Apple Technical Procedures

Apple PC 5.25 Drive

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Section 1 — Basics

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❏ PRODUCT DESCRIPTION

The Apple® PC 5.25 Drive may be used with a Macintosh® SE or Macintosh II to transfer data between 5.25-inch MS-DOS®-formatted disks and 3.5-inch Macintosh-formatted disks. The following additional equipment (sold separately) is required. •

- A file transfer program such as *Apple File Exchange*.

- One of the following expansion cards:

  - Macintosh SE-Bus PC Card, the MS-DOS disk drive controller for the Macintosh SE.

  - Macintosh II PC Card, the MS-DOS disk drive controller for the Macintosh II.

  - A third-party expansion card that is designed to operate with the Apple PC 5.25 Drive.

Connecting the Drive

The Apple PC 5.25 Drive cable plugs into a DB-37 connector supplied with the disk drive controller card.

For the Macintosh SE, install the controller card as described in Section 6, SE-Bus PC Card, of the *Macintosh SE Technical Procedures*. Then plug the Apple PC 5.25 Drive cable into the new DB-37 connector in the expansion port.

For the Macintosh II, install the controller card as described in the owner's manual. Then plug the Apple PC 5.25 Drive cable into the new DB-37 connector at the back of the Macintosh II.

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Section 2 – Take-Apart

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❑ CASE

Materials Required   #2 Phillips screwdriver
              Flatblade screwdriver

Remove   1. Use a flatblade screwdriver to carefully pry the disk insertion lever away from the disk drive (see Figure 1).
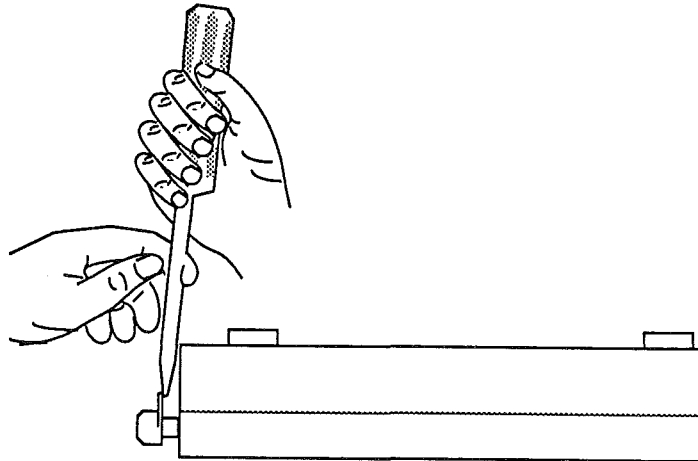
FIGURE 1

2. Turn the disk drive upside down.

3. Remove the six Phillips screws (Figure 2, #1 and #2).

4. Hold the case together and turn the disk drive over.

5. Holding onto the bottom cover, lift the back of the top cover. Pull it slightly forward and up until it clears the interior parts of the drive.

6. Slip the cable out of the slot in the rear of the bottom cover, and remove the disk drive.
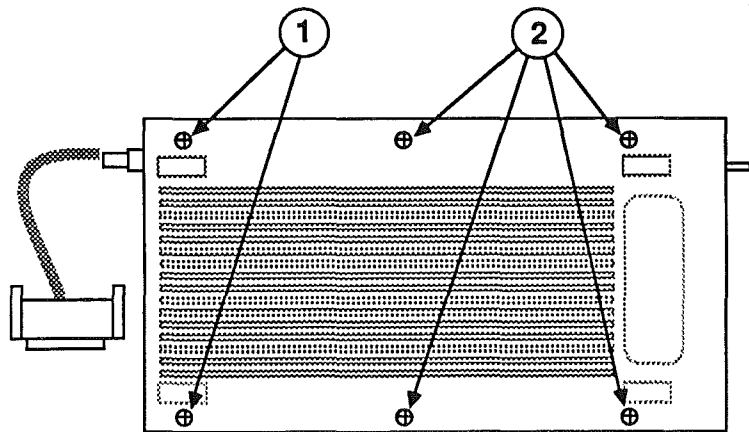
FIGURE 2

Replace

1. Place the disk drive in the bottom cover. Carefully route the cable behind the drive and out of the case. The cable grommet should be seated in the cutout in the case (see Figure 3).

