

Disk IIc

Technical Procedures

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Section 1 – Take-Apart

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- 1.3 Case
- 1.5 Analog Card
- 1.7 Mechanical Assembly
- 1.8 Bezel, Door, and Spring Assembly
- 1.10 LED Cable

Note: If a step is underlined, detailed instructions for that step can be found elsewhere in this section.

□ CASE

Materials Required

#2 Phillips screwdriver

Remove

1. Turn the disk drive upside down.
2. Remove the eight Phillips screws (Figure 1, #1).

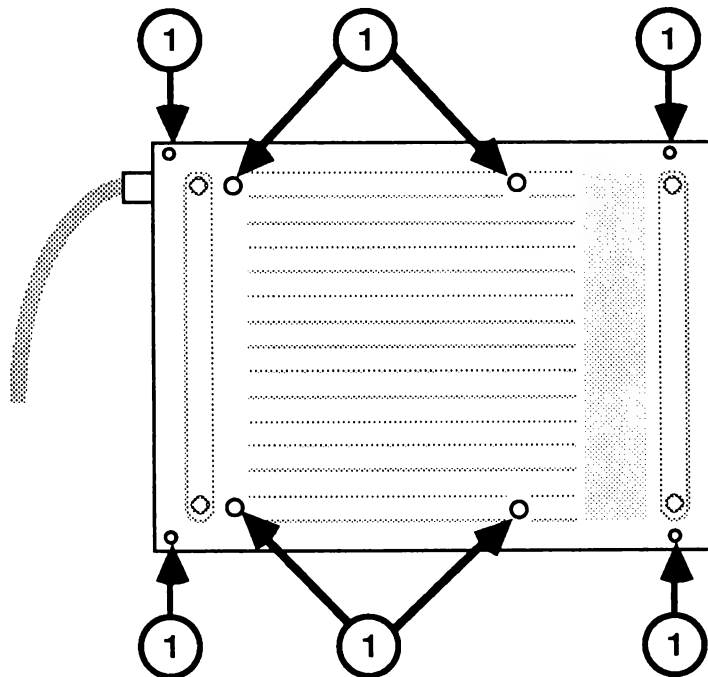


FIGURE 1

3. Hold the case together and turn it over.
4. Remove the top cover.
5. Slip the cable out of the slot in the rear of the case bottom and remove the disk drive from the case.

Replace

1. Place the disk drive into the bottom of the case (shield side up). Carefully route the cable behind the drive and out of the case. The cable grommet should seat into the cut-out in the case.
2. Fit the top cover onto the base.
3. Hold the case together and turn it over.
4. Replace the eight Phillips screws.

