



Apple Service
Technical Procedures
Apple II/Apple III
Archived Products
Volume Two

Apple Service Technical Procedures Apple II/Apple III Archived Products

Volume Two

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Apple II/Apple III Archived Products

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Dot Matrix Printer

Technical Procedures

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Dot Matrix Printer

Section 1 – Introduction

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- 1.2 Power On and Off
- 1.3 Load Paper
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❑ POWER ON AND OFF

1. Plug the power cable into the back of the printer.
2. Plug the power cable into an electrical outlet.
3. Flip the power switch to ON.
4. Check the front panel. Make sure the POWER light comes on.
5. Flip the power switch to OFF.

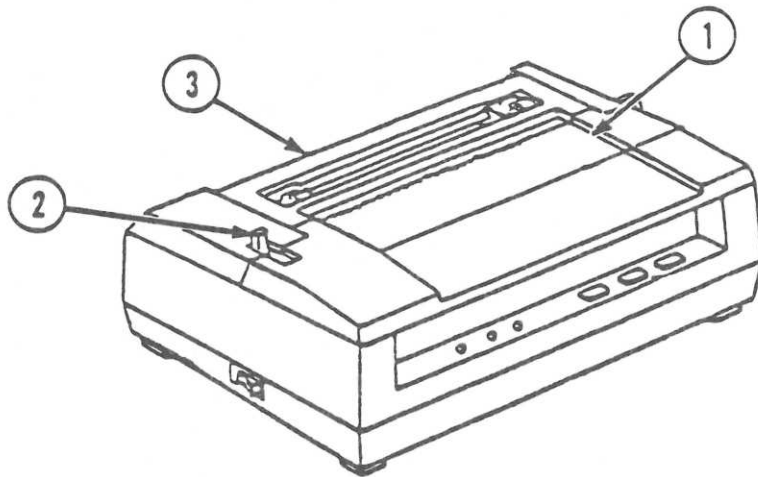


FIGURE 1

□ LOAD PAPER

1. Make sure the power is off.
2. Raise the paper cutter toward you.
(See Figure 1, #1.)
3. Pull the paper release lever forward.
(See Figure 1, #2.)
4. Remove the paper cover. (See Figure 1, #3.)
5. Pull the paper roller shaft forward.
(See Figure 2, #1.)
6. Lift the covers off the right and left tractor sprockets. (See Figure 2, #2.)
7. Make sure the left tractor is all the way over to the left. To adjust the tractor, push back the white lever. (See Figure 2, #3.) Move the tractor all the way over to the left. To lock the tractor in place, pull the white lever back toward you.

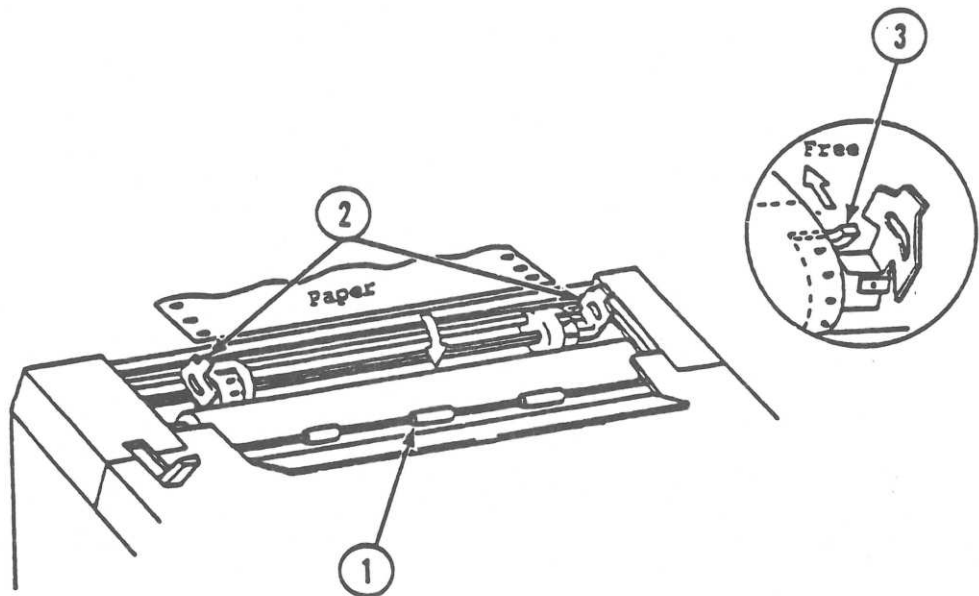


FIGURE 2

8. Insert the paper over sprockets. If the paper doesn't line up with the sprockets, adjust the right tractor until it does.
9. Push down the covers on right and left tractor sprockets.
10. Turn the platen knob until the paper comes through.
11. Push back the roller shaft.
12. Push back the release lever.
13. Put the paper cover back on.
14. Push back the paper cutter.

□ REMOVE PAPER

1. Make sure the power is off.
2. Pull the paper cutter toward you.
3. Remove the paper cover.
4. Pull the release lever forward.
5. Turn the platen knob to back out the paper.

□ REMOVE RIBBON CASSETTE

1. Make sure power is off.
2. Remove the carrier cover. (See Figure 3, #1.)

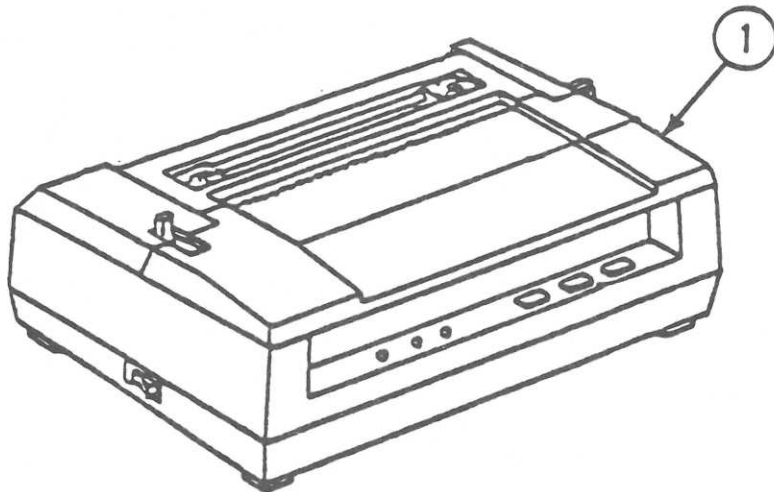


FIGURE 3

3. While pushing down on the cassette latch arms, lift up the cassette.
4. Replace the carrier cover.

□ LOAD RIBBON CASSETTE

1. Make sure the power is off.
2. Remove the carrier cover.
3. Get a ribbon cassette.
4. Put the cassette on the ribbon support plate.
5. Push down on the cassette until it snaps in place.
(See Figure 4, #1.)

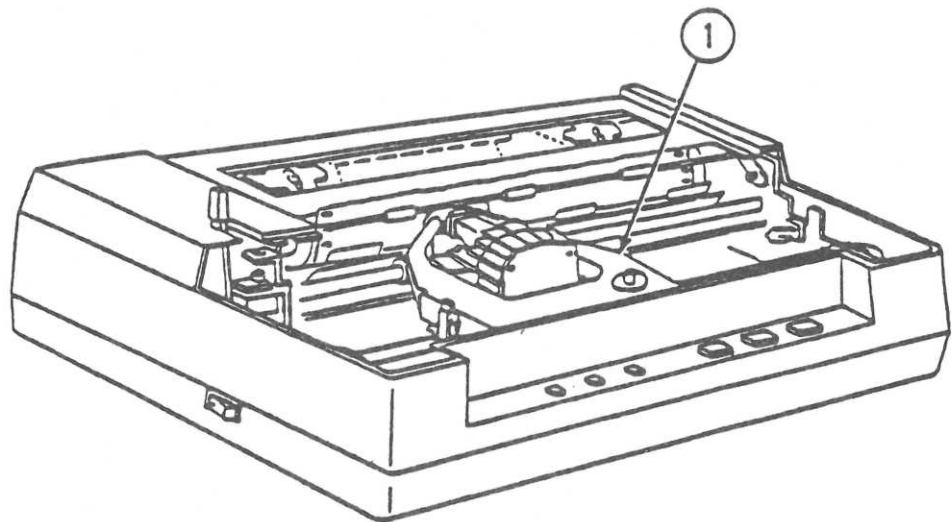


FIGURE 4

6. On the cassette, turn the knob as shown until you hear it "click" and the ribbon is taut. (See Figure 5, #1.)

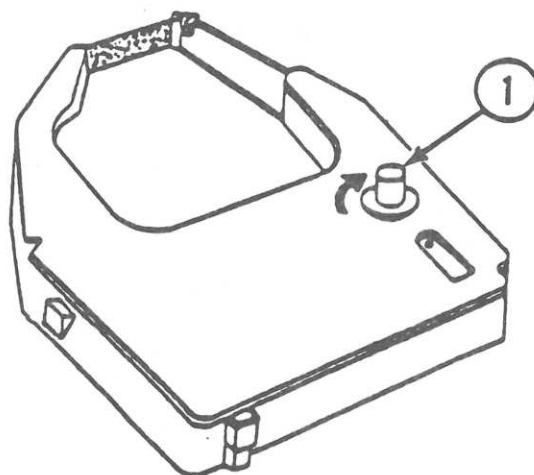


FIGURE 5

7. Replace the carrier cover.

□ RUN SELF-TEST

Note: When you run the self-test, you should always use a brand new ribbon and a single sheet of paper. Before you begin the test, push up the red head adjusting lever on the right side of the printer.

1. Make sure the power is off.
2. Load the paper. Make sure the paper is secure under the roller shaft.
3. To run self-test, press and hold the T.O.F. switch on the front panel, then switch the power on. The printer will then start printing out lines of characters. Each line contains the letters of the alphabet, the numbers 0 through 9, and a series of typographical characters.
4. To end the test, set the power switch to OFF.

□ SET CONFIGURATION SWITCHES

Materials Required

A tiny flat blade screwdriver

Procedures

1. Make sure the power is off.
2. Remove the paper and the carrier cover.
3. Slide the carrier all the way to the left. (See Figure 6, #1.)
4. Locate switches SW 1 and SW 2. (See Figure 6, #2.)
5. Pull the plastic strip out of the way.

