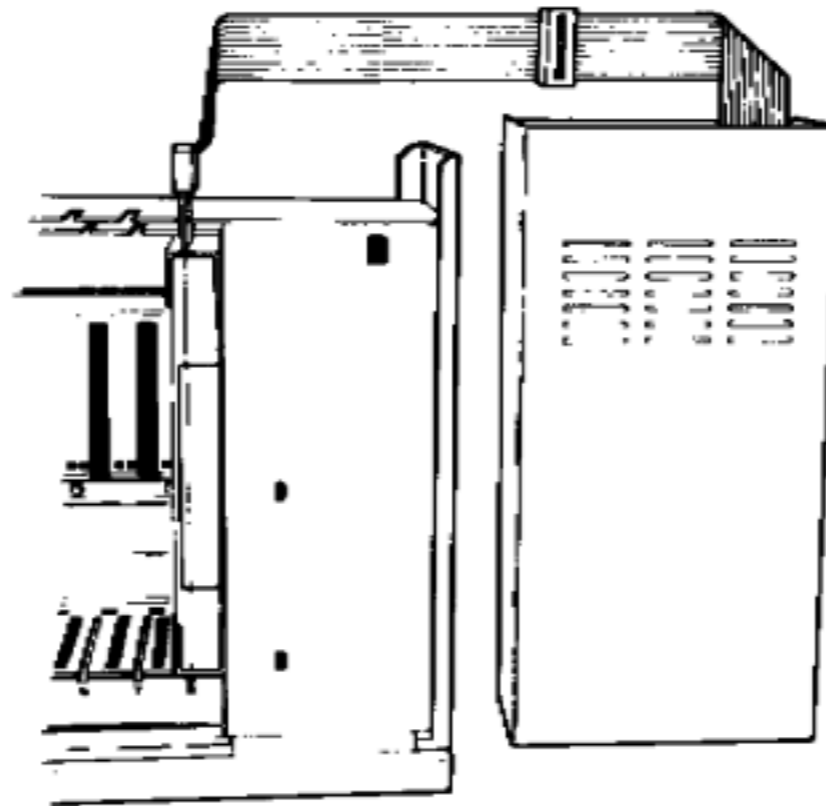
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## Connecting the Controller Card to External Disk Drives

1. Turn off the computer console and all attached devices.
2. **WARNING: TO AVOID DAMAGING ACCESSORY CARDS, WAIT TWO (2) MINUTES AFTER TURNING OFF THE UNIT FOR THE POWER TO DISCHARGE BEFORE PROCEEDING.**
3. Remove the top from the peripheral system unit by lifting the back edge of the top and pulling up.
4. The label identifying the Controller Card is on the top of the card. On the front of the card is an indicator light. Hold the Disk Drive Controller Card so that the indicator light faces the front of the peripheral system unit and the connector tab faces the back of the unit.



5. Carefully align the card with the desired slot so that the connector tab faces the back of the peripheral system; firmly press the card down into the slot until connection has been made.
6. Replace the top on the peripheral system by sliding the front edge under the extension on the front of the unit. Firmly press down on the back edge of the top. Do not run the system without the top in place; the top ensures proper ventilation. *Note:* If the top does not fit properly, remove the card and realign it in the slot, pressing down firmly until the connection is made.
7. Each external drive has an attached cable with two connectors, one at the end of the cable and one near the middle of the cable. Attach the end of the cable on the disk drive to the connector tab on the Controller Card.
8. If you are using more than one external drive, insert an adapter board into the middle connector of the first and second disk drive's cable. *Note:* It may be necessary to rotate the adapter board in order to insert it. It goes in easily if you have it positioned correctly.



9. Having removed the termination packs from all but the last drive (the one farthest away from the Controller), connect the drives in series. The connector on the end of the second drive's cable plugs into the adapter board in the middle of the first drive's cable. The third drive is connected to the second drive in the same way. Whether you have two or three drives, the drive farthest away from the controller should be the one that has not been modified.

The first drive, the one connected directly to the Controller Card, is identified as DSK1 by TI BASIC. The second drive, connected to the cable of DSK1, is DSK2. The third drive is DSK3. The labels provided with your drive(s) can be used to identify each drive.

### **CAUTION**

Always disconnect the Peripheral Expansion System before moving the computer console. The cable connecting the console and peripheral system is not designed to support the weight of the units. To prevent damage, always disconnect all devices before moving any part of your Home Computer system. For long distance moves, remove all cards from the Peripheral Expansion System and repack the devices in their original packing material.

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## **Starting the System**

After the Controller Card has been inserted into the Peripheral Expansion System unit and the drives have been connected, plug the power cords into your electrical wall outlets. Next, turn on the power switches on the backs of your external disk drives (if any) and then the switch on the front of the peripheral system unit. *Note:* When you turn on the peripheral system, the internal disk drive is automatically turned on.

### **WARNING**

Each time you operate your computer/disk system, follow this power-up sequence:

1. Turn on the external disk drives.
2. Turn on the Peripheral Expansion System unit.
3. Then turn on the monitor and computer console.

For proper memory allocation by the computer, the Peripheral Expansion System must be ON when the computer console is switched on. Otherwise, the disk drives, Controller Card, and Disk Manager module will not function correctly. The computer console must be turned off and turned back on in order to restore normal operation.

When you turn on the console, the disk drives' working lights may come on briefly and then go off. If they stay on, the disk drive cable is probably plugged in upside down. Turn off all units and make sure that the disk drive cable connections have been made properly.