2. Fit the hole in the top cover over the disk lever post, and fit the top cover onto the base.

3. Hold the case together and turn it over.

4. Replace the two longer 5/8-inch Phillips screws (Figure 2, #1) and the four 5/16-inch Phillips screws (Figure 2, #2) in the case bottom.

5. Push the disk insertion lever onto its post.
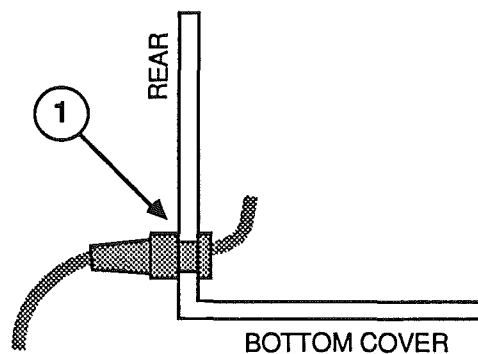
FIGURE 3

❏ SHIELD COVER AND CABLE

Materials Required   #2 Phillips screwdriver

Remove   1. Remove the case.

2. Remove the two Phillips screws (Figure 4, #1) that secure the shield cover to the shield case.
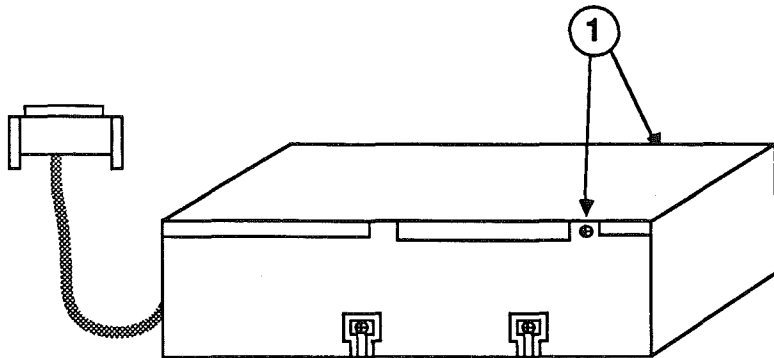
FIGURE 4

3. From the front of the drive, lift the shield cover up and back; then set it aside.

4. Remove the Phillips screw (Figure 5, #1) that secures the cable ground strap to the shield case.

5. Disconnect the cable bus connector from J1 (Figure 5, #2) and the cable power connector from J2 (Figure 5, #3).

Replace   1. Connect the cable bus connector to J1 (Figure 5, #2) and the cable power connector to J2 (Figure 5, #3).

2. Replace the Phillips screw that secures the cable ground strap to the shield case.
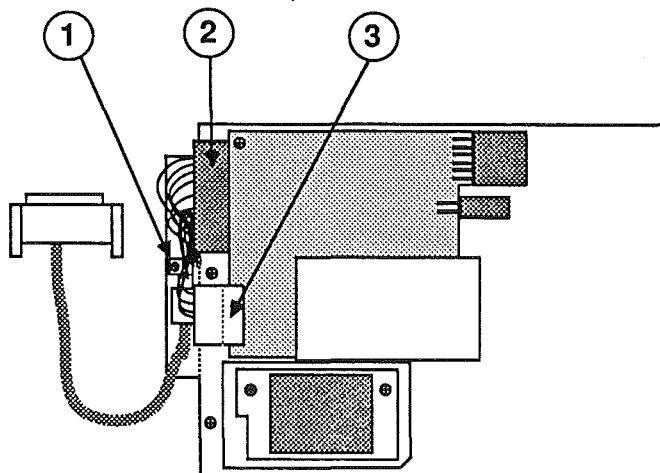
FIGURE 5

3. Align retaining tabs at back of shield cover with cutouts in the shield case (Figure 6, #1), and snap the shield cover into place.

