



Service Manual

**Lexmark™ C540n, C543dn, C544n,
C544dn, C544dtn, and C544dw**

5025-2xx, 4xx

- ***Table of contents***
- ***Start diagnostics***
- ***Safety and notices***
- ***Trademarks***
- ***Index***



Lexmark and Lexmark with diamond design are trademarks of Lexmark International, Inc., registered in the United States and/or other countries.

Edition: October 14, 2008

The following paragraph does not apply to any country where such provisions are inconsistent with local law:

LEXMARK INTERNATIONAL, INC. PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in later editions. Improvements or changes in the products or the programs described may be made at any time.

Comments may be addressed to Lexmark International, Inc., Department D22A/032-2, 740 West New Circle Road, Lexington, Kentucky 40550, U.S.A or e-mail at ServiceInfoAndTraining@Lexmark.com. Lexmark may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

References in this publication to products, programs, or services do not imply that the manufacturer intends to make these available in all countries in which it operates. Any reference to a product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any existing intellectual property right may be used instead. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by the manufacturer, are the user's responsibility.

Lexmark and Lexmark with diamond design are trademarks of Lexmark International, Inc., registered in the United States and/or other countries.

PCL® is a registered trademark of the Hewlett-Packard Company. PCL is Hewlett-Packard Company's designation of a set of printer commands (language) and functions included in its printer products. This printer is intended to be compatible with the PCL language. This means the printer recognizes PCL commands used in various application programs, and that the printer emulates the functions corresponding to the commands.

All other trademarks are the property of their respective owners.

**© 2008 Lexmark International, Inc.
All rights reserved.**

UNITED STATES GOVERNMENT RIGHTS

This software and any accompanying documentation provided under this agreement are commercial computer software and documentation developed exclusively at private expense.

Table of contents

Table of contents	iii
Notices and safety information	ix
Laser notice	ix
Safety information	xv
Preface	xviii
Conventions	xviii
General information	1-1
Models	1-1
Options and features	1-1
Printer specifications	1-2
Memory	1-2
Print quality	1-2
Connectivity (network support)	1-3
Operating modes	1-3
Data streams	1-4
Dimensions	1-4
Clearances	1-5
Power and electrical specifications	1-6
Acoustics	1-7
Environment specifications	1-7
Media handling	1-8
Input and output sources	1-8
Duplex capability	1-8
Media input size specifications	1-9
Media input type specifications	1-10
Media output size and type	1-11
Media guidelines	1-12
Paper characteristics	1-12
Unacceptable paper	1-12
Selecting paper	1-13
Selecting preprinted forms and letterhead	1-13
Storing paper	1-13
Using recycled paper and other office papers	1-13
Tools required for service	1-14
Acronyms	1-15
Diagnostic information	2-1
Start	2-1
POR (Power-On Reset) sequence	2-2
Symptom tables	2-3
Printer symptom table	2-3
Print quality symptom table	2-4
Error codes and messages	2-5
User status and customer attendance messages	2-5
Paper Jam messages	2-11
Service error messages	2-12
Service checks	2-24
122.xx—Fuser temperature incorrect	2-24
90x.xx error	2-24
925.01—Fan error service check	2-25
930.xx–935.xx—Printhead errors service check	2-25

936.xx, 937.xx—Transport motor service check	2-26
950.xx NVRAM Failure service check	2-26
Autocompensator mechanism service check	2-27
Bin full sensor service check	2-27
Dead printer service check	2-28
Duplex/manual feed sensor (S1) service check	2-29
Front door sensor or switches service check	2-30
Fuser exit sensor service check	2-31
Fuser service check	2-32
Input sensor (S2) service check	2-34
Main drive gear assembly (EP drive) service check	2-35
Operator panel service check	2-36
One or more operator panel buttons fail	2-36
Operator panel display blank, five <i>beeps</i>	2-37
Operator panel display blank, printer <i>beeps</i> five times and pauses	2-38
Operator panel displays all diamonds, no <i>beeps</i>	2-39
Operator panel displays all diamonds, five <i>beeps</i>	2-40
Operator panel display is dim and unchanging	2-41
Print quality service check	2-42
Print quality—background	2-43
Print quality—blank page	2-44
Print quality—blurred or fuzzy print	2-45
Print quality—half-color page	2-45
Print quality—horizontal banding	2-46
Print quality—horizontal line	2-46
Print quality—insufficient fusing	2-47
Print quality—missing image at edge	2-47
Print quality—mottle (2–5mm speckles)	2-47
Print quality—narrow vertical line	2-48
Print quality—random marks	2-48
Print quality—residual image	2-49
Print quality—solid color page	2-50
Print quality—vertical banding	2-50
Printhead service check	2-51
Toner meter cycle (TMC) card	2-52
Toner meter sensors (Y, C, M, K) on TMC card	2-52
Transfer roll service check	2-53
Tray 1 sensor service check	2-53
User operator panel and Administration menus	2-55
Printer operator panel	2-55
Operator panel buttons	2-55
Menu map	2-56

Diagnostic aids 3-1


Accessing service menus	3-1
Diagnostics Menu (Diag Menu)	3-2
Diagnostics Menu structure	3-2
Available tests	3-2
Registration	3-4
Skew	3-5
Quick Test	3-5
Alignment	3-7
Print Tests	3-10
Input source tests	3-10
Print quality test pages (Prt Quality Pgs)	3-11
Hardware Tests	3-11
Panel Test	3-11
Button Test	3-12
DRAM Test	3-12

Duplex Tests	3-13
Quick Test (duplex)	3-13
Top Margin (duplex)	3-14
Left Margin (duplex)	3-14
Input Tray Tests	3-15
Feed Tests	3-15
Sensor Test	3-15
Base Sensor Test	3-16
Miscellaneous tests	3-16
Motor Detect	3-16
Device Tests	3-17
Flash Test	3-17
Printer Setup	3-17
Defaults	3-17
Page counts	3-17
Serial Number	3-18
Engine Setting 1 through 4	3-18
Model Name	3-18
Configuration ID	3-18
ITU Barcode	3-19
Reset Fuser Cnt	3-19
EP Setup	3-19
EP Defaults	3-19
Fuser Temperature	3-19
DC Charge Adjust, Dev Bias Adj, Transfer Adjust	3-20
TPS Setup	3-20
Right or Left TPS	3-20
Cal Ref Adj	3-20
Reset Color Cal	3-21
Reports	3-21
Menu Settings Page	3-21
Event Log	3-21
Display Log	3-21
Print Log	3-22
Clear Log	3-22
EXIT Diags	3-23
Configuration menu (Config Menu)	3-24
Available tests	3-24
Prt Quality Pgs	3-24
Color Trapping	3-24
Reports	3-25
Menu Settings Page	3-25
Event Log	3-25
Panel Menus	3-25
PPDS Emulation	3-25
Demo Mode	3-25
Factory Defaults	3-26
Energy Conserve	3-26
Auto Color Adj	3-27
Font Sharpening	3-27
Exit Config	3-27
Paper jams	3-28
Avoiding jams	3-28
Understanding jam numbers and locations	3-29
200 paper jams	3-30
201 paper jam	3-30
202 paper jam	3-31
230 paper jam	3-32
235 paper jam	3-32

