C3224, C3326, CS331 printers

1500-218, 638

Service Manual

- Start diagnostics
- Maintenance
- Safety and notices
- Trademarks
- Index

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Product information

Product name:
Lexmark C3224dw, Lexmark C3326dw; Lexmark CS331dn printers

Machine type:
1500

Model(s):
218, 638

Edition notice

August 09, 2019

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Table of contents

Product information.....2

Edition notice.....2

Notices, conventions, and safety information.....9

Laser notice.....9
Conventions.....10
Safety information.....11

Change history.....15

Change history.....15

General information.....17

Printer model configurations.....17
Selecting paper.....17
Paper guidelines.....17
Paper characteristics.....17
Unacceptable paper.....18
Selecting preprinted forms and letterhead.....18
Storing paper.....19
Supported paper sizes.....19
Supported paper types.....20
Supported paper weights.....21
Tools required for service.....21

Diagnostics and troubleshooting.....23

Troubleshooting precautions.....23
Troubleshooting overview.....24
Performing the initial troubleshooting check.....24
Power-on reset (POR) sequence.....25
Fixing print quality issues.....25
Initial print quality check.....25
Blank or white pages check.....26
Dark print check.....30
Ghost images check.....36
Gray or colored background check.....42
Horizontal dark lines check.....46
Horizontal white lines check.....51

Incorrect margins check 56
Light print check 60
Missing colors check 66
Mottled print and dots check 71
Paper curl check 77
Print crooked or skewed check 80
Repeating defects check 84
Solid color or black images check 84
Text or images cut off check 88
Toner easily rubs off check 93
Uneven print density check 97
Vertical white lines check 101
Horizontal colored lines or banding check 107
Missing one color check 113
Vertical colored lines or banding check 116
Paper jams 122
Avoiding jams 122
Identifying jam locations 123
200 paper jams 124
202 paper jams 139
232 paper jams 154
241 paper jams 164
User attendance messages 165
0y user attendance errors 165
1y user attendance errors 170
2y user attendance errors 175
3y user attendance errors 178
42–55 user attendance errors 181
7y user attendance errors 182
8y user attendance errors 184
9y user attendance errors 191
Printer hardware errors 194
100–110 errors 194
12y errors 198
142 errors 205
151 errors 207
6yy errors 209
Procedure before starting the 9yy service checks 213
90y errors 214
912–938 errors 219
Other symptoms 223
Base printer symptoms 223

Service menus.....227

Understanding the printer control panel.....227
Using the control panel.....227
Understanding the status of the indicator light.....228
Diagnostics menu.....228
Entering the Diagnostics menu.....228
Reports.....228
Advanced Print Quality Samples.....228
Event Log.....229
Input tray quick print.....230
Printer Setup.....230
Printer diagnostics and adjustments.....232
Config menu.....234
Entering the Config menu.....234
Config Menu.....234
Service Engineer menu.....236
Entering Invalid engine mode.....236
Entering the Service Engineer (SE) menu.....237
General SE Menu.....237
Network SE Menu.....237

Parts removal.....239

Data security notice.....239
Removal precautions.....240
Handling ESD-sensitive parts.....242
Critical information for controller board or control panel replacement.....242
Restoring the printer configuration after replacing the controller board.....243
Restoring licenses and configuration settings.....245
Updating the printer firmware.....246
Covering the print cartridge tray.....247
Adjustments.....248
Registration adjustment.....248
Printhead characterization.....251
Sensor (waste toner bottle) calibration.....252
Removal procedures.....253
Left side removals.....253
Left cover removal.....253
Motor (CMY) removal.....255
Motor (K/transfer belt) removal.....256
Controller board shield removal.....257
Controller board removal.....257

Controller board bracket removal 260
Motor (fuser) removal 261
Staging clutch removal 261
Gearbox removal 262
Pick clutch removal 264
Staging belt, gear, and pulley removal 265
Right side removals 266
Right cover removal 266
Sensor (waste toner bottle) removal 269
Exhaust fan removal 269
HVPS removal 270
LVPS removal 272
Front side removals 275
Print cartridge tray removal 275
Control panel removal 276
Printhead interlock switch removal 277
Front door removal 278
Inner front cover removal 279
Rear side removals 280
Transfer module removal 280
Rear door removal 285
Sensor (fuser buckle) removal 286
Fuser removal 287
Sensor (fuser exit) removal 291
Sensor (input) removal 292
Top side removals 293
Top cover removal 293
Printhead removal 295
Sensor (bin/narrow media) removal 299
Bin flag removal 300
Bottom side removals 301
Pick tire removal 301
Sensor (manual feeder) removal 302
Tray interlock switch removal 302

Component locations 307

Printer configuration 307
Port locations 307
Board locations 308
Motor locations 309
Sensor locations 310
Controller board connectors 311

Maintenance..... 317
Cleaning the printer..... 317
Parts catalog..... 318
Legend..... 318
Assembly 1: Covers..... 319
Assembly 2: Drive components..... 321
Assembly 3: EP components..... 323
Assembly 4: Paper feed..... 325
Assembly 5: Sensors..... 327
Assembly 6: Electronics..... 329
Printer specifications..... 331
Power consumption..... 331
Product power consumption..... 331
Sleep Mode..... 331
Hibernate Mode..... 331
Off mode..... 332
Total energy usage..... 332
Selecting a location for the printer..... 332
Noise emission levels..... 333
Temperature information..... 333
Theory of operation..... 335
Paper path and drive components..... 335
Paper path summary..... 335
Drive components..... 336
Duplexing..... 339
Power supply operation..... 340
Electrophotographic (EP) process theory..... 341
EP process summary..... 341
EP process..... 343
Index..... 351
Part number index..... 355
Part name index..... 357

Notices, conventions, and safety information

Laser notice

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR, Chapter I, Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 60825-1: 2014.

Class I laser products are not considered to be hazardous. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service conditions. The printer has a non-serviceable printhead assembly that contains a laser with the following specifications:

Class: IIIb (3b) AlGaAs

Nominal output power (milliwatts): 8

Wavelength (nanometers): 770–800

Avis relatif à l'utilisation du laser

Cette imprimante est certifiée conforme aux exigences de la réglementation des Etats-Unis relative aux produits laser de classe I (1) (DHHS 21 CFR, Chapitre I, Sous-chapitre J). Pour les autres pays, elle est certifiée conforme aux exigences des normes CEI 60825-1:2014 relatives aux produits laser de classe I.

Les produits laser de classe I ne sont pas considérés comme dangereux. Le système laser ainsi que l'imprimante ont été conçus de manière à ce que personne ne soit jamais exposé à des radiations laser dépassant le niveau de classe I dans le cadre d'un fonctionnement normal, de l'entretien par l'utilisateur ou de la maintenance. L'imprimante dispose d'un ensemble de têtes d'impression non réparable contenant un laser doté des caractéristiques suivantes :

Classe : IIIb (3b) AlGaAs

Puissance de sortie nominale (milliwatts) : 8

Longueur d'onde (nanomètres) : 770-800

Aviso de láser

Esta impresora se ha certificado en EE.UU. cumpliendo con los requisitos de DHHS 21 CFR, capítulo I, subcapítulo J para los productos láser de Clase I (1) y en otros países está certificada como un producto láser de Clase I de acuerdo con los requisitos de IEC 60825-1: 2014.

Los productos láser de Clase I no se consideran peligrosos. El sistema láser y la impresora se han diseñado para que el ser humano no acceda nunca a las radiaciones láser por encima del nivel de Clase I durante su uso normal, ni en tareas de mantenimiento o intervenciones de servicio técnico prescritas. El conjunto de cabezal de impresión de la impresora no se puede reparar y contiene un láser con las siguientes especificaciones:

Clase: IIIb (3b) AlGaAs

Potencia nominal de salida (milivatios): 8

Longitud de onda (nanómetros): 770-800

Laser-Hinweis

Der Drucker wurde in den USA zertifiziert und entspricht den Anforderungen der Vorschriften DHHS 21 CFR Kapitel I für Laserprodukte der Klasse I (1), andernorts ist er als Laserprodukt der Klasse I zertifiziert, das den Anforderungen von IEC 60825-1 entspricht: 2014.

Laserprodukte der Klasse I werden nicht als gefährlich betrachtet. Das Lasersystem und der Drucker sind so konstruiert, dass unter normalen Betriebsbedingungen, bei der Wartung durch den Benutzer oder bei den vorgeschriebenen Wartungsbedingungen Menschen keiner Laserstrahlung ausgesetzt sind, die die Werte für Klasse I überschreitet. Der Drucker verfügt über eine Druckkopfeinheit, die nicht gewartet werden kann und mit einem Laser mit den folgenden Spezifikationen ausgestattet ist.

Klasse: IIIb (3b) AlGaAs

Nennausgangsleistung (Milliwatt): 8

Wellenlänge (Nanometer): 770 – 800

Conventions

Note: A *note* identifies information that could help you.

Warning: A *warning* identifies something that could damage the product hardware or software.

CAUTION: A *caution* indicates a potentially hazardous situation that could injure you.

Different types of caution statements include:

CAUTION—POTENTIAL INJURY: Indicates a risk of injury.

CAUTION—SHOCK HAZARD: Indicates a risk of electrical shock.

CAUTION—HOT SURFACE: Indicates a risk of burn if touched.

CAUTION—TIPPING HAZARD: Indicates a crush hazard.

CAUTION—PINCH HAZARD: Indicates a risk of being caught between moving parts.

Conventions

Remarque : Une *Remarque* fournit des informations pouvant vous être utiles.

Avertissement : Un *Avertissement* signale un danger susceptible d'endommager le logiciel ou le matériel.

ATTENTION : La mention *Attention* vous signale un risque de blessure corporelle.

Il existe différentes mises en garde :

ATTENTION—RISQUE DE BLESSURE : Signale un risque de blessure.

ATTENTION—RISQUE D'ELECTROCUTION : Signale un risque d'électrocution.

ATTENTION—SURFACE CHAUDE : Signale un risque de brûlure de contact.

ATTENTION—RISQUE DE BASCULEMENT : Signale un risque d'écrasement.

ATTENTION : RISQUE DE PINCEMENT : Signale un risque de pincement entre des pièces mobiles.

Convenciones

Nota: Las *notas* señalan información que puede serle útil.

Aviso: Las *advertencias* indican algo que podría dañar el software o el hardware del producto.

PRECAUCIÓN: Las *precauciones* indican una situación de posible peligro que puede implicar lesiones para el usuario.

Estos son los tipos de avisos de precaución que existen:

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: Indica que existe riesgo de lesiones.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Indica que existe riesgo de descarga eléctrica.

PRECAUCIÓN: SUPERFICIE CALIENTE: Indica que existe riesgo de sufrir quemaduras por contacto.

PRECAUCIÓN: RIESGO DE CAÍDA: Indica que existe peligro de aplastamiento.

PRECAUCIÓN: PELIGRO DE ATRAPAMIENTO: Existe riesgo de atrapamiento entre las piezas en movimiento.

Konventionen

Hinweis: Ein *Hinweis* enthält nützliche Informationen.

Warnung: Durch eine *Warnung* werden Sie auf einen Umstand hingewiesen, durch den die Produkthardware oder -software beschädigt werden könnte.

VORSICHT: *Vorsicht* weist auf eine mögliche gefährliche Situation hin, die ein Verletzungsrisiko birgt.

Verschiedene Vorsichtshinweise:

VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Weist auf ein Verletzungsrisiko hin.

VORSICHT – STROMSCHLAGGEFAHR: Weist auf das Risiko eines elektrischen Schlags hin.

VORSICHT – HEISSE OBERFLÄCHE: Weist auf das Risiko von Verbrennungen bei Berührung hin.

VORSICHT – KIPPGEFAHR: Weist auf Quetschgefahr hin.

VORSICHT – QUETSCHGEFAHR: Weist auf das Risiko hin, zwischen beweglichen Komponenten eingequetscht zu werden.

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.

- There may be an increased risk of electrical shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this risk and take necessary precautions.

  CAUTION—SHOCK HAZARD: When you see this symbol on the product, 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.

  CAUTION—POTENTIAL INJURY: To avoid the risk of fire or electrical shock, connect the power cord to an appropriately rated and properly grounded electrical outlet that is near the product and easily accessible.

  CAUTION—POTENTIAL INJURY: To avoid the risk of fire or electrical shock, use only the power cord provided with this product or the manufacturer's authorized replacement.

  CAUTION—POTENTIAL INJURY: Do not use this product with extension cords, multioutlet power strips, multioutlet extenders, or UPS devices. The power capacity of these types of accessories can be easily overloaded by a laser printer and may result in a risk of fire, property damage, or poor printer performance.

  CAUTION—POTENTIAL INJURY: Only a Lexmark Inline Surge Protector that is properly connected between the printer and the power cord provided with the printer may be used with this product. The use of non-Lexmark surge protection devices may result in a risk of fire, property damage, or poor printer performance.

  CAUTION—POTENTIAL INJURY: If the printer weight is greater than 20 kg (44 lb), then it may require two or more people to lift it safely.

Consignes de sécurité

- La sécurité de ce produit est basée sur des tests et certifications de sa conception d'origine et de ses composants spécifiques. Le fabricant décline toute responsabilité en cas d'utilisation de pièces de rechange non autorisées.
- Les informations de maintenance de ce produit sont destinées à des professionnels qualifiés et ne sont pas conçues pour être utilisées par d'autres personnes.
- Il existe un risque potentiel de choc électrique et de blessures lors du démontage et de la maintenance de ce produit. Le personnel professionnel de maintenance doit comprendre les risques et prendre les précautions nécessaires.

  ATTENTION—RISQUE D'ELECTROCUTION : Ce symbole indique un danger lié à des niveaux de tension dangereux dans la zone du produit à manipuler. Débranchez le produit avant de commencer, ou agissez avec prudence si le produit doit être alimenté pour effectuer l'opération.

  ATTENTION—RISQUE DE BLESSURE : Pour éviter tout risque d'électrocution ou d'incendie, branchez le câble d'alimentation directement à une prise électrique répondant aux exigences requises et correctement mise à la terre, proche du produit et facile d'accès.

  ATTENTION—RISQUE DE BLESSURE : Pour éviter tout risque d'incendie ou d'électrocution, utilisez uniquement le câble d'alimentation fourni avec ce produit ou un câble de remplacement autorisé par le fabricant.

  ATTENTION—RISQUE DE BLESSURE : Ce produit ne doit pas être utilisé avec des rallonges, des barres multiprises, des rallonges multiprises ou des périphériques UPS. La capacité de ces types d'accessoires peut être facilement dépassée par une imprimante laser, d'où un risque de dégâts matériels, d'incendie ou de performances d'impression amoindries.

ATTENTION—RISQUE DE BLESSURE : Utilisez uniquement un parasurtenseur correctement raccordé à l'imprimante et au câble d'alimentation fourni avec la machine. L'utilisation de parasurtenseurs non fabriqués par Lexmark comporte un risque d'incendie et de dégâts matériels, et peut amoindrir les performances de l'imprimante.

ATTENTION—RISQUE DE BLESSURE : Si votre imprimante pèse plus de 20 kg (44 lb), l'intervention d'au moins deux personnes est nécessaire pour la soulever sans risque.

Información de seguridad

- La seguridad de este producto se basa en las pruebas y comprobaciones del diseño original y los componentes específicos. El fabricante no se hace responsable de la seguridad en caso de uso de piezas de repuesto no autorizadas.
- La información de mantenimiento de este producto se ha preparado para su uso por parte de un profesional de asistencia técnica y no está diseñada para su uso por parte de otros usuarios.
- Es posible que haya un mayor riesgo de descarga eléctrica y daños personales durante el desmontaje y el mantenimiento de este producto. El personal de asistencia profesional debe conocer este riesgo y tomar las precauciones necesarias.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Cuando vea este símbolo en el producto, existe peligro de tensiones peligrosas en el área del producto en la que está trabajando. Desconecte el producto antes de empezar o tenga cuidado si el producto debe recibir alimentación a fin de realizar la tarea.

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: Para evitar el riesgo de incendio o descarga eléctrica, conecte el cable de alimentación a una toma de corriente debidamente conectada a tierra con la potencia adecuada que se encuentre cerca del dispositivo y resulte fácilmente accesible.

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: Para evitar el riesgo de incendio o descarga eléctrica, utilice exclusivamente el cable de alimentación que se suministra junto con este producto o el repuesto autorizado por el fabricante.

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: No utilice este producto con cables alargadores, regletas de varias tomas, cables alargadores de varias tomas o sistemas de alimentación ininterrumpida. La potencia de este tipo de accesorios puede sobrecargarse fácilmente si se utiliza una impresora láser, lo que puede dar lugar a que el rendimiento de la impresora sea bajo, a daños materiales o a posibles incendios.

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: Solo debe usarse con este producto un protector de sobretensión insertable Lexmark debidamente conectado entre la impresora y el cable de alimentación que con ella se suministra. El uso de protectores de sobretensión de marcas distintas a Lexmark puede dar lugar a que el rendimiento de la impresora sea bajo, a daños materiales o a posibles incendios.

PRECAUCIÓN: POSIBLES DAÑOS PERSONALES: si el peso de la impresora es superior a 20 kg (44 lb), pueden ser necesarias dos o más personas para levantarla de forma segura.

Sicherheitshinweise

- Die Sicherheit dieses Produkts basiert auf Tests und Zulassungen des Originaldesigns und der spezifischen Komponenten. Sofern nicht autorisierte Ersatzteile eingesetzt werden, übernimmt der Hersteller keinerlei Verantwortung in Bezug auf die Sicherheit dieses Produkts.
- Die Wartungsinformationen für dieses Produkt wurden für ausgebildete Servicemitarbeiter zusammengestellt und dürfen nicht von anderen verwendet werden.

- Möglicherweise besteht bei der Demontage und Wartung dieses Produkts eine erhöhte Stromschlag- und Verletzungsgefahr. Ausgebildete Servicemitarbeiter sollten sich dieser Gefahr bewusst sein und die notwendigen Vorsichtsmaßnahmen ergreifen.

  VORSICHT – STROMSCHLAGGEFAHR: Wenn Sie dieses Symbol sehen, besteht eine Gefahr durch gefährliche Spannungen in dem Produktbereich, in dem Sie arbeiten. Trennen Sie das Produkt von seiner Stromverbindung, bevor Sie beginnen, oder gehen Sie vorsichtig vor, wenn das Produkt für die Durchführung der Aufgabe mit Strom versorgt werden muss.

  VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Um Feuer- und Stromschlaggefahr zu vermeiden, schließen Sie das Netzkabel direkt an eine ordnungsgemäß geerdete Steckdose an, die sich in der Nähe des Geräts befindet und leicht zugänglich ist.

  VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Um das Risiko eines Feuers oder elektrischen Schlags zu vermeiden, verwenden Sie ausschließlich das diesem Produkt beiliegende Netzkabel bzw. ein durch den Hersteller zugelassenes Ersatzkabel.

  VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Verwenden Sie das Produkt nicht mit Verlängerungskabeln, Mehrfachsteckdosen, Mehrfachverlängerungen oder Geräten für unterbrechungsfreie Stromversorgung. Die Belastbarkeit solcher Zubehörteile kann durch Laserdrucker schnell überschritten werden, was zu Brandgefahr, Beschädigung von Eigentum oder einer eingeschränkten Druckerleistung führen kann.

  VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Mit diesem Produkt darf nur ein Lexmark Inline Surge Protector verwendet werden, der vorschriftsgemäß zwischen dem Drucker und dem mitgelieferten Netzkabel angeschlossen ist. Die Verwendung von nicht von Lexmark stammenden Überspannungsschutzgeräten kann zu Brandgefahr, Beschädigung von Eigentum oder einer eingeschränkten Druckerleistung führen.

  VORSICHT – MÖGLICHE VERLETZUNGSGEFAHR Wenn der Drucker mehr als 20 kg wiegt, sind zum sicheren Anheben mindestens zwei Personen notwendig.

Change history

Change history

August 9, 2019

- An installation note for performing the sensor (waste toner) calibration was added to the Controller board removal.
- An installation note for sticking the pad was added to the Exhaust fan removal.

General information

Printer model configurations

The Lexmark™ C3224, C3326, and CS331 printers are network-capable, laser printers. All information in this service manual pertains to all models unless explicitly noted.

The printer is available in the following models:

Model name	Configuration / description	Machine type / model number
C3224dw	Network with wireless support, duplex print, 2-line display	1500-218
C3326dw CS331dn	Network with wireless support, duplex print, 2-line display	1500-638

Selecting paper

Paper guidelines

Use the appropriate paper to prevent jams and help ensure trouble-free printing.

- Always use new, undamaged paper.
- Before loading paper, know the recommended printable side of the paper. This information is usually indicated on the paper package.
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, types, or weights in the same tray; mixing results in jams.
- Do not use coated papers unless they are specifically designed for electrophotographic printing.

Paper characteristics

The following paper characteristics affect print quality and reliability. Consider these factors before printing on them.

Weight

The trays can feed paper weights from 60 to 176 g/m^2 (16 to 47 lb) grain long paper. Paper lighter than 60 g/m^2 (16 lb) may not be stiff enough to feed properly, and may cause jams.

Curl

Curl is the tendency for paper to curl at its edges. Excessive curl can cause paper feeding problems. Curl can occur after the paper passes through the printer, where it is exposed to high temperatures. Storing paper unwrapped in hot, humid, cold, or dry conditions can contribute to paper curling before printing and can cause feeding problems.

Smoothness

Paper smoothness directly affects print quality. If paper is too rough, toner cannot fuse to it properly. If paper is too smooth, it can cause paper feeding or print quality issues. We recommend the use of paper with 50 Sheffield points.

Moisture content

The amount of moisture in paper affects both print quality and the printer ability to feed the paper correctly. Leave paper in its original wrapper until you use it. Exposure of paper to moisture changes can degrade its performance.

Store paper in its original wrapper in the same environment as the printer for 24 to 48 hours before printing. Extend the time several days if the storage or transportation environment is very different from the printer environment. Thick paper may also require a longer conditioning period.

Grain direction

Grain refers to the alignment of the paper fibers in a sheet of paper. Grain is either *grain long*, running the length of the paper, or *grain short*, running the width of the paper.

For 60–176 g/m^2 (16–47-lb) paper, grain long paper is recommended.

Fiber content

Most high-quality xerographic paper is made from 100 percent chemically treated pulped wood. This content provides the paper with a high degree of stability, resulting in fewer paper feeding problems and better print quality. Paper containing fibers such as cotton can negatively affect paper handling.

Unacceptable paper

The following paper types are not recommended for use with the printer:

- Chemically treated papers used to make copies without carbon paper, also known as carbonless papers, carbonless copy paper (CCP), or no carbon required (NCR) paper
- Preprinted papers with chemicals that may contaminate the printer
- Preprinted papers that can be affected by the temperature in the printer fuser
- Preprinted papers that require a registration (the precise print location on the page) greater than ±2.3 mm (±0.9 in.), such as optical character recognition (OCR) forms

  In some cases, registration can be adjusted with a software application to successfully print on these forms.
- Coated papers (erasable bond), synthetic papers, thermal papers
- Rough-edged, rough or heavily textured surface papers, or curled papers
- Recycled papers that fail EN12281:2002 (European)
- Paper weighing less than 60 g/m^2 (16 lb)
- Multiple-part forms or documents

Selecting preprinted forms and letterhead

- Use grain long paper.
- Use only forms and letterhead printed using an offset lithographic or engraved printing process.
- Avoid paper with rough or heavily textured surfaces.

- Use inks that are not affected by the resin in toner. Inks that are oxidation-set or oil-based generally meet these requirements; latex inks might not.
- Print samples on preprinted forms and letterheads considered for use before buying large quantities. This action determines whether the ink in the preprinted form or letterhead affects print quality.
- When in doubt, contact your paper supplier.
- When printing on letterhead, load the paper in the proper orientation for your printer. For more information, see the *Paper and Specialty Media Guide*.

Storing paper

Use these paper storage guidelines to help avoid jams and uneven print quality:

- Store paper in its original wrapper in the same environment as the printer for 24 to 48 hours before printing.
- Extend the time several days if the storage or transportation environment is very different from the printer environment. Thick paper may also require a longer conditioning period.
- For best results, store paper where the temperature is 21°C (70°F) and the relative humidity is 40 percent.
- Most label manufacturers recommend printing in a temperature range of 18–24°C (65–75°F) with relative humidity between 40 and 60 percent.
- Store paper in cartons, on a pallet or shelf, rather than on the floor.
- Store individual packages on a flat surface.
- Do not store anything on top of individual paper packages.
- Take paper out of the carton or wrapper only when you are ready to load it in the printer. The carton and wrapper help keep the paper clean, dry, and flat.

Supported paper sizes

Paper size	250-sheet tray	Manual feeder	Two-sided printing
A4 210 x 297 mm (8.27 x 11.7 in.)	✓	✓	✓
A5 148 x 210 mm (5.83 x 8.27 in.)	✓	✓	**X**
A6 105 x 148 mm (4.13 x 5.83 in.)	✓	✓	**X**
JIS B5 182 x 257 mm (7.17 x 10.1 in.)	✓	✓	**X**
Oficio (Mexico) 215.9 x 340.4 mm (8.5 x 13.4 in.)	✓	✓	✓
Hagaki 100 x 148 mm (3.94 x 5.83 in.)	✓	✓	**X**

[1] When selected, the media is formatted for 215.90 x 355.60 mm (8.5 x 14 in.) unless specified in the print job.

[2] Load narrow paper short edge first.

[3] Print only up to 5 envelopes at a time.

Paper size	250-sheet tray	Manual feeder	Two-sided printing
Statement 139.7 x 215.9 mm (5.5 x 8.5 in.)	√	√	X
Executive 184.2 x 266.7 mm (7.25 x 10.5 in.)	√	√	X
Letter 215.9 x 279.4 mm (8.5 x 11 in.)	√	√	√
Legal 215.9 x 355.6 mm (8.5 x 14 in.)	√	√	√
Folio 215.9 x 330.2 mm (8.5 x 13 in.)	√	√	√
Universal[1,2] 98 x 148 mm (3.86 x 5.83 in.) to 215.9 x 355.6 mm (8.5 x 14 in.)	√	√	√
7 3/4 Envelope 98.4 x 190.5 mm (3.875 x 7.5 in.)	√[3]	√	X
9 Envelope 98.4 x 225.4 mm (3.875 x 8.9 in.)	√[3]	√	X
10 Envelope 104.8 x 241.3 mm (4.12 x 9.5 in.)	√[3]	√	X
DL Envelope 110 x 220 mm (4.33 x 8.66 in.)	√[3]	√	X
C5 Envelope 162 x 229 mm (6.38 x 9.01 in.)	√[3]	√	X
B5 Envelope 176 x 250 mm (6.93 x 9.84 in.)	√[3]	√	X
Other Envelope[1] 98.4 x 162 mm (3.87 x 6.38 in.) to 176 x 250 mm (6.93 x 9.84 in.)	√[3]	√	X

[1] When selected, the media is formatted for 215.90 x 355.60 mm (8.5 x 14 in.) unless specified in the print job.

[2] Load narrow paper short edge first.

[3] Print only up to 5 envelopes at a time.

Supported paper types

Notes:

- Labels, envelopes, and card stock always print at reduced speed.
- Labels are supported for occasional use and must be tested for acceptability.

Paper type	250-sheet tray	Manual feeder	Two-sided printing
Plain paper	✓	✓	✓
Card stock	✓	✓	X
Labels	✓	✓	X
Envelopes	✓	✓	X

Supported paper weights

Paper type and weight	Standard 250-sheet tray	Manual feeder	Two-sided printing
Light paper 60–74.9 g/m^2 grain long (16–19.9-lb bond)	✓	✓	✓
Plain paper 75–90.3 g/m^2 grain long (20–24-lb bond)	✓	✓	✓
Heavy paper 90.3–100 g/m^2 grain long (24.1–26-lb bond)	✓	✓	✓
Card stock 100–162 g/m^2 grain long (26.1–43-lb bond)	✓	✓	X
Card stock 100–200 g/m^2 grain long (28.1–54-lb bond)	X	✓	X
Paper labels 131 g/m^2 (35-lb bond)	✓	✓	X
Envelopes 60–90 g/m^2 (16–24-lb bond)	✓	✓	X

Tools required for service

- Flat-blade screwdrivers, various sizes
- #1 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic short-blade

- Torx screwdriver (T10 head)
- Needle-nose pliers
- Diagonal side cutters
- Spring hook
- Feeler gauges
- Analog or digital multimeter
- 3-mm ball hex wrench
- Toner vacuum
- Flashlight

Diagnostics and troubleshooting

Troubleshooting precautions

CAUTION—SHOCK HAZARD: When you see this symbol on the product, 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.

CAUTION—SHOCK HAZARD: This product uses a soft power switch. It does not physically disconnect the input AC voltage. To avoid the risk of electrical shock, always remove the power cord from the printer when removal of the input AC voltage is required.

CAUTION—SHOCK HAZARD: To avoid the risk of electrical shock and to prevent damage to the printer, remove the power cord from the electrical outlet and disconnect all connections to any external devices before you connect or disconnect any cable, electronic board, or assembly.

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 it.

CAUTION—PINCH HAZARD: To avoid the risk of a pinch injury, use caution in areas marked with this label. Pinch injuries may occur around moving parts, such as gears, doors, trays, and covers.

Précautions de dépannage

ATTENTION—RISQUE D'ELECTROCUTION : Ce symbole indique un danger lié à des niveaux de tension dangereux dans la zone du produit à manipuler. Débranchez le produit avant de commencer, ou agissez avec prudence si le produit doit être alimenté pour effectuer l'opération.

ATTENTION—RISQUE D'ELECTROCUTION : Ce produit utilise un commutateur d'alimentation logiciel. Il ne déconnecte pas physiquement la tension d'alimentation CA. Pour éviter tout risque d'électrocution, débranchez toujours le cordon d'alimentation de l'imprimante lorsque vous devez déconnecter la tension d'alimentation CA.

ATTENTION—RISQUE D'ELECTROCUTION : Pour éviter tout risque d'électrocution et éviter d'endommager l'imprimante, débranchez le cordon d'alimentation de la prise électrique et déconnectez toute connexion à tout périphérique externe avant de brancher ou débrancher des câbles ou circuits et assemblages électroniques.

ATTENTION—SURFACE CHAUDE : L'intérieur de l'imprimante risque d'être brûlant. pour réduire le risque de brûlure, laissez la surface ou le composant refroidir avant d'y toucher.

ATTENTION : RISQUE DE PINCEMENT : Pour éviter tout risque de blessure par pincement, agissez avec précaution au niveau des zones signalées par cette étiquette. Les blessures par pincement peuvent se produire autour des pièces mobiles telles que les engrenages, portes, tiroirs et capots.

Precauciones durante la solución de problemas

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Cuando vea este símbolo en el producto, existe peligro de tensiones peligrosas en el área del producto en la que está trabajando. Desconecte el producto antes de empezar o tenga cuidado si el producto debe recibir alimentación a fin de realizar la tarea.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Este producto utiliza un interruptor de corriente de software. No desconecta físicamente la entrada de voltaje de CA. Para evitar el riesgo de descarga eléctrica, desenchufe siempre el cable de alimentación de la impresora cuando sea necesario retirar la entrada de voltaje de CA.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Para evitar el riesgo de descargas eléctricas y daños en la impresora, retire el cable de alimentación de la toma eléctrica y desconecte todas las conexiones a dispositivos externos antes de conectar o desconectar cualquier cable, placa electrónica o conjunto.

PRECAUCIÓN: SUPERFICIE CALIENTE: El interior de la impresora podría estar caliente. Para evitar el riesgo de heridas producidas por el contacto con un componente caliente, deje que la superficie se enfríe antes de tocarlo.

PRECAUCIÓN: PELIGRO DE ATRAPAMIENTO: Para evitar el riesgo de lesión por atrapamiento, preste atención en las áreas marcadas con esta etiqueta. Las lesiones por atrapamiento se pueden producir en torno a partes móviles, tales como engranajes, puertas, bandejas y cubiertas.

Vorsichtsmaßnahmen bei der Fehlerbehebung

VORSICHT – STROMSCHLAGGEFAHR: Wenn Sie dieses Symbol sehen, besteht eine Gefahr durch gefährliche Spannungen in dem Produktbereich, in dem Sie arbeiten. Trennen Sie das Produkt von seiner Stromverbindung, bevor Sie beginnen, oder gehen Sie vorsichtig vor, wenn das Produkt für die Durchführung der Aufgabe mit Strom versorgt werden muss.

VORSICHT – STROMSCHLAGGEFAHR: Dieses Produkt verwendet einen weichen Netzschalter. Er trennt die Eingangswechselspannung nicht physisch. Um das Risiko eines elektrischen Schlags zu vermeiden, ziehen Sie stets das Netzkabel vom Drucker ab, wenn eine Abtrennung der Eingangswechselspannung erforderlich ist.

VORSICHT – STROMSCHLAGGEFAHR: Um das Risiko eines elektrischen Schlags und Schäden am Drucker zu vermeiden, ziehen Sie das Netzkabel aus der Steckdose und trennen Sie alle Verbindungen zu jeglichen externen Geräten, bevor Sie Kabel, Elektronikplatinen oder Baugruppen einstecken oder abziehen.

VORSICHT – HEISSE OBERFLÄCHE: Das Innere des Druckers kann sehr heiß sein. Vermeiden Sie Verletzungen, indem Sie heiße Komponenten stets abkühlen lassen, bevor Sie ihre Oberfläche berühren.

VORSICHT – QUETSCHGEFAHR: Um das Risiko einer Quetschung zu vermeiden, gehen Sie in Bereichen, die mit diesem Etikett gekennzeichnet sind, mit Vorsicht vor. Quetschungen können im Bereich von beweglichen Komponenten auftreten, wie z. B. Zahnrädern, Klappen, Fächern und Abdeckungen.

Troubleshooting overview

Performing the initial troubleshooting check

- With the power cord unplugged from the electrical outlet, check if the cord is free from breakage, short circuits, disconnected wires, or incorrect connections.
- Make sure that the printer is properly grounded.

- Make sure that the power supply line voltage is within 10% of the rated line voltage.
- Make sure that the printer is securely installed on a level surface in a well-ventilated area.
- Make sure that the temperature and relative humidity are within the specifications. See **"Temperature information" on page 333**.
- Avoid locations that:
  - Generate ammonia gas
  - Are exposed to direct sunlight
  - Are near open flames
  - Are dusty
- Make sure that the recommended paper for this printer is used.
- Do a test print with paper from a newly opened package, and then check the result.

Power-on reset (POR) sequence

When you turn on the printer, it performs a POR sequence.

Check for the correct POR function of the printer by observing the following:

1. The initial boot screen appears.
2. The splash screen appears.
3. The progress bar appears on the splash screen.
4. The printer begins to POST, and the motors and sensors are polled and tested.
5. The home screen displays.
6. Printer calibration may begin.

   Note: If any of the tests fail, the printer displays an error code.

Fixing print quality issues

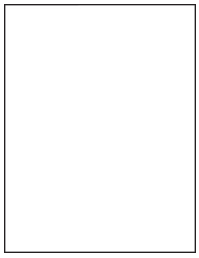
Initial print quality check

Before troubleshooting print problems, perform the following:

- Make sure that the printer is located in an area that follows the recommended operating environment and power requirement specifications.
- Check the status of supplies. Replace supplies that are low or empty.
- Load 20-lb plain letter or A4 paper. Make sure that the paper guides are properly set and locked. From the control panel, set the paper size and type to match the paper loaded in the tray.
- Print and keep the menu settings page. The original menu settings page will be used to restore the custom settings if necessary.

- Make sure that the Print resolution and Toner darkness on the menu settings page are set to their default values.
- Check the print cartridge for damage, and replace if necessary.
- Print the advanced print quality samples to see if the problem remains. Use tray 1 to test print quality problems. Look for variations in the print from what is expected.
- Make sure that the correct print driver is used to prevent print problems. If the wrong print driver is installed, incorrect characters could print and the copy may not fit the page correctly.

Blank or white pages check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

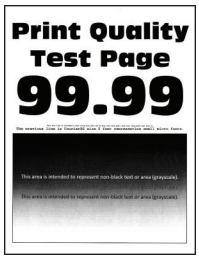
Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 8.	Go to step 7.
Step 7 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Reseat the HVPS flat cables. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cables for damage. Are the cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.

Action	Yes	No
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **(K/Transfer belt)**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 16.	Go to step 12.
Step 12 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 13.	Go to step 15.
Step 13 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 18.	Go to step 17.

Action	Yes	No
Step 17 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cables for damage. Are the cables free of damage?	Go to step 21.	Go to step 20.
Step 20 Replace the affected cable. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the firmware version. Is the firmware updated to the latest version?	Go to step 23.	Go to step 22.
Step 22 Update the firmware. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 25.
Step 25 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Dark print check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** Remove the print cartridge tray. See **"Print cartridge tray removal" on page 275**. **b** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** > **TPS L and R** **c** Insert a white sheet of paper between the transfer belt and sensor (TPS), and then check if the sensor values increase to almost 100%. **d** Insert a color-printed sheet of paper between the transfer belt and sensor (TPS), and then check if the sensor values change. Do the sensor values change properly?	Go to step 10.	Go to step 7.
Step 7 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the TPS sensor cables on the controller board. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the TPS sensor cables for damage. Are the cables free of damage?	Go to step 38.	Go to step 9.
Step 9 Replace the affected TPS sensor cable. Does the problem remain?	Go to step 38.	The problem is solved.
Step 10 Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Weather station** Is the weather station detecting properly?	Go to step 11.	Go to step 36.

Action	Yes	No
Step 11 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 15.	Go to step 14.
Step 14 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 17.	The problem is solved.

Action	Yes	No
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 23.	Go to step 22.
Step 22 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Reseat the HVPS flat cables. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the cables for damage. Are the cables free of damage?	Go to step 26.	Go to step 25.

Action	Yes	No
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 31.	Go to step 27.
Step 27 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 28.	Go to step 30.
Step 28 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 31.	Go to step 30.
Step 30 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 31.	The problem is solved.

Action	Yes	No
Step 31 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 33.	Go to step 32.
Step 32 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Check the cables for damage. Are the cables free of damage?	Go to step 36.	Go to step 35.
Step 35 Replace the affected cable. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Check the firmware version. Is the firmware updated to the latest version?	Go to step 38.	Go to step 37.
Step 37 Update the firmware. Does the problem remain?	Go to step 38.	The problem is solved.
Step 38 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 39.	The problem is solved.
Step 39 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 40.

Action	Yes	No
Step 40 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Ghost images check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.

Action	Yes	No
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.

Action	Yes	No
Step 10 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 19.	Go to step 15.
Step 15 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 16.	Go to step 18.

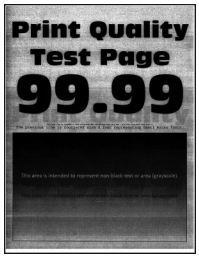
Action	Yes	No
Step 16 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 19.	Go to step 18.
Step 18 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 22.	Go to step 21.
Step 21 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 Reseat the HVPS flat cables. Does the problem remain?	Go to step 23.	The problem is solved.

Action	Yes	No
Step 23 Check the cables for damage. Are the cables free of damage?	Go to step 25.	Go to step 24.
Step 24 Replace the affected cable. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 26.	Go to step 30.
Step 26 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 29.	Go to step 27.
Step 27 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 29.	Go to step 28.
Step 28 Replace the affected cable. Does the problem remain?	Go to step 29.	The problem is solved.

Action	Yes	No
Step 29 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 31.	Go to step 30.
Step 30 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 33.	Go to step 32.
Step 32 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Check the cables for damage. Are the cables free of damage?	Go to step 36.	Go to step 35.
Step 35 Replace the affected cable. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Check the firmware version. Is the firmware updated to the latest version?	Go to step 38.	Go to step 37.

Action	Yes	No
Step 37 Update the firmware. Does the problem remain?	Go to step 38.	The problem is solved.
Step 38 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 39.	The problem is solved.
Step 39 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 40.
Step 40 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Gray or colored background check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.

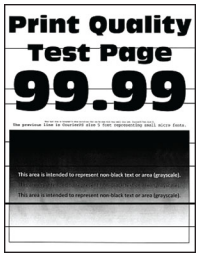
Action	Yes	No
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 8.	Go to step 7.
Step 7 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Reseat the HVPS flat cables. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cables for damage. Are the cables free of damage?	Go to step 11.	Go to step 10.

Action	Yes	No
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 16.	Go to step 12.
Step 12 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 13.	Go to step 15.
Step 13 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 16.	The problem is solved.

Action	Yes	No
Step 16 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 18.	Go to step 17.
Step 17 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cables for damage. Are the cables free of damage?	Go to step 21.	Go to step 20.
Step 20 Replace the affected cable. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the firmware version. Is the firmware updated to the latest version?	Go to step 23.	Go to step 22.
Step 22 Update the firmware. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 25.

Action	Yes	No
Step 25 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Horizontal dark lines check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.

Action	Yes	No
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.

Action	Yes	No
Step 10 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 12.	Go to step 11.
Step 11 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 17.	The problem is solved.

Action	Yes	No
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Use the table on the Print Quality Test Pages to match the distance between vertically repeating defects. **b** Replace the part or supply item that best matches the distance. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 23.	Go to step 22.
Step 22 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Reseat the HVPS flat cables. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the cables for damage. Are the cables free of damage?	Go to step 26.	Go to step 25.

Action	Yes	No
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 28.	Go to step 27.
Step 27 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the cables for damage. Are the cables free of damage?	Go to step 31.	Go to step 30.
Step 30 Replace the affected cable. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Check the firmware version. Is the firmware updated to the latest version?	Go to step 33.	Go to step 32.
Step 32 Update the firmware. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.

Action	Yes	No
Step 34 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 35.
Step 35 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Horizontal white lines check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.

Action	Yes	No
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 12.	Go to step 11.
Step 11 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 15.	The problem is solved.

Action	Yes	No
Step 15 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Use the table on the Print Quality Test Pages to match the distance between vertically repeating defects. **b** Replace the part or supply item that best matches the distance. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 21.	The problem is solved.

Action	Yes	No
Step 21 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 23.	Go to step 22.
Step 22 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Reseat the HVPS flat cables. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the cables for damage. Are the cables free of damage?	Go to step 26.	Go to step 25.
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 28.	Go to step 27.
Step 27 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the cables for damage. Are the cables free of damage?	Go to step 31.	Go to step 30.

Action	Yes	No
Step 30 Replace the affected cable. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Check the firmware version. Is the firmware updated to the latest version?	Go to step 33.	Go to step 32.
Step 32 Update the firmware. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 35.
Step 35 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Incorrect margins check

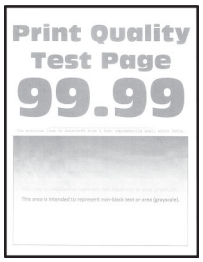
Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Did the problem occur while printing from the manual feeder?	Go to step 7.	Go to step 12.
Step 7 **a** Make sure that the manual feeder guides are free of obstructions. **b** Check the guides for improper installation and damage. Are the guides properly installed and free of damage?	Go to step 9.	Go to step 8.

Action	Yes	No
Step 8 Replace the manual feeder. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the manual feeder transport mechanism for damage. Are the components free of damage?	Go to step 10.	Contact the next level of support.
Step 10 Check the manual feeder belts for improper installation and damage. Are the belts properly installed and free of damage?	Go to step 11.	Contact the next level of support.
Step 11 Check the manual feeder rollers for wear, damage, and contamination. Are the rollers free of wear, damage, and contamination?	Go to step 12.	Contact the next level of support.
Step 12 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the tray insert. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the pick tires for improper installation, contamination, wear, and damage. Are the pick tires properly installed and free of contamination, wear, and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall, clean, or replace the pick tire. See **"Pick tire removal" on page 301**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Clear any obstructions from the rollers along the paper path. **b** Check the rollers for contamination. Are the rollers free of contamination?	Go to step 18.	Go to step 17.

Action	Yes	No
Step 17 Clean the rollers. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Registration adjust** **b** Run the appropriate quick test. • Quick test • Duplex quick test • Manual feed quick test **c** Perform the registration adjustment. See **"Registration adjustment" on page 248**. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 21.	Go to step 20.
Step 20 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 Check the cables for damage. Are the cables free of damage?	Contact the next level of support.	Go to step 23.
Step 23 Replace the affected cable. Does the problem remain?	Contact the next level of support.	The problem is solved.

Light print check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** Remove the print cartridge tray. See **"Print cartridge tray removal" on page 275**. **b** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** > **TPS L and R** **c** Insert a white sheet of paper between the transfer belt and sensor (TPS), and then check if the sensor values increase to almost 100%. **d** Insert a color-printed sheet of paper between the transfer belt and sensor (TPS), and then check if the sensor values change. Do the sensor values change properly?	Go to step 10.	Go to step 7.
Step 7 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the TPS sensor cables on the controller board. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the TPS sensor cables for damage. Are the cables free of damage?	Go to step 38.	Go to step 9.
Step 9 Replace the affected TPS sensor cable. Does the problem remain?	Go to step 38.	The problem is solved.
Step 10 Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Weather station** Is the weather station detecting properly?	Go to step 11.	Go to step 36.

Action	Yes	No
Step 11 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 15.	Go to step 14.
Step 14 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 17.	The problem is solved.

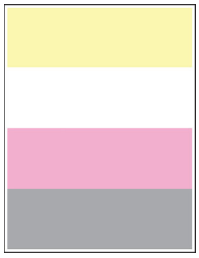
Action	Yes	No
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 23.	Go to step 22.
Step 22 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Reseat the HVPS flat cables. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the cables for damage. Are the cables free of damage?	Go to step 26.	Go to step 25.