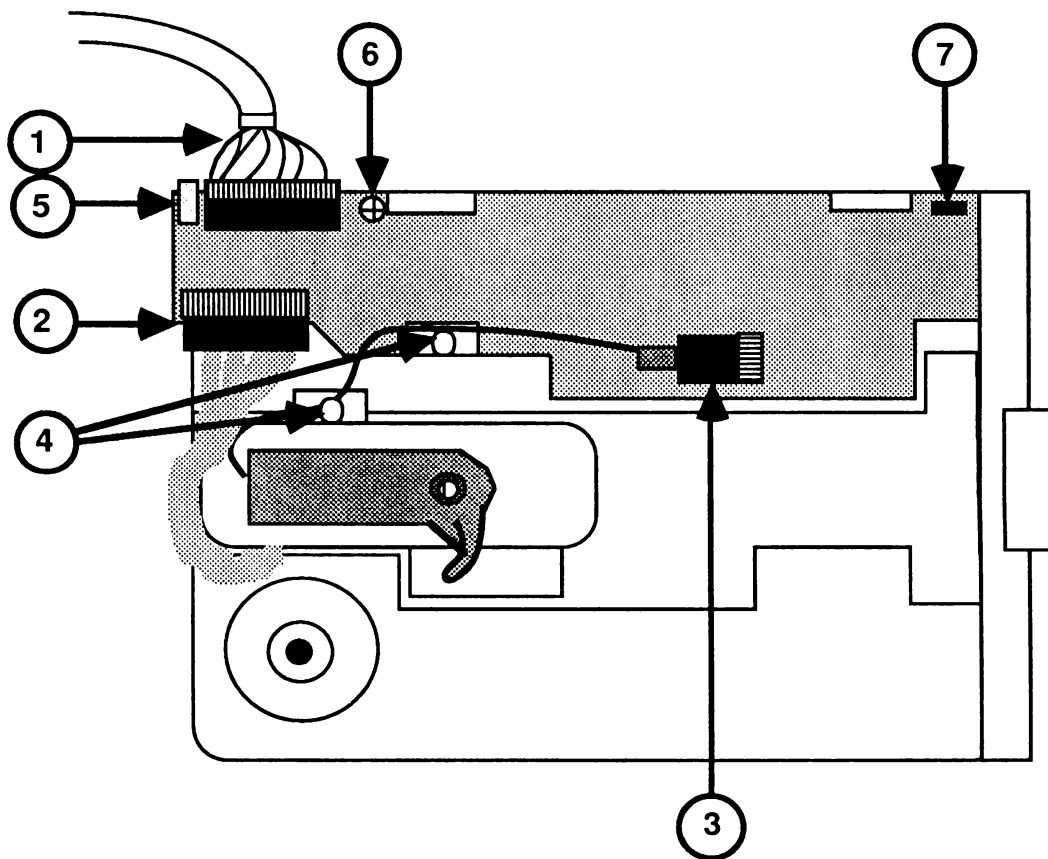


FIGURE 2

□ ANALOG CARD

Materials Required

#2 Phillips screwdriver

Remove

1. Remove the case.
2. Remove the four Phillips screws, two from either side of the disk drive shield.
3. Remove the cable from the disk drive (Figure 2, #1).
4. Pull up on the shield to remove it from the disk drive.
5. On the analog card, disconnect the motor cable from connector J2 (Figure 2, #2).
6. On the analog card, disconnect the read/write head cable from connector J3 (Figure 2, #3) and carefully remove the wire from the clips (Figure 2, #4).
7. On the analog card, disconnect the LED cable from connector J4 (Figure 2, #5).
8. Remove the Phillips screw that mounts the analog card to the disk drive chassis (Figure 2, #6).
9. Tilt the rear edge of the analog card slightly up and slide the card away from the disk drive.

Replace

1. Slide the front edge of the card under the two plastic posts located on the inside of the disk drive bezel. Lay the card on the chassis so that the alignment tab (Figure 2, #7) protrudes through the hole.
2. Replace the Phillips mounting screw.
3. Look at the read/write head cable (Figure 2, #3) that attaches to connector J3 and note that only four wires are connected to the five pin connector. Connect the read/write head cable, making sure that each wire makes contact with a pin on the header.

4. Position the wire and, if necessary, carefully bend the clips.
5. Connect the motor cable to connector J2. The cable should be oriented so that the end of the connector with the single wire is toward the rear of the disk drive.
6. Connect the small end of the LED cable to connector J4 so that the wires are towards the bottom of the disk drive.
7. Replace the shield and corresponding Phillips screws. Make sure the ground clip is installed at the right-rear position.
8. Replace the disk drive cable. Orient the cable so that the two unused positions are at the front of the connector.
9. Replace the case.

□ MECHANICAL ASSEMBLY

Materials Required #2 Phillips screwdriver

Remove

1. Remove the analog card.
2. Replace the shield if returning the mechanical assembly to Apple for exchange.

Note: The disk drive shield must be installed on the mechanical assembly when the disk drive is sent to Apple for exchange. Also, be sure to remove the LED cable.

Replace

1. Remove the shield if present.
2. Replace the analog card

□ BEZEL, DOOR, AND SPRING ASSEMBLY

Materials Required

#2 Phillips screwdriver

Remove

1. Remove the case.
2. Remove the four Phillips screws, two from either side of the disk drive shield.
3. Pull up on the shield to remove it from the disk drive.
4. Remove the four Phillips screws that attach the bezel to the disk drive (two screws on each side).
5. Open the disk drive door by pushing inward. As you pull the bezel from the disk drive, hold on to the spring. It is not firmly attached and may fall out.
6. To remove the door from the bezel, simultaneously push it forwards and rotate the rear edge up. Now pull it backwards out of the bezel.
7. Remove the spring from the door.

