5 Removal and replacement

Chapter contents

Removal and replacement strategy ........................................ 77
Required tools ................................................................. 77
Before performing service .................................................. 78
Toner cartridge ................................................................. 78
Parts removal order ......................................................... 79
Covers .............................................................................. 80
Left side cover ................................................................. 80
Optional copier/scanner ..................................................... 81
Back cover ........................................................................ 82
Right side cover ............................................................... 84
Top cover ......................................................................... 87
Control panel assembly ..................................................... 88
Front cover assembly ......................................................... 89
Internal assemblies ............................................................ 96
Transfer roller ................................................................. 96
Formatter ........................................................................ 97
Laser/scanner assembly .................................................... 99
Fuser assembly ................................................................. 101
Output rollers ................................................................. 105
Motor .............................................................................. 107
Solenoid ........................................................................... 108
Fan assembly .................................................................... 110
Right plate assembly ....................................................... 112
Pickup assembly ............................................................. 114
Pickup roller shaft ........................................ 117
Paper lift plate assembly ............................... 118
Left plate assembly ................................. 119
Bottom assemblies ........................................ 120
ECU pan ........................................ 120
Paper-feed assembly ................................. 124
Removal and replacement strategy

This chapter documents the removal and replacement of field replaceable units (FRUs) only.

Replacement is generally the reverse of removal. Occasionally, notes are included to provide directions for difficult or critical replacement procedures.

**WARNING!**

Unplug the power cord from the power outlet before attempting to service the printer. If this warning is not followed, severe injury can result. Certain functional checks during troubleshooting must be performed with power supplied to the printer. However, the power supply should be disconnected during removal.

Never operate or service the printer with the protective cover removed from the laser/scanner assembly. The reflected beam, although invisible, can damage your eyes.

The sheet metal edges of the printer can be sharp. Use caution when working on the printer.

**CAUTION**

Some printer parts are electrostatic discharge (ESD) sensitive. Always perform service work at an ESD-protected workstation.

To install a self-tapping screw, first turn it counterclockwise to align it with the existing thread pattern, then carefully turn it clockwise to tighten. Do not overtighten. If a self-tapping screw-hole becomes stripped, repair the screw-hole or replace the affected assembly.

Always remove the toner cartridge before removing or replacing parts. See “Toner cartridge” on page 78.

**Required tools**

- #2 Phillips-head screwdriver with magnetic tip
- Small flatblade screwdriver
- Needle nose pliers
- ESD mat
- Penlight

**CAUTION**

A PoziDriv screwdriver will damage screw heads on the printer. Use a #2 Phillips-head screwdriver.
Before performing service

- Remove all media from the printer.
- Unplug the power cable.
- Place the printer on an ESD mat.
- Remove the main input tray.
- If the optional copier/scanner is attached, remove the copier/scanner media input tray and the copier/scanner output bin.
- Remove the toner cartridge (see page 78).

Toner cartridge

**Note**
You will feel resistance when you open the toner cartridge door.

1. Open the toner cartridge door, which lifts the toner cartridge toward you.
2. Remove the toner cartridge.

**CAUTION**
To prevent damage, do not expose the toner cartridge to light. Cover it with a piece of paper.

![Figure 23. Removing the toner cartridge](image-url)
Parts removal order

Use the following diagram to determine which parts must be removed before removing other parts:

- Pickup roller
- Separation pad
- Transfer roller
- Left side cover
- Optional copier/scanner
- Back cover
- Right side cover
- Top cover
- Formatter
- ECU
- Solenoid
- Fan assembly
- Control panel
- Front cover assembly
- Right plate assembly
- Pickup assembly
  - Pickup roller shaft
  - Paper lift plate assembly (ECU)
  - Paper-feed assembly (Formatter)
  - Left plate assembly
- Laser/scanner
- Fuser assembly
  - Output rollers
- Motor

Note

The ECU and the formatter are listed twice.

The ECU must be removed to gain access to the paper-feed assembly. To remove the ECU only, remove the right side cover.

The formatter must be removed to gain access to the left plate assembly. To remove the formatter only, remove the left side cover.
Covers

Left side cover

1  Open the toner cartridge door.
2  Pull out on the notch (callout 1) on the back of the cover.
3  Rotate the cover away from the printer.