24x paper jam	3-32
250 paper jam	3-32
Theory of operation	3-33
Print engine theory	3-33
Electrophotographic process (EP process)	3-33
Electrophotographic process basics	3-33
Step 1: Charge	3-34
Step 2: Expose	3-35
Step 3: Develop	3-36
Step 4a: First transfer	3-37
Step 4b: Second transfer	3-38
Step 5: Fuse	3-39
Step 6: Clean/erase	3-40
Paper path, transport components	3-42
Paper path Information	3-42
Transport components	3-43
Duplex process	3-44
Color theory	3-45
What is RGB color?	3-45
What is CMYK color?	3-45
How is color specified in a document to be printed?	3-45
How does the printer know what color to print?	3-45
Should I use PostScript or PCL emulation printer software? What settings should I use for the best color?	3-45
Why doesn't the printed color match the color I see on the computer screen?	3-45
The printed page appears tinted. Can I adjust the color?	3-45
My color transparencies seem dark when they are projected. Is there anything I can do to improve the color?	3-46
What is manual color correction?	3-46
How can I match a particular color (such as a corporate logo)?	3-47
What are detailed Color Samples, and how do I access them?	3-47
Repair information	4-1
Handling ESD-sensitive parts	4-1
Removal procedures	4-2
Front cover assembly removal	4-2
Left cover assembly removal	4-6
Operator panel bezel and name plate removal	4-8
Operator panel removal	4-9
Right cover assembly removal	4-10
Rear shield removal	4-11
Top cover assembly removal	4-12
Autocompensator mechanism (ACM) removal—standard tray	4-15
Bin full sensor removal	4-18
Bin full sensor flag and exit deflector removal	4-18
Controller board removal	4-19
Developer unit removal	4-21
Duplex sensor removal	4-21
Exit deflector and bin full sensor flag removal	4-24
Fuser assembly removal	4-26
Fuser drive motor assembly removal	4-29
Fuser exit sensor removal	4-30
High-voltage power supply (HVPS) assembly removal	4-31
Image transfer unit (ITU) removal	4-33
Imaging unit (IU) removal	4-35
Low-voltage power supply (LVPS) assembly removal	4-37
Lower frame removal, right and left	4-39
Left lower frame	4-39
Right lower frame	4-41

Main drive gear assembly removal	4-45
Pick tires removal—standard media tray	4-48
Printhead removal	4-49
Toner cartridge contacts	4-50
Toner density sensor (TDS) removal—left or right sensor	4-53
Toner meter cycle (TMC) card removal	4-55
Tray present sensor removal	4-57
USB port connector removal	4-59
Waste toner bottle removal	4-60
Wireless network antenna removal	4-61
Wireless network card	4-63
Connector locations	5-1
Locations	5-1
Connectors	5-2
Controller board diagram	5-2
High-voltage power supply (HVPS) diagram	5-10
Low-voltage power supply (LVPS) diagram	5-12
Toner meter cycle (TMC) card	5-13
Wireless network card	5-14
Preventive maintenance	6-1
Safety inspection guide	6-1
Parts catalog	7-1
How to use this parts catalog	7-1
Assembly 1: Covers	7-2
Assembly 2: Frames	7-4
Assembly 3: Electronics	7-6
Assembly 4: Cables	7-8
Assembly 5: Options and miscellaneous	7-9
Index	I-1
Part number index	I-7

Notices and safety information

	<p>CAUTION</p> <p>This product contains a lithium battery. THERE IS A RISK OF EXPLOSION IF THE BATTERY IS REPLACED BY AN INCORRECT TYPE. Discard used batteries according to the battery manufacturer's instructions and local regulations.</p>
---	--

The laser notice label may be affixed to this printer.

Laser notice

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR 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.

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) laser that is nominally a 5 milliwatt gallium arsenide laser operating in the wavelength region of 645-670 nanometers. 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 condition.

Laser

Der Drucker erfüllt gemäß amtlicher Bestätigung der USA die Anforderungen der Bestimmung DHHS (Department of Health and Human Services) 21 CFR Teil J für Laserprodukte der Klasse I (1). In anderen Ländern gilt der Drucker als Laserprodukt der Klasse I, der die Anforderungen der IEC (International Electrotechnical Commission) 60825-1 gemäß amtlicher Bestätigung erfüllt.

Laserprodukte der Klasse I gelten als unschädlich. Im Inneren des Druckers befindet sich ein Laser der Klasse IIIb (3b), bei dem es sich um einen Galliumarsenlaser mit 5 Milliwatt handelt, der Wellen der Länge 645-670 Nanometer ausstrahlt. Das Lasersystem und der Drucker sind so konzipiert, daß im Normalbetrieb, bei der Wartung durch den Benutzer oder bei ordnungsgemäßer Wartung durch den Kundendienst Laserbestrahlung, die Klasse I übersteigen würde, Menschen keinesfalls erreicht.

Avis relatif à l'utilisation de laser

Pour les Etats-Unis : cette imprimante est certifiée conforme aux provisions DHHS 21 CFR alinéa J concernant les produits laser de Classe I (1). Pour les autres pays : cette imprimante répond aux normes IEC 60825-1 relatives aux produits laser de Classe I.

Les produits laser de Classe I sont considérés comme des produits non dangereux. Cette imprimante est équipée d'un laser de Classe IIIb (3b) (arséniure de gallium d'une puissance nominale de 5 milliwatts) émettant sur des longueurs d'onde comprises entre 645 et 670 nanomètres. L'imprimante et son système laser sont conçus pour impossible, dans des conditions normales d'utilisation, d'entretien par l'utilisateur ou de révision, l'exposition à des rayonnements laser supérieurs à des rayonnements de Classe I.

Avvertenze sui prodotti laser

Questa stampante è certificata negli Stati Uniti per essere conforme ai requisiti del DHHS 21 CFR Sottocapitolo J per i prodotti laser di classe 1 ed è certificata negli altri Paesi come prodotto laser di classe 1 conforme ai requisiti della norma CEI 60825-1.

I prodotti laser di classe non sono considerati pericolosi. La stampante contiene al suo interno un laser di classe IIIb (3b) all'arseniuro di gallio della potenza di 5mW che opera sulla lunghezza d'onda compresa tra 645 e 670 nanometri. Il sistema laser e la stampante sono stati progettati in modo tale che le persone a contatto con la stampante, durante il normale funzionamento, le operazioni di servizio o quelle di assistenza tecnica, non ricevano radiazioni laser superiori al livello della classe 1.

Avisos sobre el láser

Se certifica que, en los EE.UU., esta impresora cumple los requisitos para los productos láser de Clase I (1) establecidos en el subcapítulo J de la norma CFR 21 del DHHS (Departamento de Sanidad y Servicios) y, en los demás países, reúne todas las condiciones expuestas en la norma IEC 60825-1 para productos láser de Clase I (1).

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene en su interior un láser de Clase IIIb (3b) de arseniuro de galio de funcionamiento nominal a 5 milivatios en una longitud de onda de 645 a 670 nanómetros. El sistema láser y la impresora están diseñados de forma que ninguna persona pueda verse afectada por ningún tipo de radiación láser superior al nivel de la Clase I durante su uso normal, el mantenimiento realizado por el usuario o cualquier otra situación de servicio técnico.

Declaração sobre Laser

A impressora está certificada nos E.U.A. em conformidade com os requisitos da regulamentação DHHS 21 CFR Subcapítulo J para a Classe I (1) de produtos laser. Em outros locais, está certificada como um produto laser da Classe I, em conformidade com os requisitos da norma IEC 60825-1.