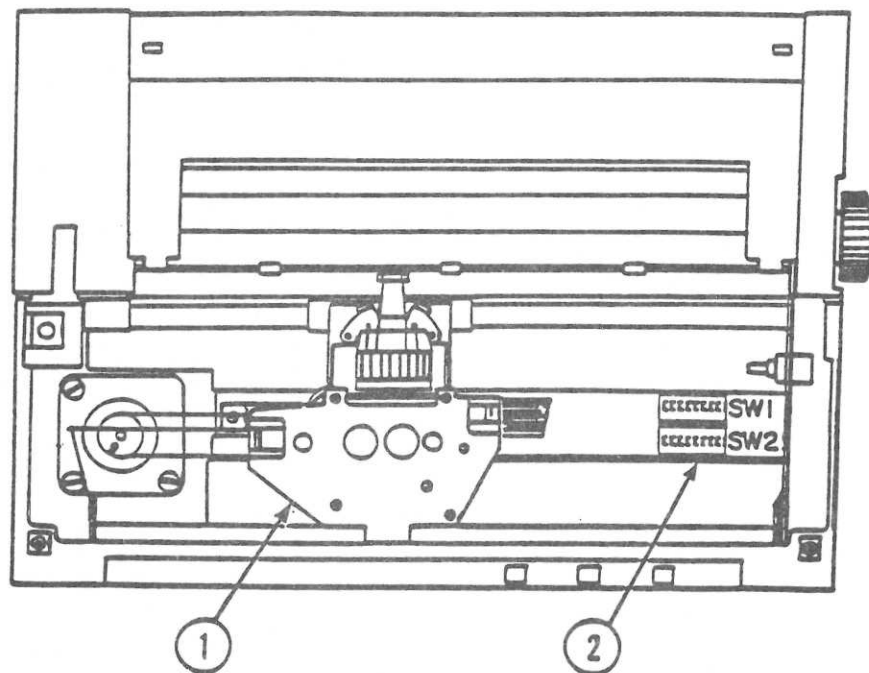


FIGURE 6

6. Using a small screwdriver, set all the SW 1 switches to OPEN. (See Figure 7.)

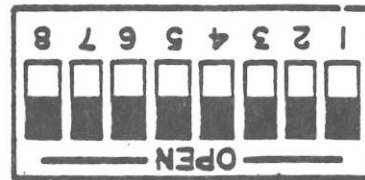


FIGURE 7

7. Using the chart on the next page, set all SW 1 switches to their normal setting.

SW 1 SWITCH SETTINGS

SWITCH	NORMAL SETTING	PURPOSE
1	OPEN	Switches 1-3 select which set of national characters will be printed.
2	CLOSED	If you set the switches to OPEN, CLOSED, OPEN, the printer will print
3	OPEN	United States characters.
4	OPEN	Switch 4 selects paper length. Set the switch to OPEN for paper that is 11 inches long. (66 lines)
5	OPEN	Switch 5 determines if a host computer can put the printer on-line and off-line. If you set the switch to OPEN, the host computer will have this capability.
6	OPEN	The computer sends characters to the printer. Sometimes the printer stores these characters without receiving a command to print them. When the printer's memory is full, it can do one of two things when it receives a print command. 1) It can go to a new line on the page and begin printing. 2) It can print from wherever the print head is at the time the print command is received. Normally, you want the printer to start where it left off, so set switch 6 to OPEN.
7	CLOSED	The computer tells the printer to start printing by sending a print command. There are a number of print commands. They include Carriage Return, Linefeed, Vertical Tab, and Formfeed characters. Normally, you want any of these characters to start printing. So set Switch 7 to CLOSED. If Switch 7 is set to OPEN, only a Carriage Return character will start printing.
8	OPEN	If the host computer sends a Linefeed following the Carriage Return, set switch to OPEN. If host does not send the Linefeed, the printer will add a Linefeed when switch is CLOSED.

8. When you finish setting the switches, make sure SW 1 looks like this:

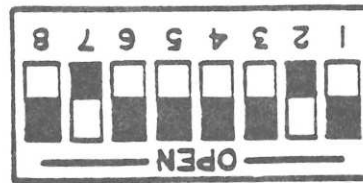


FIGURE 8

9. Using a small screwdriver, set all SW 2 switches to OPEN.
10. Using the chart on the next page, set all SW 2 switches to their normal setting.

SW 2 SWITCH SETTINGS

SWITCH	NORMAL SETTING	PURPOSE
1	CLOSED	The number zero can be printed with a slash through it. This way the user won't confuse it with the letter O. Set the switch to CLOSED to print slashed zeroes.
2	OPEN	This switch determines the size of the printer's memory. To get the largest memory possible, set this switch to OPEN. CLOSED is only 1 line buffer.
3	Not Used	The printer doesn't use these switches.
4	Not Used	It doesn't matter if they are OPEN or CLOSED.
5	CLOSED	Set to OPEN for 10 characters per each inch regardless of the size of each character. Set to CLOSED to have the printer adjust spacing for character size. Other print modes are software selectable.
6	CLOSED/ OPEN	This switch tells the printer to expect either a 7-bit or 8-bit data from the computer. If you're using an interface that uses 7-bit data, set it to CLOSED. If you're using an 8-bit interface, set it to OPEN.
7	CLOSED	If this switch is set to CLOSED, the printer will be automatically on-line (SEL LIGHT) whenever it is turned on. If you want the printer to be off-line, (NOT SEL) however, set it to OPEN.
8	OPEN	If this switch is set to OPEN, the printer will be able to print in both directions. If you set it to CLOSED, the printer will only be able to print from left to right.

11. When you finish setting the switches, make sure SW 2 looks like this:

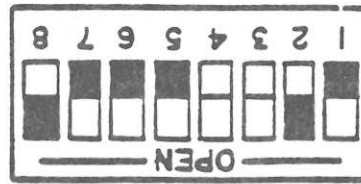


FIGURE 9

12. Push the plastic strip back over the switches.
13. Replace the carrier cover.
14. Run the self test.

□ PERIODIC MAINTENANCE

You should clean the printer as required. You should lubricate the printer only once a year.

1. Make sure the power is off.
2. Remove the paper cover and the carrier cover.
3. Remove the paper and ribbon cassette.
4. On the carrier shaft, wipe off any dirt with dry gauze or absorbent cotton. (Figure 10, #1.)
5. On the lubrication ring, apply a small amount of lubrication oil. (Figure 10, #2.)

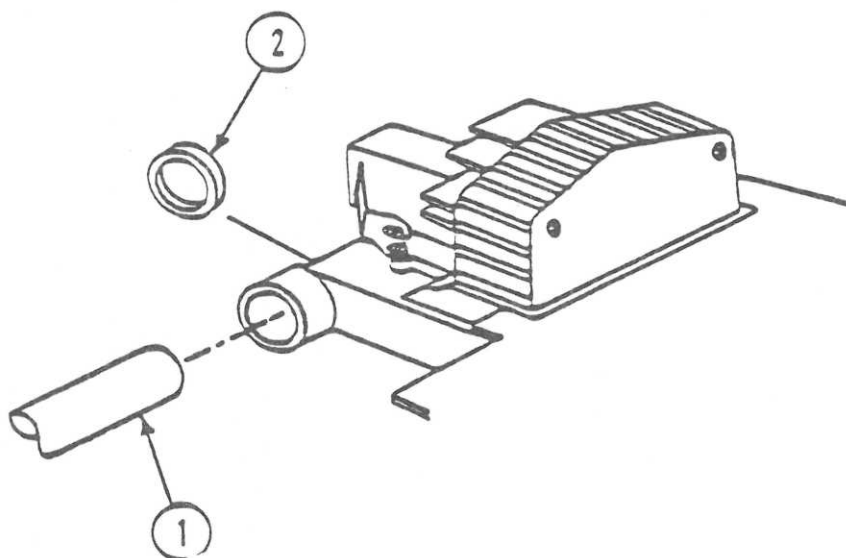


FIGURE 10

6. Find the detector plate. It is on the left front side of the printer, hidden just below the guide rail. (Figure 11, #1.)

7. Using a brush, remove any paper dust.
(Figure 11, #2.)

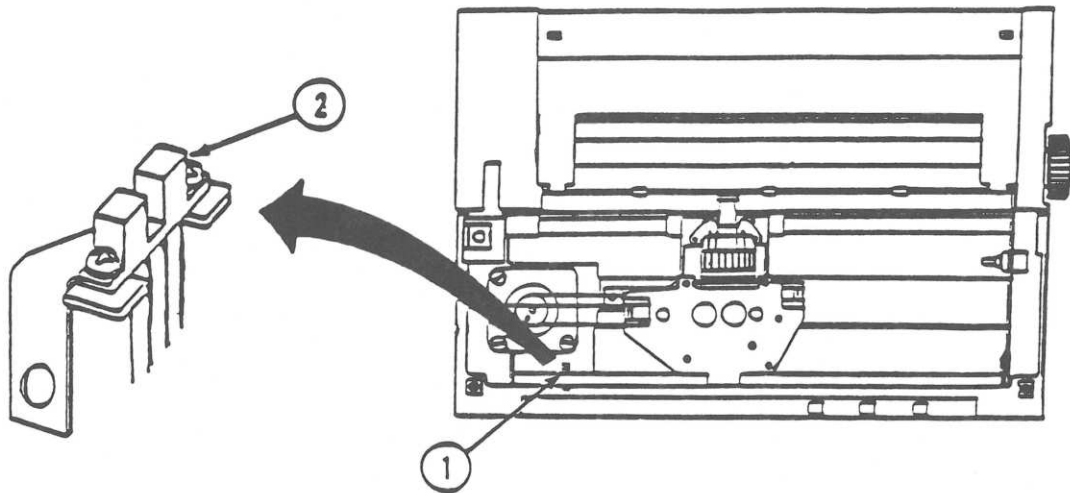


FIGURE 11

8. Clean the dot head (Figure 12, #1) with a low residue cleaner, such as isopropyl alcohol or freon, and a lint-free cloth.

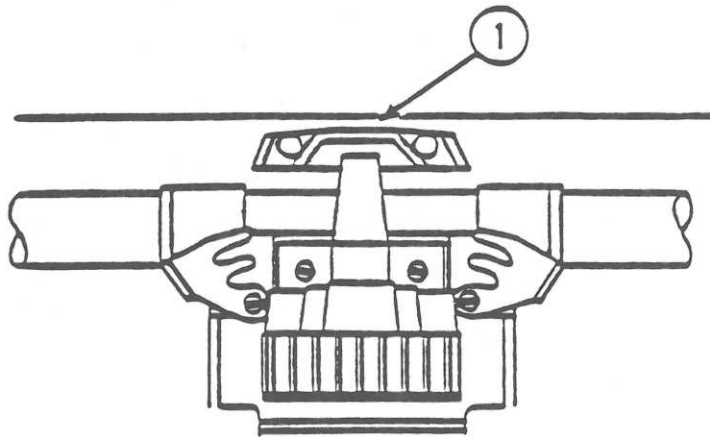


FIGURE 12

9. Replace the ribbon cassette.

Dot Matrix Printer

Section 2 – Take-Apart

□ CONTENTS

2.3	Switch Panel
2.6	Ribbon Wire
2.10	CPU PC Board
2.14	Dot Head
2.15	Adjustment
2.16	Carrier Wire
2.26	Mechanical Assembly
2.30	Carrier Motor
2.32	Transformer
2.34	Carrier Motor Driver Transistor

□ SWITCH PANEL

Materials Required

Two Phillips screwdrivers (#1, #2)
Small flat blade screwdriver

Remove

1. Remove the power cord from printer.
2. Remove the carrier cover.
3. Pull off the platen knob. (See Figure 1, #1.) If it doesn't come off easily, place the blade of a flat blade screwdriver in the slot of the shaft of the platen knob (i.e., where the knob attaches to the platen). Twist the screwdriver, thereby widening the knob so you can pull it off.

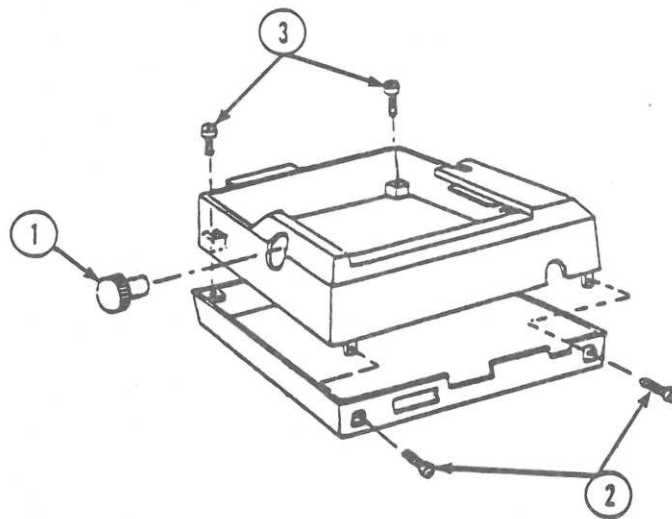


FIGURE 1

4. To remove the top cover, remove the two screws at the rear of printer. (See Figure 1, #2.)
5. Remove the two screws at the front of printer. (See Figure 1, #3.)
6. Lift the top cover up. Place it face down on the table.

