Step	Questions / actions	Yes	No
3	1. Disconnect the cable in the connector JTRAY1. 2. Connect the cable from the new paper pick assembly in connector JTRAY1. 3. Enter Diagnostics mode (press and hold buttons **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays). 4. Touch **SENSOR TESTS**. 5. Touch **Dynamic Sensors**. 6. Touch **Input**. 7. Activate the input sensor. Did the touchscreen change from Open to Closed?	Replace the paper pick mechanism. See **"Paper pick mechanism assembly removal" on page 4-130**.	Replace the system board. See **"System board removal" on page 4-157**.

920.07—POST—Narrow media sensor error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JTRAY1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the cable in connector JTRAY1 for pinch points and the cable or connector for any other damage. Is the cable damaged?	Replace the paper pick mechanism. See **"Paper pick mechanism assembly removal" on page 4-130**.	Go to step 3.
3	Place a voltmeter between JTRAY1 pin 4 and ground (pin 1). Does the meter read +5 V dc?	Go to step 4	Replace the system board. See **"System board removal" on page 4-157**.

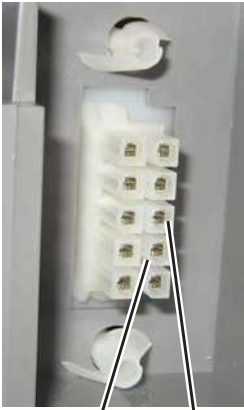| Step	Questions / actions	Yes	No
4	1. Disconnect the cable in JTRAY1, and connect the cable from the new paper pick mechanism. 2. Enter Diagnostics mode (press and hold buttons 3 and 6, turn on the MFP, and release the buttons when the progress bar displays. 3. Touch **Sensor Tests**. 4. Touch **Dynamic Sensors**. 5. Touch **Narrow Media**. 6. Activate the narrow media sensor. Did the narrow media sensor change from Closed to Open on the touchscreen?	Replace the paper pick mechanism. See **"Paper pick mechanism assembly removal" on page 4-130**.	Replace the system board. See **"System board removal" on page 4-157**.

920.08—Exit sensor service check

Step	Questions / actions	Yes	No
1	Verify the paper is loaded properly in the paper tray or manual feed slot. Is the paper properly loaded?	Go to step 2.	Load paper correctly.
2	1. Turn the printer off. 2. Install the new fuser. See **"Fuser assembly removal" on page 4-104**. **Note:** Do not reset fuser count or run motor calibration yet. 3. POR the printer. Did the error clear?	Problem resolved. **Note:** Complete the fuser installation, reset fuser count, and run motor calibration. See **"Fuser assembly removal" on page 4-104**.	Remove the new fuser, and go to step 3.
3	Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. Check the fuser DC cable in the connector JFUSER1 for proper connection to the system board, for pinch points, and for any other damage to the cable or the connector. Is the cable damaged?	Replace the fuser DC cable. See **"Fuser DC cable removal" on page 4-107**.	Go to step 4.

Step	Questions / actions	Yes	No
4	Place a voltmeter between the fuser DC autoconnect pin 8 and ground (pin 6). Pin 8 Pin 6(ground) Does the meter rear +5 V dc?	Go to step 6.	Go to step 5.
5	Place a voltmeter between the connector JFUSER1 pin 8 and ground (pin 6) on the system board. Does the meter read +5 V dc?	Go to step 6.	Replace the fuser DC cable. See "Fuser DC cable removal" on page 4-107.
6	1. Replace the fuser without resetting the fuser count. 2. Enter Diagnostics mode (press and hold buttons **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays. 3. Touch **SENSOR TESTS**. 4. Touch **Dynamic Sensors**. 5. Touch **Fuser Exit**. 6. Open the front door, and then the top access cover. 7. Activate the fuser exit sensor. Did the fuser exit sensor change from Open to Closed?	Replace fuser and reset the fuser count. See "Fuser assembly removal" on page 4-104.	Replace the system board. See "System board removal" on page 4-157.

920.09—POST—Four toner sensor not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JHVPS1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the HVPS cable in connector JHVPS1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.	Go to step 3.
3	1. Remove the left cover. See **"Left cover removal" on page 4-24**. 2. Reseat and check all the toner level sensor cables (A) connected to the rear of the HVPS for damages and if they are installed correctly. A Does the problem persist?	Go to step 4.	Problem resolved.
4	Connect four new toner level sensors outside the machine and perform a POR. **Note:** Keep track of which sensors change the error code to reduce the number of failing sensors. Keep the old sensor which does not reduce the failing number, leaving three new sensors and no error reported. Does the problem persist?	Remove the four new toner level sensors and go to step 5.	Replace the failing toner level sensors. See **"Toner level sensor removal" on page 4-166**.
5	Replace the HVPS board. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did the error clear?	Problem resolved.	Go to step 6.
6	1. Install the old HVPS back to the machine. 2. Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**. Does the problem persist?	Replace the system board. See **"System board removal" on page 4-157**	Problem resolved.

920.10—POST—Three toner sensors not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JHVPS1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the HVPS cable in connector JHVPS1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.	Go to step 3.
3	1. Remove the left cover. See **"Left cover removal" on page 4-24**. 2. Reseat and check all the toner level sensor cables (A) connected to the rear of the HVPS for damages and if they are installed correctly. A Does the problem persist?	Go to step 4.	Problem resolved.
4	Connect four new toner level sensors outside the machine and perform a POR. **Note:** Keep track of which sensors change the error code to reduce the number of failing sensors. Keep the old sensor which does not reduce the failing number, leaving three new sensors and no error reported. Does the problem persist?	Go to step 5.	Replace the failing toner level sensors. See **"Toner level sensor removal" on page 4-166**.
5	Replace the HVPS board. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did the error clear?	Problem resolved.	Go to step 6.
6	1. Install the old HVPS back to the machine. 2. Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**. Does the problem persist?	Replace the system board. See **"System board removal" on page 4-157**	Problem resolved.

920.11—POST—Two toner sensors not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JHVPS1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the HVPS cable in connector JHVPS1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.	Go to step 3.
3	1. Remove the left cover. See **"Left cover removal" on page 4-24**. 2. Reseat and check all the toner level sensor cables (A) connected to the rear of the HVPS for damages and if they are installed correctly. A Does the problem persist?	Go to step 4.	Problem resolved.
4	Connect four new toner level sensors outside the machine and perform a POR. **Note:** Keep track of which sensors change the error code to reduce the number of failing sensors. Keep the old sensor which does not reduce the failing number, leaving three new sensors and no error reported. Does the problem persist?	Go to step 5.	Replace the failing toner level sensors. See **"Toner level sensor removal" on page 4-166**.
5	Replace the HVPS board. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did the error clear?	Problem resolved.	Go to step 6.
6	1. Install the old HVPS back to the machine. 2. Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**. Does the problem persist?	Replace the system board. See **"System board removal" on page 4-157**	Problem resolved.

920.12—POST—One toner sensor not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JHVPS1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the HVPS cable in connector JHVPS1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.	Go to step 3.
3	1. Remove the left cover. See **"Left cover removal" on page 4-24**. 2. Reseat and check all the toner level sensor cables (A) connected to the rear of the HVPS for damages and if they are installed correctly. Does the problem persist?	Go to step 4.	Problem resolved.
4	Connect four new toner level sensors outside the machine and perform a POR. **Note:** Keep track of which sensors change the error code to reduce the number of failing sensors. Keep the old sensor which does not reduce the failing number, leaving three new sensors and no error reported. Does the problem persist?	Go to step 5.	Replace the failing toner level sensor. See **"Toner level sensor removal" on page 4-166**.
5	Replace the HVPS board. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did the error clear?	Problem resolved.	Go to step 6.
6	1. Install the old HVPS back to the machine. 2. Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**. Does the problem persist?	Replace the system board. See **"System board removal" on page 4-157**	Problem resolved.

920.13—POST error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cables in connectors JCARTP1 and JCARTS1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the cables in connectors JCARTP1 and JCARTS1 for pinch points and any other damage to the cables or connectors. Is the cable damaged?	Replace the cartridge motor 1/fuser cable. See **"Cartridge motor 1/fuser cable removal" on page 4-54**.	Go to step 3.
3	1. Remove the right cover. See **"Right cover removal" on page 4-38**. 2. Check for the cartridge 1/fuser motor cable (A) for proper connection to the EP drive assembly, pinch points for the cable, or any other damage to the cable or connector. A A Is either cable (A) damaged?	Replace the cartridge motor 1/fuser cable. See **"Cartridge motor 1/fuser cable removal" on page 4-54**.	Go to step 4.
4	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 5.
5	Plug in a new EP drive assembly cartridge motor 1 with the old cable from outside the machine. Does the problem persist?	Go to step 6.	Replace the EP drive assembly. See **"Electrophotographic (EP) drive assembly removal" on page 4-78**.
6	Plug in a new EP drive assembly cartridge motor 1 with a new cable from outside the machine. Does the problem persist?	Replace the system board. See **"System board removal" on page 4-157**.	Replace the cartridge motor 1/fuser cable. See **"Cartridge motor 1/fuser cable removal" on page 4-54**.

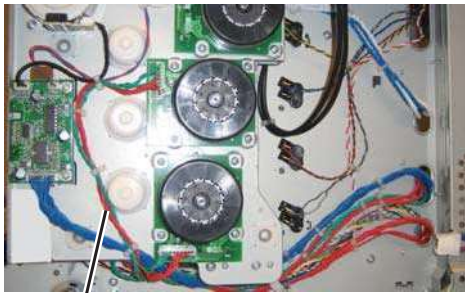## 920.14—POST—Cartridge motor 2 not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cables in connector JCARTP2 and JCARTS2. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the cable in connector JCARTP2 and JCARTS2 for pinch points and any other damage to the cable or connector. Are the cables damaged?	Replace the cartridge motor 2/3 cable. See **"Cartridge motor 2/3 cable removal" on page 4-57**.	Go to step 3.
3	1. Remove the right cover. See **"Right cover removal" on page 4-38**. 2. Check the cartridge motor 2/3 cable (A) for the proper connection to the EP drive assembly, pinch point for the cable, or damage to the cable or connectors. Is either cable (A) damaged?	Replace the cartridge motor 2/3 cable. See **"Cartridge motor 2/3 cable removal" on page 4-57**.	Go to step 4.
4	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace system board. See **"System board removal" on page 4-157**.	Go to step 5.
5	Connect a new cartridge motor 1/fuser cable from the outside of the machine. Did the error clear?	Replace the cartridge motor 1/fuser cable. See **"Cartridge motor 1/fuser cable removal" on page 4-54**.	Go to step 6.
6	Connect the old cartridge motor 1/fuser motor cable to a new EP drive assembly outside of the machine. Did the error clear?	Replace the EP drive assembly. See **"Electrophotographic (EP) drive assembly removal" on page 4-78**.	Replace system board. See **"System board removal" on page 4-157**.

920.15, 920.20—POST—Bad transfer module NVRAM data error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the JTPS1 connector for any damage, and then reseat the JTPS1 cable. 4. Check the transport cable connection to the transport belt for any damages. a.Open the front door cover b.Reseat the transport cable in the transfer belt module. Did the error clear?	Problem resolved.	Go to step 2.
2	Replace the transfer belt module. See **"Transfer module removal" on page 4-180**. Does the problem persist?	Go to step 3.	Problem resolved.
3	Connect a new transport cable from outside of the machine. Does the problem persist?	Return the old transport belt module and old transport cable then replace the system board. See **"System board removal" on page 4-157**.	Return the old transport belt module and replace the transport cable. See **"Transport cable removal" on page 4-182**.

920.16—POST—Bad printhead NVRAM data error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the large printhead cable in connector JPH1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the cable in connector JPH1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the printhead. See **"Printhead removal, installation, and adjustment" on page 4-140**.	Go to step 3.
3	1. Perform the printhead verification to check whether the printhead replacement fixes the problem. See **"Printhead verification" on page 3-52**. 2. POR the printer. Did the printhead motor pass the test?	Replace the printhead. See **"Printhead removal, installation, and adjustment" on page 4-140**.	Replace the system board. See **"System board removal" on page 4-157**.

920.17—POST error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the bin full sensor cable in connector JBIN1. Did the error clear?	Problem resolved.	Go to step 2.
2	Check the bin full sensor cable in connector JBIN1 for pinch points and any other damage to the cable or connector. Is the cable damaged?	Replace the bin full sensor with cable. See **"Bin full sensor assembly removal" on page 4-52**.	Go to step 3.
3	1. Disconnect the cable in JBIN1 connector. 2. Connect the new bin full sensor flag connector in the JBIN1 connector. 3. Enter Diagnostics mode (press and hold buttons **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays. 4. Touch **SENSOR TESTS**. 5. Touch **Dynamic Sensors**. 6. Touch **Other Sensors**. 7. Touch **Bin Full**. 8. Activate the new bin full sensor by pressing on the flag, as shown. Did the bin full sensor change from Open to Closed on the touchscreen?	Replace the bin full sensor and cable. See **"Bin full sensor assembly removal" on page 4-52**.	Replace the system board. See **"System board removal" on page 4-157**.

920.18—POST—Cartridge motor 3 not connected error service check

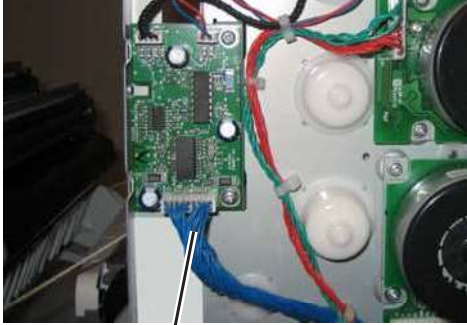| Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cables in connectors JCARTP2 and JCARTS2. Did the error clear?	Problem resolved.	Go to step 2.
2	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 3.
3	1. Remove the right cover. See **"Right cover removal" on page 4-38**. 2. Check the connections on the cartridge motor 2/3 cables and reseat the cables. 3. Check the routing on the cables for pinch points and any other damage to the cables or the connectors. Is the cable free from damage?	Replace the cartridge motor 2/3 cable. See **"Cartridge motor 2/3 cable removal" on page 4-57**.	Go to step 4.
4	Connect a new Cartridge motor 2/3 cable from outside of the machine, then POR the printer. **Note:** Verify first if the cable is working properly by testing connections of the cable on motor 2 and 3 to the JCARTP2 and JCARTS2 connectors. Route the cables properly only when you have verified that the cables are working properly. Did the error clear?	Replace the cartridge motor 2/3 cable. See **"Cartridge motor 2/3 cable removal" on page 4-57**.	Go to step 5.
5	Connect a new EP drive assembly from the outside of the machine. **Note:** Verify first if the EP drive assembly is working properly. Connect the cables on the fuser motor, cartridge motor 1, 2, and 3 on the new EP drive assembly. Route the cables properly only when you have verified that the cables are working properly. Did the error clear?	Return the old cartridge motor 2/3 cable and replace the EP drive assembly. See **"Electrophotographic (EP) drive assembly removal" on page 4-78**	Return the old EP drive assembly and the old cartridge motor 2/3 cable, then replace the system board. See **"System board removal" on page 4-157**.

920.19—POST—Transfer module stepper motor not connected error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the motor driver cable in connector JDVR1. Did the error clear?	Problem resolved.	Go to step 2.
2	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 3.

Step	Questions / actions	Yes	No
3	1. Open the right cover. 2. Reseat the motor driver cable on the motor driver side (A). 3. Reseat all cables connected to the motor driver card. A Does this clear the error?	Problem resolved.	Go to step 4.
4	Connect a new motor driver cable from outside of the machine. **Note:** Make sure to verify first if the motor driver cable is working properly by connecting one end to the motor driver card, and the other end to the JDVR1 connector on the system board. Route the cables properly only when you have verified that the cable is working properly. Does this clear the error?	Replace the motor driver cable See **"Motor driver cable removal" on page 4-117**.	Go to step 5.
5	Connect a new transport motor cable. Did this clear the error?	Return the original part from the printer and replace the transport motor cable. See **"Transport motor cable removal" on page 4-185**.	Go to step 6.
6	Connect a new motor driver card. Did this clear the error?	Return the original parts of the printer and replace the motor driver card. See **"Motor driver card removal" on page 4-118**.	Go to step 7.
7	1. Connect a new EP drive assembly from outside of the machine. 2. Transfer the motor driver card and cables to the new EP drive assembly and connect the cables. Did this clear the error?	Replace the EP drive assembly and connect the original parts back to the machine. See **"Electrophotographic (EP) drive assembly removal" on page 4-78**.	Replace the system board. See **"System board removal" on page 4-157**.

920.21—POST—24 V power supply failure error service check

Step	Questions / actions	Yes	No
1	**Note:** The LVPS must be turned off for several seconds before turning back on. This error can occur if the LVPS does not have time to recover after being turned off. 1. Open the front door cover 2. Check the 24V interlock switch for damage and proper installation. 3. Check if the front door actuator can trigger the sensor. Is the front door sensor actuator able to trigger the sensor?	Go to step 3.	Go to step 2.
2	1. Check if the front door assembly can close properly. 2. Check the front door pivot for any damage. 3. Check if the front door can close properly. Is the front door damaged?	Replace the front door. See **"Front door assembly removal" on page 4-92**.	Go to step 3.
3	1. Check the cable in connector JCVR1 for proper connection to the system board, pinch points, and for any other damage to the cable or connector. 2. Reseat the cable. Did the error clear?	Problem resolved.	Go to step 4.
4	1. Disconnect the cable in connector JCVR1 2. Connect a new 24 V interlock switch without properly routing the cables. **Note:** The 24V interlock switch should be plugged in without installing inside the machine. Close the covers, manually actuate the switch, and then turn on the machine. Did the error clear?	Replace the 24 V interlock switch. See **"24 V interlock switch removal" on page 4-50**.	Go to step 5.
5	Check the input voltage switch on the back of the low-voltage power supply (LVPS). Some power supplies do not have the switch. **Note:** If your FRU does not have a switch, proceed to step 6. Is the voltage level (115/230) properly set?	Go to step 6.	Set the switch for the proper voltage supported by your country.
6	Reseat the cable in connector JLVPS1. Did the error clear?	Problem resolved.	Go to step 7.
7	Replace the LVPS. **Note:** Verify first if the new LVPS is working properly before installing it inside the machine. Remove the old LVPS, and install the new LVPS without installing the screws. Connect the fuser and JLVPS1 connectors to the new LVPS. Did the error clear?	Replace the LVPS. See **"Low-voltage power supply (LVPS) removal" on page 4-115**.	Replace the system board. See **"System board removal" on page 4-157**.
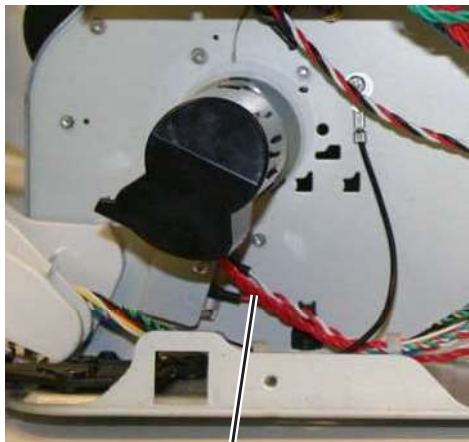
920.23—POST error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Reseat the cable in connector JDX1. Did the error clear?	Problem resolved.	Go to step 2.
2	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 3.
3	1. Remove the right cover. See **"Right cover removal" on page 4-38**. 2. Check the MPF/duplex motor cable in connector JDX1 for pinch points and any other damage to the cable or connector. Check both ends of the cable. A Is the cable damaged?	Replace the MPF/duplex motor cable. See **"Multipurpose feeder (MPF)/duplex motor cable removal" on page 4-125**. **Note:** Make sure to verify if the new cable is working properly first. Route the cables properly only when you have verified that the cables are working properly.	Go to step 4.
4	1. Replace the MPF/duplex motor assembly. See**"Multipurpose feeder (MPF)/duplex motor cable removal" on page 4-125**. **Note:** Before replacing a motor, always verify if the new part is working properly by connecting it outside of the machine, 2. POR the printer and check if the error is gone. Did the error clear?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

920.26—POST service check

Step	Questions / actions	Yes	No
1	Open the top access cover. A Is the top cover sensor damaged?	Replace the top cover sensor.	Go to step 2.
2	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear cover removal" on page 4-36**. 3. Check the cable in the connector JFDS1 for proper connection to the system board, pinch points, and the cable or connector for any other damage. Is the cable damaged?	Replace the top cover sensor.	Go to step 3.
3	1. Disconnect the cable in connector JFDS1. 2. Connect the new top cover sensor. 3. Enter Diagnostics mode (press and hold buttons 3 and 6, turn on the MFP, and release the buttons when the progress bar displays. 4. Touch **Sensor Tests**. 5. Touch **Dynamic Sensors**. 6. Touch **Top Door**. 7. Activate the top cover sensor by pressing the flag as shown. Does the display on the touchscreen change from Open to Closed?	Replace the top cover sensor.	Replace the system board. See **"System board removal" on page 4-157**.

920.27, 920.28, 920.29—POST (power on self test) option tray error service check

Step	Questions / actions	Yes	No
1	Is the specified option the 550-sheet tray?	Replace the 550-sheet tray with a new 550-sheet tray option.	Go to step 2.
2	Is the specified option the special media tray?	Replace the special media tray with a new special tray option.	Go to step 3.
3	Is the specified option the high-capacity input tray (HCIT)?	Replace the HCIT controller board assembly. See **"HCIT controller board assembly removal" on page 4-271**	

920.32—MPF paper present sensor not connected service check

Step	Questions / actions	Yes	No
1	Check the cable in connector JMPFPP1 for proper connection, reseat cable. Did the error clear?	Problem resolved.	Go to step 2.
2	1. Check the connection on the paper present sensor side. 2. Check for damage and pinch points on the cable. 3. Reseat cable. Did this fix the problem?	Problem resolved.	Go to step 3.
3	Replace the MPF paper present sensor. See **"Multipurpose feeder (MPF) paper present sensor" on page 4-126**. **Note:** Before replacing a part, always verify by connecting the part outside of the machine. Did the error clear?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

925.01, 925.03, 925.05—Fan error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector JFAN1 for proper connection to the system board, for pinch points, and for any other damage to the cable or the connector. Is the cable damaged?	Replace the fan. See **"Cooling fan removal" on page 4-73**.	Go to step 2.
2	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 3.

Step	Questions / actions	Yes	No
3	1. Disconnect the cable in connector JFAN1, and install a new cooling fan. 2. Turn the multifunction printer off, and turn the MFP on (perform a POR). **Note:** After installing the new fan, a print test is required to verify operation. Print one page every 30 seconds for 20 minutes to test the highest fan speed. Do not test unless the fan is installed in the machine. Did the error clear?	Replace the fan. See **"Cooling fan removal" on page 4-73**.	Replace the system board. See **"System board removal" on page 4-157**.

925.02, 925.04, 925.06—Blower error service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector JBLW1 for proper connection to the system board, for pinch points, and any other damage to the cable or connector, and reseat the cable. Did the error clear?	Problem resolved.	Go to step 2.
2	Measure the continuity across all of the fuses on the system board. Are any of the fuses blown?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 3.
3	1. Replace the cartridge cooling fan. See **"Cartridge cooling fan removal" on page 4-53**. 2. Turn the multifunction printer off, and turn the MFP on (perform a POR). **Note:** After installing the new fan, a print test is required to verify operation. Print one page every 30 seconds for 20 minutes to test the highest fan speed. Do not test unless the fan is installed in the machine. Did the error clear?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

945.xx, 947.xx—Transfer roll error service check
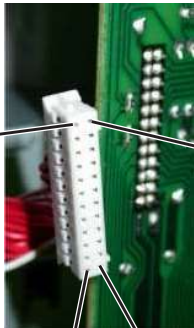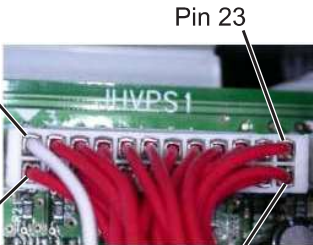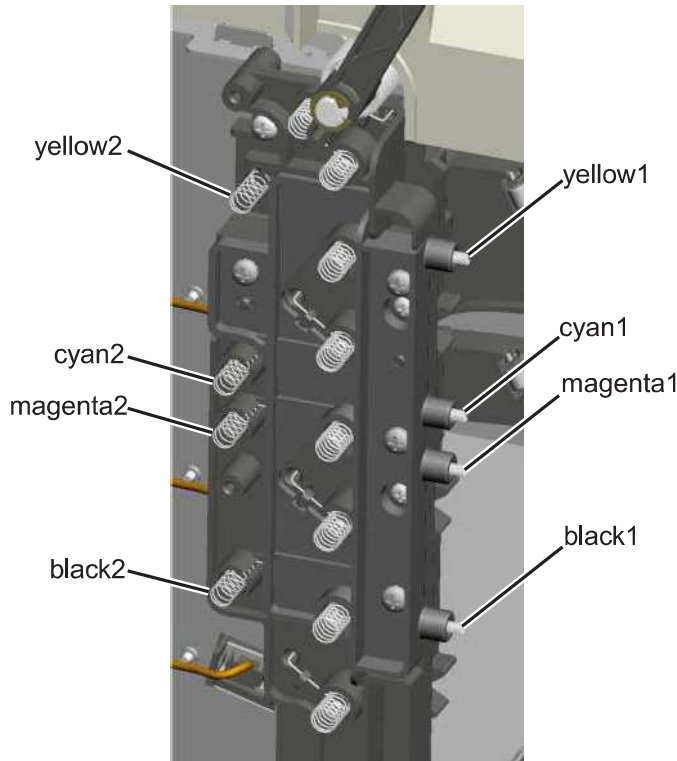
Step	Questions / actions	Yes	No
1	1. Replace the transfer module. See **"Transfer module removal" on page 4-180**. 2. POR the printer. **Note:** Print 5 pages, one at a time to check operation. Did the error clear?	Problem resolved.	Replace the original transfer module. Go to step 2.
2	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector JHVPS1 for proper connection to the system board, the cable for pinch points, and the cable or connector for any other damage. Is the cable damaged?	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.	Go to step 3.
3	Disconnect JHVPS1 from system board and HVPS. Check for the following continuity. Is continuity present?	Go to step 4.	Replace the HVPS cable. See **"High-voltage power supply (HVPS) cable removal" on page 4-112**.

JHVPS1 cable to:		Error code
HVPS	**System board**	
Pin 19	Pin 19	945.01, 946.01, 947.01
Pin 20	Pin 20	
Pin 15	Pin 15	945.02, 946.02, 947.02
Pin 16	Pin 16	
Pin 17	Pin 17	945.03, 946.03, 947.03
Pin 18	Pin 18	
Pin 23	Pin 23	945.04, 946.04, 947.04
Pin 24	Pin 24	

Step	Questions / actions	Yes	No
4	1. Remove the HVPS. See **"High-voltage power supply (HVPS) removal" on page 4-110**. 2. Check for continuity between the contacts (yellow1 and yellow2, cyan1 and cyan2, magenta1 and magenta2, or black1 and black2) on the transfer contact assembly. yellow2 — cyan2 — magenta2 — black2 — yellow1 — cyan1 — magenta1 — black1 Is continuity present?	Go to step 5.	Replace the transfer contact assembly.
5	Replace the HVPS. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did the error clear?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

950.00–950.29—EPROM mismatch failure

Warning: When replacing any one of the following components:

- Scanner MDC card or flatbed scanner
- System board

Replace only one component at a time or the MFP will be rendered inoperable. Replace the required component, and bring the MFP up in Diagnostic Menu (see **"Accessing test and diagnostic procedure menus" on page 3-1**), and verify that the problem is fixed before performing a POR.

This error code indicates a mismatch between the system board and the scanner MDC card.

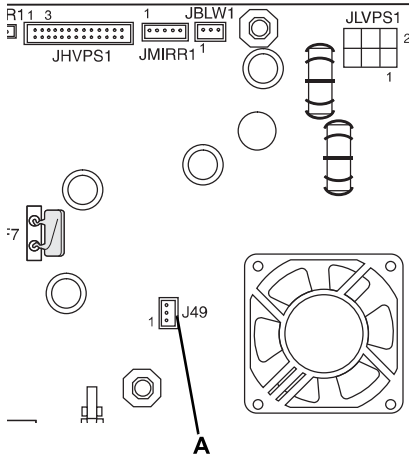| Step	Questions / actions	Yes	No
1	Has the MDC card been replaced recently?	Replace the scanner MDC card with a new and previously installed scanner MDC card. See **"Scanner MDC card removal" on page 4-261**.	Go to step 2.
2	Has the flatbed scanner been replaced recently?	Replace the flatbed scanner with a new and not previously installed flatbed scanner. See **"Flatbed scanner removal" on page 4-255**	Go to step 3
3	Has the system board been replaced recently?	Replace the system board with a new and not previously installed system board. See **"System board removal" on page 4-157**	Go to step 4.
4	Turn the printer power off for ten or more seconds. Then turn the power back on (POR the printer). Is the error gone, and can the printer print?	Problem resolved.	Go to step 5.
5	Clear the NVRAM of the printer. 1. Turn the printer power off. 2. With the printer off, press and hold the **2**, **6**, **7**, and **8** buttons. 3. Turn the printer power on. 4. When the message Restoring Factory Defaults displays, release the buttons. If the MFP locks up on the Restoring Factory Defaults message, wait two minutes, and then turn the printer power off. After ten seconds or more, turn the printer power back on without holding down any buttons. Is the error message displayed?	Go to step 6.	Problem resolved.
6	Replace the scanner MDC card. See **"Scanner MDC card removal" on page 4-261**.	Replace the system board. See **"System board removal" on page 4-157**.	Problem resolved.

956.xx—System board failure service check

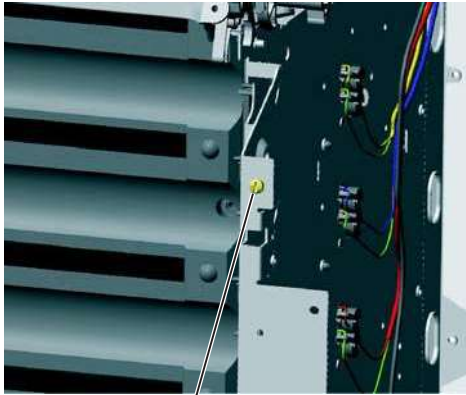| Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector J49 (A) for proper connection to the system board. Is the cable seated correctly?	Replace the system board. See **"System board removal" on page 4-157**.	Reseat the cable.

5 V interlock switch service check

Step	Questions / actions	Yes	No
1	Is the +5 V switch (B) damaged? B	Replace the 5 V interlock switch. See **"5 V interlock switch cable removal" on page 4-48**.	Go to step 2.
2	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector JINT1 for proper connection to the system board, for pinch points, and for any other damage to the cable or connector. Is the cable damaged?	Replace the 5 V interlock switch. See **"5 V interlock switch cable removal" on page 4-48**.	Go to step 3.

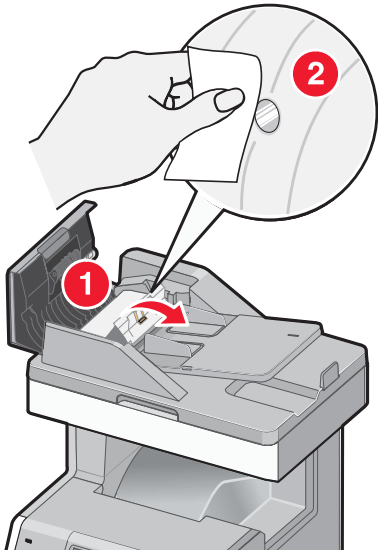| Step	Questions / actions	Yes	No
3	1. Disconnect the cable in connector JINT1. 2. Connect the new 5 V interlock switch to JINT1. 3. Bring the printer up in the Diagnostics menu (turn off the printer, press and hold **3** and **6**, turn on the printer.) 4. Activate the new 5 V interlock switch. 5. Does the display go from Close front door to the Diagnostics Menu?	Replace the 5 V interlock switch. See **"5 V interlock switch cable removal" on page 4-48**.	Replace the system board. See **"System board removal" on page 4-157**.
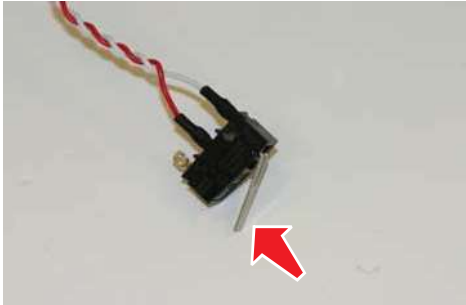
24 V interlock switch removal

Step	Questions / actions	Yes	No
1	Is the 24 V switch damaged? A	Replace the 24 V interlock switch. See **"24 V interlock switch removal" on page 4-50**.	Go to step 2.
2	1. Turn the printer off. 2. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 3. Check the cable in connector JCVR1 for proper connection to the system board, for pinch points, and for any other damage to the cable or connector. Is the cable damaged?	Replace the 24 V interlock switch. See **"24 V interlock switch removal" on page 4-50**.	Go to step 3.

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Step	Questions / actions	Yes	No
3	1. Disconnect the cable in connector JCVR1/ 2. Connect the new 24 V interlock switch. 3. Enter Diagnostics mode (press and hold buttons **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays. 4. Activate the new 24 V interlock switch. Does the display go from Close Front Door to the Diagnostics menu?	Replace the 24 V interlock switch. See **"24 V interlock switch removal" on page 4-50**.	Replace the system board. See **"System board removal" on page 4-157**.

ADF exit sensor service check

Step	Questions / actions	Yes	No
1	Make sure the mirror is clean: 1. Turn the printer off. 2. Open the ADF front cover. 3. Lift the flap as shown. Is the mirror clean?	Go to step 2.	Slightly dampen a soft, lint-free cloth with water, and clean the mirror.

Step	Questions / actions	Yes	No
2	Remove the ADF motor side cover. See **"ADF motor side cover removal" on page 4-212**. Is the ADF exit sensor cable (A) connected correctly?	Go to step 3.	Reseat the cable in connector.
3	Replace the ADF exit sensor. See **"ADF exit sensor (with cable) removal" on page 4-234**. Did the error clear?	Problem resolved.	Contact the next level of support.

ADF input sensor service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Open the ADF front cover. Is the flag (A) damaged?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Go to step 2.