Action	Yes	No
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 31.	Go to step 27.
Step 27 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 28.	Go to step 30.
Step 28 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 31.	Go to step 30.
Step 30 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 31.	The problem is solved.

Action	Yes	No
Step 31 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 33.	Go to step 32.
Step 32 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Check the cables for damage. Are the cables free of damage?	Go to step 36.	Go to step 35.
Step 35 Replace the affected cable. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Check the firmware version. Is the firmware updated to the latest version?	Go to step 38.	Go to step 37.
Step 37 Update the firmware. Does the problem remain?	Go to step 38.	The problem is solved.
Step 38 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 39.	The problem is solved.
Step 39 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 40.

Action	Yes	No
Step 40 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Missing colors check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 7.	Go to step 6.
Step 6 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 9.	Go to step 8.
Step 8 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 10.	The problem is solved.

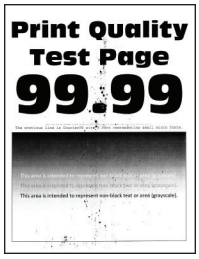
Action	Yes	No
Step 10 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 12.	Go to step 11.
Step 11 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Reseat the HVPS flat cables. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the cables for damage. Are the cables free of damage?	Go to step 15.	Go to step 14.
Step 14 Replace the affected cable. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 17.	Go to step 16.
Step 16 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the cables for damage. Are the cables free of damage?	Go to step 20.	Go to step 19.

Action	Yes	No
Step 19 Replace the affected cable. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 25.	Go to step 21.
Step 21 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 22.	Go to step 24.
Step 22 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 25.	Go to step 24.
Step 24 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 25.	The problem is solved.

Action	Yes	No
Step 25 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 29.	Go to step 26.
Step 26 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 27.	Go to step 28.
Step 27 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the firmware version. Is the firmware updated to the latest version?	Go to step 31.	Go to step 30.
Step 30 Update the firmware. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 32.	The problem is solved.

Action	Yes	No
Step 32 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 33.
Step 33 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Mottled print and dots check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.

Action	Yes	No
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 13.	Go to step 12.
Step 12 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Reseat the HVPS flat cables. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the cables for damage. Are the cables free of damage?	Go to step 16.	Go to step 15.
Step 15 Replace the affected cable. Does the problem remain?	Go to step 16.	The problem is solved.

Action	Yes	No
Step 16 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 26.	Go to step 22.

Action	Yes	No
Step 22 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 23.	Go to step 25.
Step 23 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 26.	Go to step 25.
Step 25 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 28.	Go to step 27.
Step 27 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 28.	The problem is solved.

Action	Yes	No
Step 28 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the cables for damage. Are the cables free of damage?	Go to step 31.	Go to step 30.
Step 30 Replace the affected cable. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Check the firmware version. Is the firmware updated to the latest version?	Go to step 33.	Go to step 32.
Step 32 Update the firmware. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 35.
Step 35 Replace the controller board. See **“Controller board removal” on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Paper curl check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Go to step 8.	Go to step 7.
Step 7 Replace the tray insert. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 10.	Go to step 9.
Step 9 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Fuser adjust** > **Temperature** **b** Do a print test using each of the Temperature settings. • Normal • High • Low • Lower **c** Select the setting that produces the best result. Does the problem remain?	Go to step 11.	The problem is solved.

Action	Yes	No
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 15.	Go to step 12.
Step 12 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 15.	Go to step 14.
Step 14 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 16.	Go to step 20.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 19.	Go to step 17.

Action	Yes	No
Step 17 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 19.	Go to step 18.
Step 18 Replace the affected cable. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Contact the next level of support.	Go to step 20.
Step 20 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Print crooked or skewed check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Did the problem occur while printing from the manual feeder?	Go to step 7.	Go to step 12.
Step 7 **a** Make sure that the manual feeder guides are free of obstructions. **b** Check the guides for improper installation and damage. Are the guides properly installed and free of damage?	Go to step 9.	Go to step 8.

Action	Yes	No
Step 8 Replace the manual feeder. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the manual feeder transport mechanism for damage. Are the components free of damage?	Go to step 10.	Contact the next level of support.
Step 10 Check the manual feeder belts for improper installation and damage. Are the belts properly installed and free of damage?	Go to step 11.	Contact the next level of support.
Step 11 Check the manual feeder rollers for wear, damage, and contamination. Are the rollers free of wear, damage, and contamination?	Go to step 12.	Contact the next level of support.
Step 12 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the tray insert. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the pick tires for improper installation, contamination, wear, and damage. Are the pick tires properly installed and free of contamination, wear, and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall, clean, or replace the pick tire. See **"Pick tire removal" on page 301**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Clear any obstructions from the rollers along the paper path. **b** Check the rollers for contamination. Are the rollers free of contamination?	Go to step 18.	Go to step 17.

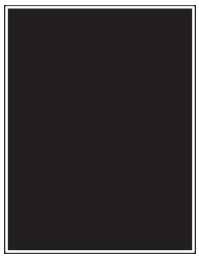
Action	Yes	No
Step 17 Clean the rollers. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Registration adjust** **b** Run the appropriate quick test. • Quick test • Duplex quick test • Manual feed quick test **c** Perform the registration adjustment. See **"Registration adjustment" on page 248**. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 21.	Go to step 20.
Step 20 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 Check the cables for damage. Are the cables free of damage?	Contact the next level of support.	Go to step 23.
Step 23 Replace the affected cable. Does the problem remain?	Contact the next level of support.	The problem is solved.

Repeating defects check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 Clear the paper path of dust and debris. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Use the table on the Print Quality Test Pages to match the distance between vertically repeating defects. **b** Replace the part or supply item that best matches the distance. Does the problem remain?	Contact the next level of support.	The problem is solved.

Solid color or black images check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 10.	Go to step 6.
Step 6 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 7.	Go to step 9.

Action	Yes	No
Step 7 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 10.	Go to step 9.
Step 9 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 12.	Go to step 11.
Step 11 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the cables for damage. Are the cables free of damage?	Go to step 15.	Go to step 14.

Action	Yes	No
Step 14 Replace the affected cable. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 18.	Go to step 17.
Step 17 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Reseat the HVPS flat cables. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cables for damage. Are the cables free of damage?	Go to step 21.	Go to step 20.
Step 20 Replace the affected cable. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the firmware version. Is the firmware updated to the latest version?	Go to step 23.	Go to step 22.
Step 22 Update the firmware. Does the problem remain?	Go to step 23.	The problem is solved.

Action	Yes	No
Step 23 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 25.
Step 25 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Text or images cut off check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.

Action	Yes	No
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 7.	Go to step 6.
Step 6 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 9.	Go to step 8.

Action	Yes	No
Step 8 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 12.	Go to step 11.
Step 11 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Reseat the HVPS flat cables. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the cables for damage. Are the cables free of damage?	Go to step 15.	Go to step 14.
Step 14 Replace the affected cable. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 17.	Go to step 16.

Action	Yes	No
Step 16 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the cables for damage. Are the cables free of damage?	Go to step 20.	Go to step 19.
Step 19 Replace the affected cable. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 25.	Go to step 21.
Step 21 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 22.	Go to step 24.
Step 22 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 23.	The problem is solved.

Action	Yes	No
Step 23 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 25.	Go to step 24.
Step 24 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 29.	Go to step 26.
Step 26 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 27.	Go to step 28.
Step 27 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 29.	The problem is solved.

Action	Yes	No
Step 29 Check the firmware version. Is the firmware updated to the latest version?	Go to step 31.	Go to step 30.
Step 30 Update the firmware. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 32.	The problem is solved.
Step 32 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 33.
Step 33 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Toner easily rubs off check

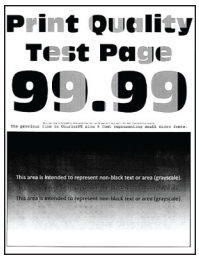
Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Fuser adjust** > **Temperature** **b** Do a print test using each of the Temperature settings. • Normal • High • Low • Lower **c** Select the setting that produces the best result. Does the problem remain?	Go to step 7.	The problem is solved.

Action	Yes	No
Step 7 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 8.	Go to step 12.
Step 8 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 11.	Go to step 9.
Step 9 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 13.	Go to step 12.
Step 12 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 13.	The problem is solved.

Action	Yes	No
Step 13 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 17.	Go to step 14.
Step 14 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 17.	Go to step 16.
Step 16 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Check if the LVPS voltage rating matches the fuser voltage rating. Does the LVPS have the correct voltage rating?	Go to step 18.	Go to step 20.
Step 18 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Reseat the LVPS cables. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cable from the power inlet to the LVPS board for improper connection and damage. Is the cable properly connected and free of damage?	Contact the next level of support.	Go to step 20.
Step 20 Replace the LVPS. See **"LVPS removal" on page 272**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Uneven print density check



Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 15.	Go to step 11.

Action	Yes	No
Step 11 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 12.	Go to step 14.
Step 12 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 15.	Go to step 14.
Step 14 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 17.	Go to step 16.
Step 16 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 17.	The problem is solved.

Action	Yes	No
Step 17 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the cables for damage. Are the cables free of damage?	Go to step 20.	Go to step 19.
Step 19 Replace the affected cable. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 23.	Go to step 22.
Step 22 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Reseat the HVPS flat cables. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the cables for damage. Are the cables free of damage?	Go to step 26.	Go to step 25.
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.

Action	Yes	No
Step 26 Check the firmware version. Is the firmware updated to the latest version?	Go to step 28.	Go to step 27.
Step 27 Update the firmware. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 30.
Step 30 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Vertical white lines check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.

Action	Yes	No
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**. **b** Check the results and determine which specific color has issues. **c** Transfer the affected print cartridge to another slot on the print cartridge tray. **d** Print, and then check the results of the Print Quality Test Pages. Does the affected print cartridge still have issues?	Go to step 11.	Go to step 17.
Step 11 Replace the affected print cartridge. **Note:** Return the swapped print cartridges to their original slots. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select the motor (K/Transfer belt), and then start the test. Does the transfer belt or transfer roller move?	Go to step 17.	Go to step 13.

Action	Yes	No
Step 13 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 14.	Go to step 16.
Step 14 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 17.	Go to step 16.
Step 16 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 19.	Go to step 18.
Step 18 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 19.	The problem is solved.

Action	Yes	No
Step 19 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 22.	Go to step 21.
Step 21 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 23.	Go to step 27.
Step 23 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select the motor (Fuser), and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 26.	Go to step 24.
Step 24 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 26.	Go to step 25.
Step 25 Replace the affected cable. Does the problem remain?	Go to step 26.	The problem is solved.

Action	Yes	No
Step 26 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 28.	Go to step 27.
Step 27 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Check the firmware version. Is the firmware updated to the latest version?	Go to step 30.	Go to step 29.
Step 29 Update the firmware. Does the problem remain?	Go to step 30.	The problem is solved.
Step 30 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 32.
Step 32 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Horizontal colored lines or banding check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.

Action	Yes	No
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 12.	Go to step 11.
Step 11 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 12.	The problem is solved.

Action	Yes	No
Step 12 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Toner Darkness** **b** Adjust the values to find the best result. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Charge adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Developer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **Black & Color (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 18.	The problem is solved.

Action	Yes	No
Step 18 **a** From the Diagnostics menu, navigate to: **Printer setup** > **EP setup** > **Transfer adjust** > **2nd transfer roller (DC bias voltage)** **b** Find the setting that produces the best result. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 24.	Go to step 20.
Step 20 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 21.	Go to step 23.
Step 21 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 24.	Go to step 23.
Step 23 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 24.	The problem is solved.

Action	Yes	No
Step 24 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 27.	Go to step 26.
Step 26 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 27.	The problem is solved.
Step 27 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 28.	Go to step 32.
Step 28 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 31.	Go to step 29.
Step 29 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 31.	Go to step 30.
Step 30 Replace the affected cable. Does the problem remain?	Go to step 31.	The problem is solved.

Action	Yes	No
Step 31 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 33.	Go to step 32.
Step 32 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Check the firmware version. Is the firmware updated to the latest version?	Go to step 35.	Go to step 34.
Step 34 Update the firmware. Does the problem remain?	Go to step 35.	The problem is solved.
Step 35 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 37.
Step 37 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Missing one color check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 6.	The problem is solved.

Action	Yes	No
Step 6 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 8.	Go to step 7.
Step 7 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Reseat the HVPS flat cables. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cables for damage. Are the cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 16.	Go to step 12.
Step 12 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 13.	Go to step 15.
Step 13 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 14.	The problem is solved.

Action	Yes	No
Step 14 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 18.	Go to step 17.
Step 17 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cables for damage. Are the cables free of damage?	Go to step 21.	Go to step 20.
Step 20 Replace the affected cable. Does the problem remain?	Go to step 21.	The problem is solved.

Action	Yes	No
Step 21 Check the firmware version. Is the firmware updated to the latest version?	Go to step 23.	Go to step 22.
Step 22 Update the firmware. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 25.
Step 25 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Vertical colored lines or banding check

Note: Before performing this print quality check, print the Print Quality Test Pages. From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**, and then perform the initial print quality check. See **"Initial print quality check" on page 25**.

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Print** > **Quality** > **Advanced Imaging** > **Color Adjust** **Note:** The Color Adjust calibrates the printer to adjust the color variations in the printed output. **b** Do a print test. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed to its corresponding slot. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 8.	The problem is solved.

Action	Yes	No
Step 8 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** From the control panel, navigate to **Settings** > **Troubleshooting** > **Print Quality Test Pages**. **b** Check the results and determine which specific color has issues. **c** Transfer the affected print cartridge to another slot on the print cartridge tray. **d** Print, and then check the results of the Print Quality Test Pages. Does the affected print cartridge still have issues?	Go to step 11.	Go to step 12.
Step 11 Replace the affected print cartridge. **Note:** Return the swapped print cartridges to their original slots. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 14.	Go to step 13.
Step 13 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 14.	The problem is solved.

Action	Yes	No
Step 14 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check the cables for damage. Are the cables free of damage?	Go to step 17.	Go to step 16.
Step 16 Replace the affected cable. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select the motor (K/Transfer belt), and then start the test. Does the transfer belt or transfer roller move?	Go to step 22.	Go to step 18.
Step 18 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 19.	Go to step 21.
Step 19 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Make sure that the transfer module cable on the HVPS is properly connected. Does the problem remain?	Go to step 20.	The problem is solved.

Action	Yes	No
Step 20 **a** Remove any toner spills or contamination from the transfer module. **b** Check the transfer belt cleaner and its waste toner nozzle for leaks and damage. **Note:** If the transfer belt cleaner is defective, then excess toner may build up on the transfer belt. If there are leaks on the waste toner nozzle, then toner spills will occur. Is the transfer belt cleaner free of leaks and damage?	Go to step 22.	Go to step 21.
Step 21 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 25.	Go to step 24.
Step 24 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 Reseat the HVPS flat cables. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 Check the cables for damage. Are the cables free of damage?	Go to step 28.	Go to step 27.
Step 27 Replace the affected cable. Does the problem remain?	Go to step 28.	The problem is solved.

Action	Yes	No
Step 28 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 29.	Go to step 33.
Step 29 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select the motor (Fuser), and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 32.	Go to step 30.
Step 30 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 32.	Go to step 31.
Step 31 Replace the affected cable. Does the problem remain?	Go to step 32.	The problem is solved.
Step 32 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 34.	Go to step 33.
Step 33 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 34.	The problem is solved.

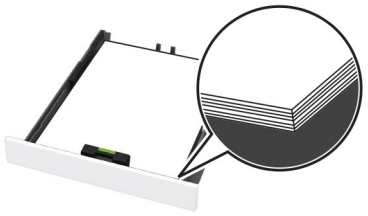
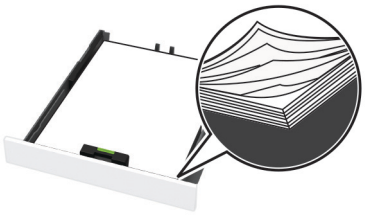
Action	Yes	No
Step 34 Check the firmware version. Is the firmware updated to the latest version?	Go to step 36.	Go to step 35.
Step 35 Update the firmware. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 37.	The problem is solved.
Step 37 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 38.
Step 38 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Paper jams

Avoiding jams

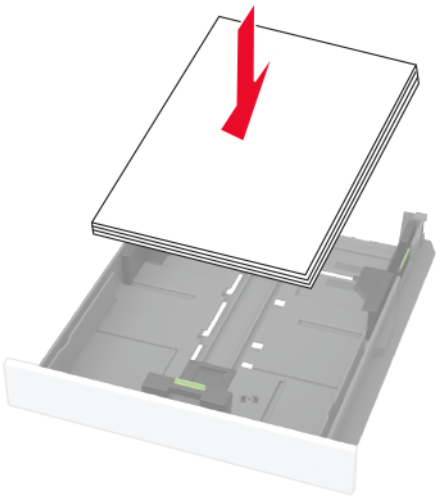
Load paper properly

- Make sure that the paper lies flat in the tray.

Correct loading of paper	Incorrect loading of paper
	

- Do not load or remove a tray while the printer is printing.
- Do not load too much paper. Make sure that the stack height is below the maximum paper fill indicator.

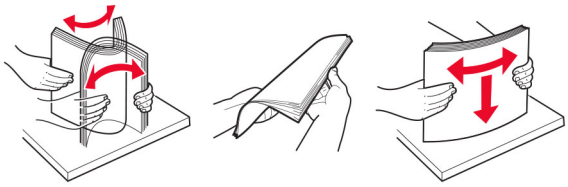
- Do not slide paper into the tray. Load paper as shown in the illustration.



- Make sure that the paper guides are positioned correctly and are not pressing tightly against the paper or envelopes.
- Push the tray firmly into the printer after loading paper.

Use recommended paper

- Use only recommended paper or specialty media.
- Do not load paper that is wrinkled, creased, damp, bent, or curled.
- Flex, fan, and align the paper edges before loading.

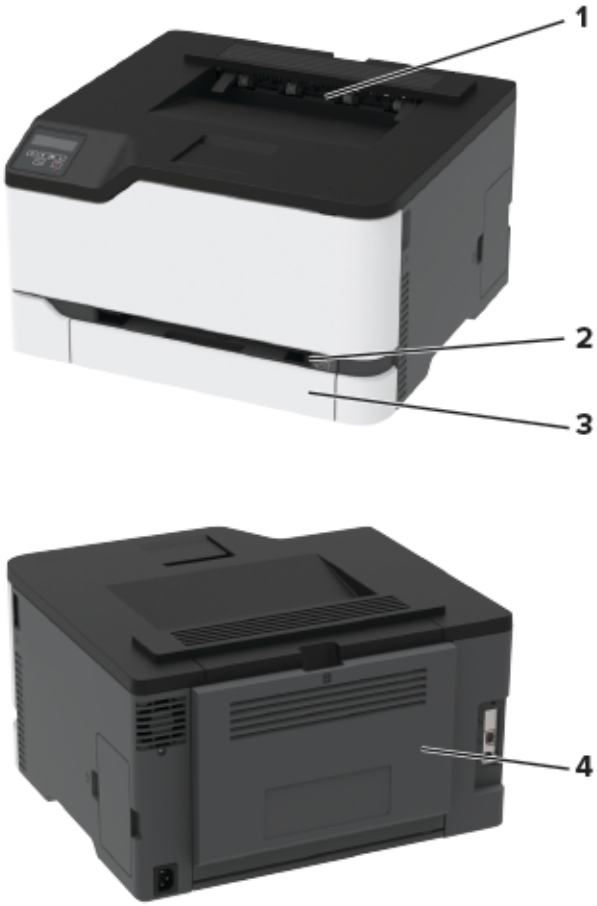


- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, weights, or types in the same tray.
- Make sure that the paper size and type are set correctly on the computer or printer control panel.
- Store paper according to manufacturer recommendations.

Identifying jam locations

Notes:

- When Jam Assist is set to On, the printer flushes blank pages or pages with partial prints after a jammed page has been cleared. Check your printed output for blank pages.
- When Jam Recovery is set to On or Auto, the printer reprints jammed pages.



	Jam locations
1	Standard bin
2	Manual feeder
3	Tray
4	Rear door

200 paper jams

200 paper jam messages

Error code	Description	Action
200.05	Paper fed from the manual feeder never cleared the sensor (input).	See **"Sensor (input) late-leaving jam service check" on page 125**.
200.06	Paper fed from the manual feeder was picked but it never reached the sensor (input).	See **"Manual feeder pick jam service check" on page 129**.

Error code	Description	Action
200.15	Paper fed from tray 1 never cleared the sensor (input).	See **"Tray 1 to sensor (input) late-leaving jam service check" on page 133**.
200.91	Paper remains detected at the sensor (input) after the printer is turned on.	See **"Sensor (input) static jam service check" on page 138**.
200.99	The sensor (TPS) detected a lack or an excess of toner patches on the printed image. **Note:** TPS stands for *toner patch sensing*.	See **"Toner patch sensing error service check" on page 197**.

Sensor (input) late-leaving jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.

Action	Yes	No
Step 6 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 11.	Go to step 8.
Step 8 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 11.	Go to step 10.
Step 10 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 15.	Go to step 12.
Step 12 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 15.	Go to step 14.

Action	Yes	No
Step 14 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 18.	Go to step 16.
Step 16 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 18.	Go to step 17.
Step 17 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 22.	Go to step 19.
Step 19 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 22.	Go to step 21.

Action	Yes	No
Step 21 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 26.	Go to step 23.
Step 23 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components: • HVPS • LVPS • Fuser to controller board connections Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 26.	Go to step 25.
Step 25 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 26.	The problem is solved.

Action	Yes	No
Step 26 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 28.	Go to step 27.
Step 27 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 29.	The problem is solved.
Step 29 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 30.
Step 30 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Manual feeder pick jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Manual feeder). Does the sensor status change while toggling the sensor?	Go to step 11.	Go to step 8.
Step 8 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 11.	Go to step 10.
Step 10 Reinstall or replace the sensor. See **"Sensor (manual feeder) removal" on page 302**. Does the problem remain?	Go to step 11.	The problem is solved.

Action	Yes	No
Step 11 **a** Make sure that the manual feeder guides are free of obstructions. **b** Check the guides for improper installation and damage. Are the guides properly installed and free of damage?	Go to step 13.	Go to step 12.
Step 12 Replace the manual feeder. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the manual feeder transport mechanism for damage. Are the components free of damage?	Go to step 14.	Contact the next level of support.
Step 14 Check the manual feeder belts for improper installation and damage. Are the belts properly installed and free of damage?	Go to step 15.	Contact the next level of support.
Step 15 Check the manual feeder rollers for wear, damage, and contamination. Are the rollers free of wear, damage, and contamination?	Go to step 16.	Contact the next level of support.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 20.	Go to step 17.
Step 17 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 20.	Go to step 19.

Action	Yes	No
Step 19 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 22.	Go to step 21.
Step 21 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 24.	Go to step 23.
Step 23 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 26.

Action	Yes	No
Step 26 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Tray 1 to sensor (input) late-leaving jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 9.	Go to step 6.

Action	Yes	No
Step 6 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 9.	Go to step 8.
Step 8 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 12.	Go to step 10.
Step 10 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 12.	Go to step 11.
Step 11 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 16.	Go to step 13.

Action	Yes	No
Step 13 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 16.	Go to step 15.
Step 15 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 20.	Go to step 17.
Step 17 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 20.	Go to step 19.
Step 19 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 20.	The problem is solved.

Action	Yes	No
Step 20 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 22.	Go to step 21.
Step 21 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 26.	Go to step 23.
Step 23 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 26.	Go to step 25.
Step 25 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 26.	The problem is solved.

Action	Yes	No
Step 26 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 28.	Go to step 27.
Step 27 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 32.	Go to step 29.
Step 29 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 30.	Go to step 31.
Step 30 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 31.	The problem is solved.
Step 31 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 32.	The problem is solved.

Action	Yes	No
Step 32 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 34.
Step 34 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Sensor (input) static jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 9.
Step 9 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

202 paper jams

202 paper jam messages

Error code	Description	Action
202.03	Paper fed from the manual feeder never reached the sensor (fuser exit).	See **"Sensor (fuser exit) late-arriving jam service check" on page 140**.
202.04	Paper fed from the manual feeder cleared the sensor (fuser exit) earlier than expected.	See **"Sensor (fuser exit) early-leaving jam service check" on page 145**.
202.05	Paper fed from the manual feeder never cleared the sensor (fuser exit).	See **"Sensor (fuser exit) late-leaving jam service check" on page 148**.
202.13	Paper fed from tray 1 never reached the sensor (fuser exit).	See **"Sensor (fuser exit) late-arriving jam service check" on page 140**.
202.14	Paper fed from tray 1 cleared the sensor (fuser exit) earlier than expected.	See **"Sensor (fuser exit) early-leaving jam service check" on page 145**.
202.15	Paper fed from tray 1 never cleared the sensor (fuser exit).	See **"Sensor (fuser exit) late-leaving jam service check" on page 148**.
202.91	Paper remains detected at the sensor (fuser exit) after the printer is turned on.	See **"Sensor (fuser exit) static jam service check" on page 152**.

Sensor (fuser exit) late-arriving jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Fuser exit). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (fuser exit) removal" on page 291**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 11.	Go to step 8.

Action	Yes	No
Step 8 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 11.	Go to step 10.
Step 10 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 16.	Go to step 12.
Step 12 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the affected cable. Does the problem remain?	Go to step 14.	The problem is solved.

Action	Yes	No
Step 14 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 16.	Go to step 14.
Step 15 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 Reseat the HVPS flat cables. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Check the cables for damage. Are the cables free of damage?	Go to step 19.	Go to step 18.
Step 18 Replace the affected cable. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 23.	Go to step 20.
Step 20 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 23.	Go to step 22.

Action	Yes	No
Step 22 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 25.	Go to step 24.
Step 24 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 28.	Go to step 26.
Step 26 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 28.	Go to step 27.
Step 27 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 28.	The problem is solved.

Action	Yes	No
Step 28 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 32.	Go to step 29.
Step 29 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 30.	The problem is solved.
Step 30 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 32.	Go to step 31.
Step 31 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 32.	The problem is solved.
Step 32 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 36.	Go to step 33.
Step 33 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 34.	Go to step 35.

Action	Yes	No
Step 34 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 35.	The problem is solved.
Step 35 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 36.	The problem is solved.
Step 36 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 37.	The problem is solved.
Step 37 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 38.
Step 38 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Sensor (fuser exit) early-leaving jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Fuser exit). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (fuser exit) removal" on page 291**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 11.	Go to step 8.
Step 8 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 11.	Go to step 10.

Action	Yes	No
Step 10 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 16.	Go to step 12.
Step 12 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the affected cable. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 16.	Go to step 14.
Step 15 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 16.	The problem is solved.

Action	Yes	No
Step 16 Reseat the HVPS flat cables. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Check the cables for damage. Are the cables free of damage?	Go to step 19.	Go to step 18.
Step 18 Replace the affected cable. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 21.
Step 21 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Sensor (fuser exit) late-leaving jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Fuser exit). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (fuser exit) removal" on page 291**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 11.	Go to step 8.
Step 8 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 11.	Go to step 10.

Action	Yes	No
Step 10 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the top cover for improper installation and damage. Is the top cover properly installed and free of damage?	Go to step 13.	Go to step 12.
Step 12 Replace the top cover. See **"Top cover removal" on page 293**. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 18.	Go to step 14.
Step 14 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 16.	Go to step 15.
Step 15 Replace the affected cable. Does the problem remain?	Go to step 16.	The problem is solved.

Action	Yes	No
Step 16 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 18.	Go to step 16.
Step 17 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Reseat the HVPS flat cables. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the cables for damage. Are the cables free of damage?	Go to step 21.	Go to step 20.
Step 20 Replace the affected cable. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 23.
Step 23 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Sensor (fuser exit) static jam service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Fuser exit). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (fuser exit) removal" on page 291**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 12.	Go to step 8.

Action	Yes	No
Step 8 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 10.	Go to step 9.
Step 9 Replace the affected cable. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 12.	Go to step 10.
Step 11 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Reseat the HVPS flat cables. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the cables for damage. Are the cables free of damage?	Go to step 15.	Go to step 14.
Step 14 Replace the affected cable. Does the problem remain?	Go to step 15.	The problem is solved.

Action	Yes	No
Step 15 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 17.
Step 17 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

232 paper jams

232 paper jam messages

Error code	Description	Action
232.03	During a duplex print job, paper fed from the manual feeder never reached the sensor (input).	See **"Sensor (input) late-arriving jam (during duplex print) service check" on page 155**.
232.05	During a duplex print job, paper fed from the manual feeder never cleared the sensor (input).	See **"Sensor (input) late-leaving jam (during duplex print) service check" on page 159**.
232.13	During a duplex print job, paper fed from tray 1 never reached the sensor (input).	See **"Sensor (input) late-arriving jam (during duplex print) service check" on page 155**.
232.15	During a duplex print job, paper fed from tray 1 never cleared the sensor (input).	See **"Sensor (input) late-leaving jam (during duplex print) service check" on page 159**.
232.93	During a duplex print job, paper never reached the sensor (input). Paper source is undetermined.	
232.95	During a duplex print job, paper never cleared the sensor (input). Paper source is undetermined.	

Sensor (input) late-arriving jam (during duplex print) service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 9.	Go to step 8.

Action	Yes	No
Step 8 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 13.	Go to step 10.
Step 10 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 13.	Go to step 12.
Step 12 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 17.	Go to step 14.
Step 14 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 15.	The problem is solved.

Action	Yes	No
Step 15 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 17.	Go to step 16.
Step 16 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 19.	Go to step 18.
Step 18 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 23.	Go to step 20.
Step 20 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 21.	The problem is solved.
Step 21 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 23.	Go to step 22.

Action	Yes	No
Step 22 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 23.	The problem is solved.
Step 23 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 27.	Go to step 24.
Step 24 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 25.	Go to step 26.
Step 25 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 27.	The problem is solved.
Step 27 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 29.

Action	Yes	No
Step 29 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Sensor (input) late-leaving jam (during duplex print) service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 4.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 7.	The problem is solved.

Action	Yes	No
Step 7 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 9.	Go to step 8.
Step 8 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 13.	Go to step 10.
Step 10 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 13.	Go to step 12.
Step 12 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 13.	The problem is solved.

Action	Yes	No
Step 13 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 15.	Go to step 14.
Step 14 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 19.	Go to step 16.
Step 16 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 19.	Go to step 18.
Step 18 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the transfer belt or transfer roller move?	Go to step 22.	Go to step 20.

Action	Yes	No
Step 20 Check the transfer module and its components for improper installation and damage. • Transfer belt • Transfer roller • Coupler gears Is the transfer module properly installed and free of damage?	Go to step 22.	Go to step 21.
Step 21 Reinstall or replace the transfer module. See **"Transfer module removal" on page 280**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. **Note:** The fuser rollers and exit rollers turn when the motor runs. Does the motor run?	Go to step 26.	Go to step 23.
Step 23 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of damage?	Go to step 26.	Go to step 25.
Step 25 Reinstall or replace the motor. See **"Motor (fuser) removal" on page 261**. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 30.	Go to step 27.

Action	Yes	No
Step 27 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components: • HVPS • LVPS • Fuser to controller board connections Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators Is the fuser free of damage?	Go to step 30.	Go to step 29.
Step 29 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 30.	The problem is solved.
Step 30 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 34.	Go to step 31.
Step 31 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 32.	Go to step 33.

Action	Yes	No
Step 32 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 34.	The problem is solved.
Step 34 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 35.	The problem is solved.
Step 35 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 36.
Step 36 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

241 paper jams

241 paper jam messages

Error code	Description	Action
241.05	Paper fed from the manual feeder cleared the sensor (input) later than expected.	See **"Sensor (input) late-leaving jam service check" on page 125**.
241.91	Paper remains detected at the sensor (input) after the printer is turned on.	See **"Sensor (input) static jam service check" on page 138**.

User attendance messages

0y user attendance errors

8–9 user attendance messages

Error code	Description	Action
8.01	Door A was detected as open.	See **"Undetected door A service check" on page 165**.
8.02	Door B was detected as open.	See **"Undetected door B service check" on page 167**.
9	A problem caused the printer to restart automatically.	See **"Auto reboot error service check" on page 169**.

Undetected door A service check

Action	Yes	No
Step 1 **a** Open all doors, and then clear any obstructions. **b** Close the doors properly. Make sure that there is no gap between the door and the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Check the front door and its components for improper installation. Make sure that the door links and hinges are properly engaged. **b** Check the front door and its interlock actuator for damage. Are the front door and its components properly installed and free of damage?	Go to step 4.	Go to step 3.
Step 3 Reinstall or replace the front door. See **"Front door removal" on page 278**. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the front door interlock switch. Does the switch status change while toggling the switch?	Go to step 6.	Go to step 5.

Action	Yes	No
Step 5 Check the switch for damage. Is the switch free of damage?	Go to step 6.	Go to step 11.
Step 6 Reseat the HVPS flat cables. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the cables for damage. Are the cables free of damage?	Go to step 9.	Go to step 8.
Step 8 Replace the affected cable. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 12.	Go to step 11.
Step 11 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 14.

Action	Yes	No
Step 14 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Undetected door B service check

Action	Yes	No
Step 1 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Go to step 3.	Go to step 2.
Step 2 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Fuser buckle). Does the sensor status change while toggling the sensor?	Go to step 7.	Go to step 7.
Step 4 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the sensor. See **"Sensor (fuser buckle) removal" on page 286**. Does the problem remain?	Go to step 7.	The problem is solved.

Action	Yes	No
Step 7 **a** Remove the left cover. See **"Left cover removal" on page 253**. **b** Remove the right cover. See **"Right cover removal" on page 266**. **c** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 9.	Go to step 8.
Step 8 Replace the affected cable. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Reseat the HVPS flat cables. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the cables for damage. Are the cables free of damage?	Go to step 12.	Go to step 11.
Step 11 Replace the affected cable. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 14.
Step 14 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Auto reboot error service check

Action	Yes	No
Step 1 Turn off the printer, wait for about 10 seconds, and then turn on the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Turn off the printer. **b** Turn on the printer and enter the Diagnostics menu. **c** Do a print test. **d** Restart the printer. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Check the controller board cables for damage. Are the cables free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the affected cables. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the firmware version. Is the firmware updated to the latest version?	Go to step 8.	Go to step 7.
Step 7 Update the firmware. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 9.

Action	Yes	No
Step 9 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

1y user attendance errors

11–12 user attendance messages

Error code	Description	Action
11.11	A wrong paper type or size was detected on tray 1.	See **"Paper loading error service check" on page 170**.
11.12	A wrong paper type, size, or orientation was detected on tray 1.	
11.81	A wrong paper type or size was detected on the manual feeder.	
11.82	A wrong paper type, size, or orientation was detected on the manual feeder.	
12.11	A wrong setting for paper type or size was detected on tray 1.	
12.12	A wrong setting for paper type, size, or orientation was detected on tray 1.	
12.81	A wrong setting for paper type or size was detected on the manual feeder.	
12.82	A wrong setting for paper type, size, or orientation was detected on the manual feeder.	

Paper loading error service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Go to step 7.	Go to step 6.
Step 6 Replace the tray insert. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the pick tires for improper installation, contamination, wear, and damage. Are the pick tires properly installed and free of contamination, wear, and damage?	Go to step 9.	Go to step 8.
Step 8 Reinstall, clean, or replace the pick tire. See **"Pick tire removal" on page 301**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Check the pick roller for improper mechanism. **Note:** After the pick roller is lowered, it must move automatically to its original position. **b** Check the pick roller for damage. Is the pick roller functional and free of damage?	Go to step 10.	Contact the next level of support.

Action	Yes	No
Step 10 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Input). Does the sensor status change while toggling the sensor?	Go to step 14.	Go to step 11.
Step 11 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 14.	Go to step 13.
Step 13 Reinstall or replace the sensor. See **"Sensor (input) removal" on page 292**. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 18.	Go to step 15.
Step 15 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 18.	Go to step 17.
Step 17 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 18.	The problem is solved.

Action	Yes	No
Step 18 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Pick clutch (Tray 1 or Manual Feed)** **b** Find the pick clutch, and then start the test. Does the clutch operate?	Go to step 22.	Go to step 19.
Step 19 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 20.	The problem is solved.
Step 20 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 22.	Go to step 21.
Step 21 Reinstall or replace the clutch. See **"Pick clutch removal" on page 264**. Does the problem remain?	Go to step 22.	The problem is solved.
Step 22 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** > **Staging clutch** **b** Find the staging clutch, and then start the test. Does the clutch operate?	Go to step 26.	Go to step 23.
Step 23 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the clutch cable. Does the problem remain?	Go to step 24.	The problem is solved.
Step 24 Check the clutch for improper installation and damage. Is the clutch properly installed and free of damage?	Go to step 26.	Go to step 25.

Action	Yes	No
Step 25 Reinstall or replace the clutch. See **"Staging clutch removal" on page 261**. Does the problem remain?	Go to step 26.	The problem is solved.
Step 26 Check the staging drive components for improper installation, wear, and damage. • Belt • Gear • Pulley Are the staging drive components properly installed and free of wear and damage?	Go to step 28.	Go to step 27.
Step 27 Reinstall or replace the affected staging belt, gear, or pulley. See **"Staging belt, gear, and pulley removal" on page 265**. Does the problem remain?	Go to step 28.	The problem is solved.
Step 28 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 32.	Go to step 29.
Step 29 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 30.	Go to step 31.
Step 30 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 31.	The problem is solved.

Action	Yes	No
Step 31 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 32.	The problem is solved.
Step 32 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 33.	The problem is solved.
Step 33 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 34.
Step 34 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

2y user attendance errors

24–29 user attendance messages

Error code	Description	Action
24.04	During a duplex print job, a mismatch between the actual paper size and paper size setting was detected.	See **"Paper size mismatch (duplex print) service check" on page 176**.
29.40	A disconnection was detected on the black print cartridge.	See **"Engine, supplies, and system errors service check" on page 221**.
29.41	A disconnection was detected on the cyan print cartridge.	
29.42	A disconnection was detected on the magenta print cartridge.	
29.43	A disconnection was detected on the yellow print cartridge.	
29.49	Disconnections were detected on multiple print cartridges.	

Paper size mismatch (duplex print) service check

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Bin/Narrow media). Does the sensor status change while toggling the sensor?	Go to step 10.	Go to step 10.

Action	Yes	No
Step 7 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the sensor on the controller board. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the sensor and its flag for improper installation and damage. Is the sensor properly installed and free of damage?	Go to step 10.	Go to step 9.
Step 9 Reinstall or replace the sensor. See **"Sensor (bin/narrow media) removal" on page 299**. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 **a** Check the rear door for improper installation, misalignment, and damage. **b** Check the rear door sensor flag for damage. **c** Check the rear door rollers and gears for wear, damage, and contamination. Are the rear door and its components properly installed and free of wear, damage, and contamination?	Contact the next level of support.	Go to step 11.
Step 11 Reinstall, clean, or replace the rear door. See **"Rear door removal" on page 285**. Does the problem remain?	Contact the next level of support.	The problem is solved.

3y user attendance errors

31–39 user attendance messages

Error code	Description	Action
31.40	A black print cartridge smart chip or sensor communication error was detected.	See **"Engine, supplies, and system errors service check" on page 221**.
31.41	A cyan print cartridge smart chip or sensor communication error was detected.	
31.42	A magenta print cartridge smart chip or sensor communication error was detected.	
31.43	A yellow print cartridge smart chip or sensor communication error was detected.	
32.40	Black print cartridge is unsupported.	
32.41	Cyan print cartridge is unsupported.	
32.42	Magenta print cartridge is unsupported.	
32.43	Yellow print cartridge is unsupported.	
33.40	A non-Lexmark black print cartridge was detected.	
33.41	A non-Lexmark cyan print cartridge was detected.	
33.42	A non-Lexmark magenta print cartridge was detected.	
33.43	A non-Lexmark yellow print cartridge was detected.	
34	The print area is too large for the paper.	See **"Insufficient paper size for print service check" on page 179**.
37.1	The document is too large to be collated.	See **"Insufficient memory service check" on page 180**
37.3	The memory is insufficient for the job. Some held jobs had to be removed.	
38.1	The memory is full.	
39.1	The page is too complex. The printer memory is not enough for the details on the page.	

Insufficient paper size for print service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Do a print test. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 **a** From the control panel, navigate to: **Settings** > **Paper** > **Media Configuration** > **Media Types** **b** Make sure that the printer settings for Texture and Weight match the paper being loaded. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Make sure that the paper loaded is supported and free of damage and defect. **Note:** To check for paper curl, print on both sides of the paper. Does the problem remain?	Go to step 8.	The problem is solved.

Action	Yes	No
Step 8 Load paper from a fresh package. **Note:** Paper absorbs moisture due to high humidity. Store paper in its original wrapper until you are ready to use it. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Contact the next level of support.	Go to step 10.
Step 10 Replace the tray insert. Does the problem remain?	Contact the next level of support.	The problem is solved.

Insufficient memory service check

Action	Yes	No
Step 1 **a** Delete the held jobs to free up printer memory. **b** Turn off the printer, wait for about 10 seconds, and then turn on the printer. **c** Resend the print job or scan job. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Do a print test. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Check the firmware version. Is the firmware updated to the latest version?	Go to step 5.	Go to step 4.
Step 4 Update the firmware. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 6.	The problem is solved.

Action	Yes	No
Step 6 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 7.
Step 7 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

42–55 user attendance errors

42–55 user attendance messages

Error code	Description	Action
42.xy	The print cartridge and printer regions are mismatched.	See **"Engine, supplies, and system errors service check" on page 221**.
55.1	The USB device is unsupported.	See **"Unsupported USB device or hub service check" on page 181**.
55.2	The USB hub is unsupported.	

Unsupported USB device or hub service check

Action	Yes	No
Step 1 Make sure that the flash drive supports the File Allocation Table (FAT) system. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Try another flash drive. Does the problem remain?	Go to step 3.	The problem is not with the printer. Replace the unsupported or defective flash drive.
Step 3 Check the firmware version. Is the firmware updated to the latest version?	Go to step 5.	Go to step 4.
Step 4 Update the firmware. Does the problem remain?	Go to step 5.	The problem is solved.

Action	Yes	No
Step 5 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 7.
Step 7 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

7y user attendance errors

71–72 user attendance messages

Error code	Description	Action
71.4	The printer time is wrong.	See **"Incorrect time service check" on page 182**.
72.1	The SMTP server is not set up.	See **"Server error service check" on page 183**.
72.2	The Weblink server is not set up.	

Incorrect time service check

Action	Yes	No
Step 1 **a** From the control panel, navigate to **Settings** > **Device** > **Preferences** > **Date and Time**. **b** Set the correct date and time. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Check the firmware version. Is the firmware updated to the latest version?	Go to step 4.	Go to step 3.
Step 3 Update the firmware. Does the problem remain?	Go to step 4.	The problem is solved.

Action	Yes	No
Step 4 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 6.
Step 6 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Server error service check

Action	Yes	No
Step 1 Turn off the printer, wait for about 10 seconds, and then turn on the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Make sure that the network connection is working. Contact the administrator if necessary. Does the problem remain?	Contact the next level of support.	The problem is solved.

8y user attendance errors

82–88 user attendance messages

Error code	Description	Action
82.00	The waste toner bottle is nearly low.	See **"Waste toner bottle error service check" on page 186**.
82.02	The waste toner bottle is nearly low. **Note:** The limit is based on waste toner counter set point.	
82.09	The waste toner bottle is nearly low. **Note:** The limit is based on user-selected EWS set point.	
82.12	The waste toner bottle is low. **Note:** The limit is based on waste toner counter set point.	
82.13	The waste toner bottle is low.	
82.19	The waste toner bottle is low. **Note:** The limit is based on user-selected EWS set point.	
82.20	The waste toner bottle is very low.	
82.22	The waste toner bottle is very low. **Note:** The limit is based on waste toner counter set point.	
82.23	The waste toner bottle is very low.	
82.29	The waste toner bottle is very low. **Note:** The limit is based on user-selected EWS set point.	

Error code	Description	Action
82.30	The waste toner bottle is empty.	See **"Waste toner bottle error service check" on page 186**.
82.32	The waste toner bottle is empty. **Note:** The limit is based on waste toner counter set point.	
82.33	The waste toner bottle is empty.	
82.39	The waste toner bottle is empty. **Note:** The limit is based on user-selected EWS set point.	
82.40	The waste toner bottle life has ended.	
82.42	The waste toner bottle life has ended. **Note:** The limit is based on waste toner counter set point.	
82.49	The waste toner bottle life has ended. **Note:** The limit is based on user-selected EWS set point.	
88.00	The print cartridge is nearly low. **Note:** The limit is based on default set point.	See **"Low or empty print cartridge service check" on page 188**.
88.01	The print cartridge is nearly low.	
88.02	The print cartridge is nearly low.	See **"Waste toner bottle error service check" on page 186**.
88.09	The print cartridge is nearly low. **Note:** The limit is based on user-selected EWS set point.	See **"Low or empty print cartridge service check" on page 188**.
88.10	The print cartridge is low. **Note:** The limit is based on default set point.	
88.11	The print cartridge is low.	
88.12	The print cartridge is low.	
88.19	The print cartridge is low. **Note:** The limit is based on user-selected EWS set point.	
88.20	The print cartridge is very low. **Note:** The limit is based on default set point.	
88.21	The print cartridge is very low.	
88.22	The print cartridge is very low.	
88.29	The print cartridge is very low. **Note:** The limit is based on user-selected EWS set point.	

Error code	Description	Action
88.30	The print cartridge is empty.	See **"Low or empty print cartridge service check" on page 188**.
88.31	The print cartridge is empty.	
88.32	The print cartridge is empty.	
88.40	The print cartridge is empty. The printer forces a hard stop on the cartridge.	
88.41	The print cartridge is empty. The printer forces a hard stop on the cartridge.	
88.42	The print cartridge is empty. The printer forces a hard stop on the cartridge.	
88.48	The print cartridge is empty. The printer forces a hard stop on the cartridge.	