7. Remove the six screws from the back of the switch panel. (See Figure 2, #1.)

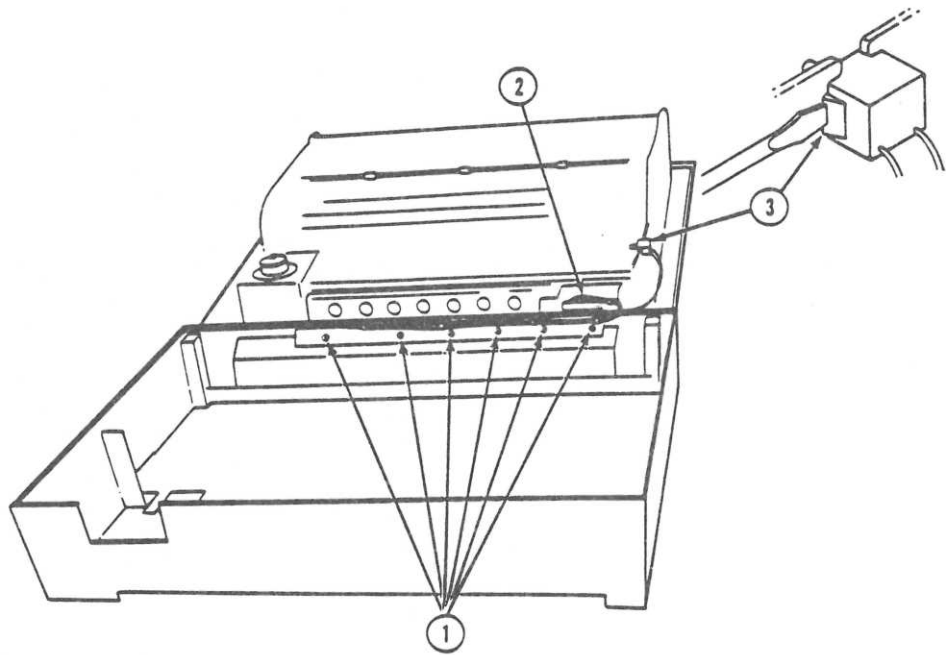


FIGURE 2

8. Pull the switch panel connector from the CPU board. The connector is in the "well" at the right front of the printer. Reach down into the "well" to find it. If you have trouble getting the connector free, carefully use a flat bladed screwdriver to pry it loose. (See Figure 2, #2.)
9. Using a flat blade screwdriver, depress the latches on both sides of the limit switch and push the switch in toward the center of the printer. (See Figure 2, #3.) Lift the wire free from the slot.
10. Pull the switch panel free.

Replace

1. Put the switch wire back into the slot. Push the limit switch back until it clamps in place. It should be snug with side frame.
2. Attach the switch panel connector to the CPU board.
3. Replace the six screws in the back of the switch panel.
4. Pull the top cover back over the printer.
5. Replace the carrier cover and the platen knob.
6. Plug the printer back in.
7. Power on. Check that power lamp lights.

□ RIBBON WIRE

Materials Required

Small Phillips screwdriver

Remove

1. Remove the power cord.
2. Lift off the carrier cover and pull off the platen knob.
3. Lift off the top cover. Set it face down.
4. For easier access to the ribbon wire, disconnect the top cover from the printer. To do this, pull the switch panel connector from CPU board. Push the limit switch in toward center of board and lift the wire free. Remove the top cover and set it out of the way.
5. Remove the ribbon cassette.
6. Remove the four cassette mount plate fixing screws. (See Figure 3, #1.)

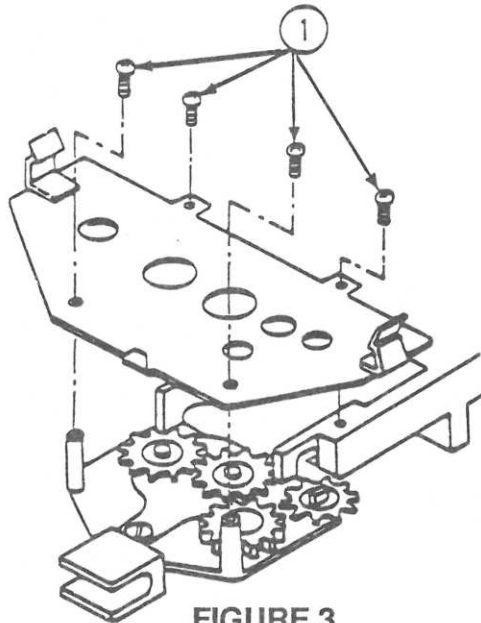


FIGURE 3

7. Slowly lift off the cassette mount plate.

Note: There are springs beneath the cassette mount plate (See Figure 4). They may pop out when you lift up the mount plate.

8. Pull up the ratchet gear and ratchet spring. (See Figure 4, #1.) If they don't come off easily, carefully pry them off with a flat blade screwdriver.

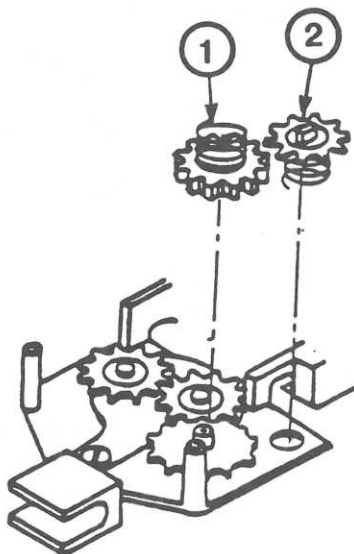


FIGURE 4

9. Pull off the cassette drive gear and the ribbon spring. (See Figure 4, #2.)
10. Notice how the ribbon wire is wrapped around the ribbon pulley gear. (See Figure 5, #1.) Also, notice how the ribbon wire goes through the carrier assembly. This will help you when you have to replace the ribbon wire.

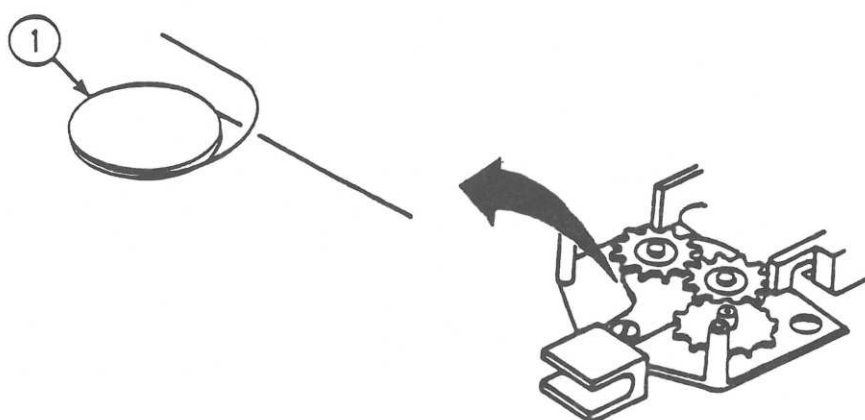


FIGURE 5

11. Loosen the screw on the ribbon wire arm on the left side of the printer (See Figure 6, #1.) Just give it a few turns to ease the tension on the wire.

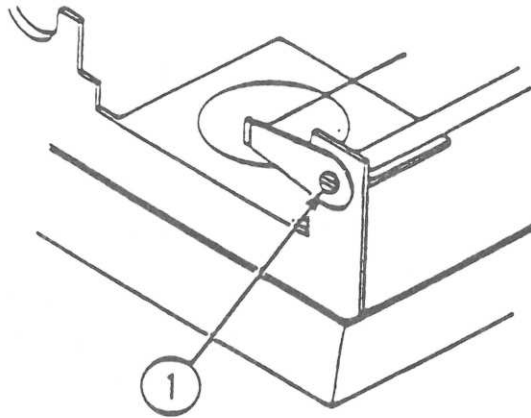


FIGURE 6

12. Remove the wire from the wire holder on the right side of the printer. (See Figure 7, #1.)

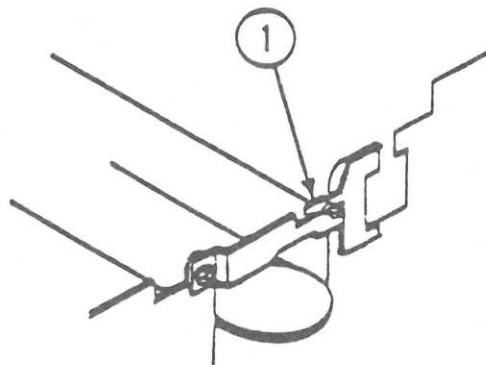


FIGURE 7

13. Remove the other end of the wire from the wire holder on the left side of the printer.
14. Work the wire free from the ribbon pulley gear. Pull the wire out of the printer.

Replace

1. Attach one end of the ribbon wire to the wire holder on the right side of the printer.
2. Work the wire around the pulley gear as shown. (See Figure 8, #1.)

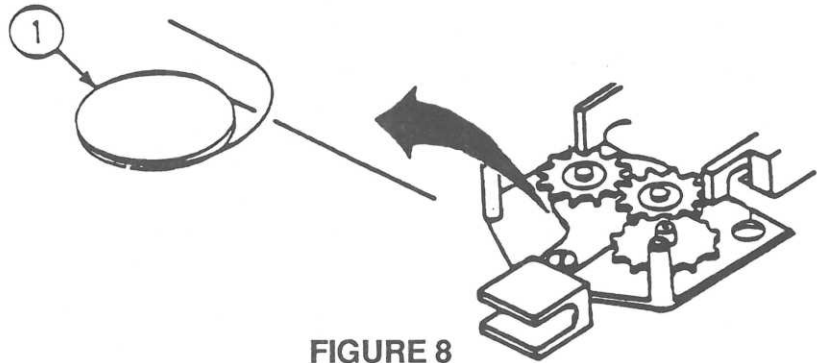


FIGURE 8

3. Attach the other end of the ribbon wire to the wire holder on the left side of the printer.
4. Tighten the ribbon wire arm.
5. Replace the ratchet spring and ratchet gear. (See Figure 9, #1.)

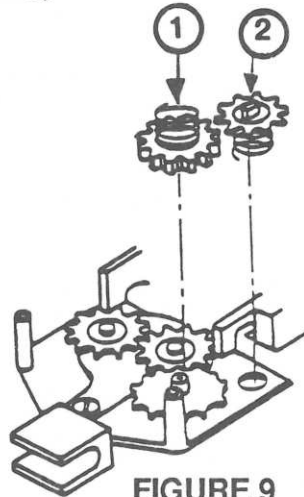


FIGURE 9

6. Replace the ribbon spring and cassette drive gear. (See Figure 9, #2.)
7. Replace the cassette mount plate and ribbon cassette.
8. Replace the top cover, carrier cover, and platen knob.
9. Run the self-test.

□ CPU PC BOARD

Materials Required

5.5mm Nutdriver
8mm Nutdriver
Phillips Screwdriver

Remove

1. Disconnect the power cord.
2. Remove the carrier cover, the paper cover and the platen knob.
3. Remove the top cover. Be sure to detach the switch panel connector from the CPU PC board. Put the cover somewhere out of the way.
4. Slide the carrier all the way to the right.
5. Loosen, but do not remove, the metal clip and gently pull up the ribbon until you can reach the dot head connector. (See Figure 10, #1.)