Step	Questions / actions	Yes	No
2	1. Remove the ADF front cover. See **"ADF front cover removal" on page 4-208**. 2. Remove the ADF motor side cover. See **"ADF motor side cover removal" on page 4-212**. 3. Close the ADF case assembly. Are the connector (A) seated correctly?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Reseat connectors

ADF jam sensor service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Open the ADF front cover. 3. Turn the wheel. Is the wheel (A) damaged?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Go to step 2.
2	1. Remove the ADF front cover. See **"ADF front cover removal" on page 4-208**. 2. Remove the ADF motor side cover. See **"ADF motor side cover removal" on page 4-212**. 3. Open the ADF case assembly. Are the connectors (A) seated correctly?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Reseat the connectors.

ADF cover open service check

Step	Questions / actions	Yes	No
1	1. Open the ADF cover. 2. Check the ADF cover sensor flag for any damage. Is the flag damaged?	Replace the flag. See **"ADF closed cover flag removal" on page 4-233**.	Go to step 2.
2	1. Check if the ADF cover can close properly. 2. Check for damages and obstruction. 3. Check the ADF top cover latch for any damage. Is the ADF cover damaged?	Replace the scanner front cover assembly. See **"Scanner front cover removal" on page 4-223**	Go to step 3.
3	1. Check the cable connection on the system board J1,J3 and J1,J6 on the MDC card for proper connection. 2. Reseat cable. Does the error clear?	Problem resolved.	Go to step 4.
4	Check for damages, pinch points and bends on the cable. Is the cable free of damage?	Go to step 5.	Replace either of the following depending on what cable has damaged: • Scanner to system board flat cable. • Scanner to system board cable.
5	1. Reseat all cables on the MDC card. 2. Check the condition of the cable connectors. Does this fix the problem?	Problem resolved.	Go to step 6.
6	Isolate the problem and replace the ADF assembly. See **"ADF removal (entire)" on page 4-228**. Does this fix the problem?	Go to step 7.	Go to step 8.
7	1. Isolate the components inside the ADF assembly. 2. Replace the following components one by one, and perform a POR in between. 　- ADF front case assembly 　- ADF skew card 　- ADF cable 　- Scanner ICC card Does one of these replaced parts fixed the problem?	Problem resolved. Replace the bad part.	Go back to step 1.
8	Replace the MDC. Does this fix the problem?	Problem resolved.	Go to step 9.
9	Replace the ADF scanner Assembly. Does this fix the problem?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

ADF skew sensor service check

Step	Questions / actions	Yes	No
1	1. Turn the printer off. 2. Open the ADF front cover. See **"ADF front cover removal" on page 4-208**. A Is the flag (A) damaged?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Go to step 2.
2	1. Remove the ADF front cover. See **"ADF front cover removal" on page 4-208**. 2. Remove the ADF motor side cover. See **"ADF motor side cover removal" on page 4-212**. A 3. Open the ADF case assembly. Are the connectors (A) seated correctly?	Replace the ADF case assembly. See **"ADF case assembly removal" on page 4-230**.	Reseat the connectors.

ADF scanning sensor service check

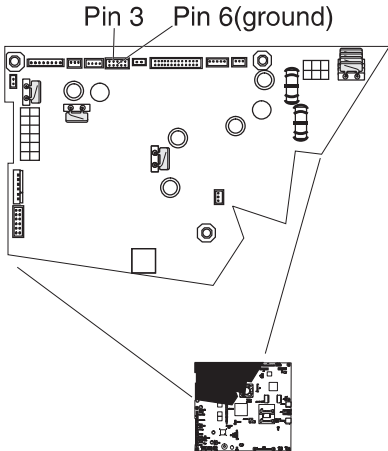| Step	Questions / actions	Yes	No
1	Remove the ADF motor side cover. See **"ADF motor side cover removal" on page 4-212**. Are the connectors seated correctly?	Replace the ADF. See **"ADF removal (entire)" on page 4-228**.	Reseat connector.
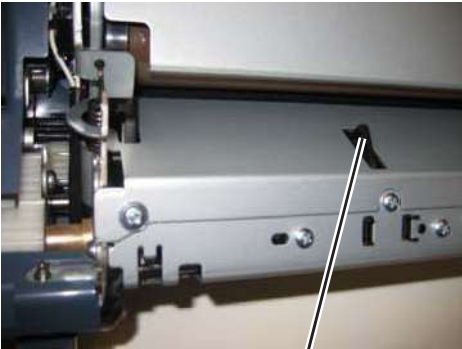
Bubble sensor service check

Step	Questions / actions	Yes	No
1	Is the bubble sensor flag (A) damaged? 	Replace the fuser. See **"Fuser assembly removal" on page 4-104**.	Go to step 2.
2	1. Remove the rear frame cover. See **"Rear frame cover removal" on page 4-37**. 2. Check the fuser DC cable in connector JFUSER1 for proper connection to the system board, pinch points, and any other damage to the cable or connector. Is the cable damaged?	Replace the fuser DC cable. See **"Fuser DC cable removal" on page 4-107**. **Note:** Make sure to verify if the new cable is working properly first. Route the cables properly only when you have verified that the cables are working properly.	Go to step 3.

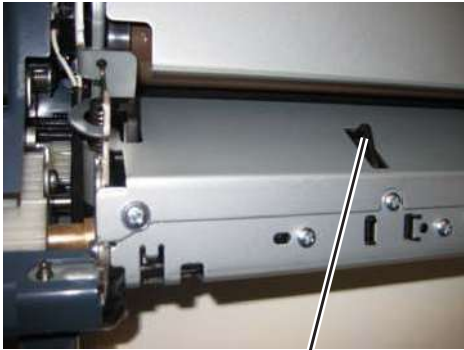| Step	Questions / actions	Yes	No
3	Place a voltmeter between fuser DC autoconnect pin 3, and ground (pin 6). Pin 3 Pin 6 (ground) Does the meter read +5 V dc?	Go to step 5.	Go to step 4.
4	Place a voltmeter between the JFUSER1, pin 3 and ground (pin 6). Pin 3 Pin 6(ground) Does the voltage drop to +5 V dc?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 5.

Step	Questions / actions	Yes	No
5	1. Replace the fuser. 2. Enter Diagnostics mode (press and hold buttons **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays.) 3. Touch **SENSOR TESTS**. 4. Touch **Dynamic Sensors**. 5. Touch **Bubble**. 6. Open the front access door and the top access cover. 7. Activate the bubble sensor flag (A). A Did the bubble sensor change from Open to Closed on the touchscreen?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

Dead printer service check

A dead printer is a condition where the display is blank, the LED on the operator panel is off, no fans turn, no motors turn, and the fuser lamp does not come on.

If a 550-sheet option assembly is installed, remove the option, and check the base printer for correct operation. If the base printer operates correctly, replace the 550-sheet option assembly.

Warning: Observe all necessary ESD precautions when removing and handling the system board or any installed option cards or assemblies. See **"Handling ESD-sensitive parts" on page 4-1**.

⚡	**CAUTION** When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.

Remove any input and output paper handling options from the printer.

Step	Questions / actions	Yes	No
1	Check the AC line voltage. Is the line voltage correct?	Go to step 2.	Inform the customer.
2	Is the AC line cord damaged?	Replace the line cord.	Go to step 3.
3	Check the system board for +5 V dc between JLVPS2 pin 1 and ground. Is the voltage correct?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 4.
4	Is the JLVPS2 cable correctly installed at JLVPS2 on the system board?	Go to step 5.	Reseat the JLVPS2 cable.
5	1. Turn the printer off. 2. Disconnect the JLVPS2 cable from the system board. 3. Turn the printer on. 4. Measure the voltage between the JLVPS2 cable pin 1 and the JLVPS2 pin 14 (black wire). Does this measure approximately +5 V dc?	Go to step 6.	Replace the LVPS. See **"Low-voltage power supply (LVPS) removal" on page 4-115**.
6	1. Turn the printer off. 2. Disconnect cables J5, JCARTS1. JCARTS2, JDVR1, JFDPCK1, JFUSER1, JINT1, JOPT1, and JTLB%1. 3. Connect the JLVPS2 cable to the system board. Remove one option/feature at a time, and then turn the printer on to isolate the failing part. **Warning:** Observe all the ESD precautions (see **"Handling ESD-sensitive parts" on page 4-1**) and turn the printer off before any feature or option cards are removed or replaced. Is a failing part found?	Contact your next level of support. Replace the faulty part.	Go to step 7.
7	Connect one cable at a time and POR the printer. Is the printer still dead?	The part connect to that cable is faulty. Replace the failing part.	Connect another cable, and then continue with this step.

Networking service check

Note: Before starting this service check, print out the network setup page. This page is found under **Menu— Reports—Network Settings.** Consult the network administrator to verify that the physical and wireless network settings displayed on the network settings page for the device are properly configured. If a wireless network is used, verify that the printer is in range of the host computer or wireless access point, and there is no electronic interference. Have the network administrator verify that the device is using the correct SSID, and wireless security protocols. For more network troubleshooting information, consult the Lexmark Network Setup Guide.

Step	Questions / actions	Yes	No
1	If the device is physically connected to the network, verify that the ethernet cable is properly connected on both ends. Is the cable properly connected?	Go to step 3. If the network is wireless, got to step 3.	Go to step 2.
2	Connect the ethernet cable. Did this fix the problem?	Problem resolved	Go to step 3.
3	Check the printer's online status under Printers and Faxes on the host computer. Delete all print jobs in the print queue. Is the printer online and in a **Ready** state.	Go to step 5.	Go to step 4.
4	Change the printer status to online. Did this fix the issue?	Problem resolved.	Go to step 5.
5	Does the IP address displayed on the network settings page match the IP address in the port of the drivers using the printer?	Go to step 10.	Go to step 6.
6	Does the LAN use DHCP? **Note:** A printer should use a static IP address on a network.	Go to step 7.	Go to step 9.
7	Are the first two segments if the IP address 169.254?	Go to step 8.	Go to step 9
8	POR the printer. Is the problem resolved	Problem resolved	Go to step 10.
9	Reset the address on the printer to match the IP address on the driver. Did this resolve the issue?	Problem fixed.	Go to step 10.
10	Have the network admin verify that the printer and PC's IP address have identical subnet addresses. Are the subnet addresses the same?	Go to step 12.	Go to step 11.
11	Using the subnet address supplied by the network admin, assign a unique IP address to the printer. Do not assign an address that is already in use on the network. **Note:** The printer IP address should match the IP address on the printer driver. Did this fix the problem?	Problem resolved.	Go to step 12.
12	Is the device physically connected (ethernet cable) to the network?	Go to step 13.	Go to step15.

Step	Questions / actions	Yes	No
13	Try using a different ethernet cable. Did this remedy the situation?	Problem resolved.	Go to step 14.
14	Have the network administrator check the network drop for activity. Is the drop functioning properly?	Replace the system board. See **"System board removal" on page 4-157**.	Contact the network administrator.
15	Is the printer on the same wireless network as the other devices?	Go to step 17.	Go to step 16.
16	Assign the correct wireless network to the printer. Did this fix the problem?	Problem resolved.	Go to step 17.
17	Are the other devices on the wireless network communicating properly?	Go to step 18.	Contact the network administrator.
18	Verify that the ISP wireless card cable is properly seated in their connectors. Is the wireless card seated correctly?	Go to step 20.	Go to step 19.
19	Properly reseat the ISP cables. Did this fix the problem?	Problem resolved.	Go to step 20.
20	Replace the ISP wireless card. See Installing an Internal Solutions Port (ISP). Did this fix the problem?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

Operator panel service check

One or more operator panel buttons fail

Step	Questions / actions	Yes	No
1	Run the Button Test. See **"Button Test" on page 3-13** in Diagnostics mode. Did any of the buttons fail the test?	Replace the operator panel assembly. See **"Operator panel assembly removal" on page 4-27**.	Go to step 2.
2	Disconnect the operator panel assembly cable from JOPP1 on the system board, and then measure the voltage on pin 6 and ground. Does the voltage measure approximately +3.3 V dc?	Replace the operator panel assembly. See **"Operator panel assembly removal" on page 4-27**. If this does not fix the problem, replace the top cover access assembly. See **"Top access cover assembly removal" on page 4-40**.	Replace the system board. See **"System board removal" on page 4-157**.

Operator panel display blank, five *beeps*, and LED is off

Service tip: The printer has detected a problem with the system board, the operator panel assembly cable (part of the top cover access assembly), or the operator panel assembly if POST does not complete. The printer emits five *beeps*, and then sticks in a continuous pattern until the printer is turned off.

Step	Questions / actions	Yes	No
1	Is the operator panel assembly cable properly installed at system board JOPP1 and at the operator panel assembly?	Go to step 2.	Reinstall the cable.
2	Measure the voltage between JOPP1 pin 2 and ground on the system board. Is the voltage approximately +5 V dc?	Go to step 3.	Replace the system board. See **"System board removal" on page 4-157**.
3	Check continuity of the operator panel assembly cable. Is there continuity?	Replace the operator panel assembly. See **"Operator panel assembly removal" on page 4-27**.	Replace the top cover access assembly. See **"Top access cover assembly removal" on page 4-40**.

Operator panel display blank, five *beeps*, LED on

Service tip: The printer has detected a problem with the system board, the operator panel assembly cable (part of the top cover access assembly), or the operator panel assembly if POST does not complete. The printer emits five *beeps*, and then sticks in a continuous pattern until the printer is turned off.

Step	Questions / actions	Yes	No
1	Check for ground between JOPP1 pin 4 and ground. Is the voltage approximately 0 V dc?	Replace the operator panel assembly. See **"Operator panel assembly removal" on page 4-27**.	Go to step 2.
2	Check the operator panel assembly cable. Is the cable damaged?	Replace the top cover access assembly. See **"Top access cover assembly removal" on page 4-40**.	Replace the system board. See **"System board removal" on page 4-157**.

Black display, stripes display, and distorted display

Step	Questions / actions	Yes	No
1	1. Turn off the printer. 2. Open the rear cover. 3. Reseat the UICC cable (J2) on the system board. 4. Check the J2 connector on the system board for any damage. Is the connector damaged?	Replace the system board. See **"System board removal" on page 4-157**.	Go to step 2.
2	1. Turn off the printer. 2. Disconnect the J2 UICC cable. 3. Connect a new top access cover assembly from outside of the machine for verification. Does the problem persist?	Return to the od top access cover assembly, then go to step 6.	Return to the old top access cover assembly, then go to step 3.

Step	Questions / actions	Yes	No
3	1. Open the top access cover assembly, Refer to **"Top access cover assembly removal" on page 4-40**. 2. Reseat the UICC cable on both ends. 3. Check for any damage on the cable. Is the cable damaged?	Replace UICC cable. See **"UICC cable removal" on page 4-188**.	Go to step 4.
4	Replace the UICC card and the interconnect card. Does the problem persist?	Return the old UICC card and interconnect card, then go to step 5.	Problem resolved.
5	Replace the LCD panel. See **"Operator panel assembly removal" on page 4-27**. Does the problem persist?	Go to step 6	Problem resolved.
6	Replace the UICC cable. See **"UICC cable removal" on page 4-188**. Does the problem persist?	1. For dead display. go to **"Dead printer service check" on page 2-146**, then 2. Replace the system board. See **"System board removal" on page 4-157**.	Problem resolved.

Stripes display and black display during boot up service check

Step	Questions / actions	Yes	No
1	1. Check operator panel connector on the system boardJ2 for proper connection. 2. Make sure the cable is properly connected and the metallic terminals of the cable is facing up. 3. Make sure the connector is properly locked 4. Reseat the cable. **Note:** Try this step at least 3 times if the problem wont clear before going to the next step. Does the problem clear?	Problem resolved.	Go to step 2.
2	Replace the whole operator panel assembly to isolate the problem. See **"Operator panel assembly removal" on page 4-27**. Does the problem clear?	Go to step 3.	Go to step 4.
3	1. Isolate the components inside the operator panel. 2. One by one replace the following components, and perform a POR between each replacement: - UICC to RIP cable - Interface card and interface card cable - UICC card - LCD panel Does one of these replaced parts fixed the problem?	Problem resolved. Replace the bad parts.	Go to back to step 2.

Step	Questions / actions	Yes	No
4	1. Check the cable connection on the system card J1,J3 and J1,J6 on the MDC card for proper connection. 2. Reseat cable. Does the error clear?	Problem resolved.	Go to step 5.
5	Check for damages, pinch points and bents on the cable. Is the cable free of damage?	Go to step 6.	Replace either of the following depending on what cable has damaged: • Scanner to system board flat cable • Scanner to system board cable
6	Replace the MDC card. See **"Motor driver card removal" on page 4-118**. Does this solve the problem?	Problem resolved.	Go to step 7.
7	Replace the operator panel assembly. See **"Operator panel assembly removal" on page 4-27**. Does this solve the problem?	Problem resolved.	Go to step 8.
8	Replace either of the following: • Scanner to system board flat cable. • Scanner to system board cable. Does this solve the problem?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

Print quality service check

Note: This symptom may require replacement of one or more CRUs (Customer Replaceable Units) designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install a developer (toner) cartridge or photoconductor unit.

Service tip: Before troubleshooting any print quality problems, do the following:

1. Print a menu settings page, and then check the life status of all supplies. Any supplies that are low should be replaced.
   Note: Be sure and keep the original menu page to restore the customer's custom settings if needed.
2. On the menu page, make sure the following is set to the default level:
   - Color Correction: Set to Auto.
   - Print Resolution: Set to 1200 dpi (print quality problems should be checked at different resolution settings).
   - Toner Darkness: Set to 4 (default).
   - Color Saver: Set to OFF.
   - RGB Brightness, RGB Contrast, RGB Saturation: Set to 0.
   - Color Balance: Touch **Reset Defaults** to zero out all colors.
   - Check the paper type, texture and weight settings against what is loaded in the printer.
   Once the printer has been restored to its default levels, do the following:
3. Inspect the transfer module for damage. Replace if damaged.
4. Inspect the OPCs and toner cartridges for damage. Replace if damaged.
5. If paper other than 20lb plain letter/A4 paper is being used, load 20lb plain letter/A4 and print the Print Quality pages to see if the problem remains.
6. Use Tray 1 to test print quality problems.
7. Print the Print Quality Pages, and then look for variations in the print from what is expected.

An incorrect printer driver for the installed software can cause problems. Incorrect characters could print, and the copy may not fit the page correctly.

Measure all voltages from the connector to the printer ground.

Print quality—background

Service tip: Some background problems can be caused by rough papers, non-Lexmark toner cartridges or if the media texture is set to the rough setting.

Some slick or coated papers may also cause background problems. Some problems occur with printers that run a large amount of graphics in a humid environment.
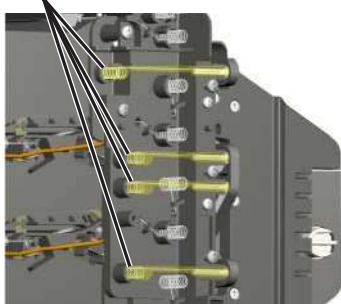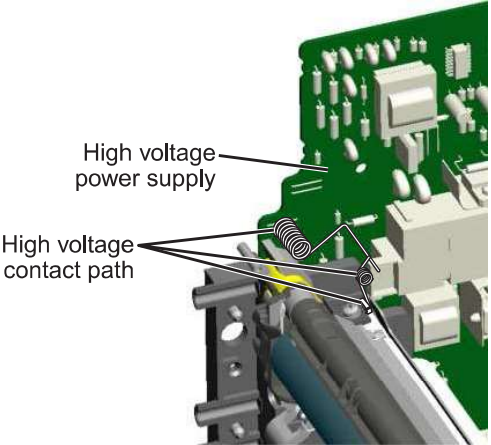
Step	Questions / actions	Yes	No
1	Read the current status of the photoconductor unit from the customer menus. To view the status of the photoconductor units: 1. In Ready mode, touch **Admin Menu**. 2. Touch **Reports**. 3. Touch **Device Statistics**. Ask the customer if the photoconductor unit has been recently replaced. It is possible the photoconductor value was not reset and the photoconductor unit is past end of life. If the PC unit was recently replaced, reset the value. If the PC unit was not replaced, replace the PC unit. Has the photoconductor unit been recently replaced?	Reset the value. To reset this value: 1. In Ready mode, touch **Admin Menu**. 2. Touch **Supplies Menu**. 3. Touch **Replace Supply**. 4. Select the PC color unit you want to change 5. Touch **Yes**. If this does not fix the problem, go to step 2.	Go to step 2.
2	Replace the PC unit. See **"Photoconductor unit removal" on page 4-137**. Does this fix the problem?	Problem resolved.	Go to step 3.
3	Check the high voltage contact from the HVPS to the transfer module. Transfer belt high voltage path (typical 4X) Is a problem found?	Replace the spring or the transfer contact assembly.	Go to step 4.
4	Reseat the JHVPS connector. Does this fix the problem?	Problem resolved.	Go to step 5.
5	Replace the HVPS. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Does this fix the problem?	Problem resolved.	Go to step 6.

Step	Questions / actions	Yes	No
6	Clean the printhead. Does this fix the problem?	Problem resolved.	Replace the printhead. See **"Printhead removal, installation, and adjustment" on page 4-140**.

Print quality—blank page

Step	Questions / actions	Yes	No
1	Is all the packing material for the photoconductor unit in question removed?	Go to step 2.	Remove the packing material.
2	Replace the photoconductor unit for the color in question. Does this fix the problem?	Problem resolved.	Go to step 3.
3	1. Enter the Diagnostics mode (turn off the printer, press and hold **3** and **6**, turn on the printer, and release the buttons when the clock graphic displays). 2. Perform the appropriate cartridge drive motor test for the missing color. See **"General motor tests procedures" on page 3-8**. Did the motor run?	Go to step 4.	Replace the EP drive assembly. See **"Electrophotographic (EP) drive assembly removal" on page 4-78**.
4	Check the high voltage contact from the HVPS to the photoconductor charge roll. Ensure the contact springs are properly mounted and that the charge roll contact spring is making good contact with the HVPS spring that runs through the left printer frame. High voltage power supply High voltage contact path Are the spring(s) defective?	Replace the transfer contact assembly.	Go to step 5.
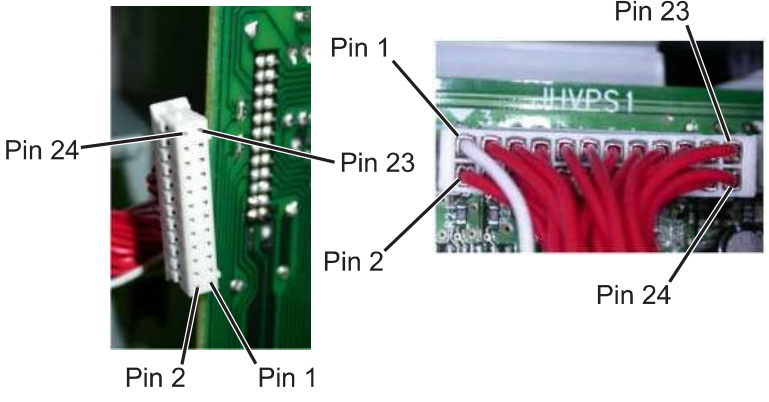
Step	Questions / actions	Yes	No
5	Turn off the printer and check the continuity of the HVPS cable. Is there continuity?	Go to step 6.	Replace the cable assembly.
6	Replace the HVPS. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did this fix the problem?	Problem resolved.	Go to step 7.
7	Replace the printhead. See **"Printhead removal, installation, and adjustment" on page 4-140**. Did this fix the problem?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

Print quality—blurred or fuzzy print

Blurred or fuzzy print is usually caused by a problem in the EP drive assembly or in the transfer module. Check the EP drive assembly and transfer module for correct operation.

Blurred print can also be caused by incorrect feeding from one of the input paper sources, paper trays, or duplex paper path.

Check the high voltage spring contacts to ensure they are not bent, corroded, or damaged. Replace as necessary.

Print quality—half-color page

A photoconductor unit is not properly seated. Reset the specific photoconductor unit.

Print quality—horizontal banding

Step	Questions / actions	Yes	No
1	Measure the distance between repeating bands. Is the distance between bands either 27 or 36mm?	Replace the print cartridge.	Replace the photoconductor unit. See **"Printhead removal, installation, and adjustment" on page 4-140**.

Print quality—horizontal line

The photoconductor unit is defective. Replace the photoconductor unit.

Print quality—insufficient fusing

Step	Questions / actions	Yes	No
1	Is the fuser properly installed?	Go to step 2.	Install the fuser properly.
2	Replace the fuser. See **"Fuser assembly removal" on page 4-104**. Does this fix the problem?	Problem resolved.	Replace the LVPS. see **"Low-voltage power supply (LVPS) removal" on page 4-115**.

Print quality—missing image at edge

Reseat the developer cartridge.

Print quality—mottle (2–5mm speckles)

Keep running prints through, and the problem normally clears up. If the problem persists, replace the developer cartridge.

Print quality—narrow vertical line

Step	Questions / actions	Yes	No
1	Replace the photoconductor unit. See **"Photoconductor unit removal" on page 4-137**.	Problem resolved.	Replace the print cartridge.

Print quality—random marks

Service tip: The primary cause of random marks is due to loose material moving around inside the printer and attaching to the photoconductor unit, developer roll, or transfer belt.

Step	Questions / actions	Yes	No
1	Is there any loose or foreign material on the photoconductor unit?	Replace the photoconductor unit. See **"Photoconductor unit removal" on page 4-137**.	Go to step 2.
2	Is there any loose or foreign material on the cartridge roll?	Replace the print cartridge.	Go to step 3.
3	Is there any loose or foreign material on the transfer belt?	Replace the transfer module. See **"Transfer module removal" on page 4-180**.	Contact your next level of support.

Print quality—residual image

Service tip: Install a new print cartridge if available before doing this service check. Residual image can be caused by the photoconductor, cleaning blade, and other parts inside the print cartridge.

Step	Questions / actions	Yes	No
1	Is there any toner contamination on the fuser assembly?	Replace the fuser. See **"Fuser assembly removal" on page 4-104**.	Contact your next level of support.
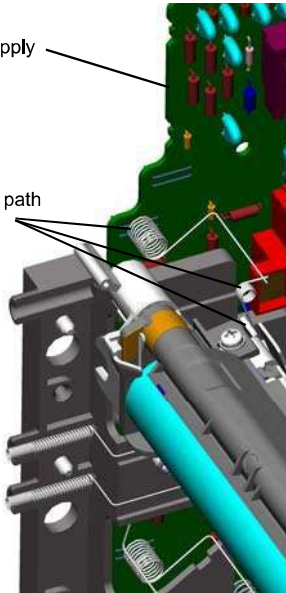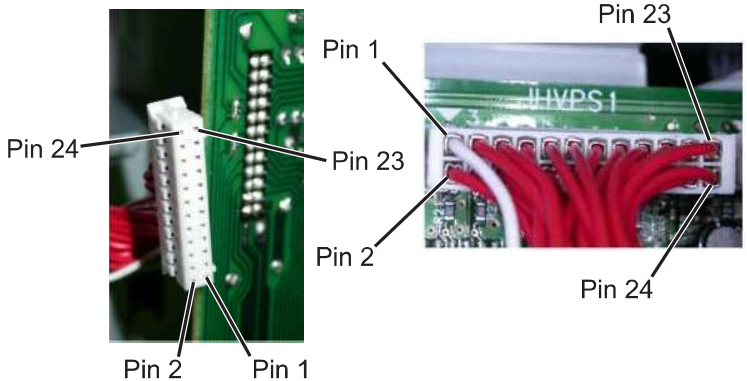
Print quality—solid color page

Service tip: A solid color page is generally caused by a problem in the high voltage system or an incorrect high voltage in the printing process resulting in toner development on the entire photoconductor drum.

Step	Questions / actions	Yes	No
1	Replace the photoconductor unit for the color in question. Does this fix the problem?	Problem resolved.	Go to step 2.
2	Check the high voltage contact from the HVPS to the photoconductor charge roll. Ensure the contact springs are properly mounted and that the charge roll contact spring is making good contact with the HPVS spring that runs through the left printer frame. High volt power supply High volt contact path Note: Printer is shown with components removed for clarity Are the spring(s) defective?	Replace the transfer contact assembly.	Go to step 3.

Step	Questions / actions	Yes	No
3	Turn the printer off, and then check the continuity of the HVPS cable. Is there continuity?	Go to step 4.	Replace the cable assembly.
4	Replace the HVPS. See **"High-voltage power supply (HVPS) removal" on page 4-110**. Did this solve the problem?	Problem resolved.	Replace the system board. See **"System board removal" on page 4-157**.

Print quality—vertical banding

Replace the developer cartridge.

Tray 1 missing service check

Step	Questions / actions	Yes	No
1	1. Check if the tray assembly can close properly. 2. Make sure the paper path is cleared of jams. 3. Check for any damage. Does the tray assembly close properly?	Go to step 3.	Go to step 2.
2	1. Clear the tray path of any obstruction. 2. Check for damage on the tray. Is the tray free of damage?	Go to step 3.	Replace the tray.
3	1. Remove the tray and inspect the narrow media flag on the paper pick assembly for any damage. 2. Reseat the connector Jtray1 and JFDPCK on the system board, then check for any damage on the connectors. Are the flag and cable connectors free of damage?	Go to step 4.	Replace the paper pick assembly. See **"Paper pick mechanism assembly removal" on page 4-130**.

Step	Questions / actions	Yes	No
4	1. Disconnect the cable in JTRAY1, and connect the cable from the new paper pick mechanism. 2. Enter Diagnostics mode (press and hold **3** and **6**, turn on the MFP, and release the buttons when the progress bar displays). 3. Touch **SENSOR TESTS**. 4. Touch **Dynamic Sensors**. 5. Touch **Narrow Media**. 6. Activate the narrow media sensor Did the narrow media sensor status change on the touchscreen?	Replace the paper pick assembly. See **"Paper pick mechanism assembly removal" on page 4-130**.	Replace the system board. See **"System board removal" on page 4-157**.

3. Diagnostic aids

This chapter explains the tests and procedures to identify printer failures and verify repairs have corrected the problem.

Accessing test and diagnostic procedure menus

There are different test and diagnostic menus that can be accessed during POR to identify problems with the multiple function printer. Turn off the MFP and turn it back on while holding particular keys. You may also have to satisfy any security protocols that system administrators may have been placed on these menus.

Diagnostics menu	1. Turn off the multifunction printer. 2. Press and hold buttons **3** and **6**. 3. Turn on the MFP. 4. Release the buttons when the progress bar displays.	The Diagnostics menu group contains the settings and operations used while manufacturing and servicing the printer. See **"Diagnostics menu" on page 3-2** for more information.
Configuration menu	1. Turn off the multifunction printer. 2. Press and hold buttons **2** and **6**. 3. Turn on the MFP. 4. Release the buttons when the progress bar displays.	The Configuration menu group contains a set of menus, settings, and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation. See **"Configuration menu (CONFIG MENU)" on page 3-29** for more information.
Start the multifunction printer without initializing the scanner.	1. Turn off the multifunction printer. 2. Press and hold buttons **3** and **7**. 3. Turn on the MFP printer. 4. Release the buttons when the progress bar displays.	
Network SE menu	While in Network/Ports Menu (**Menus—Network/ Ports—Standard Network—STD NET SETUP**), press and hold buttons **6**, **7**, and **9**.	The Network SE menu contains advanced network menu tools. This key press only accesses the Network SE Menu when the panel displays the top-most settings inside the Standard Network menu.
Fax SE menu	From the HomePrime screen, press ****411**	
SE menu	From a browser, add "/se" to device's IP address (for example: http://158.183.3.2/se)	See **"Service Engineer (SE) Menu" on page 3-48** for a listing of the menus.

Diagnostics menu

Diagnostics menu structure

When the Diagnostics menu is entered, each item displays on the operator panel. When a diagnostic test is selected from the main menu, a sub menu displays and each individual test displays in the order shown. Any options that are referred to in the menus are displayed when the option is installed.

Available tests

The tests display on the operator panel in the order shown:

Registration	
Top Margin	See **"Registration" on page 3-5**.
Bottom Margin	
Left Margin	
Right Margin	
Skew	See **"Skew" on page 3-5**.
Quick Test	See **"Quick Test" on page 3-7**.
ALIGNMENT MENU	
Cyan	See **"Alignment Menu" on page 3-8**.
Magenta	
Yellow	
Factory Scanner	
Factory Manual	A summary page for all the color alignment settings. Can be used in place of alignment pages for each individual color.
MOTOR TESTS (order differs depending upon model)	
Align Motor Test	See **"General motor tests procedures" on page 3-8**.
Cart 1	
Cart 2	
Cart 3	
CAM	
COD	
DUPLEX	
MPF	
Transfer Belt	
Tray 1	
PRINT TESTS	
Tray 1	See **"Input source tests" on page 3-11**.
Tray 2 (if installed)	
Tray 3 (if installed)	
Tray 4 (if installed)	
Tray 5 (if installed)	
Multi-Purpose Feeder	
Print Quality Pages	See **"Print quality test pages (Prt Quality Pgs)" on page 3-12**.

HARDWARE TESTS	
Panel Test	See **"Panel Test" on page 3-12**.
Button Test	See **"Button Test" on page 3-13**.
DRAM Test	See **"DRAM Test" on page 3-13**.
Serial 1 Wrap (if a serial port is available in the PCI slot 1)	See **"Serial 1 Wrap" on page 3-13**.
USB HS Test Mode	See **"USB HS Test Mode" on page 3-14**.
DUPLEX TESTS (if installed)	
Quick Test	See **"Quick Test (duplex)" on page 3-15**.
Print Test	See **"Print Test (duplex)" on page 3-16**.
Top Margin	See **"Top Margin (duplex)" on page 3-17**.
Left Margin	See **"Left Margin (duplex)" on page 3-17**.
Skew	See **"Skew (duplex)" on page 3-17**.
Sensor Tests	
Static Sensors	See **"Sensor Tests" on page 3-18**.
Dynamic Sensors	
Other Sensors	
PRINTHEAD TESTS	
Mirror Motor Test	See **"Mirror Motor Test" on page 3-19**.
Servo Laser Test	See **"Servo Laser Test" on page 3-19**.
DEVICE TESTS (if hard disk or flash is installed)	
Quick Disk Test	See **"Quick Disk Test" on page 3-20**.
Disk Test/Clean	See **"Disk Test/Clean" on page 3-20**.
Flash Test	See **"Flash Test" on page 3-21**.
PRINTER SETUP	
Defaults	See **"Defaults" on page 3-21**.
Prt Color Page Count	See **"Page Counts" on page 3-21**.
Prt Mono Page Count	
Perm Page Count	
Serial Number	See **"Serial Number" on page 3-22**.
Model Name	See **"Model Name" on page 3-22**.
Engine Setting 1 through 4	See **"Engine Setting 1 through 4" on page 3-22**.
Configuration ID	See **"Configuration ID" on page 3-22**.
Reset Color Cal	See **"Reset color calibration (Reset Color Cal)" on page 3-23**.
Par 1 Strobe Adj	See **"Parallel 1 strobe adjustment (Par 1 Strobe Adj)" on page 3-23**.
Motor Calibration	See **"Motor Calibration" on page 3-23**.
EP SETUP	
EP Defaults	See **"EP Defaults" on page 3-23**.
Fuser Temp	See **"Fuser temperature (Fuser Temp)" on page 3-24**.
DC Charge Adjust	See **"DC Charge Adjust, Dev Bias Adj, Transfer Adjust" on page 3-24**.
Dev Bias Adj	
Transfer Adjust	

REPORTS	
Menu Settings Page	See **"Menu Settings Page" on page 3-24**.
EVENT LOG	
Display Log	See **"Display Log" on page 3-25**.
Print Log	See **"Print Log" on page 3-25**.
Clear Log	See **"Clear Log" on page 3-26**.
SCANNER TESTS	
ASIC	See **"ASIC Test" on page 3-26**.
Feed Test	See **"Feed Test" on page 3-26**.
Sensor Test	See **"Sensor Tests" on page 3-27**.
Scanner Calibration Reset	See **"Scanner Calibration Reset" on page 3-28**.
Adf Magnification	See **"Adf Magnification"**.
EXIT DIAGNOSTICS	This selection exits Diagnostics mode, and then `Resetting the Printer` displays. The printer performs a POR, and then returns to normal mode.