Os produtos laser da Classe I não são considerados perigosos. Internamente, a impressora contém um produto laser da Classe IIIb (3b), designado laser de arseneto de potássio, de 5 milliwatts, operando numa faixa de comprimento de onda entre 645 e 670 nanómetros. O sistema e a impressora laser foram concebidos de forma a nunca existir qualquer possibilidade de acesso humano a radiação laser superior a um nível de Classe I durante a operação normal, a manutenção feita pelo utilizador ou condições de assistência prescritas.

Laserinformatie

De printer voldoet aan de eisen die gesteld worden aan een laserprodukt van klasse I. Voor de Verenigde Staten zijn deze eisen vastgelegd in DHHS 21 CFR Subchapter J, voor andere landen in IEC 60825-1.

Laserprodukten van klasse I worden niet als ongevaarlijk aangemerkt. De printer is voorzien van een laser van klasse IIIb (3b), dat wil zeggen een gallium arsenide-laser van 5 milliwatt met een golflengte van 645-670 nanometer. Het lasergedeelte en de printer zijn zo ontworpen dat bij normaal gebruik, bij onderhoud of reparatie conform de voorschriften, nooit blootstelling mogelijk is aan laserstraling boven een niveau zoals voorgeschreven is voor klasse 1.

Lasermeddelelse

Printeren er godkendt som et Klasse I-laserprodukt, i overensstemmelse med kravene i IEC 60825-1.

Klasse I-laserprodukter betragtes ikke som farlige. Printerens indeholder internt en Klasse IIIB (3b)-laser, der nominelt er en 5 milliwatt galliumarsenid laser, som arbejder på bølglængdeområdet 645-670 nanometer. Lasersystemet og printerens er udformet således, at mennesker aldrig udsættes for en laserstråling over Klasse I-niveau ved normal drift, brugervedligeholdelse eller obligatoriske servicebetingelser.

Laserilmoitus

Tämä tulostin on sertifioitu Yhdysvalloissa DHHS 21 CFR Subchapter J -standardin mukaiseksi luokan I (1) -lasertuotteeksi ja muualla IEC 60825-1 -standardin mukaiseksi luokan I lasertuotteeksi.

Luokan I lasertuotteita ei pidetä haitallisina. Tulostimen sisällä on luokan IIb (3b) laser, joka on nimellisteholtaan 5 mW:n galliumarsenidilaser ja toimii 645 - 670 nanometrin aallonpituuksilla. Laserjärjestelmä ja tulostin ovat rakenteeltaan sellaisia, että käyttäjä ei joudu alttiiksi luokkaa 1 suuremmalle säteilylle normaalin käytön, ylläpidon tai huollon aikana.

Huomautus laserlaitteesta

Tämä kirjoitin on Yhdysvalloissa luokan I (1) laserlaitteiden DHHS 21 CFR Subchapter J -määrityksen mukainen ja muualla luokan I laserlaitteiden IEC 60825-1 -määrityksen mukainen.

Luokan I laserlaitteiden ei katsota olevan vaarallisia käyttäjälle. Kirjoittimessa on sisäinen luokan IIb (3b) 5 milliwatin galliumarsenidilaser, joka toimii aaltoalueella 645 - 670 nanometriä. Laserjärjestelmä ja kirjoitin on suunniteltu siten, että käyttäjä ei altistu luokan I määräytyksiä voimakkaammalle säteilylle kirjoittimen normaalin toiminnan, käyttäjän tekemien huoltotoimien tai muiden huoltotoimien yhteydessä.

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

WARNING! Osynlig laserstrålning når denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

Laser-notis

Denna skrivare är i USA certifierad att motsvara kraven i DHHS 21 CFR, underparagraf J för laserprodukter av Klass I (1). I andra länder uppfyller skrivaren kraven för laserprodukter av Klass I enligt kraven i IEC 60825-1.

Laserprodukter i Klass I anses ej hälsovådliga. Skrivaren har en inbyggd laser av Klass IIb (3b) som består av en laserenhet av gallium-arsenid på 5 milliwatt som arbetar i våglängdsområdet 645-670 nanometer. Lasersystemet och skrivaren är utformade så att det aldrig finns risk för att någon person utsätts för laserstrålning över Klass I-nivå vid normal användning, underhåll som utförs av användaren eller annan föreskriven serviceåtgärd.

Laser-melding

Skriveren er godkjent i USA etter kravene i DHHS 21 CFR, underkapittel J, for klasse I (1) laserprodukter, og er i andre land godkjent som et Klasse I-laserprodukt i samsvar med kravene i IEC 60825-1.

Klasse I-laserprodukter er ikke å betrakte som farlige. Skriveren inneholder internt en klasse IIb (3b)-laser, som består av en gallium-arsenlaserenhet som avgir stråling i bølglengdeområdet 645-670 nanometer. Lasersystemet og skriveren er utformet slik at personer aldri utsettes for laserstråling ut over klasse I-nivå under vanlig bruk, vedlikehold som utføres av brukeren, eller foreskrevne serviceoperasjoner.

Avís sobre el Làser

Segons ha estat certificat als Estats Units, aquesta impressora compleix els requisits de DHHS 21 CFR, apartat J, pels productes làser de classe I (1), i segons ha estat certificat en altres llocs, és un producte làser de classe I que compleix els requisits d'IEC 60825-1.

Els productes làser de classe I no es consideren perillosos. Aquesta impressora conté un làser de classe IIIb (3b) d'arseniür de gal.li, nominalment de 5 mil.liwats, i funciona a la regió de longitud d'ona de 645-670 nanòmetres. El sistema làser i la impressora han sigut concebuts de manera que mai hi hagi exposició a la radiació làser per sobre d'un nivell de classe I durant una operació normal, durant les tasques de manteniment d'usuari ni durant els serveis que satisfacin les condicions prescrites.

レーザーに関するお知らせ

このプリンターは、米国ではDHHS 21 CFRサブチャプターJのクラスI (1)の基準を満たしたレーザー製品であることが証明されています。また米国以外ではIEC 825の基準を満たしたクラスIのレーザー製品であることが証明されています。

クラスIのレーザー製品には危険性はないと考えられています。このプリンターはクラスIIIb (3b)のレーザーを内蔵しています。このレーザーは、波長が770 ~ 795ナノメートルの範囲で、通常5ミリワットのガリウム砒化物を放射するレーザーです。このレーザーシステムとプリンターは、通常の操作、ユーザのメンテナンス、規定された修理においては、人体がクラスIのレベル以上のレーザー放射に晒されることのないよう設計されています。

注意：


本打印机被美国认证合乎 DHHS 21 CFR Subchapter I 对分类 I (1) 激光产品的标准，而在其他地区则被认证合乎 IEC 825 的标准。

分类 I 激光产品一般认为不具危险性，本打印机内部含有分类 IIIb (3b) 的激光，在操作过程中会产生 5 毫瓦含镓及砷的微量激光，其波长范围在 770-795 nm 之间。本激光系统及打印机的设计，在一般操作、使用者维护或规定内的维修情况下，不会使人体接触分类 I 以上等级的辐射。


본프린터는 1등급 레이저 제품들에 대한 DHHS 21 CFR Subchapter 3의 규정을 준수하고 있음을 미국에서 인증받았으며, 그외의 나라에서도 IEC 825 규정을 준수하는 1등급 레이저 제품으로서 인증을 받았습니다.