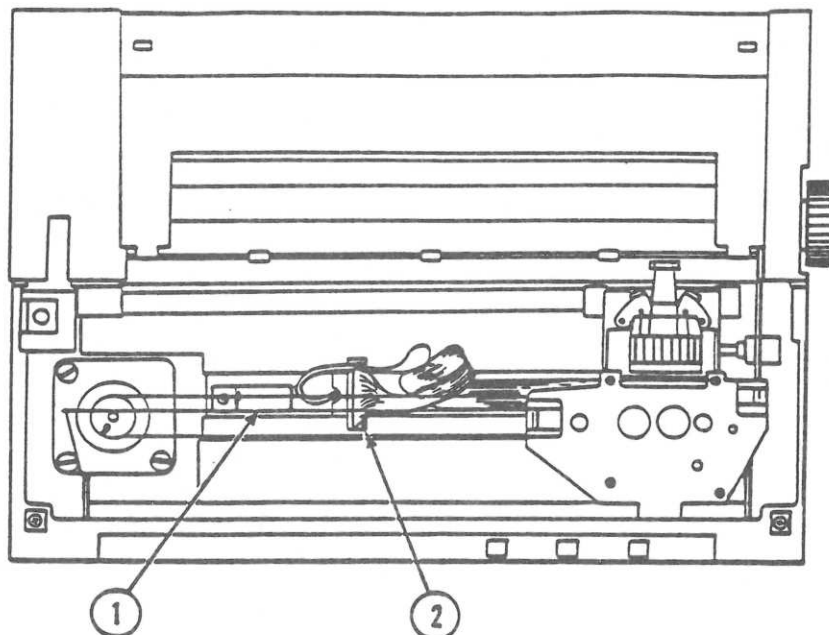


FIGURE 10

6. Gently work free the dot head connector. (You might use the needle nose pliers to grasp the connector.) (See Figure 10, #2.)

7. Tuck the dot head connector under the cable so it stays out of the way.
8. Using a pad or cushion for protection, set the printer on its back. (See Figure 11.)

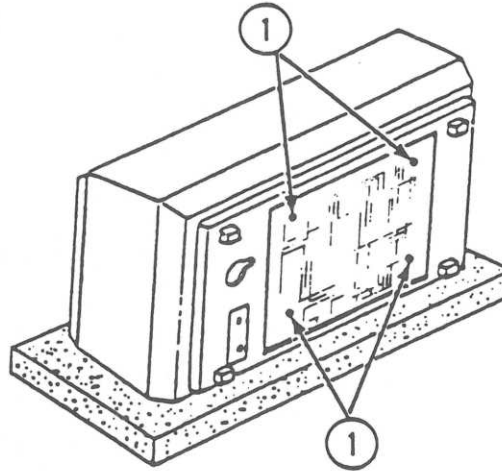


FIGURE 11

9. Use a 5.5mm nutdriver to remove the four nuts from the bottom panel.
10. Pull off the panel.
11. Use an 8mm nutdriver to remove the four CPU PC board nuts. (See Figure 11, #1.)
12. Gently pull the board toward you. This will help you reach the plastic connectors on the board.
13. Using your fingers, work off the plastic connectors. (Do not pull on cable.) As you disconnect them, note the position of each connector.

CAUTION: *The board can be damaged by static electricity.*

14. When you have all the connectors off, lay the board down on table.
15. Slide the chassis grounding strap (Figure 12, #1) off the ground lug.

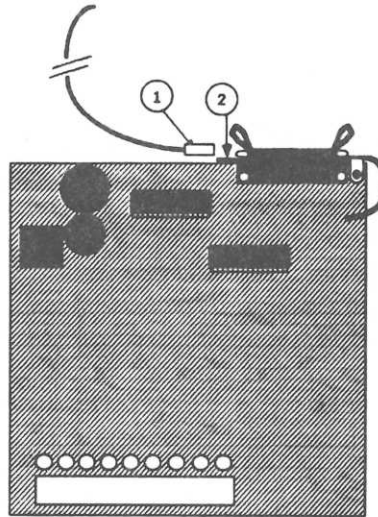


FIGURE 12

IMPORTANT: *Leave the ground lug (Figure 12, #2) attached to the board. If you send the board to Apple for exchange, all ground lugs must be present on the board.*

16. To avoid damaging the board, be careful not to handle the surface of the board. When you carry away the board, be sure to hold it by its edges.

Replace

1. Line up the board with printer.
2. Connect the grounding strap.
3. Connect the six plastic connectors.
4. Replace the four CPU PC board nuts.
5. Push the bottom window back into place. Connect the four window nuts.

6. Turn the printer right side up.
7. Push the dot head connector back into CPU PC board. (See Figure 13, #1.)

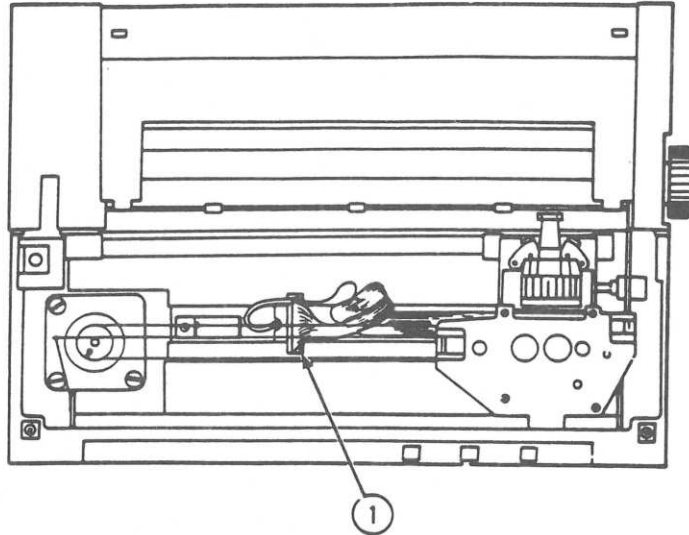


FIGURE 13

8. Fold the dot head cable under the metal clip. Tighten down the metal clip.
9. Slide the carrier back and forth a few times. It should slide freely from end to end. If the carrier catches on the metal clip, go back and re-fold the dot head cable.
10. Replace the top cover. Be sure to plug the switch panel connector back into the CPU PC board.
11. Replace the carrier cover, the paper cover, and the platen knob.
12. Turn the power on.
13. Perform the self-test.

□ DOT HEAD

Materials Required

.06 mm feeler gauge

Remove

1. Disconnect the power cord.
2. Remove the carrier cover.
3. Remove the ribbon cartridge.
4. To free the dot head, slide out both dot head latches. (See Figure 14, #1.)

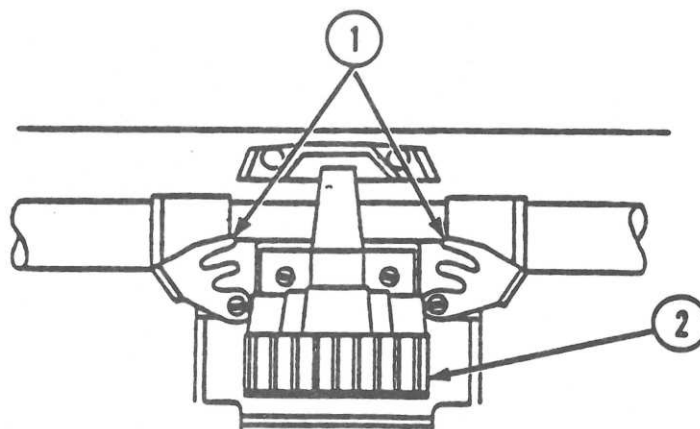


FIGURE 14

5. Pull up the dot head. (See Figure 14, #2.) If you have trouble getting it out, pull the paper roller shaft forward. Ease the dot head around the roller shaft.

Replace

1. Push in the dot head. If you have trouble getting it in, pull the paper roller shaft forward. Ease the dot head around the roller shaft.
2. To lock the dot head in place, slide in the two dot head set latches.

Adjust

1. Push in on the head adjusting lever until it is pointing up. (See Figure 15, #1.)

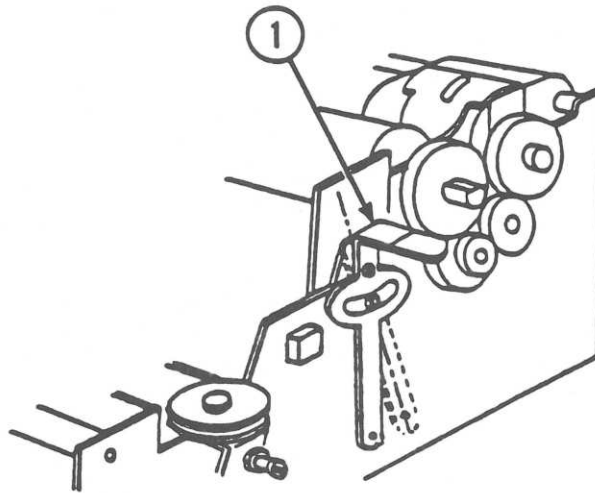


FIGURE 15

2. Using a feeler gauge, check that the gap between the head needle and the platen is .06mm or .024 +/- .001 inches. (See Figure 16, #1.) This is the right gap for a single sheet of paper. Try sliding through the platen a single sheet of paper. It should go through with just a little drag.

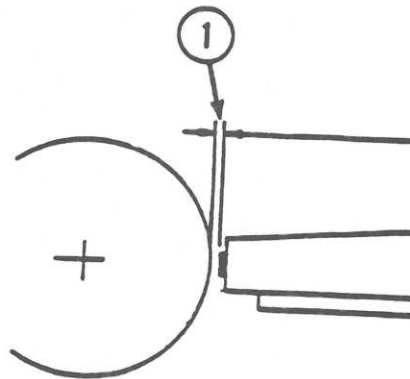


FIGURE 16

3. If the gap is off, adjust the head adjusting lever until the gap is correct.

□ CARRIER WIRE

Materials Required

Small Phillips screwdriver
Small flat blade screwdriver
Needlenose pliers
Adjustable wrench
Tension gauge
Pulley Remover
Ruler

Remove

1. Disconnect the power cord.
2. Remove the paper cover, the carrier cover, and the top cover. Set the top cover somewhere out of the way.
3. Remove the dot head.
4. Remove the two screws holding the dot head connector. (See Figure 17, #1.)

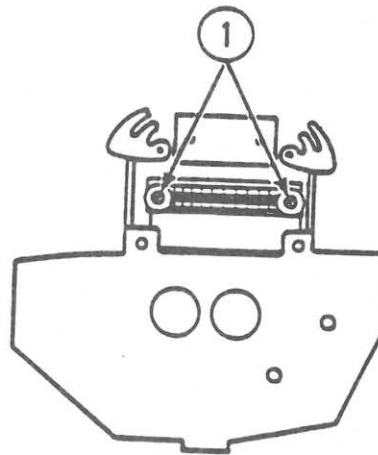


FIGURE 17

5. Lift up the connector and move it out of the way.
6. Free both ends of the ribbon wire. Loop the ends over the carrier and tie them together out of the way.

7. Remove the screw on the left end of the carrier guide shaft (See Figure 18, #1) and set aside the ribbon wire arm.

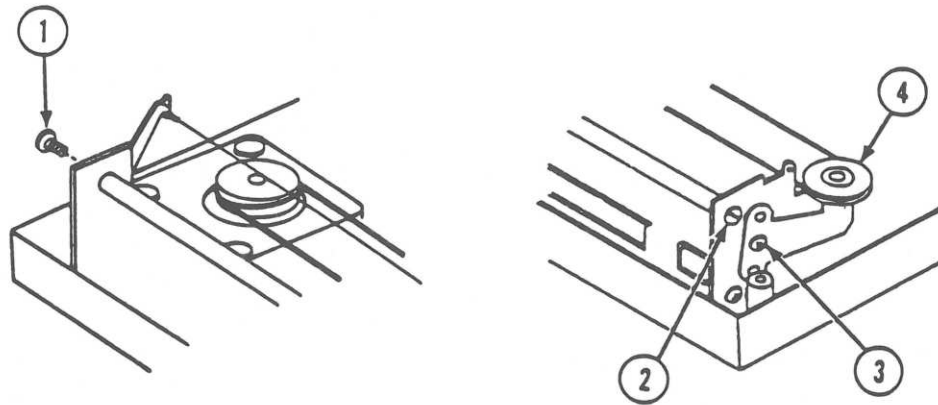


FIGURE 18

8. Remove the screw on the right end of the shaft.
(See Figure 18, #2.)
9. Pull out the carrier guide shaft.
10. Move the carrier to the right side.