Registration

Note: If you need to perform alignment or registration, see **"Printhead alignment" on page 4-10**.

The following information is meant to explain the uses for the menu items.

Print registration makes sure the black printing is properly aligned on the page. This is one of the steps in aligning a new printhead. It is also the first step in aligning the duplex registration. See **"Quick Test (duplex)" on page 3-15**.

The settings available are Top Margin, Bottom Margin, Left Margin, Right Margin, Skew, and Quick Test.

Skew

One printhead houses the four color planes. The black plane is aligned to the printer, and then the color planes are internally aligned to black. Adjust the skew mechanically by moving the printhead with a printhead adjustment screw. See **"Printhead mechanical alignment" on page 4-10** for instructions on setting printhead alignment. Electronic alignment fine tunes the alignment of the color planes to the black plane once the printhead is installed. Skew adjustment must be performed before color alignment is attempted. The following illustration shows proper alignment versus skewed alignment.

Proper alignment   **Skewed alignment**
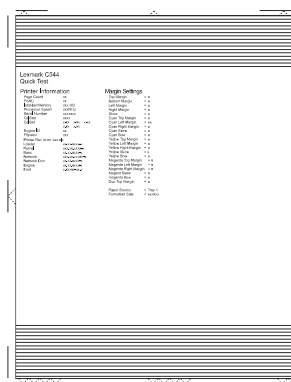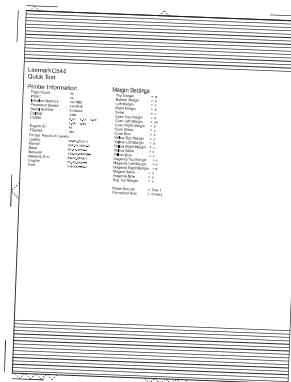
Print registration

To set print registration:

1. Touch **REGISTRATION** from the Diagnostics Menu.

2. Touch **Quick Test**.

   The message `Quick Test Printing…` appears on the display.
   Note: Retain this page to determine the changes you need to make to the margin settings.

3. Touch the margin setting you need to change.

4. Use ◄ to decrease or ► to increase the offset values, and then touch **Submit**.

5. The message `Submitting changes` displays and the original REGISTRATION screen appears.

   The print registration range is:

Description	Value	Direction of change
Skew	-50 to +50 Each increment corresponds to 1/1200 of an inch.	The skew setting value should be between -5 and +5. If not, readjust the skew with the printhead mechanical setting. See **"Printhead alignment" on page 4-10**.
Top margin	-25 to +25 Each increment corresponds to 8 scans at a 600 dpi scan rate (0.0133 inches or 0.339 mm).	A positive change moves the image down the page and increases the top margin. A negative change moves the image up and decreases the top margin.
Bottom margin	-25 to +25 Each increment causes approximately 0.55 mm shift in the bottom margin.	A positive offset moves text up the page and widens the bottom margin. A negative offset moves text down the page and narrows the bottom margin. **Note:** Make sure the media size selected matches the media size in tray 1.
Left margin	-50 to +50 Each increment corresponds to 4 pels at 600 dpi (0.00666 in. or 0.1693 mm).	A positive change moves the image to the right. A negative change moves the image to the left. The image is compressed or expanded. **Note:** Make sure the media size selected matches the media size in tray 1.
Right margin	-50 to +50 Each increment corresponds to an approximate shift of 4 pels at 600 dpi.	A positive change moves the image to the left. A negative change moves the image to the right.

6. Touch **Submit** to enter the values.

7. Print the Quick Test to verify your changes

8. Continue changing the settings by repeating steps 2 through 4.

Quick Test

The Quick Test contains the following information:

- Print registration settings
- Alignment diamonds at the left, right, top and bottom
- Horizontal lines to check for skew
- General printer information, including current page count, installed memory, serial number, and code level.

To print the Quick Test page:

Note: Print the Quick Test Page on letter or A4 paper.

1. Touch **Registration** from Diag Menu.

2. Touch **Quick Test**.

   The message `Quick Test Printing…` appears on the display.

   Once the Quick Test Page completes printing, the Registration menu displays again.

Alignment Menu

Note: If you need to perform alignment or registration, see **"Printhead alignment" on page 4-10**.

The following information is meant to explain the uses for the menu items.

Alignment is part of the process of adjusting the printhead and the color planes to the black plane and to each other. Before you start, perform the black alignment (Registration). See **"Printhead alignment" on page 4-10**. If you are replacing a new printhead, see **"Printhead removal, installation, and adjustment" on page 4-140**.

To perform alignment:

1. Touch **ALIGNMENT MENU** from the Diagnostics Menu.
2. Select one of the colors; cyan, yellow, or magenta.
3. Use ◄ to decrease or ► to increase the offset values, and then set the values to zero.
4. Continue for all colors; cyan, yellow, and magenta.
5. Touch **Submit**.
   Note: It is important to zero out all settings to make the adjustment easier.

6. Touch **Quick Test**
   Quick Test printing... is displayed, and then two pages print.
7. On the pages, make sure all the Current Values are set to zero. If not, go back to step 2 and repeat.
8. Look at the coarse and fine adjustments on the top left of the page, and then enter the best number for the top adjustment in the T space. Transfer this number over to the computation area for Z.
9. On the touch panel, select **Top Margin**. Use ◄ to decrease or ► to increase the computed value for T, and then touch **Submit**.
10. Repeat this process for skew (Z). Add the T value and the current Z value to obtain the new skew (Z) value.
    Reprint the Quick Test page after each change, and then observe the results. Make additional adjustments if necessary before proceeding on to Quick Test step two page.
11. Obtain left (L), right (R), and Bow (P) value using the same method as obtaining T from Quick Test Step 1. Reprint the Quick Test to ensure the settings are correct. Make additional adjustments as required.
12. Press **Back** to return to ALIGNMENT Menu.

See **"Printhead mechanical alignment" on page 4-10** for printout samples and additional information.

Motor tests

The motor tests are run to locate noises in the printer and isolate failures between the motors, cables, and system board.

General motor tests procedures

In some instances, when you enter a particular test, you will be given the choice to run the motor in forward or reverse. Other times, there will only be the option to run the motor in forward direction.

In general, the test should work as follows:

1. Touch **MOTOR TESTS** from Diag Menu.
2. Select the motor that you need to test.
3. Check the table below for setup requirements, if any.
4. Select the direction if a choice is offered (**Forward** or **Reverse**) or other setting for that test.

Press ✖ to stop the motor. Touch **Back** to return to the previous menu.

The following tests require special setup before running the test (not shown in the same order as the menu):

Motor diagnostic setup

Motor	Setup requirements		Notes
	Top cover position	Front door position	
Tray 1	N/A	Closed	• Ok • Picks paper – use empty or remove tray
		Open	Ok
Align	N/A	Closed	Ok
		Open defeat +25 V switch	• Ok • View align mechanism
Duplex	N/A	Closed	Ok
		Closed split front door	• Ok • View duplex mechanism (pull tray to isolate gears)
		Open defeat +25 V switch	• Ok • Duplex mechanism disconnected from motor
Belt stepper	N/A	Closed	• No motion • No error reported
		Open	• Ok • Belt disconnected from motor
Cartridge K – 3	N/A	Closed	• No motion • No error reported
		Open	• Ok • Cartridge disconnected from motor
Cart MCY – 2	N/A	Closed	• No motion • No error reported
		Open	• Ok • Cartridge disconnected from motor
PCU CY – 1	N/A	Closed	• No motion • No error reported
		Open	• Ok • Cartridge disconnected from motor
Fuser	Closed	Closed	Ok
		Open	Possible under-temp 120.04 error
	Open	N/A	Not recommended, fuser errors possible
Cam	N/A	Closed	• Ok • Front door locks & unlocks
		Open	• Ok • Door disconnected from motor • View gearbox
COD	N/A	Closed	• Ok • Engages and disengages cartridges
		Open	• No motion • No error reported (open while test is running)

Motor diagnostics

Motor	Direction	Action	Notes
Tray 1	Forward	Pick from Main Tray	• Will pick continuously • View with tray removed or empty
	Reverse	N/A	Function not supported
Align	Forward	Push media toward belt	• Nip is closed • Fails with waste box missing
	Reverse	Align leading edge	Function not supported
Duplex	Forward	Push media down toward input	• Will run continuously • View with front cover split
	Reverse	Pick from MPF (MPF test)	• Will pick continuously • View empty or pull tray
Belt stepper	Forward only	Gear turns counter clockwise	View with front cover open (No forward menu)
	Reverse	N/A	Only used to clear cleaner nip
Cartridge K – 3	Forward only	Gear turns counter clockwise	View with front cover open (runs PCU KM also)
	Reverse	N/A	Only used to clear blade nip
Cart MCY – 2	Forward only	Gear turns counter clockwise	View with front cover open
	Reverse	N/A	Not used
PCU CY – 1	Forward only	Gear turns counter clockwise	View with front cover open
	Reverse	N/A	Only used to clear blade nip
Fuser	Forward	Push media toward output bin	Backup roll turns Top cover should be closed
	Reverse	Push media toward output bin	Backup roll is disengaged
Cam	Forward	Engage motor couplings	• Runs to stall position • Locks door • Enables print operations
	Reverse NOP	Disengage motor couplings	• Runs to stall position • Unlocks door • Disables printing
COD	Forward	Engage color cartridges	• Runs to stall position • Disables color print operations
	Reverse NOP	Disengage color cartridges	• Runs to stall position • Enables color printing

Print Tests

Input source tests

The purpose of the diagnostic Print Tests is to verify that the printer can print on media from each of the installed input options. The contents of the Print Test Page varies depending on the media installed in the selected input source.

Check each Test Page from each source to assist in print quality and paper feed problems.

To run the Print Test Page:

1. Touch **PRINT TESTS** from the Diagnostics Menu.

2. Select the media source by touching the green arrow next to one of the items below:

> Tray 1
> Tray 2 (if installed)
> Tray 3 (if installed)
> Tray 4 (if installed)
> Tray 5 (if installed)
> Multi-Purpose Feeder (if installed)
> Print Quality Pages

Only installed trays will appear on the display.

3. Select either **Single** or **Continuous**.

   - If **Single** is selected, a single page is printed.

   - If **Continuous** is selected, printing continues until ❌ is pressed to cancel the test.

   If a source is selected that contains envelopes, an envelope test pattern is printed. If Continuous is selected, the test pattern is printed only on the first envelope.

   Note: The Print Test Page always prints on one side of the paper, regardless of the duplex setting.

Print quality test pages (Prt Quality Pgs)

The print quality test consists of five pages. Pages one and two contain a mixture of graphics and text. The remainder of the pages only contain graphics. The test prints on the media in the default tray.
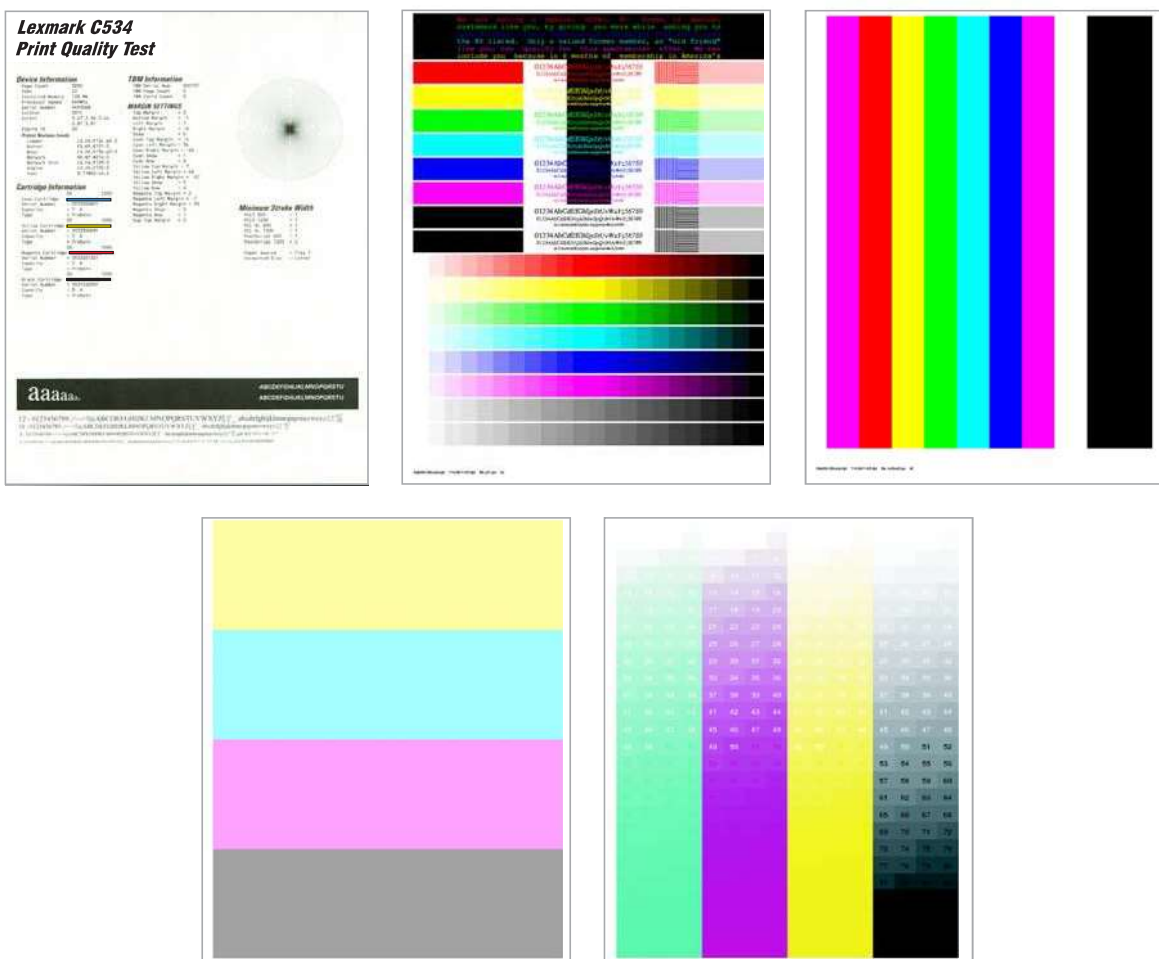
This test may be printed from either Configuration Menu or the Diagnostics Menu. To run the print quality pages from the Diagnostics mode, select **PRINT TESTS** and **Print Quality Pages** from the menu. Once the test is started, it cannot be canceled. When the test pages print, the printer returns to the original screen.

To run the Print Quality Test Pages, select **Print Quality Pages** from PRINT TESTS, and then touch **Back**. The message `Printing Quality Test Pages` is displayed, and the test prints.

Hardware Tests

Panel Test

This test verifies the operator panel LCD function.

To run the Panel Test:

1. Touch **HARDWARE TESTS** from Diagnostics Menu.
2. Touch **Panel Test**.
   The Panel Test continually executes. Each pixel is activated at the darkest level to the lightest level, and then the backlight illuminates and turns off. This is repeated continuously.
3. Press ✖ to cancel the test at any point.

Button Test

This test verifies the operator panel button function.

To run the Button Test:

1. Touch **HARDWARE TESTS** from the Diagnostics Menu.
2. Touch **Button Test**.
3. A keypad displays on the operator panel. Press each physical button one at a time and observe if its corresponding button on the display lights up.
4. Touch **Back** to end the test.

DRAM Test

This test checks the validity of DRAM, both standard and optional. The test writes patterns of data to DRAM to verify that each bit in memory can be set and read correctly.

To run the DRAM Test:

1. Navigate to **Diagnostics Menu> HATDWARE TEST > DRAM Test**.
2. The MFP turns off and re-starts (POR), and then the power indicator *blinks*, indicating the test is in progress.
   The following counter appears:
   ```
   DRAM Test   xxxMB  P:000000   F:0000
   ```

To interpret the test:

- *xxx*MB indicates the amount of DRAM memory the MFP has detected.
- P:###### represents the number of times the memory test has passed and finished successfully. Initially, 000000 displays with the maximum pass count being 99,999.
- F:##### represents the number of times the memory test has failed and finished with errors. Initially, 00000 displays with the maximum fail count being 99,999.

Once the maximum pass count or fail count is reached, the test is stopped, the power indicator turns on solid, and then the final results appear. If the test fails, SDRAM Error appears for approximately three seconds and the failure count increases by 1.

Note: If you need to exit the test before it is complete, turn off the printer.

Serial 1 Wrap

The Serial 1 Wrap Test is used to check the operation of the serial port hardware using a wrap plug. Each serial signal is tested.

To perform the Serial 1Wrap Test:

1. Disconnect the serial interface cable, and then install the serial wrap plug.
2. Touch **HARDWARE TESTS** from the Diag Menu.
3. Touch **Serial 1 Wrap**.
   The power indicator *blinks* indicating the test is in progress. The following messages appear
   ```
   Serial Wrap [x] Testing…
   Resetting the Printer
   ```
   Upon completion of the POR, the following message is displayed:
   ```
   Serial Wrap   P:000000    F:0000
   ```
4. The test will stop when it reaches the maximum values, or press ❌ to end the test before it is complete.

To interpret the test:

P:###### represents the number of times the serial port hardware has passed.
   Initially, 000000 is displayed. The maximum pass count is 999,999.
F:###### represents the number of times the serial port hardware has failed.
   Initially, 0000 is displayed. The maximum fall count is 999,999.
Any of the following explanations for a serial wrap test failure may display:
   • Receive Status Interrupt Error
   • Status Error
   • Receive Data Interrupt Error
   • Transmit Data Interrupt Error
   • Transmit Empty Error
   • Threshold Error
   • Receive Data Ready Error
   • Break Interrupt Error
   • Framing Error
   • Parity Error
   • Overrun Error
   • Data Error
   • Data 232 Error
   • Data 422 Error
   • FIFO Error
   • DSR Error
   • DSR PIO Error
   • DSR Interrupt Error
   • CTS Error
   • CTS PIO Error
   • CTS Interrupt Error

USB HS Test Mode

1. Touch **HARDWARE TESTS** from Diag Menu
2. Touch **USB HS Test Mode**.
3. Select the port you want to test.
      Port 0
      Port 1
      Port 2
      Port 3
4. Select the test for the port you chose:
      Test J
      Test K
      Test SE0 NAK
      Test Packet
      Test Force Enable
5. While the test executes, USB High Speed Testing… displays.

To exit the test, restart the printer.

Duplex Tests

Quick Test (duplex)

Note: Before you set the duplex top margin, be sure to set the skew and alignment. See **"Printhead alignment" on page 4-10**.

This test prints a duplex version of the Quick Test that can be used to verify the correct placement of the top margin on the back side of a duplex page.

You can run one duplexed page (**Single**), or continue printing duplexed pages (**Continuous**) until ❌ is pressed. For information about changing the margin, see **"Top Margin (duplex)" on page 3-17**.
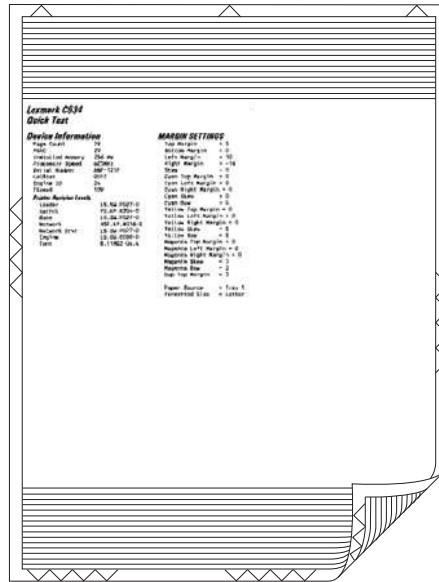
The paper you choose to print the page on should be either Letter or A4.

To print the Quick Test (duplex):

1. Touch **DUPLEX TESTS**.

2. Touch **Quick Test**.

3. Select **Single** or **Continuous**.

   - The single Duplex Quick test cannot be canceled. It stops when a single duplex sheet is printed.

   - The continuous test continues printing until you press ❌ .

   - The printer attempts to print the Quick Test Page from the default paper source.

   - Check the Quick Test Page for the correct offset between the placement of the first scan line on the front and back side of a duplexed sheet.

Print Test (duplex)

This test provides service personnel with a way to verify the function of the printer's duplex hardware. After the user selects this test, the device automatically executes a continuous print test that generates a duplexed, color output page. To stop the test, the user must press ❌ . While this test executes, the power indicator light blinks green and the panel displays "DUPLEX TESTS Printing...".

The paper you choose to print the page on should be either Letter or A4.

To run the Print Test (duplex):

1. Touch **DUPLEX TEST** in the Diag Menu.
2. Touch **Print Test**.
   The printer executes a continuous print test that generates a duplexed, color output page.
3. To stop the test, press ❌ .

Top Margin (duplex)

This setting controls the offset between the first scan line on the front of the duplex page and the first scan line on the back of the page. Therefore, be sure to set the top margin in REGISTRATION before setting the duplex top margin. See **"Registration" on page 3-5**.

To set the Top Margin (duplex):

1. Touch **DUPLEX TESTS** from the Diagnostics Menu.
2. Touch **Quick Test**.
3. Touch **Single**.
   The test page prints.
4. Hold the page to the light to see whether the top margin of the back aligns with the top margin of the front.
5. If they do not match, select **Top Margin**.
6. Use ◄ and ► to select the margin setting you need to change.
   - Each increment shifts the duplex top margin by 1/100 of an inch.
   - The Top Margin (duplex) range is -25 to +25, and the default value is 0.
   - An increase moves the top margin down and widens the top margin. A decrease moves the top margin upward and narrows the top margin.
7. Touch **Submit**.
8. Print the Quick Test again to verify the adjustment. Repeat until the front and back top scan lines match.

Left Margin (duplex)

By modifying this setting you can shift the image on the back side of a duplex page to the right or to the left.

To set the Left Margin (duplex):

1. Select **DUPLEX TESTS** from the Diagnostics Menu.
2. Select **Quick Test**.
3. Select **Single**.
   The test page prints.
4. Hold the page to the light to see whether the left margin of the back aligns with the left margin of the front.
5. If they do not match, Touch **Left Margin**.
6. Use ◄ and ► to select the margin setting you need to change.
   - Each increment shifts the duplex left margin by 4 pixels at 600 dpi (0.00666 inches or 0.1693 mm).
   - The Left Margin range is -50 to +50, and the default value is 0.
   - An increase moves the margin to the right, and a decrease moves the margin to the left.

Skew (duplex)

This setting adjusts the duplex motor speed when it feeds through the aligning roll. It controls the skew between the first scan line and the top of the page. Adjustments are made to the image that is face down in the output tray.

To set the Skew (duplex):

1. Select **DUPLEX TESTS** from the Diagnostics Menu.
2. Select **Quick Test**.
3. Select **Single**.
   The test page prints.
4. Look at the dotted arrows at the top of the page. If the page is skewed on the page, select **Skew**.
5. Use ◄ and ► to select the skew setting you need to change.
   - Each increment shifts the skew by about 6 pixels at 600 dpi.
   - The Skew (duplex) range is -50 to +50, and the default value is 0.
   - An increase moves the image at the top right down the page. A decrease moves the image at the top right up the page.

6. Perform **Quick Test** again to verify the adjustment. Check the page to see if the image on the page is still skewed. If it is, repeat the adjustment.

Sensor Tests

There are two groups of sensors tests, static sensors and dynamic sensors.

To run the Sensor Test:

1. Touch **SENSOR TESTS** from the Diagnostics Menu.
2. Select either **Static Sensors** or **Dynamic Sensors**.
   - For static sensors—view the current status. Exit menus and enter the menus again to change the state.
   - For dynamic sensors—view the current status and toggle the state to test the sensor.

Press ✖ to exit a test.

Sensor type	Sensor name	Possible values	Sensor activation
Static sensors	Waste Toner	Empty, Full, or Missing	N/A
	Belt Waste	Empty or percentage full	N/A
	Fuser Temp	Degrees (C)	N/A
	BUR Temp	Degrees (C)	N/A
	Power	Voltage	N/A

Sensor type	Sensor name	Possible values	Sensor activation
Dynamic sensors	Fuser Exit	Open/Closed	Open the top access cover. Activate the fuser exit flag. The sensor should change state.
	Input	Open/Closed	Remove the paper tray 1. Activate the input sensor flag. The sensor should change state.
	Front Door	Open/Closed	Open the front door. The sensor should change state.
	Top Door	Open/Closed	Open the top access cover assembly. The sensor should change state.
	Narrow Media	Open/Closed	Test the MP feeder tray by inserting a sheet of paper, and then pushing up to sensor. The sensor should change state.
	K Toner	Open/Closed	Remove the black toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
	M Toner	Open/Closed	Remove the magenta toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
	C Toner	Open/Closed	Remove the cyan toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
	Y Toner	Open/Closed	Remove the yellow toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
	TPS (toner patch sensor)	Open/Closed	Open the front access door. Slip a piece of paper between the TPS and the transfer module. The sensor should change state.
	Bubble	Open/Closed	Open the front door. Activate the fuser entry flag. The sensor should change state.
	Dynamic MPF	Open/closed	Test by removing the MPF pick arm and activating the paper present sensor or remove the tray and shine a flashlight on the paper present sensor.

Printhead Tests

Mirror Motor Test

1. Touch **PRINTHEAD TESTS** from the Diagnostics Menu.
2. Touch **Mirror Motor Test**.
   The panel displays Motor Running.
   After the test completes, the panel displays either Pass or Fail.

To stop the test, press ✖ .

Servo Laser Test

1. Touch **PRINTHEAD TESTS** from the Diagnostics Menu.
2. Touch **Servo Laser Test**.
   The panel displays Motor Running. After the test completes, the panel displays either Pass or Fail.

To stop the test, press ✖ .

Device Tests

These tests only appear if the flash or disk option is installed.

Quick Disk Test

This test performs a non-destructive read/write on one block per track on the disk. The test reads one block on each track, saves the data, and then proceeds to write and read four test patterns to the bytes in the block. If the block is good, the saved data is written back to the disk.

To run the Quick Disk Test:

1. Touch **DEVICE TESTS** from the Diagnostics Menu.
2. Touch **Quick Disk Test**.
   - The power indicator *blinks* while the test is in progress.
   - `Quick Disk Test/Test Passed` is displayed if the test passes and the power indicator turns on solid.
   - `Quick Disk Test/Test Failed` is displayed if the test failed and the power indicator turns on solid.

You cannot stop the test while it is running, but when it is complete, press ❌ to return to DEVICE TESTS.

Disk Test/Clean

Warning: This test destroys all data on the disk and should not be attempted on a good disk. This test may run approximately 1½ hours depending on the disk size.

To run the Disk Test/Clean Test:

1. Touch **DEVICE TESTS** from the Diagnostics Menu.
2. Touch **Disk Test/Clean**.
   `Files will be lost/Go or Stop?` is displayed to warn the user.
3. To exit the test immediately and return to DEVICE TESTS, press ❌ . To continue with the test, touch **Continue**.
   `Disk Test/Clean/BAD:000000 00%` is displayed. The screen updates periodically, indicating the percentage of test completed and the number of bad blocks found.
4. The power indicator *blinks* during the test. The test can be canceled at any time during the test by pressing ❌ .
   Once the test is complete, the power indicator turns on solid and a message displays.

To interpret the test:

- *xxxx* Bad Blocks/*yyyyyy* Usable is displayed if fewer than 2000 bad blocks are detected. *xxxx* indicates the number of bad blocks, and *yyyyyy* indicates the number of usable blocks.
- *xxxx* Bad Blocks/Replace Disk is displayed if more than 2000 bad blocks are detected. The disk cannot be recovered because too many bad blocks exist on the disk.

Press ✖ to return to DEVICE TESTS.

Flash Test

This test causes the file system to write and read data on the flash to test the flash.

Warning: This test destroys all data on the flash because the flash is reformatted at the end of the test.

To run the Flash Test:

1. Touch **DEVICE TESTS** from the Diagnostics Menu.
2. Touch **Flash Test**.
   - The power indicator *blinks* while the test is running.
   - `Flash Test/Test Passed` is displayed if the test passes and the power indicator turns on solid.
   - `Flash Test/Test Failed` is displayed if the test fails and the power indicator turns on solid.

Press ✖ to return to DEVICE TESTS.

Printer Setup

Defaults

U.S./Non-U.S. defaults changes whether the printer uses the U.S. factory defaults or the non-U.S. factory defaults. The settings affected include paper size, envelope size, PCL symbol set, code pages, and units of measure.

Warning: Changing this setting resets the printer to factory defaults, and data may be lost. It cannot be undone.

To change the Defaults:

1. Touch **PRINTER SETUP** in Diag Menu.
2. Touch **Defaults**.
3. Select from U.S. or Non-U.S., and then touch **Submit**.

Page Counts

You can view, but not change any of the three counts displayed under PAGE COUNTS.

The view the Prt Color Pg Count, the Prt Mono Pg Count, or the Perm Page Count:

1. Touch **PRINTER SETUP** in Diag Menu.
2. Select the page count you wish to view:
   - Prt Color Pg Count
   - Prt Mono Pg Count
   - Perm Page Count

Touch **Back** to return to the Diagnostics Menu.

Serial Number

The serial number can only be viewed and cannot be changed.

To view or change the serial number:

1. Touch **PRINTER SETUP** from the Diagnostics Menu.
2. To change the value, touch the keyboard icon.
   A simulation of a typewriter allows you to enter an alphanumeric value.
3. Touch **Submit** to save the value or **Back** to exit without saving.

Press ✖ to return to PRINTER SETUP.

Engine Setting 1 through 4

Warning: Do not change these settings unless requested to do so by your next level of support.

Model Name

The model name can only be viewed and cannot be changed.

Configuration ID

The two configuration IDs are used to communicate information about certain areas of the printer that cannot be determined using hardware sensors. The configuration IDs are originally set at the factory when the printer is manufactured. However, the servicer may need to reset Configuration ID 1 or Configuration ID 2 whenever the system board is replaced. The IDs consist of eight digits. The first seven digits in each ID are hexadecimal numbers, while the last digit is a checksum of the preceding seven digits. Each ID can contain a combination of the digits 0 through 9, and A through F.

Note: When the printer detects a Configuration ID that is not defined or invalid, the following occurs:

- The default standard model Configuration ID is used instead.
- Configuration ID is the only function available in DIAGNOSTICS.
- Unless the menu is in DIAGNOSTICS, Check Config ID displays.

To set the configuration ID:

1. Touch **PRINTER SETUP** from the Diag Menu.
2. Touch **Configuration ID keyboard icon**.
3. The values for Configuration ID 1 and Configuration 2 are displayed.
4. Enter the Configuration ID 1.
   - Use the keypads on the operator panel to enter the configuration ID.
   - Touch 0 through 9 and/or A through F to input numbers.
   - Touch **Clear** to erase the numbers.
5. When the last digit is changed, touch **Submit** to validate the Configuration ID 1.
   If Invalid ID appears, the entry is discarded, and the previous Configuration ID 1 is displayed on the screen.
   If the process is successful, Submitting Changes appears on the display, followed by the current value for Configuration ID 2.
6. Repeat steps 4 and for entering the Configuration ID 2, and then touch **Submit**.
   If the Configuration ID 2 is validated, Submitting Changes appears on the display.

Note: The printer will NOT perform an automatic POR after the Configuration IDs are accepted.

Reset color calibration (Reset Color Cal)

The Reset Color Cal enables the alignment of the color planes using pre-programed values. Automatic Color Adjust Calibration may be more effective.

1. Touch **PRINTER SETUP** from the Diagnostics Menu.
2. Touch **Reset Color Cal**.
   Resetting displays.
3. The printer returns to the previous screen when calibration is complete.

Parallel 1 strobe adjustment (Par 1 Strobe Adj)

Note: This setting only appears if the printer has a parallel port available in the PCI slot 1.

This setting enables the servicer to adjust the amount of time the strobe is sampled in order to determine if valid data is available on the parallel port. The range of values is -4 to 6. Each time this value is incremented by 1, the strobe is sampled 50 ns (nanoseconds) longer. Each time this value is decreased by 1, the strobe is sampled 50 ns less often. When the value of this setting is 0, the factory default is used to determine the length of time the strobe is sampled. If the servicer, for example, decreased the value from 0 to 3, the strobe will be sampled for 150 ns longer than the factory setting.

Motor Calibration

This setting synchronizes the aligner and fuser motor speeds with the transfer belt speed to ensure that the output is printed correctly.

To perform a Motor Calibration:

1. Touch **PRINTER SETUP** from the Diagnostics Menu.
2. Touch **Motor Calibration**.
3. Touch **Motor Calibration** on the next screen.
   Calibrating... is displayed, and then eight blank pages are produced.

Touch **Back** to return to PRINTER SETUP.

Cal Ref Adj

To adjust the Cal Ref Adj:

1. Touch **PRINTER SETUP** from the Diagnostics Menu.
2. Touch the arrows beside Cal Ref Adj to increase or decrease the value.
3. Touch **Submit**.

EP Setup

EP Defaults

This setting is used to restore each printer setting listed in EP SETUP to its factory default value. Sometimes this is used to help correct print quality problems.