4. Replace the two Phillips screws that secure the shield cover.

5. <u>Replace the case.</u>

SHIELD COVER

REAR OF SHIELD CASE
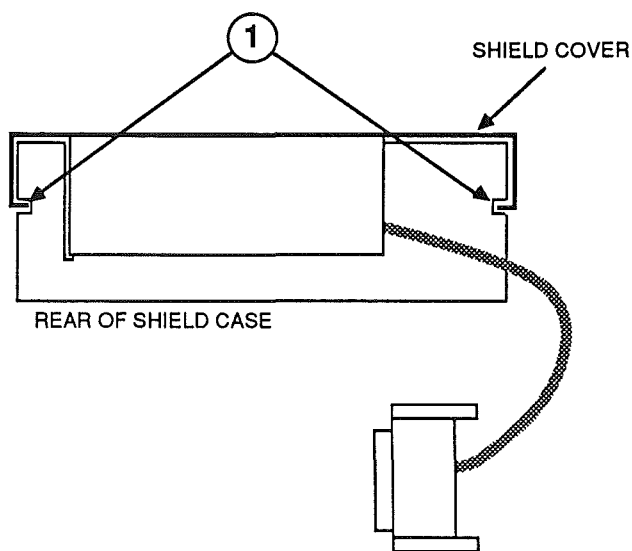
FIGURE 6

❏ MECHANICAL ASSEMBLY

Materials Required   #2 Phillips screwdriver

Remove

1. Remove the case.

2. Remove the shield cover and cable.

3. Remove the four Phillips screws (Figure 7, #1).

4. Lift the mechanical assembly from the shield case.
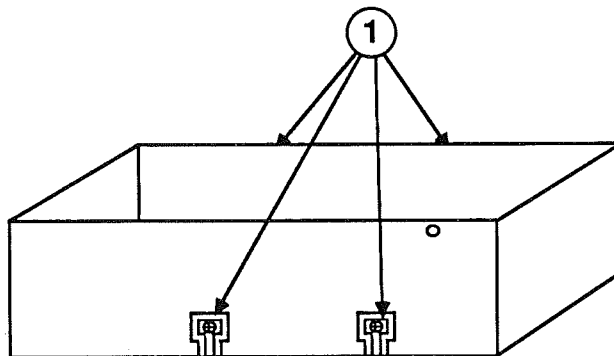
FIGURE 7

Replace

1. Place the mechanical assembly back in the shield case.

2. Replace the four Phillips screws (Figure 7, #1) that secure the mechanical assembly.

3. Replace the shield cover and cable.

4. Replace the case.

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Section 3 – Diagnostics

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❏ INTRODUCTION

The *MacTest™ SE* and *MacTest™ II* programs test an Apple PC 5.25 Drive and an Apple disk drive controller card at the same time. If the system you are testing uses a non-Apple disk drive controller card, replace it with an Apple card before testing.

❏ USING MACTEST SE

Materials Required

MacTest SE diskette
Macintosh SE
Known-good Macintosh SE-Bus PC Card
Known-good Apple PC 5.25 Drive
Double-sided, double-density 5.25-inch diskette with a minimum of 48 tracks per inch

Procedure

MacTest SE tests the Apple PC 5.25 Drive, the Macintosh SE-Bus PC Card, and the expansion port on the Macintosh SE logic board.

1. If you are not using a known-good Macintosh SE to test the Apple PC 5.25 Drive and the Macintosh SE-Bus PC Card, start up *MacTest SE* and run the logic and drive tests. (See "Starting MacTest SE" in Section 4, Diagnostics, of the *Macintosh SE Technical Procedures*.)

   If a Macintosh SE-Bus PC Card is installed, and if *MacTest SE* will not run, remove the card and retest. If all tests pass after the Macintosh SE-Bus PC Card is removed, replace the card.

   If any test fails after the card is removed, repair the Macintosh SE, retest to verify that you have a known-good Macintosh SE, and reinstall the card.

2. If the Macintosh SE-Bus PC Card and Apple PC 5.25 Drive are not installed, turn off the power, and install the Macintosh SE-Bus PC Card and the Apple PC 5.25 Drive. The installation instructions for the Macintosh SE-Bus PC Card are in Section 6, SE-Bus PC Card, of the *Macintosh SE Technical Procedures.*

   After the card is installed, the Apple PC 5.25 Drive cable plugs into the expansion port at the back of the Macintosh SE.

3. Insert the *MacTest SE* diskette into drive one (lower) on the Macintosh SE, and turn the power on to start up *MacTest SE.* (For MacTest SE operating instructions, see Section 4, Diagnostics, of the *Macintosh SE Technical Procedures.*)

4. Pull down the **Options** menu and select **Test Selections**. Click on the **Apple PC 5.25 Drive** check box until an X is displayed in the check box. (You may want to turn off all other tests to reduce testing time.) Then click on **OK**.