1등급 레이저 제품들은 안전한 것으로 간주됩니다. 본 프린터는 5 밀리와트 갈륨 아르세나이드 레이저로서 770-795 나노미터의 파장대에서 활동하는 Class III (3b) 레이저를 내부에 갖고 있습니다. 본 레이저 시스템과 프린터는 정상 작동 중이나 유지 보수 중 또는 규정된 서비스 상태에서 상기의 Class I 수준의 레이저 방출에 사람이 절대 접근할 수 없도록 설계되어 있습니다.


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 electric shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this and take necessary precautions.
-  **CAUTION:** When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.


Consignes de sécurité

- La sécurité de ce produit repose sur des tests et des agrégations portant sur sa conception d'origine et sur des composants particuliers. Le fabricant n'assume aucune responsabilité concernant la sécurité en cas d'utilisation de pièces de rechange non agréées.
- Les consignes d'entretien et de réparation de ce produit s'adressent uniquement à un personnel de maintenance qualifié.
- Le démontage et l'entretien de ce produit pouvant présenter certains risques électriques, le personnel d'entretien qualifié devra prendre toutes les précautions nécessaires.
-  **ATTENTION :** Ce symbole indique la présence d'une tension dangereuse dans la partie du produit sur laquelle vous travaillez. Débranchez le produit avant de commencer ou faites preuve de vigilance si l'exécution de la tâche exige que le produit reste sous tension.


Norme di sicurezza

- La sicurezza del prodotto si basa sui test e sull'approvazione del progetto originale e dei componenti specifici. Il produttore non è responsabile per la sicurezza in caso di sostituzione non autorizzata delle parti.
- Le informazioni riguardanti la manutenzione di questo prodotto sono indirizzate soltanto al personale di assistenza autorizzato.
- Durante lo smontaggio e la manutenzione di questo prodotto, il rischio di subire scosse elettriche e danni alla persona è più elevato. Il personale di assistenza autorizzato deve, quindi, adottare le precauzioni necessarie.
-  **ATTENZIONE:** Questo simbolo indica la presenza di tensione pericolosa nell'area del prodotto. Scollegare il prodotto prima di iniziare o usare cautela se il prodotto deve essere alimentato per eseguire l'intervento.


Sicherheitshinweise

- Die Sicherheit dieses Produkts basiert auf Tests und Zulassungen des ursprünglichen Modells und bestimmter Bauteile. Bei Verwendung nicht genehmigter Ersatzteile wird vom Hersteller keine Verantwortung oder Haftung für die Sicherheit übernommen.
- Die Wartungsinformationen für dieses Produkt sind ausschließlich für die Verwendung durch einen Wartungsfachmann bestimmt.
- Während des Auseinandernehmens und der Wartung des Geräts besteht ein zusätzliches Risiko eines elektrischen Schlags und körperlicher Verletzung. Das zuständige Fachpersonal sollte entsprechende Vorsichtsmaßnahmen treffen.
-  **ACHTUNG:** Dieses Symbol weist auf eine gefährliche elektrische Spannung hin, die in diesem Bereich des Produkts auftreten kann. Ziehen Sie vor den Arbeiten am Gerät den Netzstecker des Geräts, bzw. arbeiten Sie mit großer Vorsicht, wenn das Produkt für die Ausführung der Arbeiten an den Strom angeschlossen sein muß.


Pautas de Seguridad

- La seguridad de este producto se basa en pruebas y aprobaciones del diseño original y componentes específicos. El fabricante no es responsable de la seguridad en caso de uso de piezas de repuesto no autorizadas.
- La información sobre el mantenimiento de este producto está dirigida exclusivamente al personal cualificado de mantenimiento.
- Existe mayor riesgo de descarga eléctrica y de daños personales durante el desmontaje y la reparación de la máquina. El personal cualificado debe ser consciente de este peligro y tomar las precauciones necesarias.
-  **PRECAUCIÓN:** este símbolo indica que el voltaje de la parte del equipo con la que está trabajando es peligroso. Antes de empezar, desenchufe el equipo o tenga cuidado si, para trabajar con él, debe conectarlo.


Informações de Segurança

- A segurança deste produto baseia-se em testes e aprovações do modelo original e de componentes específicos. O fabricante não é responsável pela segurança, no caso de uso de peças de substituição não autorizadas.
- As informações de segurança relativas a este produto destinam-se a profissionais destes serviços e não devem ser utilizadas por outras pessoas.
- Risco de choques eléctricos e ferimentos graves durante a desmontagem e manutenção deste produto. Os profissionais destes serviços devem estar avisados deste facto e tomar os cuidados necessários.
-  **CUIDADO:** Quando vir este símbolo, existe a possível presença de uma potencial tensão perigosa na zona do produto em que está a trabalhar. Antes de começar, desligue o produto da tomada eléctrica ou seja cuidadoso caso o produto tenha de estar ligado à corrente eléctrica para realizar a tarefa necessária.


Informació de Seguretat

- La seguretat d'aquest producte es basa en l'avaluació i aprovació del disseny original i els components específics.
El fabricant no es fa responsable de les qüestions de seguretat si s'utilitzen peces de recanvi no autoritzades.
- La informació pel manteniment d'aquest producte està orientada exclusivament a professionals i no està destinada a ningú que no ho sigui.
- El risc de xoc elèctric i de danys personals pot augmentar durant el procés de desmuntatge i de servei d'aquest producte. El personal professional ha d'estar-ne assabentat i prendre les mesures convenients.
-  **PRECAUCIÓ:** aquest símbol indica que el voltatge de la part de l'equip amb la qual esteu treballant és perillós. Abans de començar, desendolieu l'equip o extremeu les precaucions si, per treballar amb l'equip, l'heu de connectar.

안전 사항

- 본 제품은 원래 설계 및 특정 구성품에 대한 테스트 결과로 안정성이 입증된 것입니다. 따라서 무허가 교체부품을 사용하는 경우에는 제조업체에서 안전에 대한 책임을 지지 않습니다.
- 본 제품에 관한 유지 보수 설명서는 전문 서비스 기술자용으로 작성된 것이므로, 비전문가는 사용할 수 없습니다.
- 본 제품을 해체하거나 정비할 경우, 전기적인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고, 필요한 예방 조치를 취하도록 하십시오.
-  **주의:** 이 표시는 해당영역에서 고압전류가 흐른다는 위험 표시입니다. 시작전에 플러그를 뽑으시거나, 주의를 기울여 주시기 바랍니다.

安全信息

- 本产品的安全性以原来设计和特定产品的测试结果和认证为基础。万一使用未经许可的替换部件，制造商不对安全性负责。
- 本产品的维护信息仅供专业服务人员使用，并不打算让其他人使用。
- 本产品在拆卸、维修时，遭受电击或人员受伤的危险性会增高，专业服务人员对这点必须有所了解，并采取必要的预防措施。
-  **切记:** 当您看到此符号时，说明在您工作的产品区域有危险电压的存在。请在开始操作前拔掉产品的电源线，或者在产品必须使用电源来执行任务时，小心从事。

Preface

This manual contains maintenance procedures for service personnel. It is divided into the following chapters:


1. **General information** contains a general description of the printer and the maintenance approach used to repair it. Special tools and test equipment, as well as general environmental and safety instructions, are discussed.
2. **Diagnostic information** contains an error indicator table, symptom tables, and service checks used to isolate failing field replaceable units (FRUs).
3. **Diagnostic aids** contains tests and checks used to locate or repeat symptoms of printer problems.
4. **Repair information** provides instructions for making printer adjustments and removing and installing FRUs.
5. **Connector locations** uses illustrations to identify the connector locations and test points on the printer.
6. **Preventive maintenance** contains the lubrication specifications and recommendations to prevent problems.
7. **Parts catalog** contains illustrations and part numbers for individual FRUs.


