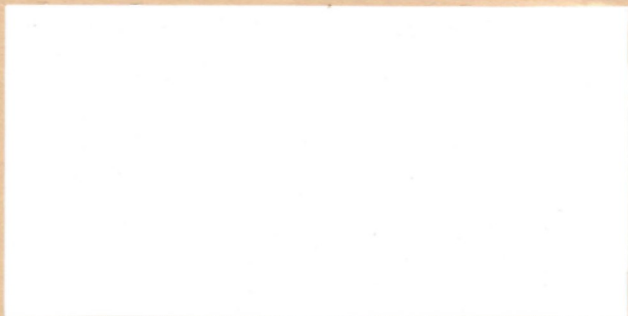


PERCOM
DISKETTE DRIVES
for the
ATARI 800 COMPUTER

Manual Number
050-1260-001





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Telephone Order Numbers

For the name and location of Percom Retailers call
toll-free 1-800-527-1222 (outside of Texas) or (214)
340-7081 (within Texas).

Service Department Address

PERCOM DATA COMPANY, INC
11220 Pagemill Road
Dallas, Texas 75243

PERCOM-Atari DISK DRIVE SYSTEM
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RADIO FREQUENCY INTERFERENCE PROTECTION

This equipment generates and uses radio frequency energy. If not installed and used properly, that is, in strict accordance with Percom installation and operation instructions, it may cause interference to radio and television reception. There is no guarantee, however, that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception -- which can be determined by turning the equipment off and on -- we encourage you to try to correct the interference by one or more of the following measures:

- * reorient the receiving antenna
- * relocate the computer with respect to the receiver
- * move the computer away from the receiver
- * plug the computer into a different outlet so that the computer and receiver are on different branch circuits

If necessary, consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the United States Government Printing Office, Washington, DC 20402, Stock No. 004-000-0035-4.

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*** IMPORTANT ***

Do not use your Percom system diskette for checkout or operation. Instead, make a backup copy and use the backup copy for checkout and operation. The procedure for backing up a diskette is given in Section II and IV of this manual.

PERCOM-Atari DISK DRIVE SYSTEM
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STATEMENT OF LIMITED WARRANTY

For a period of 90 days from the date of delivery, PERCOM DATA CO., INC. warrants to the original purchaser that the computing equipment described herein shall be free from defects in material and workmanship under normal use and service. During this period, if a defect should occur, the equipment must be returned to the PERCOM DATA CO. Service Facility at the address on page iii, the full title page. The purchaser must supply proof of purchase from PERCOM DATA CO. or an authorized PERCOM dealer or distributor. Purchaser's sole and exclusive remedy in the event of defect is expressly limited to the correction of the defect by adjustment, repair or replacement at PERCOM's election and sole expense, except there shall be no obligation to replace or repair items which by their nature are expendable. No representation or other affirmation of fact, including, but not limited to, statements regarding capacity, suitability for use, or performance of the equipment, shall be deemed to be a warranty or representation by PERCOM DATA CO., INC., for any purpose, nor give rise to any liability or obligation of PERCOM DATA CO., INC. whatsoever. EXCEPT AS SPECIFICALLY PROVIDED IN THIS AGREEMENT, THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND IN NO EVENT SHALL PERCOM DATA CO., INC., BE LIABLE FOR LOSS OF PROFITS OR BENEFITS, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY BREACH OF THIS WARRANTY OR OTHERWISE.



ATARI 800 COMPUTER WITH PERCOM MINI-DISK DRIVES

I INTRODUCTION

1.1 Features of Percom Disk Drives

Congratulations on your purchase of a Percom mini-disk drive for your Atari computer.

Disk drives provide the data storage function of a cassette recorder but are many times faster, allowing you to save and load programs and data quickly and without error.

In addition to being the highest quality floppy disk drives available, your Percom diskette drives include added features not found in the diskette drives of other manufacturers:

- * Your Percom drives operate in either single- or double-density storage mode. In double density you can store almost 176,000 bytes on one side of a 40-track diskette. You can store about twice as much information on 80-track and dual-head 40-track drives.
- * Your Percom Controller Drive includes a versatile four-drive controller, so you can connect as many as three additional low-cost Percom add-on drives.
- * You can connect your Percom Controller Drive directly to your computer or connect into your system through an Atari 810 Disk Drive -- using your 810 as a single-density storage device.

- * Your Percom "smart" four-drive controller has built-in capability to automatically handle single- and double-density drives, allowing you to expand with a mixture of drives.
- * Your Controller Drive is capable of operating eight-inch floppy disk drives in either single- or double-density mode. (Requires user-supplied software.)

This manual includes the information required to hookup, checkout and operate your new Percom RFD disk drives. (RFD is Percom's designation for Percom Atari floppy disk drives.)

This section of the manual, Section I, gives the features and specifications of your Percom drives, and mentions some accessory products for your Atari computer available from Percom. System requirements and unpacking procedures are also included in Section I.

Section II is a "short form" setup and hookup procedure. Section III includes detail setup and hookup procedures. If you are only adding an RFD Controller drive, you may only need to read Section II.

Section IV covers checkout and operating procedures.

Utility program procedures, including a diskette Backup procedure, are included in Section V. It is anticipated that Section V will be expanded periodically.

The setup, hookup and checkout procedures are straightforward, and you should have your system up and running in very little time. We urge, however, that you read this manual completely through before unpacking, connecting and operating your RFD drives.