Figure 24. Removing the left side cover
Optional copier/scanner

**CAUTION**
You must unplug the printer before removing or reinstalling the optional copier/scanner, or you might damage both the printer and the optional copier/scanner.

1. Remove the left side cover (see page 80).

2. Pull up on the ribbon cable to disconnect it from the connector (callout 1) on the formatter.

**Note**
The optional copier/scanner has two tabs that hook into the underside of the printer output bin. Another tab and a pin stabilize the optional copier/scanner in the back. Use care so that you do not bend or break the three tabs or the pin.

3. Pull the optional copier/scanner forward (callout 2), and lift it up (callout 3) to remove it.

![Image of removing the optional copier/scanner](image)

**Figure 25.** Removing the optional copier/scanner
Back cover

1 Remove the left side cover (see page 80).
2 Open the straight-through output door.
3 Remove two screws (callout 1) from the back of the printer.

Figure 26. Removing the back cover (1 of 2)
4 Press down and hold the two release levers (callout 1) and pull the cover off of the printer.

**Note**

The back cover has two tabs (not shown), one on each side of the printer. Step 4 releases these two tabs.

---

**Figure 27.** Removing the back cover (2 of 2)
Right side cover

1  Open the toner cartridge door.
2  Remove the back cover (see page 82).
3  Remove one screw (callout 1) on the back of the printer.

Figure 28.  Removing the right side cover (1 of 3)
4 Lift the right side of the printer and release the tab (callout 1) on the bottom of the cover.

*Figure 29.* Removing the right side cover (2 of 3)
5 While continuing to press the release tab, grasp the top of the cover and rotate it away from the printer.

Figure 30. Removing the right side cover (3 of 3)
Top cover

1. If the printer has the optional copier/scanner attached, remove it (see page 81).
2. Remove the left side, back, and right side covers (see pages 80 through 86), and open the toner cartridge door.
3. Loosen two screws (callout 1) on the back of the printer.
4. Remove two screws (callout 2) on the top of the printer.
5. Lift the cover off of the printer.

Figure 31. Removing the top cover
Control panel assembly

1. Remove the left side, back, right side, and top covers (see pages 80 through 87).

2. Disconnect the control panel cable (callout 1) from the formatter.

3. Remove two screws (callout 2 and callout 3) from the top of the control panel assembly.

- **Note**

  The first screw (callout 2) secures the control panel casing, and the second screw (callout 3) secures the internal bracket. Be sure to hold the assembly together as you remove it.

  Rotate the control panel assembly toward the front of the printer to release the tab (callout 4).

4. Remove the control panel assembly.

---

**Figure 32.** Removing the control panel
Front cover assembly

The front cover assembly is composed of three pieces:

- front cover (the frame that surrounds the main input tray)
- toner cartridge door
- front guide assembly (the internal shelf that attaches the front cover and the toner cartridge door to the printer)

Front cover

1. Remove the left side, back, right side, and top covers (see pages 80 through 87).
2. Close the toner cartridge door.
3. Loosen two screws (one shown, callout 1), one on each side of the cover.

Figure 33. Removing the front cover (1 of 2)
4 Pull the top of the front cover away from the printer to release the three tabs (callout 1).

5 Lift the front of the printer to release the tabs on the bottom of the front cover.

6 Remove the front cover.

Figure 34. Removing the front cover (2 of 2)
Toner cartridge door

1 Remove the left side, back, right side, and top covers (see pages 80 through 87).

2 Remove the control panel assembly (see page 88).

3 Remove the front cover (see page 89).

4 Open the toner cartridge door.

5 Remove one screw (callout 1) from the bracket on the right side of the printer, and remove the bracket.

6 At the right side, press the two small tabs (callout 2) on the inside of the connecting link to release it.

7 Repeat on the left side.

Note

After the toner cartridge door is removed, it is easy to remove the two connecting links.

Figure 35. Removing the toner cartridge door (1 of 2)
8  Unhook the toner cartridge door hinge on the right side, and slide the toner cartridge door toward the left to remove it.