Conventions


Note: A note provides additional information.


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

There are several types of caution statements:

	CAUTION A caution identifies something that might cause a servicer harm.
---	--

	CAUTION This type of caution indicates 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 This type of caution indicates a hot surface.
---	---

	CAUTION This type of caution indicates a tipping hazard.
---	--

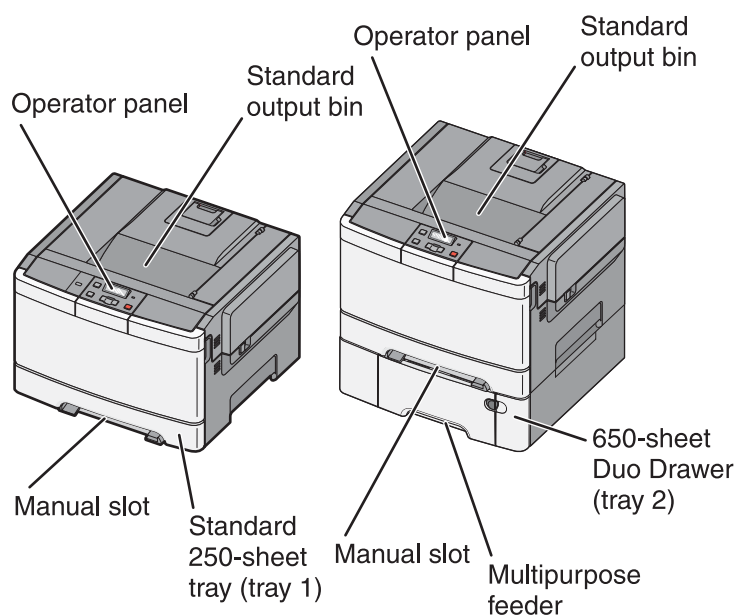
1. General information

The Lexmark™ C54x printer (5024-2xx, 4xx) is a color network printer in a compact size. Some models have internal duplexing, USB-A host ports for flash drives on the operator panel, and an optional 650-sheet Duo Drawer with 550 sheets in the input tray and 100-sheets for the multipurpose feeder. The Lexmark C544dw comes with wireless network and duplex printing.

Models

Model name	Machine type/ model	Description
Lexmark C540n	5025-210	Ethernet network
Lexmark C543dn	5025-230	Ethernet network, duplex
Lexmark C544n	5025-410	Ethernet network, USB-A host ports for flash drives
Lexmark C544dn	5025-430	USB-A host ports for flash drives, duplex
Lexmark C544dw	5025-43W	802.11n network wireless network, duplex

Options and features



Certain options are available on selected printer models only.

Available options include:

- 650-Sheet Duo Drawer—a 550-sheet drawer with a 100-sheet multipurpose feeder (MP Feeder).
- Additional memory—One 128, 256, or 512MB memory card may be added.
- Flash memory card—One 64MB card may be added.
- Font cards—One

Printer specifications

Memory

<div>✓—Supported</div> <div>✗—Not supported</div>	Lexmark C540n, C543dn	Lexmark C544n, C544dn, C544dw
Memory		
Optional slots	One slot	
Standard DIMM sizes ^a	128MB	
Optional (DDR2)	128MB, 256MB, and 512MB	
Maximum printer memory ^b	640MB	
Option Slots (single slot is available or either font or flash memory card)		
Font card support	N/A	1 font card
Optional user flash memory card sizes	N/A	64MB
Connections		
USB 2.0 High Speed	✓	✓
Ethernet 10/100 BaseTx	✓	✓
USB-A (allows direct USB printing using approved USB flash memory device)	✗	✓
PictBridge (allows printing photos directly from a compatible camera)	✗	✓
Wireless standard 802.11 b/g/n	✗	✓ (C544dw only)
^a Dual Inline Memory Module. An optional memory card that can be plugged into an available memory slot.		
^b The maximum usable DDRSDRAM is standard (soldered) plus 512MB.		

Print quality

During the life of the printer, components are subject to wear based on usage. Printers continuously operating at or near the maximum duty cycle may require service for replacement of these components to ensure high-quality printing and good performance throughout the life of the printer. The fuser and ITU replacement should be determined by checking the last sheet of the Menu Settings Page. Either **OK** or **Replace** appears.

To print a Menu Settings page:

1. Press **Menu** (☰) on the operator panel.
2. Select **Reports** from the Admin Menu, and press **Select** (✓).
3. Select **Menu Settings**, and press **Select** (✓).

Replacement is recommended every 30,000 pages for the imaging unit.

- 4800C Q (default) full printer speed
- 1200 dpi (reduced printer speed) is supported in PS and PCL only

Connectivity (network support)

✓—Supported ✗—Not supported		
Network protocol	Lexmark C540n, C543dn, C544dn	Lexmark C544dw
Standard Ethernet 10/100 Base T	✓	✓
Standard USB-B (Full speed) device port	✓	✓
USB-A host ports (In front, low/full speed) This port only supports the following flash drives and file types: Supported flash drives ^a : Lexar FireFly (512 MB/1GB size), SanDisk Cruzer Micro (512 MB/1 GB size), or Sony (512 MB/1 GB). Supported file types ^b : .pdf, .gif, .jpeg, .jpg, .bmp, .png, .tiff, .tif, .pcx, .dcx	✗	✓
802.11n Wireless Network card Manufacturing installs the wireless card. A wireless card CANNOT be installed post-manufacturing.	✗	✓
^a While other USB flash drives have not been tested, and therefore cannot be approved by Lexmark, these products may function if the storage device meets the following qualifications: <ul style="list-style-type: none"> • Supports the USB 2.0 specification supporting the Full-Speed mode • Uses the FAT file system ^b PDF files used with Direct USB printing must support PDF standard version 1.5 or earlier. PDF files with restricted printing permissions or encryption are not supported.		

Operating modes

Mode	Description
Normal	Factory default
Quiet	Designed for customers where noise levels are a very important factor. <ul style="list-style-type: none"> • Print quality is maintained at factory default level. • Speed is reduced.
Eco-Mode (Energy and Energy + Paper)	Designed for customers where the environment is a key factor. There are three options; Energy, Paper, and Energy+ Paper. <ul style="list-style-type: none"> • Print quality is maintained. • Power Saver is set to one minute. • Fuser standby is off. • The operator panel back light is off. • Power supply energy consumption is reduced. • Duplex is on if Energy + Paper is selected (duplex models only) (can be overwritten by the driver).