5. Insert a 5.25-inch diskette in the Apple PC 5.25 Drive.

   Note: MacTest SE formats the diskette during testing. The diskette does not need to be formatted or blank. Any data on the diskette will be erased.

6. Click on the **Start** button.

   MacTest II will run until the test is complete, or until *MacTest II* detects a failure.

   If the test passes, a message is displayed in the lower portion of the *MacTest II* window.

   If the test fails, *MacTest II* displays a window with troubleshooting instructions. For additional information, see Section 4, Troubleshooting.

   Note: The Apple PC 5.25 Drive test cannot always determine which module caused a test to fail. If the test reports that the drive and/or card is bad, replace one module at a time as described in the Troubleshooting Flowchart in Section 4, Troubleshooting.

❑ USING MACTEST II

Materials Required

The following **known-good** equipment:

MacTest II diskette
Macintosh II
Macintosh II PC Card
Apple PC 5.25 Drive
Double-sided, double-density 5.25-inch diskette with a minimum of 48 tracks per inch

Procedure

MacTest II tests the Apple PC 5.25 Drive, the Macintosh II PC Card, and the expansion slot on the Macintosh II logic board.

1. If you are **not** using a known-good Macintosh II to test the Macintosh II PC Card, start up *MacTest II* and run the logic, drive, and video card tests. (See "Running MacTest SE" in Section 3, Diagnostics, of the *Macintosh II Technical Procedures.*) Complete any needed repairs before you continue.

2. Turn the Macintosh II power off, put on your grounded wriststrap, and install the Macintosh II PC Card and the Apple PC 5.25 Drive.

3. Insert the *MacTest II* diskette into drive one (right) on the Macintosh II, and turn the power on to start up *MacTest II.* (For MacTest II operating instructions, see Section 3, Diagnostics, of the *Macintosh II Technical Procedures.*)

4. If you do not know what expansion slot the Macintosh II PC card is in, pull down the **Options** menu and select **Configuration.** Note the expansion slot number of the Macintosh II PC Card for use in Step 5.

CAUTION: Do not install more than one Macintosh II PC Card in the Macintosh II. The power supply was not designed for two of these cards and could be damaged.

5. Pull down the **Options** menu and select **Test Selections**. Click on the **Apple PC 5.25 Drive** check box until an X is displayed in the check box, and then enter the expansion slot number in the box to the right of the test name. (You may want to turn off all other tests to reduce testing time.) Then click on **OK**.

6. Insert a 5.25-inch diskette in the Apple PC 5.25 Drive.

   Note: *MacTest II* formats the diskette during testing. The diskette does not need to be formatted or blank. Any data on the diskette will be erased.

7. Click on the **Start** button.

   Note: Do not open the disk drive door during testing. Opening the door while testing can damage the diskette and cause *MacTest II* to hang the Macintosh.

   MacTest II will run until the test is complete, or until *MacTest II* detects a failure.

   If the test passes, a message is displayed in the lower portion of the *MacTest II* window.

   If the test fails, *MacTest II* displays a window with troubleshooting instructions. For additional information, see Section 4, Troubleshooting.

   Note: The Apple PC 5.25 Drive test cannot always determine which module caused a test to fail. If the test reports that the drive and/or card is bad, replace one module at a time as described in the Troubleshooting Flowchart in Section 4, Troubleshooting.

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Section 4 — Troubleshooting

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❏ USING THE FLOWCHART

The flowchart includes references to notes on the opposite page. These notes provide additional instructions or referrals to other procedures.

Starting at the top of the flowchart, answer the questions and proceed down the chart. When you arrive at a rectangular box containing a list of actions, perform the actions in the sequence listed. Upon completion of each action, test again to see if the action corrects the problem. **If the problem remains, reinstall the original module before you go to the next action.**