1.2 Specifications

1.2.1 Diskette Drives

40-Track Drives

Media	5-1/4-inch diskette
Typical Media Life	3,000,000 passes/track
Storage capacity (formatted, one-side of diskette)	
Double density	176 Kbytes
Single density	88 Kbytes
Tracks Per Inch	48
Head Seek Time (track-to-track)	6 ms (min)
Data Transfer Rate	19,200 b/s
Start/Stop Time	1/2 second (max)
Operating Temperature	10 °C to 40 °C
Operating Relative Humidity	20% to 80% non-condensing
Head Life (normal use)	20,000 hours
Voltages and Average Currents	+12 Vdc @ 900 mA, +5 Vdc @ 600 mA

80-Track Drives

Same specifications as for 40-track drives except storage and track density:

Double-density storage capacity	352 Kbytes
Single-density storage capacity	176 Kbytes
Tracks per inch	96

1.2.2 Input Power Requirements

The input power for an RFD Controller Drive is:

Domestic Version:
105 -- 125 Vac @ 1.0 A (max), 50-60 Hz
Foreign Version:
210 -- 250 Vac @ 0.5 A (max), 50-60 Hz

The input power required for each RFD add-on drive is:

Domestic Version:
105 -- 125 Vac @ 0.5 A (max), 50-60 Hz
Foreign Version:
210 -- 250 Vac @ 0.25 A (max), 50-60 Hz

1.3 Percom Accessories for Atari 800 Computers

In addition to the RFD diskette drives covered in this manual, Percom also manufactures other items of equipment for Atari computer systems including a Data/Clock separator circuit, the SEPARATOR, which plugs into an Atari 810 Disk Drive and virtually eliminates problems associated with reading diskettes on the 810 drive.

For more information about Percom products for your Atari computer visit or telephone an authorized Percom Retailer. For the name of your nearest Percom Retailer, call the telephone number given on the title sheet (page iii) of this manual.

1.4 System Requirements

To use Percom RFD drives with your Atari computer, you will need as a minimum the following:

- * An Atari 800 computer with 24 Kbytes of RAM and compatible video display system.
- * The Atari computer Disk-Operating System (DOS), version 2.0S, and DOS Reference Manual.
- * An optional interconnecting cable if more than one add-on drive is used.
- * A blank diskette.

1.5 Unpacking

As you unpack your Percom RFD Controller Drive, verify that the following items are included:

- * RFD Controller Drive -- a drive in its enclosure along with the drive controller and power supply.
- * A Data Cable for connecting the Controller Drive to your computer or 810 Disk Drive.
- * Your Percom RFD Disk Drive owner's manual (this Users Manual).
- * A Percom RFD system diskette (Do not use this distribution diskette. Make a backup and use the backup. See the IMPORTANT note in the front matter of this manual.)

Your Percom RFD add-on drives (if purchased) are shipped assembled, and include the drive mechanism and power supply in a two-part enclosure. A three-drive interconnecting cable for RFD add-on drives is available from Percom retailers who carry the Percom RFD product line.

A final word before you add your Percom drives

Please be sure your computer is operating properly before attempting to expand it with a disk drive system or other peripheral devices. Adding new devices to a system with a problem may further complicate the problem and make troubleshooting more difficult.

*** IMPORTANT - PLEASE READ ***

Every effort has been made to ensure that this manual accurately documents your Percom RFD disk drives. We will, however, be continuously improving and updating both software and hardware, and therefore Percom Data Company, Inc., cannot absolutely guarantee the accuracy of this publication.

II SETUP & OPERATION (Abbreviated Procedures)

This Section gives a shortened form of setup and checkout procedures which are covered in more detail in Sections III and IV. If you will not be adding Percom RFD add-on drives, that is, if you will only be adding a Percom Controller Drive, these procedures will allow you to get running very quickly. If you have a problem following these procedures, please proceed to Section III.

*** CAUTION ***

Turn off ac power to disk drives before setting up or interconnecting drives to the system.

If you have not already done so, put a write-protect tab on your Atari Master Diskette (DOS 2.0S diskette) and Percom RFD System Diskette.

2.1 Procedure for RFD Controller Drive Alone

1. Turn the computer power switch to Off, and connect your RFD drive to the computer using the data cable provided with the drive. Use either the upper or lower connector at the drive, the PERIPHERAL connector at the computer.
2. Plug the drive into an ac convenience outlet and turn the drive On/Off switch to On.
3. Insert a write-protected copy of your Atari 2.0S DOS diskette in the drive and close the door. The write-protect notch is down.
4. Turn on the computer to boot the disk. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
5. Remove the Atari DOS 2.0S diskette and insert your write-protected Percom RFD System Diskette.
6. Type in L (Binary Load). Respond to the prompt by typing in BLD.
7. Remove your Percom RFD System Diskette and insert a blank diskette which is not write-protected. Type Y in response to the prompt. When the operation is complete, You will have a double-density DOS 2.0P in your RFD drive.
8. Turn the computer off and then on to boot your new double-density DOS into RAM. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has

not been inserted into the Atari, a DOS menu will be displayed.

9. Remove your new double-density DOS diskette and put a write-protect tab on it. Make a backup of your double-density DOS as follows:
 - (a) Boot in your new double-density Atari DOS 2.0P. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
 - (b) Remove your Atari DOS diskette and insert a blank diskette which is not write-protected.
 - (c) Format the blank diskette using I, and then type in H to write the DOS files to the diskette.
 - (d) Boot from the diskette and display the DOS menu to verify that the copy procedure was successful.

Use your new double-density DOS in the usual way, i.e., as explained in your Atari Disk-Operating System Reference Manual.

2.2 Procedure for Using Both Percom and Atari Drives

This procedure assumes you have an Atari 810 Disk Drive connected to your Atari 800 computer.

1. With the power off to your Atari 810 Disk Drive, set the Drive Code switches to the No.2 configuration (filespec device identification code D2).
2. Turn the power off to your computer and both drives, and connect your Percom drive to your Atari drive using the data cable supplied with your Percom drive. Use either connector at the drives.
3. Plug your RFD drive into an ac convenience outlet. Be sure there is not a diskette in either drive and then turn on power to both drives.
4. Proceed as described in section 2.1, beginning with step 3. Perform all operations using your RFD Controller Drive.

Your new double-density DOS will not work in your Atari 810 drive, but you can use the 810 for single-density files, accessing the 810 drive as D2.

III SETUP & HOOKUP (Detail Procedures)

This Section describes how to setup and connect Percom RFD disk drives to your system.

You will not need any tools and you will not have to get inside the drive enclosure to add only an RFD Controller Drive.