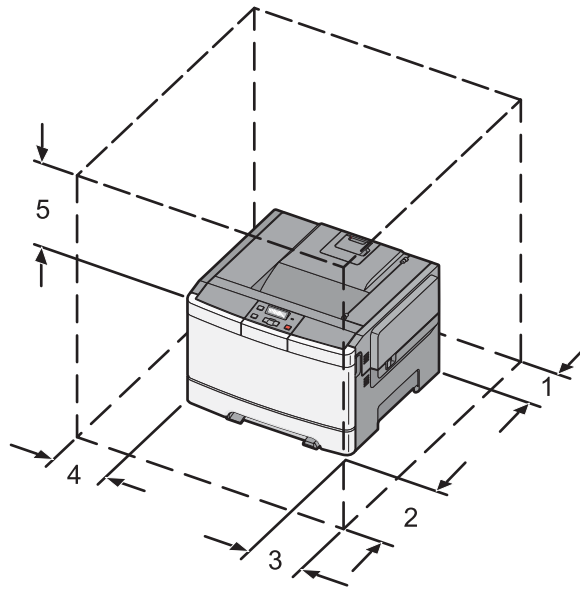
Data streams

✓ —Supported ✗ —Not supported	Lexmark C540n, C543dn	Lexmark C544n, C544dn, C544dw
Data streams		
PCL 6 emulation	✓	✓
PostScript Level III emulation Version 3011 of the Adobe definition of PostScript 3 is supported.	✓	✓
PDF Supports version 1.6	✗	✓
PPDS By default, the PPDS interpreter is inactive. A user can activate the data stream by PJL or by the PPDS Emulation setting in the Configuration Menu.	✗	✓
PictBridge	✗	✓
Directimage Devices that support Directimage support all of the following graphics formats: TIFF, TIF, JPEG, JPG, GIF, PNG, BMP, PCX, and DCX.	✗	✓
Host-Based Printing (HBP)/Graphics Device Interface (GDI) Version 3 (color) uses PCL XL.	✓	✓

Dimensions

Models	Height	Width	Depth	Weight
Lexmark C540n, C543dn, C544n, C544dn, C544dw	291 mm (11.5 in.)	424 mm (16.7 in.)	400 mm (15.7 in.)	21 kg (46.2 lbs)
Lexmark C544dtn The Lexmark C544dn printer with optional 640-sheet duo drawer	422 mm (16.6 in.)	424 mm (16.7 in.)	416 mm (16.4 in.)	25 kg (54.9 lbs)
650-sheet duo drawer	133 mm (5.2 in.)	424 mm (16.7 in.)	416 mm (16.4 in.)	4 kg (8.7 lb)

Clearances



	Description	Dimensions	
		Lexmark C540n, C543dn, C544n, C544dn, and C544dw	C544dtn
1	Rear	102 mm (4 in.)	102 mm (4 in.)
2	Front	508 mm (20 in.)	508 mm (20 in.)
3	Right side	152 mm (6 in.)	254 mm (10 in.)
4	Left side	76 mm (3 in.)	76 mm (3 in.)
5	Above	254 mm (10 in.)*	254 mm (10 in.)*
* Add 133 mm (5.2 in.) to the top if you want to add an optional 650-sheet Duo Drawer (Lexmark C54x models only).			

Power and electrical specifications

The following table specified nominal average power requirements for the base printer configurations. All power levels are shown in Watts (W). Maximum current is given in Amperes (A).

Printing states	Lexmark C540n, C543dn	Lexmark C544n, C544dn, C544dw, and C544dtn
Average power while printing		
Simplex	480 W	500 W
Automatic duplex*	340 W	340 W
Average power while idle		
Power Saver	18 W	18 W
Ready	34 W	36 W
Off	0 W	0 W
* Automatic duplex is not supported on the C540n and C544n.		

Typical electricity consumption²

Model	Mode	Power supply voltage (kwh)		
		100 V/50 Hz	115 V/60 Hz	230 V/50 Hz
Lexmark C540n, C543dn				
	TEC ¹	3.73 kwh	3.5 kwh	3.92 kwh
	TEC ¹ —Eco Mode	3.41 kwh	3.30 kwh	3.55 kwh
Lexmark C544n, C544dn, C544dw, C544dtn				
	TEC ¹	3.97 kwh	4.06 kwh	4.20 kwh
	TEC ¹ —Eco Mode	3.57 kwh	3.42 kwh	3.57 kwh
¹ TEC—Typical Electricity Consumption. ² Energy measurements are made according to <i>ENERGY STAR Qualified Imaging Equipment Typical Electricity Consumption Test Procedure</i> , and are in units of kilowatts per week (kwh/week). Actual electricity consumption will vary by device usage.				

Low-voltage models

- 110 to 127 V ac at 47 to 63 hertz (Hz) nominal
- 99 to 137 V ac, extreme

100 voltage models

- 100 V ac at 47 to 63 hertz (Hz) nominal
- 90 to 110 V ac, extreme

High-voltage models

- 220 to 240 V ac at 47 to 63 hertz (Hz) nominal (not available in all countries)
- 198 to 259 V ac, extreme

Notes:

- Using a 220 V ac to 110 V ac power converter with a low voltage printer is not recommended.
- Using an inverter to change DC to AC voltage (12 V to 120 V for example) is not recommended.
- All duplex models are ENERGY STAR compliant.

Acoustics

All acoustic measurements are made in accordance with ISO 7779-1999 and reported in conformance with ISO9296:1988-04-15.

Operating mode	1-Meter average sound pressure at 4800 CQ				
Lexmark C544dn, C544dw	Lexmark C540n	Lexmark C543dn	Lexmark C544n	Lexmark C544dn, C544dw	Lexmark C544dtn
Printing (simplex)	47 dBA	47 dBA	49 dBA	49 dBA	49 dBA
Printing (automatic duplex)	N/A	50 dBA	N/A	51 dBA	51 dBA
Idle	Inaudible	Inaudible	Inaudible	Inaudible	Inaudible
Quiet Mode (simplex)	46 dBA	46 dBA	46 dBA	46 dBA	46 dBA

Environment specifications

Environment	Specifications
Operating	
Air temperature—operating	15.6 to 32.20° C (60 to 90.0° F)
Air temperature—power off	10.0 to 43.30° C (50 to 110.0° F)
Air relative humidity	Relative Humidity 8 to 80%
Wet bulb temperature—operating	22.80° C (73.0° F) maximum
Wet bulb temperature—power off	26.70° C (80.10° F) maximum
Altitude	0–3,048 meters (10,000 ft.)
Atmospheric pressure	74.6 kPa
Ambient operating environment*	15.6 to 32.2° C (60 to 90° F) and 8% to 80% RH
Ship / Storage	
Cartridges	-40 to 43.3° C (-40 to 110.0° F)
Printer with cartridges	-40 to 43.3° C (-40 to 110.0° F)
Printer without cartridges	-40 to 43.3° C (-40 to 110.0° F)
Air relative humidity	Relative Humidity 8 to 80%
Altitude	10,300 meters (34,000 feet)
Wet bulb temperature—power off	26.70° C (80.10° F) Maximum
* In some cases, performance specifications (such as paper OCF, EP cartridge usage) are specified to be measured at an ambient condition.	

Media handling

Input and output sources

Sheet numbers are assuming 20 lb. xerographic paper	Lexmark C540n, C544n	Lexmark C543dn, C544dn, C544dw	Lexmark C544dtn (C544dn with second tray)
Standard input sources			
Standard input tray (250-sheet tray)	250 sheets	250 sheets	250 sheets
Manual feed slot (1-sheet)	1 sheet	1 sheet	1 sheet
Second tray capacity (650-sheet Duo Drawer)	N/A	N/A	550 sheets
Multipurpose try capacity (650-sheet Duo Drawer)	N/A	N/A	100 sheets
Optional input sources (maximum 1, total of all inputs is 4)			
650-sheet duo drawer ^a (includes 100-sheet MP feeder)	550 sheets (or 100 sheets in MP feeder)	550 sheets (or 100 sheets in MP feeder)	0
Maximum total input capacity	901	901	901
Duplex	N/A	Duplex	
Standard output sources (no optional output sources are available)			
Standard 100-sheet bin	100	100	100
a In the 650-sheet duo drawer, the 550-sheet tray and the integrated MP feeder count as two independent input sources. The MF feeder is configured as “cassette” does not show up as Configure MP in the Paper Menu.			