To restore EP Defaults:

1. Touch **EP SETUP** from the Diagnostics Menu.
2. Touch **EP Defaults**.
3. Select either Restore or Do Not Restore.
   - Touch **Restore** to reset the values to the factory settings
     Restoring Factory Defaults is displayed.
   - Touch **Do Not Restore** to exit without changing the settings.

Fuser temperature (Fuser Temp)

This adjustment can be used to help solve some customer problems with paper curl on low grade papers and problems with letterheads on some types of media.

To adjust the fuser temperature:

1. Touch **EP SETUP** from the Diagnostics Menu.
2. Touch the left or right arrows beside Fuser Temp to toggle between **Low**, **Normal**, or **High**. The default is Normal.
3. Touch **Submit**.

DC Charge Adjust, Dev Bias Adj, Transfer Adjust

Each of these three settings enables you to adjust the high voltage levels controlling the electrophotographic process. You will use these settings to compensate for unusual operating circumstances such as high humidity. The printer uses the value of these settings together with other settings to calculate printing speed and media selection.

To adjust DC Charge Adjust:

1. Touch **EP SETUP** from the Diagnostics Menu.
2. Touch the left or right arrows beside DC Charge Adjust to toggle between Low, Normal, or High. The default is Normal.
3. Touch **Submit**.

To Adjust Dev Bias Adj or Transfer Adjust:

1. Touch **EP SETUP** from the Diagnostics Menu.
2. Touch **Adjust Dev Bias Adj** or **Transfer Adjust** (these menu items work similarly).
   Four choices appear:
   > Black
   > Magenta
   > Cyan
   > Yellow
3. Touch the left or right arrows beside the setting or settings you want to change.
   Select Low, Normal, or High. The default is Normal.
4. Touch **Submit**.

Reports

Menu Settings Page

The Menu Settings Page is a list of Diag Menu settings with the current value.

To print the Menu Settings Page:

1. Touch **REPORTS** from the Diagnostics Menu.
2. Touch **Menu Settings Page**.
   The following displays and the page or pages print.
   > Printing...
   > Menu Settings Page

Touch **Back** to return to the Diagnostics Menu.

Event Log

Display Log

The event log provides a history of printer errors. It contains the 11 most recent errors that have occurred on the printer. The most recent error displays in position 1, and the oldest error displays in position 11 (if 11 errors have occurred). If an error occurs after the log is full, the oldest error is discarded. Identical errors in consecutive positions in the log are entered, so there may be repetitions. All 2*xx* and 9*xx* error messages are stored in the event log.

To view the event log:

1. Touch **EVENT LOG** from the Diagnostics Menu.
2. Touch **Display Log**.
   Up to three error codes display at a time.

Touch **Back** to return to the EVENT LOG menu.

Print Log

Additional diagnostic information is available when you print the event log from Diag Menu rather than CONFIG MENU.

The Event Log printed from Diag Menu includes:

- Detailed printer information, including code versions
- Time and date stamps
- Page counts for most errors
- Additional debug information in some cases
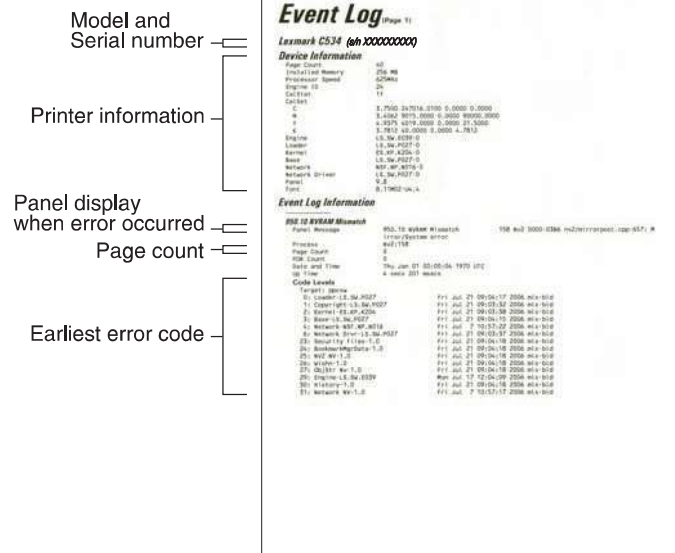
The printed event log can be faxed to Lexmark or your next level of support for verification or diagnosis.

To print the event log:

1. Touch **EVENT LOG** from the Diagnostics Menu.
2. Touch **Print Log**.
   `Printing EVENT LOG` is displayed.

Touch **Back** to return to the Diagnostics Menu.

Clear Log

Use Clear Log to remove the current information in the Event Log. This affects both the viewed log and the printed log information.

1. Touch **EVENT LOG** from the Diagnostics Menu.
2. Touch **Clear Log**.
3. Touch **YES** to clear the Event Log or touch **NO** to exit the Clear Log menu.
   If **YES** is selected, `Deleting EVENT LOG` displays on the screen.

Touch **Back** to return to EVENT LOG.

Scanner Tests

ASIC Test

This test initiates a scan of the scanner ASIC memory.

1. Touch **SCANNER TESTS** from the Diagnostics Menu.
2. Touch **ASIC Test**.
   The results will be displayed as either `ASIC Test Passed` or `ASIC Test Failed`.

To clear the results, press ⊠ .

Feed Test

The feed test scans and feeds continuously from either the ADF or the flatbed, depending on whether or not paper is placed in the ADF.

1. Touch **SCANNER TESTS** in Diag Menu.
2. Touch **Feed Test**.
3. Use ◄ and ► to indicate the specific media size then touch **Submit**.
   - If media is in the ADF, then ADF feed tests are performed.
   - If no media is in the ADF or the media is exhausted, then the entire flatbed will be scanned
4. `Running… Flatbed:0 ADF:0` displays and the number of successful scans is displayed by incrementing the number beside the scan type.
   If a failure occurs, `Feed Test Failed Flatbed:xxxxx ADF:xxxxx.` is displayed showing the number of failure of each scan type.
5. Press ⊠ to end the test and clear the messages.

Sensor Tests

Tests to evaluate the scanner sensors in the ADF and the flatbed (FB).

To view the sensor states:

1. Touch **SCANNER TESTS** from the Diagnostics Menu.
2. Touch **Sensor Test**.
   A screen similar to the one below will display.

```
ADF Paper Present        0
FB Cover Open            0
Home Sensor             1
Skew Sensor         0
ADF Cover Sensor         0
ADF Exit Sensor          0
Scan Sensor         0
Jam Sensor          1
Paper FB Short          0
Paper FB Medium          0
Paper FB Long            0
Paper ADFF Short         0
Paper ADF Width 1        0
Paper ADF Width 2        0
```

The meaning of the states is listed in the table below:

Sensor Test descriptions (under Scanner Tests)

Sensor	State	Description
ADF Paper Present	0	Paper not present in ADF
	1	Paper present in ADF
FB Cover Open	0	Flatbed cover closed
	1	Flatbed cover open
Home Sensor	0	Scanner carriage not positioned over home sensor
	1	Scanner carriage positioned over home sensor
Skew Sensor	0	Paper not positioned over the ADF interval sensor
	1	Paper positioned over the ADF interval sensor
ADF Cover Open	0	ADF cover closed
	1	ADF cover open
ADF Exit Sensor	0	Paper not positioned over the ADF exit sensor
	1	Paper positioned over the ADF exit sensor
Scan Sensor	0	Paper is not present above this sensor
	1	Paper is being fed from the ADF, and the top edge passes over this sensor
Jam Sensor1	0	Paper is not present above this sensor
	1	Paper is being fed from the ADF, and the top edge passes over this sensor
Paper FB Short	0	Executive paper is not present on the flatbed or the scanner cover is not closed
	1	Executive paper is present on the flatbed, is covering the first length sensor, and the scanner cover is closed
Paper FB Medium	0	Letter paper is not present on the flatbed or the scanner cover is not closed
	1	Letter paper is present on the flatbed, is covering the second length sensor, and the scanner cover is closed

Sensor Test descriptions (under Scanner Tests)

Sensor	State	Description
Paper FB Long	0	Legal paper is not present on the flatbed, or the scanner is not closed
	1	Legal paper is present on the flatbed, is covering the third length sensor, and the scanner cover is closed
Paper ADF Long	0	Paper not present in the ADF, or positioned over the ADF bin sensor
	1	Paper present in the ADF, and positioned over the ADF bin sensor.
Paper ADF Width 1	0	Paper present in the ADF, and the paper edge guide is moved to the Executive position
	1	Paper is not present in the ADF, or the paper edge guide is not positioned in the Executive position
Paper ADF Width 2	0	Paper present in the ADF, and the paper edge guide is moved to the Executive position
	1	Paper is not present in the ADF, or the paper edge guise is not position in the Executive position

Press ❌ to return to the Scanner Tests Menu.

Scanner Calibration Reset

After selecting this setting, the operator panel displays the following message in the header:

`This procedure should be run after the scanner or ADF has been replaced. Before proceeding make sure that the scanner glass and backing material are clean. Please refer to the User's Guide for instructions on how to clean the scanner glass and backing material.`

select **Continue** To initiate this operation. At the conclusion of a successful operation, the **operator** panel displays the message `Operation completed successfully.` for 3 seconds and then automatically returns to the main Scanner Calibration Reset menu. If an error occurs during execution, the operator panel displays the message `Test Failed, Please Retry`. Select **Continue** to return to the main Scanner Calibration Reset menu.

Note: Pressing **Exit** returns to the Configuration Menu without executing this procedure.

After successfully executing this process, verify its effectiveness by loading the ADF with a document containing both light and dark content, and then perform a duplex copy. If the back side of the resulting copy contains vertical streaks, clean the scanner glass and backing sheet, execute the back side scan uniformity procedure, and then perform another copy. If streaks still appear on the resulting copy, repeat the cleaning and verification procedure a second time or replace the ADF entirely.

Adf Magnification

This setting enables you to adjust the ADF's magnification. The magnification values are from **0.985** to **1.015**. The default value is **1.0**.

EXIT DIAGNOSTICS

Touch **Exit Diag Menu**. The printer performs a power-on reset and returns to normal mode.

Configuration menu (CONFIG MENU)

Available tests

The tests display on the operator panel in the order shown. Not all menus appear, depending upon the configuration of your multiple function printer. For example, if you do not have a hard disk installed, then Disk Encryption and Wipe Disk will not appear.

Reset Separator Roll and Pick Assembly Counter	See **"Reset Separator Roll and Pick Assembly Counter" on page 3-30**.
Reset Fuser Counter	See **"Reset Fuser Count" on page 3-30**.
USB Scan to Local	See **"USB Scan to Local" on page 3-30**.
Black Only Mode	See **"Black Only Mode" on page 3-31**.
Color Lock Out	See **"Color Lock Out" on page 3-31**.
Print Quality Pages	See **"Prt Quality Pages" on page 3-31**.
Reports	
Menu Settings Page	See **"Menu Settings Page" on page 3-31**.
Event Log	See **"Event Log" on page 3-32**,
Color Trapping	See **"Color Trapping" on page 3-32**.
Tray Insert Msg	See **"Tray Insert Msg" on page 3-32**.
SIZE SENSING	See **"Size Sensing" on page 3-32**.
Panel Menus	See **"Panel Menus" on page 3-33**.
PPDS Emulation	See **"PPDS Emulation" on page 3-33**.
Factory Defaults	See **"Factory Defaults" on page 3-33**.
Energy Conserve	See **"Energy Conserve" on page 3-34**.
Fax Low Power Support	See **"Fax Low Power Support" on page 3-34**.
Min Copy Memory	See **"Min Copy Memory" on page 3-34**.
Numpad Job Assist	See **"NumPad Job Assist" on page 3-34**.
Format Fax Storage	See **"Format Fax Storage" on page 3-35**.
Fax Storage Location	See **"Fax Storage Location" on page 3-36**.
Automatic Color Adjust	See **"Automatic Color Adjust" on page 3-38**.
Auto Align Adj	See **"Auto Align Adj" on page 3-38**.
Color Adj State	See **"Color Adj State" on page 3-39**.
Enforce Color Order	See **"Enforce Color Order" on page 3-39**.
Color Alignment	See **"Color Alignment" on page 3-39**.
Motor Calibration	See **"Motor Calibration" on page 3-40**.
ADF Edge Erase	See **"ADF Edge Erase" on page 3-36**.
FB Edge Erase	See **"FB Edge Erase" on page 3-36**.
Scanner Manual Registration	See **"Scanner Manual Registration" on page 3-36**.
Disable Scanner	See **"Disable Scanner" on page 3-38**.
Paper Prompts	See **"Paper Prompts" on page 3-40**.
Envelope Prompts	See **"Envelope Prompts" on page 3-40**.
Action for Prompts	See **"Action for Prompts" on page 3-41**.
Jobs on Disk (if hard disk is installed)	See **"Jobs on Disk" on page 3-41**.

Disk Encryption (if hard disk is installed)	See **"Disk Encryption" on page 3-41**.
Wipe Disk (if hard disk is installed)	See **"Wipe Disk" on page 3-42**.
Wipe All Settings	See **"Wipe All Settings" on page 3-43**.
Duplex Gloss	See **"Duplex Gloss" on page 3-43**.
Font Sharpening	See **"Font Sharpening" on page 3-43**.
Require Standby	See **"Require Standby" on page 3-43**.
UI Automation	See **"UI Automation" on page 3-44**.
LES Applications	See **"LES Applications" on page 3-44**.
Key Repeat Initial Delay	See **"Key Repeat Initial Delay" on page 3-44**.
Key Repeat Rate	See **"Key Repeat Rate" on page 3-44**.
Clear Custom Status	See **"Pel Blurring" on page 3-45**.
Pel Blurring	See **"Pel Blurring" on page 3-45**.
USB Speed	See **"USB Speed" on page 3-46**.
Automatically Display Error Screens	See **"Automatically Display Error Screens" on page 3-47**.
Exit Config Menu	This selection exits Configuration Menu, and then `Resetting the Printer` displays. The printer performs a POR and returns to normal mode.

Reset Separator Roll and Pick Assembly Counter

This setting enables you to reset the value of the Separator Roll and Pick Assembly's maintenance counter to zero (0) after replacing it.

Reset Fuser Count

Resets the fuser count value to zero. The Event Log records each time that a user executes the Reset Fuser Count operation. See **"Event Log" on page 3-32** for more information. This setting only appears if the Maintenance Warning and Intervention function is enabled in the printer Configuration ID.

To reset the fuser count:

1. Touch **Reset Fuser Cnt** from the Config Menu.
2. Touch **Reset Fuser Cnt** again.l

You are returned to the Configuration Menu.

USB Scan to Local

This setting allows you to limit or expand the uses for the USB device on the front of the multiple function printer. If you select **On** (the default), the contents of the USB device can be viewed or saved on another device, such as an USB-connected computer. If you select **Off**, only the MFP can view the USB device contents.

To change the setting:

1. Touch **USB Scan to Local** from the Config Menu.
2. Touch the ◄ or ► arrows to select either **Off** or **On**.
3. Touch **Submit**.

Touch **Back** to return to the Configuration Menu screen.

Black Only Mode

This enables you to force the printer to always print color content in grayscale. Turning this setting **On** is equivalent to setting Print Mode to Black Only; the printer will ignore any PJL or data stream commands that attempt to change the Print Mode setting. If this setting is set to **Off** (default), then the printer will print color content as normal.

Color Lock Out

Select **On** when printing for extended periods with only black toner. This saves the color toner cartridges (cyan, magenta, and yellow) and photoconductor units from excessive wear. In addition to setting the values, the cyan, magenta, and, yellow toner cartridges and their matching photoconductor units must be removed from the printer. The default value is **Off**.

To initiate Color Lock Out:

1. Touch **Color Lock Out** from the Configuration Menu.
2. Touch the ◄ or ► arrows to select **On**.
3. Touch **Submit**.
   `Submitting Changes…` is displayed.
4. Remove all color cartridges and color photoconductor units (cyan, yellow, and magenta). Leave the black supplies only.
5. Turn the MFP off, and then on (POR).
   Note: If the color supplies are left installed when the MFP returns to the normal menus, the MFP displays `Remove All Color Supplies`.

Note: When you turn Color Lock Out Off (the default mode) after it has been On, at the next POR to normal mode the printer will display `31 Missing or Defective <color> Cartridge`. Replace the color cartridges and color photoconductors.

Prt Quality Pages

To help isolate print quality problems, print the Print Quality Test Pages. The pages are formatted. The `Printing Quality Test Pages` message appears, then the pages print. The message remains on the operator panel until all the pages print.

To print the Print Quality Pages:

1. Touch **Print Quality Pages** from the Configuration Menu.
   `Print Quality Test Pages…` is displayed.

Touch **Back** to return to the Configuration Menu.

The Print Quality Test Pages contain several pages. The first page which is a mixture of text and graphics. The information includes values of the Quality Menu settings in Settings and printer and toner cartridge configuration information. The remaining pages only contain graphics. For samples of the pages, see **"Print quality test pages (Prt Quality Pgs)" on page 3-12**.

Reports

Menu Settings Page

The Menu Settings Page generates a list of Configuration Menu settings and the current values.

To print the Menu Settings Page:

1. Touch **Reports** from the Configuration Menu.
2. Touch **Menu Settings Page.**

`Printing Menu Settings Page…` is displayed. A set of the Configuration Menu settings is printed.

Event Log

This menu item lets the system support person print a limited set of the information contained in the Diagnostics mode version of the printed Event Log. For a sample of a Diagnostics Menu Event Log printout, see **"Event Log" on page 3-25**. The limited Configuration log and the full Diagnostics log printed versions show the same operator panel messages when they print and follow the same layout guidelines.

To print the Event Log:

1. Touch **Reports** from the Configuration Menu.
2. Touch **Event Log**.
   `Printing EVENT LOG…` is displayed.

Note: If an optional parallel card is supported and installed, then after the Event Log prints, a separate report that details the parallel card's history.

Color Trapping

Uses an algorithm to compensate for mechanical misregistration in the printer. When small black text or fine black lines are being printed, the printer checks to see if they are being printed on top of a colored background. If so, rather than remove the color from beneath the black content, the printer leaves the color around the edge of the text or line. The hole in the colored region is reduced in size which prevents the characteristic white gap that is caused by mis-registration.

This menu item applies to PCL 5e emulation, PCL XL, PDF, and PostScript.

Selections are **Off** and the values **1** through **5**, with **2** as the default. Values 1 through 5 indicate the amount of color remaining beneath the black content. Each setting increments by 1/600 of an inch. The less accurate the registration setting, the higher the setting needs to be adjusted. Selecting **Off** disables color trapping. The default value is 2.

To increase or decrease color trapping:

1. Touch **Color Trapping** from the Configuration Menu.
2. Touch ◄ to decrease the color margin or ► to increase the color margin.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration Menu.

Tray Insert Msg

This setting determines how many seconds the panel will display the `Tray Insert` message after inserting a tray into the printer.

Selections are **Disabled** and the values between **1** and **90**. The default value is **5**.

Size Sensing

Turns the size sensing **Auto** or **Off** for print media input sources that have the ability to sense media sizes. The default value is Auto.

To select size sensing for a tray that has that feature:

1. Touch **SIZE SENSING** from the Configuration Menu.
2. Touch **Tray 2, Tray 3, Tray 4, or Tray 5**.
   Only those sources which support automatic size sensing are displayed.
3. Select **Auto**.

4. Select **Submit**.

Panel Menus

Lets the system support person lock users from Administrative menus. The Menu icon will not appear on the operator pane Selecting **On** (the default) prevents users from accessing menus. **Off** allows users to access the menus. The default value is set to On. Menus secured by password access are blocked, but the security access settings are retained if Panel Menus is set to On.

This menu item only appears when the PJL PASSWORD Environment variable is set to 0.

To change the Panel Menus:

1. Touch **Panel Menus** from the Configuration Menu.
2. Touch the ◄ or ► arrow to select **Off** or **On**.
3. Select **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

PPDS Emulation

Activates or deactivates (default) the Personal Printer Data Stream (PPDS) emulation language. This menu item only appears if the PPDS interpreter is available.

To activate or deactivate PPDS Emulation:

1. Touch **PPDS Emulation** from the Configuration Menu.
2. Touch the ◄ or ► arrow to select **Deactivate** or **Activate**.
3. Select **Submit**.
   Deactivating PPDS Mode… or Activating PPDS Mode… is displayed.

You are automatically returned to the Configuration menu.

Download Emuls

This menu item allows the system support person turn the download emulator off temporarily. This menu item only appears if at least one download emulator is installed.

The only selection is **Disable**. The printer automatically re-enables all download emulators after two instances of a power-on reset for the printer. To re-enable these emulators, a user would perform another power-on reset after exiting the Config Menu.

Factory Defaults

This menu item resets the majority of printer values back to their factory default settings.

Warning: This selection cannot be reversed, so this operation should only be used as a last resort to fix any printer problem.
When factory default settings are restored:

- All downloaded resources (fonts, macros, symbol sets) in the printer memory (RAM) are deleted.
- All menu settings return to the factory default setting *except*:
  - The Display Language setting in the "Setup" Menu.
  - All settings in the Parallel Menu, Serial Menu, Network Menu, Infrared Menu, LocalTalk Menu, and USB Menu.
- Restore LES—all non-standard applications are removed, all frame-work and standard application settings are reset to their factory default values, and then the SE logs are cleared.

To restore Factory Defaults:

1. Print **Menu Settings** from the Administration Menu, the Diagnostic Menu, and the Configuration Menu. If you need to reset customer settings you have a record.
2. Touch **Factory Defaults** from the Configuration Menu.
3. Touch **Restore Base**, **Restore STD NET**, or **Restore LES**. The Restore Network value only appears on printer models that have integrated network support.
   Restoring Factory Defaults… appears on the operator panel while factory defaults are restored.
   Resetting the Device... appears and the MFP performs a POR.

After a POR, the printer starts in the Home state.

Energy Conserve

This menu item affects the values that appear in the Power Saver menu on the operator panel. Energy Conserve only appears when the Power Saver feature is disabled.

Select **Off** in Energy Conserve to add a menu item to the Power Saver called Disabled. Energy Conserve does not disable Power Saver, it only allows the users to select **Disable**. When **On** (default) is selected in the Energy Conserve menu Disabled does **not** appear on as a choice in the Power Saver menu. Power Saver cannot be disabled from the user's operator menu.

To change the Energy Conserve setting:

1. Touch **Energy Conserve** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **On** and **Off**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Fax Low Power Support

The values for this setting include **Auto** (default), **Permit Sleep**, and **Disable Sleep**.

The **Auto** value relies on the firmware's logic to determine if the device supports the fax portion of the low power architecture. **Permit Sleep** allows the fax chip to enter low power mode (regardless of the value of Caller ID Pattern) whenever the device determines that it should. **Disable Sleep** prohibits the fax chip from ever entering low power mode.

NumPad Job Assist

This setting determines whether or not a user can configure and initiate a job using the operator panel buttons. When this is set to **On**, a user can choose a function, such as copy, fax, or so forth, and then enter specific values for a limited number of settings and initiate the job with a series of key presses. When turned to **Off**, the feature is not available.

To change the Numpad Job Assist value:

1. Touch **NumPad Job Assist** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **On** and **Off**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Min Copy Memory

This setting determines how much DRAM memory the MFP will allot to a priority queue. Amounts are 25, 35, 50, 80, or 100MB. The default is 80MB. The regular queue is interrupted for copy jobs in the priority queue.

To change the Min Copy Memory value:

1. Touch **Min Copy Memory** from the Configuration Menu.
2. Touch the ◄ or ► arrow to change between **25 MB**, **35 MB**, **50 MB**, **80 MB**, and **100 MB**.
3. Touch **Submit**.
   Submitting changes... is displayed.

You are automatically returned to the Configuration menu.

Format Fax Storage

This procedure formats fax storage. When executed, this operation ONLY deletes faxes that are stored in the location identified by the value of the Fax Storage Location setting.

1. Touch **Format Fax Storage** from the Configuration Menu.
2. Touch either **Yes** or **No**
   - If **Yes** is selected, Formatting Fax Flash DO NOT POWER OFF is displayed. Then you are automatically returned to the Configuration main menu.
   - If **No** is selected, you are returned to the Configuration main menu.

Fax Storage Location

This setting only appears if a hard disk is installed. Selections are NAND or Disk.

1. Touch **Fax Storage Location** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **NAND** and **Disk**.
3. Touch **Submit**.

Note: If a hard disk is not installed, the multiple function printer automatically stores all buffered faxes on NAND, and this menu does not appear. Disk is the default storage location.

ADF Edge Erase

The value of this setting determines the size (in millimeters) of the "no-print" zone around an ADF scan job. A copy job always has at least a 2mm border; therefore, the border size is either 2mm or the value of this setting, whichever is larger.

To change the value for ADF Edge Erase:

1. Touch **ADF Edge Erase** from the Configuration Menu.
2. Touch the ◄ or ► arrows to change the value from **0** to **6** (3 is the default).
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

FB Edge Erase

The value of this setting determines the size (in millimeters) of the "no-print" zone around an ADF scan job. A copy job always has at least a 2mm border; therefore, the border size is either 2mm or the value of this setting, whichever is larger.

To change the value for FB Edge Erase:

1. Touch **FB Edge Erase** from the Configuration Menu.
2. Touch the ◄ or ► arrows to change the value from **0** to **6** (3 is the default).
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Scanner Manual Registration

This item is used to manually register the flatbed and ADF on the MFP scanner unit. Registration should be performed whenever the ADF unit, flatbed unit, or controller card are replaced.

To manually adjust the scanner:

1. Touch **Scanner Manual Registration.**
2. Touch **Print Quick Test**.
3. Place the quick test on the glass of the flatbed scanner.
4. Press **Copy Quick Test**.
5. Select **Flatbed**.

Examine the copy of the Quick Test and compare it to the original. Adjust the Left Margin and/or the Top Margin to match the original.

Selection	Effect
Left Margin	• Decrease the value and move the margin to the left. • Increase the value and move the margin to the right
Top Margin	• Decrease the value to move the margin down • Increase the value to move the margin upward.

6. Touch **Submit**.
   Submitting changes… is displayed.
7. Place the original printout on the glass of the flatbed, and touch **Copy Quick Test**.
8. If the pages match, continue to step 9. If the pages do not match, repeat steps 4 through 7, until you are satisfied.
9. Place the original in the ADF, and touch Copy Quick Test.
10. Examine the copy of the Quick Test and compare it to the original. If it does not match, continue. If it does match, go to step 11. If it matches go to step 16.
11. Touch **ADF Front**.
    Adjust the Left Margin and/or the Top Margin to match the original.

Selection	Effect
Horizontal Adjust	• Decrease the value to move the margin to the left • Increase the value to move the margin to the right
Top Margin	• Decrease the value to move the margin down • Increase the value to move the margin upward.

12. Touch **Submit**.
    Submitting changes… is displayed.
13. If the pages match, continue to step 14. If the pages do not match, repeat steps 8 through 12, until you are satisfied.
14. Place the original Quick Test in the ADF facedown, and touch **Copy Quick Test**.
15. Examine the copy of the Quick Test, and compare it to the original. If the pages match, you are done. If the pages do not match, continue to the next step.
16. Touch **ADF Back**. (This setting only appears on duplex machines)
    Adjust the Left Margin and/or the Top Margin to match the original.

Selection	Effect
Horizontal Adjust	• Decrease the value to move the margin to the left • Increase the value to move the margin to the right
Top Margin	• Decrease the value to move the margin down • Increase the value to move the margin upward.

17. Touch **Submit**.
    Submitting changes… is displayed.

Touch **Back** at any time to return to the initial scanner manual registration screen without saving any changes.

Disable Scanner

If a scanner is not working, the scanner can be disabled, allowing the user to continue using the printer portion of the multiple function printer. **Disable** disables the entire scanner (ADF and flatbed), and then users attempting to use the scanner function receive `Scanner disabled by administrator` message. **ADF Disabled** disables only the ADF, but the flatbed continues to function. Users will receive a `Automatic document feeder disabled by administrator` message, and the paper present sensor in the ADF reports empty. **Enabled** turns the scanner back on, and is the default setting.

Auto Disabled is not a selection. It appears in response to certain scanner operation failures, and indicates the scanner is already disabled. **Submit** is disabled when it appears.

To disable the scanner:

1. Touch **Disable Scanner** from the Configuration Menu.
2. Touch the ◄ or ► arrows to select **Enabled** (default), **Disabled**, or **ADF Disabled**.
   Auto Disabled appears in response to certain scanner operation failures.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Automatic Color Adjust

Sets the suggested number of pages which the printer should print between consecutive calibrations.

If the printer exceeds the set value while printing a job, it completes the current job and any other jobs received while printing the current job before it initiates a calibration. The printer does not cancel or suspend an active job in order to perform a calibration. If a user is in any of the menus, including the Configuration Menu and the Diagnostics mode, an automatic color adjust calibration does not occur.

1. Touch **Auto Color Adjust** from the Configuration Menu.
2. Touch ◄ decrease the value or ► to increase the value.
   Selections are **Off** and the values between **100** and **1000** in increments of 50. The default is 500 pages.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Auto Align Adj

Controls whether the printer executes the automatic alignment calibration after an initiating event occurs. When an event initiates a TPS operation, the printer performs a toner density calibration, (TPS) an alignment calibration, or both of the calibrations.

Toner Patch Sensing (TPS) is a diagnostic mechanism that automatically adjusts the printer toner density and alignment settings. When TPS executes, the printer generates toner patches on the transfer belt. It then uses these to calculate the appropriate adjustment, to density, if necessary.

To adjust the Auto Align Adj setting:

1. Touch **Auto Align Adj** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Off** and **On** (default).
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Enforce Color Order

This setting gives the system support person the ability to enforce where the color cartridges may be placed, and if messages appear when cartridges are in the wrong location.

When **On** (default) is selected, the printer lets users place each toner cartridge in only its specified slot. For instance, the Magenta toner cartridge must be in the Magenta slot. If the user tries to place a cartridge in an incorrect slot, the printer message `31 Defective or Missing <color> Cartridge` or `32 Unsupported <color> Cartridge` appears where *<color>* stands for Cyan, Magenta, Yellow, or Black.

When **Off** is selected, the printer does not issue any message to let the user know that the cartridge is placed in the wrong slot inside the printer.

To adjust the Enforce Color Order setting:

1. Touch **Enforce Color Order** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Off** and **On** (default).
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Color Alignment

Color alignment should be performed when the transfer module is replaced.

To perform color alignment:

1. Touch **Color Alignment** from the Configuration Menu.
2. Touch **Print Alignment**.
   Four pages print with charts and letters A–L.
3. Consulting the printed page, look at Set A.
   Indicate the number of the 20 color lines closest to the black lines.
4. Enter that number on the operator panel using the left and right arrows.
5. Continue selecting the best lines for the sets through **Set L and entering them on the operator panel**.
6. Touch **Submit** when all are entered.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Color Adj State

These settings allow you to select when color calibrations occur. Selecting **Busy** indicates the color calibrations will complete queued jobs, but refuse to add new jobs to the queue. When calibration is complete jobs are again accepted. Selecting **Idle** allows calibrations only when the printer is idle.

To adjust the Color Adj State setting:

1. Touch **Color Adj State** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Busy** and **Idle**.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Motor Calibration

This setting synchronizes the aligner and fuser motor speeds with the transfer belt speed to ensure that the output is printed correctly.

Note: This test should be run at 600 dpi resolution and with duplex disabled.

To run the Motor Calibration:

1. Touch **Motor Calibration** from the Configuration Menu.
2. Touch **Motor Calibration**.
   Calibrating… displays, and then the multiple function printer feeds eight blank pages.

Touch **Back** to return to the Configuration menu.

Paper Prompts

Controls the source the printer selects for a change paper source message. The printer displays the change paper source message based on the size of the paper requested and not by the paper type.

Selections include **Auto**, **Multi-Purpose Feeder**, and **Manual Paper.** The multipurpose feeder is available on some printer models.

Note: If the Configure MP setting is changed to Manual, a power-on reset is performed, and then the value of the Paper Prompts menu item before the power-on reset was MP Feeder, then when the printer restarts, the printer automatically changes the Paper Prompts setting to Manual Paper.

Load Manual overrides that would result in a change paper message are disabled for **Paper** or **Env** prompts that are set to Manual, Manual Paper, or Manual Env.

To change the settings for Paper Prompts:

1. Touch **Paper Prompts** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Auto**, **Multi-Purpose Feeder**, and **Manual Paper**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Envelope Prompts

Controls the source the printer selects for a change envelope source message. The printer displays the change envelope message based on the size of the envelope requested and not by the envelope type.

Selections include Auto, MP Feeder, and Manual Envelope. MP Feeder is only available on some printer models.

Note: If the Configure MP setting is changed to Manual, and a power-on reset is performed, and the value of the Envelope Prompts menu item before the power-on reset was MP Feeder, then when the printer restarts, the printer automatically changes the Envelope Prompt setting to Manual Envelope.

Load Manual overrides that would result in a change paper message are disabled for Paper or Envelope prompts that are set to Manual, Manual Paper, or Manual Envelope.

To change the settings for Env Prompts:

1. Touch **Envelope Prompts** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Auto**, **Multi-Purpose Feeder**, and **Manual Envelope**.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Action for Prompts

This setting gives the user the option of having the printer resolve change prompt situations without requiring any user assistance. If the **Prompt user** value is selected, the printer displays change prompts if the job does not match the media in the selected source. The user must select another source or change the paper. If **Continue** or **Use current** is selected, the printer acts as if the user made the selection **Continue** or **Use current** and continues without user intervention, in most cases.

1. Touch **Action for Prompts** in the Config Menu.
2. Touch the left or right arrow to toggle between **Prompt user**, **Continue**, and **Use current**.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Jobs on Disk

Lets the user select whether or not the printer deletes all buffered jobs on the hard disk. This menu item only appears if a hard disk is installed. It appears even if no buffered jobs exist on the hard disk.

Selections include **Do Not Delete** and **Delete**.

Note: **Delete** does not remove Print and Hold jobs. Use **Remove Held Jobs** in the Utilities Menu (user menu) to delete these jobs.

To delete jobs on stored on the hard disk:

1. Touch **Jobs on Disk** from the Configuration Menu.
2. Touch **Delete** to erase stored jobs, or touch **Do not delete** to return to the menu without deleting any jobs.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Disk Encryption

Controls whether the printer encrypts the information that it writes to the hard disk.

Warning: When the value for Disk Encryption, the printer completely formats the hard disk which means that all information on the disk is deleted.

If an encrypted disk is removed from the printer and another disk is installed, the `Disk Corrupted. Reformat?` message appears. The newly installed disk must either be formatted or removed from the printer.The Disk Encryption menu item only appears when:

• A non-defective disk is installed in the printer.
• The values of bits 3-2 of digit 4 in the Configuration ID 2 are either 01 for Supported, or 10 for Supported with an internal network adapter (INA).