For add-on drives, you will need to take off the enclosure cover to remove the TERMINATOR chip. (Only the drive at the end of the cable can have a TERMINATOR chip. All other chips must be removed.) To remove the cover you will need a medium Phillips-head screwdriver, and to set up the drive you will only need a small blade screwdriver or fingernail file.

The procedures of this Section assume you have already read your DOS reference manual. If you have not, please do so before continuing.

An ounce of prevention...

As mentioned above, you may have to get inside one or more of your disk drives, and therefore you may come in contact with integrated circuit chips. Some of these are very sensitive to charge buildup on their leads, a condition which can destroy the part. This is characteristic of most semiconductor parts, including some of the components on the Percom Diskette Drive circuit boards, and therefore the following precautions should be observed.

First, wear clothes that do not create a static electrical charge. Silk and synthetic garments easily create a static charge; natural fiber clothing -- cotton jeans for example -- are more resistant to charge buildup.

Second, perform the Diskette Drive installation in an area that is not carpeted. A tile kitchen floor is a good place.

Third, get all the tools (see below) and equipment together at the work site before starting the installation, so you will not have to leave the work area until the job is complete -- probably no more than 15 or 20 minutes. The reason not to leave the work area of course is to avoid building up static charge on your person by walking across a carpeted area.

A Percom RFD Controller Drive may be connected into your system either directly through your computer or, if you have an Atari 810 Disk Drive, through the 810 drive.

Before cabling your system together, however, we'll set up the RFD Controller Drive (and 810 drive if used) to meet your particular configuration requirements. The design of your RFD Controller allows considerable latitude in defining your system configuration. In this section, procedures for a straightforward expansion are given. A more detailed discussion of setup possibilities and procedures is given in Appendix 1.

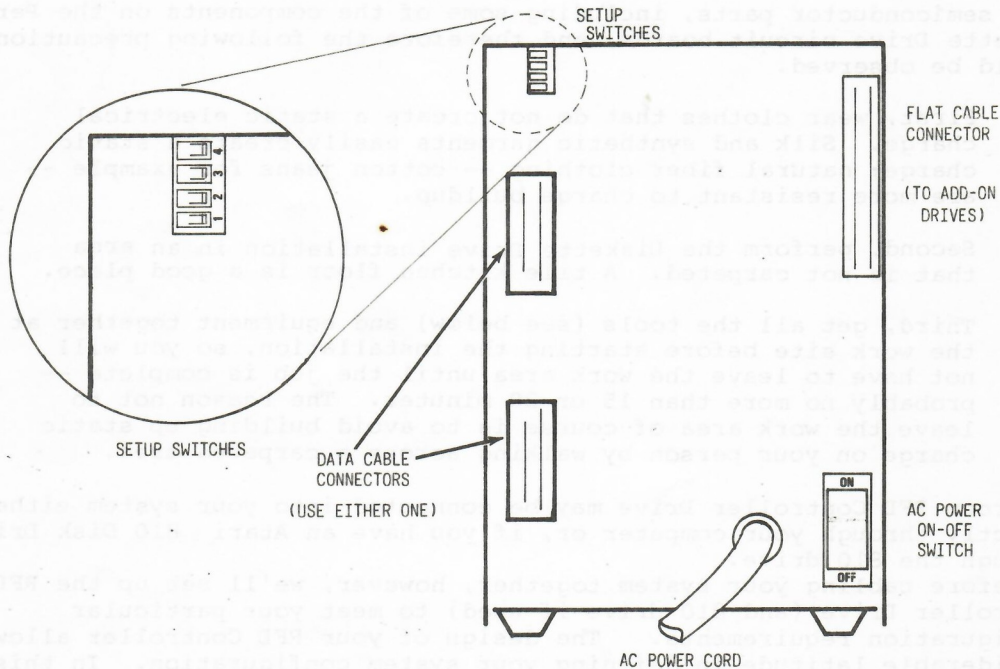
3.1 Setup & Hookup for Direct Computer Interface

*** NOTE ***

If you will be connecting your Percom RFD Controller Drive into your system through an Atari 810 Disk drive skip to section 3.2.

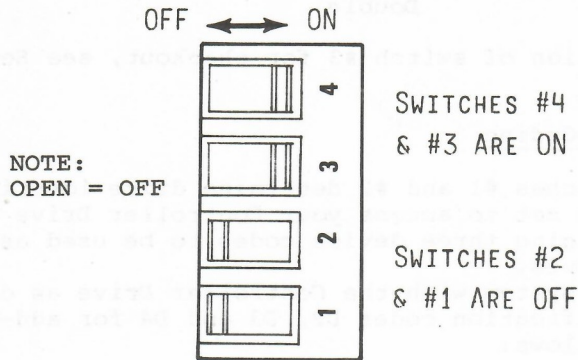
The initial setup procedure -- which involves setting switches on the Controller Drive -- is given first, and then the procedure for setting up and cabling add-on drives is given.

Set your RFD first drive system on the work surface with the rear panel facing you, and locate the four setup switches in the upper left-hand corner.



REAR VIEW OF RFD CONTROLLER DRIVE

As shown below, a switch is On to the right and Off to the left. You can use a pencil or ballpoint pen to switch between the two positions.



RFD CONTROLLER DRIVE SETUP SWITCH

Storage Density Format

The position of switch #4, the top switch, determines whether the Controller Drive defaults to single-density storage or to double-density storage. In otherwords, in the absence of any other information from a program or elsewhere, the position of switch #4 will determine whether the Controller Drive is setup for single- or double-density operation:

SWITCH #4 POSITION	STORAGE DENSITY
ON	Single
OFF	Double

*** NOTE ***

You can boot (load your DOS into memory) from either a single- or double-density diskette in this drive regardless of the position of switch #4.

For the proper position of switch #4 for checkout, refer to Section IV.

The position of switch #3 determines the default storage format -- single- or double-density -- of the first RFD add-on drive.