Waste toner bottle error service check

Action	Yes	No
Step 1 Reinstall the waste toner bottle. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Tap the waste toner bottle to dislodge the toner particles from its walls. **b** Check if the waste toner bottle is full. **Note:** If the level of the waste toner reaches the sensor detection area, then the waste toner bottle is already full. **c** Check the waste toner bottle for damage. Is the waste toner bottle full or damaged?	Go to step 3.	Go to step 4.
Step 3 Replace the waste toner bottle. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Waste toner bottle). Does the sensor status change while toggling the sensor?	Go to step 10.	Go to step 5.

Action	Yes	No
Step 5 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Reseat the cable of the sensor on the HVPS. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the cable for damage. Is the cable free of damage?	Go to step 8.	Go to step 7.
Step 7 Replace the cable. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the sensor and its flag for improper installation, contamination, and damage. Is the sensor properly installed and free of contamination and damage?	Go to step 10.	Go to step 9.
Step 9 Reinstall, clean, or replace the sensor. See **"Sensor (waste toner bottle) removal" on page 269**. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Perform the sensor (waste toner bottle) calibration. See **"Sensor (waste toner bottle) calibration" on page 252**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Reseat the HVPS flat cables. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the cables for damage. Are the cables free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the affected cable. Does the problem remain?	Go to step 14.	The problem is solved.

Action	Yes	No
Step 14 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 17.	Go to step 16.
Step 16 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 19.
Step 19 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Low or empty print cartridge service check

Action	Yes	No
Step 1 **a** Access the Embedded Web Server. **b** Disable the Custom Supply Levels setting. Does the problem remain?	Go to step 2.	The problem is solved.

Action	Yes	No
Step 2 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the cartridge for damage and leaks. **b** Check the cartridge smart chip contacts for improper connections. • Corrosion and contamination • Loose connection with the HVPS contacts Is the cartridge free of damage, leaks, and contamination?	Go to step 5.	Go to step 4.
Step 4 Clean the contaminated contacts or replace the affected cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 7.	Go to step 6.
Step 6 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 9.	Go to step 8.
Step 8 Replace the cartridge tray. See **“Print cartridge tray removal” on page 275**. Does the problem remain?	Go to step 9.	The problem is solved.

Action	Yes	No
Step 9 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 12.	Go to step 11.
Step 11 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Reseat the HVPS flat cables. Does the problem remain?	Go to step 13.	The problem is solved.
Step 13 Check the cables for damage. Are the cables free of damage?	Go to step 15.	Go to step 14.
Step 14 Replace the affected cable. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check the firmware version. Is the firmware updated to the latest version?	Go to step 17.	Go to step 16.
Step 16 Update the firmware. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.

Action	Yes	No
Step 18 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 19.
Step 19 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

9y user attendance errors

96–99 user attendance messages

Error code	Description	Action
96.xx	A firmware error (invalid option code) was detected.	See **"Firmware code error service check" on page 191**.
97.xx	A firmware error (printhead code CRC failure) was detected.	See **"Printhead code error service check" on page 193**.
98.xx	A firmware error (engine code CRC failure) was detected.	See **"Firmware code error service check" on page 191**.
99.xx	A firmware error (invalid RIP code) was detected.	

Firmware code error service check

Action	Yes	No
Step 1 Turn off the printer, wait for about 10 seconds, and then turn on the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Turn off the printer. **b** Turn on the printer and enter the Diagnostics menu. **c** Do a print test. **d** Restart the printer. Does the problem remain?	Go to step 3.	The problem is solved.

Action	Yes	No
Step 3 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Check the controller board cables for damage. Are the cables free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the affected cables. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the firmware version. Is the firmware updated to the latest version?	Go to step 8.	Go to step 7.
Step 7 Update the firmware. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 9.
Step 9 Replace the controller board. See **“Controller board removal” on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Printhead code error service check

Action	Yes	No
Step 1 Turn off the printer, wait for about 10 seconds, and then turn on the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 4.	Go to step 3.
Step 3 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the cables for damage. Are the cables free of damage?	Go to step 7.	Go to step 6.
Step 6 Replace the affected cable. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the firmware version. Is the firmware updated to the latest version?	Go to step 9.	Go to step 8.
Step 8 Update the firmware. Does the problem remain?	Go to step 9.	The problem is solved.

Action	Yes	No
Step 9 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 11.
Step 11 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Printer hardware errors

100–110 errors

100 error messages

Error code	Description	Action
100.04	The printhead temperature is out of range.	See **"Printhead temperature error service check" on page 195**.
100.25	The TPS temperature is out of range. **Note:** TPS stands for *toner patch sensing*.	See **"Toner patch sensing error service check" on page 197**.

110 error messages

Error code	Description	Action
110.20	Printhead error (mirror motor lock) was detected before the motor was turned on.	See **"Printhead temperature error service check" on page 195**.
110.21	No printhead power (+5V) when the laser servo started.	
110.31	Printhead error (no first HSYNC) was detected.	
110.32	Printhead error (lost HSYNC) was detected.	
110.33	Printhead error (lost HSYNC) was detected during servo.	
110.34	Printhead error (mirror motor lost lock) was detected.	
110.35	Printhead error (mirror motor never got first lock) was detected.	
110.36	Printhead error (mirror motor lock never stabilized) was detected.	
110.37	Printhead error (undetermined printhead type) was detected.	
110.41	Printhead NVRAM read failure occurred.	See **"Printhead temperature error service check" on page 195**.
110.70	Printhead NVRAM contents are incorrect.	
110.71	Printhead error (bad facet time measurement) was detected.	
110.91	Printhead error (bad facet time reading) was detected.	
110.92	Printhead error (NVRAM checksum mismatch) was detected.	

Printhead temperature error service check

Action	Yes	No
Step 1 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Check the cables for damage. Are the cables free of damage?	Go to step 4.	Go to step 3.

Action	Yes	No
Step 3 Replace the affected cable. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Make sure that the printhead interlock switch is properly installed. Reseat the printhead interlock switch cable. **b** Check the printhead interlock switch for damage. Is the printhead interlock switch free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the printhead interlock switch. See **"Printhead interlock switch removal" on page 277**. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the firmware version. Is the firmware updated to the latest version?	Go to step 8.	Go to step 7.
Step 7 Update the firmware. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 10.	Go to step 9.
Step 9 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 11.	The problem is solved.

Action	Yes	No
Step 11 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 12.
Step 12 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Toner patch sensing error service check

Action	Yes	No
Step 1 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** > **TPS L and R** **b** Insert a sheet of paper between the transfer belt and sensor (TPS). Do the sensor values change?	Go to step 5.	Go to step 2.
Step 2 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the TPS sensor cables on the controller board. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Check the TPS sensor cables for damage. Are the cables free of damage?	Go to step 5.	Go to step 4.
Step 4 Replace the affected TPS sensor cable. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 6.	The problem is solved.

Action	Yes	No
Step 6 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 7.
Step 7 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

12y errors

121 error messages

Error code	Description	Action
121.00	Fuser did not reach the required temperature (during warm up).	See **"Fuser temperature error service check" on page 200**.
121.01	During an attempt to heat up, the fuser was not detected.	
121.02	Fuser went over the required temperature (during EWC/line voltage detection).	
121.03	Fuser hardware and driver are mismatched.	
121.04	During an attempt to heat up, the fuser relay was open and the microcontroller was not reporting an error.	
121.09	Fuser fell below the required temperature for motors. **Note:** Error is not applicable to standby mode.	

Error code	Description	Action
121.10	Fuser did not reach the required temperature (during start of EWC/line voltage detection).	See **"Fuser temperature error service check" on page 200**.
121.11	Fuser reached the required temperature (during final EWC/line voltage detection) too late.	
121.12	Fuser did not reach the required temperature (during final EWC/line voltage detection).	
121.13	Fuser reached the required temperature (during final EWC/line voltage detection) too fast.	
121.22	Open fuser relay was detected.	
121.23	Open fuser relay was detected by the engine code, though the fuser relay was turned off.	
121.32	Fuser did not reach the required temperature (on 100% power).	
121.33	Fuser did not reach the required temperature (while page is in the fuser).	
121.34	Fuser did not reach the required temperature (during steady state control).	
121.36	Open fuser relay was detected with very cold or unknown ambient temperature.	
121.50	Fuser went over the required temperature (during global overtemp check).	See **"Fuser temperature error service check" on page 200**.
121.52	Main thermistor temperature is out of range.	
121.53	Main thermistor temperature change rate is out of range.	
121.71	Open fuser main heater thermistor was detected.	
121.81	Open fuser backup roll thermistor was detected.	
121.86	Backup thermistor temperature is out of range.	
121.87	Backup thermistor temperature change rate is out of range.	

126 error messages

Error code	Description	Action
126.05	The LVPS switched power output dropped but the printer was not in Sleep mode.	See **"LVPS failure service check" on page 203**.
126.06	LVPS 25 V output was not up on time after power-on.	
126.07	Sensor rail was down during power-on.	
126.10	No line frequency was detected.	
126.11	Line frequency has gone outside the operating range.	
126.14	LVPS relay is closed, but stuck.	

Fuser temperature error service check

Action	Yes	No
Step 1 **a** Make sure that the power cord is properly connected to the printer and electrical outlet. **b** Make sure that the electrical outlet supplies the correct voltage. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 3.	Go to step 7.
Step 3 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 6.	Go to step 4.

Action	Yes	No
Step 4 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the affected cable. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 8.	Go to step 7.
Step 7 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Reseat the HVPS flat cables. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cables for damage. Are the cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.

Action	Yes	No
Step 11 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 14.	Go to step 13.
Step 13 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check if the LVPS voltage rating matches the fuser voltage rating. Does the LVPS have the correct voltage rating?	Go to step 15.	Go to step 17.
Step 15 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Reseat the LVPS cables. Does the problem remain?	Go to step 16.	The problem is solved.
Step 16 Check the cable from the power inlet to the LVPS board for improper connection and damage. Is the cable properly connected and free of damage?	Go to step 18.	Go to step 17.
Step 17 Replace the LVPS. See **"LVPS removal" on page 272**. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 20.

Action	Yes	No
Step 20 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

LVPS failure service check

Action	Yes	No
Step 1 **a** Make sure that the power cord is properly connected to the printer and electrical outlet. **b** Make sure that the electrical outlet supplies the correct voltage. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Open the rear door, and then reseat the fuser cable. **b** Reseat the cable JTHERM1 on the controller board. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Check if the LVPS voltage rating matches the fuser voltage rating. Does the LVPS have the correct voltage rating?	Go to step 4.	Go to step 6.
Step 4 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Reseat the LVPS cables. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the cable from the power inlet to the LVPS board for improper connection and damage. Is the cable properly connected and free of damage?	Go to step 7.	Go to step 6.
Step 6 Replace the LVPS. See **"LVPS removal" on page 272**. Does the problem remain?	Go to step 7.	The problem is solved.

Action	Yes	No
Step 7 Check if the fuser voltage rating matches the printer and electrical outlet voltage rating. Does the fuser have the correct voltage rating?	Go to step 8.	Go to step 12.
Step 8 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **Fuser**, and then start the test. Do the fuser rollers and exit rollers turn?	Go to step 11.	Go to step 9.
Step 9 **a** Make sure that the fuser is properly installed. **b** Remove the left cover. See **"Left cover removal" on page 253**. **c** Remove the right cover. See **"Right cover removal" on page 266**. **d** Reseat the fuser cables from the following components, and then check the cables for damage: • HVPS • LVPS • Fuser to controller board connections Are the fuser cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Check the fuser and its components for damage. • Gears • Rollers • Cable • Guides and actuators • Thermistor Is the fuser free of damage?	Go to step 13.	Go to step 12.
Step 12 Replace the fuser. See **"Fuser removal" on page 287**. Does the problem remain?	Go to step 13.	The problem is solved.

Action	Yes	No
Step 13 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 15.
Step 15 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

142 errors

142 error messages

Error code	Description	Action
142.80	Motor (CMY) does not turn on.	See **"Motor (CMY) drive failure service check" on page 205**.
142.81	Motor (CMY) does not turn off.	
142.82	Motor (CMY) speed did not ramp up to the required level.	
142.83	Motor (CMY) stalled.	
142.84	Motor (CMY) ran too slow.	
142.85	Motor (CMY) ran too fast.	
142.86	Motor (CMY) moved too long.	

Motor (CMY) drive failure service check

Action	Yes	No
Step 1 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **CMY**, and then start the test. Does the motor run?	Go to step 7.	Go to step 2.

Action	Yes	No
Step 2 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Check the cable for damage. Is the cable free of damage?	Go to step 5.	Go to step 4.
Step 4 Replace the cable. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the motor. See **"Motor (CMY) removal" on page 255**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 11.	Go to step 8.
Step 8 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 9.	Go to step 10.

Action	Yes	No
Step 9 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 13.
Step 13 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

151 errors

151 error messages

Error code	Description	Action
151.80	Motor (K) does not turn on.	See **"Motor (K) drive failure service check" on page 208**.
151.81	Motor (K) does not turn off.	
151.82	Motor (K) speed did not ramp up to the required level.	
151.83	Motor (K) stalled.	
151.84	Motor (K) ran too slow.	
151.85	Motor (K) ran too fast.	
151.86	Motor (K) moved too long.	

Motor (K) drive failure service check

Action	Yes	No
Step 1 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Select **K/Transfer belt**, and then start the test. Does the motor run?	Go to step 7.	Go to step 2.
Step 2 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable on the motor and on the controller board. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Check the cable for damage. Is the cable free of damage?	Go to step 5.	Go to step 4.
Step 4 Replace the cable. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the motor for improper installation, wear, and damage. Is the motor properly installed and free of wear and damage?	Go to step 7.	Go to step 6.
Step 6 Reinstall or replace the motor. See **"Motor (K/transfer belt) removal" on page 256**. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Motor tests** **b** Run the test on the following motors and clutches. In each test, check the gears for lack of movement and unusual noise. • CMY • K/Transfer belt • Pick clutch • Staging clutch Do the gears move properly without unusual noise?	Go to step 11.	Go to step 8.

Action	Yes	No
Step 8 Check the gearbox gears and couplers for wear and damage. • Drive gears for all print cartridges and transfer belt • Drive gears that engage with the clutches • Couplers for all print cartridges and the transfer belt Are the gears and couplers free of wear and damage?	Go to step 9.	Go to step 10.
Step 9 **a** Remove the gearbox. See **"Gearbox removal" on page 262**. **b** Make sure that the gearbox gears are properly lubricated. **c** Reinstall the gearbox. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Replace the gearbox. See **"Gearbox removal" on page 262**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 13.
Step 13 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

6yy errors

600–621 error messages

Error code	Description	Action
600.95	RIP intentionally declared a jam error, usually to prevent a kiosk user from printing free pages.	See **"RIP error service check" on page 210**.
611.32	Lost HSYNC errors were detected. Laser safety interlock system may be the cause.	See **"Printhead communication error service check" on page 211**.
611.34	A mirror motor lock error was detected.	

Error code	Description	Action
611.72	A facet map failure error occurred.	See **"Printhead temperature error service check" on page 195**.
621.01	The fuser heater was not hot enough when the paper entered the fuser nip.	See **"Fuser temperature error service check" on page 200**.

RIP error service check

Action	Yes	No
Step 1 **a** Open all printer doors, and then remove the manual feeder and tray. **b** Check the paper path, tray, and bin for paper fragments and partially fed paper. Are the paper path, bin, and tray free of paper fragments and partially fed paper?	Go to step 3.	The problem is solved.
Step 2 Remove the paper fragments and partially fed paper. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Reseat the HVPS flat cables. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Check the cables for damage. Are the cables free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the affected cable. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 8.

Action	Yes	No
Step 8 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Printhead communication error service check

Action	Yes	No
Step 1 **a** Open all doors, and then clear any obstructions. **b** Close the doors properly. Make sure that there is no gap between the door and the printer. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Check the front door and its components for improper installation. Make sure that the door links and hinges are properly engaged. **b** Check the front door and its interlock actuator for damage. Are the front door and its components properly installed and free of damage?	Go to step 4.	Go to step 3.
Step 3 Reinstall or replace the front door. See **"Front door removal" on page 278**. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 **a** Make sure that the printhead interlock switch is properly installed. Reseat the printhead interlock switch cable. **b** Check the printhead interlock switch for damage. Is the printhead interlock switch free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the printhead interlock switch. See **"Printhead interlock switch removal" on page 277**. Does the problem remain?	Go to step 6.	The problem is solved.

Action	Yes	No
Step 6 **a** Check the printhead and its components for damage. • Flat cable • Connector sockets **b** Check the printhead mirrors for contamination. Is the printhead free of damage and contamination?	Go to step 8.	Go to step 7.
Step 7 Clean or replace the printhead. See **"Printhead removal" on page 295**. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 **a** Reseat the flat cables on the printhead. **b** Reseat the printhead cables on the controller board. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cables for damage. Are the cables free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the affected cable. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 13.
Step 13 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Procedure before starting the 9yy service checks

Retrieve certain information that helps your next level of support in diagnosing the problem before replacing the controller board.

Warning—Potential Damage: Do not replace the controller board unless instructed by your next level of support.

1. Collect the history information and firmware logs (Fwdebug and logs.tar.gz) from the SE menu.
2. Collect the settings from the Menu Settings Page.
3. Collect information from the user.

   Note: Not all of the items are retrievable from the printer that you are working on.

A. Collecting the history information from the SE menu

Note: Make sure that your printer is connected to a network or to a print server.

1. Open a web browser, type **`http://printer_IP_address/se`**, and then press **Enter**.

   Notes:

   - **`printer_IP_address`** is the TCP/IP address of the printer.
   - **`se`** is required to access the printer diagnostic information.
2. Click **History Information**, copy all information, and then save it as a text file.
3. E-mail the text file to your next level of support.

B. Collecting the firmware logs (Fwdebug and logs.tar.gz) from the SE menu

Notes:

- Make sure that your printer is connected to a network or to a print server.
- Some printers are designed to restart automatically after a 9yy error. On these printers, you can retrieve the secondary crash code information using the SE menu.

1. Open a web browser, type **`http://printer_IP_address/se`**, and then press **Enter**.
2. Click **Logs Gzip Compressed**.

   Note: A logs.tar.gz file is saved to the Downloads folder. The file may take several minutes to save. You may rename the file if a logs.tar.gz already exists in the Downloads folder.
3. E-mail the logs to your next level of support.

   Note: To download the FWdebug log to a flash drive, see **"General SE Menu" on page 237**.

C. Collecting the settings from the Menu Settings Page

Note: The Menu Settings Page is different for each printer. For more information, see the *User's Guide*. Your next level of support will tell you which page they want to see.

Copying the Menu Settings Page from the Embedded Web Server (EWS)

Note: Make sure that your printer is connected to a network or to a print server.

1. Open a web browser, type **`http://printer_IP_address`**, and then press **Enter**.
2. Click Settings, and then select one of the settings pages from the links shown on the page.
3. Copy all the information, and then save it as a text file.
4. E-mail the text file to your next level of support.

Printing the Menu Settings Page

1. From the home screen, navigate to:

   Reports > **Menu Settings Page**
2. Print the Menu Settings Page, and then use Scan to E-mail to send it to your next level of support.

D. Collecting information from the user

Ask the user for information about the following:

- Print job being run
- Operating system being used
- Print driver being used
- Other information on what was happening when the 9yy error occurred

90y errors

900-909 error messages

Error code	Description	Action
900-909.xx	RIP firmware errors	See **"System software error service check" on page 214**.

System software error service check

Different types of 90y.xx errors can occur. There may be a communication problem (bad cable, network connection, and software issues), or a hardware problem with the controller board or ISP (internal solutions port). Check the communication and software problems first. Determine if the problem is constant or intermittent. Use the following troubleshooting procedure to isolate the issue. Take notes as instructed. You will need that information in the event that you need to contact your next level of support.

Before troubleshooting, do the following:

1. Perform the **"Procedure before starting the 9yy service checks" on page 213**.
2. Determine the operating system used when the error occurred. If possible, determine whether a PostScript™ or PCL™ file was sent to the printer when the error occurred. Ask the customer which Lexmark Solutions applications are installed on the printer.

Action	Yes	No
Step 1 Perform a POR. Does the error remain?	Go to step 2.	The problem is solved.
Step 2 **a** Write down the exact 900.xx error code that appears on the display. **b** Turn off the printer. **c** Clear the print queues. **d** Disconnect all communication cables, and then remove all memory options. **e** Remove any installed ISP. **f** Reset the printer into the Diagnostics menu. Does the problem remain?	Go to step 3.	Go to step 6.
Step 3 Check all the cables on the controller board for proper connection. Are the cables properly connected?	Go to step 5.	Go to step 4.
Step 4 **a** Reconnect the cables. **b** Reset the printer into the Diagnostics menu. Does the problem remain?	Go to step 5.	Go to step 6.
Step 5 **a** Replace the controller board. See **"Controller board removal" on page 257**. **b** Reset the printer. **Note:** If a different error code displays, then go to the service check for that error code. Does the problem remain?	Go to step 31.	The problem is solved.
Step 6 Print the following: • Error Log • Menu Settings Page • Network Settings Page Does the problem remain while printing these pages?	Go to step 31.	Go to step 7.

Action	Yes	No
Step 7 **Note:** Before performing this step, write down the following information about the file being sent to the printer: • Application used • Operating system • Driver type • File type (PCL, PostScript, XPS, etc.) **a** Reattach the communications cable. **b** Reset the printer. **c** Perform a print job. Does the problem remain?	Go to step 8.	Go to step 10.
Step 8 **a** Reset the printer. **b** Perform a different print job. Does the problem remain?	Go to step 9.	Go to step 10.
Step 9 **a** Upgrade the firmware. **Note:** Contact your next level of support for the correct firmware level to use. **b** Reset the printer. **c** Perform a print job. Does the problem remain?	Go to step 31.	Go to step 10.
Step 10 Verify if the printer is an MFP. Is the printer an MFP?	Go to step 11.	Go to step 13.
Step 11 Perform a copy job. Does the problem remain?	Go to step 31.	Go to step 12.
Step 12 Scan a document to the computer. Does the problem remain?	Go to step 31.	Go to step 13.
Step 13 Verify if an optional memory is installed. Is there an optional memory installed?	Go to step 14.	Go to step 16.

Action	Yes	No
Step 14 **a** Reinstall the memory. **b** Perform a print job. Does the problem remain?	Go to step 15.	Go to step 16.
Step 15 **a** Install a Lexmark-recommended memory option. **b** Perform a print job. Does the problem remain?	Go to step 31.	The problem is solved.
Step 16 Verify if a modem is installed. Is a modem installed?	Go to step 17.	Go to step 21.
Step 17 **a** Reinstall the modem. **b** Reset the printer. Does the problem remain?	Go to step 18.	Go to step 20.
Step 18 **a** Upgrade the firmware if it was not upgraded in a previous step. **Note:** Contact your next level of support for the correct firmware level to use. **b** Reset the printer. **c** Perform a print job. Does the problem remain?	Go to step 19.	The problem is solved.
Step 19 **a** Replace the modem. **b** Reset the printer. Does the problem remain?	Go to step 31.	The problem is solved.
Step 20 Perform a fax job. Does the problem remain?	Go to step 31.	Go to step 21.
Step 21 Verify if an ISP option is installed. Is an ISP option installed?	Go to step 22.	The problem is solved.

Action	Yes	No
Step 22 **a** Reinstall the first ISP option. **b** Reset the printer. Does the problem remain?	Go to step 24.	Go to step 23.
Step 23 Perform a job to test the option. Does the problem remain?	Go to step 24.	Go to step 26.
Step 24 **a** Upgrade the firmware if it was not upgraded in a previous step. **Note:** Contact your next level of support for the correct firmware level to use. **b** Reset the printer. **c** Perform a print job. Does the problem remain?	Go to step 25.	The problem is solved.
Step 25 **a** Replace the faulty ISP option. **b** Reset the printer. Does the problem remain?	Go to step 31.	Go to step 26.
Step 26 Verify if there are more ISP options to install. Are there more ISP options to install?	Go to step 27.	The problem is solved.
Step 27 **a** Install the next ISP option. **b** Reset the printer. Does the problem remain?	Go to step 29.	Go to step 28.
Step 28 Perform a job to test the option. Does the problem remain?	Go to step 29.	Go to step 26.

Action	Yes	No
Step 29 **a** Upgrade the firmware if it was not upgraded in a previous step. **Note:** Contact your next level of support for the correct firmware level to use. **b** Reset the printer. **c** Send a print job. Does the problem remain?	Go to step 30.	Go to step 26.
Step 30 **a** Replace the faulty ISP option. **b** Reset the printer. Does the problem remain?	Go to step 31.	Go to step 26.
Step 31 Contact your next level of support. Provide the following information: • Exact 90y.xx error digits and complete error message • Printed Menu Settings Page • Printed Network Settings Page • Device error log • A sample print file if the error appears isolated to a single file • File/Application used if the error is related to specific print file • Device operating system • Driver used (PCL/PS) • Frequency of the occurrence of the error		

912–938 errors

912–938 error messages

Error code	Description	Action
912.05	An engine error occurred.	See **"Engine, supplies, and system errors service check" on page 221**.
912.15	An engine error occurred.	
912.16	An engine error occurred.	
912.17	An engine error occurred.	
912.19	An engine error occurred.	
912.28	An engine error occurred.	
912.32	An engine error occurred.	See **"Printhead temperature error service check" on page 195**.
912.33	An engine error occurred.	See **"LVPS failure service check" on page 203**.

Error code	Description	Action
912.34	An engine error occurred.	See **"Engine, supplies, and system errors service check" on page 221**.
912.35	An engine error occurred.	
912.39	An engine error occurred.	
912.40	An engine error occurred.	
912.42	An engine error occurred.	
912.44	An engine error occurred.	
912.45	An engine error occurred.	
912.46	An engine error occurred.	
912.48	An engine error occurred.	
912.49	An engine error occurred.	
912.52	An engine error occurred.	
912.57	An engine error occurred.	
912.58	An engine error occurred.	
912.60	An engine error occurred.	See **"Printhead temperature error service check" on page 195**.
912.61	An engine error occurred.	See **"Engine, supplies, and system errors service check" on page 221**.
912.64	An engine error occurred.	
912.65	An engine error occurred.	
912.66	An engine error occurred.	
912.69	An engine error occurred.	
912.70	An engine error occurred.	
912.72	An engine error occurred.	
912.74	An engine error occurred.	
912.76	An engine error occurred.	
912.77	An engine error occurred.	
912.79	An engine error occurred.	
912.80	An engine error occurred.	See **"Toner patch sensing error service check" on page 197**.
912.86	An engine error occurred.	See **"Engine, supplies, and system errors service check" on page 221**.
938.04	Supplies security is not enabled.	

Engine, supplies, and system errors service check

Action	Yes	No
Step 1 Remove any packing material that is left on the affected print cartridge. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 **a** Make sure that the cartridge is a genuine and supported Lexmark supply. **b** Make sure that the cartridge region matches the printer region. **Note:** The worldwide region is compatible with all printer regions. **c** Firmly shake the cartridge to redistribute the toner. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 Is the affected print cartridge near end of life?	Go to step 6.	Go to step 4.
Step 4 **a** Firmly shake the cartridge to redistribute the toner. **b** Make sure that the affected print cartridge is properly installed. **Note:** The cartridge must fit and lock properly with the print cartridge tray. No packing material must be left on the cartridge. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 Check the cartridge smart chip contacts for corrosion and contamination. Is the cartridge free of damage and contamination?	Go to step 7.	Go to step 6.
Step 6 Clean the contacts or replace the cartridge. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 **a** Pull out the print cartridge tray, and then remove all the print cartridges. **b** Check the cartridge tray for proper movement. Does the cartridge tray open and close properly?	Go to step 9.	Go to step 8.

Action	Yes	No
Step 8 **a** Remove any obstructions that hinder the cartridge tray. **b** Reinstall the cartridge tray. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Check the cartridge tray and its components for damage. • Print cartridge locking mechanisms • Sliding mechanism under the cartridge tray • Latch mechanism Is the cartridge tray free of damage?	Go to step 11.	Go to step 10.
Step 10 Replace the cartridge tray. See **"Print cartridge tray removal" on page 275**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Reseat the HVPS flat cables. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the cables for damage. Are the cables free of damage?	Go to step 14.	Go to step 13.
Step 13 Replace the affected cable. Does the problem remain?	Go to step 14.	The problem is solved.
Step 14 **a** Make sure that the HVPS is properly installed. **b** Reseat all the cables on the HVPS. **c** Properly align the spring contacts. Does the problem remain?	Go to step 15.	The problem is solved.
Step 15 Check the HVPS contacts for contamination and damage. Are the HVPS contacts free of contamination and damage?	Go to step 17.	Go to step 16.

Action	Yes	No
Step 16 Clean or replace the HVPS. See **"HVPS removal" on page 270**. Does the problem remain?	Go to step 17.	The problem is solved.
Step 17 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 18.	The problem is solved.
Step 18 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 19.
Step 19 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Other symptoms

Base printer symptoms

Base printer symptoms

Symptom	Action
Tray 1 is undetected when inserted or removed.	See **"Tray present error service check" on page 223**.
The control panel has no power.	See **"Blank control panel display service check" on page 225**.

Tray present error service check

Action	Yes	No
Step 1 **a** Make sure that the paper is properly loaded in the tray and manual feeder. See **"Avoiding jams" on page 122**. **b** Make sure that the tray and manual feeder are properly installed. Does the problem remain?	Go to step 2.	The problem is solved.

Action	Yes	No
Step 2 **a** From the control panel, navigate to: **Settings** > **Paper** > **Tray Configuration** > **Paper Size/Type** **b** Make sure that the setting matches the paper loaded. Does the problem remain?	Go to step 3.	The problem is solved.
Step 3 **a** Check the tray insert and its guides for damage. **b** Check the tray insert pads for wear and damage. Is the tray insert free of damage?	Go to step 5.	Go to step 4.
Step 4 Replace the tray insert. Does the problem remain?	Go to step 5.	The problem is solved.
Step 5 **a** Enter the Diagnostics menu, and then navigate to: **Printer diagnostics and adjustments** > **Sensor tests** **b** Find the sensor (Tray present). **c** Remove or insert the tray to toggle the tray interlock switch. Does the sensor status change while toggling the switch?	Go to step 9.	Go to step 6.
Step 6 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Reseat the cable of the switch on the controller board. Does the problem remain?	Go to step 7.	The problem is solved.
Step 7 Check the switch for improper installation and damage. Is the switch properly installed and free of damage?	Go to step 9.	Go to step 8.
Step 8 Reinstall or replace the switch. See **"Tray interlock switch removal" on page 302**. Does the problem remain?	Go to step 9.	The problem is solved.
Step 9 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 10.	The problem is solved.

Action	Yes	No
Step 10 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 11.
Step 11 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Blank control panel display service check

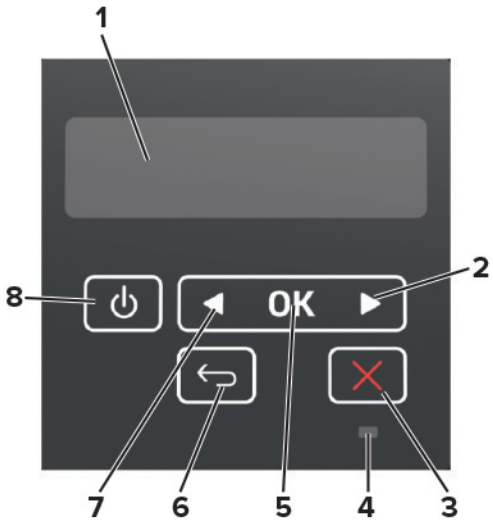
Action	Yes	No
Step 1 **a** Make sure that the power cord is properly connected to the printer and electrical outlet. **b** Make sure that the electrical outlet supplies the correct voltage. Does the problem remain?	Go to step 2.	The problem is solved.
Step 2 Check if the LVPS voltage rating matches the fuser voltage rating. Does the LVPS have the correct voltage rating?	Go to step 3.	Go to step 5.
Step 3 **a** Remove the right cover. See **"Right cover removal" on page 266**. **b** Reseat the LVPS cables. Does the problem remain?	Go to step 4.	The problem is solved.
Step 4 Check the cable from the power inlet to the LVPS board for improper connection and damage. Is the cable properly connected and free of damage?	Go to step 6.	Go to step 5.
Step 5 Replace the LVPS. See **"LVPS removal" on page 272**. Does the problem remain?	Go to step 6.	The problem is solved.
Step 6 Check the control panel for damage. Is the control panel free of damage?	Go to step 7.	Go to step 10.

Action	Yes	No
Step 7 **a** Remove the controller board shield. See **"Controller board shield removal" on page 257**. **b** Remove the top cover. See **"Top cover removal" on page 293**. **c** Reseat the cable on the control panel and controller board. Does the problem remain?	Go to step 8.	The problem is solved.
Step 8 Check the control panel flat cable for damage. Is the flat cable free of damage?	Go to step 10.	Go to step 9.
Step 9 Replace the cable. Does the problem remain?	Go to step 10.	The problem is solved.
Step 10 Replace the control panel. See **"Control panel removal" on page 276**. Does the problem remain?	Go to step 11.	The problem is solved.
Step 11 Make sure that the controller board is properly installed. Reseat all the cables on the controller board. Does the problem remain?	Go to step 12.	The problem is solved.
Step 12 Check the controller board and its connector pins for damage. Are the controller board and its connectors free of damage?	Contact the next level of support.	Go to step 13.
Step 13 Replace the controller board. See **"Controller board removal" on page 257**. Does the problem remain?	Contact the next level of support.	The problem is solved.

Service menus

Understanding the printer control panel

Using the control panel



	Control panel part	Function
1	Display	• View printer messages and supply status. • Set up and operate the printer.
2	Right arrow button	• Scroll through menus or move between screens and menu options. • Increase the numeric value of a setting.
3	Stop or Cancel button	Stop the current job.
4	Indicator light	Check the status of the printer.
5	Select button	• Select a menu option. • Save the changes in a setting.
6	Back button	Return to the previous screen.
7	Left arrow button	• Scroll through menus or move between screens and menu options. • Decrease the numeric value of a setting.
8	Power button	Turn on or turn off the printer. **Note:** To turn off the printer, press and hold the power button for five seconds.

Understanding the status of the indicator light

Indicator light	Printer status
Off	The printer is off or in Hibernate mode.
Blue	The printer is ready or processing data.
Blinking red	The printer requires user intervention.
Solid amber	The printer is in Sleep mode.

Diagnostics menu

Entering the Diagnostics menu

The Diagnostics menu contains tests that are used to help isolate issues with the printer.

- To access the Diagnostics menu from POST, press and hold **Left arrow** and **OK** on the control panel.
- To access the Diagnostics menu from the home screen, press **Back**, **Right arrow**, **Back**, and **Right arrow** on the control panel.

Reports

Device Settings

This report lists all the current printer settings.

Enter the Diagnostics menu, and then navigate to:

Reports > **Device** > **Device Settings**

For non-touch-screen printer models, press OK to navigate through the settings.

Installed Licenses

This setting lists all the installed licenses and their feature data.

Enter the Diagnostics menu, and then navigate to:

Reports > **Licenses** > **Installed Licenses**

For non-touch-screen printer models, press OK to navigate through the settings.

Advanced Print Quality Samples

This setting prints a list of the printer settings and sample pages to check print quality.

Enter the Diagnostics menu, and then navigate to:

Advanced Print Quality Samples > **Advanced Print Quality Test Pages**

For non-touch-screen printer models, press OK to navigate through the settings.

Event Log

Display Log

This setting displays the panel text that appears when the event occurs.

Enter the Diagnostics menu, and then navigate to:

Event Log > **Display Log**

For non-touch-screen printer models, press OK to navigate through the settings.

Print Log

This setting lists an extended version of the various printer events.

Enter the Diagnostics menu, and then navigate to:

Event Log > **Print Log**

For non-touch-screen printer models, press OK to navigate through the settings.

Note: The events that appear in the report vary depending on the operational history of the printer.

Print Log Summary

This setting lists a brief summary of the various printer events.

Enter the Diagnostics menu, and then navigate to:

Event Log > **Print Log Summary**

For non-touch-screen printer models, press OK to navigate through the settings.

Note: The events that appear in the report vary depending on the operational history of the printer.

Mark Log

This setting allows you to create a service, maintenance, or custom log entry. Each log entry is added in the printer event log.

1. Enter the Diagnostics menu, and then navigate to:

   Event Log > **Mark Log**

   For non-touch-screen printer models, press OK to navigate through the settings.

2. Select a log that you want to create.

Input tray quick print

This setting lets you print a single or continuous Quick Test page in either duplex or simplex mode.

1. Enter the Diagnostics menu, and then select **Input tray quick print**.

   For non-touch-screen printer models, press OK to navigate through the settings.
2. Select where you want to print the pages from.
3. Select whether to print a single or continuous test page.

Printer Setup

Printed page count (mono)

This setting displays the amount of pages printed in mono.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the printed page count for mono.

Printed page count (color)

This setting displays the amount of pages printed in color.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the printed page count for color.

Permanent page count

This setting displays the total number of pages printed in mono and color. After all the print tests are completed, this value resets to zero.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the permanent page count.

Processor ID

This setting indicates the ID of the processor on the controller board.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the processor ID.

Serial number

This setting displays a read-only value of the serial number.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the serial number.

Model name

This setting displays the model name of the printer.

1. Enter the Diagnostics menu, and then select **Printer Setup**.
2. View the model name.

Engine setting [x]

Warning—Potential Damage: Do not change this setting without specific instructions from the next level of support.

This setting allows you to select a printer engine setting. Possible values are 0–255. The default value is 0.

For non-touch-screen printer models, press OK to navigate through the settings.

1. Enter the Diagnostics menu, and then navigate to:

   Printer Setup > **Engine setting [x]**
2. Select a setting, and then enter a value.

EP setup

Warning—Potential Damage: Do not change this setting without specific instructions from the next level of support.

This setting allows you to adjust the EP setup of the printer.

For non-touch-screen printer models, press OK to navigate through the settings.

1. Enter the Diagnostics menu, and then navigate to:

   Printer Setup > **EP setup**
2. Select a setting.

Waste toner sensor calibration

To ensure the accuracy of the waste toner level detection, calibrate the sensor (waste toner bottle).

1. Enter the Diagnostics menu, and then navigate to:

   Printer setup > **Waste toner sensor calibration**
2. Remove the waste toner bottle.
3. Select **Start calibration**.

   If the calibration is successful, then a **`Test passed`** message appears on the display.
4. Install the waste toner bottle, and then restart the printer.

If problems occur during calibration, then see **“Waste toner bottle error service check” on page 186**.

Printer diagnostics and adjustments

Sensor tests

1 Enter the Diagnostics menu, and then navigate to:

Printer diagnostics and adjustments > **Sensor tests**

A list of sensor tests appears.

2 Find, and then manually toggle the sensor.

Notes:

- The sensor status on the screen toggles between **1** and **0** when the sensor is properly working.
- If a sensor test fails, the test failure may not indicate a failed sensor. Further troubleshooting may be required. Check the boards and cables for possible issues.

List of sensor tests

Input
Manual Feeder
Bin/Narrow media
Fuser buckle
Fuser exit
Door interlock
Tray present
TPS L and R
Waste Toner Bottle

Motor tests

1 Enter the Diagnostics menu, and then navigate to:

Printer diagnostics and adjustments > **Motor tests**

For non-touch-screen printer models, press OK to navigate through the settings.

2 Select a motor.

Notes:

- If the motor is activated, then it is properly working.
- Some motors require automatic deactivation to avoid secondary issues such as possible damage and contamination.
- Some tests require a special action to activate a motor such as removing a major component.
- If the motor fails, the test failure may not indicate a failed motor. Further troubleshooting may be required. Check the boards and cables for possible issues.
- To stop a running motor in non-touch-screen printer models, press OK.

List of motor tests

Pick clutch (Tray 1 or Manual Feed)
Staging clutch
Fuser
CMY
K/Transfer belt
Fan (main)

Registration adjust

This setting lets you adjust the skew, margins, or perform a Quick Test.

For non-touch-screen printer models, press OK to navigate through the settings.

1. Enter the Diagnostics menu, and then navigate to:
   Printer diagnostics and adjustments > **Registration adjust**
2. Select a setting to adjust.

Color alignment adjust

This setting allows you to adjust the color alignments and to print or reset the default settings.

For non-touch-screen printer models, press OK to navigate through the settings.

1. Enter the Diagnostics menu, and then navigate to:
   Printer diagnostics and adjustments > **Color alignment adjust**
2. Select a setting.

Supply reset

The setting resets the fuser and transfer module counter values to zero.

1. Enter the Diagnostics menu, and then navigate to:
   Printer diagnostics and adjustments > **Supply reset**

   For non-touch-screen printer models, press OK to navigate through the settings.
2. Select a setting.

Weather station

This setting lets you view the temperature and humidity reported by the weather station.

Enter the Diagnostics menu, and then navigate to:

Printer diagnostics and adjustments > **Weather station**

For non-touch-screen printer models, press OK to navigate through the settings.

Universal Override

This setting allows the user to feed custom media sizes to a Custom Media Tray.

For non-touch-screen printer models, press OK to navigate through the settings.

1 Enter the Diagnostics menu, and then navigate to:

Printer diagnostics and adjustments > **Universal Override**

2 Select a setting to adjust.

Config menu

Entering the Config menu

From the control panel, navigate to:

Settings > **Device** > **Maintenance** > **Config Menu**

Config Menu

Menu item	Description
USB Configuration USB PnP 1* 2	Change the USB driver mode of the printer to improve its compatibility with a personal computer.
USB Configuration USB Speed Full Auto*	Set the USB port to run at full speed and disable its high-speed capabilities.
Tray Configuration Show Tray Insert Message Off Only for unknown sizes* Always	Show the **`Tray Insert`** message.
Tray Configuration A5 Loading Short Edge Long Edge*	Specify the page orientation when loading A5 paper size.
Note: An asterisk (*) next to a value indicates the factory default setting.	

Menu item	Description
Tray Configuration Paper Prompts Auto* Manual Paper	Set the paper source that the user fills when a prompt to load paper appears.
Tray Configuration Envelope Prompts Auto* Manual Envelope	Set the paper source that the user fills when a prompt to load envelope appears.
Tray Configuration Action for Prompts Prompt user* Continue Use current	Set the printer to resolve paper- or envelope-related change prompts.
Reports Menu Settings Page Event Log Event Log Summary	Print reports about printer menu settings, status, and event logs.
Supply Usage And Counters Fuser Reset	Reset the counter after installing a new fuser.
Supply Usage And Counters Clear Supply Usage History	Reset the supply usage history, such as number of pages and days remaining, to the factory shipped level.
Supply Usage And Counters Reset Black Cartridge Counter Reset Cyan Cartridge Counter Reset Magenta Cartridge Counter Reset Yellow Cartridge Counter	Reset the counter after installing a new cartridge.
Print Configuration Black Only Mode Off* On	Print color content in grayscale.
Print Configuration Color Trapping Off 1 2* 3 4 5	Enhance the printed output to compensate for misregistration in the printer.
Note: An asterisk (*) next to a value indicates the factory default setting.	

Menu item	Description
Print Configuration Font Sharpening 0–150 (24*)	Set a text point-size value below which the high-frequency screens are used when printing font data. For example, if the value is 24, then all fonts sized 24 points or less use the high-frequency screens.
Device Operations Quiet Mode Off* On	Set the printer to operate in Quiet Mode. **Note:** Enabling this setting slows down the printer performance.
Device Operations Clear Custom Status	Erase user-defined strings for the Default or Alternate custom messages.
Toner patch sensor setup Calibration Frequency Preference Disabled Fewest color adjustments Fewer color adjustments Normal* Better color accuracy Best color accuracy	Set the default calibration frequency.
Toner patch sensor setup Full calibration	Run the full color calibration.
Toner patch sensor setup Print TPS information page	Print a diagnostic page that contains toner patch sensor calibration.
Note: An asterisk (*) next to a value indicates the factory default setting.	

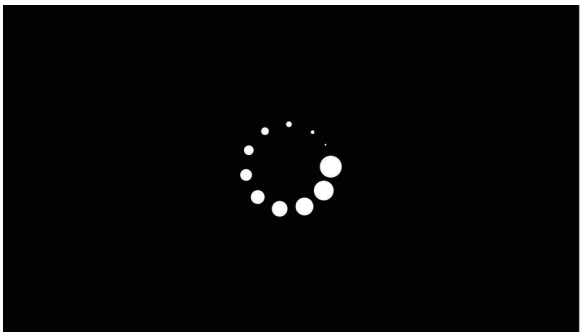
Service Engineer menu

Entering Invalid engine mode

This mode allows the printer to load the correct firmware code.

1. Unplug the printer.
2. Open tray 1.
3. Plug in the printer.

When the display shows the following icon, close tray 1.



4 A menu appears on the display.

Press the arrow buttons to navigate the menu, and then select **ENGINE_FLASH**.

Entering the Service Engineer (SE) menu

To access the SE menu from the home screen, press these buttons in the following sequence:

Back, **Left arrow**, **Back**, **Left arrow**

General SE Menu

- Capture Logs to USB Drive

  Note: This setting allows you to save a log file to a USB drive.
- Code Versions
- Debug Level

Network SE Menu

Enter the Service Engineer (SE) menu, and then touch **Network SE Menu**.

Note: Use these settings as directed by the next level of support.