Figure 36. Removing the toner cartridge door (2 of 2)

To reinstall
Lift the toner cartridge door hinge above the stop (callout 1). Otherwise, the toner cartridge door will not close.
Front guide assembly

1  From the front of the printer, remove two screws (callout 1).

Figure 37.  Removing the front guide assembly (1 of 3)
2 On the right side, release the lower tab (callout 1) and the upper tab (callout 2).

Figure 38. Removing the front guide assembly (2 of 3)
3 On the left side, release the upper tab (callout 1) and the lower tab (callout 2).

4 Remove the front guide assembly.

Figure 39. Removing the front guide assembly (3 of 3)
Internal assemblies

Transfer roller

1. Open the toner cartridge door and remove the toner cartridge (see page 78).

2. Use needle nose pliers to gently squeeze the two small tabs on the transfer roller.

3. Lift the transfer roller up, slide it to the right, and lift it out of the printer.

Figure 40. Removing the transfer roller

Note

Do not misplace the small grounding spring that is underneath the right side of the transfer roller.

CAUTION

Do not touch the black sponge portion of the transfer roller.
Formatter

1. Remove the left side cover (see page 80).

2. If the optional copier/scanner assembly is attached to the printer, disconnect the copier/scanner cable (callout 1) from the formatter.

3. Disconnect the two flat flexible cables (callout 2) from the zero insertion force (ZIF) connectors on the formatter.

4. Unplug the laser/scanner cable (callout 3) and the control panel cable (callout 4) from the formatter.

Figure 41. Removing the formatter (1 of 2)
5 Remove five screws (callout 1).
6 Rotate the formatter up and off of the hooks on the chassis and remove it from the printer.
7 Disconnect and remove the formatter shield.

![Figure 42. Removing the formatter (2 of 2)](image)

**To reinstall**

When you reconnect the cable, make sure you lock the ZIF connectors back into place.
Laser/scanner assembly

1  Remove the left side, back, right side, and top covers (see pages 80 through 87).

2  Disconnect the flat flexible cable from its socket (callout 1) on the laser/scanner.

3  Disconnect the cable connector (callout 2) from the formatter.

Figure 43. Removing the laser/scanner (1 of 2)
4  Release the two tabs (callout 1), one on each side of the shutter lever, and lift the shutter lever straight up to remove it.

**Note**

Make sure you do not misplace the small spring that is under the shutter lever.

5  Remove four screws (callout 2) and then lift the assembly off of the printer.

![Figure 44. Removing the laser/scanner (2 of 2)](image)

**To reinstall**

Insert the spring into the hole on the laser/scanner before you snap the shutter lever back into place.
Fuser assembly

1 Remove the left side, back, right side, and top covers (see pages 80 through 87).

2 Remove two screws (callout 1) from the right fuser plate.

3 Remove a third screw (callout 2) from behind the large gear on the right fuser plate.

**Note**

You can access the third screw through the holes in the 69T gear.

If you need to realign the 69T gear, you must first remove the pressure roller gear. Release the tab (callout 3) and remove the pressure roller gear from the printer.

4 Remove the bracket.

![Figure 45. Removing the fuser assembly (1 of 4)](image)
5 Remove three screws (callout 1) from the left fuser plate.
6 Remove the bracket.

Figure 46. Removing the fuser assembly (2 of 4)
7 Remove two screws (callout 1), one from each side of the printer.

Figure 47. Removing the fuser assembly (3 of 4)
8 Unplug the fuser cable connector (callout 1) by pressing and releasing the tab on the back of the connector.

9 Unplug five smaller cable connectors (callout 2) from the ECU and unwind the cables from the fuser assembly.

10 Unplug the spade connector (callout 3).

11 Remove one screw (callout 4) from the paper delivery sensor, and lift the paper delivery sensor out of the printer.

12 Lift the fuser assembly gently out of the printer.

Figure 48. Removing the fuser assembly (4 of 4)

To reinstall

Remove the large gear from the end of the fuser assembly, return the fuser assembly to the chassis, and replace the large gear.
Output rollers

Face-down delivery assembly

1. Remove the fuser assembly (see page 101).
2. Remove two screws (callout 1) and lift the face-down delivery assembly away from the fuser assembly.