If Bezel replacement is necessary, additionally perform the steps in "LED Cable" at the end of this section.

Replace

1. Put the door in the bezel (Figure 3, detail A).

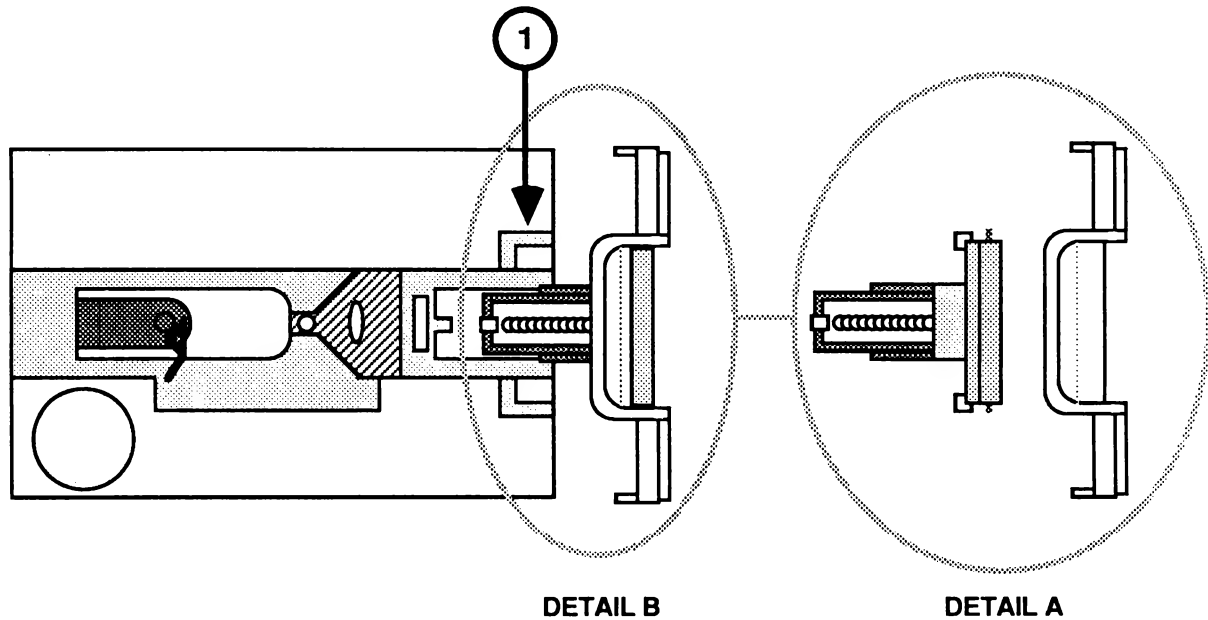


FIGURE 3

2. Hold the door and bezel together. Slide the projecting part of the door partway into the grooves of the hub frame (Figure 3, detail B).
3. As you fit the bezel onto the disk drive:
 - a) Push down the hub frame so that its aluminum arms (Figure 3, #1) fit under the top edge of the bezel.
 - b) If the analog card is present, make sure that it is held in place under the two tiny posts on the inside of the bezel.
4. Install the spring. It helps to guide the spring with one finger under the disk drive door.
5. Close the disk drive door and put the bezel into place.
6. Replace the Phillips screws that attach the bezel to the disk drive.
7. Replace the shield and corresponding Phillips screws. Make sure the ground clip is installed at the right-rear position.

8. Replace the disk drive cable. Orient the cable so that the two unused positions are at the front of the connector.
9. Replace the case.

□ LED CABLE

Materials Required

Jeweler's flatblade screwdriver

Remove

1. Remove the bezel.
2. Press the face of the LED towards the rear of the bezel, while gently prying apart the LED holder with the screwdriver. Do this until the LED snaps free of the bezel.