11. Use a phillips screwdriver to remove the screw from the top of the motor pulley.
(See Figure 19, #1.)

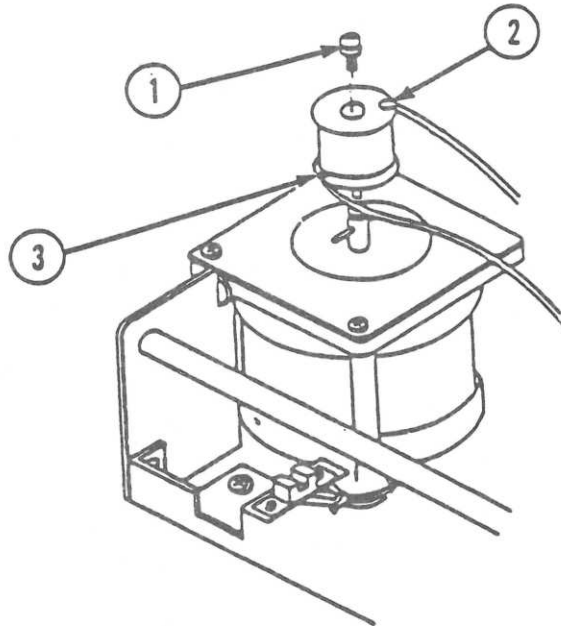


FIGURE 19

Note: The pulley can be stopped from turning by holding the carrier in place.

12. Loosen the screw on the tension arm.
(See Figure 20, #3.)

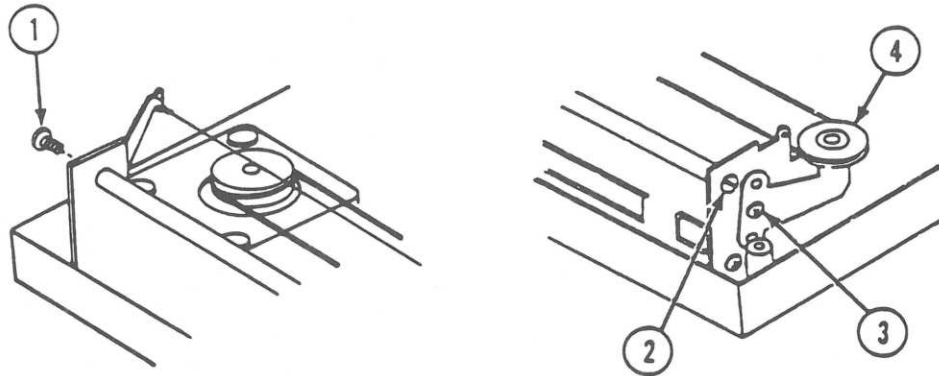


FIGURE 20

13. Slip off the wire from the idler pulley.
(See Figure 20, #4.)
14. Remove the top end of the carrier wire.
(See Figure 19, #2.)

15. Use the pulley remover to take off the motor pulley. Slide the pulley remover onto the top of the pulley and turn the screw clockwise until the pulley is free. (See Figure 21.)

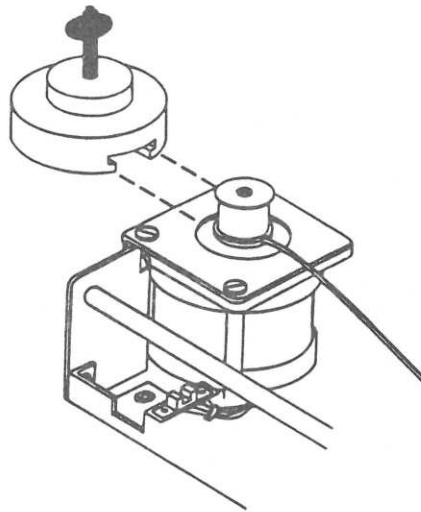


FIGURE 21

Note: At this time, make sure that two copper shims are on the arms of the motor pulley shaft.

16. Unwind the carrier wire.
17. Remove the bottom end of the carrier wire from the motor pulley. (See Figure 22, #3.)

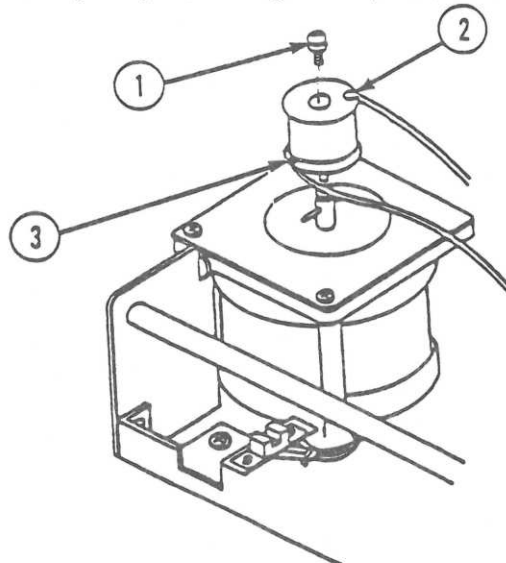


FIGURE 22

18. Raise up the carrier.

19. Using an adjustable wrench, hold the nut on the right side of the carrier wire in place. (See Figure 23, #1.) Using a needlenose pliers, remove the wire nut on the left side of the carrier wire. (See Figure 23, #2.)

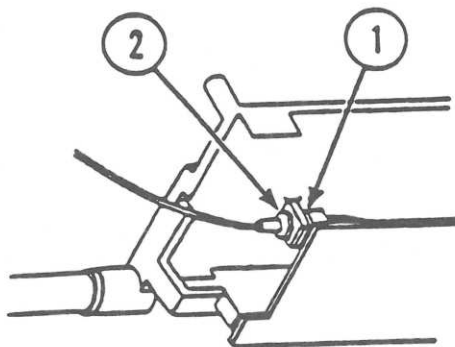


FIGURE 23

20. Grab the carrier wire on either side of the black rubber sleeve. Pull out the carrier wire, the nuts, and the sleeve.

Note: When you remove the carrier wire, first push out the metal shim which is inside, then the wire, the two nuts, and the black rubber sleeve will all come out together. The wire does not slide out of the two nuts. You must pull the wire, the nuts, and the sleeve out of the slot at the bottom of the carrier assembly.

Replace

1. Raise up the carrier.
2. Before you insert the new carrier wire, make sure that the long end of the wire runs toward the right side of the printer.
3. Push the black rubber sleeve and metal shim back into the slot at the bottom of the carrier assembly. Tighten the wire nut.
4. Take the long end of the wire and wrap it around the idler pulley. The idler pulley is on the far right side of the printer.

5. Work the long end of the wire under the carrier assembly until it reaches the left side of the printer.
6. Insert the long end of the wire into the bottom slot on the motor pulley. (See Figure 24, #1.)

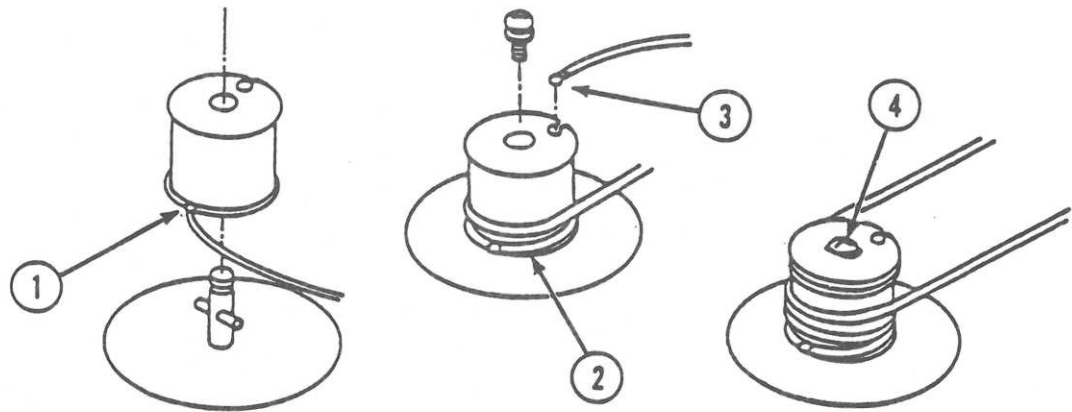


FIGURE 24

7. Make sure that the two copper shims are still on the arms of the motor pulley shaft.
8. Seat the motor pulley on the shaft. (See Figure 24, #2.)
9. Hold the wire snug against the motor pulley with your thumb. Turn the pulley in a clockwise direction and wind up the carrier wire.
10. Insert the short end of the wire into the top slot of the motor pulley. (See Figure 24, #3.)

11. Wrap the wire around the pulley in a clockwise direction.
12. Replace the motor pulley screw.
(See Figure 24, #4.)
13. Replace the front guide rail.
14. Tighten the tension screw until the wire is taut.
(See Figure 25, #1.)

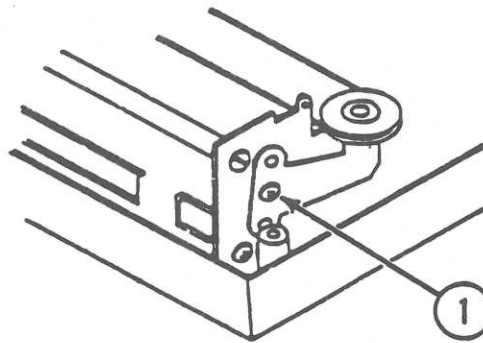


FIGURE 25

15. Replace the two front guide rail screws and ribbon wire arm.
16. Untie the ribbon wire.
17. Attach the right end of the ribbon wire to the ribbon wire post just above the idler pulley.
18. Attach the left end of the ribbon wire to the ribbon wire post just above the motor pulley.

Note: If the ribbon wire comes off of the ribbon pulley gear, you must put it back on.

19. Replace the dot head connector.
(See Figure 26, #1.)

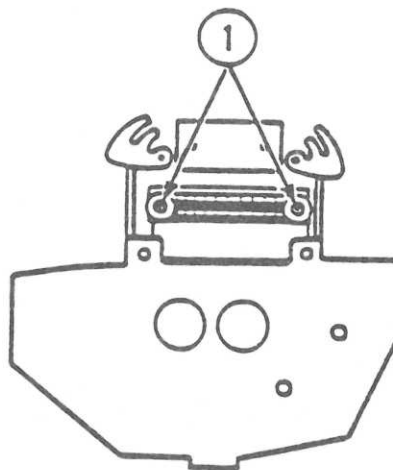


FIGURE 26

20. Replace the dot head.

21. With the carriage assembly at the far left, push the carrier wire at its center with a tension gauge. (See Figure 27, #1.)