Figure 49. Removing the output rollers (1 of 2)
Face-up roller

1. Turn the fuser assembly over.

2. Remove the gear (callout 1) from the face-up roller and release the tab (callout 2) on the face-up roller bushing.

3. Rotate the face-up roller bushing forward until the pin releases.

4. Slide the face-up roller away from the gear side, and lift it out of the fuser assembly.

Reinstall note

Flex the face-up roller bushing to pop the pin back into place.
Motor

Note

You might find it easier to remove the ECU pan (see page 120) before you remove the motor.

Remove the left side, back, and right side covers (see pages 80 through 86).

1. Remove the fuser assembly (see page 101).
2. Disconnect the motor cable connector (callout 1) on the side of the motor.
3. Remove the two screws (callout 2) from the motor and lift the motor out of the printer.

Figure 51. Removing the motor

To reinstall

Make sure that the motor is in the correct position. The connector should face the inside of the printer.
Solenoid

1 Remove the left side, back, and right side covers (see pages 80 through 86).

2 Unplug five cable connectors (callout 1) from the ECU and separate the solenoid cable from the other four cables.

3 Carefully unwind the solenoid cable from the cable guides (callout 2).

Figure 52. Removing the solenoid (1 of 2)
4 Remove the screw (callout 1) on the solenoid.
5 Gently thread the solenoid cable through the hole (callout 2) in the right side plate.
6 Lift the solenoid off of the printer.

Figure 53. Removing the solenoid (2 of 2)

To reinstall

It might be easier to remove the ECU pan (see page 120) before rerouting the cables through the hole (callout 2) in the right side plate.
Fan assembly

1. Remove the left side, back, right side, and top covers (see pages 80 through 87).

2. Unplug the five cable connectors (callout 1) from the ECU and separate the fan cable from the other four cables.

3. Carefully unwind the fan cable from the cable guides (callout 2).

Figure 54. Removing the fan (1 of 2)
4 Remove two screws (callout 1).
5 Remove the fan assembly.
6 Gently thread the fan cable through the hole (callout 2) in the right side plate.
7 Lift the fan assembly off of the printer.

Figure 55. Removing the fan (2 of 2)

To reinstall

It might be easier to remove the ECU pan (see page 120) before rerouting the cables through the hole (callout 2) in the right side plate.
Right plate assembly

1  Remove the left side, back, right side, and top covers (see pages 80 through 87).

2  Remove the front cover, toner cartridge door, and front guide assembly (see pages 89 through 95).

3  Remove the solenoid (see page 108).

4  Remove the fan assembly (see page 110).

5  Press the small white tab to release the clutch (callout 1), and slide the clutch to the left (toward the pickup roller).

**Note**  
Make sure that the two halves of the clutch stay together. If they separate, you might lose the clutch spring.

*Figure 56.  Removing the right plate assembly (1 of 2)*
6 Remove seven screws (callout 1). If you have not already removed the fuser, remove the fuser screw (callout 2).

7 Lift the right plate assembly off of the printer.

Figure 57. Removing the right plate assembly (2 of 2)
**Pickup assembly**

1. Remove the left side, back, right side, and top covers (see pages 80 through 87).

2. Remove the front cover, toner cartridge door, and front guide assembly (see pages 89 through 95).

3. Remove the right plate assembly (see page 112).

4. Remove one screw (callout 1).

![Figure 58. Removing the pickup assembly (1 of 3)]
5  Remove two screws (figure 1) on the top of the assembly.

Figure 59.  Removing the pickup assembly (2 of 3)
6 Lift the upper metal shield (callout 1) straight up and remove it from the printer.

7 Lift the lower metal shield (callout 2) straight up and remove it from the printer.

Figure 60. Removing the pickup assembly (3 of 3)
Pickup roller shaft

1 Remove the left side, back, right side, and top covers (see pages 80 through 87).

2 Remove the front cover, toner cartridge door, and front guide assembly (see pages 89 through 95).

3 Remove the right plate assembly (see page 112).

4 Remove the pickup assembly (see page 114).

5 Slide the shaft toward the right until the left end (callout 1) releases.

6 Carefully pull the left end of the shaft toward you until it clears the left side of the chassis.

7 Pull the shaft to the left and out of the printer.

To reinstall

Be sure to align the clutch on the pickup roller shaft with the follower (large plastic tab) (callout 2) on the paper lift plate.
**Paper lift plate assembly**

1. Remove the left side, back, right side, and top covers (see pages 80 through 87).

2. Remove the front cover, toner cartridge door, and front guide assembly (see pages 89 through 95).

3. Remove the right plate assembly (see page 112), the pickup assembly (see page 114), and the pickup roller shaft (see page 117).