Replace

1. Slip the LED back into its holder and snap it into place.

Note: This is easier if the flat edge on the LED is aligned with one of the two openings in the holder and support the holder from the front with your fingers.
2. Route the cable as shown in Figures 4, #1 and 5, #1.
3. Replace the bezel.

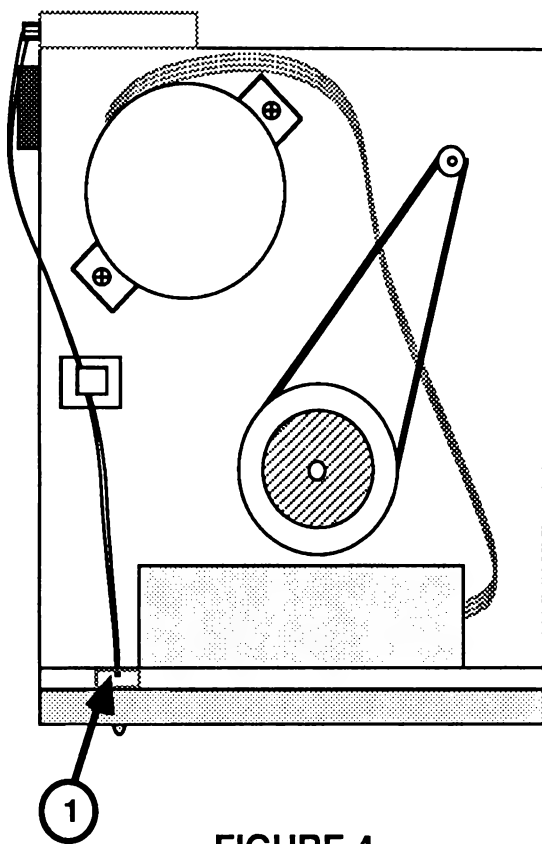


FIGURE 4

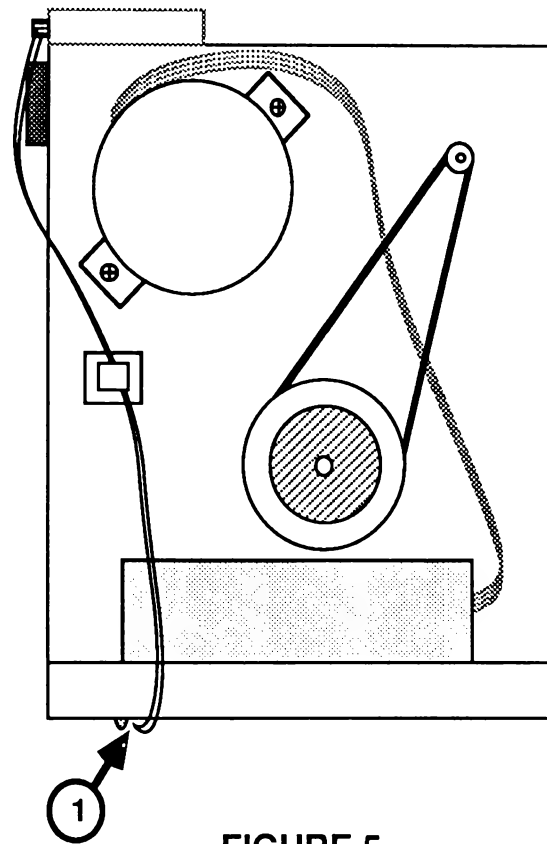


FIGURE 5

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Section 2 – Adjustments

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2.2 DSPEED

Note: If a step is underlined, detailed instructions for that step can be found in Section 1, Take-Apart.

□ DSPEED

This adjustment procedure was written to be used with the *5.25 Floppy Drive Test Assembly*—if the test indicates that you need to adjust the drive speed. All information on setting up and running the diagnostic is in the *Multi-Product Diagnostics Technical Procedures*, Section 2, 5.25-Inch Floppy Drive Test.