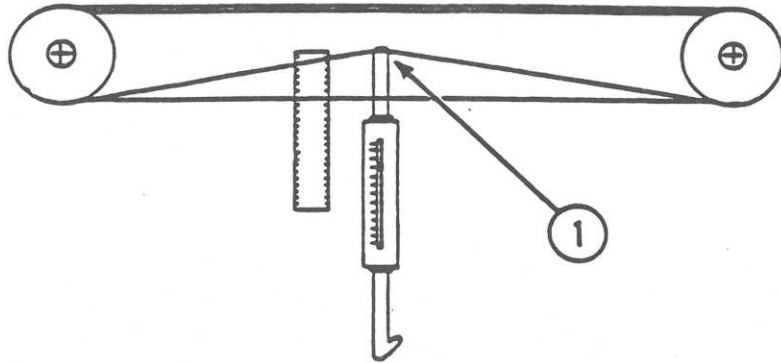


FIGURE 27

22. When the wire is slackened $\frac{3}{8}$ of an inch at the center, check the gauge. It should read 1 LB. If it doesn't, adjust the screw of the tension arm.
23. Replace the top cover, the carrier cover, and the paper cover. Load paper and a ribbon cassette.
24. Run the self-test.

□ MECHANICAL ASSEMBLY

Materials Required

Small phillips screwdriver
5.5mm Nutdriver
8mm Nutdriver

Remove

1. Disconnect the power cord.
2. Remove the paper cover, the carrier cover, and the top cover. Set the top cover down out of the way.
3. Remove the CPU board.
4. Remove the screw and washers holding ground straps to the side frame. (See Figure 28, #1.)

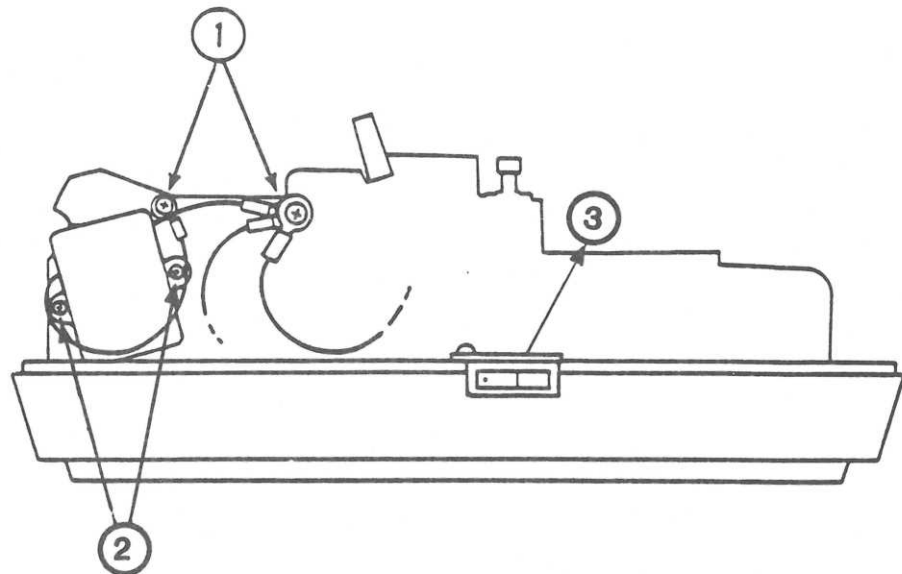


FIGURE 28

5. Remove the two screws from the noise filter. (See Figure 28, #2.)
6. Gently pull the noise filter away from the frame.
7. Remove screw from plate over power switch. (See Figure 28, #3.)

8. Lift power switch out of its slot.
9. To free the mechanical assembly, remove the four screws holding it to the printer.
(See Figure 29, #1.)

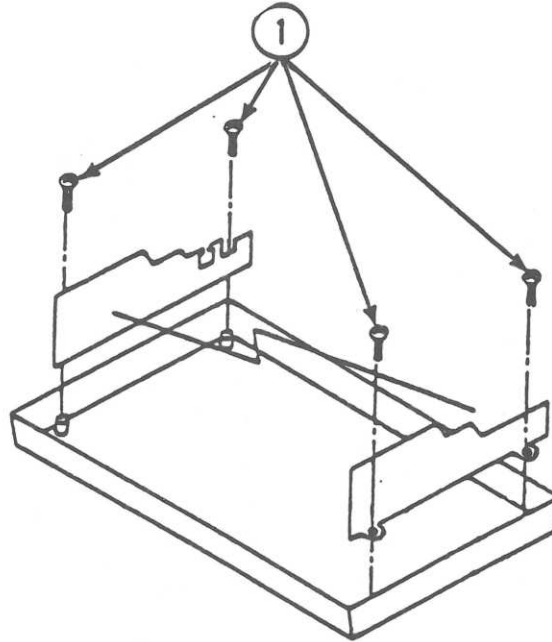


FIGURE 29

10. Lift the mechanical assembly out of the printer.

Replace

1. Put mechanical assembly back into the case.
2. Replace the four screws. (See Figure 30, #1.)

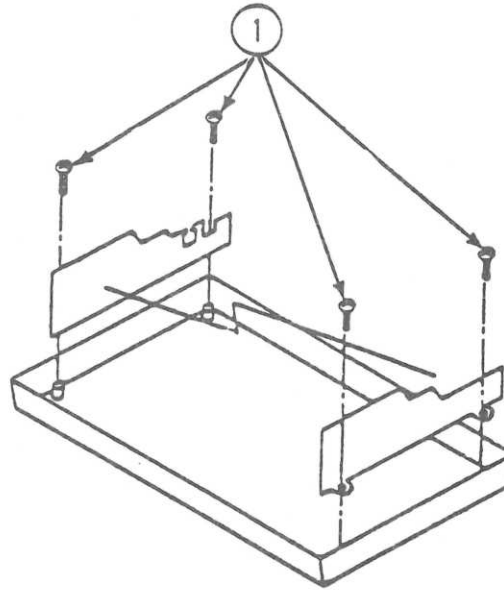


FIGURE 30

3. Position the noise filter on the frame. It goes at an angle. (See Figure 31, #1.)
4. Replace the noise filter screws.
5. Put together the screw, washer, three ground cables, and star washer. Screw them into the side frame. Do the same with the fourth ground cable. (See Figure 31, #2.)
6. Put the power switch back into its slot.

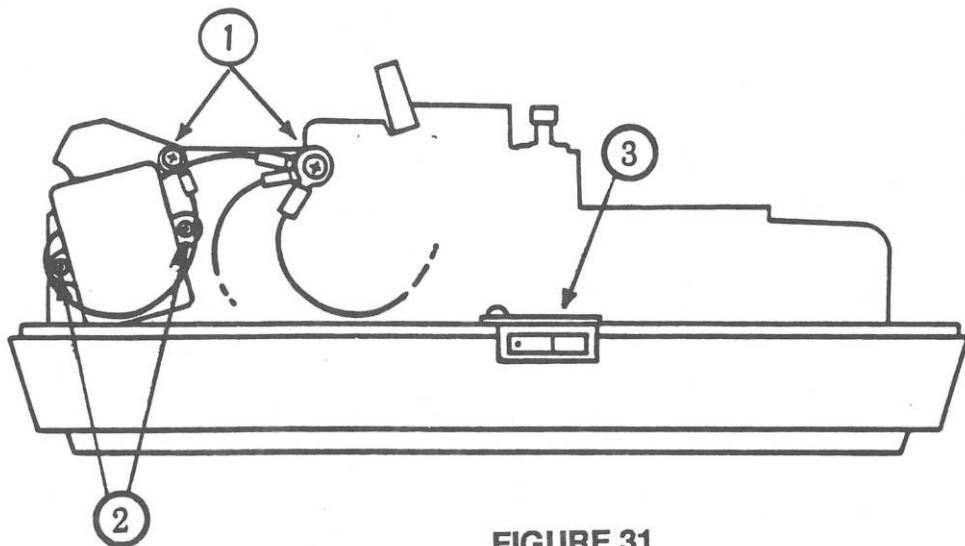


FIGURE 31

7. Replace the plate over the power switch. (See Figure 31, #3.)
8. Replace the CPU board.
9. Replace the top cover, carrier cover, and paper cover.
10. Load paper and ribbon cassette.
11. Power on and perform the self-test.

□ CARRIER MOTOR

Materials Required

Medium flat blade screwdriver
Phillips screwdriver
Pulley remover

Remove

1. Make sure the power is off.
2. Remove the mechanical assembly from the printer.
3. Loosen the ribbon wire tension arm.
4. Free the ribbon wire from the two ribbon wire posts.
5. Tie the wire in a loose knot over the carrier.
6. Remove the motor pulley.
7. Remove the three motor mounting screws.
(See Figure 32, #1.)

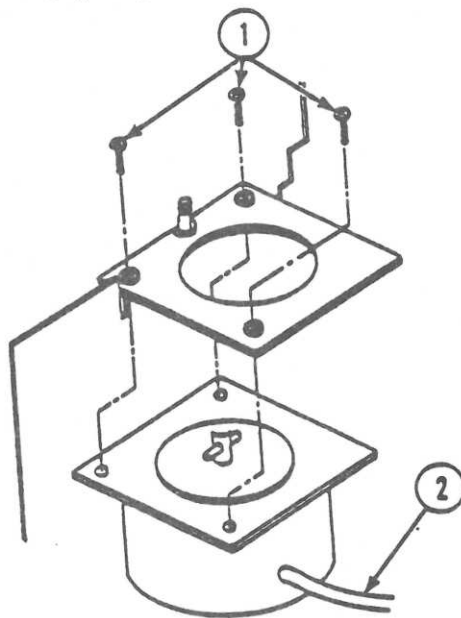


FIGURE 32

Note: When you remove the last screw, the motor will drop out of the mechanical assembly. As you remove the last screw, hold on to the motor. Carefully note the position of the motor cable. (See Figure 32, #2.) Then let motor fall free.

Replace

1. From the front side of the mechanical assembly, put the motor in its slot. Make sure the cable is on the right side of the motor. It should be pointing in the general direction of the idler pulley.
2. Replace the three motor mounting screws. Do not over tighten them.
3. Replace the motor pulley.
4. Put the motor pulley back on the motor.
5. Replace the motor pulley screw.
6. Untie the ribbon wire.
7. Fix the ribbon wire to the ribbon wire posts.
8. Tighten the ribbon wire arm.

□ TRANSFORMER

Materials Required

Needlenose pliers
Small Phillips screwdriver

Remove

1. Remove the mechanical assembly.
2. Remove the two screws from the transformer. (See Figure 33, #1.)

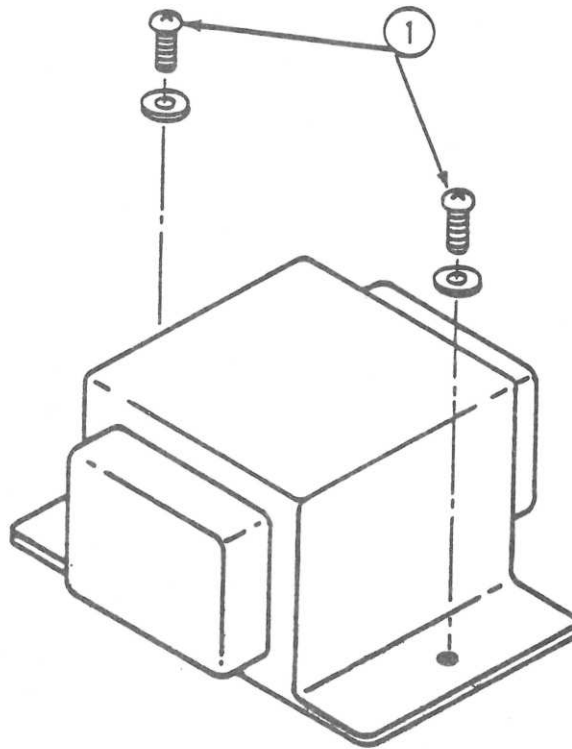


FIGURE 33

Replace

1. Make sure the threaded plate under the bottom of the printer is in position. (See Figure 34, #1.)

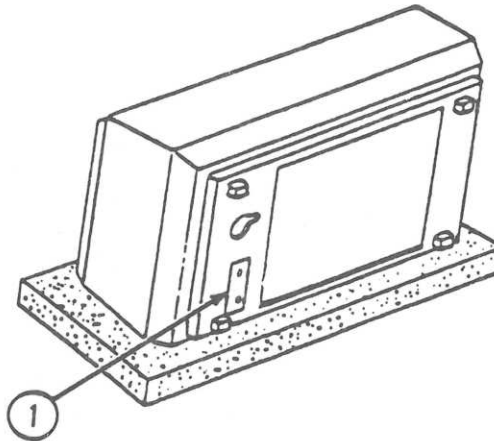


FIGURE 34

2. Put the transformer in place.
3. Screw down the transformer.

□ CARRIER MOTOR DRIVER 5V TRANSISTOR ASSEMBLY

Materials Required

Heat sink compound
Phillips head screwdriver

Locate

1. Remove the mechanical assembly.
2. Turn the mechanical assembly upside down and place it on a protective pad.
3. Note the location of the transistor assembly in Figure 35, #1.