Selections include **Disable** (default) and **Enable**. When Disk Encryption is selected, Yes or No appears for you to confirm. Select either **Yes** or **No**. To cancel, touch **No**.

To encrypt a disk:

1. Touch **Disk Encryption** from the Configuration Menu.
2. Touch **Enable** to encrypt the disk.
3. Touch **Yes**.
    Warning: To prevent damage to your disk, do not turn the MFP off while the following displays.

Encrypting Disk
5/7   30%

**DO NOT
POWER OFF**

4. Touch **Back** to return to the main menu.

A graphic appears, showing:

- The message `Encrypting Disk` or `Formatting Disk`
- A percentage scale
- The message `DO NOT POWER OFF`

The process is complete when the percentage scale displays 100.

Wipe Disk

Note: Due to the lengthy amount of time required to wipe an entire hard disk using either method, a wipe should not be initiated unless it is absolutely unavoidable (for example, disk corruption), or unless the printer can remain offline for several hours without inconveniencing users.

Warning: A user should not initiate either type of wipe from the Configuration Menu if the hard disk contains downloaded fonts, macros, held jobs, and so forth that should not be erased.

This setting initiates either a single pass wipe or a multiple pass wipe of the entire hard disk. Select **Disk Wipe (fast)** to complete a single pass wipe and replacement of the file system. Select **Disk Wipe (secure)** to complete a multiple pass wipe at a more basic level.

Wipe All Settings

The purpose of this setting is to make any sensitive information that may exist on the device's volatile or non-volatile storage completely indecipherable.

After selecting this setting, the operator panel displays the following message:

> This operation will clear all settings, solutions, and jobs on this device. The device will reboot during this process. Continue?

To cancel the NAND wipe operation and return to the main Configuration Menu, select **No**. To execute the NAND wipe operation, select **Yes**.

After selecting **Yes**, the device initiates a non-critical NVRAM reset, and the operator panel displays the message Resetting the device, and then the device reboots.

The progress bar area of the Lexmark logo screen that appears during boot up displays the following message until the wiping process is finished:

Wiping disk...Pass [x] of [y]. [Z]% done.

Duplex Gloss

If you need higher quality duplex copies, selecting Duplex Gloss give you a higher quality output. It does this by limiting the number of pages fed at one time. In normal duplex, two sheets are fed simultaneously and one is printed on page two and the other is printed as page four, then the pages are re-fed and pages one and three are printed on the other side. With Duplex Gloss turned on, only one page is fed, printed, re-fed and the reverse is printed. The quality increases, but the time it takes to complete the job is increased.

To turn on Duplex Gloss:

1. Touch **Duplex Gloss** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Off** and **On**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Font Sharpening

Lets a user set a text point-size value below the setting of the high frequency screens used when printing font data. This menu item only affects the PostScript, PCL, XL, and PDF emulators.

Settings are in the range of 0–150 (24 is the default). For example, if the value is set to 24, then all fonts sized 24 points or less use the high frequency screens. To increase value by 1, touch the right arrow; to decrease the value by 1, touch the left arrow.

To set Font Sharpening:

1. Touch **Duplex Gloss** from the Configuration Menu.
2. Touch the ◄ or ► arrow to change the value from **1** to **150**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Require Standby

When set to Off, the Standby Mode setting in General Settings Menu displays Disabled. The default is On.

To set Require Standby:

1. Touch **Require Standby** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **On** and **Off**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

UI Automation

This setting allows external developers to measure the stability of their applications by performing their own automated testing against the device.

Selections include **Enable** and **Disable** (default).

When **Enable** is selected, the machine creates a file called ENABLE_UI_AUTOMATION in the /var/fs/shared/ directory. As long as this file exists, the device permits automated testing by external users.

When **Disable** is selected, the machine removes the ENABLE_UI_AUTOMATION file from the /var/fs/shared/ directory and prohibits automated testing.

LES Applications

Enables or disables Lexmark Embedded Solutions (LES) applications. The default is Enable.

To change the setting:

1. Touch **LES Applications** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Enable** and **Disable**.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Key Repeat Initial Delay

Determines the initial length of delay before a repeating key starts repeating. The range is from 0.25 seconds to 5 seconds in 0.25 second increments. The default value is 1 second.

To set the delay:

1. Touch **Key Repeat Initial Delay** from the Configuration Menu.
2. Touch the ◄ or ► arrow to change the value **0.25** second to **5** seconds.
3. Touch **Submit**.
   Submitting changes… is displayed.

You are automatically returned to the Configuration menu.

Key Repeat Rate

Number of presses per second for a repeating key. The range is from 1 to 100 presses per second. The default is 15 presses per second.

To set the number of key presses per second:

1. Touch **Key Repeat Rate** from the Configuration Menu.
2. Touch the ◄ or ► arrow to change the value from **1** to **100**.
3. Touch **Submit**.

`Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

Clear Custom Status

Executing this operation erases any strings that have been defined by the user for the Default or Alternate custom messages.

To clear custom strings:

1. Touch **Clear Custom Status** from the Configuration Menu.
2. Touch **Clear Custom Status** again to confirm.
   `Clear Custom Status...` appears.

Press **Back** to return to the Configuration Menu.

Pel Blurring

Customers who notice step artifacts in their error diffused copies to activate the pel synthesis function. The settings are On and Off (the default is Off).

1. Touch **Pel Blurring** in the Config Menu.
2. Touch the ◄ or ► arrow to toggle between **On** and **Off**.
3. Touch **Submit**.
   `Submitting changes…` is displayed.

You are automatically returned to the Configuration menu.

USB Speed

A value of Full forces the USB port to run at full speed, and also disables its high-speed capabilities. Settings are Full and Auto. Auto is the default.

To set USB Speed:

1. Touch **USB Speed** from the Configuration Menu.
2. Touch the ◄ or ► arrow to toggle between **Full** and **Auto**.
3. Touch **Submit**.
   Submitting changes... is displayed.

You are automatically returned to the Configuration menu.

Automatically Display Error Screens

Selections include **On** (default) and **Off** (default).

When **On** is selected, the operator panel automatically displays any existing printer-related IR after the device remains inactive on the Home screen for a length of time equal to the Screen Timeout setting. Any IR that appears on the operator panel will display the option to return to the Home screen without clearing it. Once the device returns to the Home screen, though, any existing IR again will appear after the device remains inactive on the Home screen for a length of time equal to the Screen Timeout setting.

SFPs and MFPs use a different default value for this setting in order to preserve their legacy behavior with respect to IRs.

Exit Config Menu

Touch **Exit the Config Menu**. The printer performs a power-on reset and returns to normal mode.

Service Engineer (SE) Menu

To enter the SE Menus:

From browser, add "/se" to device's IP address (for example: http://123.456.7.8/se).

Print SE Menus	
General	
Copyright	Displays copyright information.
Lexmark Forms Mode	On or Off
Code Revision Info	
Network Code Level	Displays network code level.
Network Compile Info	Display network compile information.
Printer Code Level	Displays printer code level.
Printer Compile Info	Displays compile information.
History	
Print History	
Mark History	
History Mode	
MAC	
Set Card Speed	
LAA	
Keep Alive	
NVRAM	
Dump NVRAM	
Reinit NVRAM	
NPAP	
Print Alerts	
TCPIP	
netstat -r	
arp -a	
Allow SNMP Set	
MTU	
Meditech Mode	
Raw LPR Mode	
Gather Debug	
Enable Debug	
Netware	
Broadcast SAPs	
NPA Delay	

Front cover locked in place

The front door locks during certain Busy events, and unlocks when those events are complete. This is a normal function. You can hear the door lock into place when one of these events take place. However, if the printer is turned off, or has an error while the front door is locked (for example, while printing or calibrating), the front door may not unlock. If this happens, turn the printer off and restart it. Once it goes through POR, it may unlock itself. If this does not work, use the following procedure to unlock the front door:

1. Remove the rear cover.Remove the four screws (A) securing the rear cover.
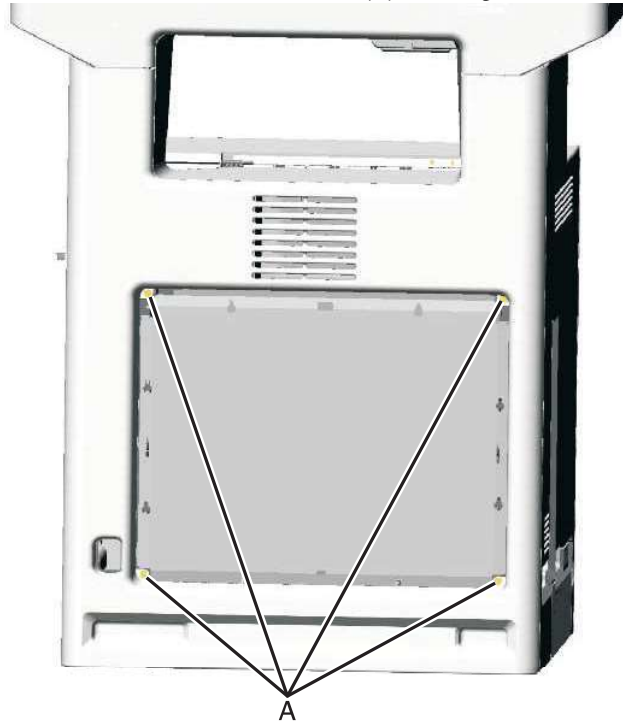
2. Lift up to disengage the two tabs (B).
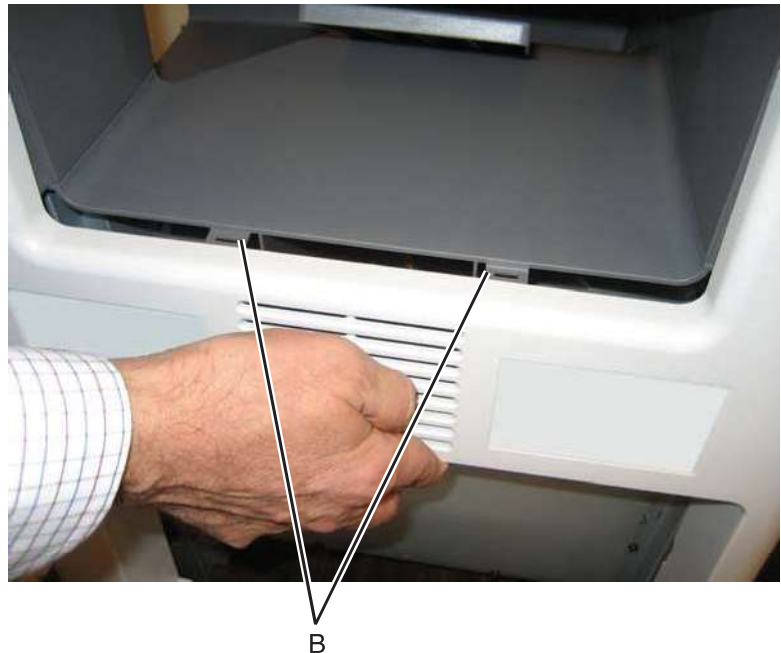
3. Open the top cover.

4. Remove the screw (C) from the inside left cover.
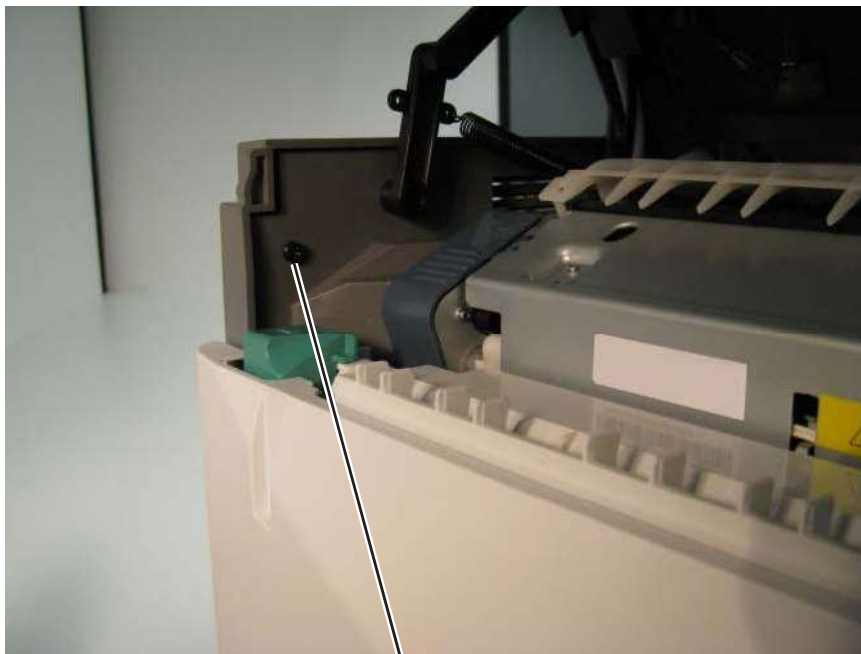
C

5. Press the waste toner release latch (D), swing the front of the waste toner assembly away from the printer, and remove.

D

6. Remove the two screws (E).

7. Press the locking tab (F), slide the cover down.

8. Grasp the side at the point shown, and disconnect the tab on the upper edge. Push down with your thumb on the outside while pulling up with the fingers to remove the cover.
Warning: Be careful not to damage the two small locking tabs (G).
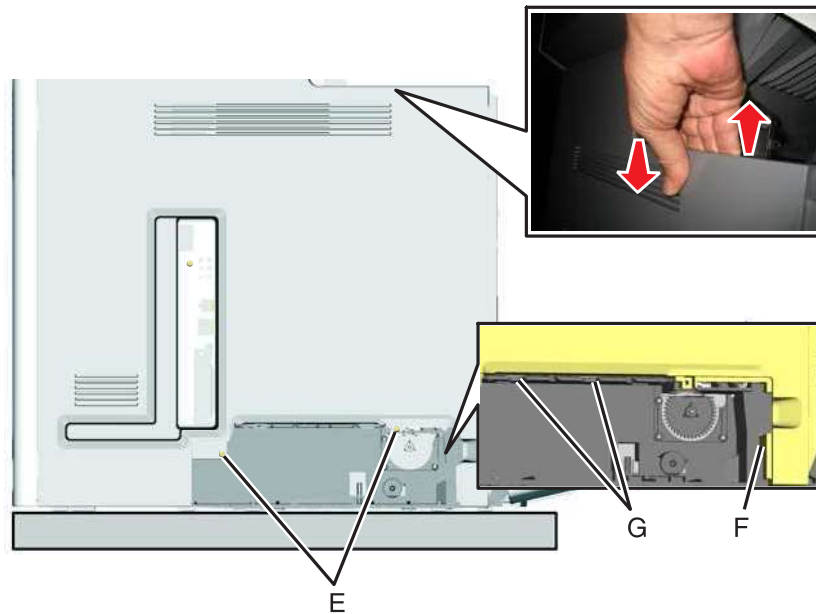
9. Lift the rear of the left cover out, and rotate it out of position toward the front.
Note: It will not come completely off with the front cover locked.

10. With a flatblade screwdriver, turn the camshaft counterclockwise until the door unlocks.

11. Open the front cover.

Printhead verification

Before you begin, you can verify that the printhead is the failing FRU by following this procedure:

1. Turn the printer off, remove the power cord from the outlet, then remove all cords and cables from the printer before beginning.
2. Locate the printer on a corner of a work area so the front and back can be accessed.

3. Remove the rear frame cover.

    a. Loosen the eight screws (A).

    b. Lift the rear frame cover, and remove.

A
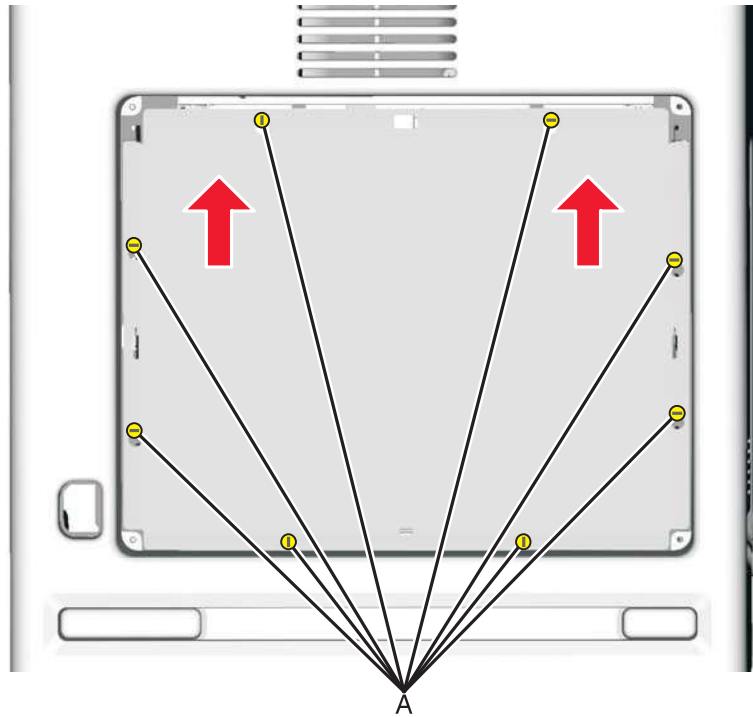
4. If present, remove the hard disk.

    a. Remove the two screws (B), and disconnect the hard disk from the system board (C).

B   C
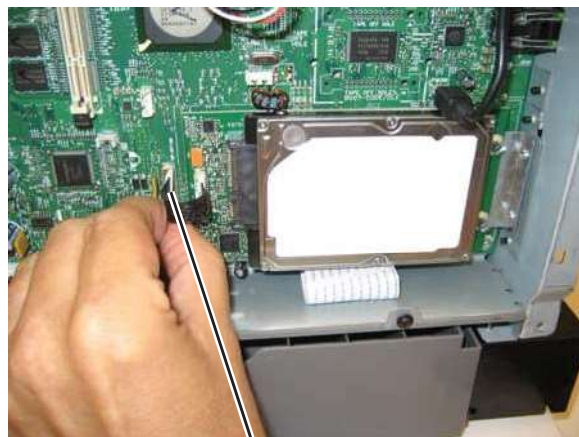
    b. Pull the hard disk straight out to *pop* the hard disk standoffs free of the system board.
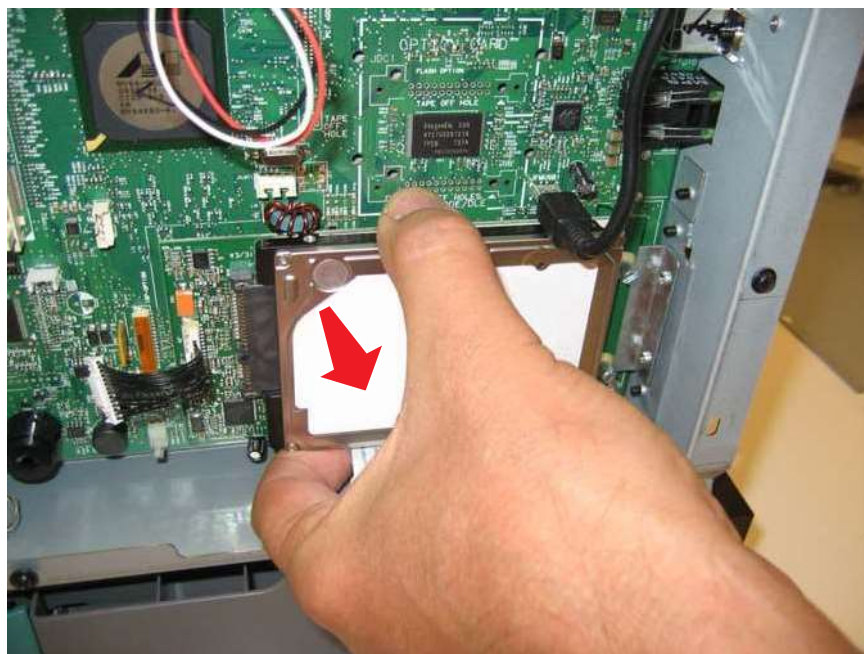
5. Carefully disconnect the printhead ribbon (D) and the mirror motor cables (E) from the system board, and carefully connect the printhead ribbon and mirror motor cables from the new printhead into the system board.

E   D

6. Use the packaging that came with the printhead FRU to prop the printhead up.

7. Connect the power cord to the outlet.

8. Enter the Diagnostics menu (press and **3** and **6**, turn on the multifunction printer, and release the buttons when the progress bar appears).

9. Perform the Mirror Motor Test:

  a. Touch **PRINTHEAD TESTS**.

  b. Touch **Mirror Motor Test**.

  The touchscreen displays `Mirror Motor Test—Motor Running...`.

  After the test completes, the touchscreen displays either `Pass` or `Fail`.

  • If the test fails, replace the system board.

  • If the test passes, perform the Servo Laser Test in step 9.

10. Perform the Servo Laser Test:

  a. Touch **Back** to **PRINTHEAD TESTS**.

  b. Touch **Servo Laser Test**.

  The touchscreen displays `Servo Laser Test—Motor Running...`.

  After the test completes, the touchscreen displays either `Pass` or `Fail`.

  • If the test fails, replace the system board.

  • If the test passes, install the printhead FRU.

Paper Jams

Error jam locations

The following illustration shows the location and error codes generated for specific paper jams and the corresponding locations of these jams.

ADF and flatbed scanner

292 Paper Jam
ADF cover open

290 Paper Jam
ADF paper feed

291 Paper Jam
ADF sensor

296 Paper Jam
Flatbed scanner locked

294 Paper Jam
Exit sensor

293 Paper Jam
Flatbed open or no paper in ADF

Diagnostic aids   **3-57**

Printer base

203 Paper Jam
Exit sensor when duplexing

202 Paper Jam
Exit sensor

230 Paper Jam
Exit sensor to input sensor when duplexing

201 Paper Jam
Input sensor to exit sensor

250 Paper Jam
MPF feeder

241 Paper Jam
Tray 1

242 Paper Jam
Tray 2

24n Paper Jam
n = Optional tray number 3-5

200 Paper Jam
Input sensor area

Clearing jams

By carefully selecting paper and loading it properly, you can avoid most jams. If jams do occur, follow the steps outlined in this section. To clear a jam message and resume printing, clear the entire paper path, and then touch **Continue**. If Jam Recovery is set to On, then the printer prints a new copy of the page that jammed. If Jam Recovery is set to Auto, then the printer reprints the jammed page if enough printer memory is available.

Avoiding jams

The following hints can help you avoid jams:

Paper tray recommendations

- Make sure the paper lies flat in the paper tray.
- Do not remove the paper tray while the printer is printing.
- Do not load the paper tray while the printer is printing. Load it prior to printing, or wait for a prompt to load it.
- Do not load too much paper. Make sure the stack height does not exceed the indicated maximum height.
- Make sure the guides in the paper tray or the manual feeder are properly positioned and are not pressing too tightly against the paper or envelopes.
- Push the paper tray in firmly after loading paper.

Paper recommendations

- Use only recommended paper or specialty media.
- Do not load wrinkled, creased, damp, bent, or curled paper.
- Flex, fan, and straighten paper before loading it.
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, weights, or types in the same stack.
- Make sure all sizes and types are set correctly in the printer control panel menus.
- Store paper per the manufacturer's recommendations.

Understanding jam messages

The following table lists the jam messages that can occur.

Message	See:
200 Paper jam, check [area name]	• **"200 paper jam" on page 3-60** • **"200–201 paper jams" on page 3-61**
200 Paper jam, [x] pages jammed	
201 Paper jam, check [area name]	• **"200–201 paper jams" on page 3-61** • **"201 paper jam" on page 3-61**
201 Paper jam, [x] pages jammed	
202 Paper jam, check [area name]	**"202 paper jam" on page 3-63**
202 Paper jam, [x] pages jammed	
203 Paper jam, check [area name]	**"203 paper jam" on page 3-65**
203 Paper jam, [x] pages jammed	
230 Paper jam, [area name]	**"230 paper jam" on page 3-65**
230 Paper jam, [x] pages jammed	
241 Paper jam, check [area name]	**"24x paper jam" on page 3-66**
241 Paper jam, [x] pages jammed	

Message	See:
24x Paper jam, check [area name]	**"24x paper jam" on page 3-66**
24x Paper jam, [x] pages jammed	
250 Paper jam, check [area name]	**"250 paper jam" on page 3-68**
250 Paper jam, [x] pages jammed	
290 Scanner jam, remove all originals from the scanner	**"290–293 paper jams" on page 3-68**
290 Scanner jam, remove jammed originals from the scanner	
291 Scanner jam, remove all originals from the scanner	
291 Scanner jam, remove jammed originals from the scanner	
292 Scanner jam, remove all originals from the scanner	
292 Scanner jam, remove jammed originals from the scanner	
293 Replace all originals if restarting job	
293 Replace jammed originals if restarting job	
293.02 Flatbed cover open	
293.02 Replace jammed originals if restarting job	

200 paper jam

1. Open the upper front door.

⚠️ **CAUTION—HOT SURFACE:**

The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

2. Open the lower front door.
   Note: To avoid overexposing the photoconductor units, do not leave the lower front door open longer than 10 minutes.

3. Pull the jammed paper up and out to remove it from behind the toner cartridge area.
   Note: Make sure all paper fragments are removed.
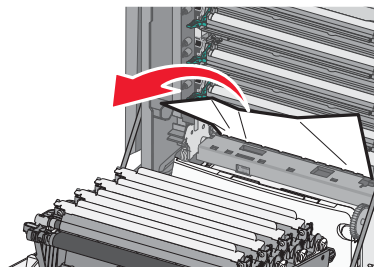
4. Close the lower front door.
5. Close the upper front door.
6. Touch **Continue**.

200–201 paper jams

1. Open the upper front door.

⚠️	**CAUTION—HOT SURFACE:** The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

2. Open the lower front door.
   Note: To avoid overexposing the photoconductor units, do not leave the front door open longer than 10 minutes.

3. Pull the paper forward if it is lodged under the photoconductor units.
   Note: You may need to remove the photoconductor units if the paper is lodged too tightly under them.
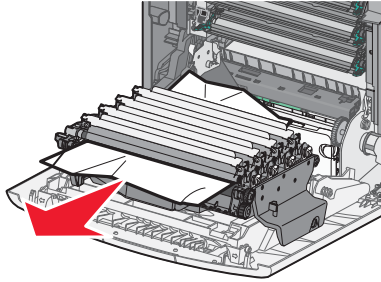
4. Remove each photoconductor unit, and then place it on a flat surface. See **"Photoconductor unit removal" on page 4-137**.
5. Remove the jammed paper, and then replace each photoconductor unit.
6. Close the lower front door.
7. Close the upper front door.
8. Touch **Continue**.

201 paper jam

1. Open the upper front door, and then open the lower front door.
   Warning: Potential Damage—To avoid overexposing the photoconductors, do not leave the front doors open for more than 10 minutes.

⚠️	**CAUTION—HOT SURFACE:** The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

2. Determine where the jam is located, and then remove it:
   - If paper is visible under the fuser, then grasp it on each side and pull it.
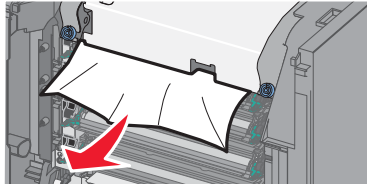
- If paper is not visible:
    c. Turn the screws on the fuser to the left.
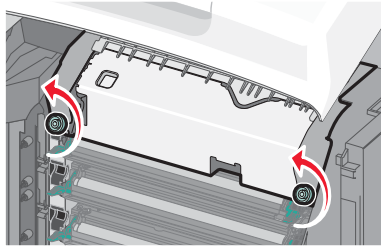
   d. Remove the fuser, and then remove the jam.
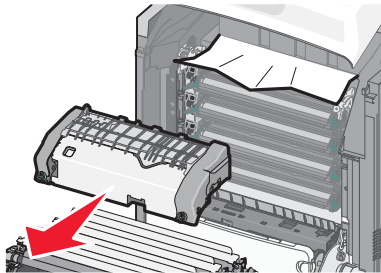
   e. Replace the fuser, and then turn the screws to the right to fasten it securely.
3. Close the lower front door, and then close the upper front door.
4. Touch **Continue**.

202 paper jam

If the paper is visible in the standard exit bin, then grasp the paper and pull it away from the bin.
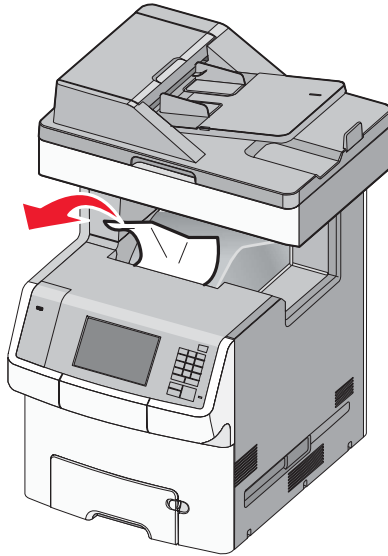
Paper jam under the fuser

1. Open the upper front door, and then open the lower front door.
   Warning: Potential Damage—To avoid overexposing the photoconductors, do not leave the front doors open for more than 10 minutes.

	CAUTION—HOT SURFACE:
⚠	The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

2. Grasp the paper on each side and pull it forward.
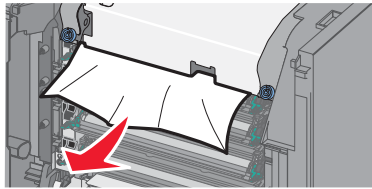
3. Close the lower front door, and then close the upper front door.
4. Touch **Continue**.

Paper jam behind the fuser

1. Open the upper front door, and then open the lower front door.
   Warning: Potential Damage—To avoid overexposing the photoconductors, do not leave the front doors open for more than 10 minutes.

	CAUTION—HOT SURFACE:
⚠	The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

2. If the paper is jammed behind the fuser, then remove the fuser:

   a. Turn the screws on the fuser to the left.
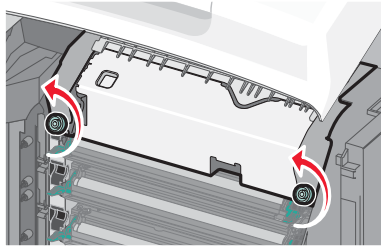
   b. Lift the fuser, and then pull forward to remove it.
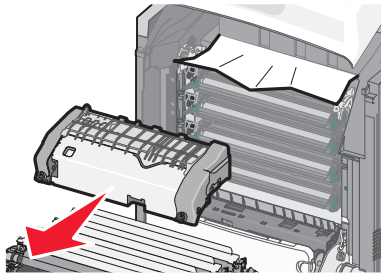
   c. Place the fuser on a flat surface.

3. Pull the paper gently out of the printer or up toward the standard exit bin to remove it.

4. Reinstall the fuser:

   a. Align the fuser, and then place it back into the printer.

   b. Turn the screws to the right to fasten the fuser securely.

5. Close the lower front door, and then close the upper front door.

6. Touch **Continue**.

203 paper jam

1. Grasp paper that is visible in the standard exit bin, and pull it away from the bin.
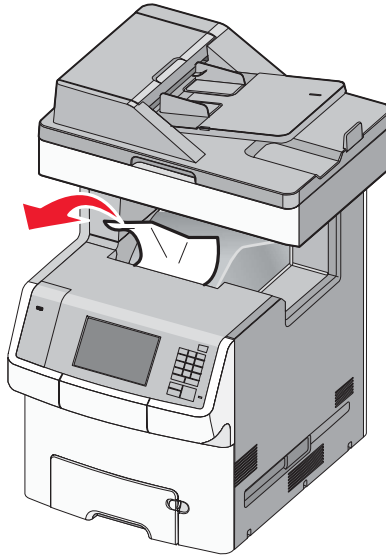
2. Open the upper front door.

⚠	**CAUTION—HOT SURFACE:** The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

3. Open the lower front door.
4. Grasp the paper on each side, and pull it out gently.
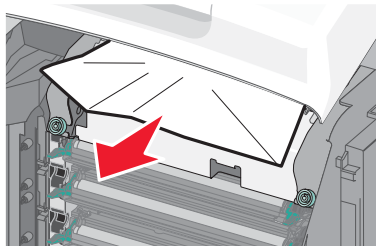
5. Close the lower front door.
6. Close the upper front door.
7. Touch **Continue**.

230 paper jam

1. Remove Tray 1.
2. Open the upper front door, and then open the lower front door.

⚠	**CAUTION—HOT SURFACE:** The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching.

3. Pull the jam straight up to remove it.
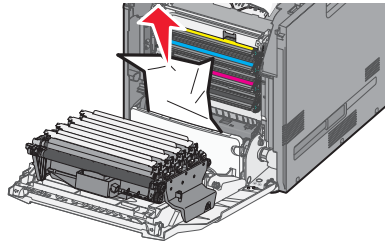
4. Pull out on the release tabs to allow the front door to split.
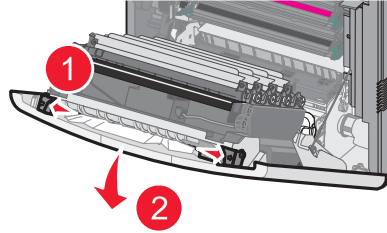
5. Pull straight out to remove any jammed paper.
6. Close the lower front door, and then close the upper front door.
7. Reinsert Tray 1.
8. Touch **Continue**.

24x paper jam

Paper jammed in Tray 1

1. Open Tray 1, and then pull the jammed pages straight up and out.
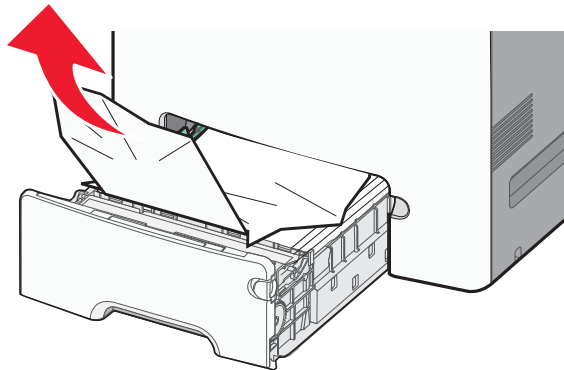
2. After removing the tray, the front door may need to be opened to access the jam.
3. Close Tray 1.
4. Touch **Continue**.