Top-level menu	Intermediate menu
HISTORY	• Print History • Mark History
MAC	• Set Card Speed • LAA • Keep Alive
NPAP	Print Alerts

Top-level menu	Intermediate menu
TCP/IP	• DHCP Request Options • netstat • arp • Allow SNMP Set • MTU • Meditech Mode • RAW LPR Mode • Garp Interval
Wireless Settings	Wireless Performance Enhancement
Ping Test	• Ping Address • Attempts • Packet Size • Ping
Other Actions	• ifconfig • IPtables [Firewall Dump] • IP6tables [Firewall Dump] • IPsec Dump
Enable/Disable USB Auto Suspend	N/A
Enable DHCPCD Debugging	N/A
Enable WPA-supplicant Debugging	N/A
Enable Ethernet Gigabit	N/A

Parts removal

Data security notice

Identifying printer memory

- **Volatile memory**—The printer uses standard random access memory (RAM) to buffer user data temporarily during simple print and copy jobs.
- **Nonvolatile memory**—The printer may use two forms of nonvolatile memory: EEPROM and NAND (flash memory). Both types are used to store the operating system, printer settings, network information, scanner and bookmark settings, and embedded solutions.
- **Hard disk memory**—Some printers have a hard disk drive installed. The hard disk is designed for printer-specific functionality and cannot be used for long-term storage of data that is not print-related. The hard disk does not let users extract information, create folders, create disk or network file shares, or transfer FTP information directly from a client device. The hard disk can retain buffered user data from complex print jobs, form data, and font data.

The following parts can store memory:

- Printer control panel
- User interface controller card (UICC)
- Controller board
- Optional hard disks

Note: The printer control panel and controller board contain NVRAM.

Erasing printer memory

To erase volatile memory, turn off the printer.

To erase nonvolatile memory, do the following:

1. From the control panel, navigate to **Settings** > **Device** > **Maintenance** > **Out of Service Erase** > **Sanitize all information on nonvolatile memory**.
2. Select **Sanitize all information on nonvolatile memory**, and then select **ERASE**.
3. Follow the instructions on the screen.

To erase hard disk memory, do the following:

1. From the control panel, navigate to **Settings** > **Device** > **Maintenance** > **Out of Service Erase** > **Sanitize all information on hard disk**.
2. Select **Sanitize all information on hard disk**, and then select **ERASE**.
3. Follow the instructions on the screen.

Note: This process can take from several minutes to more than an hour, making the printer unavailable for other tasks.

If a hard disk is replaced, then do the following:

1. Remove the hard disk, and then return it to the customer.
2. Request the customer to sign the *Customer Retention* form.

   Note: You can get printed copies of the form from your Lexmark partner manager.
3. Take a photo of the signed form, and then upload it to the Service Request debrief tool.
4. Fax or e-mail the signed form to the number or e-mail address shown at the bottom of the form.

Removal precautions

CAUTION—SHOCK HAZARD: The low-voltage power supply (LVPS) and the high-voltage power supply (HVPS) may have residual voltage present. To avoid the risk of electrical shock, do not touch their circuit components or the solder side of the board. Only handle them by their outer edges or metal housing.

CAUTION—SHOCK HAZARD: This product uses a soft power switch. It does not physically disconnect the input AC voltage. To avoid the risk of electrical shock, always remove the power cord from the printer when removal of the input AC voltage is required.

CAUTION—SHOCK HAZARD: To avoid the risk of electrical shock and to prevent damage to the printer, remove the power cord from the electrical outlet and disconnect all connections to any external devices before you connect or disconnect any cable, electronic board, or assembly.

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 it.

CAUTION—PINCH HAZARD: To avoid the risk of a pinch injury, use caution in areas marked with this label. Pinch injuries may occur around moving parts, such as gears, doors, trays, and covers.

Précautions de retrait

ATTENTION—RISQUE D'ELECTROCUTION : Une tension résiduelle peut être présente dans le bloc d'alimentation basse tension (LVPS) et le bloc d'alimentation haute tension (HVPS). Pour éviter tout risque d'électrocution, ne touchez pas les composants du circuit ou le côté soudure de la carte. Tenez-les uniquement par leurs extrémités ou le boîtier en métal.

ATTENTION—RISQUE D'ELECTROCUTION : Ce produit utilise un commutateur d'alimentation logiciel. Il ne déconnecte pas physiquement la tension d'alimentation CA. Pour éviter tout risque d'électrocution, débranchez toujours le cordon d'alimentation de l'imprimante lorsque vous devez déconnecter la tension d'alimentation CA.

ATTENTION—RISQUE D'ELECTROCUTION : Pour éviter tout risque d'électrocution et éviter d'endommager l'imprimante, débranchez le cordon d'alimentation de la prise électrique et déconnectez toute connexion à tout périphérique externe avant de brancher ou débrancher des câbles ou circuits et assemblages électroniques.

ATTENTION—SURFACE CHAUDE : L'intérieur de l'imprimante risque d'être brûlant. pour réduire le risque de brûlure, laissez la surface ou le composant refroidir avant d'y toucher.

ATTENTION : RISQUE DE PINCEMENT : Pour éviter tout risque de blessure par pincement, agissez avec précaution au niveau des zones signalées par cette étiquette. Les blessures par pincement peuvent se produire autour des pièces mobiles telles que les engrenages, portes, tiroirs et capots.

Precauciones durante la extracción

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: La fuente de alimentación de bajo voltaje (LVPS) y la fuente de alimentación de alto voltaje (HVPS) pueden presentar voltaje residual. Para evitar el riesgo de descarga eléctrica, no toque los componentes del circuito ni el lateral soldado de la placa. Manipule solo los bordes exteriores o la carcasa metálica.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Este producto utiliza un interruptor de corriente de software. No desconecta físicamente la entrada de voltaje de CA. Para evitar el riesgo de descarga eléctrica, desenchufe siempre el cable de alimentación de la impresora cuando sea necesario retirar la entrada de voltaje de CA.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Para evitar el riesgo de descargas eléctricas y daños en la impresora, retire el cable de alimentación de la toma eléctrica y desconecte todas las conexiones a dispositivos externos antes de conectar o desconectar cualquier cable, placa electrónica o conjunto.

PRECAUCIÓN: SUPERFICIE CALIENTE: El interior de la impresora podría estar caliente. Para evitar el riesgo de heridas producidas por el contacto con un componente caliente, deje que la superficie se enfríe antes de tocarlo.

PRECAUCIÓN: PELIGRO DE ATRAPAMIENTO: Para evitar el riesgo de lesión por atrapamiento, preste atención en las áreas marcadas con esta etiqueta. Las lesiones por atrapamiento se pueden producir en torno a partes móviles, tales como engranajes, puertas, bandejas y cubiertas.

Vorsichtsmaßnahmen bei der Demontage

VORSICHT – STROMSCHLAGGEFAHR: Im Niederspannungsnetzteil (LVSP) und Hochspannungsnetzteil (HVPS) liegt unter Umständen Restspannung vor. Um das Risiko eines elektrischen Schlags zu vermeiden, berühren Sie keine umliegenden Bauteile oder die Lötseite der Platine. Fassen Sie sie nur an den Außenkanten oder am Metallgehäuse an.

VORSICHT – STROMSCHLAGGEFAHR: Dieses Produkt verwendet einen weichen Netzschalter. Er trennt die Eingangswechselspannung nicht physisch. Um das Risiko eines elektrischen Schlags zu vermeiden, ziehen Sie stets das Netzkabel vom Drucker ab, wenn eine Abtrennung der Eingangswechselspannung erforderlich ist.

VORSICHT – STROMSCHLAGGEFAHR: Um das Risiko eines elektrischen Schlags und Schäden am Drucker zu vermeiden, ziehen Sie das Netzkabel aus der Steckdose und trennen Sie alle Verbindungen zu jeglichen externen Geräten, bevor Sie Kabel, Elektronikplatinen oder Baugruppen einstecken oder abziehen.

VORSICHT – HEISSE OBERFLÄCHE: Das Innere des Druckers kann sehr heiß sein. Vermeiden Sie Verletzungen, indem Sie heiße Komponenten stets abkühlen lassen, bevor Sie ihre Oberfläche berühren.

VORSICHT – QUETSCHGEFAHR: Um das Risiko einer Quetschung zu vermeiden, gehen Sie in Bereichen, die mit diesem Etikett gekennzeichnet sind, mit Vorsicht vor. Quetschungen können im Bereich von beweglichen Komponenten auftreten, wie z. B. Zahnrädern, Klappen, Fächern und Abdeckungen.

Handling ESD-sensitive parts

To prevent damage to the electrostatic discharge (ESD)-sensitive parts in the printer, do the following:

- Turn off the printer before removing logic boards.
- Keep the parts in their original packing material until you are ready to install them into the printer.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Use the ESD wrist strap. Connect the wrist band to the system ground point. This action discharges any static electricity in your body to the printer.
- Hold the parts by their edge connector shroud. Do not touch its pins. If you are removing a pluggable module, then use the correct tool.
- If possible, keep all parts in a grounded metal cabinet.
- Do not place the parts on the printer cover or on a metal table. If you need to put down the parts, then put them in their packing material.
- Prevent parts from being accidentally touched by other personnel. Cover the printer when you are not working on it.
- Be careful while working with the parts when cold-weather heating is used. Low humidity increases static electricity.

Critical information for controller board or control panel replacement

Warning—Potential Damage: Replace only one of the following components at a time:

- Control panel
- Controller board

To replace a component and to test whether the problem is resolved:

1. Replace the affected component.

   Warning—Potential Damage: Do not perform a Power-On Reset (POR) until the problem is resolved. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

2. Enter the Diagnostics Menu. The Diagnostics Menu allows you to temporarily use the replacement part.

   Warning—Potential Damage: Some printers will perform automatically a POR if the Diagnostics Menu is not opened within five seconds. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

3. Use the Diagnostics Menu to test the replacement part. Do a feed test to check if the problem is resolved.
   - If the problem is not resolved—Turn off the printer, and then reinstall the old part.
   - If the problem is resolved—Perform a POR.

Restoring the printer configuration after replacing the controller board

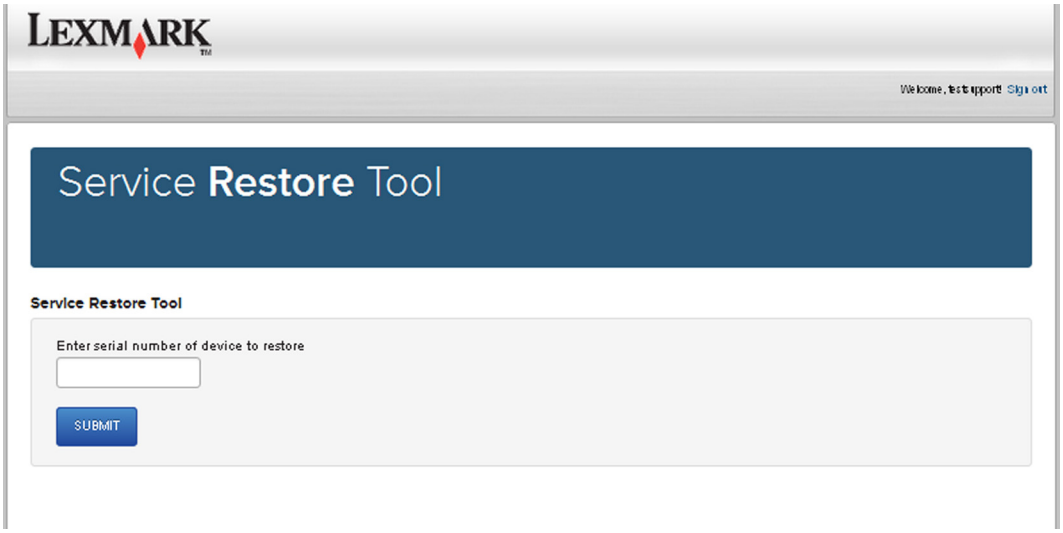
Restore the printer to its correct configuration to complete the replacement service. Use the Service Restore Tool to download the software bundle, and then flash the printer settings and embedded solutions.

Note: The software bundle contains the latest version of the firmware, applications, and software licenses from the Lexmark Virtual Solutions Center (VSC). The printer firmware may be at a different level from what was used before replacing the controller board.

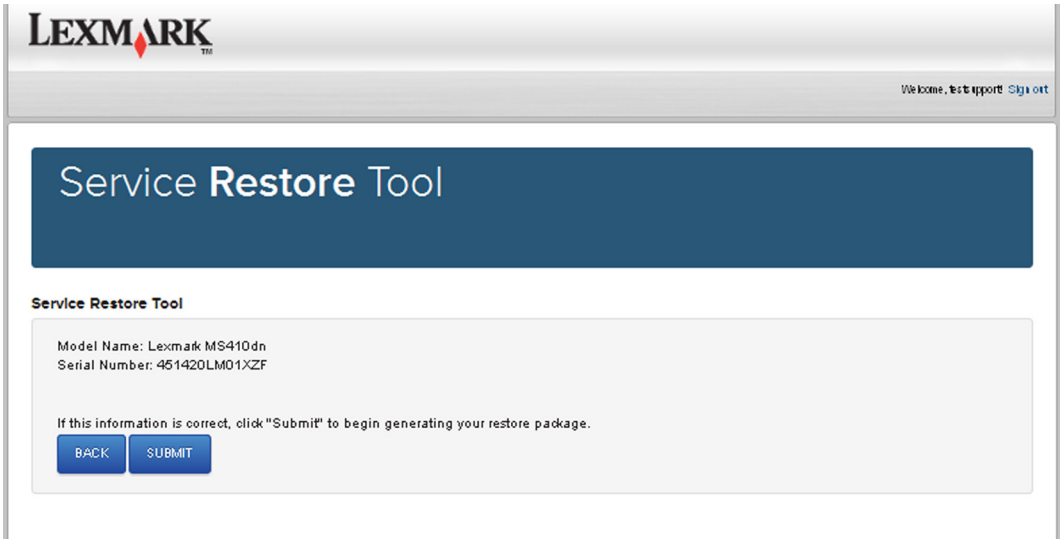
Using the Service Restore Tool

1. Go to **https://cdp.lexmark.com/service-restore-tool/** to access the tool.
2. Log in using your Lexmark or partner login.

   If your login fails, then contact your next level of support.
3. Enter the printer serial number, and then submit the information.

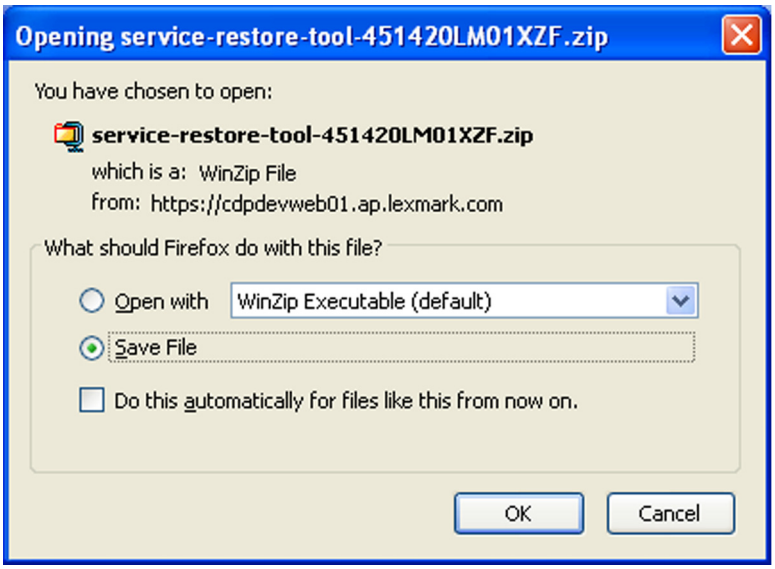


Note: Make sure that the serial number that appears on the verification screen is correct.



4. Save the zip file.

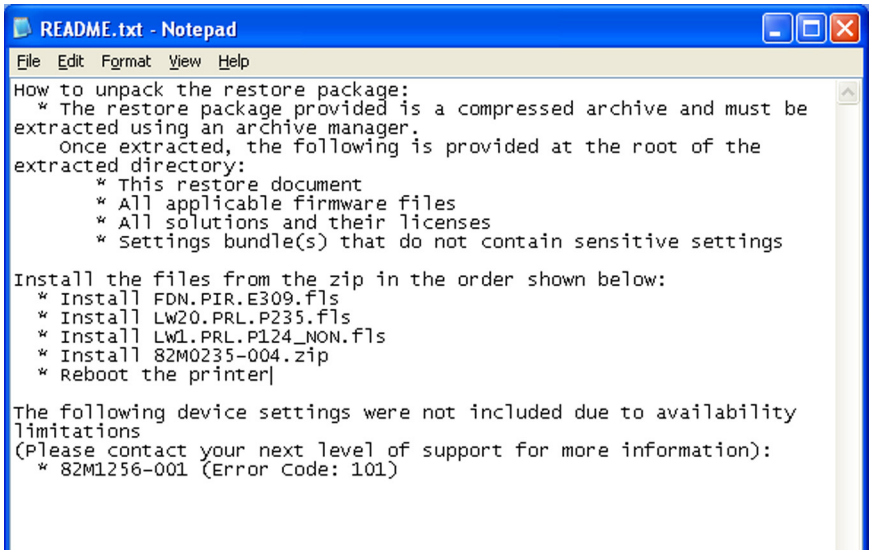
Note: Make sure that the serial number in the zip file matches the serial number of the printer being restored.



5 Extract the contents of the zip file, open the *Readme* file, and then follow the instructions in the file.

Notes:

- Perform the install instructions on the *Readme* file in the exact order shown. Restart the printer only if the file says so.
- For more information on how to flash the downloaded files, see **"Updating the printer firmware " on page 246**.
- To load the zip files that are extracted from the Service Restore Tool, see **"Restoring licenses and configuration settings" on page 245**.



6 After performing the installation instructions in the *Readme* file, confirm from the customer if all the eSF apps have been installed.

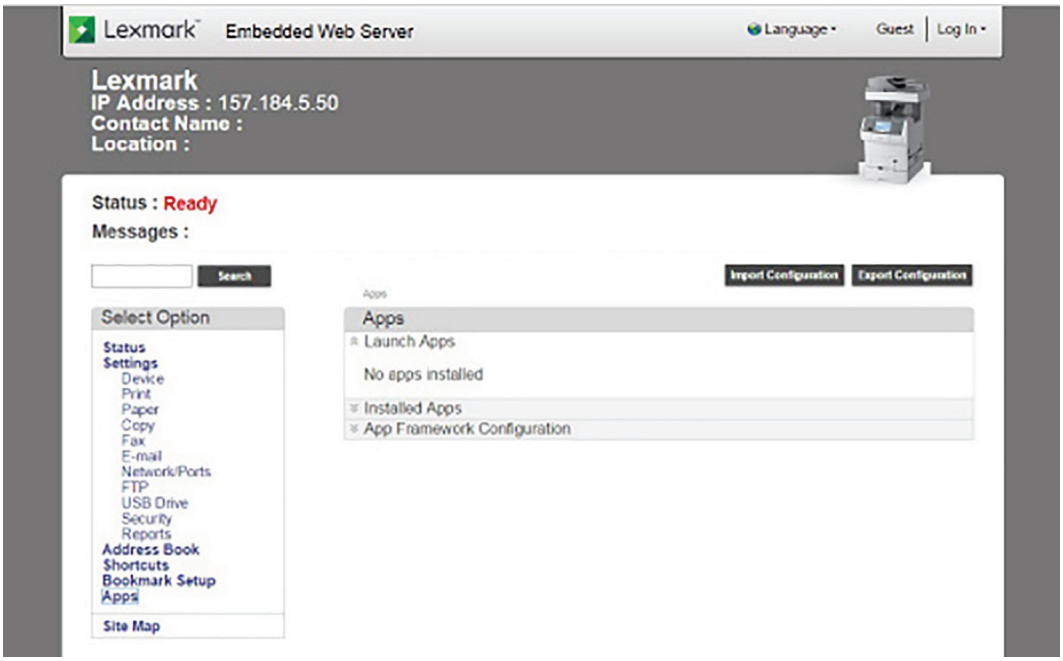
Notes:

- If you are unable to access the administrative menus to verify that the printer is restored, then ask the customer for access rights.
- If a 10.00 error appears after you restart the printer, then contact the next level of support.

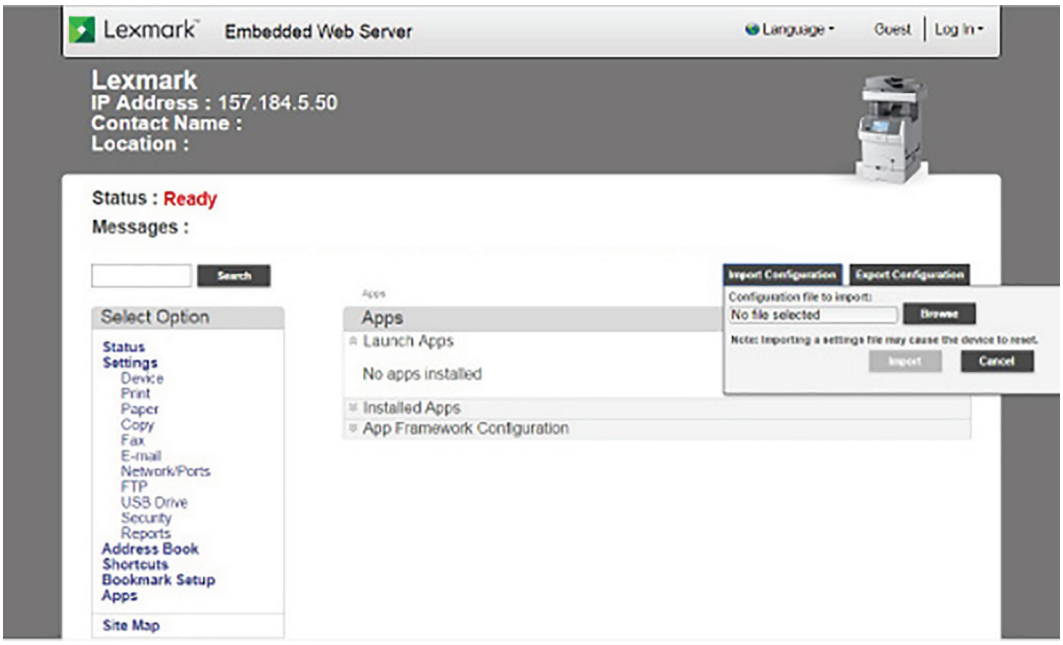
Restoring licenses and configuration settings

To load the zip files that are extracted from the Service Restore Tool, do the following:

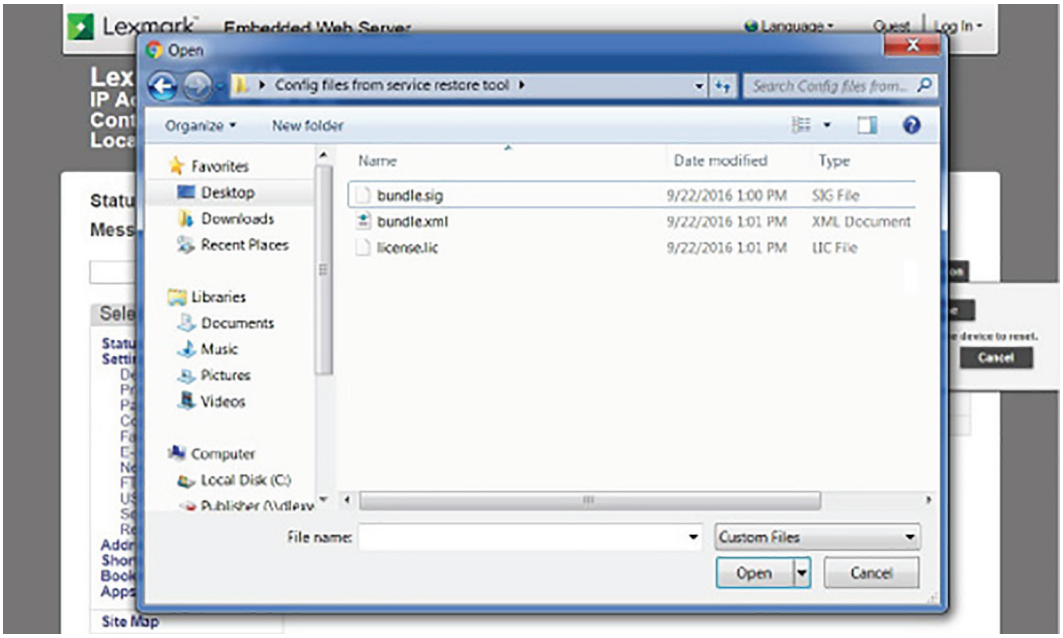
1 Open a web browser, and then type the printer IP address.



2 Click **Import Configuration**, and then click **Browse**.



3 Navigate to the folder where the zip files are extracted from the Service Restore Tool.



4 Select the file to import, and then click **Import**.

5 Repeat step 2 through step 4 for the other files that are included in the extracted zip file.

Updating the printer firmware

Warning—Potential Damage: Before updating the printer firmware, ask the next level of support for the correct code. Using an incorrect code level may damage the printer.

The printer must be in ready state in order to update the firmware.

Using a flash drive

This procedure applies only to printer models with front USB support.

Make sure to enable the Enable Drive and Update Code settings. You can find the settings in the Flash drive menu under the Settings menu.

1. Insert the flash drive.

   The display shows the files on the flash drive.
2. Select the file that you need to flash.

Note: Do not turn off the printer while the update is going on.

Using a network computer

Using the File Transfer Protocol (FTP)

Make sure that the printer is in ready state before flashing.

1. Turn on the printer.
2. Obtain the IP address:
   - From the home screen
   - From the TCP/IP section of the Network/Ports menu
3. From the command prompt of a network computer, open an FTP session to the printer IP address.
4. Use a PUT command to place the firmware file on the printer.

   The printer performs a POR sequence and terminates the FTP session.
5. Repeat step 2 through to step 4 for the other files.

Using the Embedded Web Server

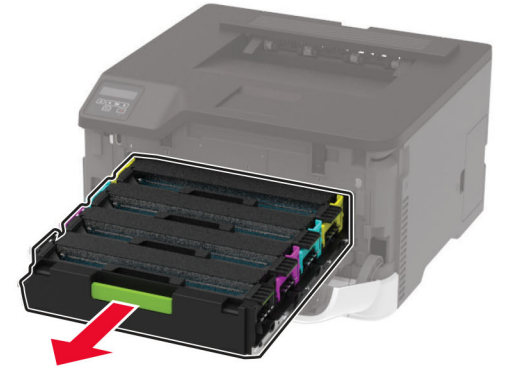
Make sure that the printer is in ready state before flashing.

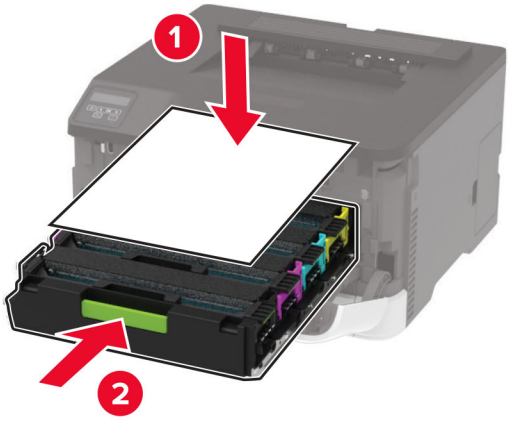
1. Open a web browser, and then type the printer IP address.
2. From the home page, navigate to **Settings** > **Device** > **Update Firmware**.
3. Select the file to use.

   The printer performs a POR sequence and terminates the FTP session.
4. Repeat step 2 through to step 4 for the other files.

Covering the print cartridge tray

Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray.





Adjustments

Registration adjustment

Image misalignments can occur after printhead replacement. Perform this procedure to correct the position of the image relative to the paper edges.

Note: You cannot perform mechanical registration or skew adjustments on this printhead.

Before performing the procedure, make sure that the tray guides are properly set and the paper settings on the printer match the paper size loaded in the tray.

Adjusting the skew

The skew adjustment changes the angle of the horizontal lines so that the lines can be aligned with the leading edge of the page. As the skew setting is changed, the top line on the test page stays in place at the left end, while its right end tilts up or down. All horizontal lines on the page will tilt at that same angle while the vertical lines will remain vertical. Changing the skew setting moves the right edge of the page up and down, and changes the angle of the top and bottom lines. If the skew is properly adjusted, the horizontal lines at the top of the page will be parallel to the leading edge of the page.

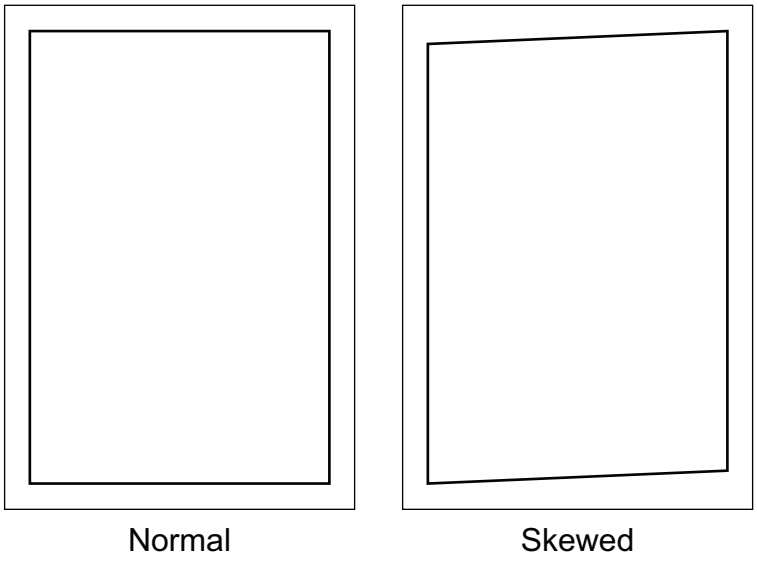
To check for skew:

1. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Registration adjust**

2. Select **Quick Test**.

   The printer prints a test page.



Note: If there is no skew on the page, go to Adjusting the margins. See **"Adjusting the margins" on page 250**.

To adjust the skew:

1. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Registration adjust** > **Top Skew**

2. Adjust the value.

   Notes:

   - For non-touch-screens, use the left or right arrow buttons to increase or decrease the value.
   - Raising the value of the skew rotates the horizontal lines clockwise. The left end of the line remains in the same place and the right end moves downward.
   - Decreasing the value of the skew rotates the horizontal lines counterclockwise. The left end of the line remains in the same place and the right end moves upward.

3. Print a Quick test page to verify the change.
4. Repeat steps 1 through step 3 until the horizontal line is properly aligned with the leading edge of the page.
5. Check for proper margin alignment. See **"Adjusting the margins" on page 250**.

Adjusting the margins

To check for proper margin alignment:

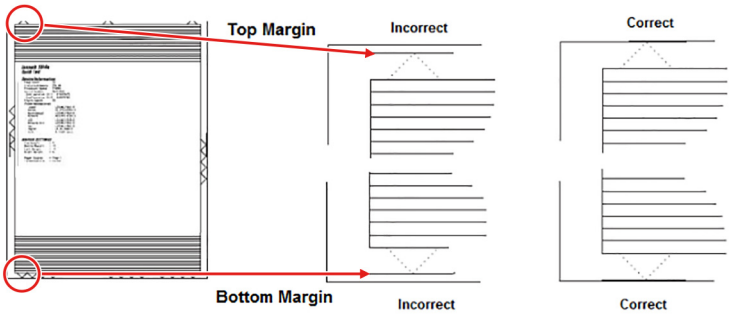
1. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Registration adjust**

2. Select **Quick Test**.

   The printer prints a test page.

3. Check the top and bottom margins of the test page for proper alignment.



To adjust the margins:

1. Refer to the test page, and then check the arrows along the margins.

   Notes:

   - The arrows should be completely visible along the edges.
   - The tip of the arrows should point to the edges of the paper.

2. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Registration adjust**

3. Select the margin to adjust.

4. Adjust the value.

   Notes:

   - For non-touch-screens, use the left or right arrow buttons to increase or decrease the value.
   - Raising the value of the top margin setting pushes the top edge of the image downward.
   - Raising the value of the bottom margin setting pushes the bottom edge of the image upward.
   - Raising the value of the left margin setting pushes the left margin to the right.
   - Raising the value of the right margin setting pushes the right margin to the left.

5. Print a Quick test page to verify the change.

6. Repeat step 3 through step 5 until the margins are correct.

7. Check for proper color alignment. See **“Adjusting the color alignment” on page 251**.

Adjusting the color alignment

1. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Color alignment adjust**

   Select **AA Adjustment row**.

   Note: The Color alignment adjust procedure is performed on the cyan, magenta, and yellow colors.

2. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Color alignment adjust** > **Cyan** > **Quick test**

   Check the alignment markings on the test page generated. Follow the instructions on the test page to correct the color misalignment.

3. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Color alignment adjust** > **Yellow** > **Quick test**

   Check the alignment markings on the test page generated. Follow the instructions on the test page to correct the color misalignment.

4. Enter the Diagnostics menu, and then navigate to:

   Printer diagnostics and adjustments > **Color alignment adjust** > **Magenta** > **Quick test**

   Check the alignment markings on the test page generated. Follow the instructions on the test page to correct the color misalignment.

5. If color misalignment still occurs, then repeat step 1 through step 4.

Printhead characterization

Notes:

- A new printhead includes a flash drive that contains the characterization data.
- After installing a new printhead, enter the characterization data using any of the following procedures.
- The characterization data cannot be used on another printhead. Erase the files from the flash drive after entering the characterization data.

Entering characterization data from the flash drive

Note: This procedure applies only to printer models with front USB support.

1. Insert the flash drive into the USB port.

   Note: The printer copies automatically the required data from the flash drive. The printer reboots after copying the data.

2. While the printer is rebooting, remove the flash drive.

3. Perform the printhead adjustment. See **“Registration adjustment” on page 248**.

Entering characterization data using WinBlast

1. On your laptop, create a folder and name it *Printhead data*.

2. Copy the flash drive contents to the folder.

3. Connect the laptop to the printer using a USB cable.

4 In the Printhead data folder, run the WinBlast application.

5 Select the printer.

6 Click **...**, access the Printhead data folder, and then select the *.npa* file.

7 Click **Send**. On the control panel, the printer shows its status while processing the files. After the update, restart the printer.

8 Perform the printhead adjustment. See **"Registration adjustment" on page 248**.

Entering characterization data on a network

Note: Request permission from the customer to use the network.

1 On your Windows laptop, create a folder and name it *Printhead data*.

2 Copy the flash drive contents to the folder. Take note of the *.npa* filename.

3 Obtain the IP address of the printer.

4 On the laptop, use the command prompt to enter the Printhead data folder.

5 Type the following:

tcpipblast.exe <printer IP address> <.npa filename>

For example:

6 Press **Enter**. On the control panel, the printer shows its status while processing the files. After the update, restart the printer.

7 Perform the printhead adjustment. See **"Registration adjustment" on page 248**.

Note: For a video demonstration, see **Printhead characterization** at infoserve.lexmark.com/ids/sma.

Sensor (waste toner bottle) calibration

To ensure the accuracy of the waste toner level detection, calibrate the sensor (waste toner bottle).

1 Enter the Diagnostics menu, and then navigate to:

Printer setup > **Waste toner sensor calibration**

2 Remove the waste toner bottle.

3 Select **Start calibration**.

If the calibration is successful, then a **`Test passed`** message appears on the display.

4 Install the waste toner bottle, and then restart the printer.

Removal procedures

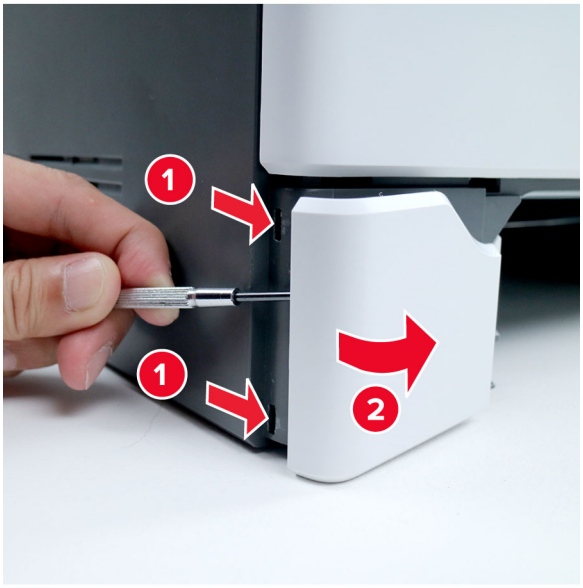
Keep the following tips in mind as you replace parts:

- Some removal procedures require removing cable ties. You must replace cable ties during reassembly to avoid pinching wires, obstructing the paper path, or restricting mechanical movement.
- Remove the print cartridges before removing other printer parts. The print cartridges must be carefully set on a clean, smooth, and flat surface. They must also be protected from light while out of the printer.
- Disconnect all external cables from the printer to prevent possible damage during service.
- Unless otherwise stated, reinstall the parts in reverse order of removal.
- When reinstalling a part held with several screws, start all screws before the final tightening.
- For printers that have a soft power switch, make sure to unplug the power cord after powering off.

Left side removals

Left cover removal

1. Remove the tray and manual feeder.
2. Remove the lower front cover.

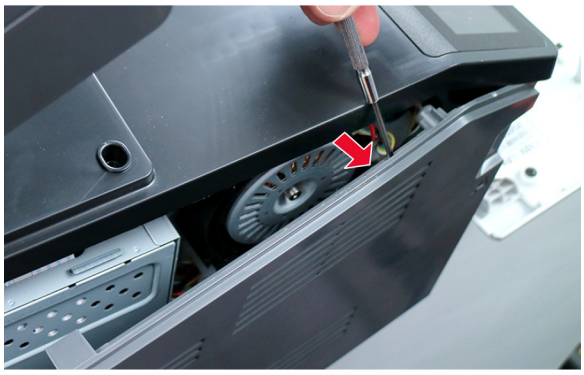


3 Remove the screws.

4 Open the front and rear doors.

5 Position the printer as shown, and then release the latches.

6 Release the latches.

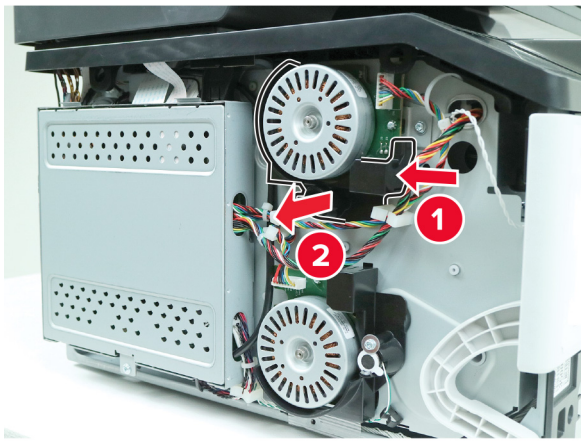


7 Remove the cover.

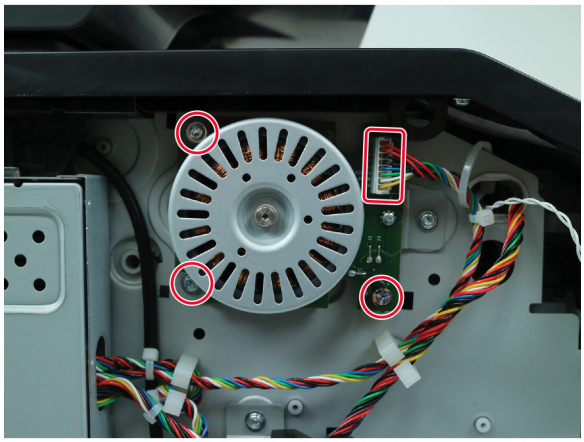
Motor (CMY) removal

1 Remove the left cover. See **“Left cover removal” on page 253**.

2 Remove the cover.



3 Disconnect the cable, and then remove the screws.

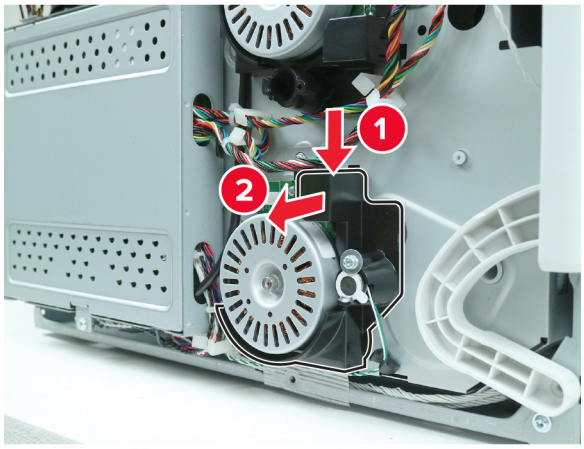


4 Remove the motor.

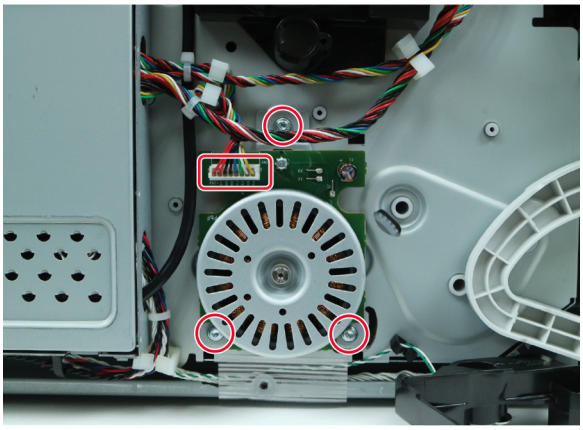
Motor (K/transfer belt) removal

1 Remove the left cover. See “Left cover removal” on page 253.

2 Remove the cover.



3 Disconnect the cable, and then remove the screws.

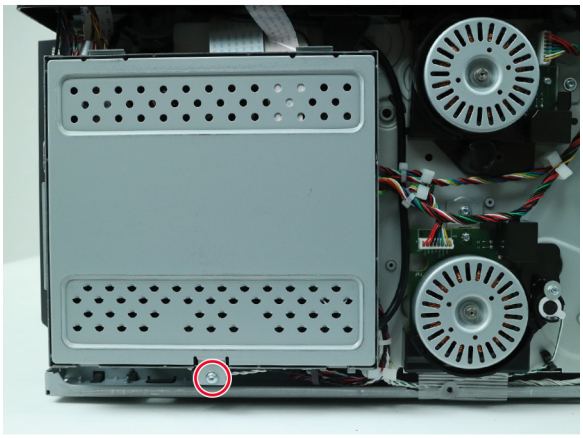


4 Remove the motor.

Controller board shield removal

1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the shield.



Controller board removal

Critical information for controller board or control panel replacement

Warning—Potential Damage: Replace only one of the following components at a time:

- Control panel
- Controller board

To replace a component and to test whether the problem is resolved:

1. Replace the affected component.

   Warning—Potential Damage: Do not perform a Power-On Reset (POR) until the problem is resolved. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

2. Enter the Diagnostics Menu. The Diagnostics Menu allows you to temporarily use the replacement part.

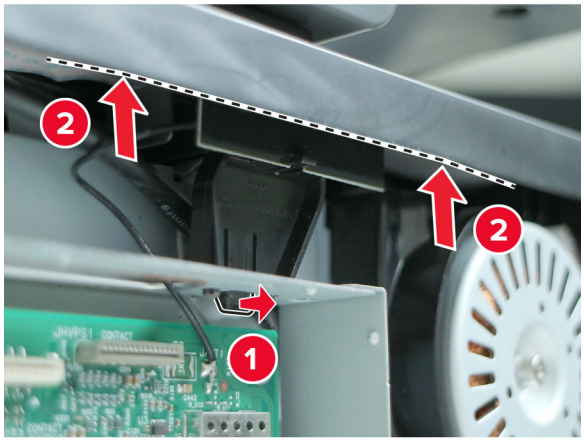
   Warning—Potential Damage: Some printers will automatically perform a POR if the Diagnostics Menu is not opened within five seconds. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

3. Use the Diagnostics Menu to test the replacement part. Do a feed test to check if the problem is resolved.
   - If the problem is not resolved—Turn off the printer, and then reinstall the old part.
   - If the problem is resolved—Perform a POR.

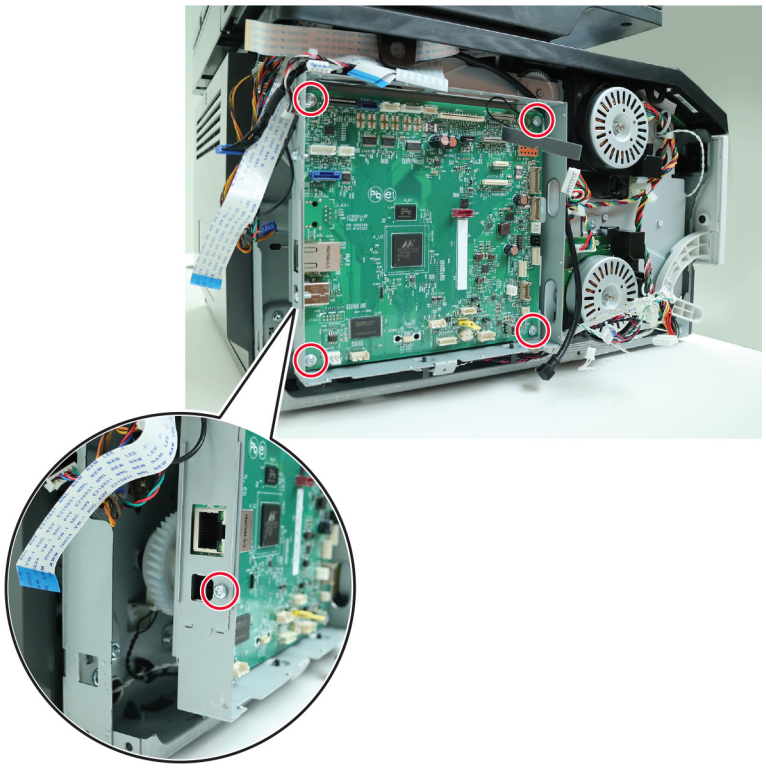
Removal procedure

1. Remove the left cover. See **"Left cover removal" on page 253**.
2. Remove the controller board shield. See **"Controller board shield removal" on page 257**.
3. Disconnect all the board cables.