Materials Required

Multi-Product Diagnostics Technical Procedures manual
A small (jeweler's) flat-blade screwdriver
Apple IIc with video display
The Disk IIc to be adjusted

Making the Adjustment

To adjust the DSPEED (drive speed):

1. Remove the Disk IIc case.
2. Start the Drive Speed test (see the *Multi-Product Diagnostics Technical Procedures*, Section 2, 5.25-Inch Floppy Drive Test.).
3. Turn the drive upside down, and locate the DSPEED adjustment screw, VR1, on the printed circuit board.

Note: When you make the DSPEED adjustment, keep the disk drive flat.

4. The adjustment is extremely sensitive, so turn the adjustment screw very slowly. The indicator on the screen will move back and forth to show changes in speed.
5. Adjust the speed so that the indicator is within the "good" range—as close to 0 as possible. Let the test run for 30 seconds.

6. Press <Escape> to return to the main menu; then repeat the test.

Does the DSPEED now stay within the "good" range?

- Yes—Press <Escape> to return to the main menu.
- No—If the DSPEED cannot be properly adjusted, return the faulty mechanical assembly to Apple.

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Section 3 – Preventive Maintenance

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- 3.2 Introduction
- 3.2 Read/Write Head
- 3.3 Head Load Button
- 3.4 Motor Drive Belt

Note: If a step is underlined, detailed instructions for that step can be found in Section 1, Take-Apart.

□ INTRODUCTION

The read/write head should be cleaned any time the computer or disk drive is being serviced. The head load button should be replaced whenever it is worn or dirty. The drive motor belt should be inspected any time the disk drive is being serviced.

□ READ/WRITE HEAD

Materials Required

#2 Phillips screwdriver
Cotton swabs
Isopropyl Alcohol (80% alcohol/20% water)

Procedure

To service the read/write head:

1. Remove the case and drive shield.
2. Clean the guide rails with the isopropyl alcohol.
Do not use grease.
3. Inspect the head for worn or dull spots in the ceramic. If you find any, replace the mechanical assembly.
4. Clean the head with the isopropyl alcohol.
5. Move the read/write head assembly back and forth along the full length of its travel. Check for any blockage or friction. If there is any, replace the mechanical assembly.
6. Replace the drive shield and case.

□ HEAD LOAD BUTTON

Materials Required

#2 Phillips screwdriver
Needlenose pliers
Head load button

Procedure

To service the head load button:

1. Remove the case and drive shield.
2. Lift up the head load arm. If the head load button is worn or dirty, squeeze the top part of the load button with small needlenose pliers, and let the button drop down.
3. Insert the new load button through the hole in the shield plate and into the head load arm. Press the button until it snaps into place.
4. Replace the drive shield and case.

❑ MOTOR DRIVE BELT

Materials Required

#2 Phillips screwdriver
Motor drive belt

Procedure

To service the motor drive belt:

1. Remove the case.
2. Turn the drive upside down and locate the belt.
Inspect the belt for cracks, slippage, and elasticity.
If the belt is dry or cracked, or if it slips, continue with step 3.
3. Slip the belt off the pulley.
4. Place the new belt around the motor spindle and then slip it around the pulley.
5. Replace the case.