Paper jammed in front of Tray 1

1. Open Tray 1, and then pull the jammed pages up and out.
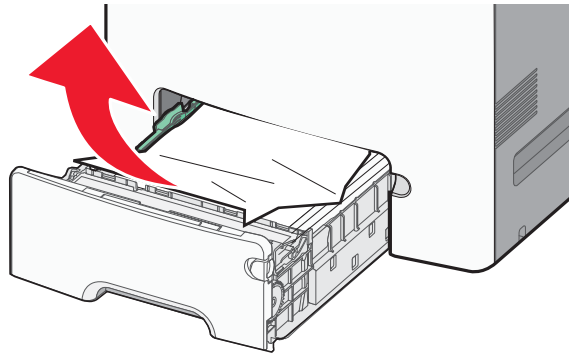
2. Close Tray 1.
3. Touch **Continue**.

Paper jammed in one of the optional trays

1. Open the specified tray, and then pull the jammed pages out.
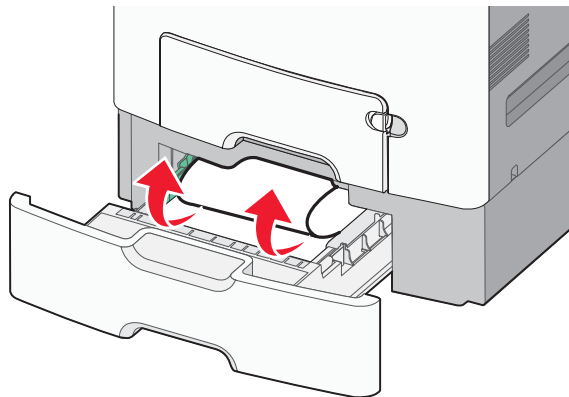
2. After removing the tray, the tray above may need to be opened to access the jam.
3. Close the tray.
4. Touch **Continue**.

250 paper jam

1. Press the paper release lever, and then remove the jammed pages from the multipurpose feeder.
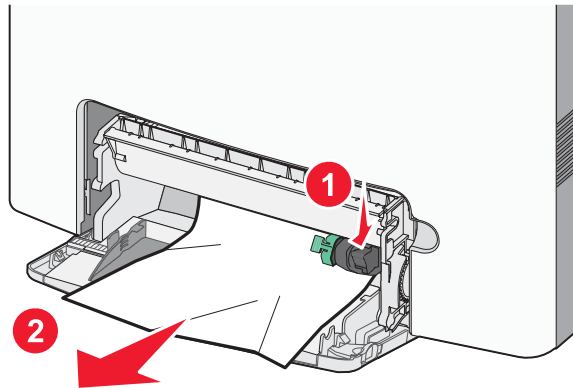
2. Load new paper into the multipurpose feeder.
3. Touch **Continue**.

290–293 paper jams

1. Remove all original documents from the ADF.
2. Open the ADF cover, and then remove any jammed paper.
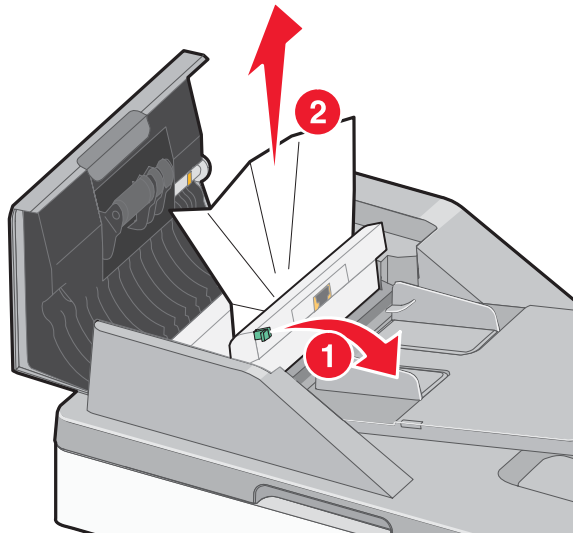
3. Close the ADF cover.
4. Open the duplex cover, and then remove any jammed paper.
5. Open the scanner cover, and then remove any jammed pages.
6. Close the scanner cover.
7. Touch **Restart Job**.

Theory of operation

Paper path

Exit sensor flag

Fuser

Transfer belt

System board

Align roller

Input sensor flag

Paper pick mechanism

Duplex
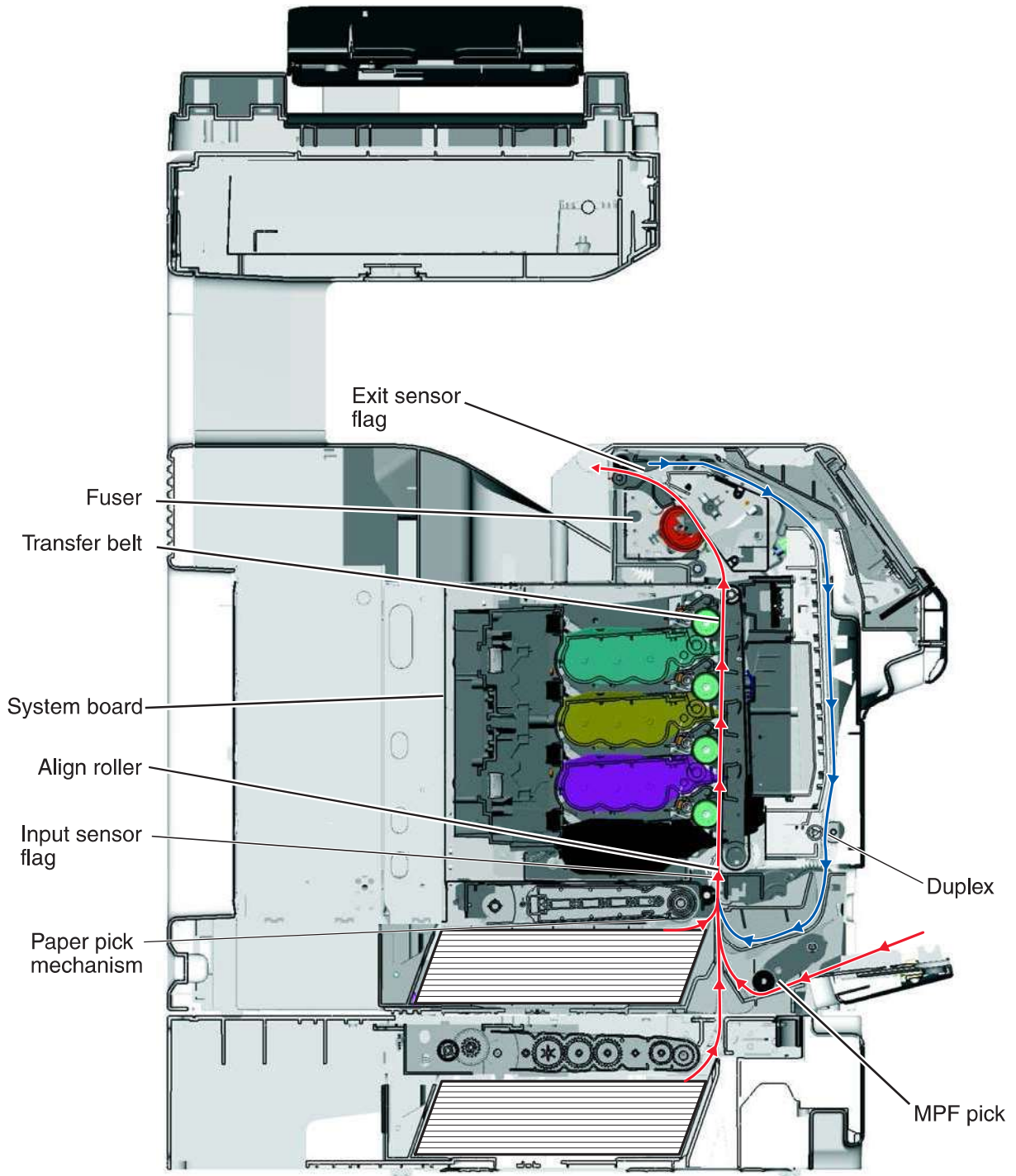
MPF pick

Main Components

System board

The system board provides the intelligence of the printer. Command and control signals originate in the system card that make print media travel possible. The system card controls the timing of the print media during the printing so the media arrives at certain positions in the print process at certain times.

Paper tray

Houses the print media.

Paper pick mechanism

Picks the print media from the paper tray. The paper pick mechanism contains the paper pick (input) sensor and the multifunction transparency sensor.

Bump aligner roll

The bump aligner roll advances the print media onto the transfer belt and corrects any media skew as it comes out of the paper trays or MPF.

Transfer belt

The transfer rolls (located inside the transfer belt unit) are an integral part of the electrophotographic process, and the transfer belt advances the print media through the printer.

Fuser

The fuser bonds toner to the print media and advances the print media through the last portion of the paper path. The paper exit sensor is also located in the fuser, and a flag is present on all fusers that activates the bin full sensors on network model printers.

Duplex

The duplex function is built into the front access door and uses a two-pass method for rerouting the paper down and back through the paper path for a second time. To accomplish the two-pass method, the paper is fed partially out of the printer and is then reversed back into the printer.

Print media transport

The print media is picked from the input source and fed to the bump aligner roll. The media movement is detected by a sensor located in the paper pick mechanism. It does not matter where the media comes from (Tray 1, Tray 2, or, the MPF); it will enter the electrophotographic process at the bump aligner drive. The bump aligner motor drives the bump aligner roll which feeds the paper to the transfer belt.

500-sheet assembly pick tire

Bump aligner roll

Pick tire

Backup aligner roll

MPF pick tire
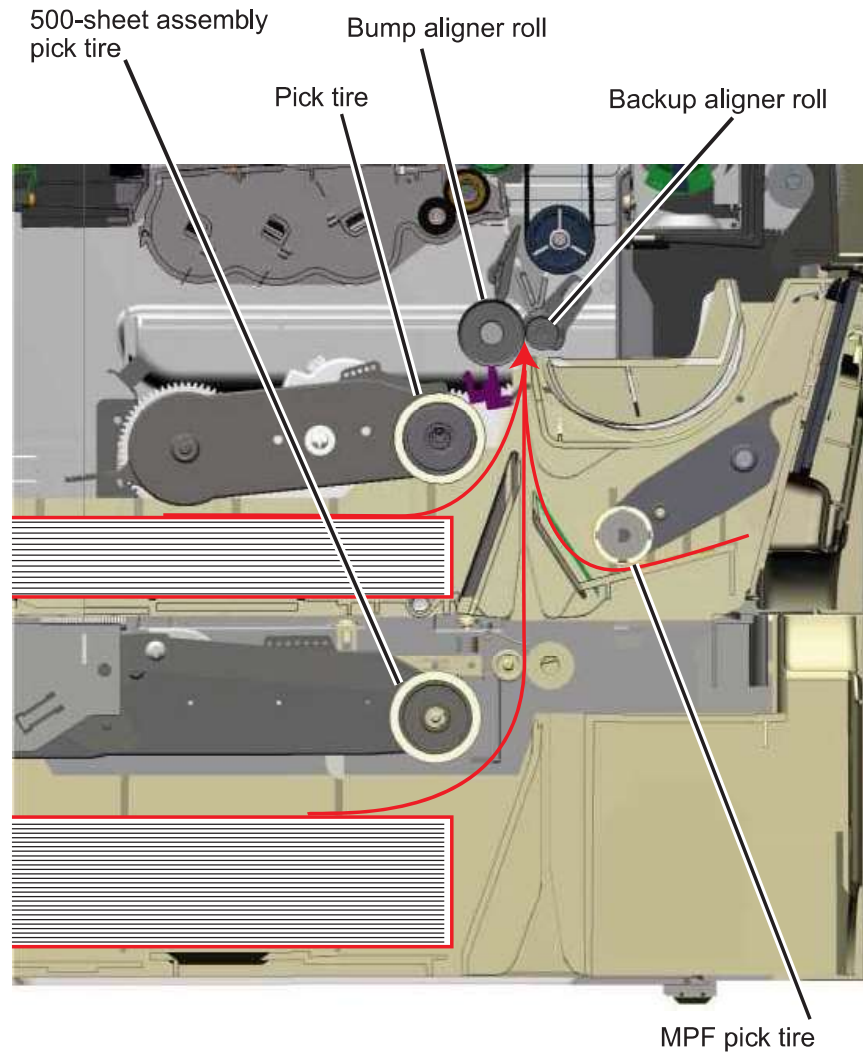
Once the paper is fed onto the transfer belt, the photoconductor drums in conjunction with the transfer belt pull the print media through the paper path.

Photoconductor drums
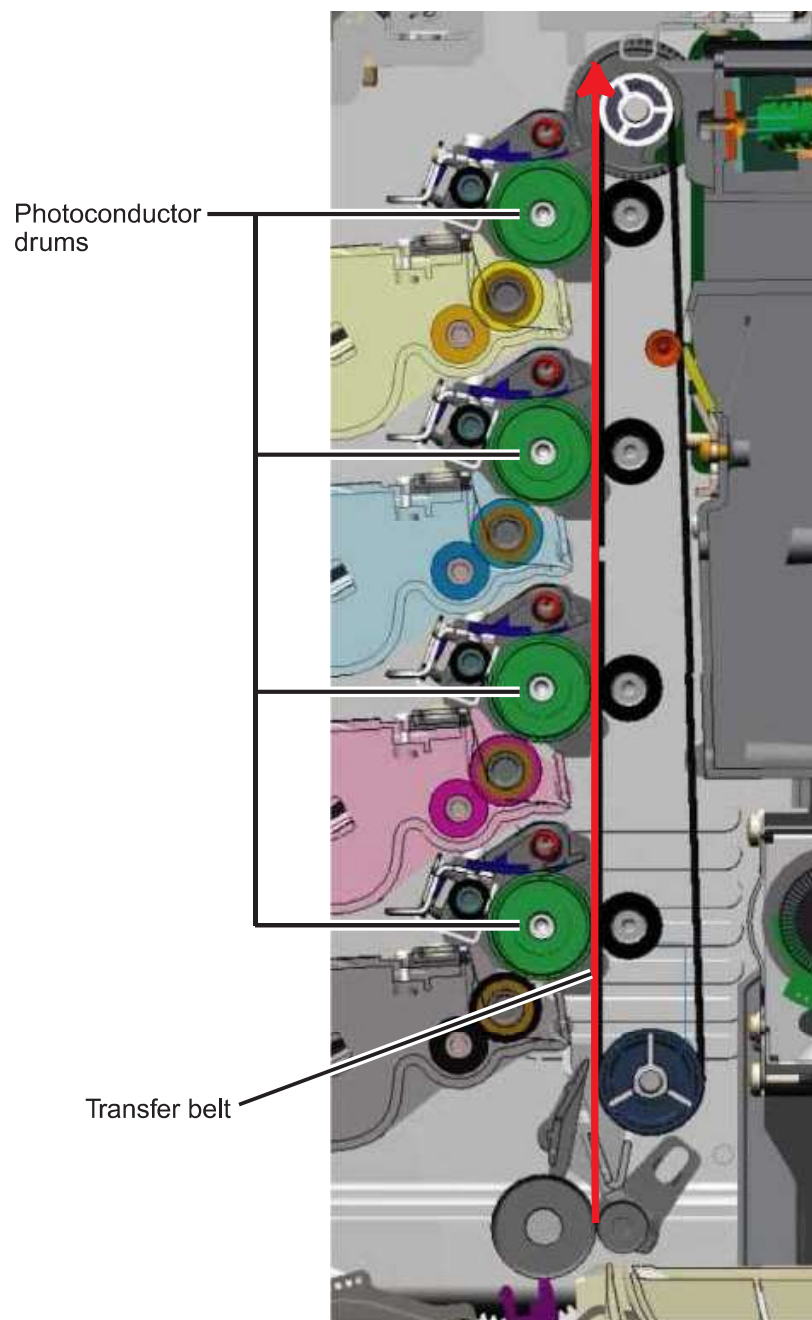
Transfer belt

Once the print media exits the transfer belt, it enters the fuser where heat and pressure are applied to bond the toner permanently to the media. The fuser rollers continue to turn and pull the print media through the paper path until it reaches the exit drive roll. The exit drive roll pulls the print media from the fuser rollers and delivers it to the fuser output drive roll. Once the print media reaches the fuser output drive roll, the roller pushes the print media into the output bin.

Fuser output drive roll

Fuser exit drive roll

Paper exit flag

Fuser backup roll

Fuser exit idler roll

Fuser hot roll
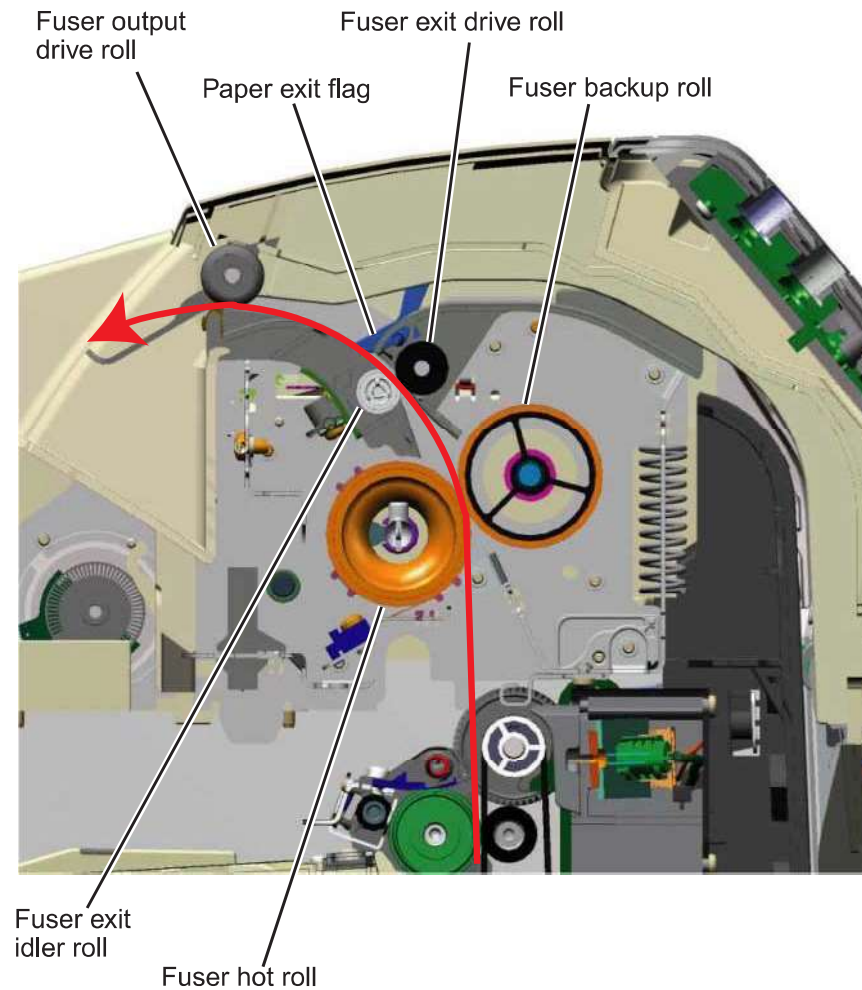
If the page is to be duplexed, the fuser output drive roll continues to pull the media until it clears the paper exit flag and then reverses the rotation of the roller in order to pull the media back into the printer duplex assembly. The media is then routed down through the duplex path until it reaches the bump aligner roll. Once in this position, it enters the EP path for the second time.

Fuser output
drive roll
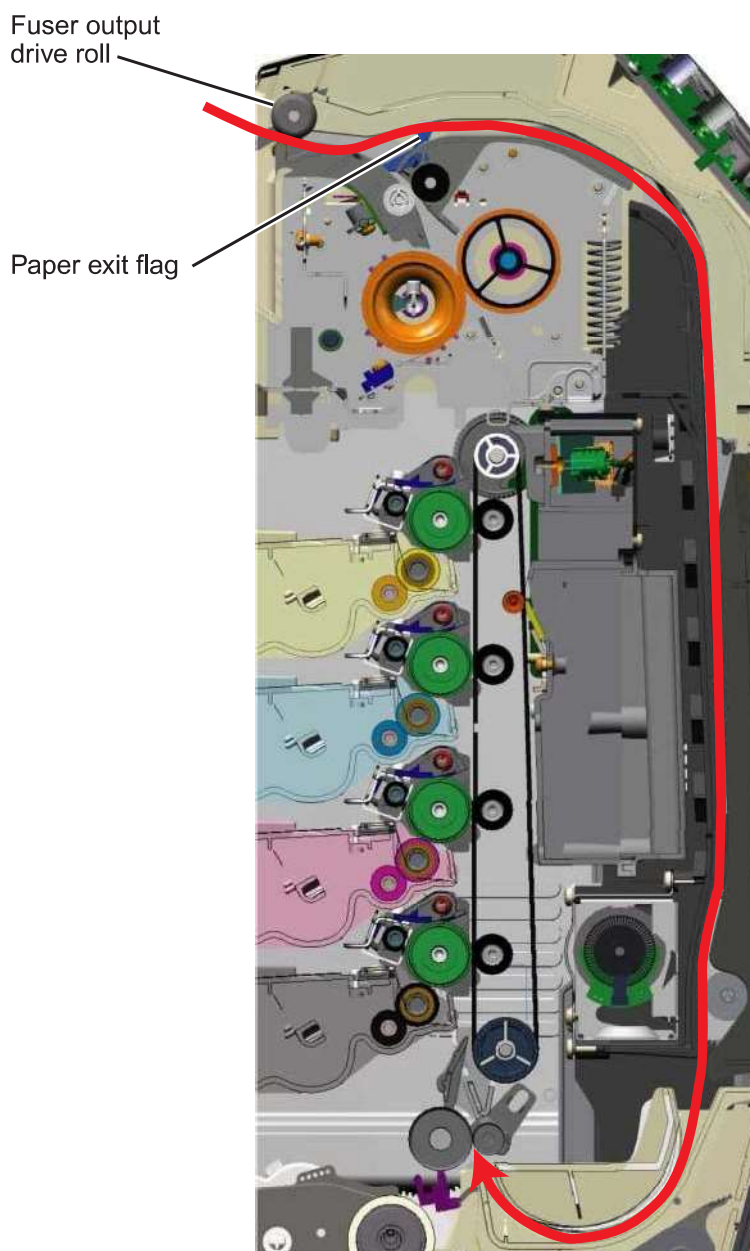
Paper exit flag

The paper exit flag serves two purposes. When it triggers the paper exit sensor, it serves as a one-way gate for the media when it is exiting the printer to the output bin and also serves as a one-way gate when the media is entering back into the printer for a duplex print. In other words, it diverts the print media's path, directing it to either the output bin or the duplex paper path.

Mechanical drive

In order for the print media to move through the paper path, there are several drive motors that supply the mechanical power to the rollers discussed previously. The drives for these components are illustrated and discussed in the following paragraphs.

Paper pick mechanism drive

When printing from Tray 1 or Tray 2, the paper pick motor drives the paper pick gears which causes the pick roller to turn. During an MPF print, the paper pick motor drives the swing arm assembly for the MPF and causes the MPF paper pick roller to turn.

MPF paper pick

Swing arm
bracket
(C52x)

MPF swing arm
assembly

Paper pick
mechanism gears

Paper pick motor

Paper pick
mechanism
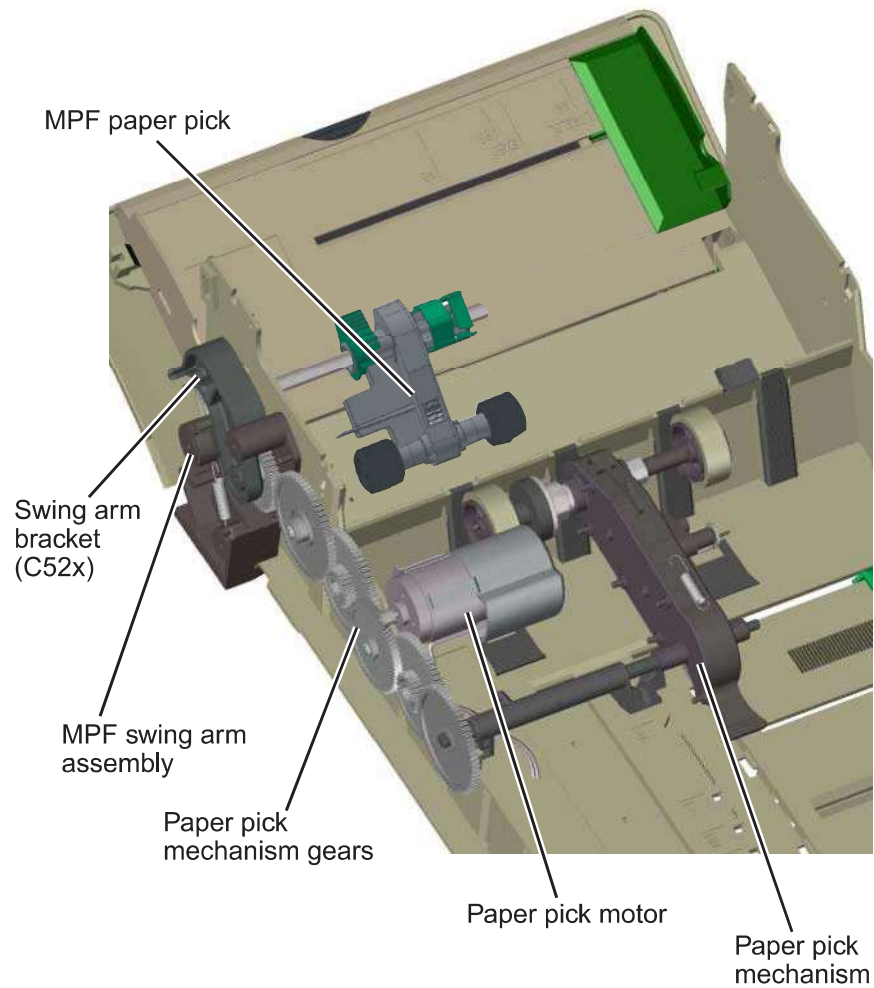
Paper tray and paper pick mechanism shown
from rear with components removed for clarity

Bump aligner drive

The power to turn the bump aligner roll is supplied from the bump aligner motor. The motor drives a set of bump aligner gears which causes the bump aligner roll to turn.

Bump aligner roll   Bump aligner gears   Bump aligner gears

Bump aligner motor
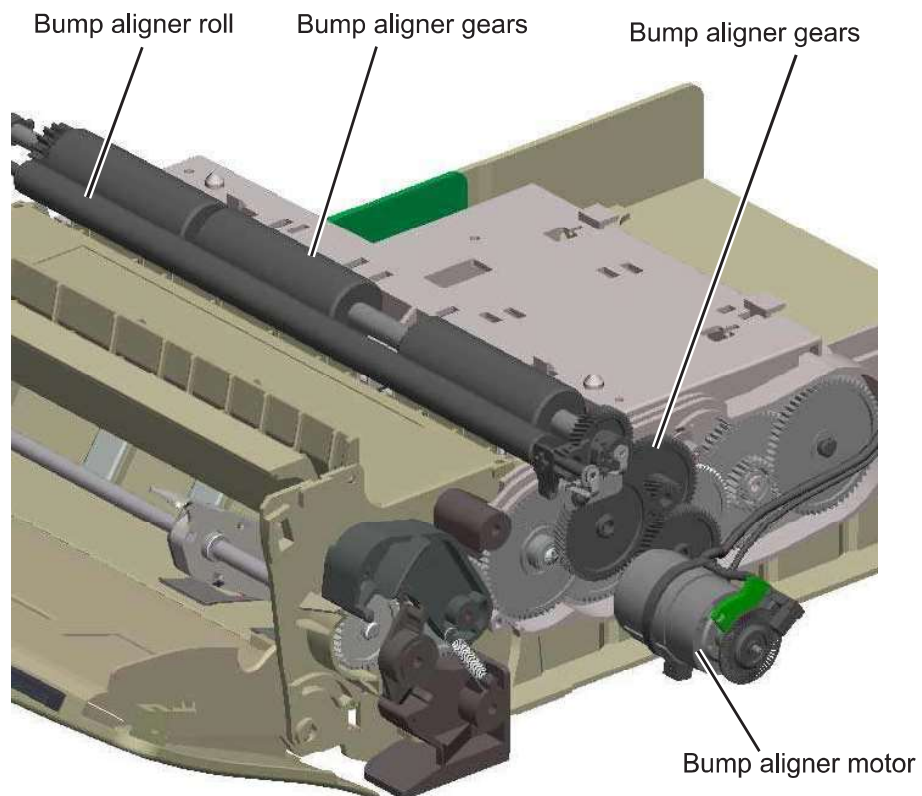
Note: If this motor is stalling or causing waste toner box full messages, the vertical auger mechanism might be causing the problem.

Photoconductor unit/toner cartridge drive

The photoconductor units (four) and toner cartridges (four) receive drive power from the EP drive assembly motors. The top cartridge motor 1 on the EP drive assembly provides drive to the top two photoconductor units and toner cartridges (yellow and cyan). Likewise, the bottom cartridge motor 2 drives the two bottom photoconductor units and toner cartridges. When the printer's top access door is open, the couplers for the toner cartridges and photoconductor units disengage.

Outside

Fuser motor

Cartridge motor 1

Cartridge motor 2 (upper)

Cartridge motor 2 (lower)

Inside

Photoconductor couplers

Toner cartridge couplers
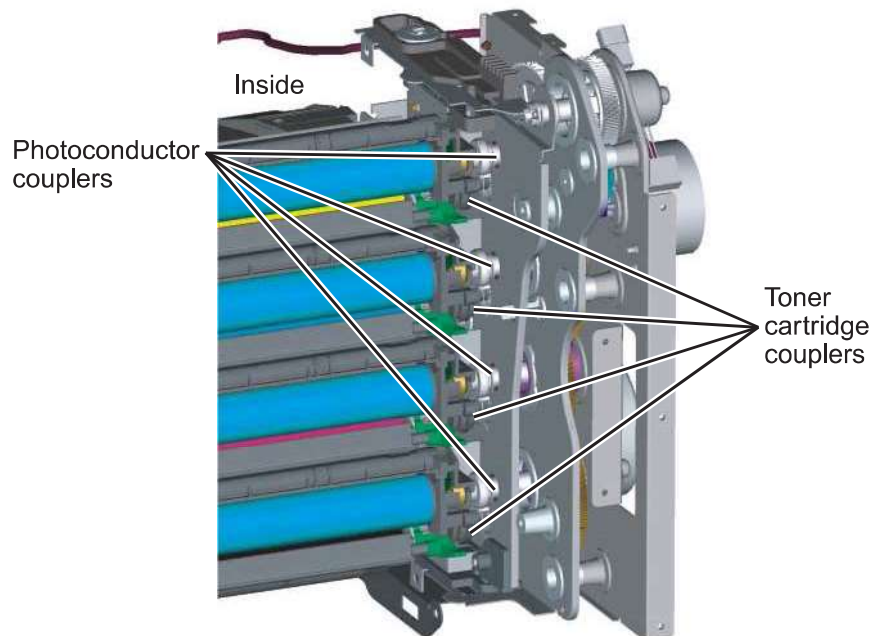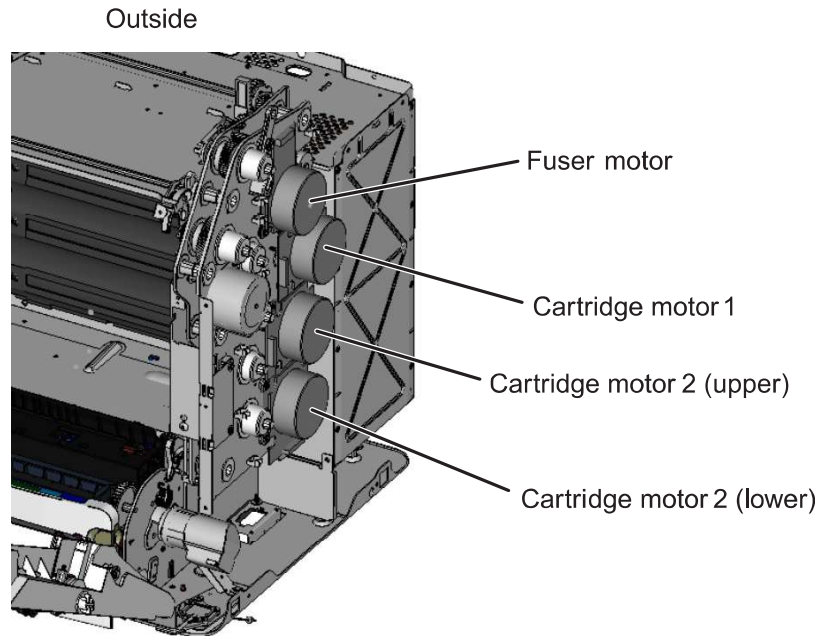
Transfer belt drive

The transfer belt unit receives drive from a motor located on the EP drive assembly. When the top access door is open, the coupler for the transfer belt disengages.

Outside

Inside

Transfer belt motor

Coupler
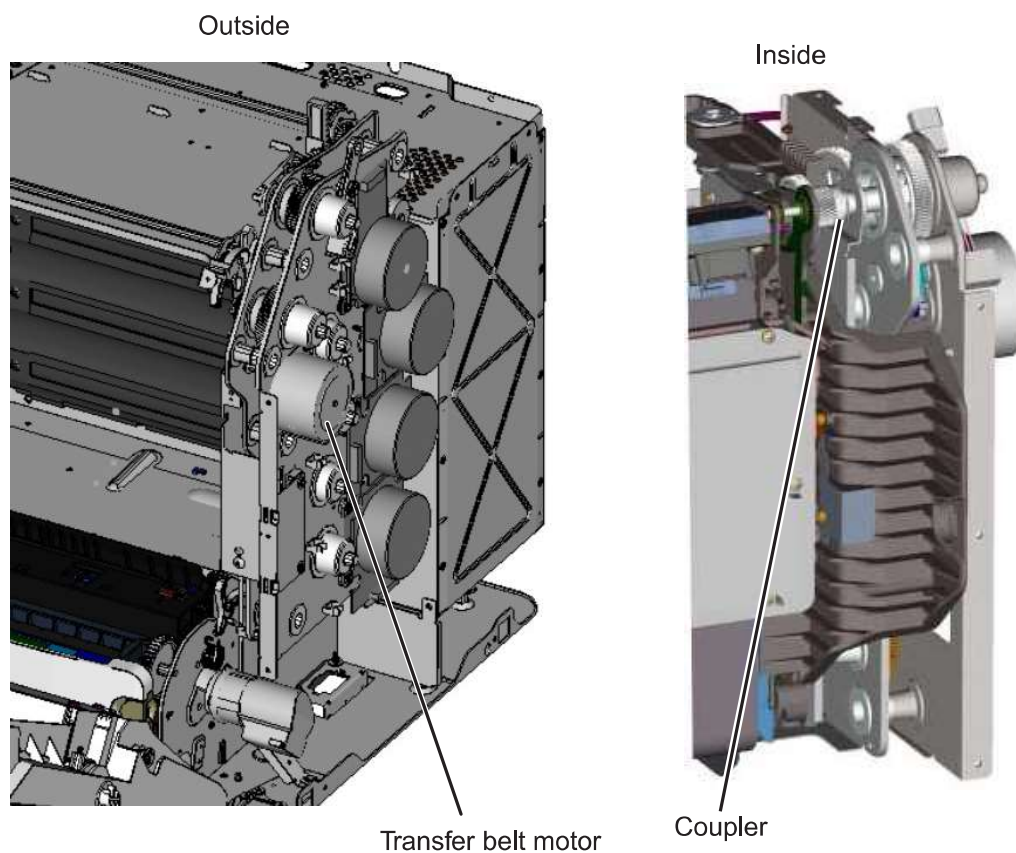
Fuser drive

The fuser drive (motor) is built into the fuser assembly and drives the fuser rollers to turn.