4 Release the antenna.



5 Remove the screws.



6 Remove the board.

Installation note: After installing the new board, perform the sensor (waste toner bottle) calibration. See **"Sensor (waste toner bottle) calibration" on page 252**.

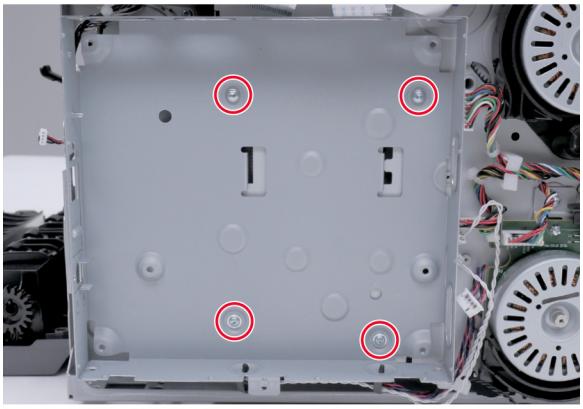
Controller board bracket removal

1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

3 Remove the controller board. See **"Controller board removal" on page 257**.

4 Remove the screws.



5 Remove the bracket.

Motor (fuser) removal

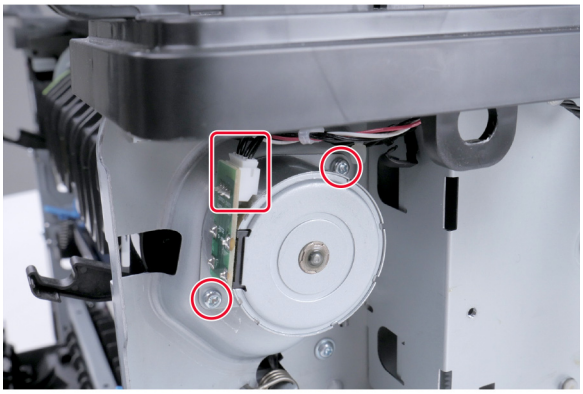
1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

3 Remove the controller board. See **"Controller board removal" on page 257**.

4 Remove the controller board bracket. See **"Controller board bracket removal" on page 260**.

5 Disconnect the cable, and then remove the screws.



6 Remove the motor.

Staging clutch removal

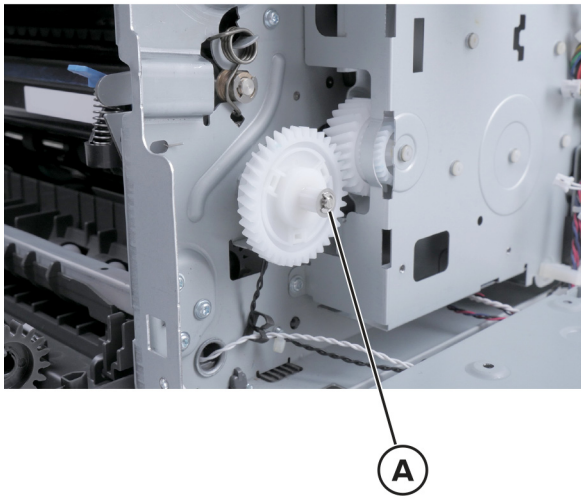
1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

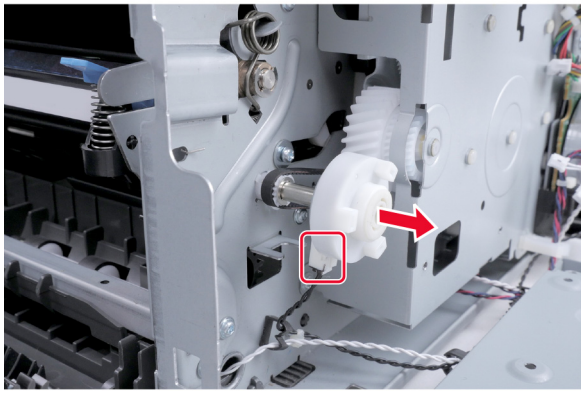
3 Remove the controller board. See **"Controller board removal" on page 257**.

4 Remove the controller board bracket. See **"Controller board bracket removal" on page 260**.

5 Remove the E-clip (A), and then remove the staging clutch gear.



6 Disconnect the cable, and then remove the clutch.



Gearbox removal

1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the right cover. See **"Right cover removal" on page 266**.

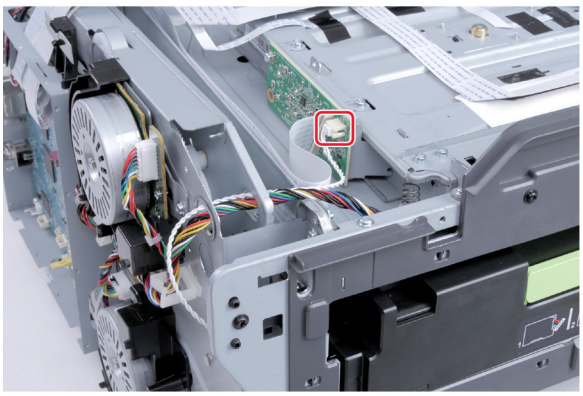
3 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

4 Remove the controller board. See **"Controller board removal" on page 257**.

5 Remove the controller board bracket. See **"Controller board bracket removal" on page 260**.

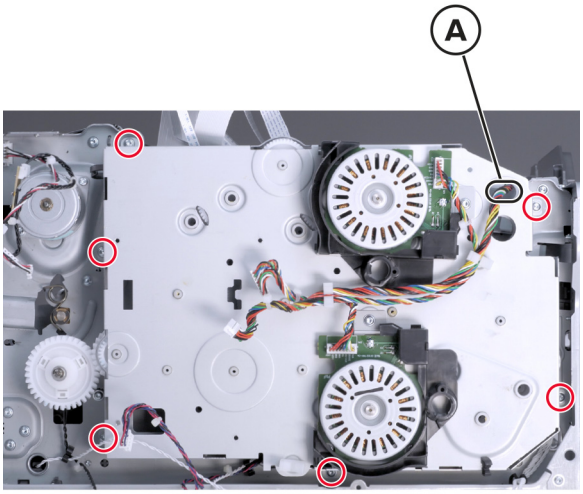
6 Remove the top cover. See **"Top cover removal" on page 293**.

7 Disconnect the cable.



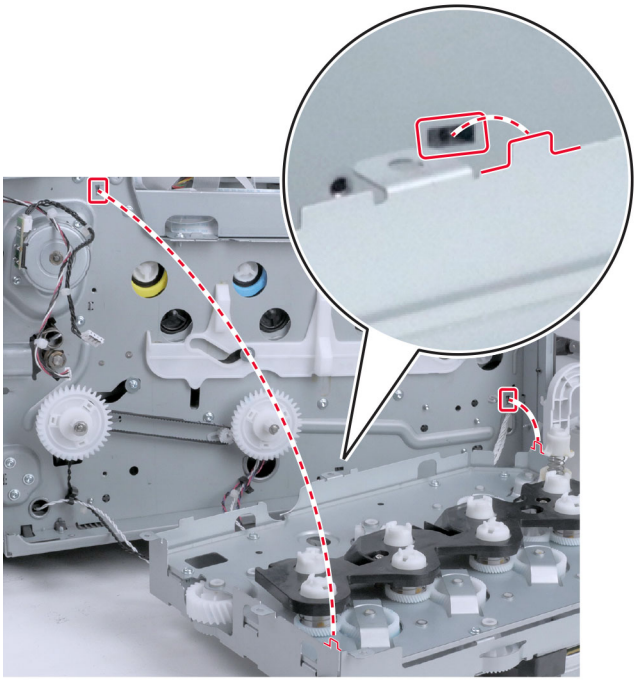
8 Release and thread the cables through the hole (A), and then remove the screws.

Installation note: Pay attention to the cable route.



9 Remove the gearbox.

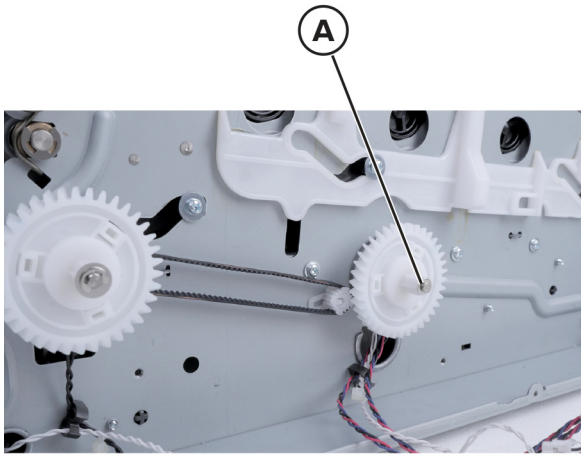
Installation note: Align the locating tabs to their slots.



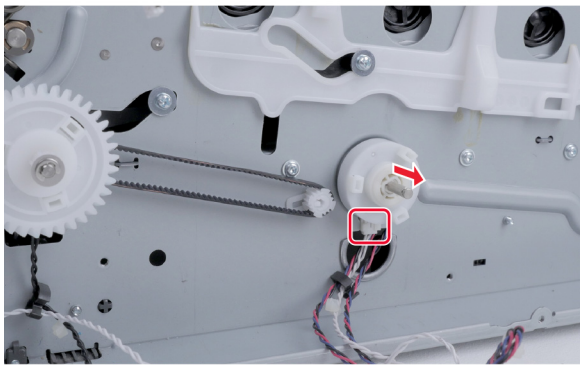
Pick clutch removal

1. Remove the left cover. See **“Left cover removal” on page 253**.
2. Remove the right cover. See **“Right cover removal” on page 266**.
3. Remove the controller board shield. See **“Controller board shield removal” on page 257**.
4. Remove the controller board. See **“Controller board removal” on page 257**.
5. Remove the controller board bracket. See **“Controller board bracket removal” on page 260**.
6. Remove the top cover. See **“Top cover removal” on page 293**.
7. Remove the gearbox. See **“Gearbox removal” on page 262**.

8 Remove the E-clip (A), and then remove the pick clutch gear.



9 Disconnect the cable, and then remove the clutch.



Staging belt, gear, and pulley removal

1 Remove the left cover. See **“Left cover removal” on page 253**.

2 Remove the right cover. See **“Right cover removal” on page 266**.

3 Remove the controller board shield. See **“Controller board shield removal” on page 257**.

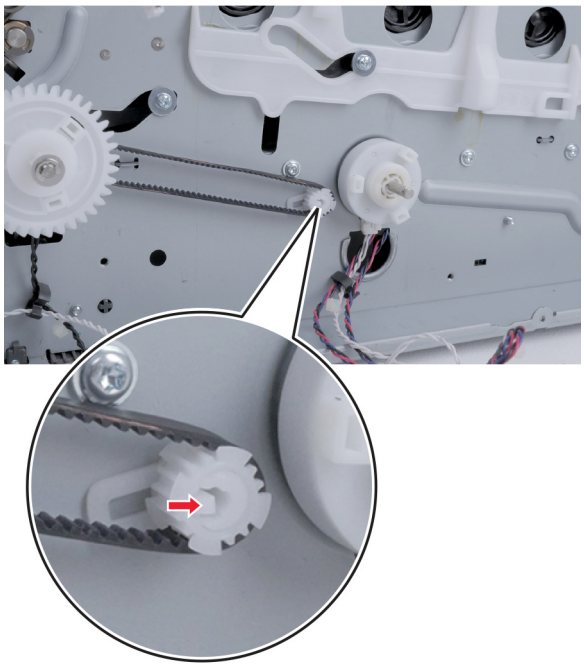
4 Remove the controller board. See **“Controller board removal” on page 257**.

5 Remove the controller board bracket. See **“Controller board bracket removal” on page 260**.

6 Remove the top cover. See **“Top cover removal” on page 293**.

7 Remove the gearbox. See **“Gearbox removal” on page 262**.

8 Remove the pulley.



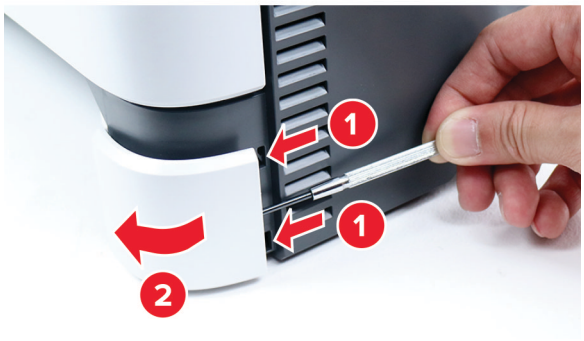
9 Remove the belt.

Right side removals

Right cover removal

1 Remove the tray and manual feeder.

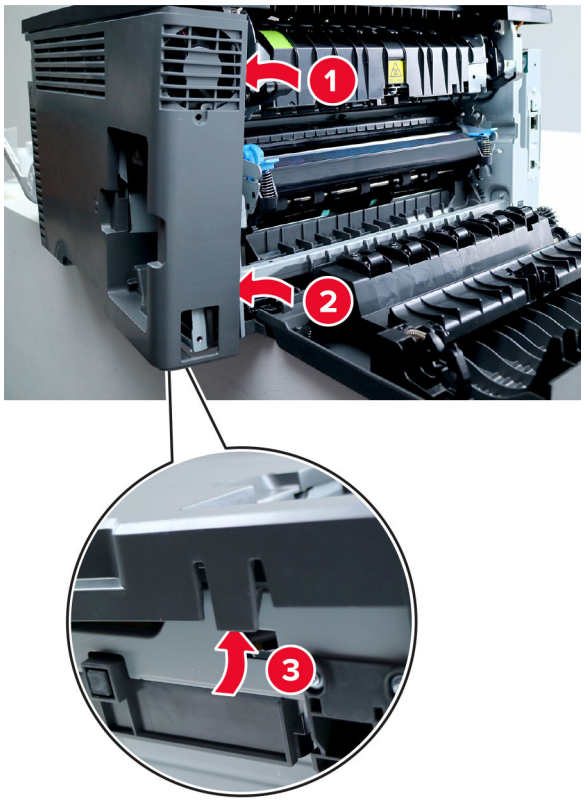
2 Remove the lower front cover.



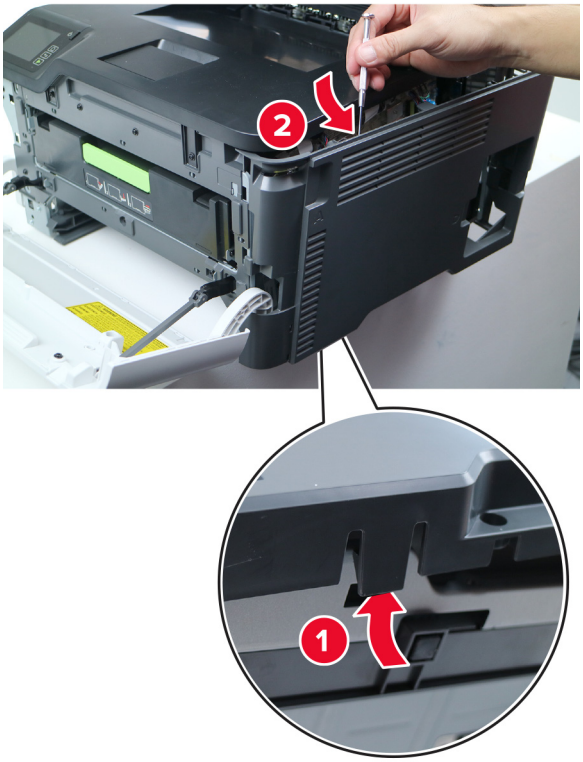
3 Open the front and rear doors.

4 Remove the screws.

5 Position the printer as shown, and then release the latches.



6 Release the latches.

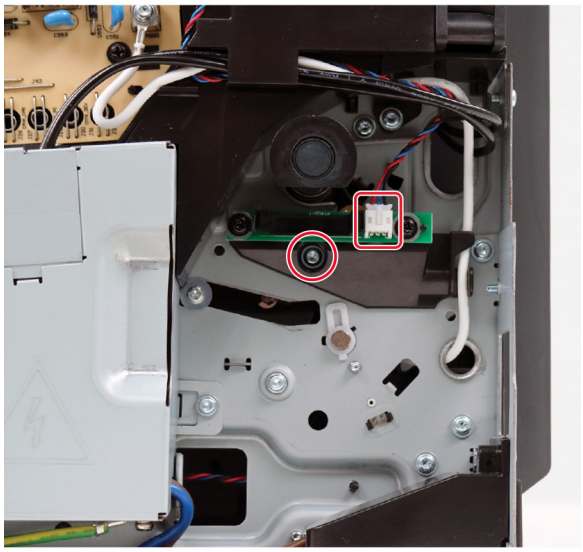


7 Remove the cover.

Sensor (waste toner bottle) removal

1 Remove the right cover. See **"Right cover removal" on page 266**.

2 Disconnect the cable, and then remove the screw.



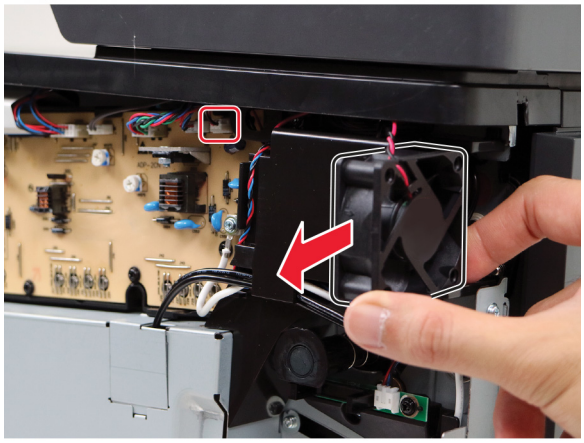
3 Remove the sensor.

Exhaust fan removal

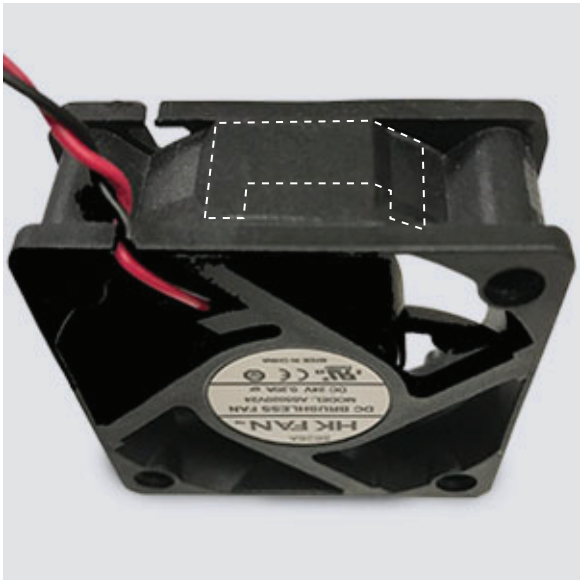
1 Remove the right cover. See **"Right cover removal" on page 266**.

2 Disconnect the cable, and then remove the fan.

Installation note: Pay attention to the orientation of the fan.

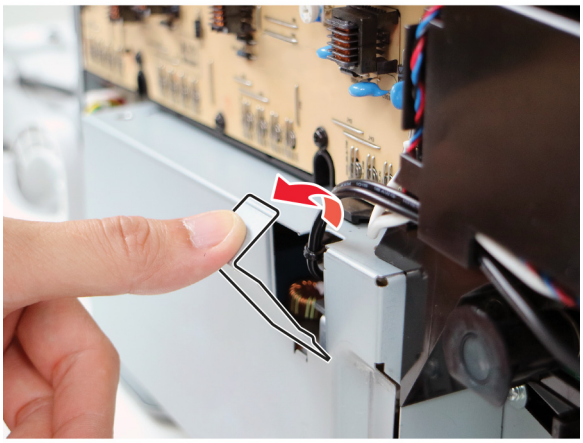


Installation note: Stick the pad to the fan on the area shown.

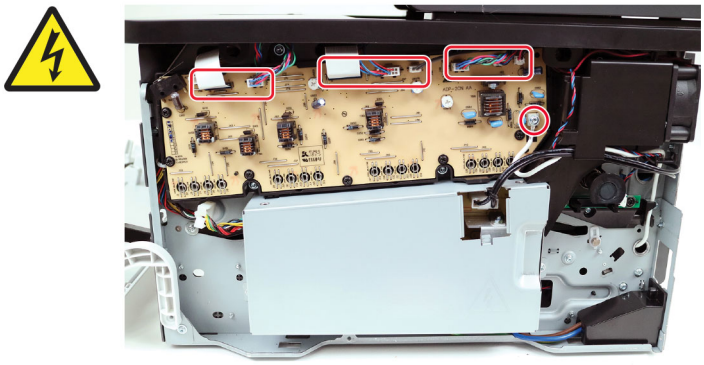


HVPS removal

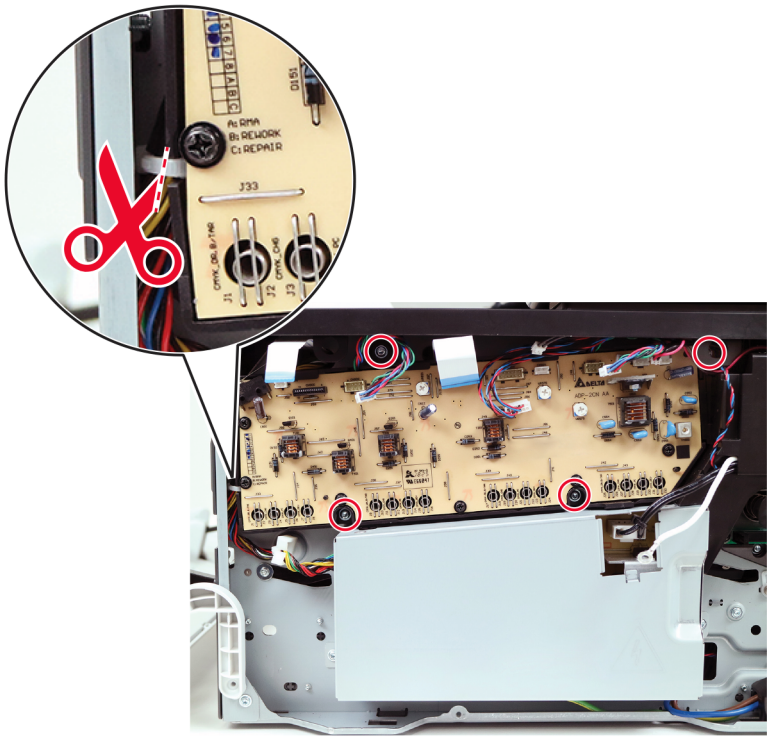
1. Remove the right cover. See **“Right cover removal” on page 266**.
2. Remove the cover.



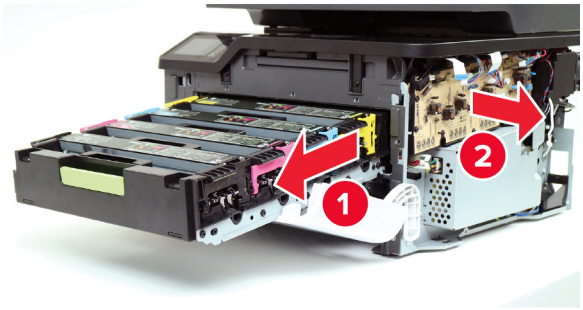
3 Disconnect all the cables, and then remove the cable screw.



4 Cut the cable tie, and then remove the screws.



5 Remove the HVPS.

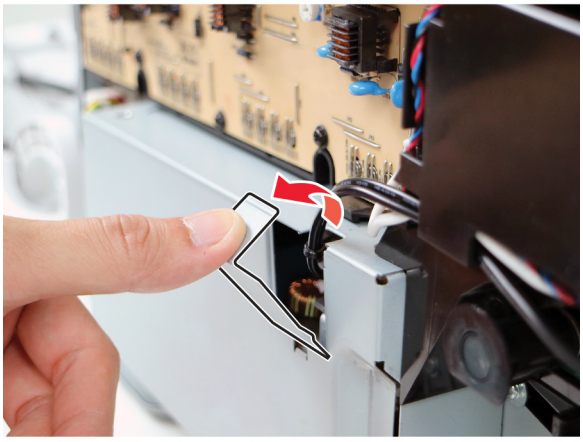


Warning—Potential Damage: Extended exposure of the cartridge to light may cause print quality problems.

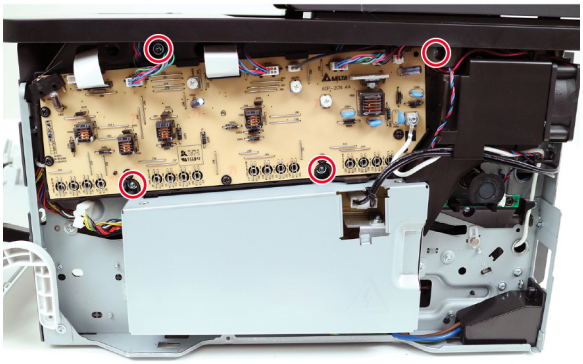
LVPS removal

1 Remove the right cover. See **"Right cover removal" on page 266**.

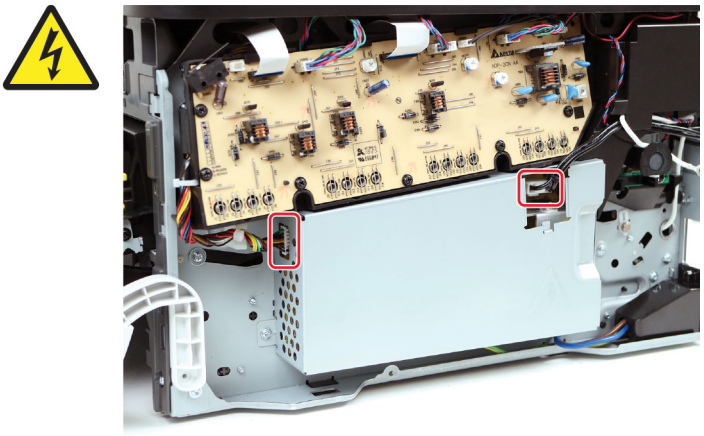
2 Remove the cover.



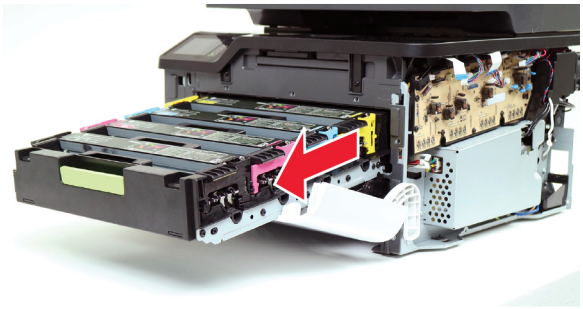
3 Remove the screws.



4 Disconnect the cables.

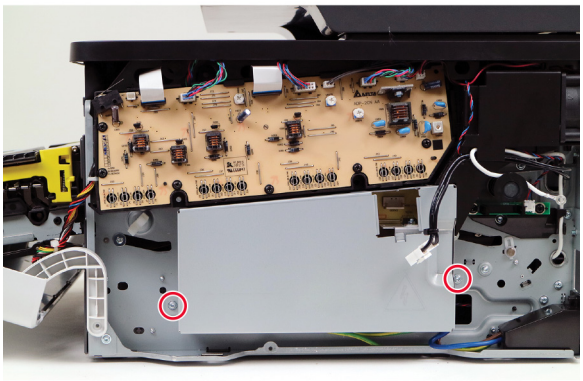


5 Pull out the print cartridge tray.

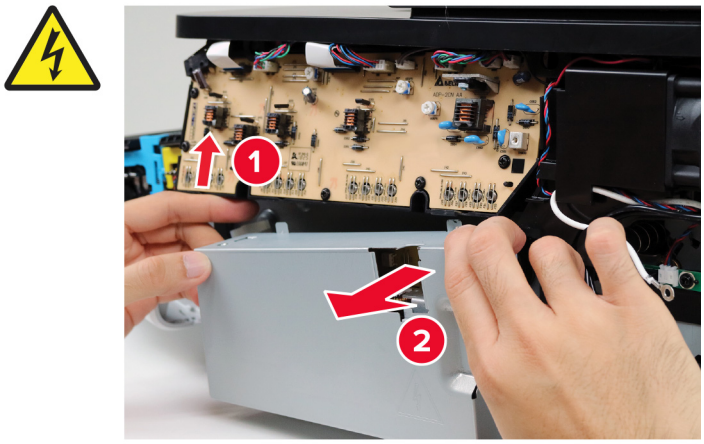


Warning—Potential Damage: Extended exposure of the cartridge to light may cause print quality problems.

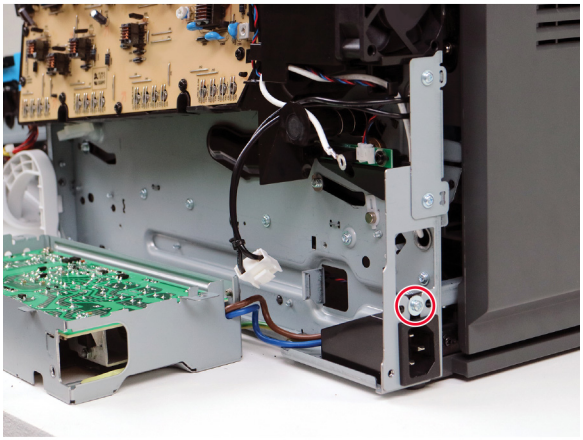
6 Remove the screws.



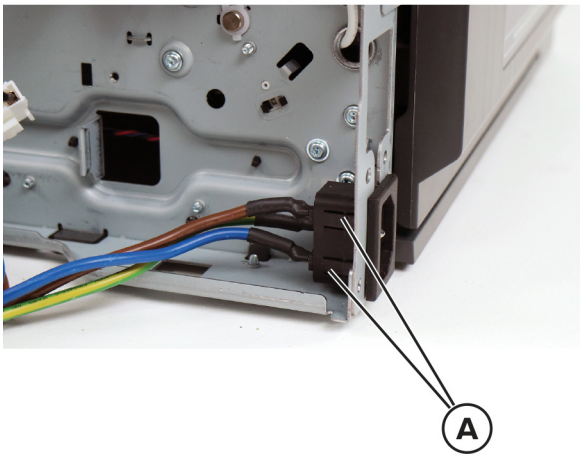
7 Release the LVPS.



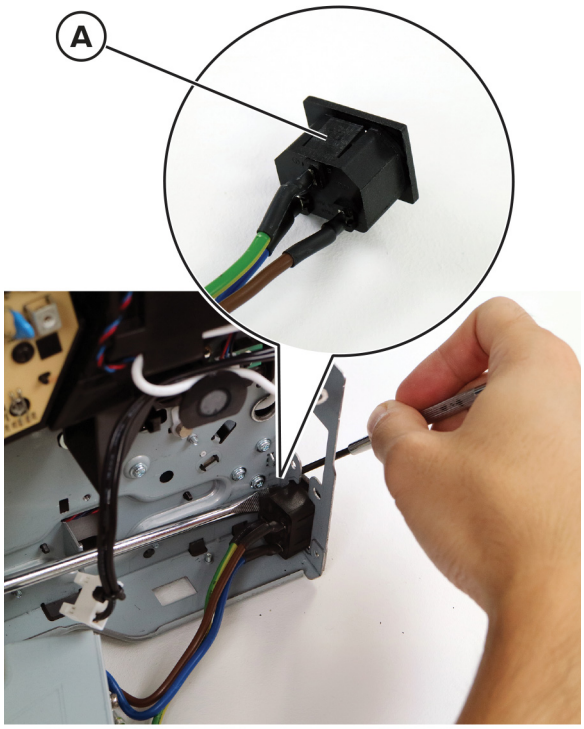
8 Remove the screw, and then remove the cover.



9 Release the latches (A).



Note: Use prying tools to release the remaining latch (A).



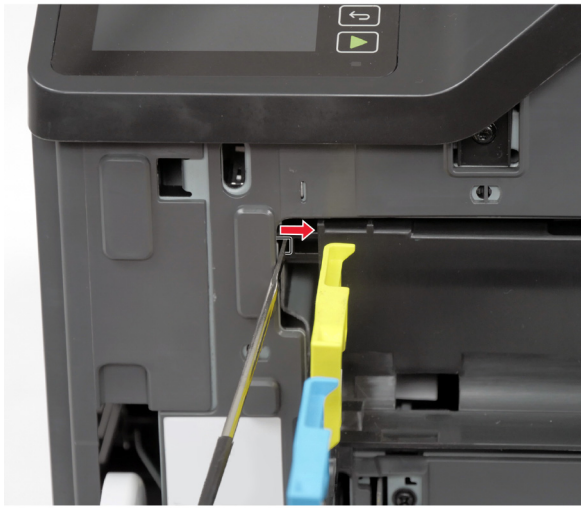
10 Remove the LVPS.

Front side removals

Print cartridge tray removal

1 Open the front door, and then pull out the print cartridge tray.

2 Unlock the print cartridge tray.



3 Remove the print cartridge tray.

Control panel removal

Critical information for controller board or control panel replacement

Warning—Potential Damage: Replace only one of the following components at a time:

- Control panel
- Controller board

To replace a component and to test whether the problem is resolved:

1 Replace the affected component.

Warning—Potential Damage: Do not perform a Power-On Reset (POR) until the problem is resolved. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

2 Enter the Diagnostics Menu. The Diagnostics Menu allows you to temporarily use the replacement part.

Warning—Potential Damage: Some printers will perform automatically a POR if the Diagnostics Menu is not opened within five seconds. If a POR is performed at this point, then the replacement part can no longer be used in another printer and must be returned to the manufacturer.

3 Use the Diagnostics Menu to test the replacement part. Do a feed test to check if the problem is resolved.
- If the problem is not resolved—Turn off the printer, and then reinstall the old part.
- If the problem is resolved—Perform a POR.

Removal procedure

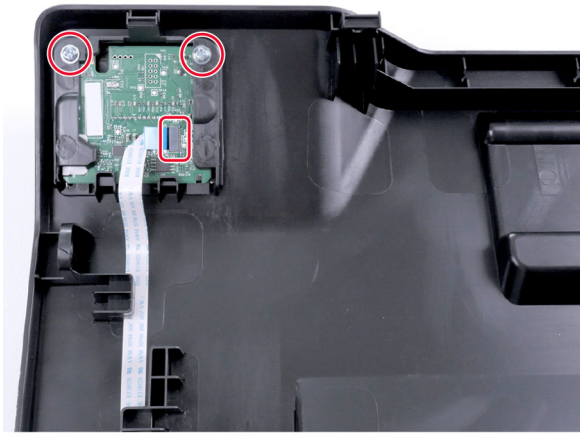
1 Remove the left cover. See **“Left cover removal” on page 253**.

2 Remove the right cover. See **“Right cover removal” on page 266**.

3 Remove the controller board shield. See **“Controller board shield removal” on page 257**.

4 Remove the top cover. See **“Top cover removal” on page 293**.

5 Disconnect the cable under the top cover, and then remove the screws.



6 Remove the control panel.

Printhead interlock switch removal

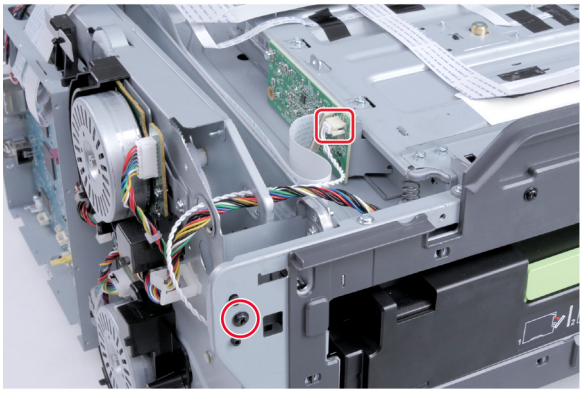
1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the right cover. See **"Right cover removal" on page 266**.

3 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

4 Remove the top cover. See **"Top cover removal" on page 293**.

5 Disconnect the cable, and then remove the screw.



6 Remove the switch bracket.

7 Remove the screw.

8 Remove the switch.

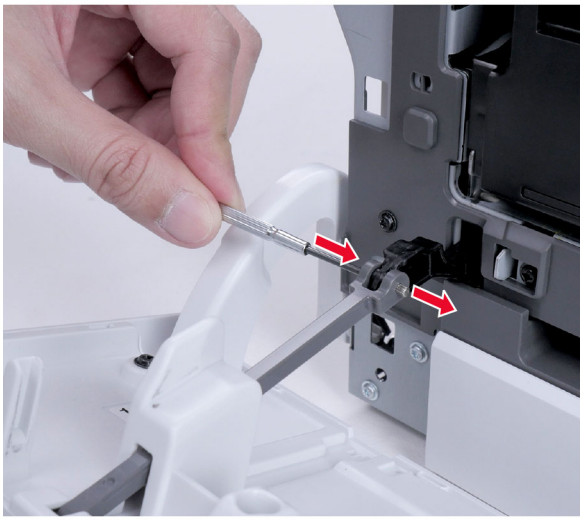
Front door removal

1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the right cover. See **"Right cover removal" on page 266**.

3 Remove the hinge pins.

Warning—Potential Damage: Do not lose the pins.



4 Release the door links.

5 Remove the door.

Inner front cover removal

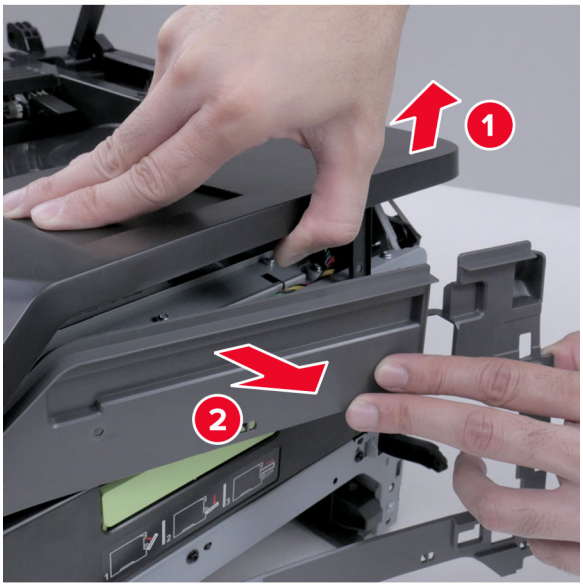
1 Remove the left cover. See **“Left cover removal” on page 253**.

2 Remove the right cover. See **“Right cover removal” on page 266**.

3 Remove the front door. See **“Front door removal” on page 278**.

4 Remove the screws.

5 Remove the inner front cover.



Rear side removals

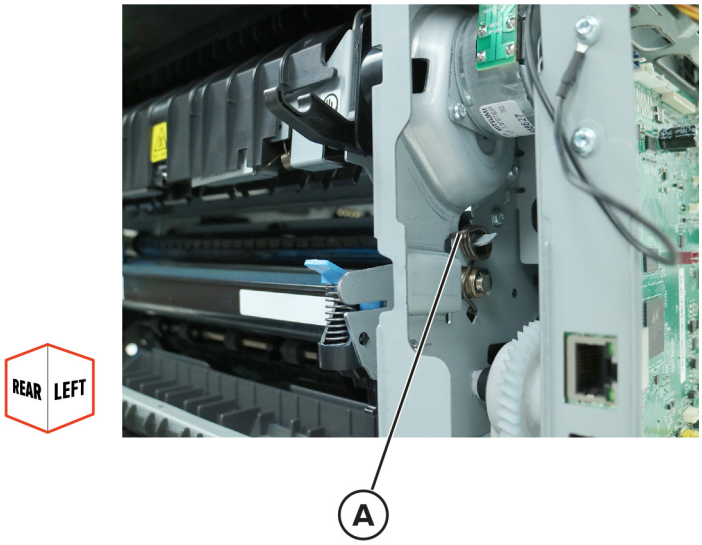
Transfer module removal

1 Remove the right cover. See **“Right cover removal” on page 266**.

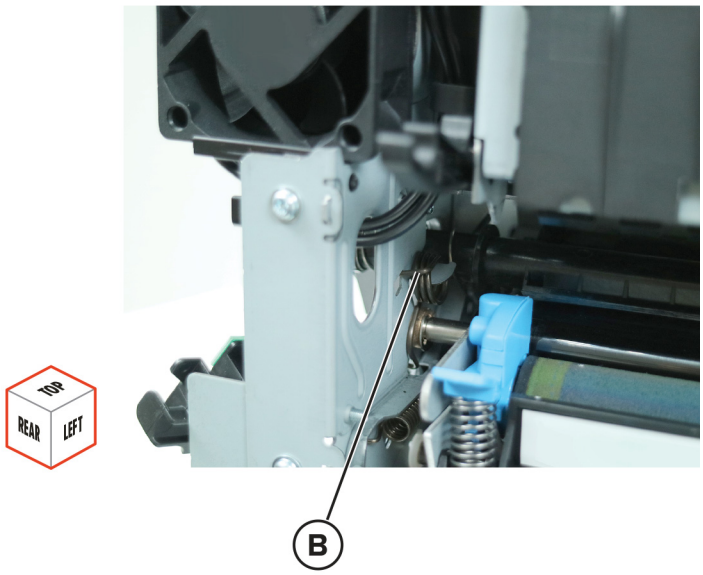
2 Remove the left cover. See **“Left cover removal” on page 253**.

3 Remove the print cartridge tray. See **“Print cartridge tray removal” on page 275**.

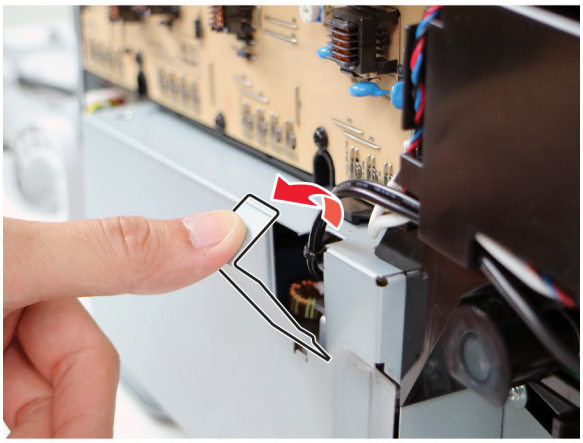
4 Release the left spring (A).



5 Release the right spring (B).



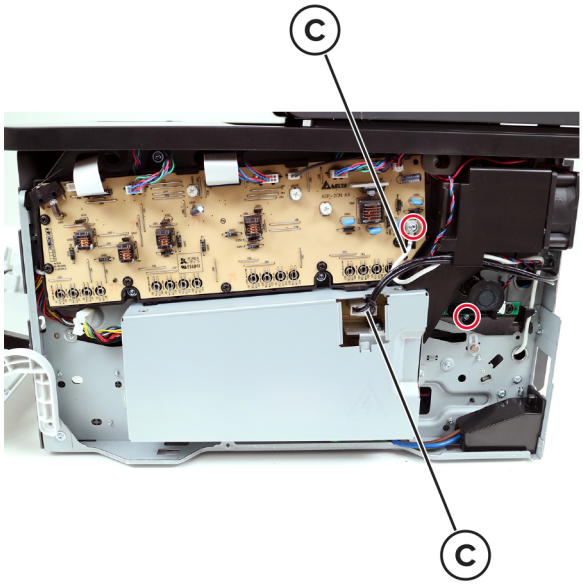
6 Remove the cover.



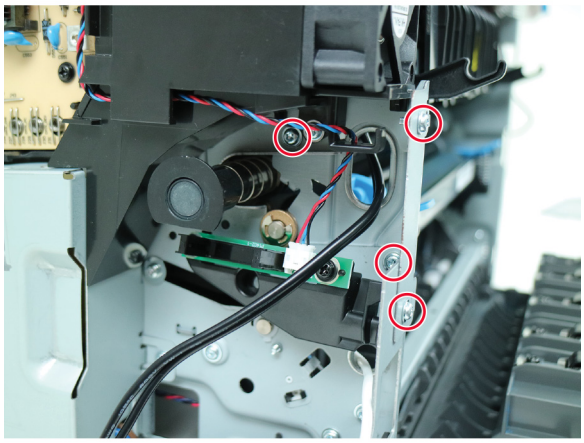
7 Disconnect and release the cables (C), and then remove the screws.

Installation note: Pay attention to the cable routes.

Warning—Potential Damage: To avoid damaging the transfer module nozzle, move the sensor (waste toner bottle) out of the way.