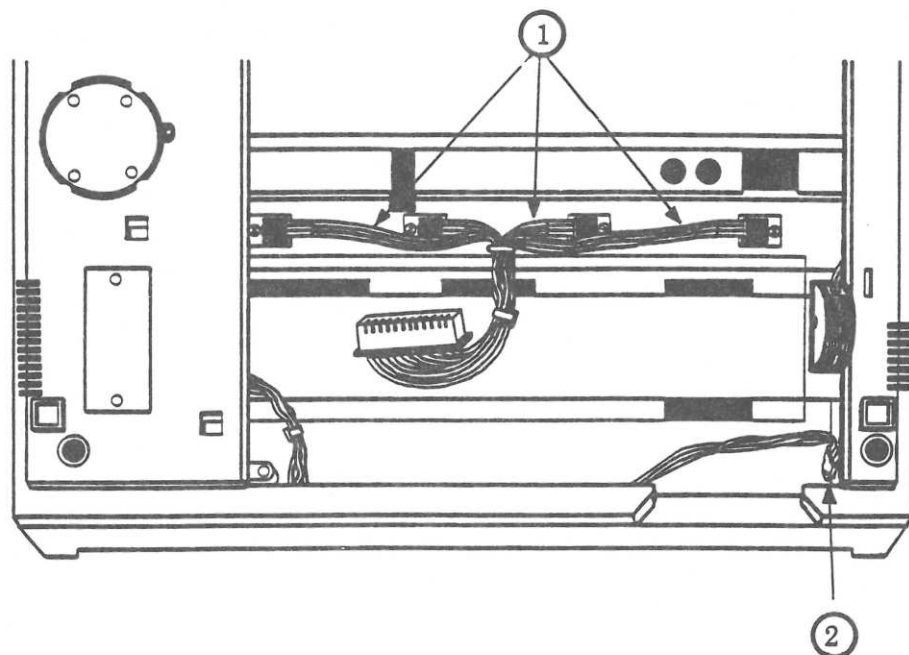


FIGURE 35

**Remove and
Replace**

1. Remove the mechanical assembly.
2. Turn the mechanical assembly upside down and place it on a protective pad.
3. Remove the screw from the 5V transistor assembly (Figure 35, #2) and carefully remove the transistor.
4. To replace the 5V transistor assembly, spread a thin layer of heat sink compound on the mechanical assembly. Place the sheet of mylar on top of it. Apply a layer of heat sink compound on top of the mylar, and screw on the transistor.

Dot Matrix Printer

Section 3 – Troubleshooting

□ CONTENTS

3.2 Symptom Table

Note: The Dot Matrix Printer should be tested with the Apple II Peripherals Diskette. (See Multi-Product Diagnostics Technical Procedures, Section 1.)

SYMPTOM TABLE

Problems

Solutions

- *No Power*
 1. Check that the power cord is plugged in.
 2. Check if the power fuse at the back of the printer is burned out. If it is, replace it and power on again. If the fuse blows a second time, swap components in this order:
 - Regulator transistor
 - CPU PC board
 - Carrier Motor
 - Transformer
 3. If the fuse is O.K., you may have a bad power switch. Try replacing it. If that doesn't take care of the problem, swap the Carrier Motor and then the Transformer.
- *Power Comes On But Printer Won't Print*
 1. Check if the top cover is seated properly. If it isn't, close it. Then press SEL and try self-test.
 2. Check if PE lamp is lit on front panel. If it is, reload the paper and try self-test.
 3. Check the connectors between the carrier and carrier motor and the CPU PC board. If any of the connectors are loose, connect them.
 4. Try swapping components in this order:
 - CPU PC board
 - Carrier motor
 - Transistor assembly
- *Printer Passes Self-Test But Won't Print Under Computer Control*
 1. Check that the computer is properly powered on and initialized.
 2. Make sure there isn't a software problem.
 3. Make sure that the interface cable between the printer and the computer is connected at both ends.
 4. Check if SEL light is on. If it's off, press SEL and try printing under computer control. If it prints while light is off, replace the switch panel.
 5. Replace CPU PC board.

SYMPTOM TABLE

Problems	Solutions
• <i>Print Quality Problem: Dots Missing</i>	1. Make sure dot head is in place. 2. Make sure dot head is not clogged with dust or dirt. 3. Make sure dot head connector is plugged properly into CPU PC board. 4. Make sure gap adjustment lever is set properly. 5. Try replacing components in this order: • Dot head • CPU PC board
• <i>Print Quality Problem: Printing Too Light</i>	1. Check if ribbon is old, torn, frayed, or twisted. 2. Check if ribbon wire tension is too loose and adjust as necessary. 3. Check if gap adjustment lever is set properly. 4. Adjust intensity pot. To do this, lift the clear plastic sheet that covers the configuration switches. Locate VR2 IMPRES. Insert a screwdriver into the slot on VR2. Turn the screwdriver. 5. Try replacing components in this order: • Ribbon cassette • Dot head • CPU PC board
• <i>Print Quality Problem: Characters Not Spaced Properly</i>	1. Check if carrier wire is strung properly. 2. Try swapping components in this order • Carrier wire • Carrier motor • CPU PC board

SYMPTOM TABLE

Problems

Solutions

- *Print Quality Problem:
Characters Do Not
Align Vertically
Between Rows*
 - 1. Adjust bidirectional pot. To do this, push back the clear plastic sheet the covers the configuration switches. Locate VR1 ALIGN. Insert a a screwdriver into the slot on VR1. Turn the screwdriver.

- *Carrier Assembly
Moving Carrier
Shaking Erratically
Moving Slowly, or
Giving Off Burning
Odor*
 - 1. Try swapping components in this order
 - Carrier motor
 - Transistor assembly
 - CPU PC board

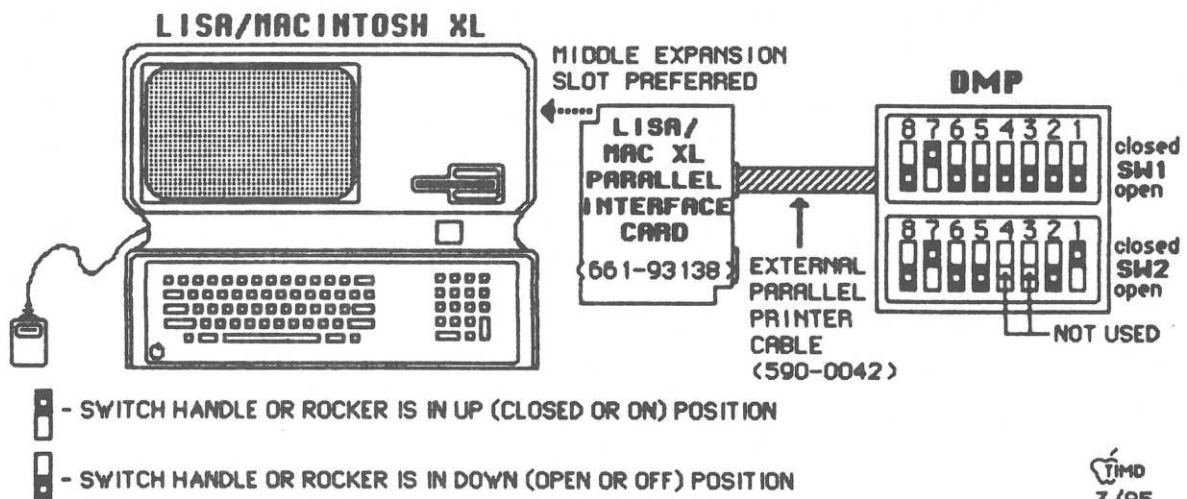
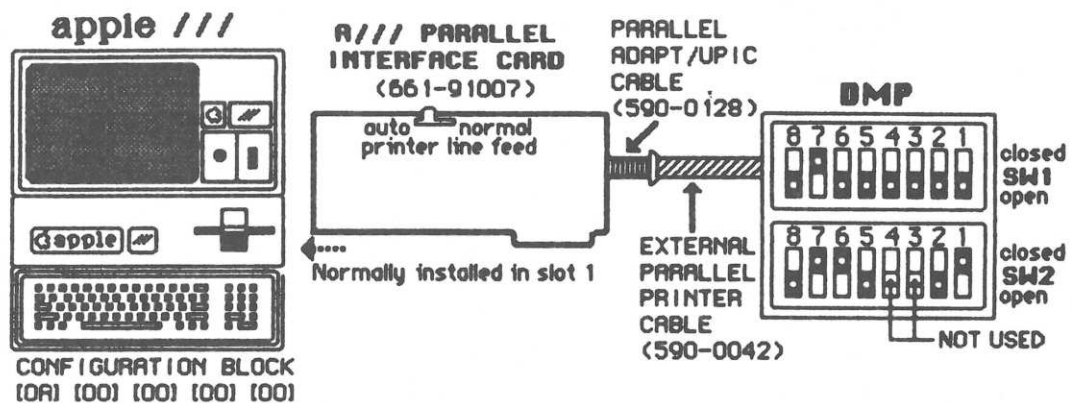
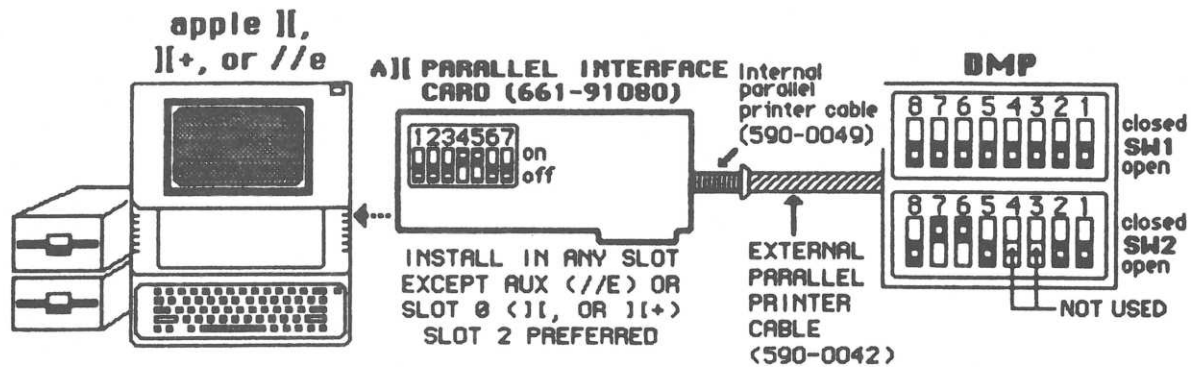
Dot Matrix Printer