4. Grasp the large plastic tabs (callout 1) on each side of the paper lift plate and rotate it forward.

   **Note**

   Do not pull on the paper guides.

   Make sure you do not misplace the two large springs (callout 2) that are under the lift plate or the small spring that is under the separation pad arm.

5. Lift the paper lift plate straight up and out of the bushings (callout 3).

**Figure 62. Removing the paper lift plate assembly**

**To reinstall**

Make sure that the vertical paper sensor (the narrow black plastic piece to the left of the separation pad arm) is in an upright position and that the lift plate springs are positioned properly.
Left plate assembly

1 Remove the left side, back, right side, and top covers (see pages 80 through 87).

2 Remove the front cover, toner cartridge door, and front guide assembly (see pages 89 through 95).

3 Remove the formatter (see page 97).

4 Remove six screws (callout 1). If you have not already removed the fuser, remove the fuser screw (callout 2).

5 Lift the left plate assembly off of the printer.

Figure 63. Removing the left plate assembly
Bottom assemblies

ECU pan

Remove the left side, back, and right side covers (see pages 80 through 86).

1  Unplug the three spade connectors (callout 1).
2  Disconnect the motor cable connector (callout 2) on the side of the motor.
3  Unplug the fuser cable connector (callout 3) by pressing and releasing the tab on the back of the connector.
4  Unplug all other cable connectors (callout 4) from the ECU.

Figure 64. Removing the ECU pan (1 of 4)
5 Unplug the flat flexible cable from the ZIF connector (callout 1) on the formatter.

6 Remove two screws (callout 2) on each side of the printer.

Figure 65. Removing the ECU pan (2 of 4)
7  Gently pull the two sides of the printer away from the ECU pan to release the ECU pan.

8  Slide the ECU pan out and away from the printer.

**Note**

The entire ECU board can be replaced as a single unit. (Only soldered cables ship with the replacement board; if other cables are damaged during removal, you will have to purchase new ones.)

![Figure 66. Removing the ECU pan (3 of 4)](image)
9  Remove five screws (callout 1).
10  Lift the ECU out of the ECU pan.

**Figure 67.** Removing the ECU pan (4 of 4)
Paper-feed assembly

1. Remove the left side, back, and right side covers (see pages 80 through 86).
2. Remove the right plate assembly (see page 112).
3. Remove the ECU pan (see page 120).
4. Unwind the fan and solenoid cables from the cable guides (callout 1) on the paper-feed mechanism.
5. Remove two screws (callout 2) from the paper-feed mechanism.
6. Remove one screw (callout 3) from the paper sensor PCB assembly.

Figure 68. Removing the paper-feed assembly (1 of 4)
7 Separate two bushings (on the bottom of the paper-feed mechanism) from the paper-feed roller shaft (callout 1), and lift the paper-feed mechanism up and out of the printer.

![Image of the paper-feed mechanism being removed](image)

**Figure 69.** Removing the paper-feed assembly (2 of 4)

**To reinstall**

Insert the bottom of the sensor flag into the hole (callout 2) in front of the paper-feed roller shaft.

(See page 127 for more reinstallation notes.)
8 Use needle nose pliers to push the two tabs away from the end of the paper-feed roller shaft.

**Note**

You might find it easier to first remove the right plate assembly (see page 112).

Do not remove the gear shield, because the gears and springs can easily separate and become misplaced.

9 Pull the paper-feed roller shaft toward the left side of the printer and remove it.

*Figure 70.* Removing the paper-feed mechanism (3 of 4)
To reinstall

Insert the two tabs (callout 1) on the paper-feed assembly into the two recesses on the printer.

Insert the bottom of the sensor flag into the hole in front of the paper-feed roller shaft (see callout 2 on page 125). The top of the sensor flag (callout 2) should move freely.