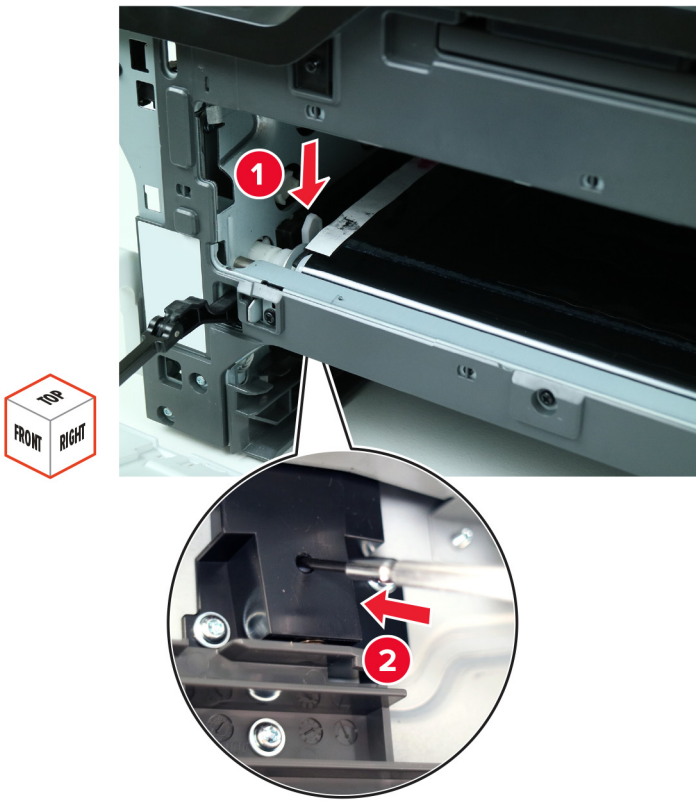


8 Remove the screws.

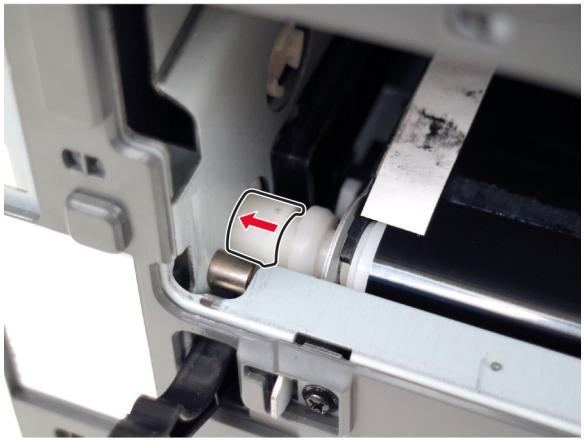


9 Release the bracket, and then move it out of the way.

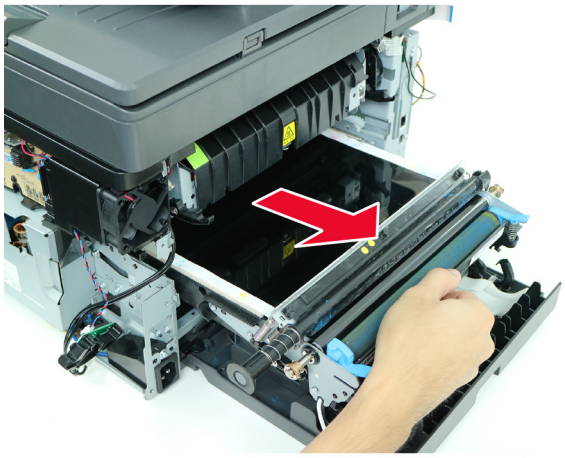
10 Press the latch. Lock the latch position using a prying tool or screwdriver.



11 Move the coupler to release the transfer module.



12 Remove the transfer module.



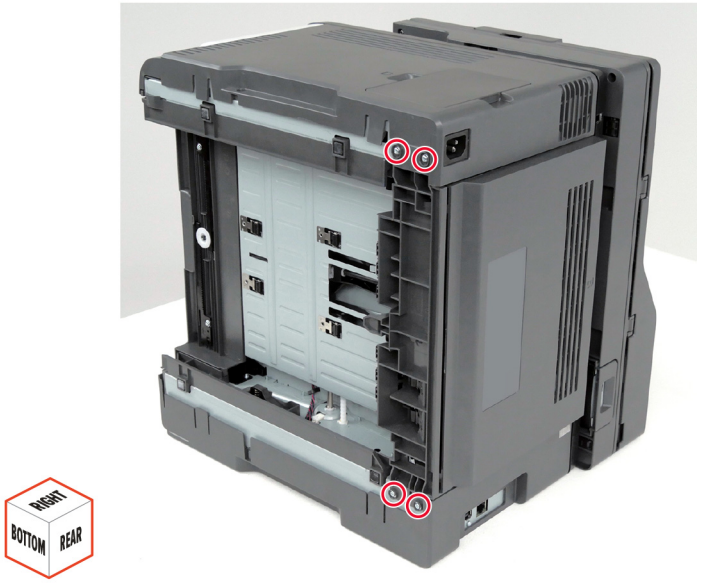
Installation warning: To avoid print quality issues, do not touch or scratch the transfer belt and transfer roller surface.

Note: For a video demonstration, see **Transfer module removal** at infoserve.lexmark.com/ids/sma.

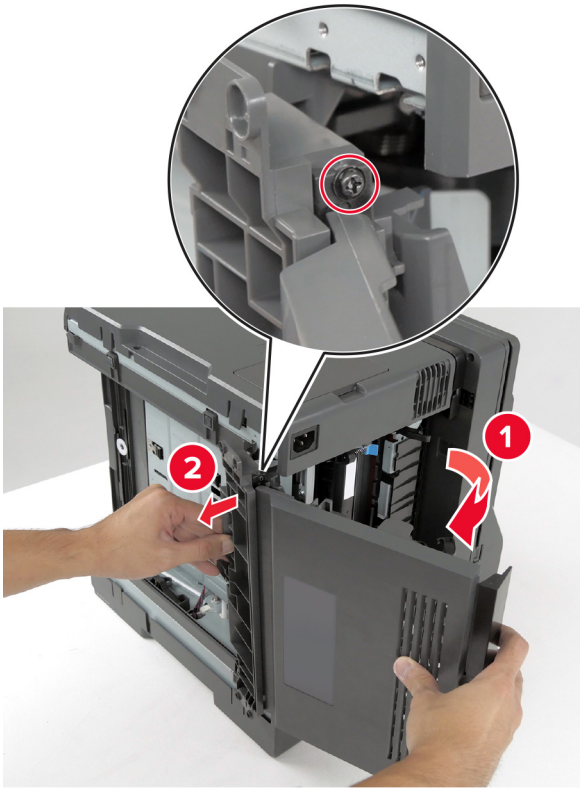
Rear door removal

Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray. See **"Covering the print cartridge tray" on page 247**.

1 Under the printer, remove the screws.

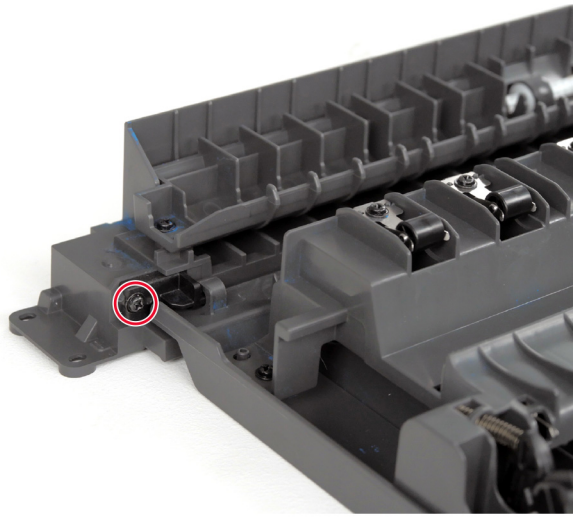


2 Release the door, and then remove the screw.



3 Remove the door.

4 Remove the screw.

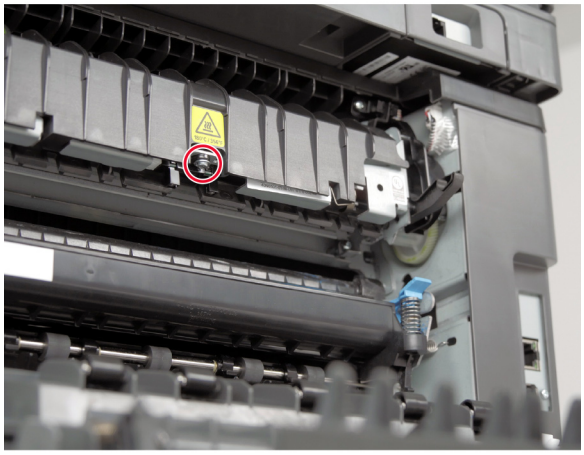


5 Remove the door.

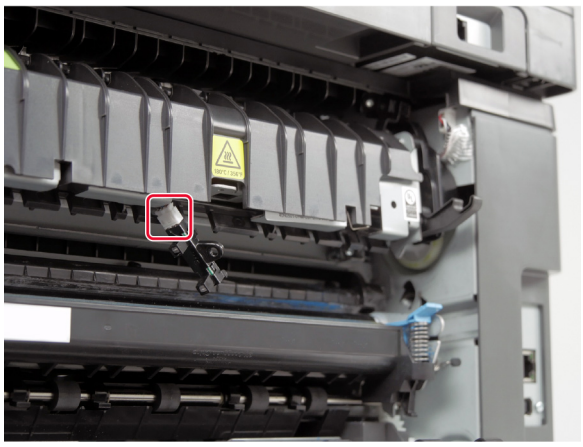
Sensor (fuser buckle) removal

1 Open the rear door.

2 Remove the screw.



3 Disconnect the cable.



4 Remove the sensor.

Fuser removal

1 Remove the left cover. See **"Left cover removal" on page 253**.

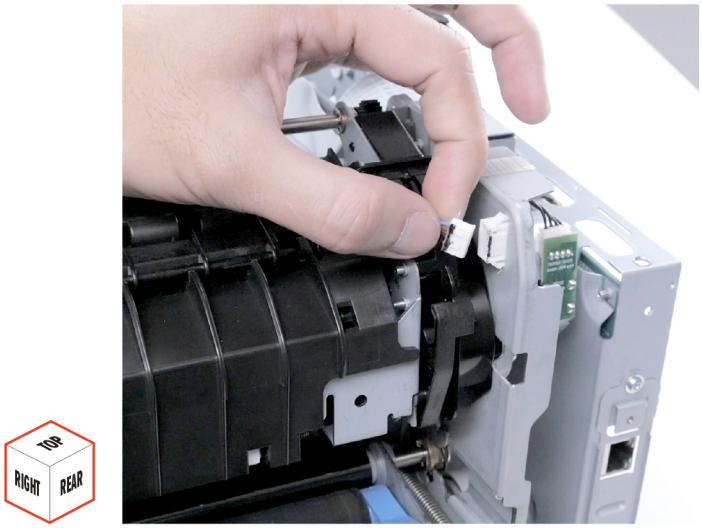
2 Remove the right cover. See **"Right cover removal" on page 266**.

3 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

4 Remove the top cover. See **"Top cover removal" on page 293**.

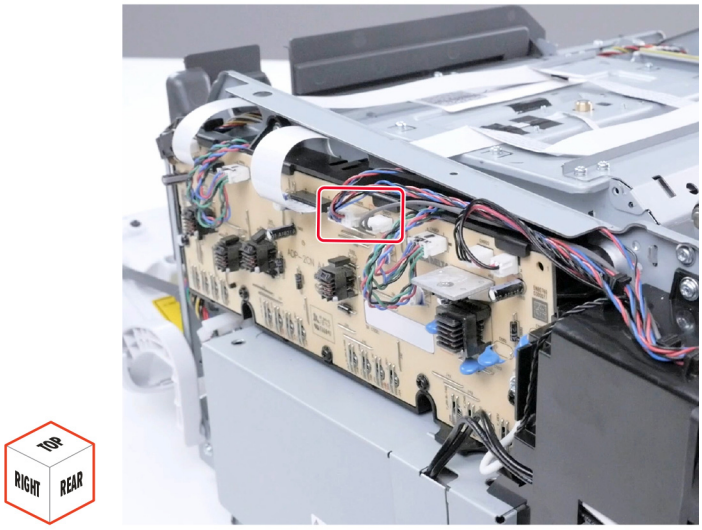
5 Remove the bin flag. See **"Bin flag removal" on page 300**.

6 Disconnect the cable.

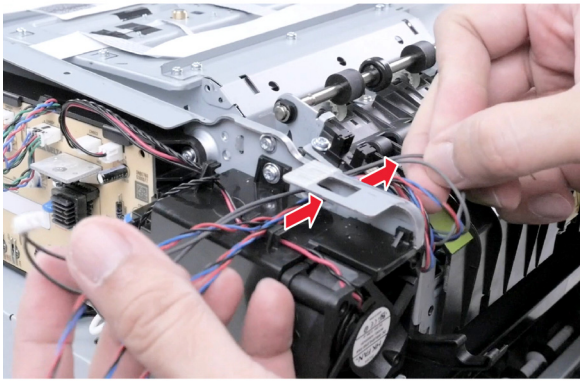


7 Disconnect, and then release the cables.

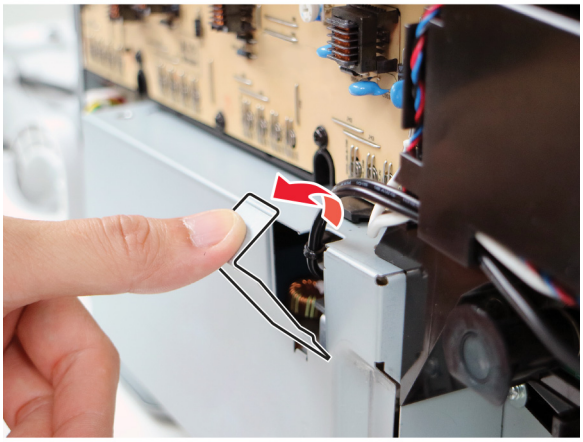
Installation note: Pay attention to the cable routes.



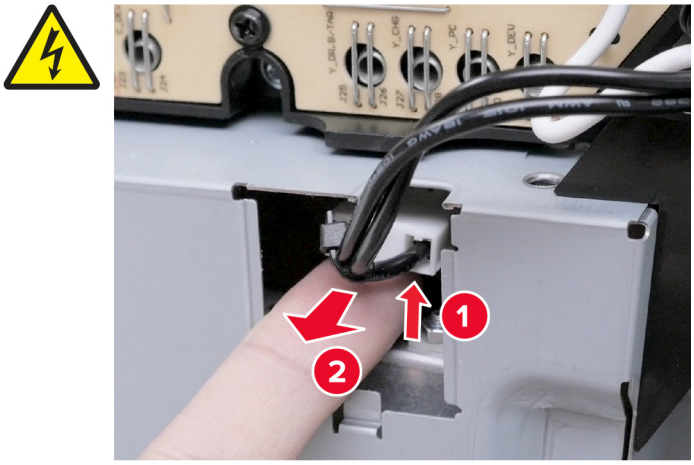
8 Thread the cables through the hole.



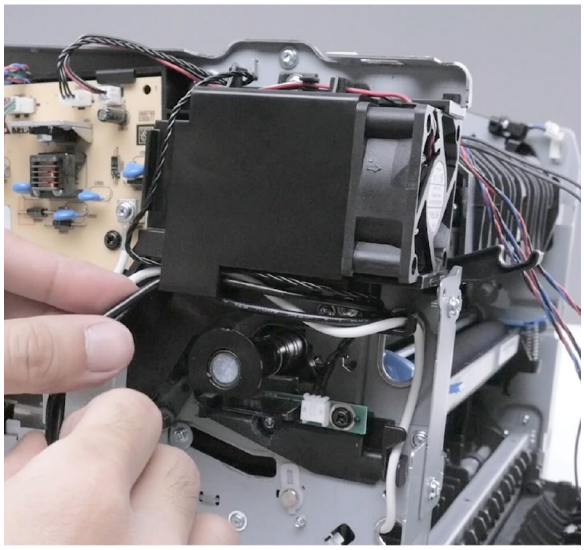
9 Remove the cover.

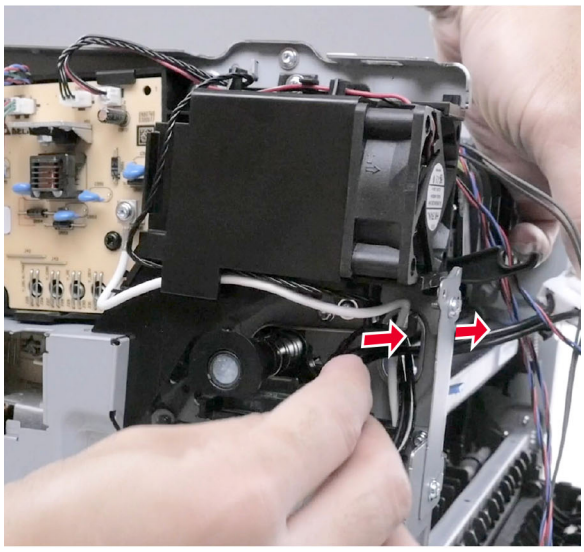


10 Disconnect the cable.

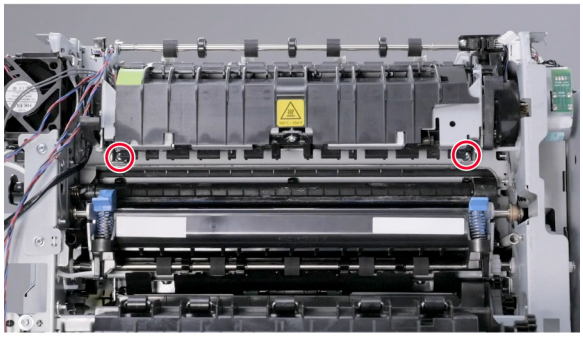


11 Thread the cable through the hole.

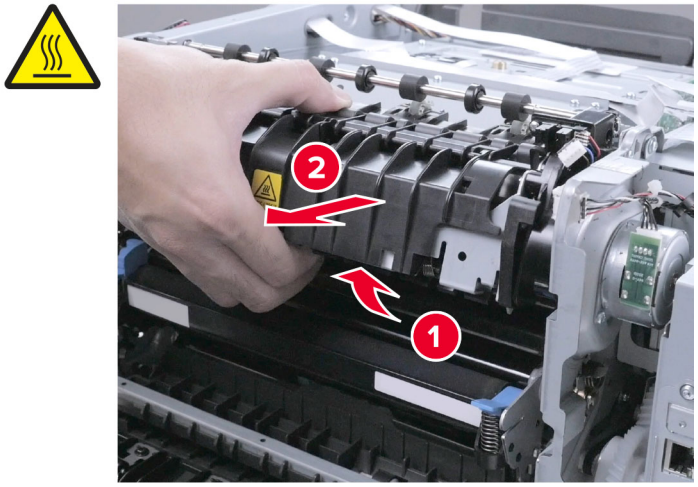




12 Remove the screws.



13 Remove the fuser.

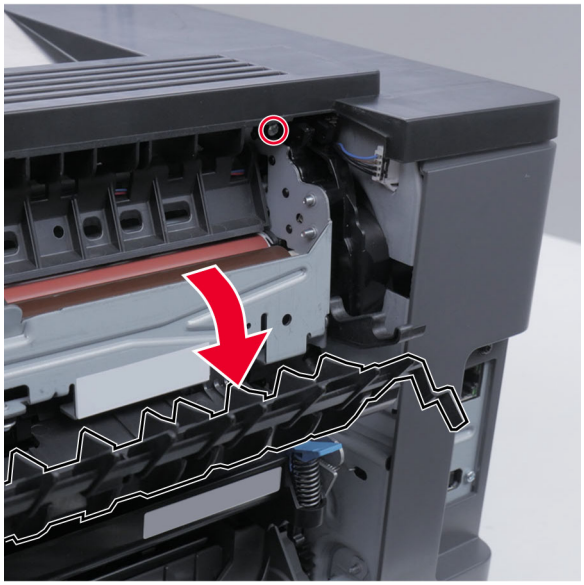


Note: For a video demonstration, see **Fuser removal** at infoserve.lexmark.com/ids/sma.

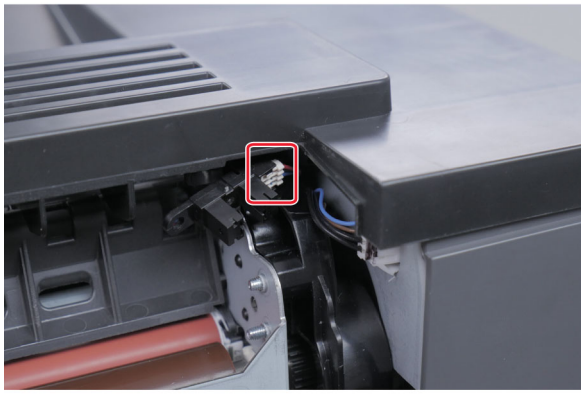
Sensor (fuser exit) removal

1 Open the rear door.

2 Remove the screw.



3 Disconnect the cable.

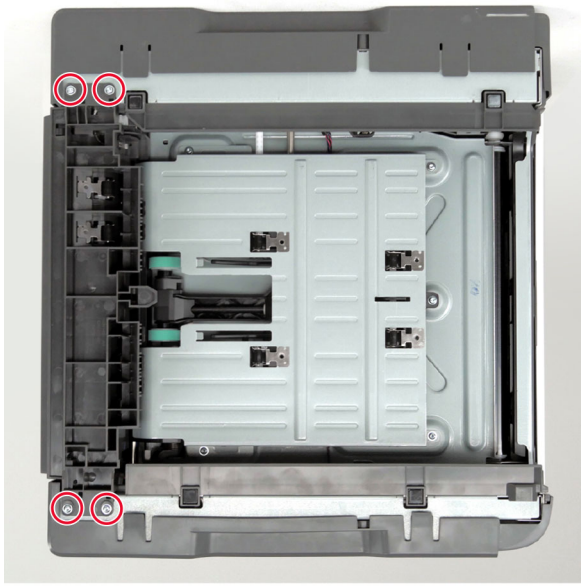


4 Remove the sensor.

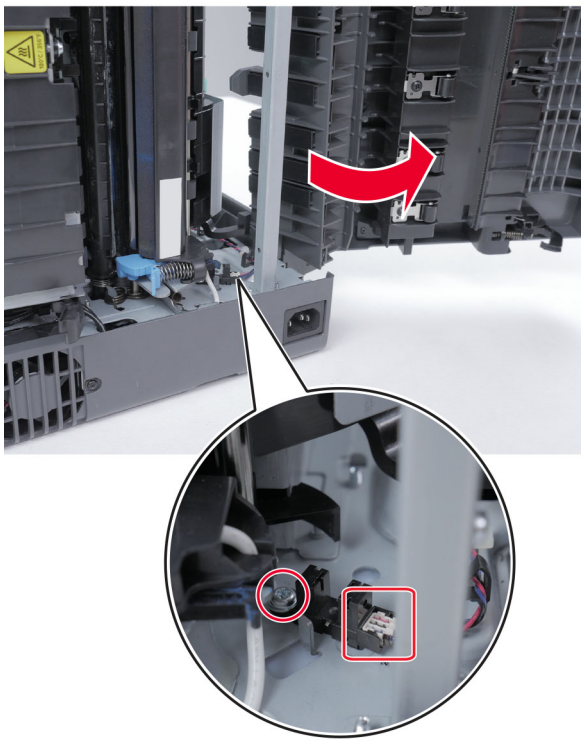
Sensor (input) removal

Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray. See **"Covering the print cartridge tray" on page 247**.

1 Under the printer, remove the screws.



2 Disconnect the cable, and then remove the screw.



3 Remove the sensor.

Top side removals

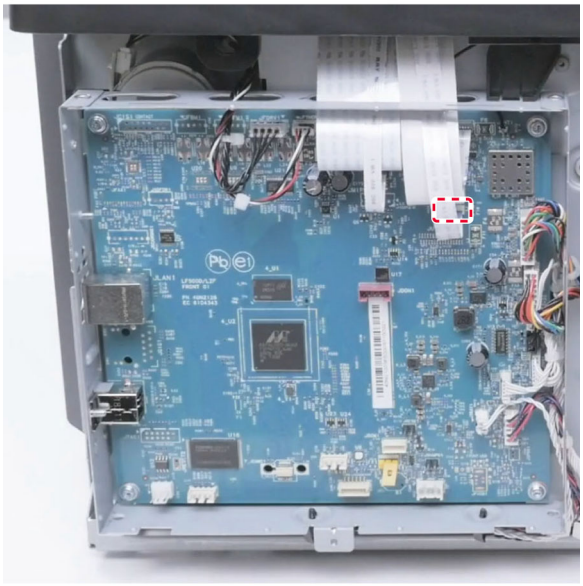
Top cover removal

1 Remove the left cover. See **“Left cover removal” on page 253**.

2 Remove the right cover. See **“Right cover removal” on page 266**.

3 Remove the controller board shield. See **“Controller board shield removal” on page 257**.

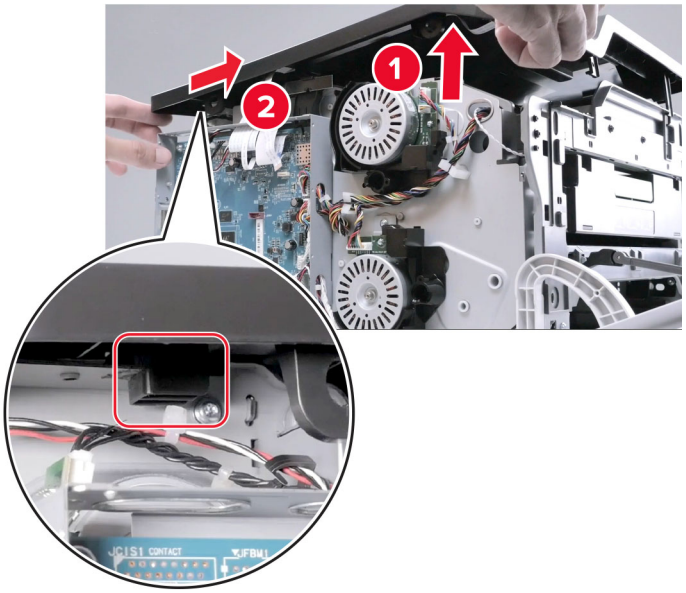
4 Disconnect the cable.



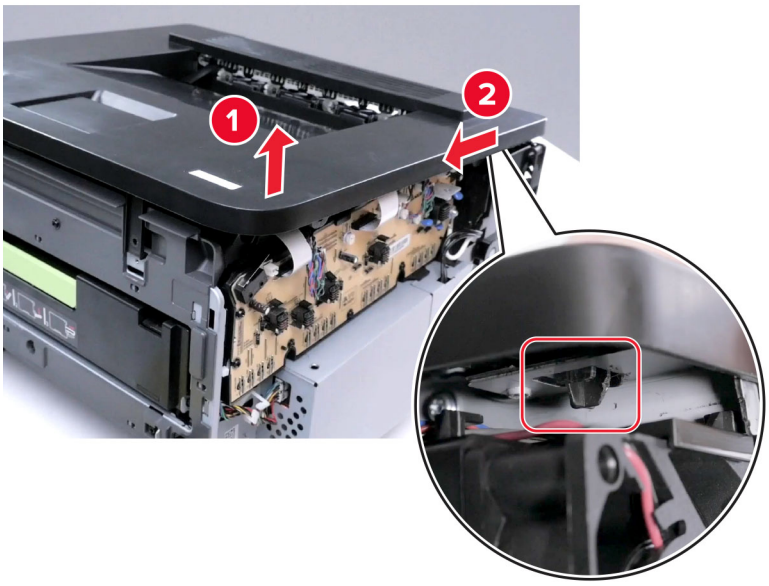
5 Remove the screws.

6 Release the latches.

7 Release the latch.



8 Release the latch.



9 Remove the cover.

Printhead removal

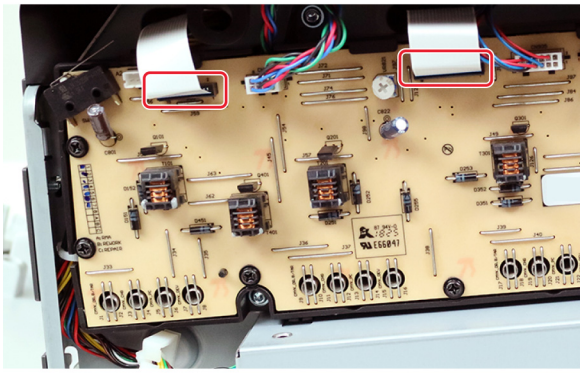
1 Remove the left cover. See **"Left cover removal" on page 253**.

2 Remove the right cover. See **"Right cover removal" on page 266**.

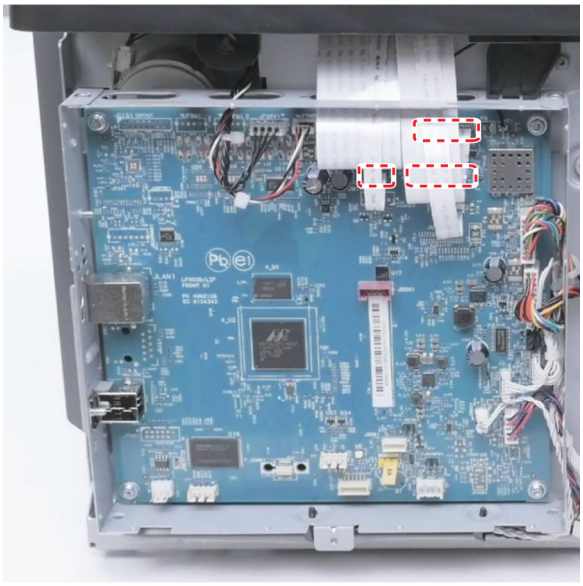
3 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

4 Remove the top cover. See **"Top cover removal" on page 293**.

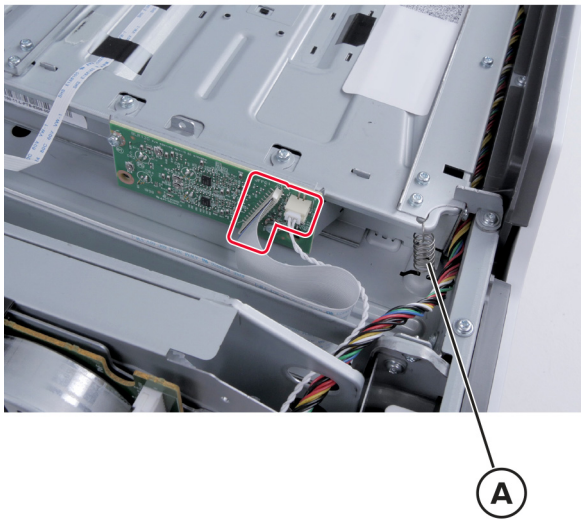
5 Disconnect the cables.



6 Disconnect the cables.

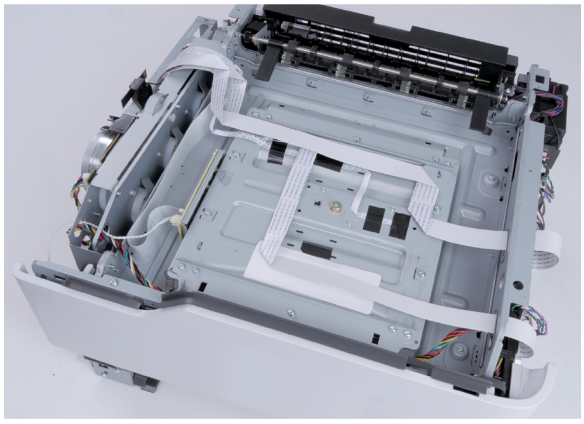


7 Disconnect the cables and release the spring (A).



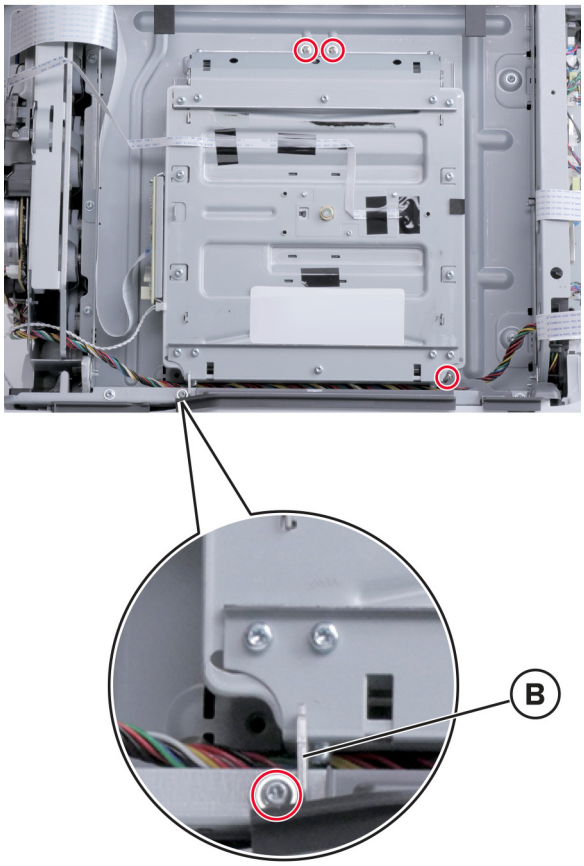
8 Release the cables from the printhead.

Installation note: Pay attention to the cable routes.



9 Remove the screws.

Warning—Potential Damage: Do not lose the bracket (B).



10 Remove the printhead.

Installation warning: Do not touch the mirrors under the printhead.

Installation notes:

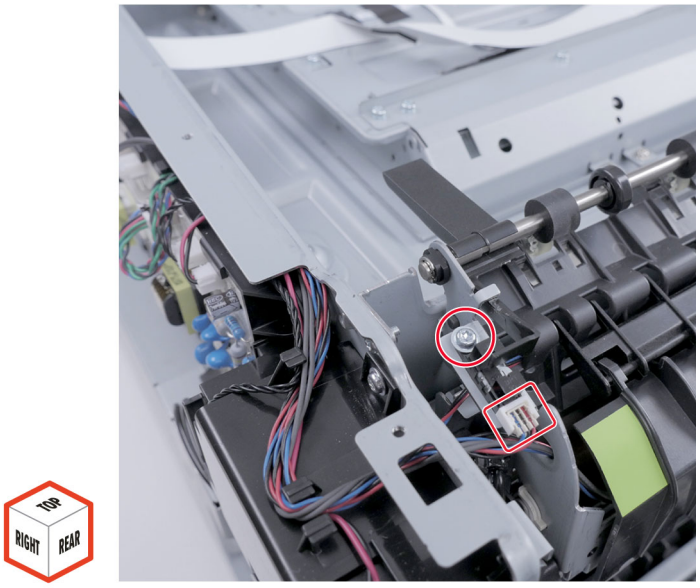
a Perform the registration adjustment and color alignment adjustment. See **"Registration adjustment" on page 248**.

b Perform the printhead characterization procedure. See **"Printhead characterization" on page 251**.

Note: For a video demonstration, see **Printhead removal** and **Printhead characterization** at infoserve.lexmark.com/ids/sma.

Sensor (bin/narrow media) removal

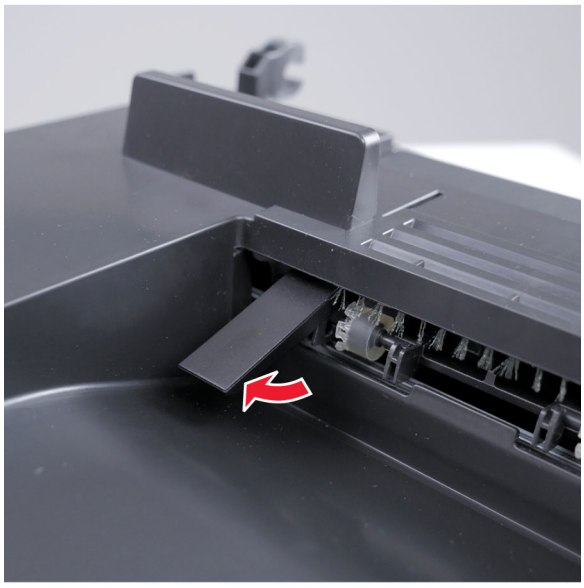
1. Remove the left cover. See **“Left cover removal” on page 253**.
2. Remove the right cover. See **“Right cover removal” on page 266**.
3. Remove the controller board shield. See **“Controller board shield removal” on page 257**.
4. Remove the top cover. See **“Top cover removal” on page 293**.
5. Disconnect the cable, and then remove the screw.



6. Remove the sensor.

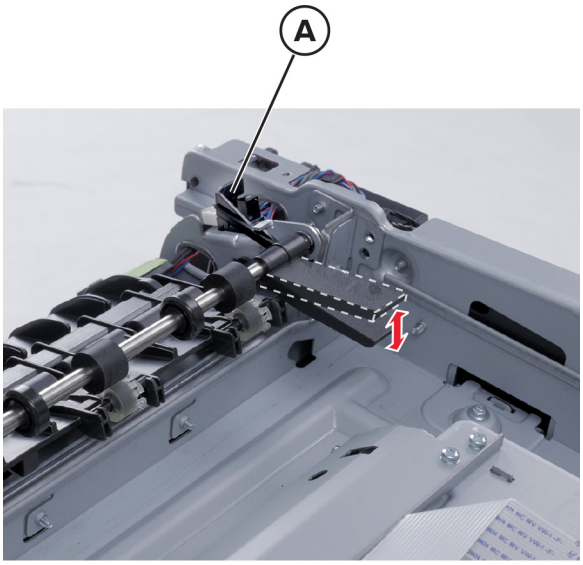
Bin flag removal

1 Remove the left bin flag.



2 Remove the right bin flag.

Installation note: Move the flag up and down. Check if the flag (A) toggles the sensor. Check if the bin flag drops down freely to its default lower position.



Bottom side removals

Pick tire removal

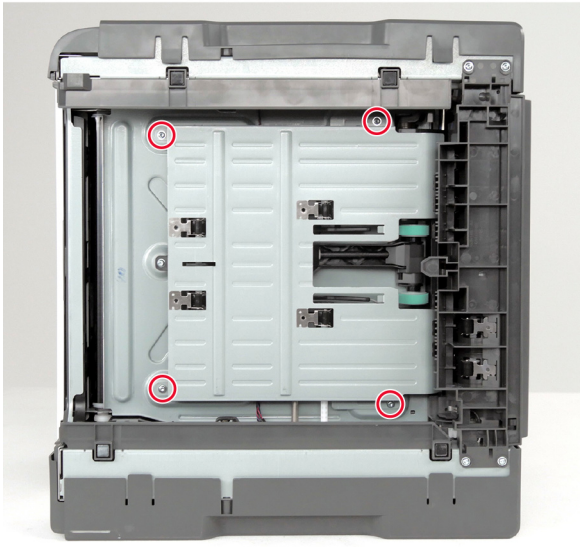
Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray. See **"Covering the print cartridge tray" on page 247**.

Position the printer as shown, and then remove the pick tire.

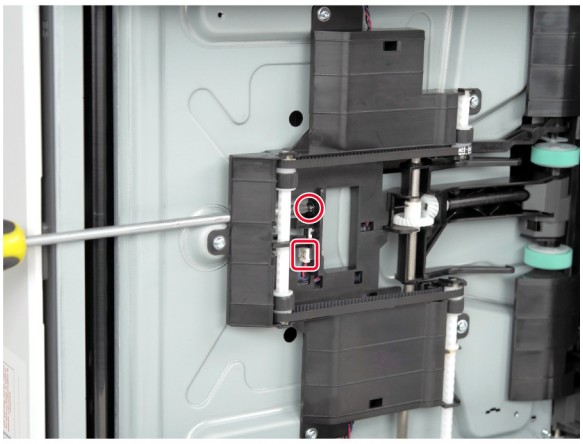
Sensor (manual feeder) removal

Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray. See **"Covering the print cartridge tray" on page 247**.

1 Remove the screws under the printer, and then remove the cover.



2 Disconnect the cable, and then remove the screw.



3 Remove the sensor.

Tray interlock switch removal

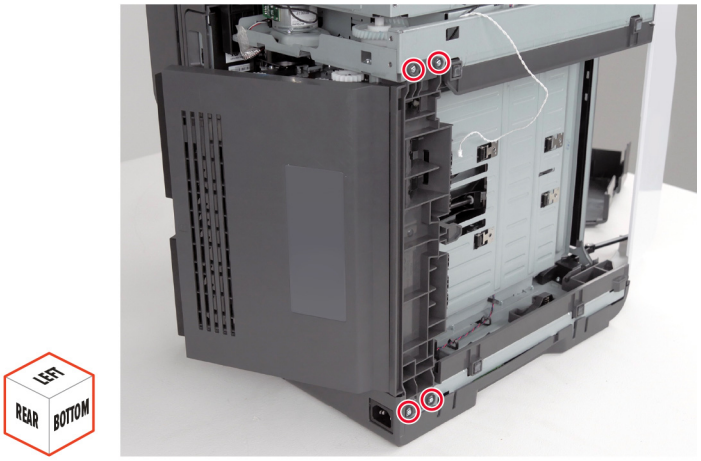
Warning—Potential Damage: If the printer is laid on its side, then toner contamination may occur. To minimize contamination, cover the print cartridge tray. See **"Covering the print cartridge tray" on page 247**.

1 Remove the left cover. See **"Left cover removal" on page 253**.

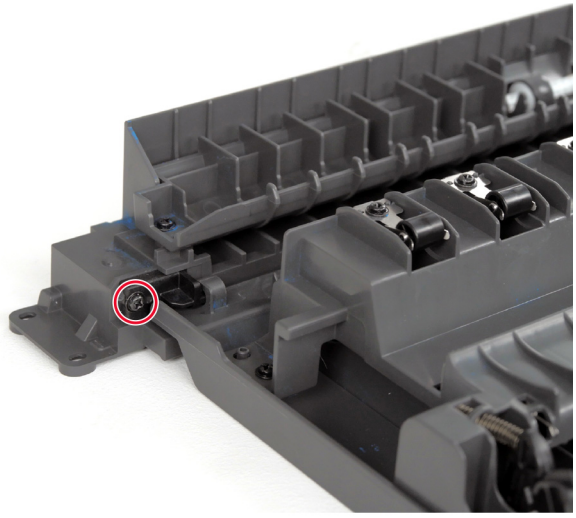
2 Remove the controller board shield. See **"Controller board shield removal" on page 257**.

3 Disconnect the cable.

4 Remove the screws, and then remove the door.

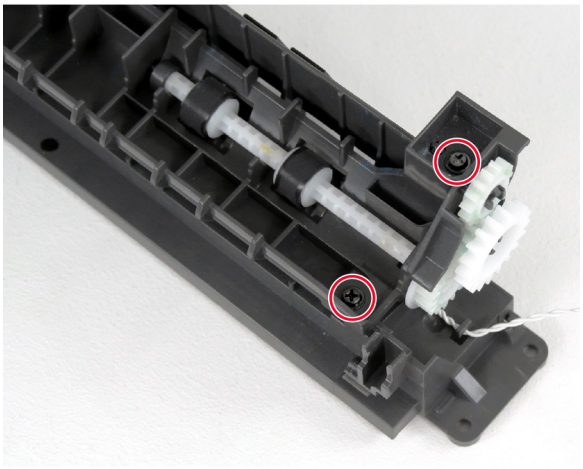


5 Remove the screw.

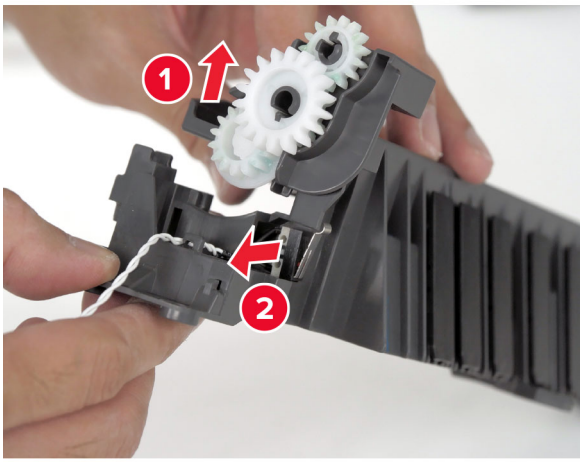


6 Remove the separator bracket.

7 Remove the screws.



8 Remove the switch.

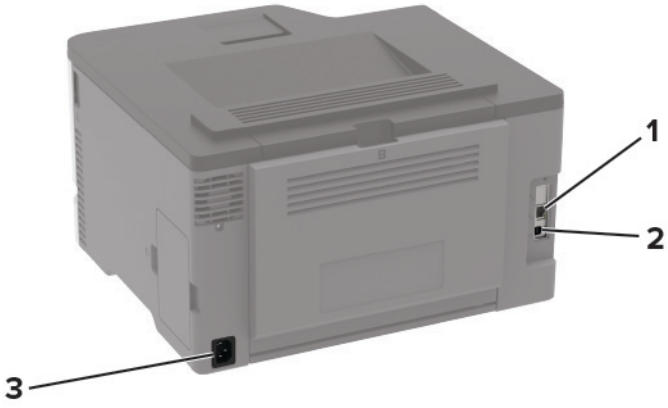


Component locations

Printer configuration

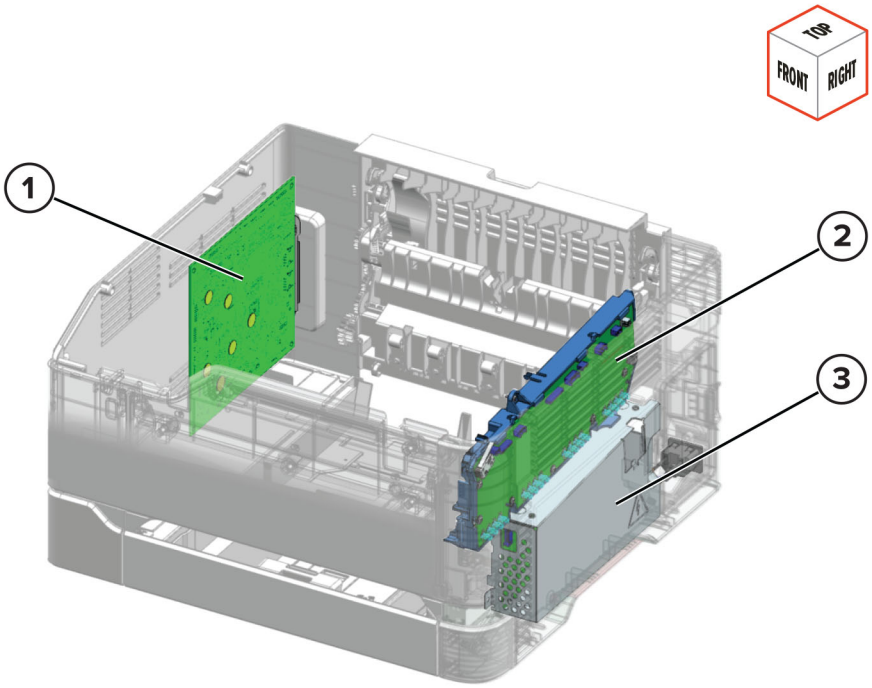
1	Control panel
2	Standard bin
3	Manual feeder
4	250-sheet tray

Port locations



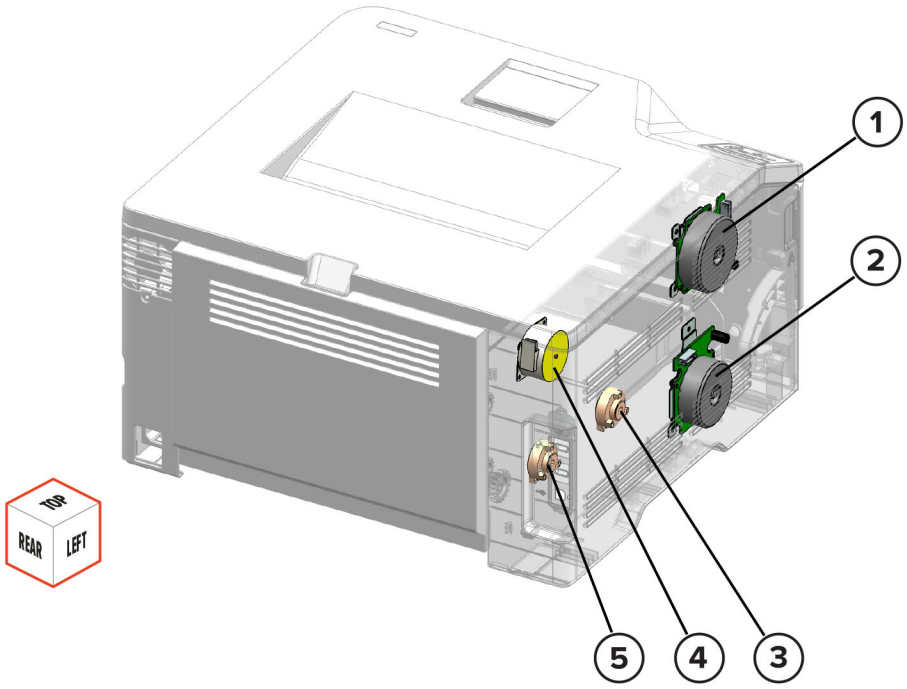
	Printer port	Function
1	Ethernet port	Connect the printer to a network.
2	USB printer port	Connect the printer to a computer.
3	Power cord socket	Connect the printer to an electrical outlet.