Section 4 – Appendix

□ CONTENTS

4.3 Dot Matrix Printer Configuration

□ DOT MATRIX PRINTER CONFIGURATION



Dot Matrix Printer

Section 5 – Illustrated Parts List

❑ CONTENTS

- 5.3 Mechanical Assemblies (Figure 1)
- 5.3 Transformer and Power Switch (Figure 2)
- 5.3 CPU Card (Figure 3)
- 5.5 Transistor Assemblies (Figure 4)
- 5.5 Cable (Figure 5)
- 5.5 Noise Filter (Figure 6)
- 5.6 Other Parts (ImageWriter Parts Cross-Reference)

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

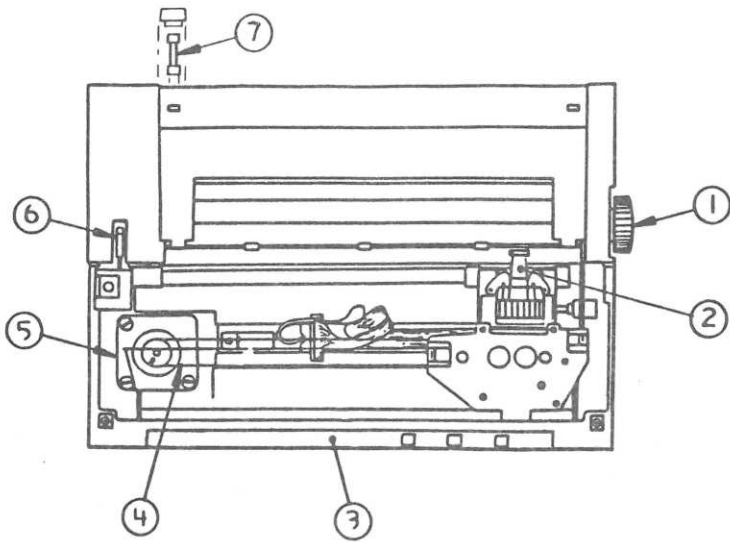


FIGURE 1

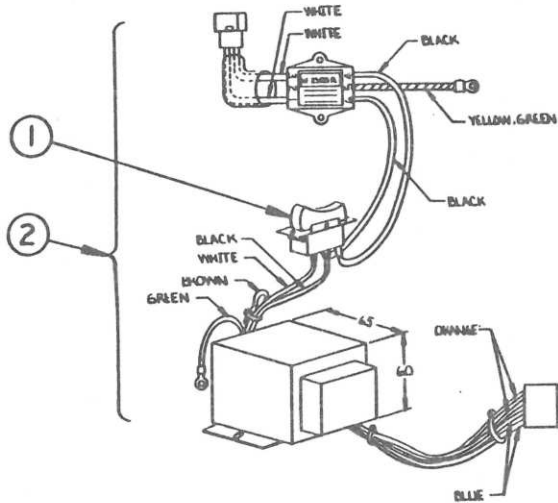
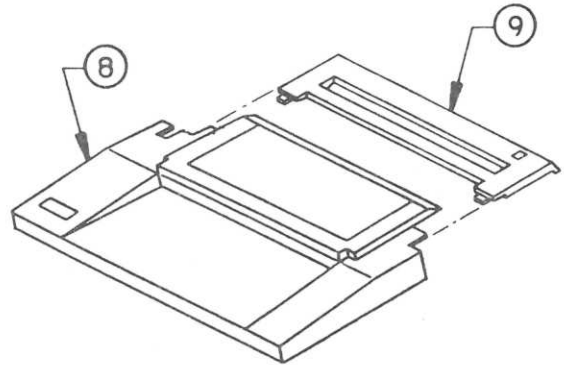


FIGURE 2

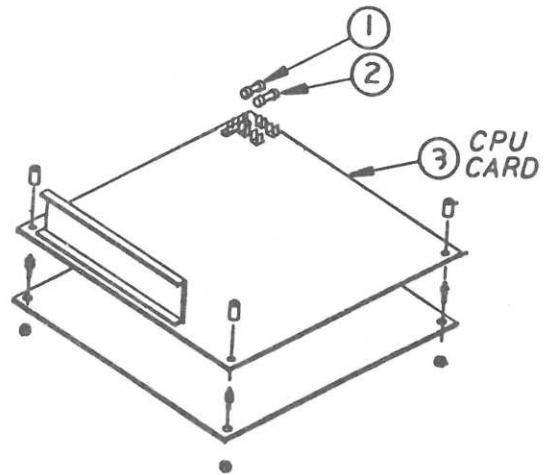


FIGURE 3

□ MECHANICAL ASSEMBLIES (Figure 1)

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	970-0008	Platen Knob
2	661-0315	Print Head Assembly
3	970-0007	PCB Front Panel w/harness
4	970-0080	Carriage Drive Wire
5	699-0093	Carriage Drive Motor, Complete
6	970-0009	Paper Release Lever
7	740-0101	Fuse, 2 Amp, 3AG
8	970-0078	Carrier Cover, 110V
9	970-0077	Paper Cover

□ TRANSFORMER AND POWER SWITCH (Figure 2)

1	970-0011	AC Line Switch, 115V
2	699-0095	Transformer/Switch Assembly

□ CPU CARD (Figure 3)

1	740-0022	Fuse, 5 Amp
2	740-0021	Fuse, 3 Amp
3	661-75091	DMP CPU Card

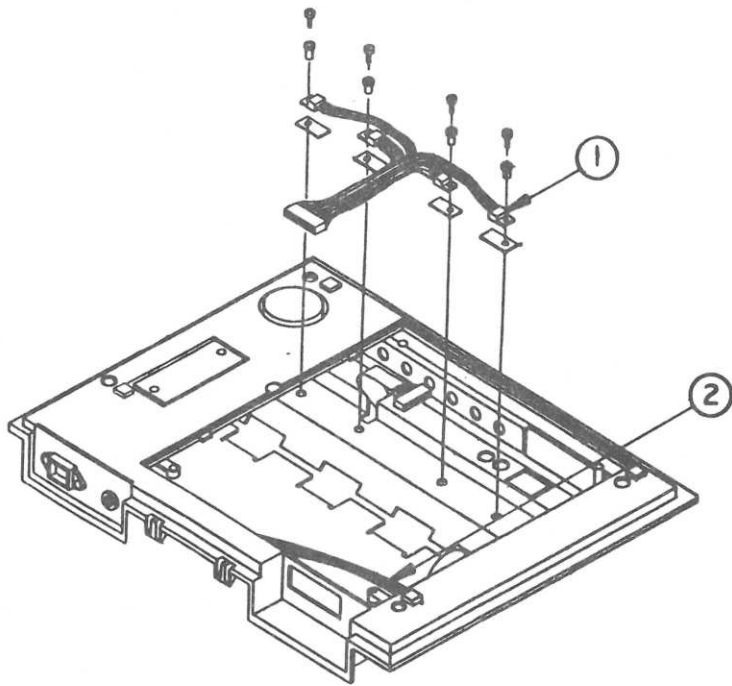


FIGURE 4

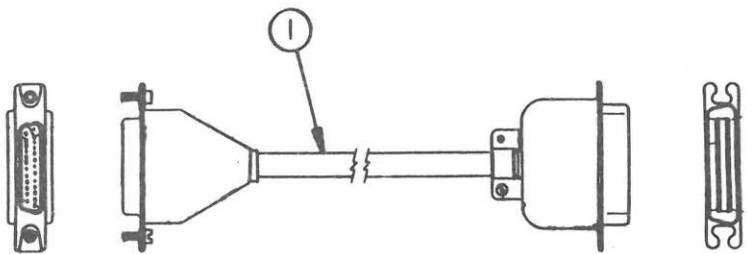


FIGURE 5

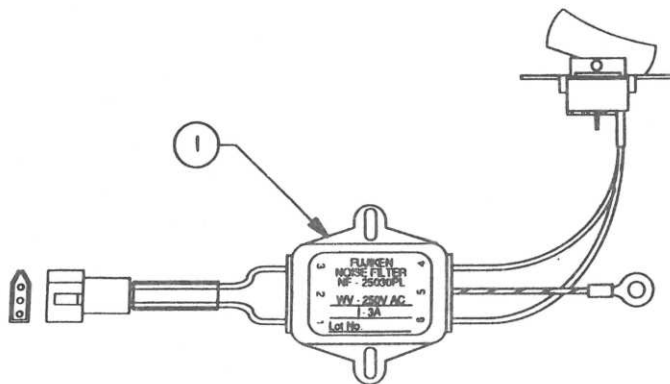


FIGURE 6

□ TRANSISTOR ASSEMBLIES (Figure 4)

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
1	699-0120	Transistors Assy, Carrier Drive
2	970-0082	Transistor Assembly, 5V

□ CABLE (Figure 5)

1	590-0042	Cable, External Parallel Printer
---	----------	----------------------------------

□ NOISE FILTER (Figure 6)

1	970-0072	Noise Filter, 110V
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❑ OTHER PARTS (ImageWriter Parts Cross-Reference)

If you need a part that is not listed in the Dot Matrix Printer Illustrated Parts List:

1. Find the corresponding part on the ImageWriter Illustrated Parts List.
2. Check the list below. If the part is on the list, it can be used for both printers.

Prices for these parts are listed under ImageWriter in the *Service Programs Manual*.

❑ IMAGEWRITER – MAIN FRAME (Figure 3)

<u>Item</u>	<u>Part No.</u>	<u>Description</u>
3	970-0056	Spring, Feed Roller Release
7	970-0082	Transistor Assembly, 5V
10	970-0051	Gear, Idler, Tractor
11	970-0052	Gear, Idler, Platen
12	970-0851	Motor, Paper Feed
15	970-0977	Arm, Paper Bail
16	970-0054	Spring, Paper Bail
30	970-0081	Shim, Motor Shaft
31	970-0053	Pulley, Motor

□ IMAGEWRITER – PRINT HEAD ASSEMBLY (Figure 4)

2	661-0315	Print Head, U.S.
4	970-0059	Guide, Ribbon
5	970-0067	Wiper, Felt
6	970-0842	Bearing, Carrier Assembly
7	970-0827	Retainer, Connector Cable
8	699-0113	Connector Assembly, Head
10	970-0826	Bracket, Connector Holder
11	970-0061	Gear, Ratchet 'A'
12	970-0063	Spring, Ratchet Gear
13	970-0066	Wire, Ribbon Drive
14	970-0844	Wire, Ribbon Drive - 15"
15	970-0064	Spring, Drive Gear
16	970-0060	Gear, Ribbon Drive
17	970-0062	Gear, Ratchet 'B'
18	970-0825	Arm, Ribbon Drive Wire
19	970-0875	Screw, Shoulder
20	970-0065	Gear, Change Arm
21	970-0719	Screw, Shoulder

**□ IMAGEWRITER – PAPER TRACTOR FEED ASSEMBLY
(Figure 5)**

4	970-0057	Gear, Tractor Feed
5	970-0058	Feed Roller
6	970-0055	Spring, Feed Roller
7	970-0823	Arm, Feed Roller Support
10	970-0834	Cam, Feed Roller Shaft

□ IMAGEWRITER – PLATEN CARRIER DRIVE ASSEMBLY
(Figure 6)

3	970-0069	Gear, Platen
5	970-0070	Arm, Carrier Wire Tension
7	970-0080	Wire, Carrier
9	970-0068	Platen Core, Rubber
12	970-0982	Cradle, Platen Guide

□ IMAGEWRITER – BOTTOM VIEW (Figure 7)

1	860-0034	Washer, Shoulder Nylon
2	725-0006	Insulator, Silicon Rubber
5	970-0824	Plate, Transformer Cover
6	699-0120	Transistor Assembly, Carrier Drive