### **CARING FOR DISKETTES**

1. Handle the diskette by its protective cover. Do not touch any part of the diskette's surface; fingerprints will destroy disk contents.
2. Be careful not to bend the diskette.
3. Do not write on the diskette cover with a ball-point pen or pencil; only use a felt-tip pen.
4. Do not scratch the surface of the diskette. Any scratch, even if too small to be seen, may destroy all the information on a number of sectors. This usually causes information to be lost from most of the files on the diskette.
5. Do not expose diskettes to magnetic fields or excessive heat or cold.
6. Do not place tape of any kind (masking or other) on the surface of a diskette.
7. Do not remove a diskette from a drive if the drive light is on.

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## **IN CASE OF DIFFICULTY**

If the disk system does not appear to be working properly, check the following:

1. *Power* — Be sure all devices are plugged in. Then turn on the power to the units in the proper sequence: disk drives and Peripheral Expansion System first, followed by the console and the monitor.
2. *Card Position* — Turn the power off, wait two minutes, and remove the top of the peripheral system. Verify that all cards are inserted properly and then replace the top.
3. *Cable* — Check to be sure that the proper cables are being used. Check the cables for loose or broken leads. Check to see that the cables are properly connected, right side up.
4. *Peripheral Expansion System* — Check for proper connection between the console and peripheral system.
5. *Home Computer* — Check to see that the Home Computer works properly with all accessories disconnected.
6. If none of the above procedures corrects the difficulty, consult "If You Have Questions or Need Assistance" or see the "Maintenance and Service Information" section of the *User's Reference Guide*.

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## *Disk Memory Drive*

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### **EXCHANGE CENTERS (LOCAL SERVICE OPTIONS)**

If some part of your disk system requires service, instead of returning it to a service facility for repair or replacement, you may elect to exchange it for a factory reconditioned unit by going in person to one of the exchange centers which has been established across the United States. A handling fee will be charged by the exchange center for in-warranty exchanges. Out-of-warranty exchanges will be charged at the rates in effect at the time of the exchange. Please refer to the enclosed exchange fee information and the location of the nearest exchange center.

To determine if there is an exchange center in your area, look for Texas Instruments Exchange Center in the white pages of your telephone directory, or look under the Calculator and Adding Machine heading in the yellow pages. Please call the exchange center for availability and exchange fee information. Write the Consumer Relations Department for further details and the location of the nearest exchange center.



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## **IF YOU HAVE QUESTIONS OR NEED ASSISTANCE**

If you have questions concerning disk system repair or peripheral, accessory, or software purchase, please call our Consumer Relations Department at 800-858-4565 (toll free within the contiguous United States except Texas) or 800-692-4279 within Texas. The operators at these numbers cannot provide technical assistance.

For technical questions about programming, specific application, etc., you can call 806-741-2663. Please note that this is not a toll-free number, and collect calls cannot be accepted.

As an alternative, you can write to:

Consumer Relations Department  
Texas Instruments Incorporated  
P.O. Box 53  
Lubbock, Texas 79408

Because of the number of suggestions which come to Texas Instruments from many sources containing both new and old ideas, Texas Instruments will consider such suggestions only if they are freely given to Texas Instruments. It is the policy of Texas Instruments to refuse to receive any suggestions in confidence. Therefore, if you wish to share your suggestions with Texas Instruments, or if you wish us to review any BASIC language program which you have developed, please include the following statement in your letter:

"All of the information forwarded herewith is presented to Texas Instruments on a nonconfidential, nonobligatory basis; no relationship, confidential or otherwise, expressed or implied, is established with Texas Instruments by this presentation. Texas Instruments may use, copyright, distribute, publish, reproduce, or dispose of the information in any way without compensation to me."

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## Disk Memory Drive

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### **THREE-MONTH LIMITED WARRANTY**

**THIS TEXAS INSTRUMENTS DISK MEMORY DRIVE WARRANTY EXTENDS TO THE ORIGINAL CONSUMER PURCHASER OF THE ACCESSORY.**

### **WARRANTY DURATION**

This Disk Memory Drive is warranted for a period of three (3) months from the date of original purchase by the consumer.

### **WARRANTY COVERAGE**

This Disk Memory Drive is warranted against defective materials or workmanship. **THIS WARRANTY IS VOID IF THE ACCESSORY HAS BEEN DAMAGED BY ACCIDENT, UNREASONABLE USE, NEGLIGENCE, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIALS OR WORKMANSHIP.**

### **WARRANTY DISCLAIMERS**

**ANY IMPLIED WARRANTIES ARISING OUT OF THIS SALE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ABOVE THREE-MONTH PERIOD. TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR LOSS OF USE OF THE DISK DRIVE OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE CONSUMER OR ANY OTHER USER.**

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you.

### **LEGAL REMEDIES**

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### **WARRANTY PERFORMANCE**

During the above three-month warranty period, your Disk Controller and Disk Manager module will be repaired or replaced with a new or reconditioned unit of the same or equivalent model (at TI's option) when the unit is returned by prepaid shipment to a Texas Instruments Service Facility listed below. The repaired or replacement unit will be warranted for three months from date of repair or replacement. Other than the postage requirement, no charge will be made for the repair or replacement of in-warranty units.

### **TEXAS INSTRUMENTS CONSUMER SERVICE FACILITY**

#### *U.S. Residents*

Texas Instruments Service Facility  
2303 North University  
Lubbock, Texas 79415

#### *Canadian Residents*

Geophysical Services Incorporated  
41 Shelley Road  
Richmond Hill, Ontario, Canada L4C5G4

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information.

Texas Instruments Consumer Service  
831 South Douglas Street  
El Segundo, CA 90245  
(213)973-1803

Texas Instruments Consumer Service  
6700 Southwest 105th  
Kristin Square, Suite 110  
Beaverton, Oregon 97005  
(503)643-6758