Duplex drive

The duplex drive is driven by the MPF/duplex motor through the MPF/duplex gear. Drive is provided to three drive shafts in the duplex unit by a belt that is driven by the MPF/duplex motor. The drive shafts move the print media through the duplex unit during printing.

Paper sensing

Sensors are strategically placed in the printer to ensure that the print media is making it to specific points within a given time in the electrophotographic process. There are two paper flags: one at the bottom of the machine (paper pick) to detect input paper, including duplex second side, from all sources and one at the top (paper exit) to detect paper movement beyond the fuser. The flags are similar in design, in that a mechanical arm is moved by the media to interrupt an optical sensor; both are normally blocked when no media is present. There is also a multifunction transparency sensor that detects if: 1) tray 1 is present, 2) narrow media is being used, and 3) the media is a transparency. The sensor works for tray 1, tray 2 (500-sheet option), and the MPF.

Paper pick sensor

Paper pick mechanism

Narrow media sensor

Input sensor
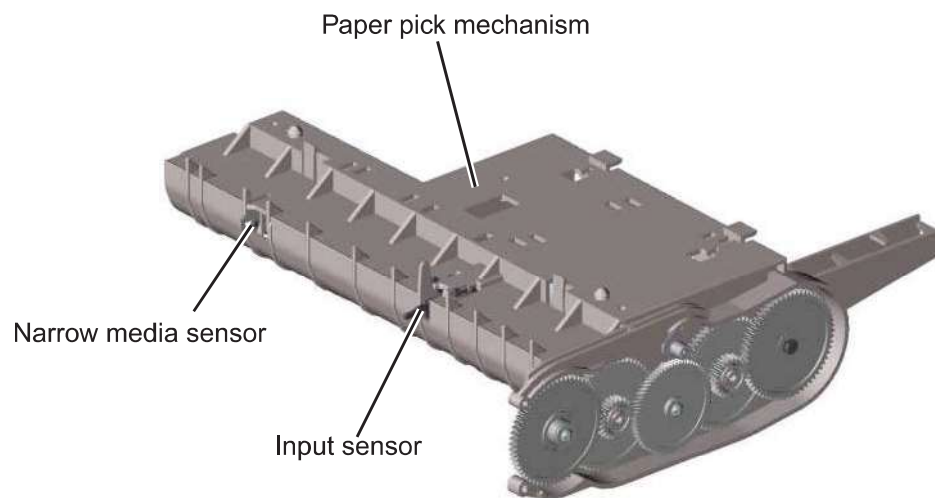
Paper exit/duplex entry sensor and bin full flag

The paper exit/duplex sensor flag detects movement in two directions: as the paper exits the fuser and as it is retracted from the exit tray back into the duplex path. Each sheet must be driven past the fuser exit flag and allowed to fall before being turned around and starting the duplex path. If the print media activates the paper exit flag for too long, or the print media doesn't reach the paper exit flag within a given time, a paper jam error will be posted.

Paper exit/duplex entry flag

Paper exit/duplex entry sensor
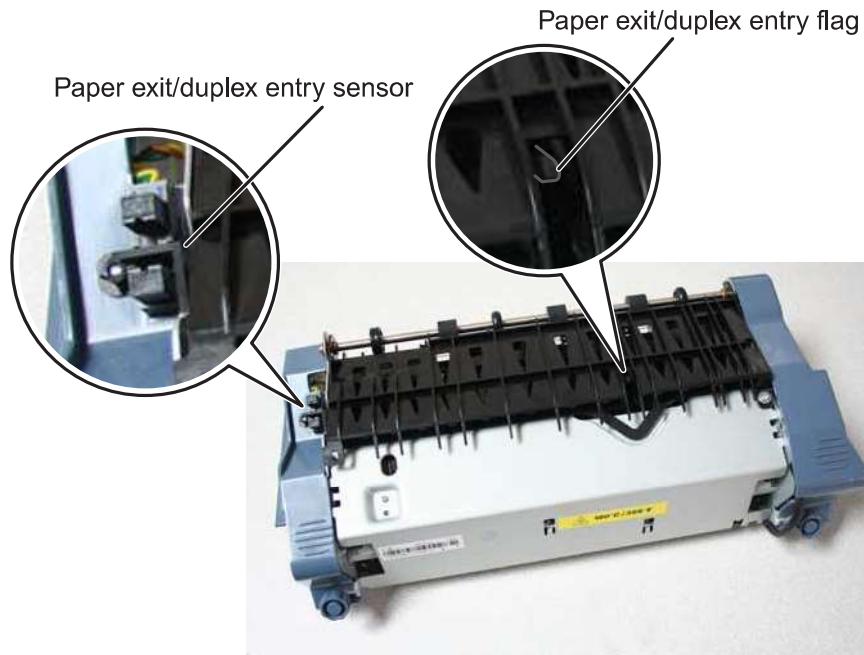
Electrophotographic (EP) process

Main components

Fuser

System board

High voltage power supply

Printhead

Developer (toner) cartridge

Transfer belt

Photoconductor belt
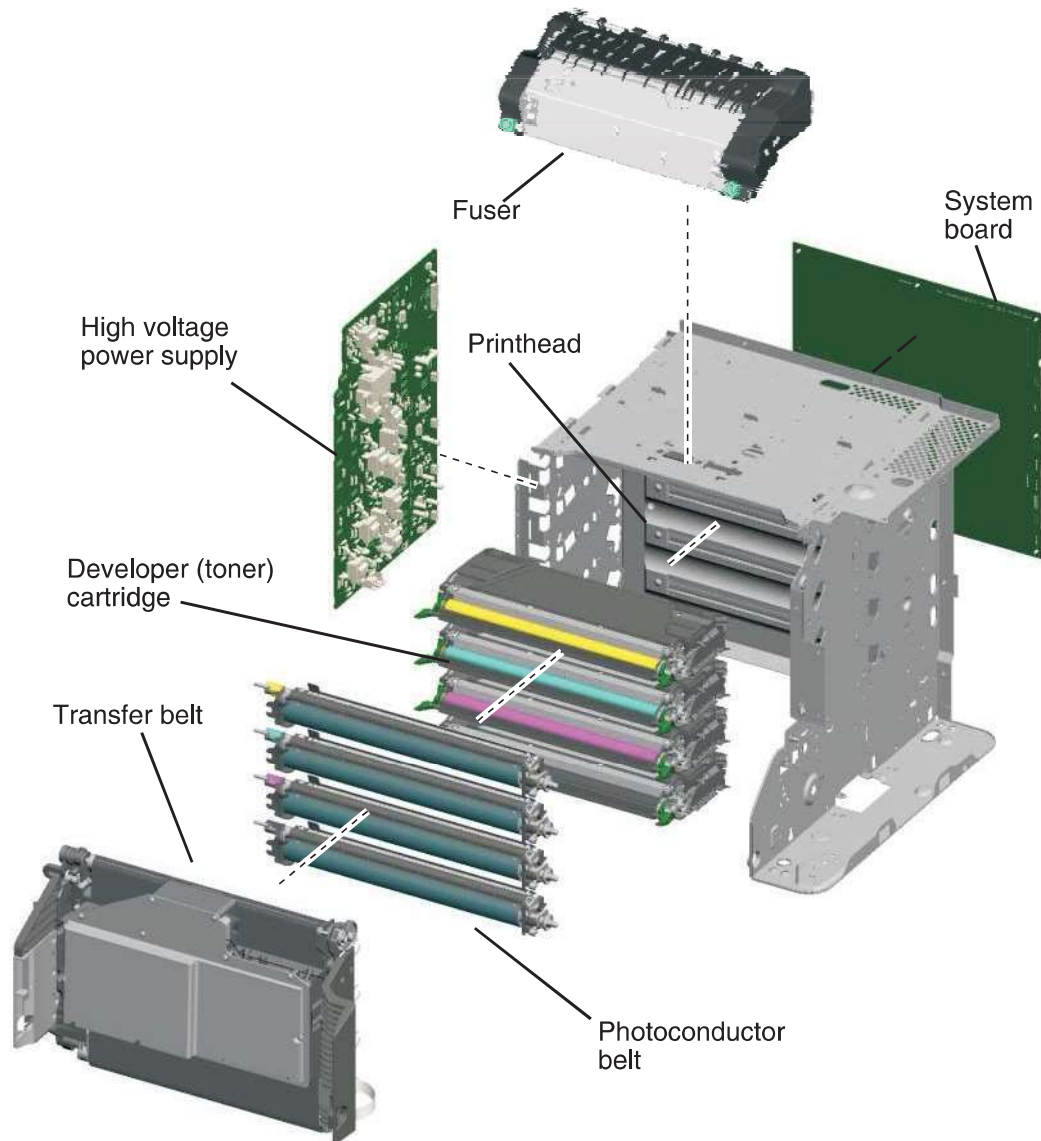
System board

The system board is the brain of the printer. During the print process, an image is sent from a computer to the system board. The raster image processor (RIP) portion of the system card converts the data into a raster image and feeds this data along with control information to the printhead.

High voltage power supply (HVPS)

Provides a high voltage charge to:

- The charge roll located in the photoconductor unit
- The photoconductor drum located in the photoconductor unit
- The toner adder roller (TAR) located in the toner cartridge
- The developer roll located in the toner cartridge
- The doctor blade located in the toner cartridge
- The four transfer rolls located in the transfer belt

Printhead assembly

The printhead receives control and image data from the system card (RIP). Through the use of a laser unit, the printhead irradiates the photoconductor drum with light and creates an invisible image called a latent or electrostatic image.

Photoconductor unit

The photoconductor unit consists primarily of a charge roll and the photoconductor drum. The charge roll charges the surface of the photoconductor drum to prepare it for the latent image "drawn" by the laser. Once the photoconductor drum has been written to by the laser, it is responsible for picking up toner from the cartridge developer roller and then transferring the image to the print media.

Toner cartridge

This unit consists primarily of the developer roll and the toner adder roll. The primary function of this unit is to supply charge toner to the photoconductor unit for transfer onto the print media. The toner adheres to the electrostatic image on the surface of the photoconductor drum which is then transferred to the print media.

Fuser

The fuser assembly uses heat and pressure to fuse the toner image onto the print media.

Charging

The primary component of the charging process is the high voltage power supply. The following provides information that covers the mechanical transfer of the high voltage through a set of springs to each subcomponent of the charging process.

Photoconductor unit (charge roll)

The following illustration shows the circuit path that allows high voltage current to flow from the HVPS to the charge roll contact on the photoconductor unit. It is essential that the contact springs are properly touching to provide a good flow. If not, print quality problems will occur.
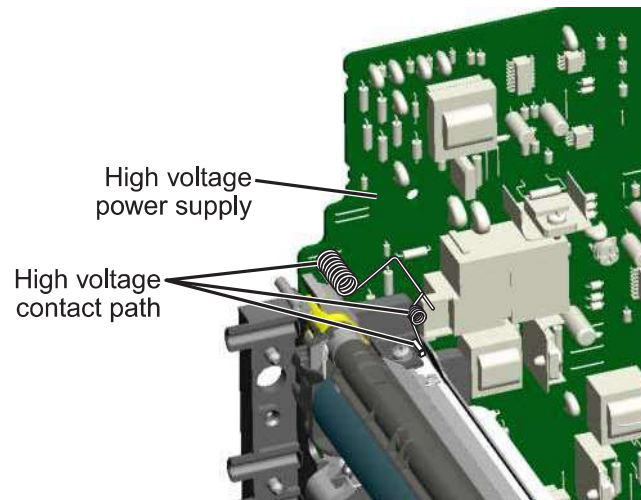
Photoconductor unit (photoconductor drum)

The following illustration shows the circuit path that allows high voltage current to flow from the HVPS to the photoconductor drum contact on the photoconductor unit. It is essential that the contact springs are properly touching to provide a good flow. If not, print quality problems will occur.
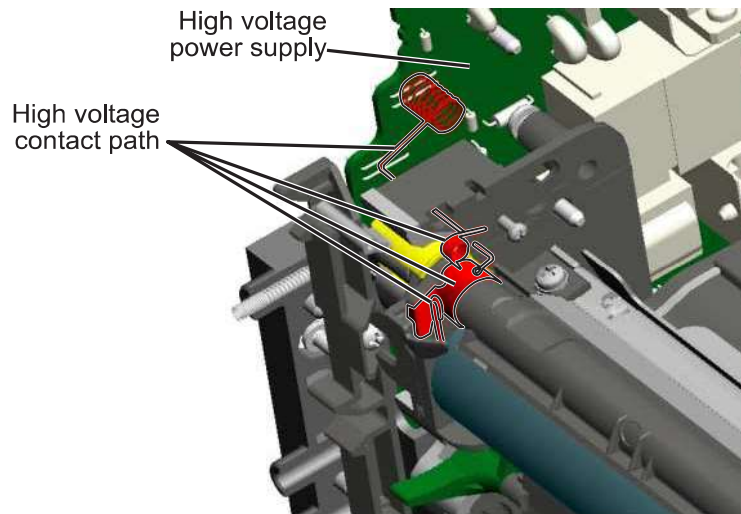
Toner cartridge

The following illustration shows the circuit path that allows high voltage current to flow from the HVPS to the toner cartridge. The toner cartridge contains three parts that are provided high voltage from the HVPS. These three parts are: the doctor blade, the developer roll, and the toner adder roll (TAR). It is essential that the contact springs are properly touching to provide a good flow. If not, print quality problems will occur.

High voltage power supply

Cleaner blade high voltage contact path

Toner add roll high voltage contact path

Developer roll high voltage contact path
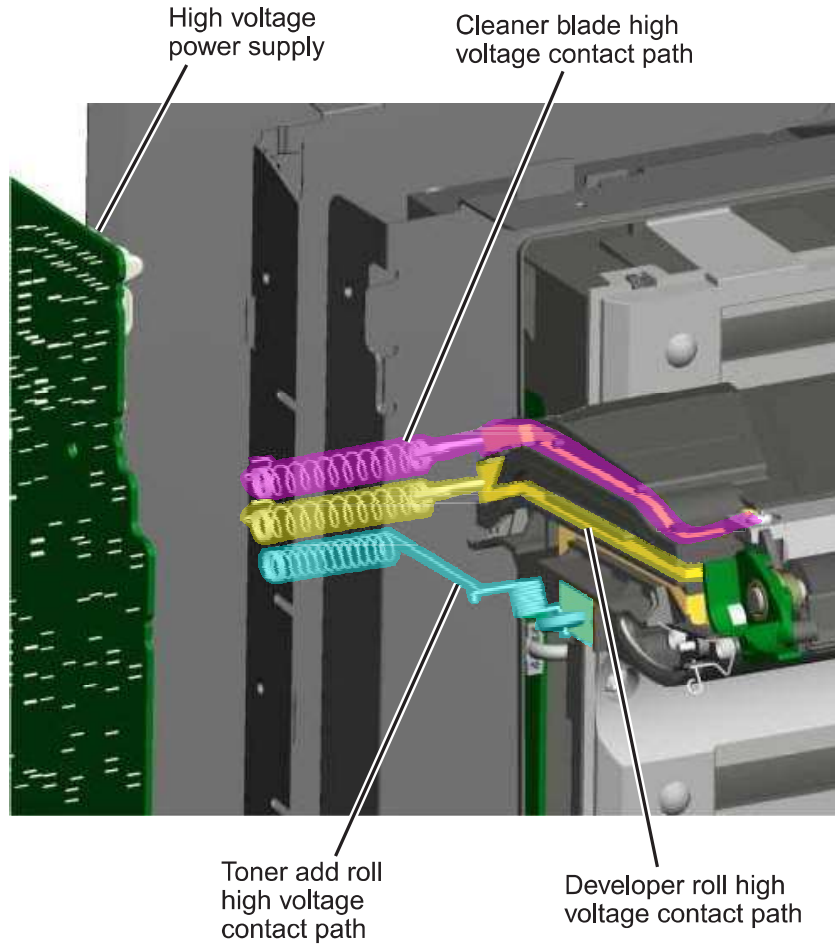
Transfer belt

The transfer belt houses four transfer rollers that provide image transfer from the photoconductor drum to the print media. The transfer belt receives its high voltage charge through spring contacts located on the transfer contact assembly as shown in the following illustration. For the sake of simplicity, only one of the roller's high voltage paths is shown. This path is typical for the other three rollers as well.

Transfer belt high
voltage path
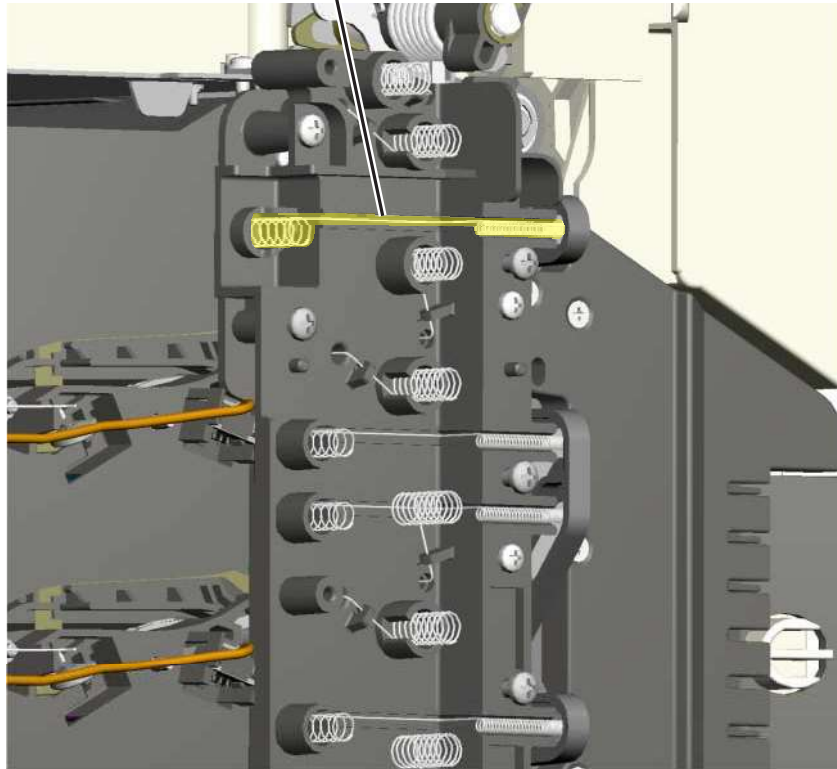
Exposing

The main components in the exposure process are the system card, the printhead and the photoconductor unit. The following illustration depicts a typical data path for a single color exposure.

Data is received from a computer into a port on the system card. The system card's RIP function converts this data into raster information which is fed to the printhead along with other control data. The data is converted by the printhead laser into light energy data that is directed to the light sensitive photoconductor unit.

System card

Printhead
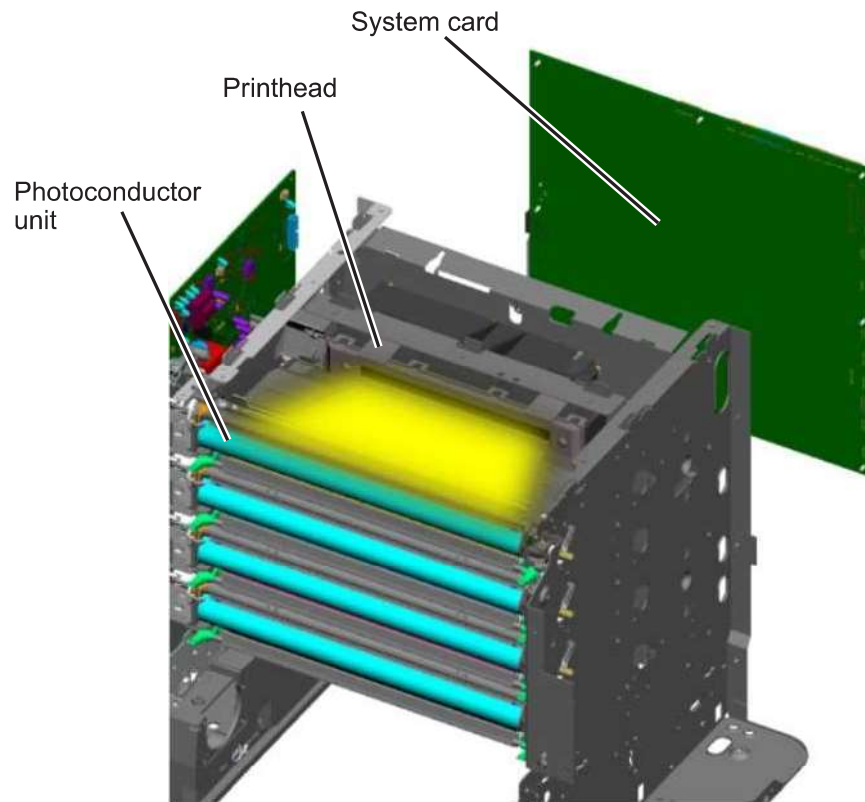
Photoconductor unit

Developing

The two primary components of the developing process are the photoconductor unit and the toner cartridge. The toner cartridge contains a toner adder roll, developer roll and toner. Toner is advanced toward the toner adder roll by three paddle assemblies. The advanced toner clings to the electrically charged toner adder roll. The toner on the toner adder roll is then electrically attracted to the developer roll because of the difference in electrical charge between the toner adder roll and the developer roll. The toner uniformly coats the developer roll with help from the doctor blade and is introduced to the electrostatic image on the photoconductor drum. The toner then transfers to the photoconductor drum.

Photoconductor unit

Developer cartridge

Photoconductor drum

Developer roll

Toner add roll (TAR)

Paddles
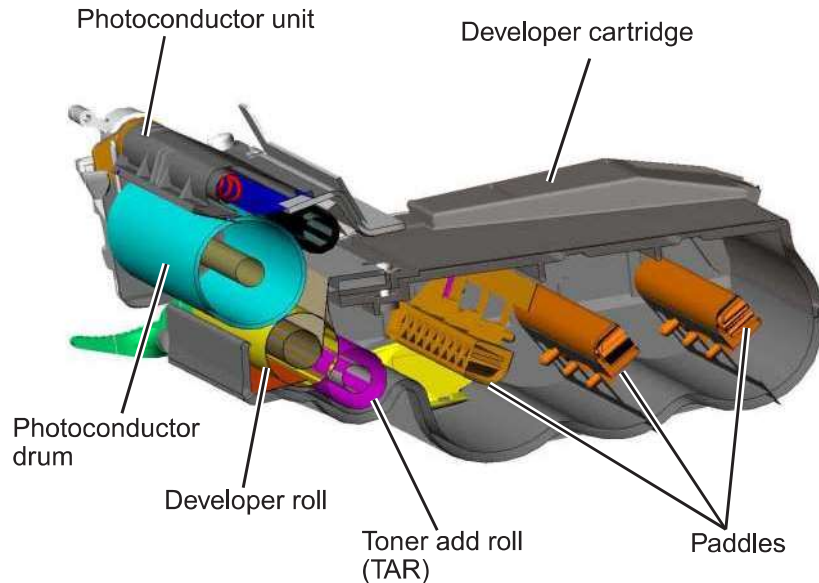
Transferring

After the toner is attracted to the photoconductor drum, the image is ready for transfer onto the print media. The print media is advanced in the paper path onto the transfer belt and is carried along the belt underneath each photoconductor unit. The charged transfer roll(s) located inside the transfer belt pulls the image from the photoconductor drum to the print media. This is a direct transfer method.

The main function of the transfer belt is to provide transport for the print media. Toner is not transferred directly to the belt during the print process.

Photoconductor unit

Photoconductor drum
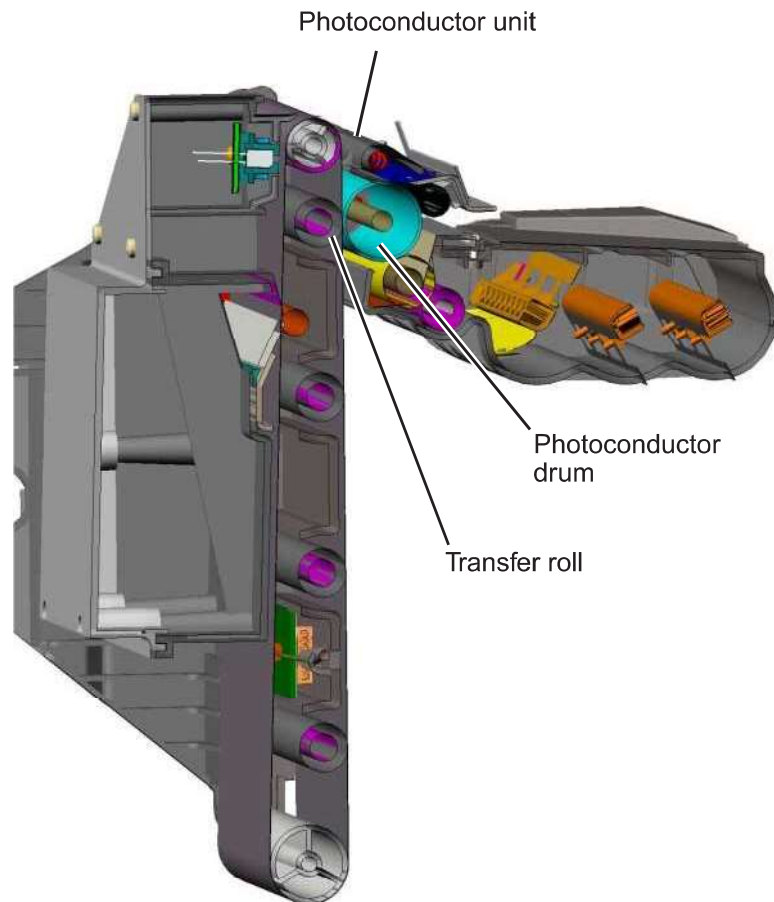
Transfer roll

Fusing

After the image has been transferred onto the print media, it is ready for fusing. The print media is transported into the fuser where the hot roll and backup roll use a combination of high heat and pressure to melt and press the toner to the media.

Backup roll

Hot roll
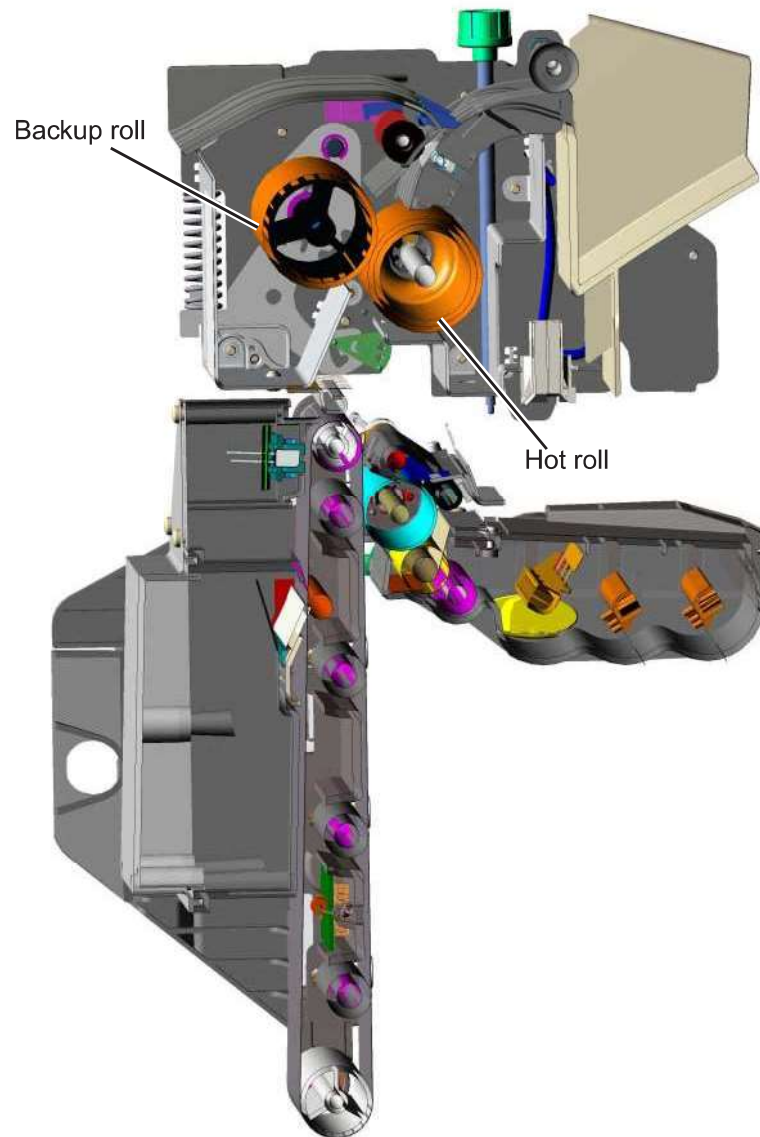
Cleaning

The transfer belt and photoconductor drum are cleaned at the end of the electrophotographic process cycle. The transfer belt surface is cleaned as it rotates past a cleaning blade and shaft located inside the transfer belt assembly. Any waste toner that is scraped off of the belt is collected in the waste toner container located next to the belt inside the transfer belt unit.

The photoconductor drum is cleaned by the cleaning blade.

Photoconductor drum
cleaning blade

Transfer belt
cleaning blade

Transfer belt
waste toner
container

Transfer belt
cleaning shaft
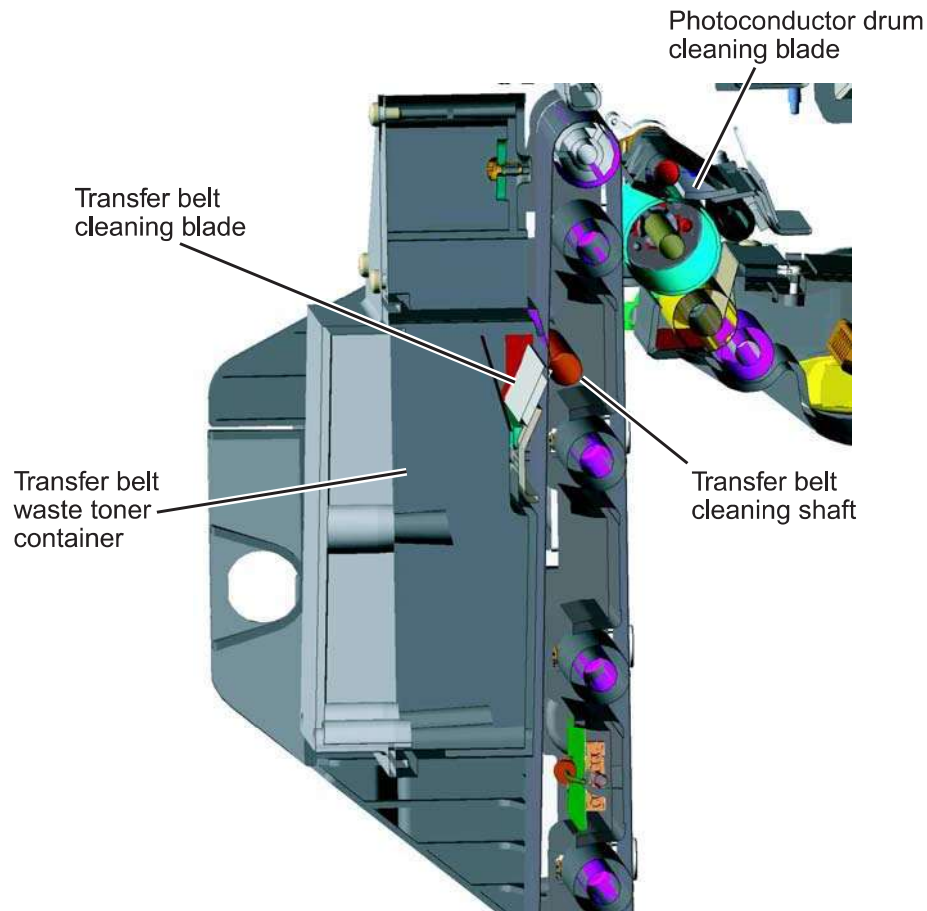
Electrical interlock

5 V interlock switch

An interlock switch triggered by the front access door disables the +5 V output to the printhead which turns off the laser.
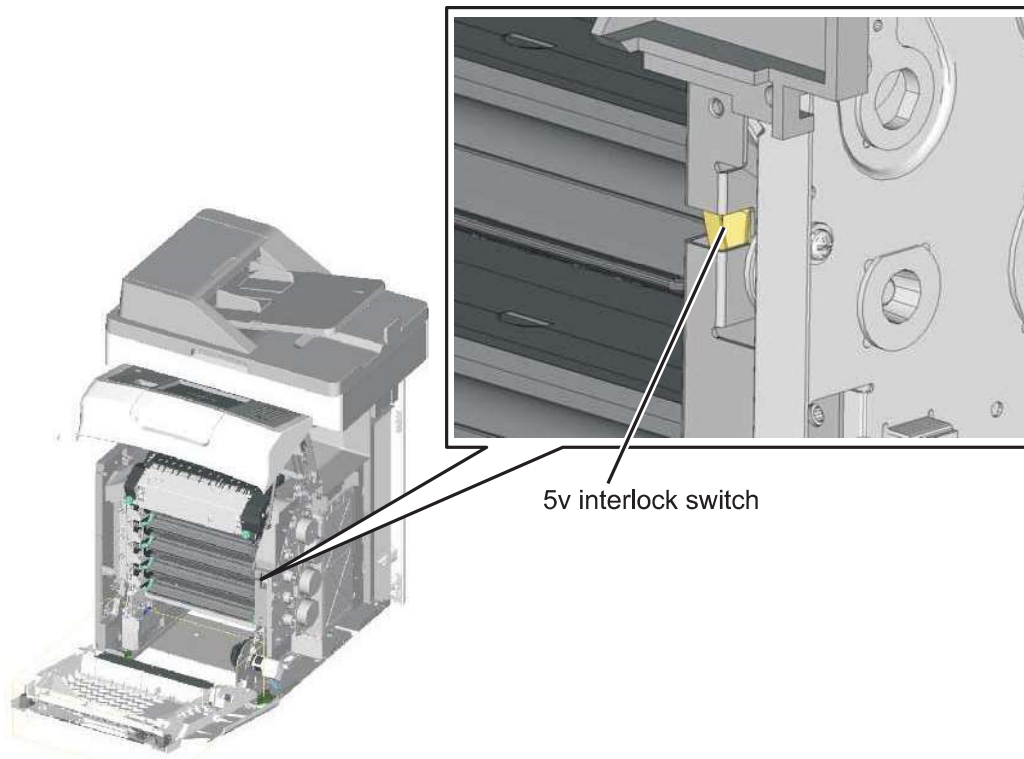
5v interlock switch

24 V interlock switch

The 24 V interlock switch is located at the front-right side of the machine when you open the front door. Opening the front door disengages the 24 V interlock switch and cuts the 24 V supply to the system board, HVPS, motors, and fuser. Closing the front door triggers a switch that initializes the motor.