❏ TROUBLESHOOTING FLOWCHART

1. Refer to Section 3, Diagnostics.

2. If you suspect intermittent problems, repeat the test several times.
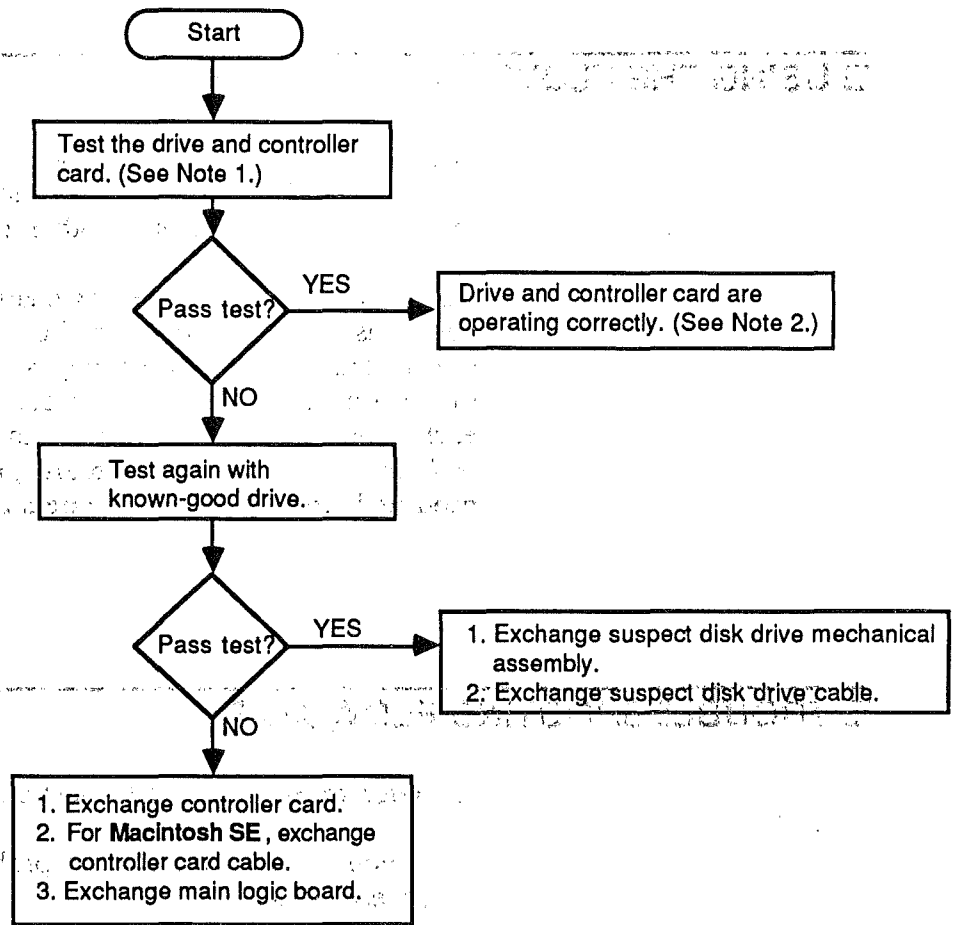
```
                        ┌──────────┐
                        │   Start  │
                        └──────────┘
                              │
                              ▼
                 ┌──────────────────────────┐
                 │ Test the drive and controller
                 │ card. (See Note 1.)       │
                 └──────────────────────────┘
                              │
                              ▼
                           ╱─────╲       YES    ┌──────────────────────────────┐
                          ╱ Pass  ╲─────────────▶│ Drive and controller card are │
                          ╲ test? ╱              │ operating correctly. (See Note 2.) │
                           ╲─────╱               └──────────────────────────────┘
                              │
                             NO
                              │
                              ▼
                 ┌──────────────────────────┐
                 │ Test again with           │
                 │ known-good drive.         │
                 └──────────────────────────┘
                              │
                              ▼
                           ╱─────╲       YES    ┌──────────────────────────────────────┐
                          ╱ Pass  ╲─────────────▶│ 1. Exchange suspect disk drive mechanical │
                          ╲ test? ╱              │    assembly.                          │
                           ╲─────╱               │ 2. Exchange suspect disk drive cable. │
                              │                  └──────────────────────────────────────┘
                             NO
                              │
                              ▼
                 ┌──────────────────────────┐
                 │ 1. Exchange controller card. │
                 │ 2. For Macintosh SE, exchange │
                 │    controller card cable.    │
                 │ 3. Exchange main logic board. │
                 └──────────────────────────┘
```