Duplex capability

✓—Supported ✗—Not supported	
Models	
	Duplex capability
Lexmark C540n	✗
Lexmark C543dn	✓
Lexmark C544n	✗
Lexmark C544dn	✓
Lexmark C544dw	✓

Media input size specifications

<p>✓—Supported without size sensing</p> <p>✗—Not supported</p> <p>Input source</p>	250-sheet tray	Optional 650-sheet duo drawer	MP feeder^a (in the 650-sheet duo drawer)	Manual slot	Duplex
A4 210 x 297mm	✓	✓	✓	✓	✓
A5^a 148 x 210mm	✓	✓	✓	✓	✗
A6	✗	✗	✓	✓	✗
JIS^b B5^a 182 x 257mm	✓	✓	✓	✓	✓
JIS^b B4	✗	✗	✗	✗	✗
Letter 8.5 x 11 in.	✓	✓	✓	✓	✓
Legal 8.5 x 14 in.	✓	✓	✓	✓	✓
Executive 7.25 x 10.5 in.	✓	✓	✓	✓	✗
Oficio (Mexico)^d	✓	✓	✓	✓	✓
Folio^d 8.5 x 13 in.	✓	✓	✓	✓	✓
Statement 5.5 x 8.5 in.	✗	✗	✓	✓	✗
Universal^c 148 x 210mm to 215.9 x 355.6mm (5.83 x 8.27 in. to 8.5 x 14 in.) 76.2 x 127mm to 215.9 x 355.6mm (3 x 5 in. to 8.5 x 14 in.) 210mm x 279.4mm to 215.9mm x 355.6mm (8.27 in. x 11 in. to 8.5 in. to 14 in.)	✓	✓	✓	✓	✗
	✗	✗	✓	✓	✗
	✓	✓	✓	✓	✓
7¾ Envelope^a 98.4 x 190.5mm	✗	✗	✓	✓	✗
9 Envelope^a	✗	✗	✓	✓	✗
10 Envelope^a 104.8 x 241.3mm (4.12 x 9.5 in.)	✗	✗	✓	✓	✗
DL Envelope^a 110 x 220mm (4.33 x 8.66 in.)	✗	✗	✓	✓	✗
C5 Envelope^a 162 x 229mm (6.38 x 9.01 in.)	✗	✗	✓	✓	✗

✓—Supported without size sensing ✗—Not supported Input source	250-sheet tray	Optional 650-sheet duo drawer	MP feeder^a (in the 650-sheet duo drawer)	Manual slot	Duplex
B5 Envelope^a	✗	✗	✓	✓	✗
Other envelope^a Length: 98.4–431.8mm (3.8–17 in.) Width: 89–297mm (3.5–11.7 in.)	✗	✗	✓	✓	✗
^a The MP feeder runs slower if A5, statement, B5, or envelopes are loaded. ^b Japanese Industry Standard. ^c Although the user may select Universal paper size for these sources, not all tray guides can be adjusted to all Universal media sizes. ^d If a source supports size sensing and this feature is activated, then neither Oficio or Folio appear in the list of supported media sizes. These values only appear in a list of supported media sizes when the source is non-size sensing or the size sensing is deactivated.					

Media input type specifications

✓—Supported ✗—Not supported Input type	250-sheet tray	Optional 650-sheet Duo Drawer	MP feeder (in 650-sheet Duo Drawer)	Manual feeder^a	Duplex
Plain paper	✓	✓	✓	✓	✓
Card stock	✓	✓	✓	✓	✗
Transparency	✓	✓	✓	✓	✗
Recycled^b	✓	✓	✓	✓	✓
Glossy	✓	✓	✓	✓	✓
Heavy glossy	✗	✗	✗	✗	✗
Paper-backed labels	✓	✓	✓	✓	
Bond	✓	✓	✓	✓	✓
Envelopes	✗	✗	✓	✓	✗
Rough envelopes	✗	✗	✓	✓	✗
Letterhead	✓	✓	✓	✓	✓
Preprinted	✓	✓	✓	✓	✓

✓—Supported ✗—Not supported					
Input type	250-sheet tray	Optional 650-sheet Duo Drawer	MP feeder (in 650-sheet Duo Drawer)	Manual feeder^a	Duplex
Colored paper	✓	✓	✓	✓	✓
Light paper	✓	✓	✓	✓	✓
Heavy paper	✓	✓	✓	✓	✓
Rough or cotton	✓	✓	✓	✓	✓
Custom type <x> ^b	✓	✓	✓	✓	✓
^a For MP feeder and manual feeders, the Default Source Menu displays Manual Paper and Manual Env. Select Manual Env. for envelopes or when the type in Custom Type <x> is an envelope. For other types, use Manual Paper . ^b The duplex unit supports this media type as long as the customer has selected the custom type from those types the duplex unit supports.					

Media output size and type

There is a single 100-sheet output bin available for this printer and no additional output options.

Weight ranges for each media type

Material	Type	Weight	Select
Paper ^{2, 5, 7, 8}	Xerographic or business paper	60 to 74.9 g/m ² grain long (16 to 19.9 lb bond) ^{2, 5}	Light Paper
		75 to 89.9 g/m ² grain long (20 to 23.8 lb bond)	Plain Paper
		90. to 104.9 g/m ² grain long (23.9 to 27.8 lb bond)	Heavy Paper
		105 to 176 g/m ² grain long (27.9 to 47 lb bond) ⁷	Card stock
Specialty papers	Gloss Book	88 to 176 g/m ² grain long (60 to 120 lb book)	
	Gloss Cover	162 to 176 g/m ² grain long (60 to 65 lb cover)	
Card stock—upper limit (grain long) ¹	Index Bristol	120 g/m ² (67 lb)	
	Tag	120 g/m ² (74 lb)	
	Cover	135 g/m ² (50 lb)	
Card Stock—upper limit (grain short) ¹	Index Bristol	163 g/m ² (90 lb)	
	Tag	163 g/m ² (100 lb)	
	Cover	176 g/m ² (65 lb)	
Transparency ⁶	Laser printer	170 to 180 g/m ² (45 to 48 lb bond)	
Labels—upper limit	Paper	131 g/m ² (35 lb bond)	

Material	Type	Weight	Select
Envelopes (Multipurpose feeder or manual slot only)	Sulfite, wood-free or up to 100% cotton bond	60 to 105 g/m ² to 28 lb bond) ^{3, 4}	
¹ For 60 to 176 g/m ² paper, grain long fibers are recommended. ² Paper less than 75 g/m ² (20 lb) must be printed with Paper Type set to Light Paper . ³ 100% cotton content maximum weight is 24 lb bond. ⁴ 28 lb bond envelopes are limited to 25% cotton content. ⁵ The duplex unit supports paper weights between 60–105 g/m ² (16–28 pound) grain long bond. The duplex unit does not support card stock, transparencies, envelopes, or labels. ⁶ Lexmark transparency part numbers 12A8240 and 12A8241 are supported from the standard tray, manual slot, and the multi-purpose feeder. ⁷ Paper 90 to 104.9 g/m ² (23.9 to 27.8 lb) must be printed with Paper Type set to Heavy Paper . ⁸ Paper 105 to 176 g/m ² (27.9 to 47 lb) must be printed with Paper Type set to Cardstock .			

Media guidelines

Paper characteristics

The following paper characteristics affect print quality and reliability. Consider these characteristics when evaluating new paper stock.