Gearbox shield removed

24V interlock switch
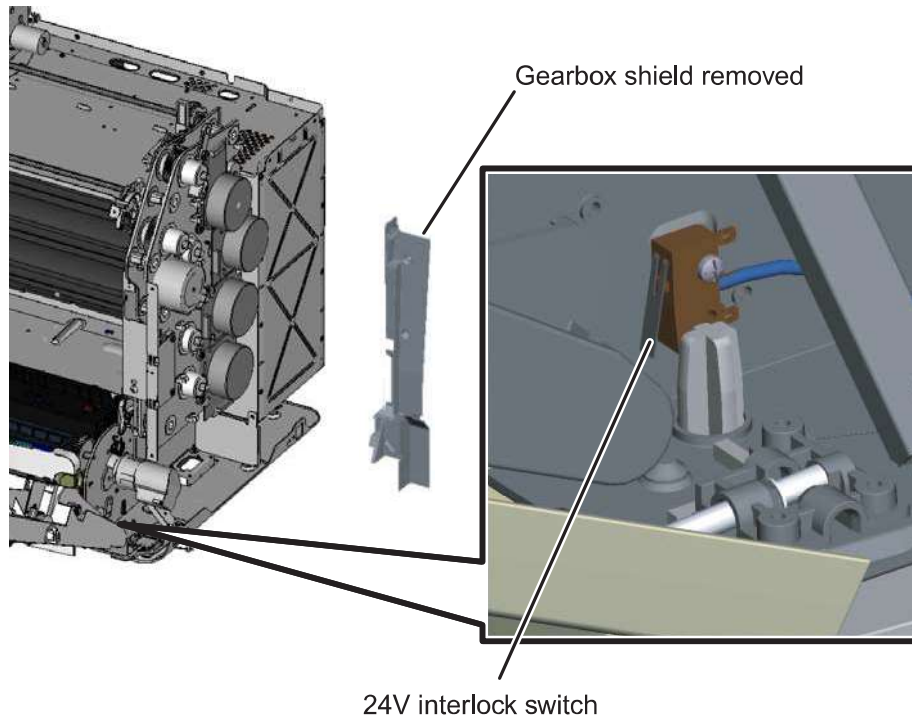
When the 24 V switch opens, the normally open side of the switch is activated which signals the system board to disable a +24 V power supply output, turning off all high voltage supplies, the bump/align motor, the duplex motor and the fuser motor for safety considerations.

Warning: Never poke or force cover the switch while fixing the machine. This can harm the person and machine.

4. Repair information

⚠	**CAUTION—POTENTIAL INJURY:** The printer weight is greater than 97 lbs (44kg), and requires three or more trained personnel to lift safety.

Safety information

- The safety of this product is based on testing and approvals of the original design and specific components. The manufacturer is not responsible for safety in the event of use of unauthorized replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- ⚡ **CAUTION:** When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.

Data Security Notice

This printer contains various types of memory that are capable of storing device and network settings, information from embedded solutions, and user data. The types of memory-along with the types of data stored by each-are described below

- **Volatile memory**—This device utilizes standard Random Access Memory (RAM) to temporarily buffer user data during simple print and copy jobs.
- **Non-volatile memory**—This device may utilize two forms of non-volatile memory: EEPROM and NAND (flash memory). Both types are used to store the operating system, device settings, network information, scanner and bookmark settings, and embedded solutions.
- **Hard disk memory**—Some devices have a hard disk drive installed. The printer hard disk is designed for device-specific functionality and cannot be used for long term storage for data that is not print-related. The hard disk does not provide the capability for users to extract information, create folders, create disk or network file shares, or FTP information directly from a client device. The hard disk can retain buffered user data from complex scan, print, copy, and fax jobs, as well as form data, and font data.

To erase volatile memory, turn off the printer.

To erase non volatile memory see **"Configuration menu (CONFIG MENU)" on page 3-29** item pertaining to this.

To erase the printer hard disk see **"Configuration menu (CONFIG MENU)" on page 3-29** item pertaining to this.

The printer operator panel and RIP/controller board contain NVRAM. After removing the old part the part must be returned to your second level support.

Handling ESD-sensitive parts

Warning: Read the following before handling electronic parts.

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, follow the instructions below in addition to all the usual precautions, such as turning off power before removing electronic cards:

- Keep the ESD-sensitive part in its original shipping container (a special "ESD bag") until you are ready to install the part in the printer.
- Make the fewest possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the printer.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch its pins.
- If you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Printer covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install printer covers when you are not working on the printer, and do not put unprotected ESD-sensitive parts on a table.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Be extra careful in working with ESD-sensitive parts when cold-weather heating is used, because low humidity increases static electricity.

Previous

Handing the photoconductor unit

The following precautions must be observed when handling the photoconductor unit. The photoconductor unit is a supply item you will have to remove during some of the repair procedures:

Transportation/storage

Use the specified carton whenever moving or storing the photoconductor unit.

Handling

- The optical photoconductor roller in the photoconductor unit exhibits the greatest light fatigue after being exposed to strong light over an extended period of time. Never expose it to direct sunlight. Cover the photoconductor unit when you remove it from the printer.
- Use care not to contaminate the surface of the optical photoconductor roller with an oil-based solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the optical photoconductor roller.

Parts not to be touched

Any part where the mounting screws are used to meet a printer alignment set at the factory must not be removed, disassembled, or adjusted.
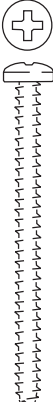
Screw and retainer identification table

The following table contains screw types and retainers, locations, and quantities necessary to service the printer. Pay careful attention to each screw type location when doing removals. You must install the correct screw type in each location during reassembly.

Sizes are as close to actual as possible, as long as the printout is not scaled or resized.

Screw identification table

P/N	Screw type	Location	Qty
077-0601-0	Plastite M3x6, black	CCD cover	2
		CCD Lamp	2
		CCD Lamp cover	2
		Rear cover	6
077-0819-0	Plastite washer M3x8	CCD belt to flatbed	1
077-0824-0	Plastite M4x8	Upper housing	6
077-1408-0	Plastite M4x14	Hinges to ADF	4
10B1580	#6 Panhead	Cooling fan to top cover	2

Screw identification table (continued)

P/N	Screw type	Location	Qty
18B0832	Taptite M3 L6 PANHD	5 V interlock switch to rightside frame	1
		Card support plate to upper plate	2
		Card support plate to lower plate	3
		Card support plate (and printhead ground) to leftside frame	5
		Card support plate to rightside frame	4
		Cartridge left guide assembly to leftside [late (interior side of plate assembly)	4
		COD drive assembly to upper plate	3
		COD shaft assembly to upper plate	2
		Contacts assembly to leftside frame next to auger worm gear	2
		Contacts assembly to leftside frame near duct	2
		Duct to frame	4
		EP drive to rightside plate (exterior side)	8
		Flatbed fan to housing	4
		Front door ground wire to rightside frame bracket	1
		Ground screws between scanner and printer frame	3
		HVPS to leftside frame plate	1
		Laser support plate to lower plate	2
		Left cam shaft lock assembly to printer frame	2
		Left frame assembly to lower plate	4
		Left frame assembly to laser support plate	2
		LVPS support plate to rightside plate	4
		LVPS to rightside frame plate and support bracket	5
		Motor driver card to EP drive assembly	2
		MP feeder drive cover to rightside frame	3
		Rear frame assembly	8
		Rear frame assembly to scanner support frame	2
		Right cam shaft lock assembly to printer frame	2
		Right frame assembly to laser support plate	2
		Right frame to lower plate	3
		Scanner support frame assembly to left frame	2
		System board to RIP plate.	9
		Top cover assembly to printer frame	5
		Upper plate to rightside frame assembly	3
		Upper plate to leftside frame assembly	3
		Upper plate to laser support plate	3
18B0939	Plastite M3x6 FLATHD	Gearbox plate assembly to frame	4

Screw identification table (continued)

P/N	Screw type	Location	Qty
18B1236	Plastite panhead M3x6	ADF open sensor to ADF	2
		CCD belt to flatbed	2
		Sliding rod	2
18B2302	Machine M2.6 L3-3.5	MP feeder/duplex drive motor to rightside plate	2
18B2315	Machine M3 PANHD L35	Printhead	1
27S2836	Taptite M3 L6 PANHD, black	Rear cover frame to frame	8
		Right cover to printer frame	4
		Rear cover to printer frame	4
27S2837	M3.5X1.34 PANHD 8L, black	Left cover to lower swingout frame	2
		Top cover to left cover	1
		Top cover to right cover	1
27S2838	Machine M3X0.5–6G 6L, Black	Contacts assembly to left/front edge of printer frame	2
		ISP blank plate to left plate	2
		Second USB connector to left frame	1
		System board USB connector to frame	1
27S2839	Taptite M3 L6 Taptite Slotted hex, black	Rear cover frame to frame	8
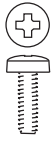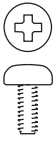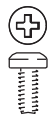
Screw identification table (continued)

P/N	Screw type	Location	Qty
88A0003	Machine M3X0.5-6G 8L	Printhead	3
88A0095	M2.5x10 Machine	5 V interlock switch actuator assembly	1
		24 V interlock switch and shield to rightside frame	1
88A0133	Plastite M3x8	ADF front cover	2
		ADF handle cover	2
		ADF motor cover	3
		ADF upper front cover	1
		Cave LED lens	1
		Interconnect card to ADF	2
		Left cover	3
		Main case cover	2
		MDC card metal cage	4
		MDC card to frame	1
		Motor assembly to ADF	2
		Right cover	1
88A0212	Taptite M3.5x0.6 PAN	AC inlet ground wire	1
		Fuser AC cable's ground wire to leftside plate	1
88A0232	Taptite M3 L6 PANHD	AC inlet cable to frame extension	2
		Cartridge right guide assembly to rightside plate	10
		Lower frame support to rightside frame assembly	4
		Lower plate to lower swingout frame assembly	1
		Lower swingout frame assembly to leftside frame assembly	4
88A0233	Taptite M3x8 PANHD	Lower swingout frame assembly to leftside frame assembly (rearmost position)	1
		Upper housing	4

Screw identification table (continued)

P/N	Screw type	Location	Qty
88A0234	Taptite M3x10	Motor assembly to ADF	2
88A0293	Plastite M2.2 L5	Contact spring cap to left guide assembly	4
88A0312	Plastite M2.9 L6 PAN	Backup springs to reference edge plate assembly	2
		Cartridge cooling fan duct to top cover	2
		Cartridge left guide assembly to leftside plate assembly (exterior side of plate assembly)	3
		Cover mount to rightside plate	2
		Door bracket to front access door cover	2
		Door straps to front access door cover	2
		Duplex entry guide to front access door cover	4
		Front cover bracket to front access door cover	4
		Lower frame support to lower left frame assembly	2
		Option locator to rightside plate	1
88A0313	Plastite M2.9 L8 PAN	Contacts assembly to leftside cartridge guide	1
		Cover CBM to upper front cover	3
		Cover pivot to swingout frame	3
		Duplex upper guide to top access door cover	2
		HVPS to transfer contact assembly	3
		HVPS to leftside cartridge guide assembly	2
		LCD assembly to operator panel housing	4
		Top access door cover to upper front cover assembly	6
		UICC card to top access door cover	4
88A0316	Plastite M2.9x12 PAN	USB cable to top access door cover	2
88A0323	M3.5X 1.34 Panhead 8L	Duplex upper guide to top access door cover	5
		Ground strap/contact to front door frame	1
		Lower right frame to right plate	3
		Pick assembly to lower plate	4
		Reference edge assembly to door assembly	2
		Torque tube cover to front door frame	6
		USB ground bracket to top cover	1
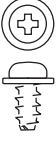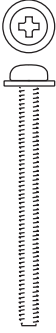
Screw identification table (continued)

P/N	Screw type	Location	Qty
88A0324	M3.5X1.34 PANHD 10L	Door cap to door assembly	1
		EP drive to rightside plate	2
88A0412	M2.9x5.2 Plastite	Door links to top access door cover	2
		Fuser retract link to top access door	1
		GS COD bellcranks to guide	3
		NGS COD bellcranks to guide	3
		Top cover links to top access door links	2
		Top cover links to top cover	2
88A0421	Plastite M3x5	Bushing ground cable	1
		Ground bushing to ADF	1
		Ground wire in input tray	1
		Input tray bottom cover	7
		Paper present LED	1
MS00473	Taptite M3 PANHD L32	Cartridge cooling fan to frame	2
MS00495	Taptite M3 L12 PANHD	Scanner attachment to printer frame	5
1126828	E-clip M3	LR overcenter bellcrank to side frame	1
1126829	E-ring M4	MP feeder gears to right side frame studs	2

Adjustments

Printhead alignment

Overview

When aligning the printhead, it is important to keep in mind that the printhead mounting screws should be initially loose enough to just hold the printhead in the printer. This allows the pages to be printed that will be used to align the black plane to the printer frame and also allows skew adjustment with the printhead alignment screw. Once the black skew is adjusted, the mounting screws are fully tightened.

There is one printhead that houses the four color planes. The black plane is aligned to the printer, and the color planes are internally aligned to black. Electrical alignment is done to fine tune the alignment of the color planes to the black plane once the printhead is installed and skew is adjusted.

The first step in aligning the printhead is to loosen the printhead mounting screws, and to set the skew for black.

Note: If you need to replace the printhead, see **"Printhead removal, installation, and adjustment" on page 4-140**.

Printhead mechanical alignment

Skew (black)

1. Disconnect the electrical cord to the printer.
2. Disconnect the electrical cord to the outlet.
3. Remove the transfer module and photoconductor units:
   a. Open the top access cover.
   b. Open the front access cover.
   c. Disconnect the transfer module cable (A).
   d. Press the two tabs (B) to release the front access cover assembly.
   e. Press the two tabs (C) on either side of the transfer module, and lift out the transfer module.
   Note: Leave the photoconductor units on the transport module when removing.

   To avoid damaging the photoconductor drum, place the transfer module with the photoconductor units on a clean surface. Never expose the photoconductor units to light for a prolonged period of time. You can place a clean, dry cloth over the transfer module and photoconductor units until they are required.
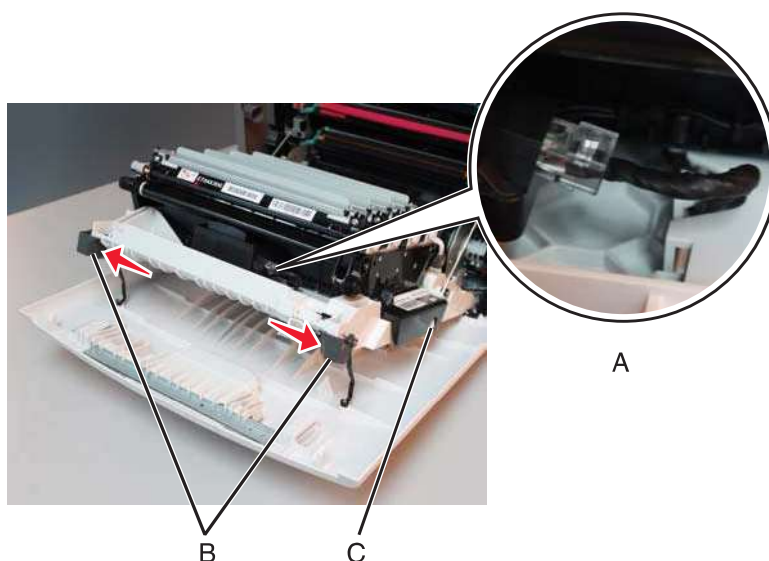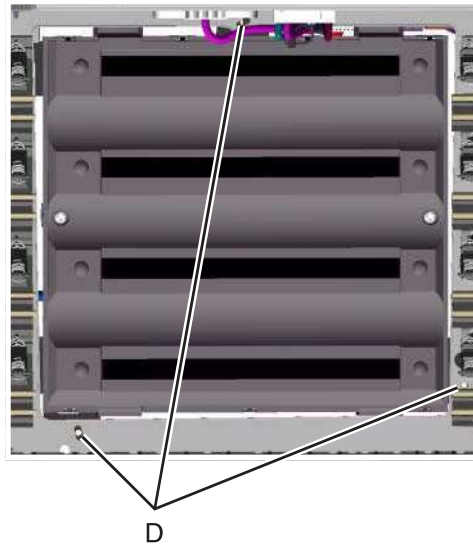
4. Remove the toner cartridges.

5. Loosen the printhead mounting screws (D).

D

6. Reinstall the transfer module with the photoconductor units still attached.

7. Reconnect the transfer module cable.

8. Replace the toner cartridges.

9. Close the front access door.

10. Close the top access door.

11. Connect the electrical cord into the printer.

12. Connect the electrical cord into the outlet.

13. Align the printhead skew for black.

    a. Enter Diagnostic mode (turn off the printer, press and hold 3 and 6, turn on the printer, and release the buttons when the progress bar appears).

    b. Select **Registration**.

    c. Adjust the value beside Skew to zero with the left and right arrows, and touch **Submit**.

d. Touch **Quick Test.** A page similar to this one prints:

Top left alignment marks

Top right alignment marks

Left margin alignment marks

Right margin alignment marks

Bottom margin alignment marks

Lexmark X54Xe
Quick Test

Printer Information		Margin Settings	
Page Count	xx	Top Margin	= x
PSAC	xx	Bottom Margin	= x
Installed Memory	xxx MB	Left Margin	= x
Processor Speed	xxxMHz	Right Margin	= x
Serial Number	xxxxxxx	Skew	= x
CalStat	xxxx	Cyan Top Margin	= x
CalSet	x.xx x.xx x.xx	Cyan Left Margin	= xx
	x.xx x.xx	Cyan Right Margin	= x
Engine ID	xx	Cyan Skew	= x
FSpeed	xxx	Cyan Bow	= x
Printer Revision Levels		Yellow Top Margin	= x
Loader	xx.xx.xxxx-x	Yellow Left Margin	= x
Kernel	xxx.xx.xxxx-x	Yellow Right Margin	= x
Base	xx.xx.xxxx-x	Yellow Skew	= x
Network	xx.xx.xxxxx-x	Yellow Bow	= x
Network Drvr	xx.xx.xxxx-x	Magenta Top Margin	= x
Engine	xx.xx.xxxx-x	Magenta Left Margin	= x
Font	x.xxxxx-xx.x	Magenta Right Margin	= x
		Magent Skew	= x
		magenta Bow	= x
		Dup Top Margin	= x
		Paper Source	= Tray 1
		Formatted Size	= xxxxxx

e. Adjust the printhead alignment screw (F) to adjust the skew and straighten the image on the printout.

F
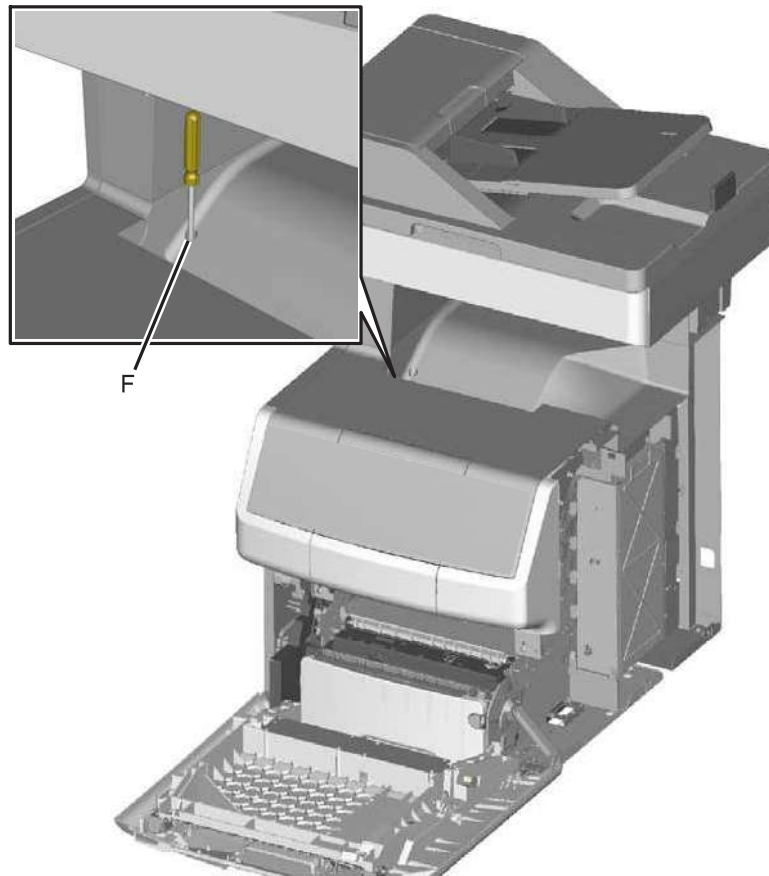
If the top right alignment marks are lower than the top left alignment marks, rotate the alignment screw counterclockwise a full revolution, and print the Quick Test page. Repeat adjusting the screw and printing the Quick Test page until the top alignment marks are the same distance from the top of the media.
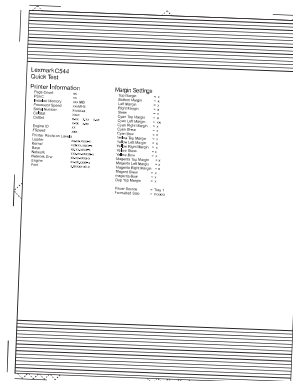
Note: One rotation of the printhead alignment screw equals approximately 0.5 millimeter movement of the top edge print alignment marks.

f. When the top right and top left alignment marks are both showing and are even on the page, the skew is aligned.
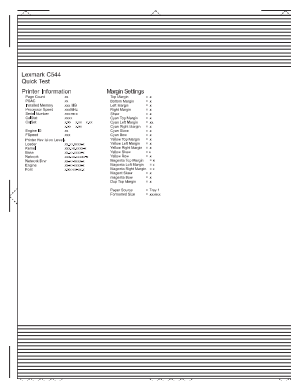
Straight   **Skewed**

14. Tighten the printhead mounting screws.

    a. Turn off the printer.

    b. Disconnect the power cord from the electrical outlet.

    c. Disconnect the transfer module cable.

    d. Press the two tabs on either side of the transfer module, and lift out the transfer module with the photoconductor units in place.

    e. Remove all of the toner cartridges.

    f. Tighten the printhead mounting screws in the following order: G1, G2, and G3.
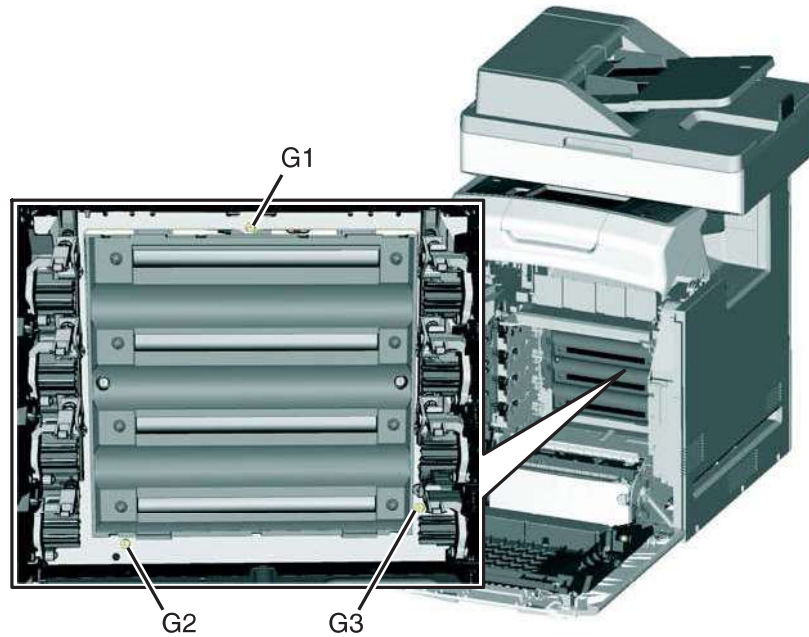
15. Replace the toner cartridges.

16. Reinstall the transfer module and the photoconductor units.

17. Connect the transfer module cable.

Registration (black)

Top Margin

1. Reconnect the power cord to the electrical outlet, but do not turn on the printer yet.
2. Enter Diagnostic mode (press and hold **3** and **6**, turn on the printer, and release the buttons when the progress bar appears).
3. Touch **REGISTRATION**.
4. Touch **Quick Test**.

Top left alignment marks   Top right alignment marks

Lexmark X54Xe
Quick Test
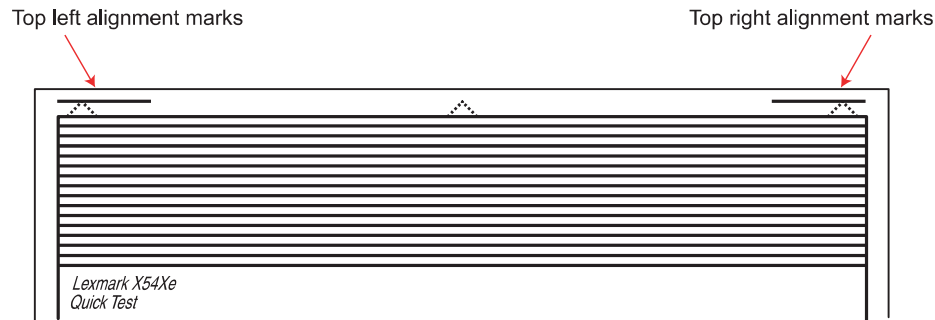
5. Beside **Top Margin**, use the arrows to change the values.
    a. Adjust the values until both top alignment marks are on the top edge of the print.
        • The right arrow increases the value and moves the top alignment marks down the page.
        • The left arrow decreases the value and moves the top alignment marks up the page.
    b. Touch **Submit** to save the value, and then touch **Registration** to return to the Registration menu.
6. Print the Quick Test page, and check the top alignment marks. Repeat adjustment of the top margin and printing of the Quick Test page until top margin is set.

Bottom Margin

1. Adjust the bottom margin until the points of the bottom margin alignment marks are visible and touching the edge of the paper.

Bottom margin alignment marks
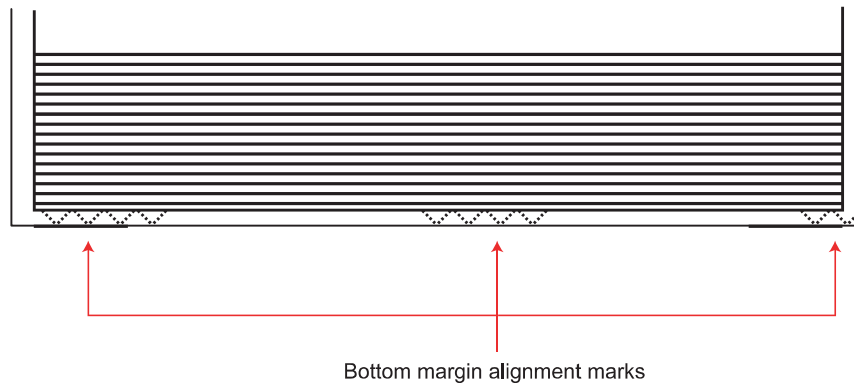
• The right arrow increases the value and moves the bottom alignment marks up the page.
• The left arrow decreases the value and moves the bottom alignment marks down the page.
2. Touch **Submit** to save the value.
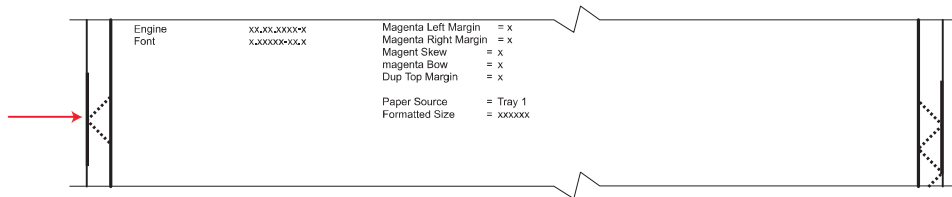3. Print the Quick Test page, and repeat this process until the bottom margin is adjusted.

Left Margin

1. Adjust the left margin until the points of the left alignment marks touch the edge of the page.

- The right arrow increases the value and moves the left side alignment marks to the right.
- The left arrow decreases the value and moves the left side alignment marks to the left.

2. Press **Submit** to save the value.
3. Print the Quick Test page, and check the left alignment marks each time until you are satisfied.

Right Margin

1. Adjust the right margin until the points of the left alignment marks touch the edge of the page.
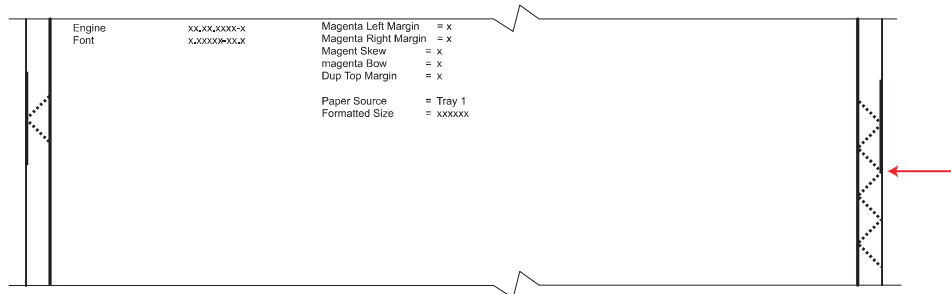
- The right arrow increases the value and moves the right side alignment marks to the left.
- The left arrow decreases the value and moves the right side alignment marks to the right.

2. Touch **Submit** to save the value.
3. Print the Quick Test page, and check the results. Repeat if necessary.
4. When the registration is complete, proceed to the color alignments.

Alignment (cyan, yellow, and magenta)

1. Touch **Back** until you reach the top menu, and touch **Alignment Menu**.
2. Select **Cyan**.
3. Touch the left or right arrows to set **Top Margin** to zero.
4. Do the same for **Left Margin**, **Right Margin**, **Bottom Margin**, **Skew**, and **Bow**.
5. Touch **Submit** to enter all the values.
   It is important to set all the values to zero before starting.
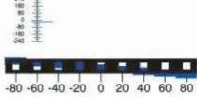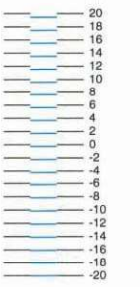6. Touch **Quick Test** in the Cyan menu.

Two pages print. You may have to print these pages several times until you get T (**Top Margin**) and Z (Skew) aligned. Do not go to step 2 until T and Z are aligned. The first page is similar to the following:
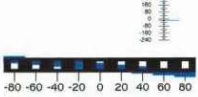

Cyan Alignment
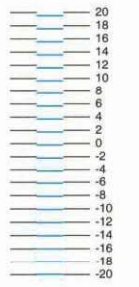### Step 1

Top (T) Coarse Adjustment

Skew (Z) Coarse Adjustment

Top (T) Fine Adjustment

Skew (Z) Fine Adjustment

T

Z

T = 0 + _____ = _____

Z = 0 - _____ + _____ = _____

Current Cyan T value

New Cyan T value

Current Cyan Z value

New Cyan Z value

STEP 1: Adjust the Top (T) margin and Skew (Z) then confirm before going to Step 2.

Press the up or down buttons until a check appears at the setting in need of adjustment.

Press Select. Then use the < and > buttons to enter the new value. Press Select to save.

NOTE: If the alignment values cannot be determined by using the fine adjustment scales, then use the coarse adjustment scales at the top of the page.

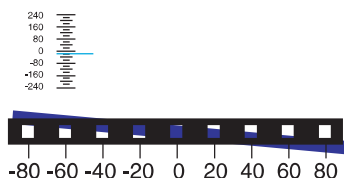**7.** Determine the line under Fine Adjustment that is closest. If the value is beyond the Fine Adjustment scale, use either of the Coarse Adjustment scales.

Top (T) Coarse Adjustment

If the alignment is not close enough to use the fine adjustment, get close to the ideal value by using the coarse adjustment marks. Select the block that is most filled by the color on the left, or approximate if none of the blocks are completely filled, and enter it for the new value. Reprint the quick test page, and then use the fine adjustment.

Top (T) Fine Adjustment
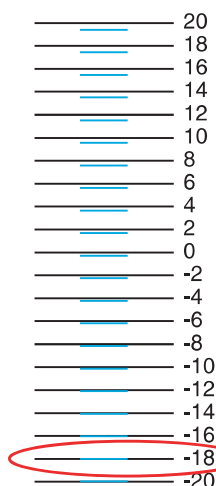
First, locate the line of the color that you are aligning that lines up best with the scale line. In this example, it is -18. If none of the colored lines match up, use the coarse adjustment to get close, reprint this page and then use the fine adjustment.

8. Enter the number determined from the Fine Adjustment scale or the Coarse Adjustment scales on the part of the page for the "T" value. The current value is automatically entered on the sheet. At this point, it should be zero.

T = 0 + **-18** = **-18**

Current Cyan T value — New Cyan T value
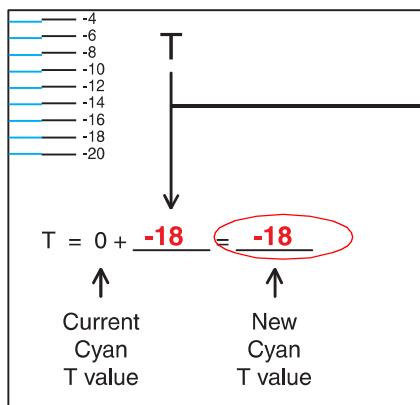
9. Enter the "New Cyan T value" on the operator panel using the left and right arrows, and press **Submit** to save the value.

10. Reprint the Quick Test, and evaluate whether you are at zero changes.