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Illustrated Parts List

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The figures and lists in this section include all piece parts that can be purchased separately from Apple for the Apple PC 5.25 Drive, along with their part numbers. These are the only parts available from Apple. Refer to your *Apple Service Programs Manual* for prices.
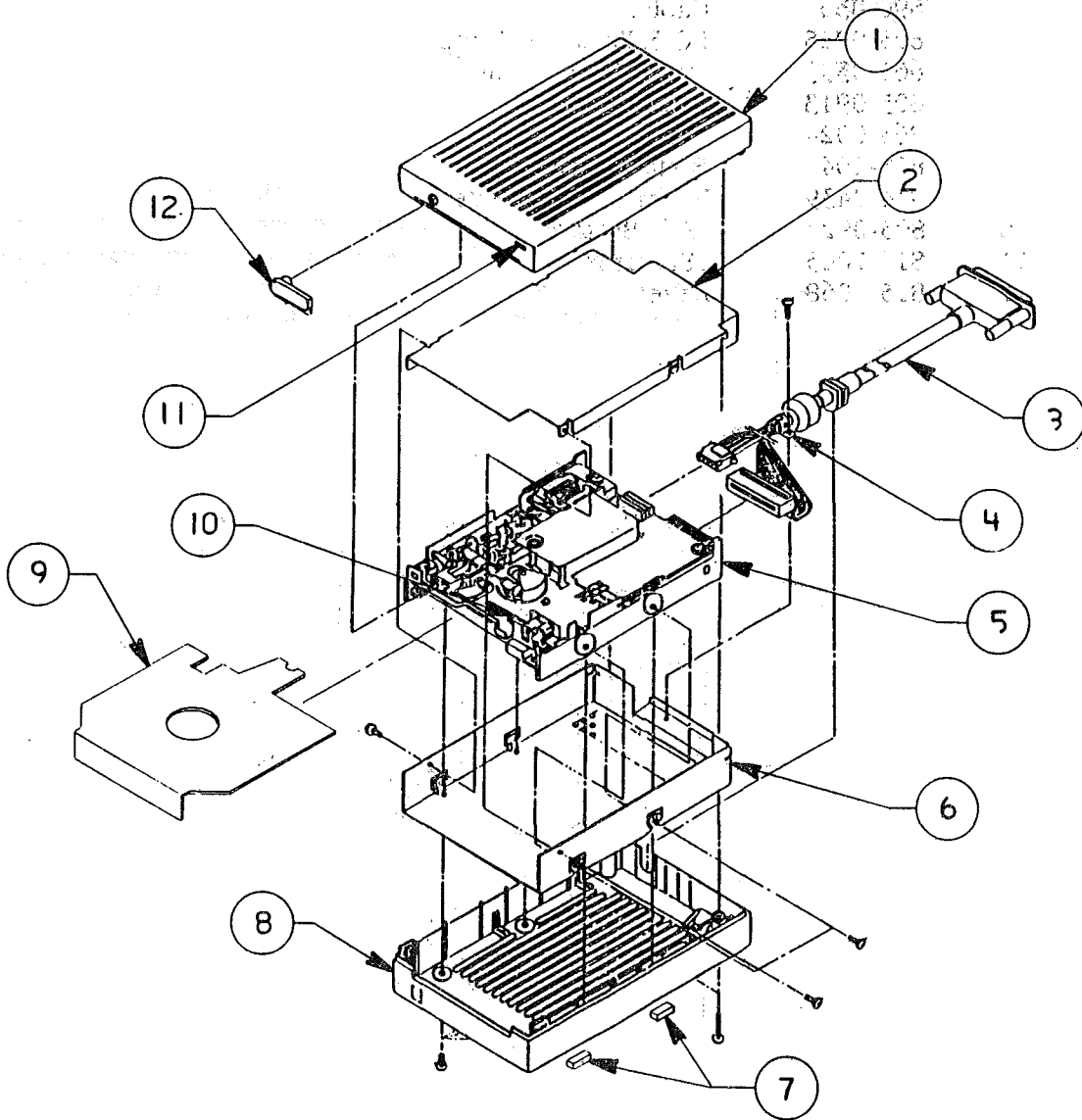
FIGURE 1

❏ EXPLODED VIEW (Figure 1)

Item	Part No.	Description
1	815-1044	Top Cover
2	805-0923	Shield Cover
3	590-0368	Cable, Smoke
4	805-0925	PC 5.25 Cable Clamp
5	661-0393	Drive Mechanism
6	805-0913	Shield Case
7	865-0024	Foot
8	815-1043	Bottom Cover
9	914-0439	Packaging Diskette
10	805-0924	LED Bracket
11	815-1045	LED Lens
12	815-1068	Lever