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SWITCH #3 POSITION	STORAGE DENSITY
ON	Single
OFF	Double

For the correct position of switch #3 for checkout, see Section IV.

Drive Identification Coding

The positions of switches #1 and #2 determine drive identification coding. These switches may be set to access your Controller Drive as D1, D2, D3 or D4, leaving the remaining three device codes to be used as identification codes for add-on drives.

To configure your system with the Controller Drive as drive D1 -- leaving device identification codes D2, D3 and D4 for add-on drives -- set these switches as follows:

SWITCH #1 ON
SWITCH #2 ON

You can also configure your system to access the Controller Drive as D3, for example, and use device codes D4, D5 and D6 for add-on drives. See Appendix 1 for switch positions for a configuration other than the one where your RFD Controller Drive is setup as D1.

Hooking Up a Controller Drive to Your Computer

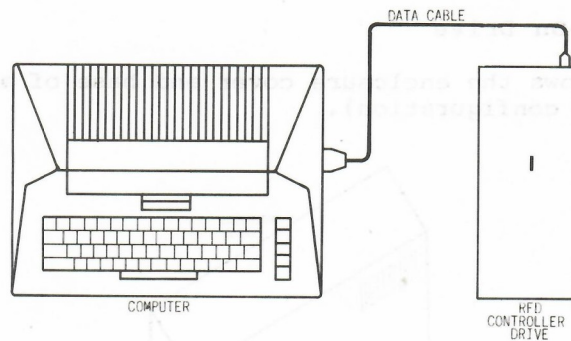
*** CAUTION ***

Do not set up or interconnect devices with their ac power on.

1. Turn off ac power to your video display and to all peripheral devices, and then turn your computer ac power switch to the OFF position.
2. Turn your RFD Controller Drive ac power switch to the OFF position.

3. Refer to the sketch below:

- (a) Connect the data cable between your computer and disk drive. Note that the connectors are "polarized" and can only be plugged together in one way.
- (b) If ac power is not connected to your computer, plug your computer ac Power Adapter into an ac outlet and plug its small dc plug into your computer.
- (c) Plug your RFD drive ac power cord into an ac outlet.



4. If not already connected, hook up your other peripherals.
Follow the hookup instructions provided with the devices.

Double check that all cabling is correct and that all connectors are snugly attached.

If you will not be connecting add-on drives at this time, please go to Section IV, Checkout and Operation.

Connecting Add-On Drives

After you have added an RFD Controller Drive, you can expand your storage capacity by adding up to three RFD add-on drives. Add-on drives are not interchangeable with regard to their position on the cable; that is, a drive which is set up for connection at the end of the drive cable may not work properly at another cable position. Percom supplies a one-drive cable with every add-on drive. If you want more than one add-on drive, a special external three-drive cable may be purchased from Percom.

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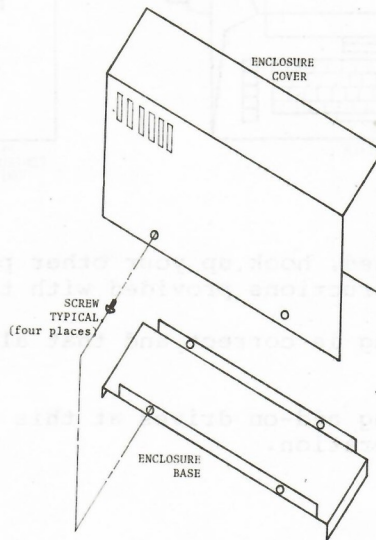
If you have not already done so, unpack your RFD add-on drive (or drives), and remove the shipping cardboard and the Quality Control checkoff sheet.

*** CAUTION ***

Be careful not to jar or bump your add-on drive since a sudden shock could knock it out of mechanical alignment.

Opening Up an Add-On Drive

The sketch below shows the enclosure cover and base of a Percom RFD add-on drive (single-drive configuration).



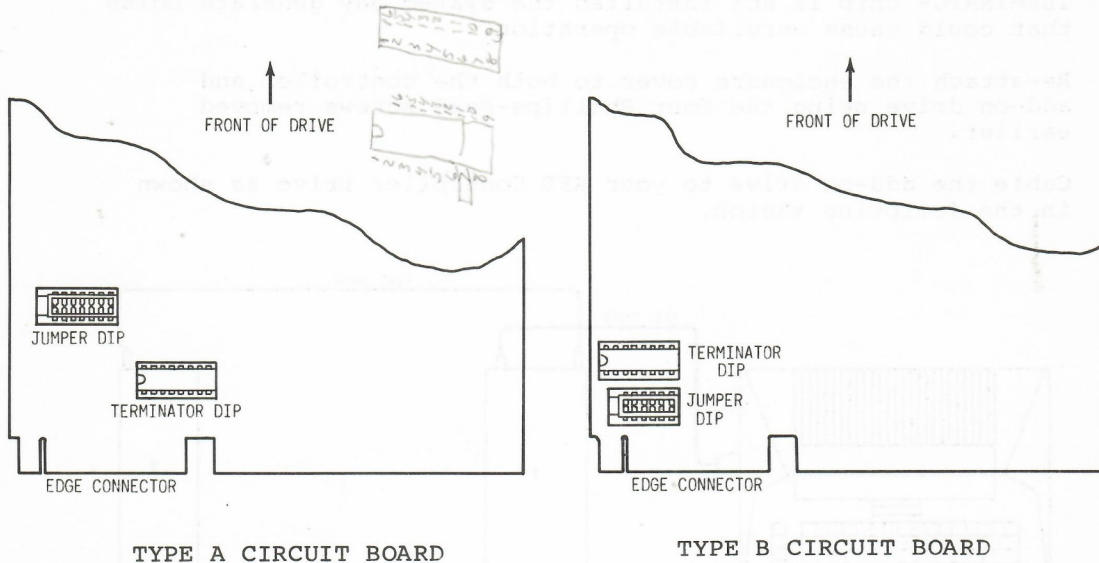
DISASSEMBLY OF ADD-ON DRIVE COVER AND BASE

To open a drive, as will be necessary to set up your add-on drives, all you do is remove the four Phillips-head screws and lift the cover off of the base.