Board locations



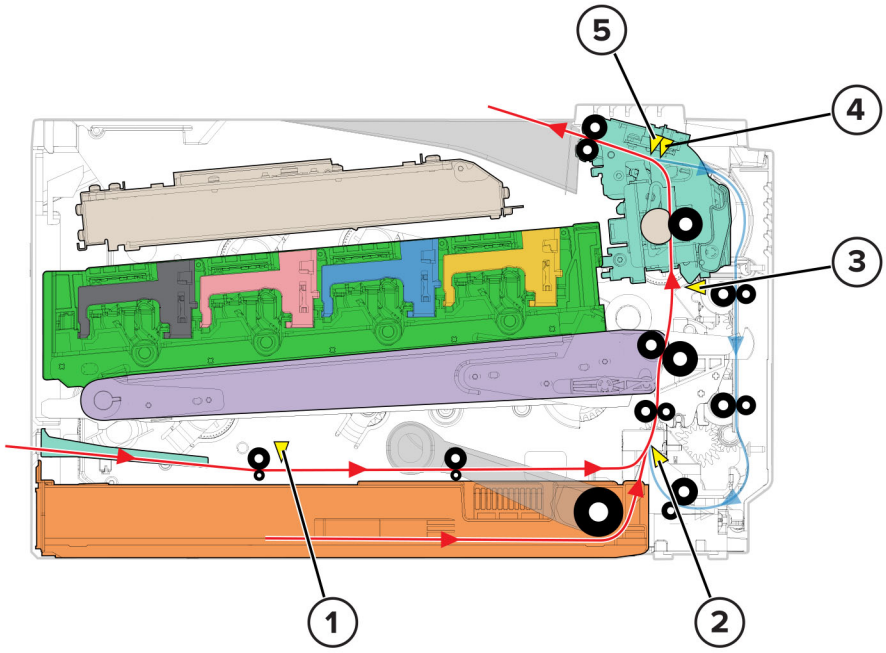
Part	Description
1	Controller board
2	HVPS
3	LVPS

Motor locations



Part	Description
1	Motor (CMY)
2	Motor (K/transfer belt)
3	Pick clutch
4	Motor (fuser)
5	Staging clutch

Sensor locations



Part	Description
1	Sensor (manual feeder)
2	Sensor (input)
3	Sensor (fuser buckle)
4	Sensor (fuser exit)
5	Sensor (bin/narrow media)

Controller board connectors

Connector	Connects to	Pin number	Signal
JBLDC1	Motor (CMY) and motor (K/transfer belt)	1	25V_F_CMY_DRV
		2	GND
		3	CMY_BLDC_BRAKE
		4	CMY_BLDC_PWM
		5	CMY_BLDC_DIR
		6	CMY_BLDC_FG
		7	25V_F_CMY_DRV
		8	GND
		9	25V_F_DRV
		10	GND
		11	K_BLDC_BRAKE
		12	K_BLDC_PWM
		13	K_BLDC_DIR
		14	K_BLDC_FG
		15	25V_F_DRV
		16	GND
JCLUTCH1	Pick clutch	1	PICKDRV+(25V_F_DRV)
		2	PICKDRV-
JCLUTCH2	Staging clutch	1	STAGEDRV+(25V_F_DRV)
		2	STAGEDRV-
JFDRIV1	Motor (fuser)	1	MOT1_A
		2	MOT1_B
		3	MOT2_A
		4	MOT2_B
JFTHERM1	Fuser	1	FUSER_THERM_ADC
		2	GND
		3	TCO-
		4	TCO+

Connector	Connects to	Pin number	Signal
JHVPS1	HVPS	1	24V_SAFETY
		2	GND
		3	GND
		4	GND
		5	25V_F_HVPS
		6	25V_F_HVPS
		7	K_CHARGE_PWM
		8	CMY_CHARGE_PWM
		9	K_DEV_PWM
		10	CMY_DEV_PWM
		11	SEC_XFER_PWM
		12	CMYK_CORE_PWM
		13	GND
		14	SEC_XFER_SERVO_ADC
		15	GND
JHVPS2	HVPS	1	3.3V_SCHIP
		2	I2C_DATA
		3	GND
		4	I2C_CLK
		5	GND
		6	5V_SW
		7	BUBBLE_SENS
		8	FUSER_EXIT_SENS
		9	SPARE_UPP_SENS
		10	A_BUR_THERM
		11	MAIN_FAN_ON
		12	WASTE_LEVEL_SNS_DRV
		13	GND
		14	25V_F_FAN
		15	5V_SW
		16	WASTE_PWM
		17	GND
		18	WASTE_ADC
		19	GND

Connector	Connects to	Pin number	Signal
JLVPS1	LVPS	1	Zero_cross
		2	Relay_on
		3	GND
		4	Heat_on
		5	GND
		6	25V_ON
		7	GND
		8	25V_CONT
		9	GND
		10	25V_SW
		11	GND
		12	25V_SW
		13	GND
		14	25V_SW
JMIRR1	Printhead	1	25V_F_MIR
		2	GND
		3	MM_START
		4	MM_LOCK
		5	MM_REF_CLK

Connector	Connects to	Pin number	Signal
JPH1	Printhead	1	GND
		2	vy1+
		3	vy1-
		4	GND
		5	vk1+
		6	vk1-
		7	GND
		8	LPOWY
		9	lenak
		10	LPOWK
		11	adjy
		12	ADJK
		13	Boost
		14	GND
		15	vc1+
		16	vc1-
		17	GND
		18	vm1+
		19	vm1-
		20	3.3V_ENG
		21	LenaCMY
		22	hsync
		23	LSU_THERM
		24	LPOWC
		25	LPOWM
		26	ADJC
		27	ADJM
		28	3.3V_ENG(Spare)

Connector	Connects to	Pin number	Signal
JSENS1	Sensor (input) and sensor (manual feeder)	1	5V_SW
		2	MAN_FD_DET
		3	GND
		4	5V_SW
		5	SPARE_LPP_SENSOR
		6	GND
		7	5V_SW
		8	STAGE_DET
		9	GND
		10	N/C
JTPS1	Sensor (TPS)	1	TPS1_SPEC
		2	TPS1_SPEC_PWM
		3	GND
		4	TPS1_THERM
		5	TPS1_LED_PWM
		6	5V_SW
		7	TPS1_DIFF
JTPS2	Sensor (TPS)	1	TPS2_SPEC
		2	TPS2_SPEC_PWM
		3	GND
		4	TPS2_LED_PWM
		5	5V_SW
		6	TPS2_DIFF
JTRAY1	Tray interlock switch	1	5V_FUSED
		2	TRAY_PRES_DET

Connector	Connects to	Pin number	Signal
JUICC2L1	Control panel	1	opp_led_drv
		2	5V_CONT_UI
		3	mir_spi_txd
		4	mir_spi_cs-
		5	opp_pwr_btn
		6	gnd
		7	mir_spi_rxd
		8	5V_UI
		9	mir_spi_clk
		10	gnd
		11	i2c_data_ui
		12	i2c_cllk_ui
		13	3.3V
		14	opp_reset-
		15	opp_irq-
		16	3.3V_FUSED

Maintenance

Cleaning the printer

CAUTION—SHOCK HAZARD: To avoid the risk of electrical shock when cleaning the exterior of the printer, unplug the power cord from the electrical outlet and disconnect all cables from the printer before proceeding.

ATTENTION—RISQUE D'ELECTROCUTION : pour éviter tout risque d'électrocution lors du nettoyage de l'extérieur de l'imprimante, débranchez le cordon d'alimentation électrique de la prise et déconnectez tous les câbles de l'imprimante avant de continuer.

PRECAUCIÓN: PELIGRO DE DESCARGAS ELÉCTRICAS: Para evitar el riesgo de descarga eléctrica al limpiar el exterior de la impresora, desconecte el cable de alimentación de la toma eléctrica y desconecte todos los cables de la impresora antes de realizar la operación.

VORSICHT – STROMSCHLAGGEFAHR: Um das Risiko eines elektrischen Schlags beim Reinigen des Druckergehäuses zu vermeiden, ziehen Sie das Netzkabel aus der Steckdose, und ziehen Sie alle Kabel vom Drucker ab, bevor Sie fortfahren.

Notes:

- Perform this task after every few months.
- Damage to the printer caused by improper handling is not covered by the printer warranty.

1. Turn off the printer, and then unplug the power cord from the electrical outlet.
2. Remove paper from the standard bin and manual feeder.
3. Remove any dust, lint, and pieces of paper around the printer using a soft brush or vacuum.
4. Wipe the outside of the printer with a damp, soft, lint-free cloth.

   Notes:

   - Do not use household cleaners or detergents, as they may damage the finish of the printer.
   - Make sure that all areas of the printer are dry after cleaning.
5. Connect the power cord to the electrical outlet, and then turn on the printer.

Parts catalog

Legend

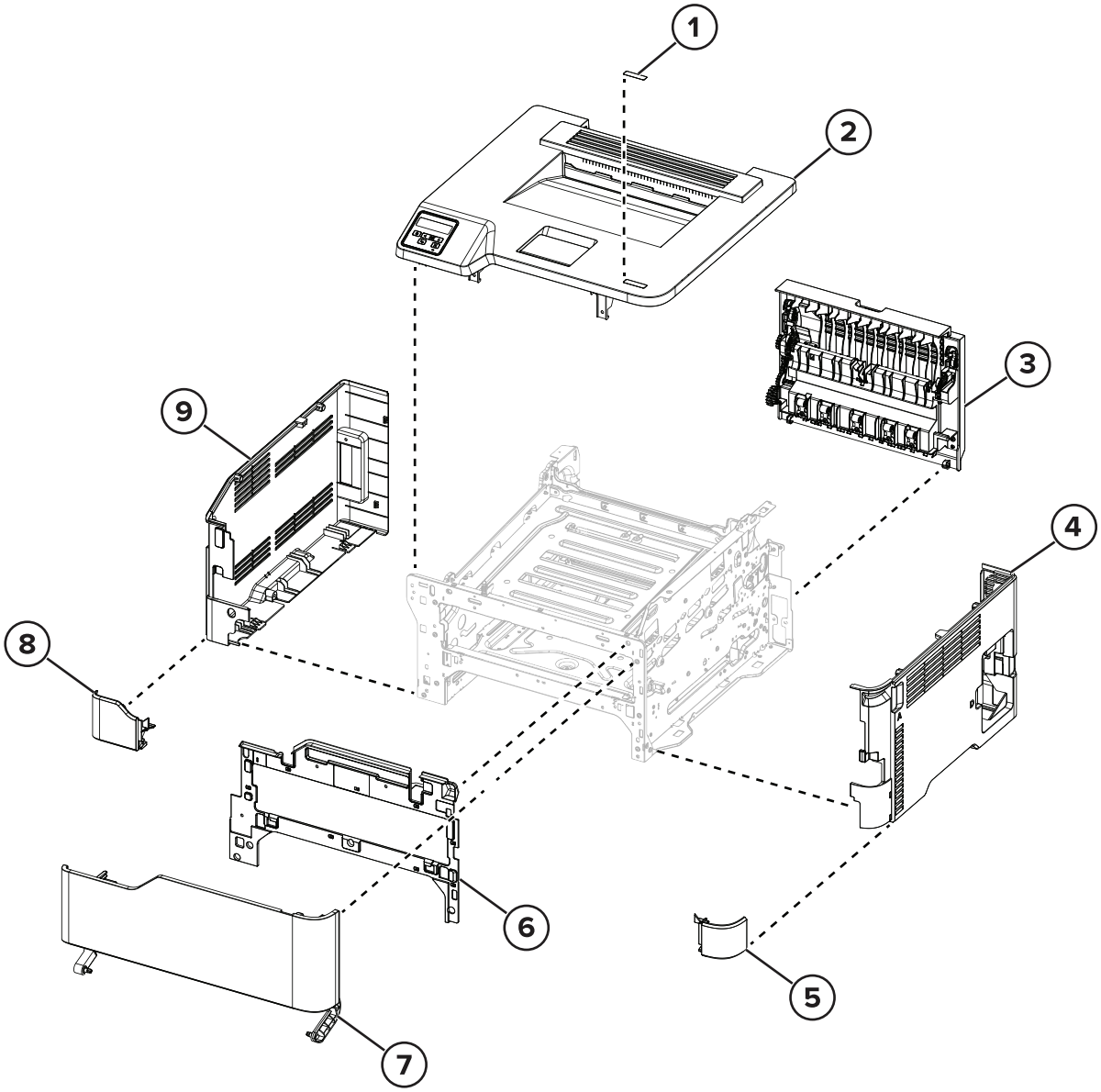
The following column headings are used in the parts catalog:

- **Asm-index**—Identifies the item in the illustration
- **P/N**—Identifies the part number of a FRU
- **Units/mach**—Refers to the number of units in a printer
- **Units/opt**—Refers to the number of units in an option
- **Units/FRU**—Refers to the number of units in a FRU
- **Description**—A brief description of the part

The following abbreviations are used in the parts catalog:

- **NS** (not shown) in the Asm-index column indicates that the part is procurable but is not shown in the illustration.
- **PP** (parts packet) in the Description column indicates that the part is contained in a parts packet.

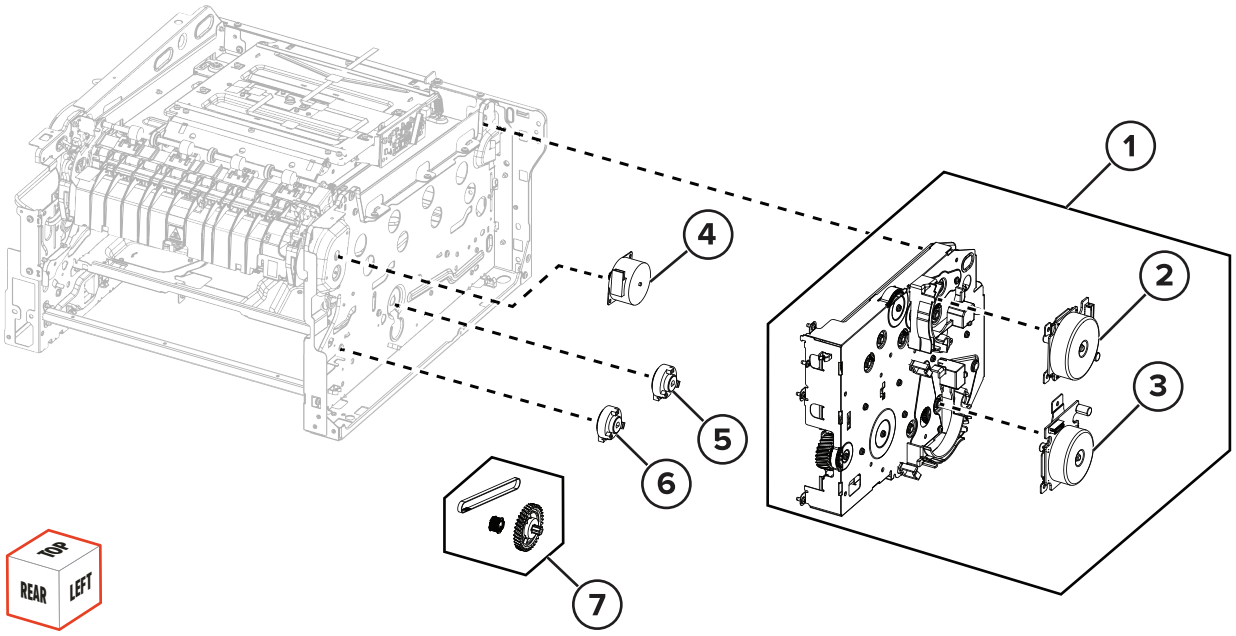
Assembly 1: Covers



Assembly 1: Covers

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2622	1	1	Bezel (C3224)	--
1	41X2623	1	1	Bezel (C3326)	--
1	41X2624	1	1	Bezel (CS331)	--
2	41X2415	1	1	Top cover	**“Top cover removal” on page 293**
3	41X2414	1	1	Rear door	**“Rear door removal” on page 285**
4	41X2421	1	1	Right cover	**“Right cover removal” on page 266**
5	41X2635	1	1	Lower front cover	**“Right cover removal” on page 266**
6	41X2418	1	1	Inner front cover	**“Inner front cover removal” on page 279**
7	41X2417	1	1	Front door	**“Front door removal” on page 278**
8	41X2635	1	1	Lower front cover	**“Left cover removal” on page 253**
9	41X2420	1	1	Left cover	**“Left cover removal” on page 253**
NS	40X8273	4	40	Rubber feet	--

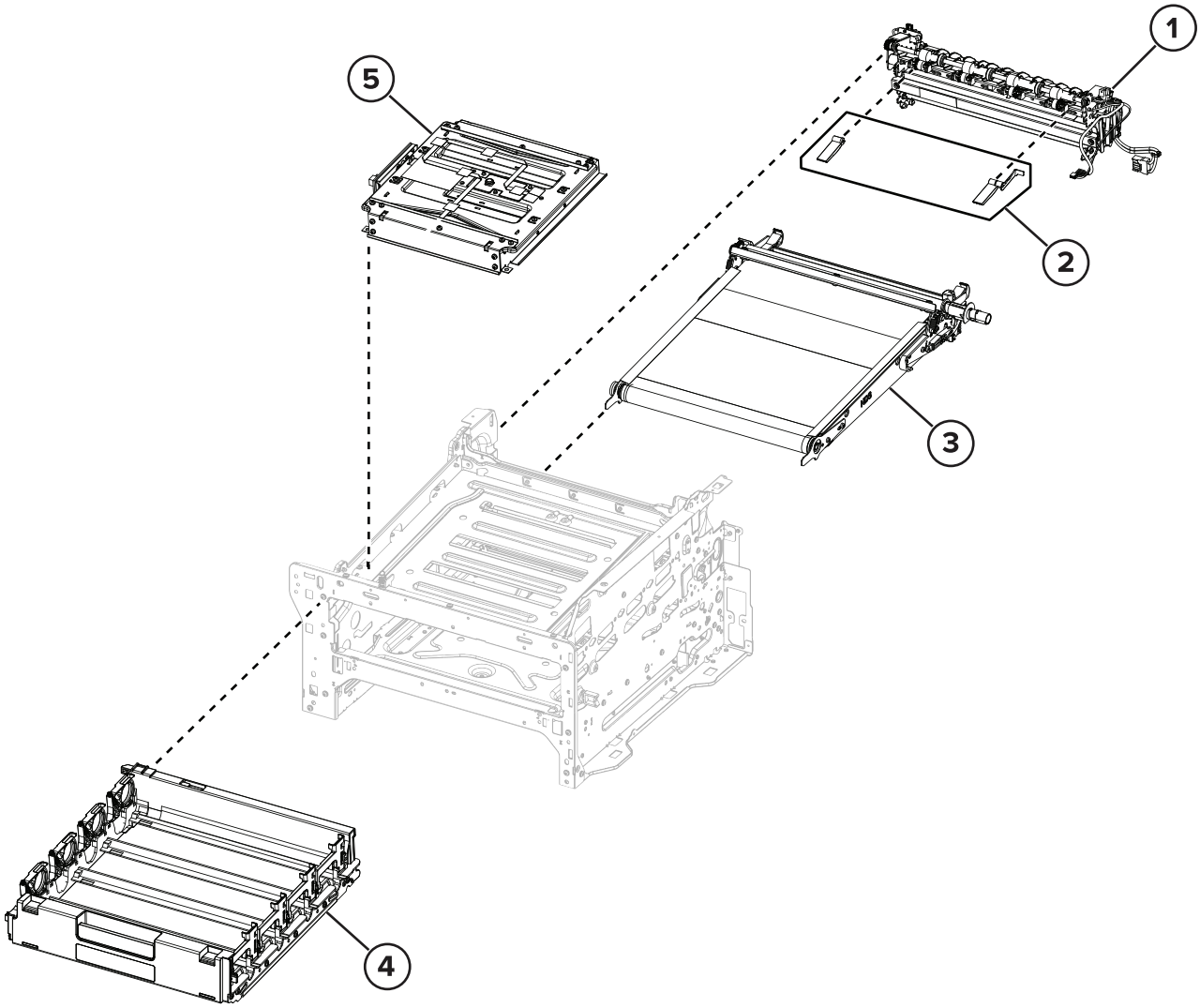
Assembly 2: Drive components



Assembly 2: Drive components

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2424	1	1	Gearbox	“Gearbox removal” on page 262
2	41X2443	1	1	Motor (CMY)	“Motor (CMY) removal” on page 255
3	41X2422	1	1	Motor (K)	“Motor (K/transfer belt) removal” on page 256
4	41X2423	1	1	Motor (fuser)	“Motor (fuser) removal” on page 261
5	41X2425	1	1	Pick clutch	“Pick clutch removal” on page 264
6	41X2425	1	1	Staging clutch	“Staging clutch removal” on page 261
7	41X2620	1	1	Staging belt, gear, and pulley	“Staging belt, gear, and pulley removal” on page 265

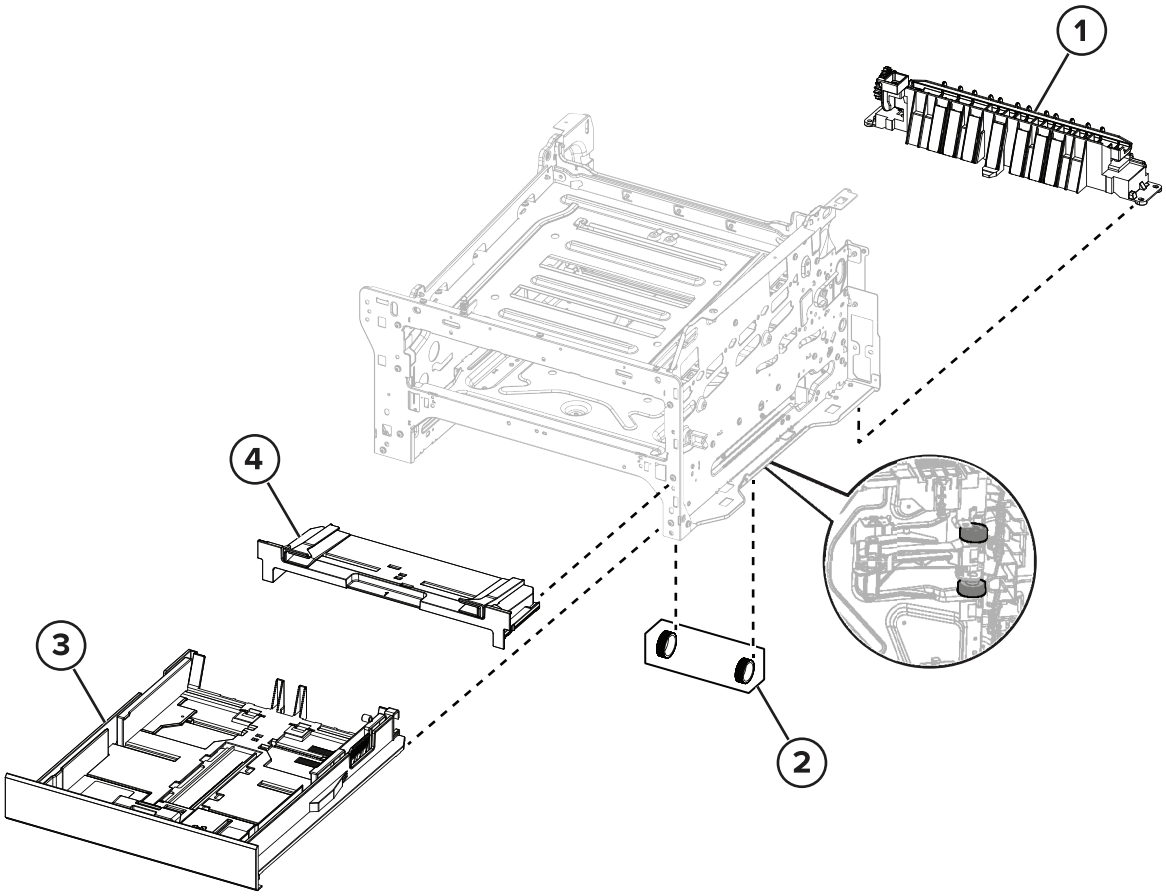
Assembly 3: EP components



Assembly 3: EP components

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2392	1	1	Fuser, 110 V	“Fuser removal” on page 287
1	41X2400	1	1	Fuser, 220 V	“Fuser removal” on page 287
2	41X2436	1	1	Bin flag	“Bin flag removal” on page 300
3	41X2393	1	1	Transfer module	“Transfer module removal” on page 280
4	41X2435	1	1	Print cartridge tray	“Print cartridge tray removal” on page 275
5	41X2394	1	1	Printhead	“Printhead removal” on page 295
NS	41X2674	1	1	Spring parts pack • Transfer module springs (2) • Printhead spring • Printhead bracket	--

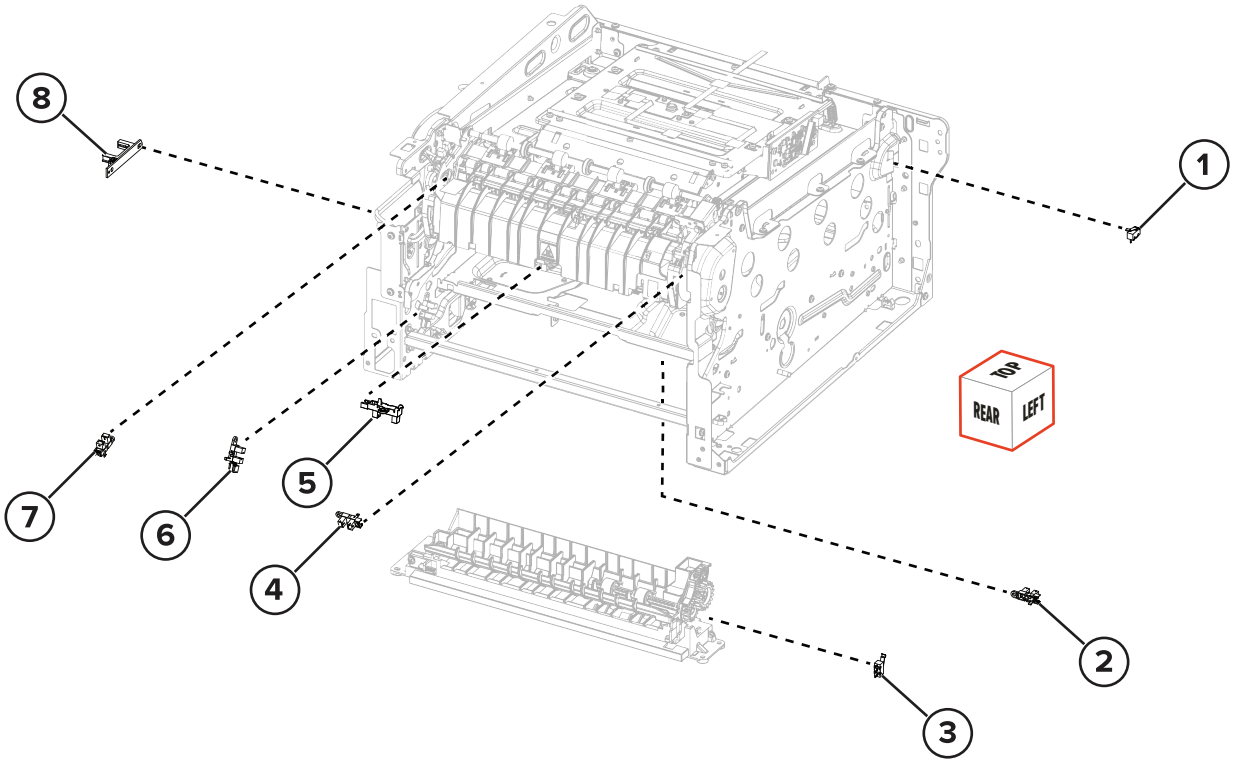
Assembly 4: Paper feed



Assembly 4: Paper feed

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2432	1	1	Separator bracket	**“Tray interlock switch removal” on page 302**
2	41X2638	2	2	Pick tires	**“Pick tire removal” on page 301**
3	41X2413	1	1	Tray insert	--
4	41X2426	1	1	Manual feeder	--

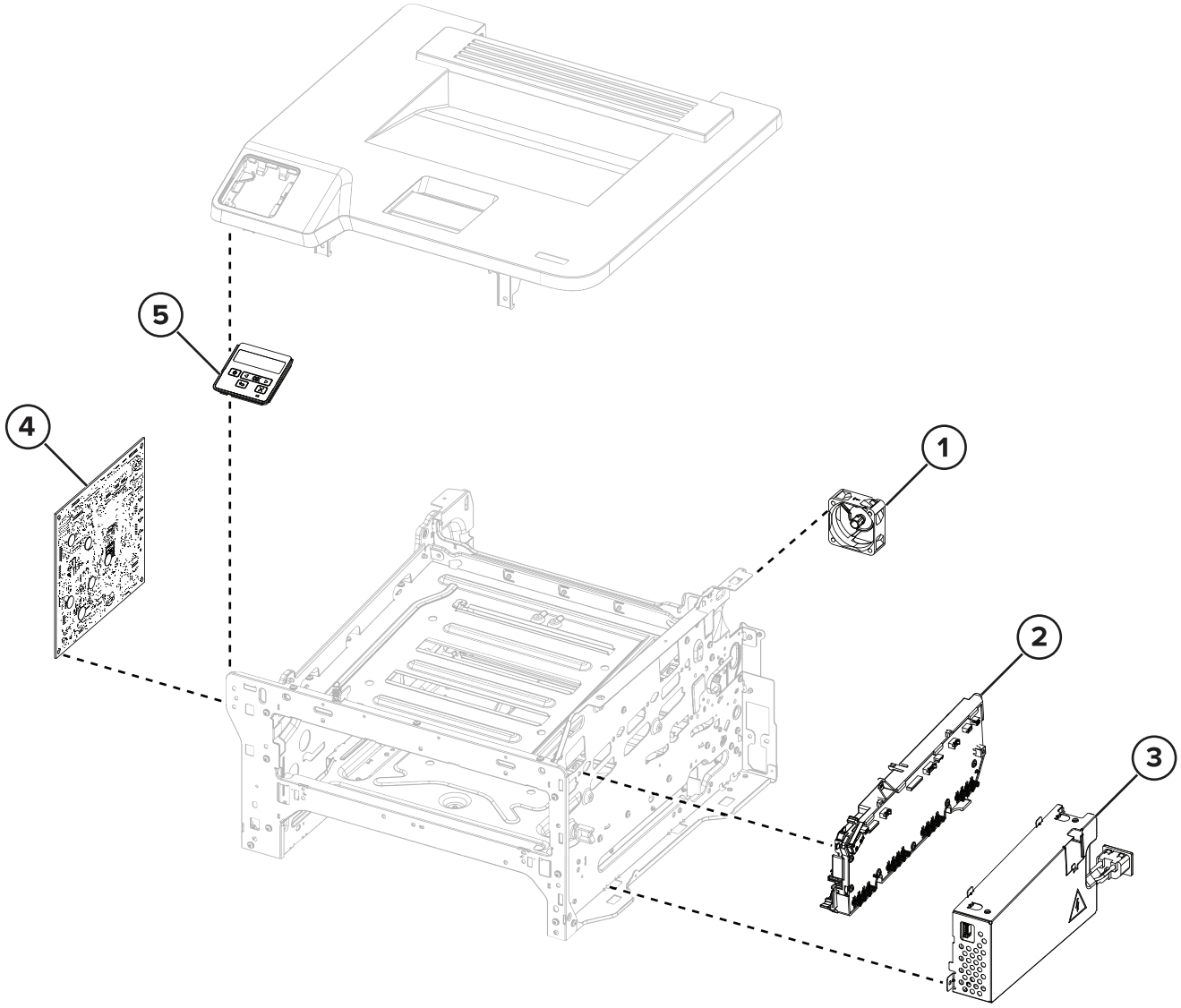
Assembly 5: Sensors



Assembly 5: Sensors

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2602	1	1	Printhead interlock switch	“Printhead interlock switch removal” on page 277
2	41X1083	1	1	Sensor (manual feeder)	“Sensor (manual feeder) removal” on page 302
3	41X2618	1	1	Tray interlock switch	“Tray interlock switch removal” on page 302
4	41X1083	1	1	Sensor (fuser exit)	“Sensor (fuser exit) removal” on page 291
5	40X5413	1	1	Sensor (fuser buckle)	“Sensor (fuser buckle) removal” on page 286
6	41X1083	1	1	Sensor (input)	“Sensor (input) removal” on page 292
7	41X1083	1	1	Sensor (bin/narrow media)	“Sensor (bin/narrow media) removal” on page 299
8	41X2434	1	1	Sensor (waste toner bottle)	“Sensor (waste toner bottle) removal” on page 269

Assembly 6: Electronics



Assembly 6: Electronics

Asm-index	P/N	Units/mach	Units/FRU	Description	Removal procedure
1	41X2484	1	1	Exhaust fan	“Exhaust fan removal” on page 269
2	41X2396	1	1	HVPS	“HVPS removal” on page 270
3	41X2397	1	1	LVPS	“LVPS removal” on page 272
3	41X2401	1	1	LVPS, 110 V	“LVPS removal” on page 272
3	41X2671	1	1	LVPS, 110 V (Brazil)	“LVPS removal” on page 272
4	41X2395	1	1	Controller board (CS331dw and C3326dw)	“Controller board removal” on page 257
4	41X2407	1	1	Controller board (C3224dw)	“Controller board removal” on page 257
5	41X2411	1	1	Control panel	“Control panel removal” on page 276
NS	41X2430	1	1	Flat cables	--
NS	41X2429	1	1	Cable parts pack	--

Printer specifications

Power consumption

Product power consumption

The following table documents the power consumption characteristics of the product.

Note: Some modes may not apply to your product.

Mode	Description	Power consumption (Watts)
Printing	The product is generating hard-copy output from electronic inputs.	520
Copy	The product is generating hard-copy output from hard-copy original documents.	N/A
Scan	The product is scanning hard-copy documents.	N/A
Ready	The product is waiting for a print job.	7
Sleep Mode	The product is in a high-level energy-saving mode.	1.1
Hibernate	The product is in a low-level energy-saving mode.	0.1
Off	The product is plugged into an electrical outlet, but the power switch is turned off.	0.1

The power consumption levels listed in the previous table represent time-averaged measurements. Instantaneous power draws may be substantially higher than the average.

Values are subject to change. See **www.lexmark.com** for current values.

Sleep Mode

This product is designed with an energy-saving mode called *Sleep Mode*. The Sleep Mode saves energy by lowering power consumption during extended periods of inactivity. The Sleep Mode is automatically engaged after this product is not used for a specified period of time, called the *Sleep Mode Timeout*.

Factory default Sleep Mode Timeout for this product (in minutes):	15

By using the configuration menus, the Sleep Mode Timeout can be modified between 1 minute and 120 minutes. If the A4 print speed is less than or equal to 30 pages per minute, then you can set the timeout only up to 60 minutes. Setting the Sleep Mode Timeout to a low value reduces energy consumption, but may increase the response time of the product. Setting the Sleep Mode Timeout to a high value maintains a fast response, but uses more energy.

Hibernate Mode

This product is designed with an ultra-low power operating mode called *Hibernate mode*. When operating in Hibernate Mode, all other systems and devices are powered down safely.

The Hibernate mode can be entered in any of the following methods:

- Using the Hibernate Timeout
- Using the Schedule Power modes

Factory default Hibernate Timeout for this product in all countries or regions	3 days

The amount of time the printer waits after a job is printed before it enters Hibernate mode can be modified between one hour and one month.

Off mode

If this product has an off mode which still consumes a small amount of power, then to completely stop product power consumption, disconnect the power supply cord from the electrical outlet.

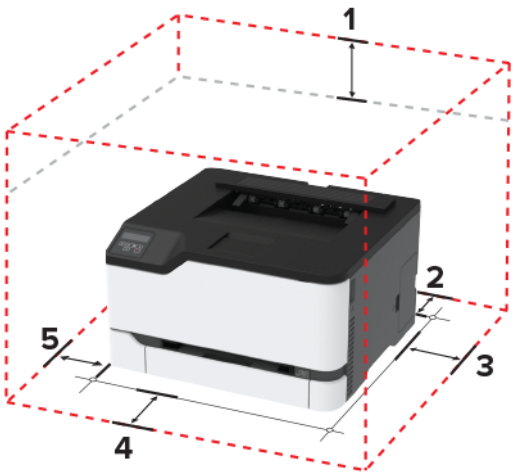
Total energy usage

It is sometimes helpful to estimate the total product energy usage. Since power consumption claims are provided in power units of Watts, the power consumption should be multiplied by the time the product spends in each mode in order to calculate energy usage. The total product energy usage is the sum of each mode's energy usage.

Selecting a location for the printer

- Leave enough room to open trays, covers, and doors and to install hardware options.
- Make sure that airflow in the room meets the latest revision of the ASHRAE 62 standard or the CEN Technical Committee 156 standard.
- Provide a flat, sturdy, and stable surface.
- Keep the printer:
  - Clean, dry, and free of dust
  - Away from stray staples and paper clips
  - Away from the direct airflow of air conditioners, heaters, or ventilators
  - Free from direct sunlight and humidity extremes
- Observe the temperature range.

Operating temperature	10 to 32.2°C (50 to 90°F)
- Allow the following recommended amount of space around the printer for proper ventilation:



1	Top	101 mm (4 in.)
2	Rear	102 mm (4 in.)
3	Right side	76 mm (3 in.)
4	Front	508 mm (20 in.) **Note:** The minimum space needed in front of the printer is 76 mm (3 in.).
5	Left side	76 mm (3 in.)

Noise emission levels

The following measurements were made in accordance with ISO 7779 and reported in conformance with ISO 9296.

Note: Some modes may not apply to your product.

1-meter average sound pressure, dBA	
Printing	One-sided: 52 (C3224dwe); 53 (C3226dw, CS331dn) Two-sided 53 (C3224dwe); 54 (C3226dw, CS331dn)
Ready	15

Values are subject to change. See **www.lexmark.com** for current values.

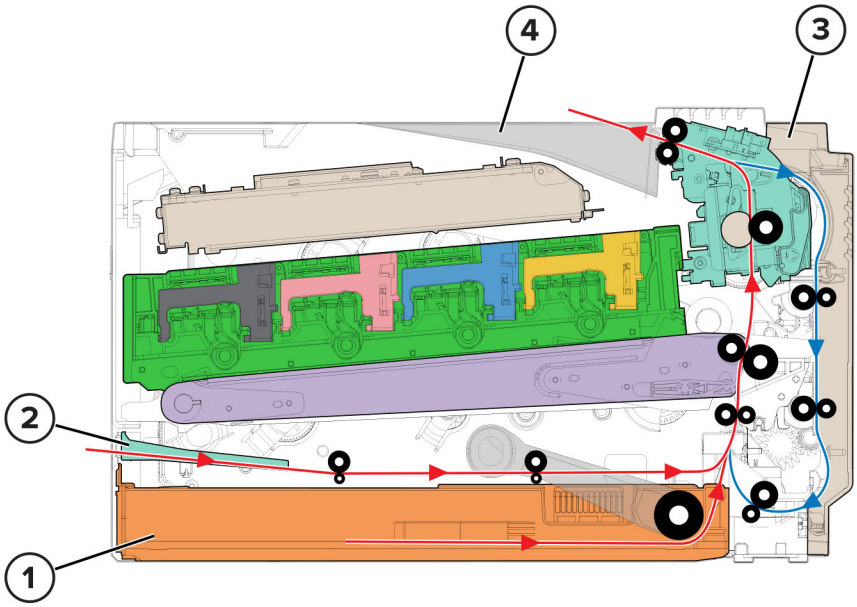
Temperature information

Ambient operating temperature	10 to 32.2°C (50 to 90°F)
Shipping temperature	-40 to 43.3°C (-40 to 110°F)
Storage temperature and relative humidity	1.1 to 32.2°C (34 to 90°F) 8 to 80% RH

Theory of operation

Paper path and drive components

Paper path summary



1	Tray
2	Manual feeder
3	Rear door
4	Bin

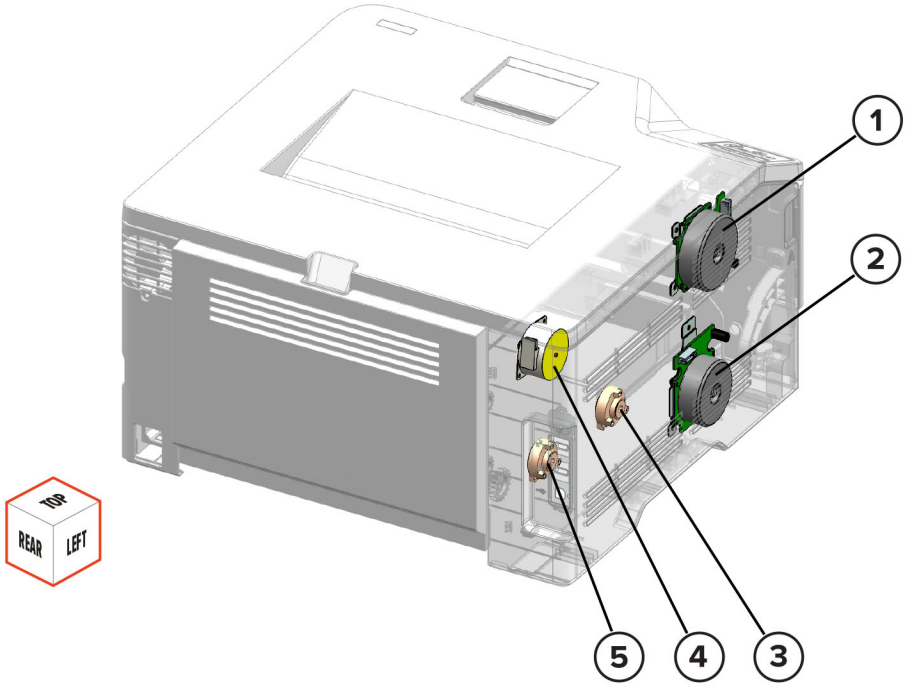
The printer has a C-shaped paper path. The standard paper path is shown in red.

Paper is fed from the front of the printer and transported upward through the rear of the printer.

The duplex unit is built into the rear door. The duplex paper path is shown in blue.

The manual feeder is above the tray at the front of the printer. The paper path is also shown in red.