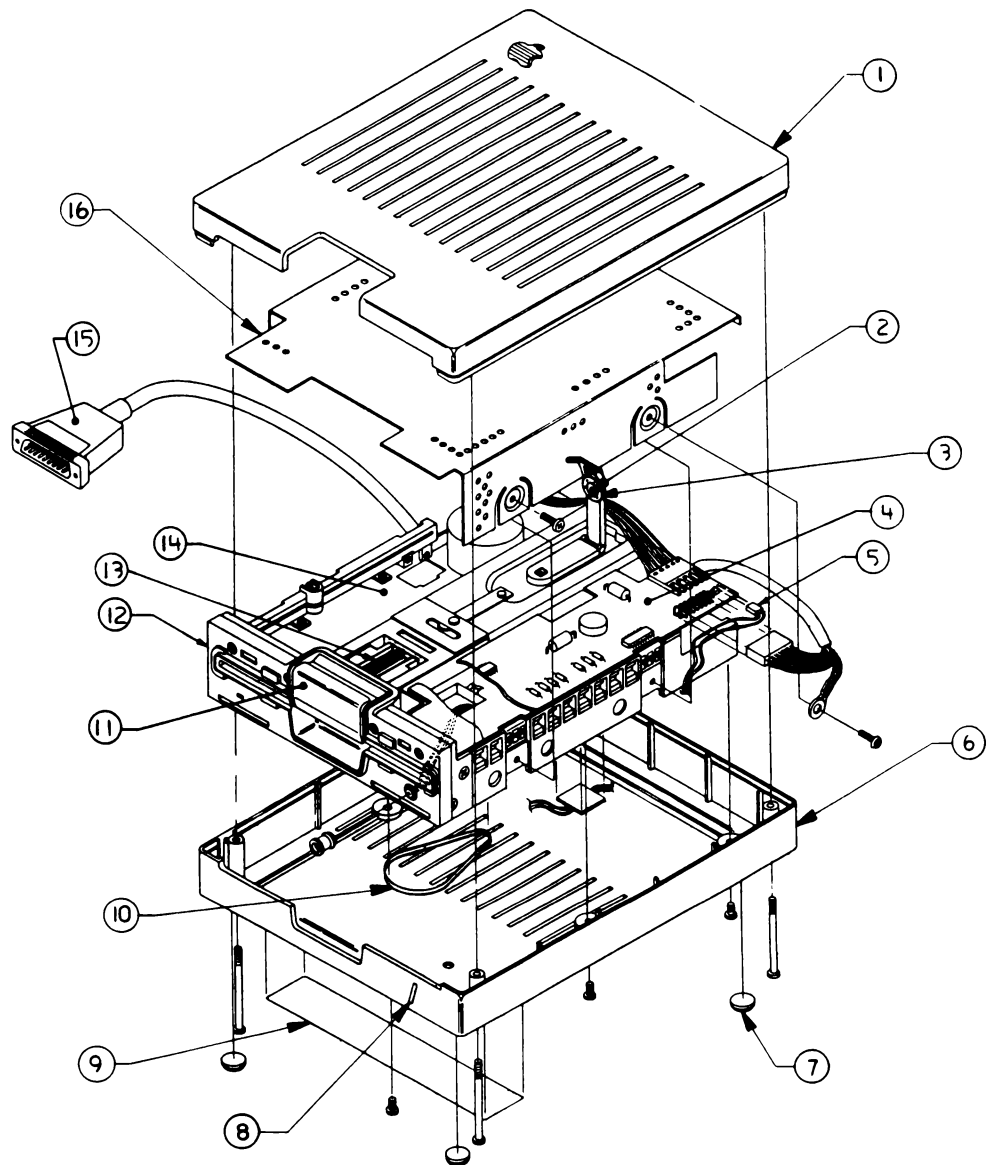
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Section 4 – Illustrated Parts List

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4.3 Finished Goods Assembly (Figure 1)

The figure and list in this section include all piece parts that can be purchased separately from Apple for the Disk IIc, along with their part numbers. These are the only parts available from Apple. Refer to your *Apple Service Programs Manual* for prices.



□ DISK IIc – FINISHED GOODS ASSEMBLY (Figure 1)

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	655-5006	Top Case Assembly, External Drive IIc
2	U815-0064	Load Button
3	805-5038	Upper Head Shield Plate
4	661-0265	Apple IIc Analog Board
5	590-0221	Disk IIc LED Cable
6	655-5007	Bottom Case Assembly, External Drive IIc
7	865-0021	Bumper Foot
8	815-0836	Disk IIc LED Lens
9	655-5005	Label, External Disk Drive IIc
10	U880-0002	Disk Drive Belt
11	815-0811	Disk Drive Door (Latch), Beige
	815-0587	Disk Drive Door (Latch), Platinum
12	815-0810	Disk Drive Bezel
13	870-0023	Spring
14	661-0264	Apple IIc Drive Mechanism
15	590-0212	Disk IIc Cable
16	805-0756	Disk IIc Top Shield