Locating the TERMINATOR DIP

Remove the enclosure cover and gently lay the drive on the work surface with the circuit board up. Orient the drive so that the opening for the diskette is facing away from you.

Compare the circuit board of your RFD add-on drive with each of the following sketches, and determine if your drive circuit board is type A or type B.



Locate the components on your circuit board identified TERMINATOR DIP. (DIP stands for Dual In-line Package.)

The purpose of the TERMINATOR DIP is to add a noise-reducing termination (load) to the end of the drive cable. Therefore, the TERMINATOR DIP must be installed only in the drive that will be connected at the end of the cable.

Connecting One Add-On Drive

*** CAUTION ***

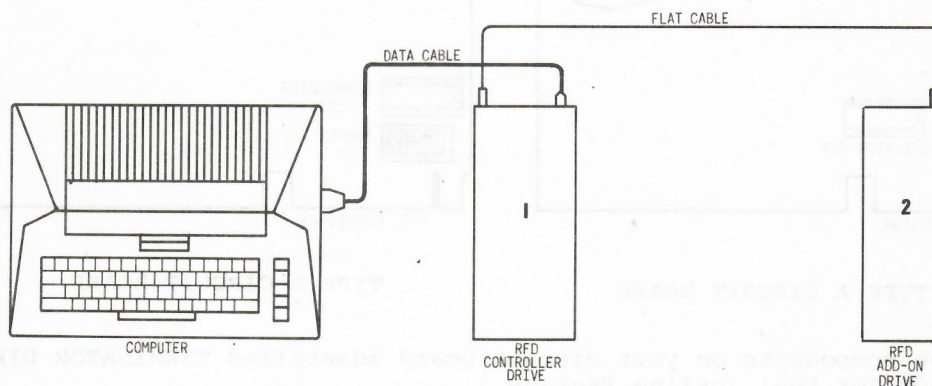
Do not interconnect devices with their ac power on.

To add a single add-on drive proceed as follows:

1. Refer to the previous sketch (DISASSEMBLY OF ADD-ON DRIVE COVER AND BASE) and remove the enclosure cover of your controller drive.
2. Remove the TERMINATOR chip from the controller drive (illustrated as drive 1 in the following sketch).

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3. Verify that the DIP TERMINATOR chip is installed on the first add-on drive (illustrated as drive 2 in the following sketch). This drive will be added at the end cable position, and if the TERMINATOR chip is not installed the system may generate noise that could cause unreliable operation.
4. Re-attach the enclosure cover to both the controller and add-on drive using the four Phillips-head screws removed earlier.
5. Cable the add-on drive to your RFD Controller Drive as shown in the following sketch.



HOOKUP FOR RFD CONTROLLER DRIVE AND ONE ADD-ON DRIVE

Note that the add-on drive is connected to the socket at the end of the cable -- as it should be since the TERMINATOR chip is installed in this disk drive.

If you will not be connecting anymore add-on drives at this time, please go to Section IV, Checkout & Operation.

Connecting Two or More Add-On Drives

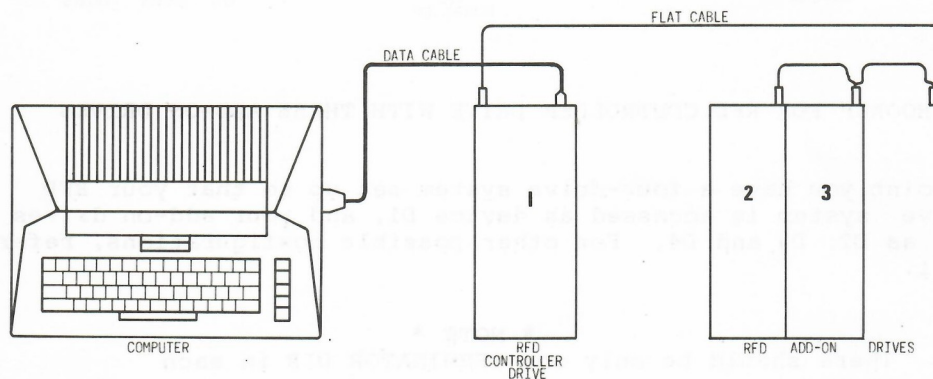
*** CAUTION ***

Do not interconnect devices with their ac power on.

If you expand your system with two or three RFD add-on drives proceed as follows:

1. Set up one add-on drive as described above for position 1. This drive will be accessed as D2.

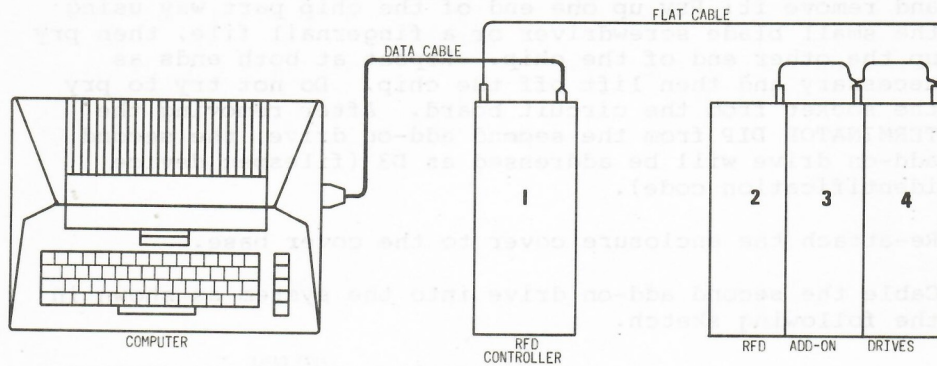
2. Remove the enclosure cover and set up your second add-on drive as follows:
 - (a) Locate the TERMINATOR DIP on the second add-on drive (D3) and remove it: Pry up one end of the chip part way using the small blade screwdriver or a fingernail file, then pry up the other end of the chip. Repeat at both ends as necessary and then lift off the chip. Do not try to pry the socket from the circuit board. After removing the TERMINATOR DIP from the second add-on drive, the second add-on drive will be addressed as D3 (filespec device identification code).
 - (b) Re-attach the enclosure cover to the cover base.
 - (c) Cable the second add-on drive into the system as shown in the following sketch.