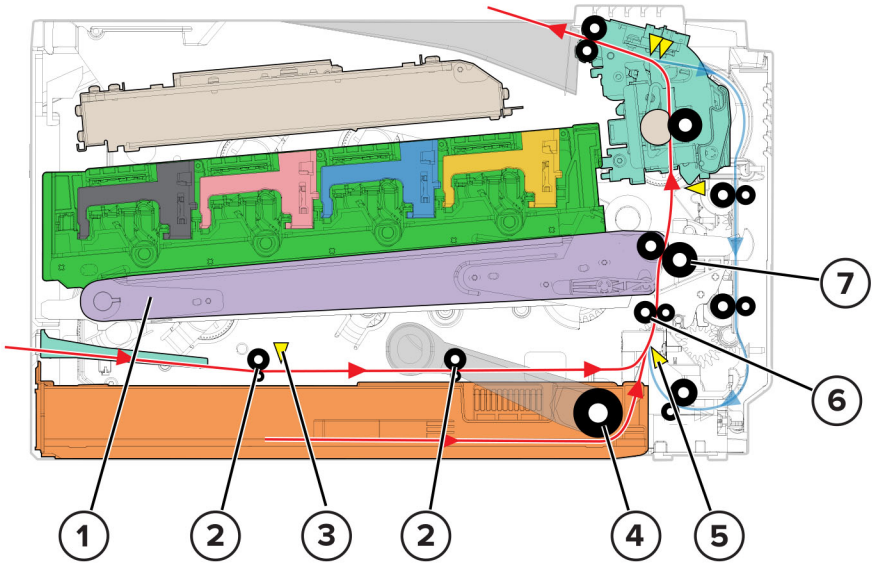
Drive components



1	Motor (CMY)
2	Motor (K/transfer belt)
3	Pick clutch
4	Motor (fuser)
5	Staging clutch

When a print job is sent to the printer, the printhead motor initiates and the fuser starts to heat. After the printhead motor reaches speed, the CMY and K motors begin turning to start the EP process. For more information, see **“EP process” on page 343**.

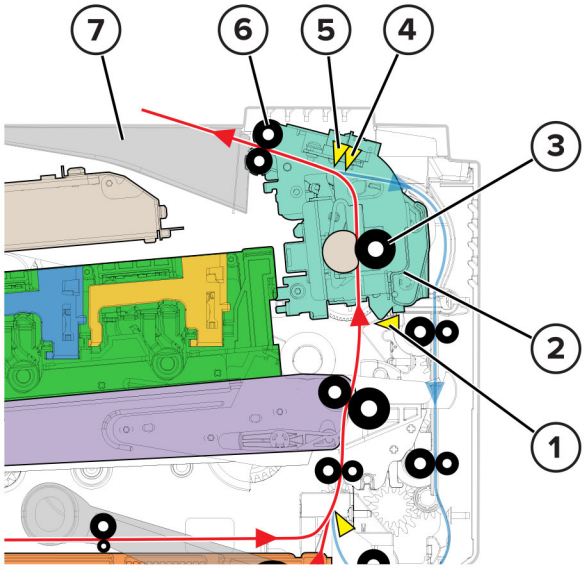
Paper staging



1	Transfer belt
2	Manual feeder rollers
3	Sensor (manual feeder)
4	Pick roller
5	Sensor (input)
6	Input roller
7	Second transfer roller

After the image is placed on the transfer belt, the image moves toward the second transfer roller. The leading-edge position of the image is tracked. When the leading edge of the image reaches a predetermined point, the pick clutch is energized and a sheet of paper is picked. The staging clutch is energized next, and then the paper moves to meet the image. When the paper reaches the sensor (input), the print engine calculates the image position on the belt relative to the paper position. If the paper is early, then the staging clutch is turned off until the image is in the correct position. When the image and paper are aligned, the staging clutch is energized and the input rollers move the paper to the second transfer roller nip to do the second transfer.

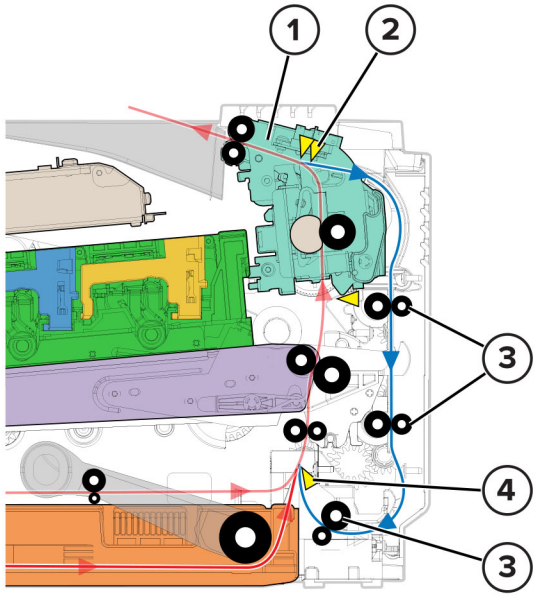
Fuser and exit



1	Sensor (fuser buckle)
2	Fuser
3	Fuser roller
4	Sensor (fuser exit)
5	Sensor (bin/narrow media)
6	Exit roller
7	Bin

After the second transfer, the paper is fed to the fuser. When the paper hits the fuser rollers, it buckles before passing through. The sensor (fuser buckle) detects the buckle. If the buckle is too great, then the motor (fuser) speeds up to avoid causing a paper jam. If the buckle is too small, then the motor slows to avoid smearing the image. After the image is fused, the paper passes through the sensor (fuser exit) and exits. Before the paper reaches the bin, it triggers the sensor (bin/narrow media). If narrow media is being run, then the printer may slow down after several sheets to avoid damaging the fuser. If the narrow media is being run but the printer is set for wide media, then the printer may stop and post a paper size mismatch message. If the bin is overfilled when running narrow media, then paper jams may occur.

Duplexing



1	Fuser
2	Sensor (fuser exit)
3	Duplex rollers
4	Sensor (input)

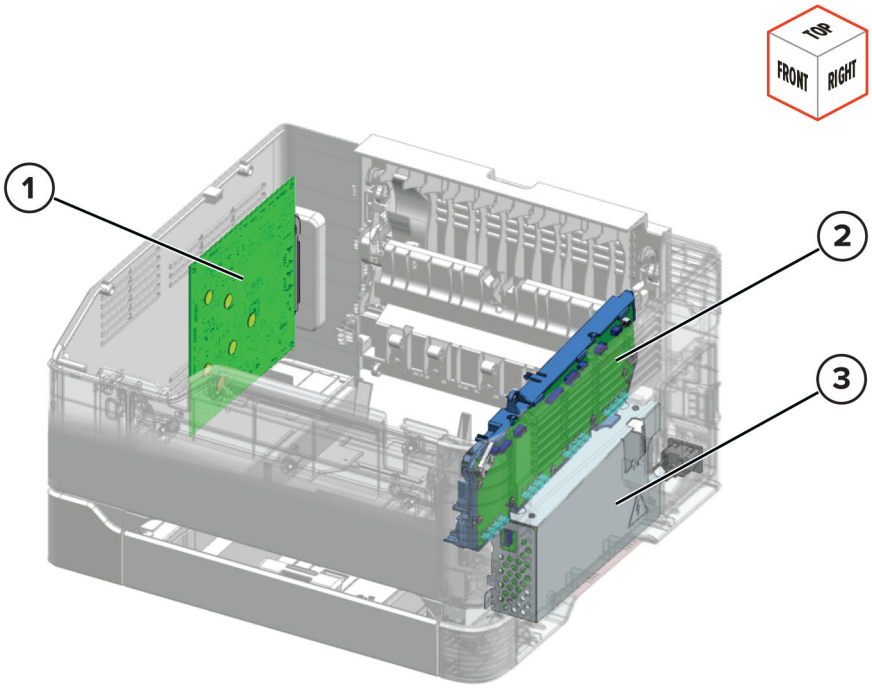
Printers with duplex support use a secondary paper path, shown in blue, to print on the second side of a sheet of paper. The duplexing process is summarized as follows:

1. After the first side of the paper is printed and the trailing edge of the paper clears the sensor (fuser exit), the motor (fuser) reverses direction to feed the paper into the duplex unit.

   Note: While the sheet is being transported through the duplex unit, it is the only sheet of paper processed by the print engine. Inserting a sheet of paper into the manual feeder while a duplex job is processed will cause a paper jam.

2. When the trailing edge of the paper clears the fuser, the motor (fuser) rotates forward to prepare the fuser for the page traveling from the duplex unit.
3. The duplex rollers transport the paper along the duplex unit. The staging clutch drives the rollers.
4. When the paper reaches the sensor (input), it follows the standard paper path again—to print on the second side.

Power supply operation



1	Controller board
2	HVPS
3	LVPS

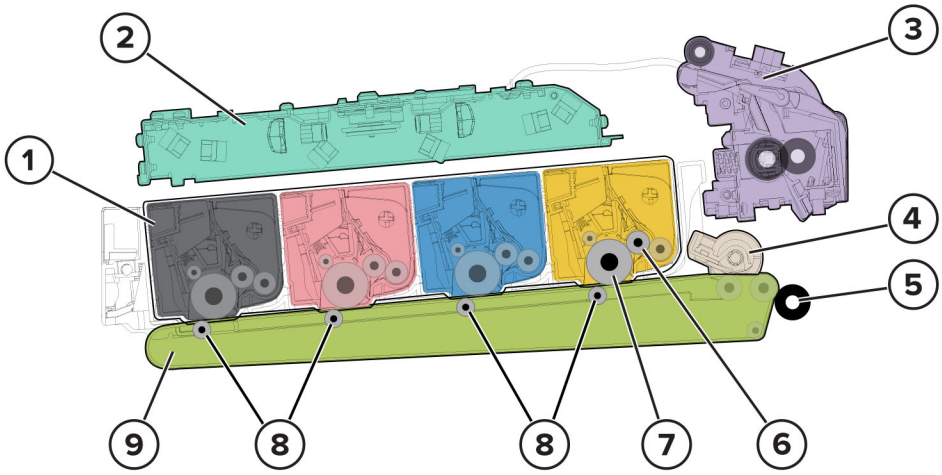
The LVPS (Low voltage power supply) powers the printer. It converts the power from the AC outlet to controlled AC and DC outputs.

LVPS outputs	Description
AC output	Powers the fuser heater.
25 V / 7 V DC output	Powers the logic type loads. • During Idle/Ready and Print modes, the output is 25 V. • During Sleep and Hibernate modes, the output is about 7.5 V.
25 V_SW DC output	Powers the electromechanical loads like the motors and the HVPS. • During Idle/Ready and Print modes, the output is 25 V. • During Sleep and Hibernate modes, the output is 0 V.

The HVPS (High voltage power supply) converts the DC output from the LVPS to controlled outputs used during the EP process.

Electrophotographic (EP) process theory

EP process summary



1	Print cartridge
2	Printhead
3	Fuser
4	Cleaner
5	Second transfer roller
6	Developer roller
7	Photoconductor drum
8	First transfer rollers
9	Transfer belt

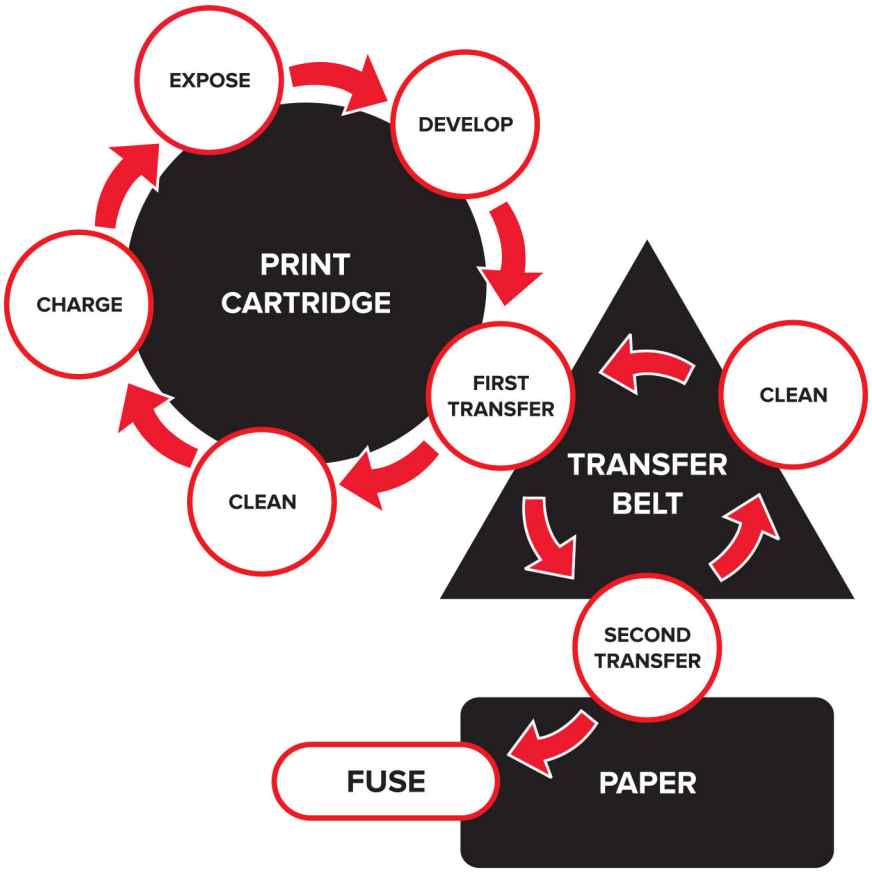
This single-laser printer uses four print cartridges (cyan, yellow, magenta, and black) to create text and images on paper.

The photoconductor drums, developer rollers, and toner supplies are built into the print cartridges.

The transfer belt passes under the four photoconductor drums to produce and transfer the four-color image to the paper in one pass.

Note: The transfer belt and second transfer roller are parts of the transfer module.

During the printing process, the printer follows the six basic steps of the EP process to create its output to the page.



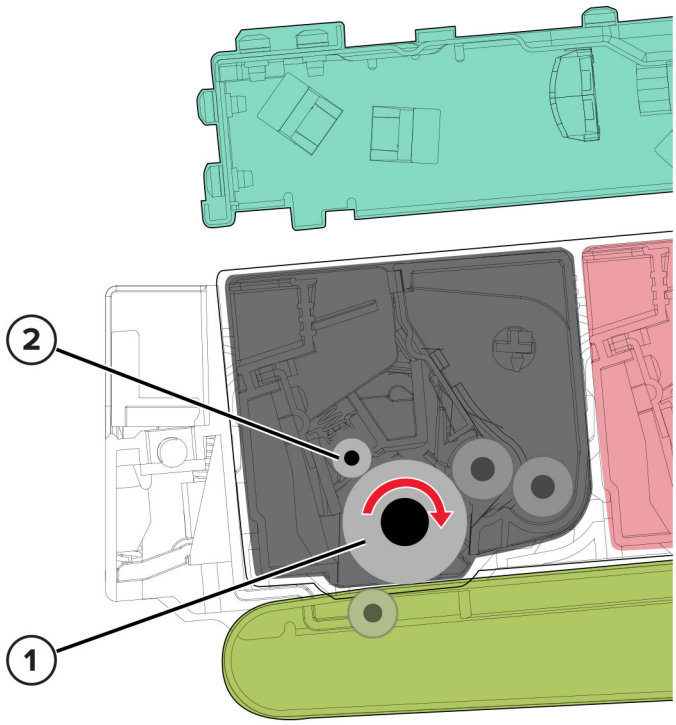
1. *Charge* the photoconductor drums.
2. *Expose* the photoconductor drums with the laser.
3. *Develop* toner on the photoconductor drums.
4. Do the *First transfer* to the transfer belt, and the *Second transfer* to the paper.
5. *Fuse* the toner to the paper.
6. *Clean/Erase* the photoconductor drums and the transfer belt.

The printer controller board receives print data and the command to print. The controller board then initiates the print process. The controller board is the command center for the EP process and it coordinates the various motors and signals. The high-voltage power supply (HVPS) sends voltage to various components in the EP process. A laser contacts each photoconductor drum and alters the surface charge relative to the planed image. Each photoconductor drum rotates past its respective developer roller, and toner is developed on its surface. The four separate color images are then transferred to the transfer belt. After the image is transferred to the transfer belt, the photoconductor drums are cleaned and recharged. The transfer belt carries the four-colored image toward the second transfer roller. The timing of the paper pick is determined by the position of the leading edge of the image on the transfer belt. For more information, see the Paper staging section on **"Drive components" on page 336**.

The paper is carried to the fuser rollers where heat and pressure are applied to the page to bond permanently the toner to the page. The fuser exit roller driven by the motor (fuser) pushes the paper into the bin. The transfer belt is cleaned and the process begins again for the next page.

EP process

Charge



1	Photoconductor drum
2	Charge roller

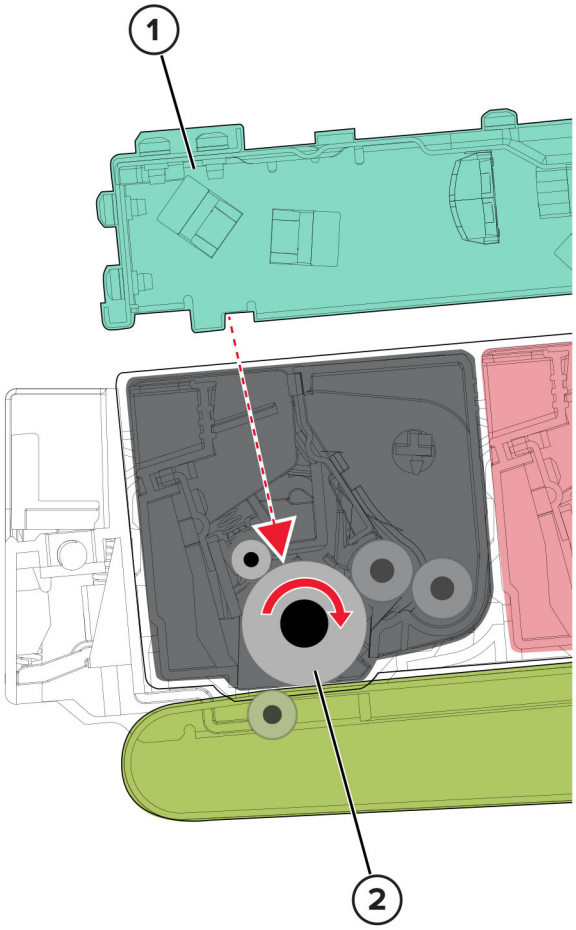
During the charge step, voltage is sent from the HVPS to the charge roller on each of the four photoconductor drums. In this printer, the charge roller is part of the print cartridge.

The charge roller puts a uniform negative charge over the entire surface of the photoconductor drum to prepare it for the laser beam.

Service tips

- If the surface of the charge roller is damaged, such as having a nick or pit, then the charge on the photoconductor drum is uneven. A repeating mark may appear on the printed page. For more information, see Repeating defects check.
- If the charge roller is severely damaged, then the surface of the photoconductor drum is not properly charged. Excessive amounts of toner particles are deposited on the photoconductor drum. The printed page becomes saturated with 100% of the color from the print cartridge with the defective charge roller. The print cartridge of the affected color must be replaced immediately.

Expose



1	Printhead
2	Photoconductor drum

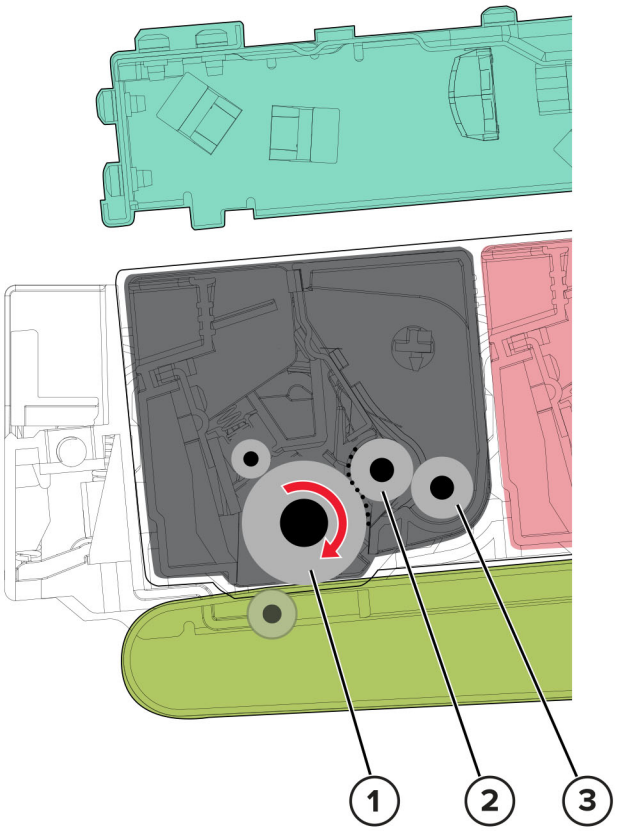
During the expose step, the printhead laser fires a focused beam of light at the surface of each photoconductor drum and writes an invisible image. The image formed for each color is called a *latent image* or *electrostatic image*.

The laser beam discharges only the surface where the beam hits the photoconductor drum. This discharge creates a difference in charge potential between the exposed area and the rest of the photoconductor drum surface.

Service tips

- Do not touch the surface of the photoconductor drum with your bare hand. The oil from your skin may cause a charge differential on the surface, and then the toner may no longer stick properly. The result can be repeating blotches of voids or light print on a page. The print cartridge of the affected color may need to be replaced.
- The surface of the photoconductor drum is coated with an organic substance that makes it sensitive to light. Make sure to cover the print cartridges when you are working on the printer. If exposed to light for too long, then light or dark print quality problems may occur. The print cartridges may need to be replaced.

Develop



1	Photoconductor drum
2	Developer roller
3	Toner add roller

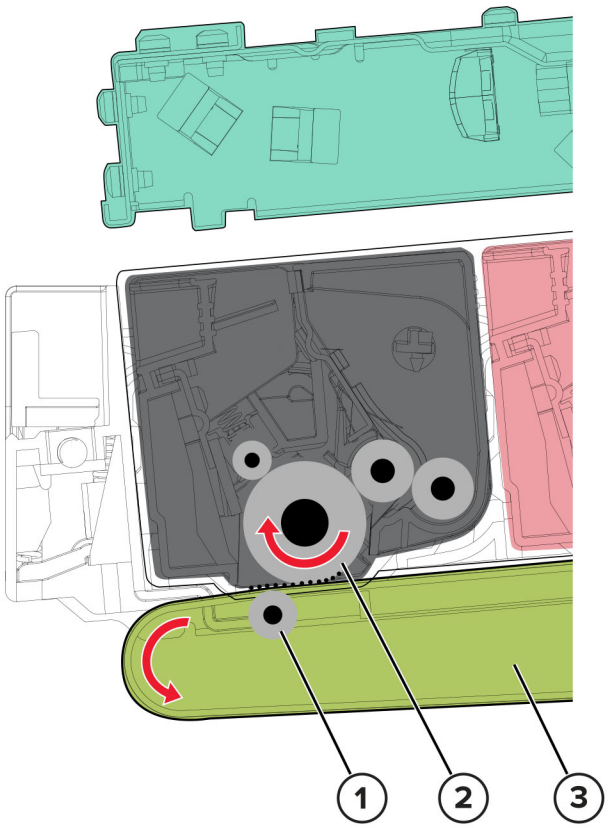
When the laser exposes the photoconductor drum in the print cartridge, the HVPS sends charge to the developer roller. For each color, the print cartridge engages the photoconductor drum so it is in contact with the developer roller. Because of the charge difference, the toner is attracted to areas of the photoconductor drum surface exposed by the laser.

This process is similar to using glue to write on a can, and then rolling the can over glitter. The glitter sticks to the glue but does not stick to the rest of the can.

Service tips

- Do not touch the surface of the developer roller with your bare hand. The oil from your skin may cause a charge differential on the surface, and then the toner may no longer stick properly. The result can be repeating blotches of voids or light print on a page. The affected print cartridge may need to be replaced.
- If the developer roller is damaged, then it cannot contact the surface of the photoconductor drum properly. The result can be repeating marks, thin vertical voids, or thin vertical lines of color on the printed page. Check the surface of the developer roller for damage.

First transfer



1	First transfer roller
2	Photoconductor drum
3	Transfer belt

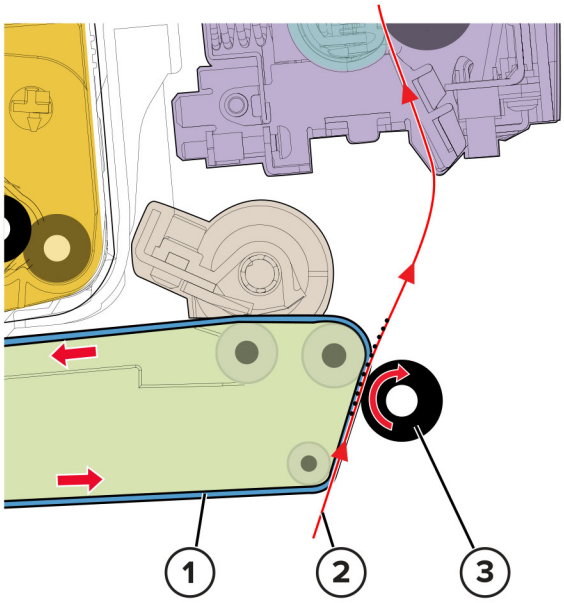
When the latent images are developed on each photoconductor drum, the HVPS sends voltage to the first transfer rollers inside the transfer belt.

For each color, the charge difference between the developed toner image on the photoconductor drum surface and the first transfer roller causes the images to transfer to the surface of the transfer belt. This transfer occurs during a direct surface-to-surface contact between the photoconductor drum and the transfer belt.

Service tips

- Do not touch the surface of the transfer belt with your bare hand. The oil from your skin may cause a charge differential on the surface, and then the toner may no longer stick properly. The result can be repeating blotches of voids or light print on a page. The transfer module may need to be replaced.
- Do not use solvents or other cleaners to clean the transfer belt surface. If the surface gets scratches or charge differential due to solvents or other cleaners, then voids or light blotches may result on the printed page. The transfer module may need to be replaced.

Second transfer



1	Transfer belt
2	Paper
3	Second transfer roller

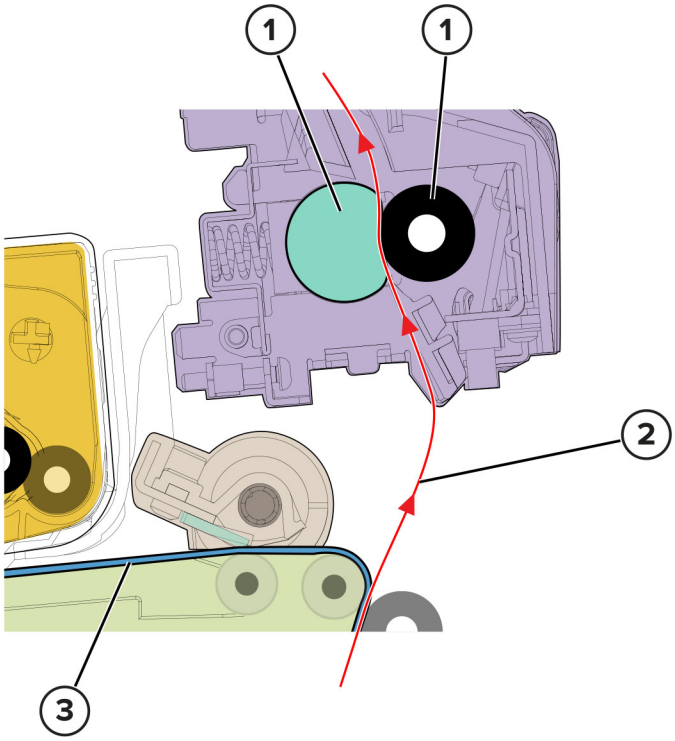
On the transfer belt, the four-color image is carried toward the second transfer roller. When the image on the transfer belt reaches a predetermined point, the paper pick is timed so that the paper is at the exact position between the transfer belt and second transfer roller. For more information, see the Paper staging section on **“Drive components” on page 336**.

The HVPS sends voltage to the second transfer roller to create a positive charge. When the image on the transfer belt reaches the second transfer roller, the negatively charged toner clings to the paper. The entire image is then transferred from the transfer belt to the paper.

Service tips

- If the second transfer roller has nicks, pits, or flat spots, then its surface cannot come into contact with the paper and transfer belt. The result can be voids or light spots (or repeating voids or light areas) on the page.
- If the toner does not fully transfer, then the entire page may be very light or blank due to the following:
  - The second transfer roller does not properly engage the transfer belt.
  - The HVPS does not have voltage. Any toner that does transfer, is due to contact alone (without charge). Check the HVPS contacts to the second transfer roller.

Fuse



1	Fuser rollers
2	Paper
3	Transfer belt

With the help of the transfer roller, the paper with the image moves into the fuser area.

The fuser applies heat and pressure to the page to melt the toner particles and bond them permanently to the paper. The fuser moves the paper to the exit rollers which move the paper to the bin.

Service tips

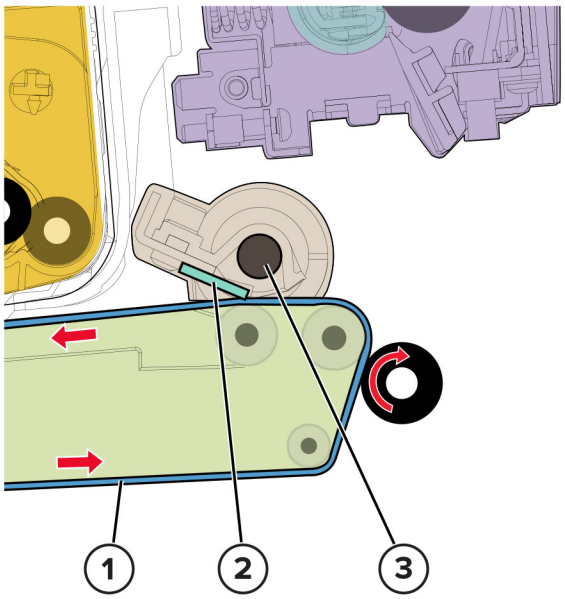
- If the fuser rollers are damaged, then the toner may be pulled off the page. Paper jams may also occur.
- Toner rubbing off a printed page indicates a malfunctioning fuser or an incorrect paper type setting. Always check the paper type setting before replacing the fuser. A common mistake is to print on heavier media (such as cardstock) with the paper type set to plain paper.

- When removing paper jams from the fuser, use the fuser release tabs to relieve the pressure on the paper. If possible, never pull unfused toner through the fuser. Try to back the jammed paper out of the fuser in the opposite direction it was traveling.

Clean/Erase

Two cleaning processes take place during the EP process. Both processes remove the residual toner from the system.

Transfer belt clean

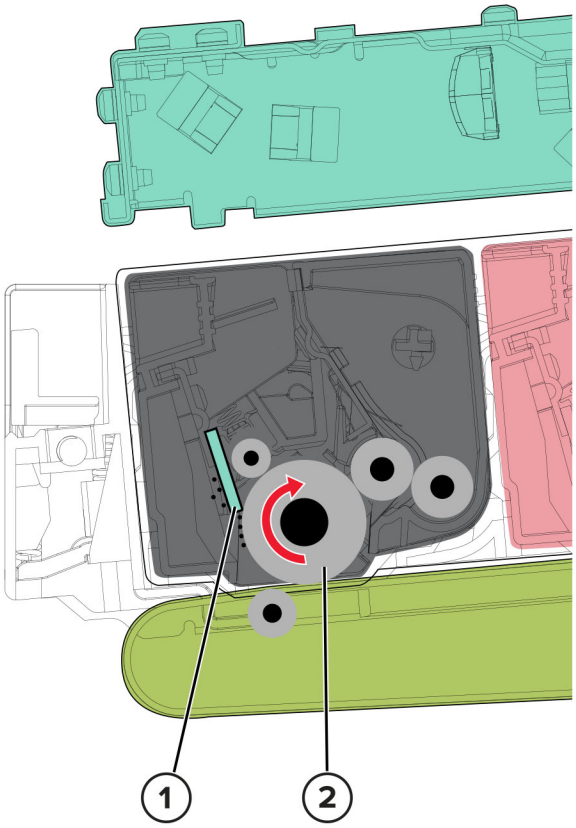


1	Transfer belt
2	Cleaning blade
3	Auger

When the toner image on the transfer belt is transferred to the page, the transfer belt rotates and gets cleaned by the cleaning blade. The cleaning occurs for every page that is printed.

The removed toner is moved to the waste toner bottle using a rotating auger.

Photoconductor drum clean/erase



1	Cleaning blade
2	Photoconductor drum

After each plane of color is transferred to the transfer belt from the photoconductor drums, a cleaning blade scrapes the remaining toner from the surface of each photoconductor drum.

The photoconductor drum surface is prepared to restart the EP process. This cleaning/erasing cycle happens after each plane of color is transferred to the transfer belt.

Index

A

adjustment
  registration adjustment 248
advanced print quality samples 228
avoiding paper jams 122

B

boards 308

C

change history 15
charge 343
clean/erase 343
cleaning
  exterior of the printer 317
  interior of the printer 317
cleaning the printer 317
config menu
  accessing 234
configurations
  printer models 17
connectors
  controller board 311
control panel
  critical information 242
  using 227
controller board
  critical information 242
controller board, restoring configuration 243

D

data security notice 239
develop 343
diagnostics menu
  accessing 228

E

electrostatic-sensitive parts 242
emission notices 333
EP process 343
  charge 343
  clean/erase 343
  develop 343
  expose 343
  first transfer 343
  fuser 343
  second transfer 343
EP process summary 341
error codes
  100 error messages 194
  11 170
  110 error messages 195
  12 170
  121 error messages 198
  126 error messages 200
  142 error messages 205
  151 error messages 207
  200 paper jam messages 124
  202 paper jam messages 139
  232 paper jam messages 154
  24 175
  241 paper jam messages 164
  29 175
  31 178
  32 178
  33 178
  34 178
  37 178
  38 178
  39 178
  42 181
  55 181
  600 error messages 209
  611 error messages 209
  621 error messages 209
  71 182
  72 182
  8 165
  82 184
  88 184
  9 165
  900 error messages 214
  96 191
  97 191
  98 191
  99 191
ESD-sensitive parts 242
event log
  display log 229
  mark log 229
  print log 229
  print log summary 229
expose 343

F

first transfer 343
fuser 343

H

HVPS 340

I

identifying jam locations 123
indicator light
  understanding the status 228
invalid code, fixing 236
invalid engine mode
  accessing 236

J

jams
  avoiding 122

L

letterhead
  selecting 18
locating jam areas 123
locations
  motor 309
  sensor 310
LVPS 340

M

menu
  Config Menu 234
moving the printer 332

N

noise emission levels 333
notices 331, 332, 333

P

paper
  letterhead 18
  preprinted forms 18
  selecting 17
  unacceptable 18
paper characteristics 17
paper guidelines 17
paper jams
  avoiding 122
  location 123
paper path
  drive components 336
  duplexing 339
  printer 335
  transport components 336
paper sizes
  supported 19
paper types
  supported 20
paper weights
  supported 21
parts catalog legend 318
POR sequence 25
Power supply 340
power-on reset sequence 25
preprinted forms
  selecting 18
print cartridge tray, covering 247
print quality
  initial check 25
print quality troubleshooting
  blank or white pages 26
  dark print 30
  ghost images 36
  gray or colored background 42
  horizontal colored lines or banding 107
  horizontal dark lines 46
  horizontal white lines 51
  incorrect margins 56
  light print 60
  missing colors 66
  missing one color 113
  mottled print and dots 71
  paper curl 77
  print crooked or skewed 80
  repeating defects 84
  solid color or black images 84
  text or images cut off 88
  toner easily rubs off 93
  uneven print density 97
  vertical colored lines or banding 116
  vertical white lines 101
printer
  minimum clearances 332
  selecting a location 332
printer configuration 307
printer diagnostics
  input tray quick print 230
printer diagnostics and adjustments
  color alignment adjust 233
  motor tests 232
  registration adjust 233

sensor tests 232
supply reset 233
universal override 234
weather station 233
printer models
configurations 17
printer ports 307
printer setup
engine setting [x] 231
EP setup 231
model name 231
permanent page count 230
printed page count (color) 230
printed page count (mono) 230
process ID 230
serial number 230
waste toner sensor calibration 231
printer status 228
printhead characterization 251

R

removal
bin flag 300
control panel 276
controller board 257
controller board bracket 260
controller board shield 257
exhaust fan 269
front door 278
fuser 287
gearbox 262
HVPS 270
inner front cover 279
left cover 253
lower front cover 253, 266
LVPS 272
motor (CMY) 255
motor (fuser) 261
motor (K/transfer belt) 256
pick clutch 264
pick tire 301
print cartridge tray 275
printhead 295
printhead interlock switch 277
rear door 285
right cover 266
sensor (bin/narrow media) 299
sensor (fuser buckle) 286
sensor (fuser exit) 291
sensor (input) 292
sensor (manual feeder) 302
sensor (waste toner bottle) 269
staging belt, gear, and pulley 265
staging clutch 261
top cover 293
transfer module 280
tray interlock switch 302
removal procedures
tips 253
reports
device settings 228
installed licenses 228
restoring
configuration file 245
license file 245

S

second transfer 343
selecting a location for the printer 332
sensor (waste toner bottle) calibration 252
service checks troubleshooting
912 service error messages 219
938 service error messages 219
service engineer (SE) menu
accessing 237
general SE 237
network SE menu 237
storing paper 19
supply reset
fuser reset 233
transfer module reset 233
supported paper sizes 19
supported paper types 20
supported paper weights 21
symptoms
printer 223

T

tools, required 21
troubleshooting
initial check 24
troubleshooting, print quality
blank or white pages 26
dark print 30
ghost images 36
gray or colored background 42
horizontal colored lines or banding 107
horizontal dark lines 46
horizontal white lines 51
incorrect margins 56
light print 60
missing colors 66
missing one color 113

mottled print and dots 71
paper curl 77
print crooked or skewed 80
repeating defects 84
solid color or black images 84
text or images cut off 88
toner easily rubs off 93
uneven print density 97
vertical colored lines or banding 116
vertical white lines 101
troubleshooting, service checks
912 service error messages 219
938 service error messages 219

U

updating the printer firmware
using a flash drive 246
using a network computer 246
using the control panel 227

Part number index

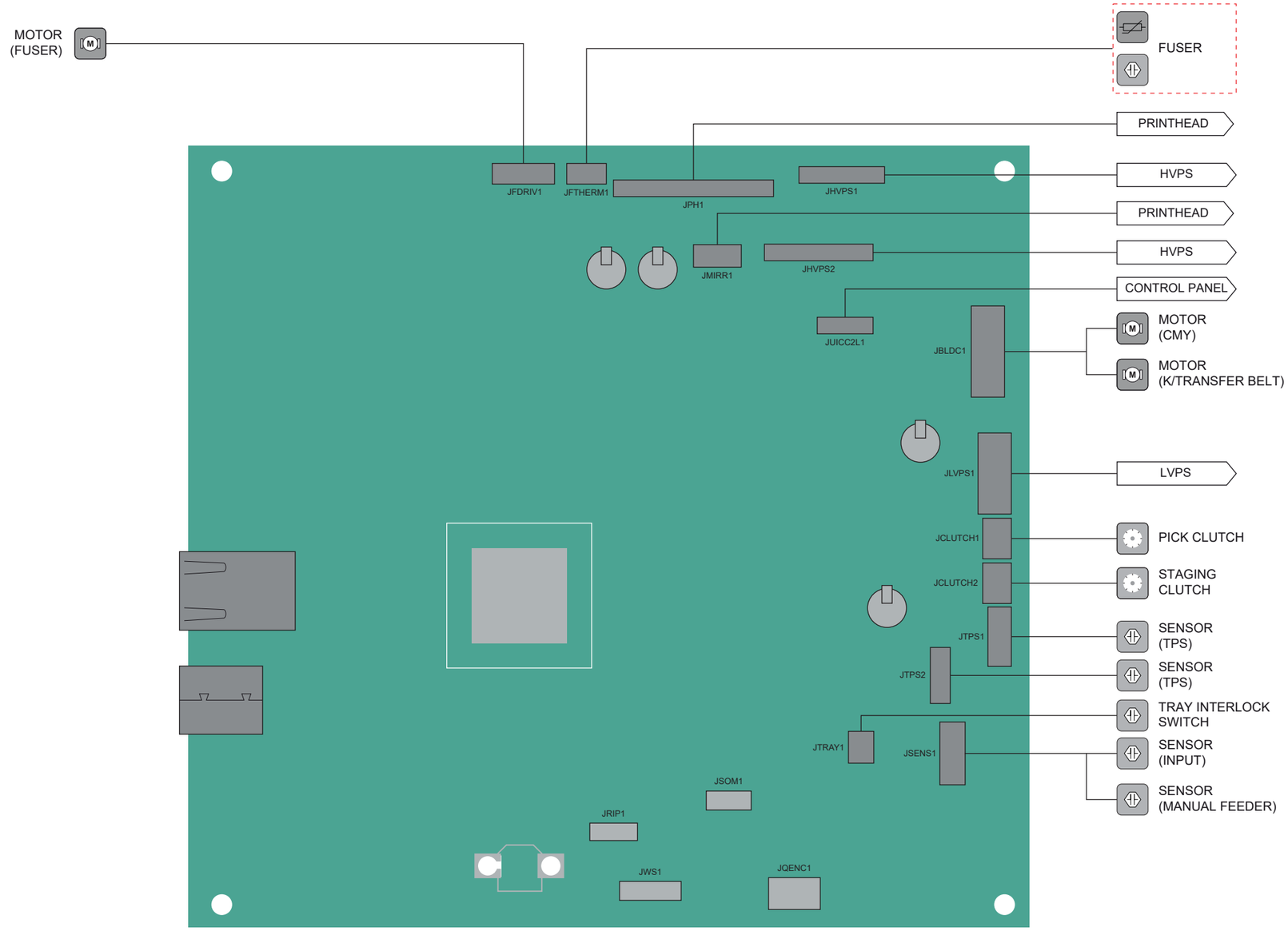
P/N	Part name	Page
40X5413	Sensor (fuser buckle)	328
40X8273	Rubber feet	320
41X1083	Sensor (bin/narrow media)	328
41X1083	Sensor (fuser exit)	328
41X1083	Sensor (input)	328
41X1083	Sensor (manual feeder)	328
41X2392	Fuser, 110 V	324
41X2393	Transfer module	324
41X2394	Printhead	324
41X2395	Controller board (CS331dw and C3326dw)	330
41X2396	HVPS	330
41X2397	LVPS	330
41X2400	Fuser, 220 V	324
41X2401	LVPS, 110 V	330
41X2407	Controller board (C3224dw)	330
41X2411	Control panel	330
41X2413	Tray insert	326
41X2414	Rear door	320
41X2415	Top cover	320
41X2417	Front door	320
41X2418	Inner front cover	320
41X2420	Left cover	320
41X2421	Right cover	320
41X2422	Motor (K)	322
41X2423	Motor (fuser)	322
41X2424	Gearbox	322
41X2425	Pick clutch	322
41X2425	Staging clutch	322
41X2426	Manual feeder	326
41X2429	Cable parts pack	330
41X2430	Flat cables	330
41X2432	Separator bracket	326

P/N	Part name	Page
41X2434	Sensor (waste toner bottle)	328
41X2435	Print cartridge tray	324
41X2436	Bin flag	324
41X2443	Motor (CMY)	322
41X2484	Exhaust fan	330
41X2602	Printhead interlock switch	328
41X2618	Tray interlock switch	328
41X2620	Staging belt, gear, and pulley	322
41X2622	Bezel (C3224)	320
41X2623	Bezel (C3326)	320
41X2624	Bezel (CS331)	320
41X2635	Lower front cover	320, 320
41X2638	Pick tires	326
41X2671	LVPS, 110 V (Brazil)	330
41X2674	Spring parts pack	324

Part name index

P/N	Part name	Page
41X2622	Bezel (C3224)	320
41X2623	Bezel (C3326)	320
41X2624	Bezel (CS331)	320
41X2436	Bin flag	324
41X2429	Cable parts pack	330
41X2411	Control panel	330
41X2407	Controller board (C3224dw)	330
41X2395	Controller board (CS331dw and C3326dw)	330
41X2484	Exhaust fan	330
41X2430	Flat cables	330
41X2417	Front door	320
41X2392	Fuser, 110 V	324
41X2400	Fuser, 220 V	324
41X2424	Gearbox	322
41X2396	HVPS	330
41X2418	Inner front cover	320
41X2420	Left cover	320
41X2635	Lower front cover	320, 320
41X2397	LVPS	330
41X2401	LVPS, 110 V	330
41X2671	LVPS, 110 V (Brazil)	330
41X2426	Manual feeder	326
41X2443	Motor (CMY)	322
41X2423	Motor (fuser)	322
41X2422	Motor (K)	322
41X2425	Pick clutch	322
41X2638	Pick tires	326
41X2435	Print cartridge tray	324
41X2394	Printhead	324
41X2602	Printhead interlock switch	328
41X2414	Rear door	320
41X2421	Right cover	320

P/N	Part name	Page
40X8273	Rubber feet	320
41X1083	Sensor (bin/narrow media)	328
40X5413	Sensor (fuser buckle)	328
41X1083	Sensor (fuser exit)	328
41X1083	Sensor (input)	328
41X1083	Sensor (manual feeder)	328
41X2434	Sensor (waste toner bottle)	328
41X2432	Separator bracket	326
41X2674	Spring parts pack	324
41X2620	Staging belt, gear, and pulley	322
41X2425	Staging clutch	322
41X2415	Top cover	320
41X2393	Transfer module	324
41X2413	Tray insert	326
41X2618	Tray interlock switch	328

C3224, CS331, C3326

WIRING DIAGRAM