HOOKUP FOR RFD CONTROLLER DRIVE WITH TWO ADD-ON DRIVES

3. For the third add-on drive, if used, proceed as in step 2 above, except locate the TERMINATOR DIP on the third add-on drive and remove it. After removing the TERMINATOR DIP, the third add-on drive will be addressed as D4.

4. Connect the third add-on drive into your system as shown below.



HOOKUP FOR RFD CONTROLLER DRIVE WITH THREE ADD-ON DRIVES

At this point you have a four-drive system set up so that your RFD first-drive system is accessed as device D1, and your add-on drives are accessed as D2, D3 and D4. For other possible configurations, refer to Appendix 1.

* NOTE *

There should be only one TERMINATOR DIP in each system.

Please go to Section IV for checkout and operating procedures.

3.2 Setup and Hookup for Interfacing Through an Atari 810 Drive

As mentioned earlier, your RFD controller accommodates many system configurations. The setup and cabling procedures, to add on an Atari 810 Disk Drive to the last drive of the system, are given in this section. For other setup possibilities, refer to Appendix 1.

*** CAUTION ***

Do not set up or interconnect devices with their ac power turned on.

1. Configure your RFD controller drive and RFD add-on drives (if used) exactly as described in section 3.1.

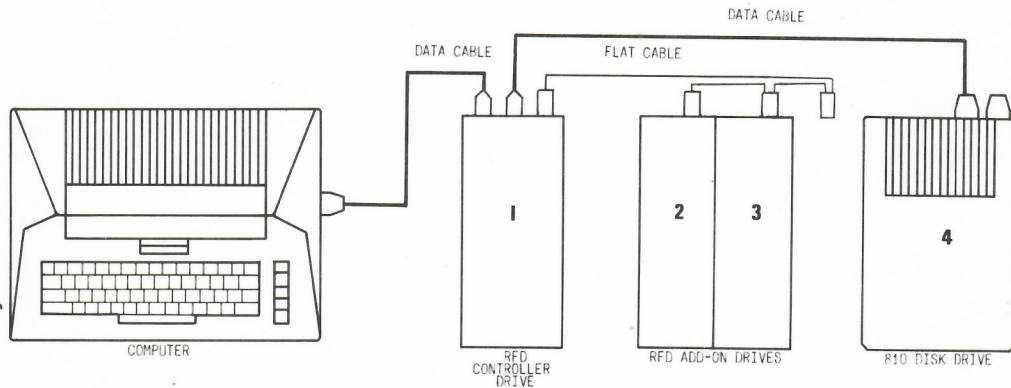
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2. If your RFD Controller Drive is accessed as D1 and the 810 Drive is accessed as the last drive in the system, then two is the maximum number of add-on disk drives allowed. Refer to the sketch below. Assuming the RFD Drive is D1 and the 810 Drive is the last drive in the system, set the Drive Code switches on the back of the Atari 810 Disk drive as follows:

NUMBER OF ADD-ON DRIVES	DRIVE CODE NUMBER ON 810
0	2
1	3
2	4

The procedure for setting these switches is given in your Atari 810 manual.

3. Cable your drives together as shown in the following sketch.



The procedure given above sets up your system so that your RFD controller drive is accessed as D1 (filespec device identification code) and your Atari 810 Disk Drive is accessed as D2, D3 or D4, depending on whether you have added zero, one or two RFD add-on drives. For example, if you expand your 810-equipped Atari with a Percom RFD controller drive and two RFD add-on drives, your device identification codes will be as follows:

D1 = Percom RFD Controller Drive
D2 = Percom RFD Add-On Drive
D3 = Percom RFD Add-On Drive
D4 = Atari 810 Drive

Please go to Section IV for checkout and operating procedures.

IV CHECKOUT & OPERATION (Detail Procedures)

At this point, you should have your system setup and cabled as explained in Section III. All drives and the computer should be connected to primary power but their power On/Off switches should be in the Off position.

Review your Atari Disk-Operating System (DOS) Reference Manual if necessary. Especially be aware of the precautions involving the care and handling of diskettes which are discussed in Section 3.

***** CAUTION *****

If you have not already done so, put a write-protect tab on your Atari Master Diskette (DOS 2.0S diskette) and on your Percom RFD System Diskette.

As explained in Section III, your Percom RFD Controller Drive may be connected directly to your Atari 800 computer, or it may be connected into your system through an Atari 810 Disk Drive.

4.1 Checkout and Operation Using RFD Drives Only

***** CAUTION *****

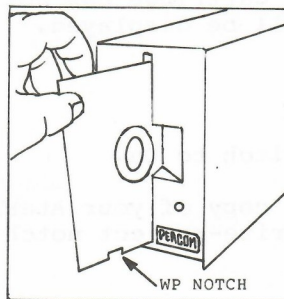
Do not set up your Controller Drive with power applied.

This section covers checkout and operating procedures for cases where the Atari 810 Disk Drive is not used.

4.1.1 Checkout & Operation Using the RFD Controller Drive Only

Single-Density Mode

1. Switch on ac power to the drive.
2. Insert a write-protected copy of your Atari 2.0S DOS in your RFD Controller Drive, with the write-protect notch down, and close the drive door.



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3. Turn on your computer. This will "boot" the disk, i.e., load certain disk-stored programs into your computer RAM.
4. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
5. In this step you will make a backup of your Atari DOS diskette. You will need an unprotected blank diskette, that is, a blank diskette with the write-protect tab removed.

From the DOS menu, type in I. The screen will display the information shown below. Respond to the prompts to make a backup diskette.

```
System:      SELECT ITEM
User:        I (RET)      (RET) means press RETURN key
System:      WHICH DRIVE TO FORMAT
User:        1 (RET)
System:      TYPE "Y" TO FORMAT DISK 1
User:        Y (RET)
System:      SELECT ITEM
User:        J (RET)
System:      DUP DISK--SOURCE,DEST DRIVES
User:        1,1 (RET)
System:      TYPE "Y" IF OK TO USE PROGRAM AREA
User:        Y (RET)
System:      INSERT SOURCE DISK, TYPE RETURN
User:        (RET)
System:      INSERT DESTINATION DISK, TYPE RETURN
User:        (RET)
System:      SELECT ITEM
```

6. With your new backup diskette in the RFD Controller Drive, turn your computer off and then on. This will boot in your DOS programs from your new backup diskette.
7. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you will need to type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.

Double-Density Mode

1. Turn the drive On/Off switch to On.
2. Insert a write-protected copy of your Atari 2.0S DOS diskette in the drive, with the write-protect notch down, and close the door.

3. Turn on the computer to boot the disk. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
4. Remove your Atari DOS 2.0S diskette and insert your write-protected Percom RFD System Diskette.
5. Type in L (Binary Load). After the program loads, respond to the prompt by typing in BLD (Build System).
6. Remove your Percom RFD System Diskette and insert a blank diskette which is not write-protected. Type Y in response to the prompt issued by the Build System program. When the operation is complete, you will have a double-density DOS 2.0S in your RFD drive.
8. Turn the computer off and then on to boot your new double-density DOS into RAM. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
9. Remove your new double-density DOS diskette and put a write-protect tab on it. Make a backup of your double-density DOS as follows:
 - (a) Insert a blank diskette which is not write-protected.
 - (b) Format the blank diskette using I, and then type in H to write the DOS files to the diskette.
 - (c) Boot from this diskette and display the DOS menu to verify that the copy procedure was successful.

Checkout & Operation Using RFD Controller and Add-On Drives

1. It is advised you go to section 5 and perform the BLD Utility (steps 1 through 12) before continuing with the next step.
2. Be sure there is not a diskette in any drive then turn the Atari 800's power off.
3. Insert the double-density DOS System Diskette (built in section 5, BLD Utility) into drive 1 and a blank diskette into drive 2.
4. Turn the Atari 800's power on.
5. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.

6. The screen will display the information shown below. Respond to the prompts as shown to make a backup diskette.

```
System:  SELECT ITEM OR RETURN FOR MENU
User:    I (RET)      (RET) means press RETURN key.
System:  WHICH DRIVE TO FORMAT
User:    2 (RET)
System:  TYPE "Y" TO FORMAT DISK 2
User:    Y (RET)
System:  SELECT ITEM OR RETURN FOR MENU
User:    H (RET)
System:  DRIVE TO WRITE DOS FILES TO
User:    2 (RET)
System:  TYPE "Y" TO WRITE DOS TO DRIVE 2
User:    Y (RET)
System:  WRITING NEW DOS FILES
```

7. When all the DOS files have been written to the diskette in drive 2, the DOS menu and the message SELECT ITEM OR RETURN FOR MENU will be displayed.
8. You now have a Backup double-density DOS System Diskette in drive 2.
9. Remove the DOS System Diskette in drive 1 and the Backup DOS System Diskette in drive 2.
10. Put the Backup DOS System Diskette in drive 1.
11. Reboot the Atari 800 by turning the power off and then on again.
12. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
13. You now have a functional Backup double-density DOS System Diskette.

V PERCOM UTILITY PROGRAMS & ATARI DOS PROGRAM MODS

This Section covers utility programs included on the Percom RFD System Diskette.

BLD Utility

The BLD Utility allows you to take a single-density Atari DOS 2.0S Diskette and build a double-density DOS System Diskette

1. Be sure there is not a diskette in any drive, turn the Atari 800's power off, and turn the drives' power off.
2. Set your RFD Controller Drive Switches to the following values: 1 = ON, 2 = ON, 3 = ON, and 4 = ON.
3. Put the single-density Atari DOS 2.0S Diskette into drive 1.
4. Turn the Atari 800's power on and turn the drives's power on.
5. The Atari automatically boots. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
6. Take out the single-density Atari DOS 2.0S Diskette in drive 1 and insert the RFD Support Software Diskette into drive 1.
7. Type in the letter L and press the RETURN key. The message LOAD FROM WHAT FILE will be displayed.
8. Type in the letters BLD and press the RETURN key. The message INSERT BLANK DISK FOR NEW SYSTEM, THEN PRESS "Y" TO CONTINUE will be displayed.
9. Take out the RFD Support Software Diskette and insert a blank diskette.
10. Type in the letter Y and press the RETURN key. The message WRITING NEW DOS FILES will be displayed.
11. After all the new DOS files are written to disk, the DOS menu and the message SELECT ITEM OR RETURN FOR MENU will be displayed.
12. You now have a new double-density DOS System Diskette. When you boot the system next time with your new diskette, note that 2.0P will be written in the upper right-hand corner of the DOS menu.

SDCOPY Utility

The SDCOPY Utility provides users, who only have a Percom RFD Controller Drive, a method to copy single-density files to double-density and double-density files to single-density.

1. Put a single-density Atari DOS 2.0S Diskette in drive 1 and turn on the computer to boot the disk.
2. If a BASIC Cartridge has been inserted into the Atari, a READY message will be displayed and you must type in the letters DOS. If a BASIC Cartridge has not been inserted into the Atari, a DOS menu will be displayed.
3. Type in the letter L and press the RETURN key. The message LOAD FROM WHAT FILE will be displayed.
4. Take out the DOS system diskette in drive 1 and insert the RFD Support Software Diskette into drive 1.
5. Type in the letters SDCOPY and press the RETURN key. The message TO RETURN TO DOS PRESS ESC KEY, ENTER SOURCE DENSITY: S = SINGLE, D = DOUBLE, DESTINATION DENSITY WILL BE THE OTHER DENSITY will be displayed.
6. Type in the letter S for single density or D for double density. In our example, we will use S. The message FILE TO COPY (ESC IF DONE) will be displayed.
7. Type in the name of the single-density file to be copied and press the RETURN key. The message INSERT SOURCE DISK THEN PRESS RETURN will be displayed.
8. Take out the RFD Support Software Diskette in drive 1 and insert the source diskette, containing the single-density file to be copied, into drive 1.
9. Press the RETURN key. The message INSERT DEST. DISK THEN PRESS RETURN will be displayed.
10. Take out the disk (containing the single-density file that you want copied) in drive 1 and insert a destination double-density diskette in drive 1. (A destination double-density diskette can be built using the BLD Utility described above.)
11. Press the RETURN key. Respond to the prompts to interchange the source and destination diskette as many times as required to complete the copy operation. When the file has been copied, the message FILE COPIED will be displayed.

APPENDIX 1

CONFIGURATION OPTIONS

There are four drive code switches on the Percom RFD Controller Drive. Refer to the RFD Controller Drive Setup Switch figure on page 3-3.

Switches SW3 and SW4 set the density of the first and second Percom Drives. The third and fourth Percom Drives default to double density.

	SW3	SW4

ON	D2 SINGLE DENSITY	D1 SINGLE DENSITY
OFF	D2 DOUBLE DENSITY	D1 DOUBLE DENSITY

Switches SW1 and SW2 are used to indicate the starting address of the Percom RFD Controller Drive. For example, if you want the RFD Controller Drive to be D1, position SW2 and SW1 to ON, or if you want the Atari 810 Drive to be D1 and the RFD Controller Drive to be D2, position SW2 to ON and SW1 to OFF.

	SW2	SW1

D1	ON	ON
D2	ON	OFF
D3	OFF	ON
D4	OFF	OFF

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PROBLEM REPORT FORM

In case of a problem, please read the instructions on the inside back cover of this manual. If you need to report a problem, please fill out this form completely and send it to Percom. If it is necessary to return equipment to solve the problem, include the problem report with the returned equipment. If you do not need to return equipment, mail this report to the Service Department address given on page iii, the full title page.

We suggest you retain a copy for reference.

I Your Name _____ Date _____
Address _____
City _____ State _____ ZIP _____
Telephone Number () _____

II Percom Product RFD 4051 Version _____
Date of Purchase _____ Dealer's Name _____

III Description of Your Equipment
Computer _____ Version _____ Memory _____
Disk System _____ Make of Drives _____
Number of Drives _____ Number of Tracks Each Drive _____
Make and Model of Printer _____
Other Peripherals _____
Disk Operating System _____ Version _____
Other Software _____

(Continued)

***** IN CASE OF DIFFICULTY *****

PLEASE, RE-READ THE INSTRUCTION MANUAL!

Please do not telephone. We cannot guarantee someone knowledgeable about your problem will be available to answer when you call. Moreover, we have found that it is very difficult to understand problems described over the telephone, and even more difficult to solve them while you wait.

If you are unable to resolve your problem, either contact your Percom Retailer for assistance or mail us a letter with a completed Problem Report Form enclosed. A Problem Report Form is included at the end of this manual.

When your letter is *received*, your problem will be assigned to a customer service technician. He will make every effort to respond to your letter promptly. If necessary, he will attempt to duplicate your problem, and will confer with engineers and other technicians as required. He may write or call you for more information.

If you return equipment for repair, please be sure to follow the procedures given below. Be sure to enclose a completed Problem Report with the returned equipment.

***** HOW TO RETURN EQUIPMENT FOR REPAIR *****

Please read the above information under "In Case Of Difficulty" before proceeding to return equipment for repair.

You have done everything you know how to do. You have read and reread the instruction manual and technical memos but you still can't get the thing to work!

Then it is time to let us help. We have yet to find a sick unit that cannot be restored to full health and vigor.

There are a few things you can do that will help us expedite your repair:

- 1: Write or call for return authorization before returning any merchandise. RETURNS WITHOUT AUTHORIZATION WILL BE REFUSED.
2. When you return a unit for repair, enclose a completed Problem Report.

***** NOTE *****

Questions that do not relate to the reason the unit is being returned for repair must be sent in under separate cover.

3. OUT-OF-WARRANTY repairs are performed for a labor charge, parts and shipping. If we find that a unit is functioning properly as received and does not require any service, there will be a CHECKOUT CHARGE plus return shipping and insurance. Do not enclose any payment. The unit will be returned C.O.D. for authorized repairs and shipping.
4. When returning a unit for repair, pack it in a large carton with at least 3" of padding on all sides. We will not attempt to service any unit if there is shipping damage until the claim is settled (a real hassle). Ship prepaid by UPS or INSURED PARCEL POST to the Service Department. The address of the Service Department is given on page iii, the Full Title Page.

We try to turn most repairs around in one or two weeks.

***** HOW TO ORDER MERCHANDISE BY MAIL *****

The following procedures will help us expedite your mail orders. We suggest, however, that you make your purchase from an authorized Percom Retailer whenever possible. If you do not know the name of a nearby Percom Retailer, call our toll-free order number and ask for Sales.

TOLL-FREE PHONE ORDERS: To save you money and insure prompt service, we've installed a toll-free number (see page iii, Full Title Page) FOR PLACING ORDERS ONLY. We cannot transfer calls received on our toll-free number to other departments — please help us serve you better by dialing the correct number.

PROMPT SERVICE: We ship the cheapest, fastest way. We use UPS up to 50 lbs. per item, 100 lbs. per shipment. We use truck-freight for large or heavy shipments. Transportation charges collected on delivery.

COD ORDERS: COD orders are accepted where possible.

OPEN ACCOUNT TERMS: Net 10 days to rated firms.

TEXAS SALES TAX: Texas law requires that we collect 5% sales tax on all shipments in Texas.

MINIMUM ORDERS: We will add a handling charge of \$2.00 to all orders totaling less than \$15.00.

DAMAGED SHIPMENTS: Have carrier note if received in damaged condition, then file claim. About concealed damage: contact carrier for inspection, then file claim. Save the shipping carton.

SER # 2176122

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