- **Weight**—The printer can automatically feed paper weights from 60 to 176 g/m² (16 to 47 lb bond) grain long. Paper lighter than 75 g/m² (20 lb) might not be stiff enough to feed properly, causing jams. For best performance, use 80 g/m² (21 lb bond) grain long paper. For paper smaller than 182 x 257 mm (7.2 x 10.1 in.), we recommend 90 g/m² or heavier paper.
- **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, even in the trays, can contribute to paper curling prior to 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. Always use paper between 100 and 300 Sheffield points; however, smoothness between 150 and 200 Sheffield points produces the best print quality.
- **Moisture content**—The amount of moisture in paper affects both print quality and the ability of the printer to feed the paper correctly. Leave paper in its original wrapper until it is time to use it. This limits the exposure of paper to moisture changes that can degrade its performance. Condition paper before printing by storing it 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 to 176 g/m² (16 to 47 lb bond) paper, use grain long fibers.
- **Fiber content**—Most high-quality xerographic paper is made from 100% 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 possesses characteristics that can negatively affect paper handling.

Unacceptable paper

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

- Preprinted papers with chemicals that may contaminate the printer
- Preprinted papers that can be affected by the temperature in the printer fuser
- Coated papers (erasable bond), synthetic papers, thermal papers
- Rough-edged, rough or heavily textured surface papers, or curled papers

- Recycled papers containing more than 25% post-consumer waste that do not meet DIN 19 309, and weighing more than 80 g/m²
- Paper weighing less than 80 g/m² (21 lb)
- Multiple-part forms or documents

Selecting paper

Using appropriate paper prevents jams and helps ensure trouble-free printing. To help avoid jams and poor print quality:

- Always use new, undamaged paper.
- Before loading paper, know the recommended print 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 source; mixing results in jams.
- Do not use coated papers unless they are specifically designed for electrophotographic printing.

Selecting preprinted forms and letterhead

Use these guidelines when selecting preprinted forms and letterhead:

- Use grain long for 60 to 176 g/m² weight paper.
- Use only forms and letterhead printed using an offset lithographic or engraved printing process.
- Avoid papers with rough or heavily textured surfaces.

Use papers printed with heat-resistant inks designed for use in xerographic copiers. The ink must be able to withstand temperatures up to 200° C (392° F) without melting or releasing hazardous emissions. 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. When in doubt, contact the paper supplier.

Preprinted papers such as letterhead must be able to withstand temperatures up to 200° C (392° F) without melting or releasing hazardous emissions.

Storing paper

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

- For best results, store paper where the temperature is 21°C (70°F) and the relative humidity is 40%. Most label manufacturers recommend printing in a temperature range of 18 to 24°C (65 to 75°F) with relative humidity between 40 and 60%.
- Store paper in cartons when possible, 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.

Using recycled paper and other office papers

As an environmentally conscious company, Lexmark supports the use of recycled office paper produced specifically for use in laser (electrophotographic) printers. In 1998, Lexmark presented to the US government a study demonstrating that recycled paper produced by major mills in the US fed as well as non-recycled paper. However, no blanket statement can be made that all recycled paper will feed well. Lexmark consistently tests its printers with recycled paper (20–100% post-consumer waste) and a variety of test paper from around the world, using chamber tests for different temperature and humidity conditions. Lexmark has found no reason to discourage the use of today's recycled office papers, but generally the following property guidelines apply to recycled paper.

- Low moisture content (4–5%)
- Suitable smoothness (100–200 Sheffield units, or 140–350 Bendtsen units, European)
Note: Some much smoother papers (such as premium 24 lb laser papers, 50–90 Sheffield units) and much rougher papers (such as premium cotton papers, 200–300 Sheffield units) have been engineered to

work very well in laser printers, despite surface texture. Before using these types of paper, consult your paper supplier.

- Suitable sheet-to-sheet coefficient of friction (0.4–0.6)
- Sufficient bending resistance in the direction of feed

Recycled paper, paper of lower weight (<60 g/m² [16 lb bond]) and/or lower caliper (<3.8 mils [0.1 mm]), and paper that is cut grain-short for portrait (or short-edge) fed printers may have lower bending resistance than is required for reliable paper feeding. Before using these types of paper for laser (electrophotographic) printing, consult your paper supplier. Remember that these are general guidelines only and that paper meeting these guidelines may still cause paper feeding problems in any laser printer (for example, if the paper curls excessively under normal printing conditions).

Tools required for service

Flat-blade screwdrivers, various sizes

#1 Phillips screwdriver, magnetic

#2 Phillips screwdriver, magnetic

#2 Phillips screwdriver, magnetic short-blade

Long-shank Phillips screwdriver at least 8 in. or 200 mm long, preferably magnetized

7/32 inch (5.5 mm) open-end wrench

7.0 mm nut driver

Needlenose pliers

Diagonal side cutters

Spring hook

Feeler gauges

Analog or digital multimeter

Parallel wrap plug 1319128

Twinax/serial debug cable 1381963

Coax/serial debug cable 1381964

Flashlight (optional)

Acronyms

ACM	Autocompensator Mechanism (paper pick mechanism)
BLDC	Brushless DC Motor
BOR	Black Only Retract
C	Cyan
DIMM	Dual Inline Memory Module
DRAM	Dynamic Random Access Memory
EEPROM	Electrically Erasable Programmable Read-Only Memory
EP	ElectroPhotographic
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
GB	Gigabyte
HVPS	High-Voltage Power Supply
ITU	Image Transfer Unit
IU	Imaging Unit
JIS	Japanese Industry Standard
K	Black
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low-Voltage Power Supply
M	Magenta
MPF	Multipurpose Feeder (also MP feeder)
NVRAM	Nonvolatile Random Access Memory
PC	Photoconductor
pixel	Picture elements (same as pel)
POR	Power-On Reset
POST	Power-On Self Test
PWM	Pulse Width Modulation
RIP	Raster Imaging Processor
ROM	Read Only Memory
SDRAM	Synchronous Dual Random Access Memory
SIMM	Single Inline Memory Module
TDS	Toner Density Sensor (see Toner Patch Sensor)
TPS	Toner Patch Sensor (also referred to as Toner Density Sensor)
V ac	Volts alternating current
V dc	Volts direct current
Y	Yellow

5025-2xx, 4xx

2. Diagnostic information

Start



CAUTION

Unplug power cord from the electrical outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.

Begin here to locate the service error code, user status message, user error message, symptom table, service checks, and diagnostic aids in this chapter to determine the corrective action necessary to repair a malfunctioning printer. They will lead you to solutions or service checks, including use of various tests.

- **Does the POR stop?** Check the **“POR (Power-On Reset) sequence” on page 2-2.**
- **Do you have a symptom**, rather than an error message? Locate your symptom and take the appropriate action:
 - **“Printer symptom table” on page 2-3**
 - **“Print quality symptom table” on page 2-4**
- **Do you have an error message or persistent user message**, check the following:
 - **“Service error messages” on page 2-12**
 - **“User status and customer attendance messages” on page 2-5**
 - **“Paper Jam messages” on page 2-11**
 - **“Paper jams” on page 3-28**
 - **“Service checks” on page 2-24** for individual error messages
- Additional information can be found at the following locations:
 - **“User operator panel and Administration menus” on page 2-55**
 - **“Theory of operation” on page 3-33**

POR (Power-On Reset) sequence

The following is an example of the events that occur during the POR sequence for the base machine with no paper handling options installed.

When you turn the printer on, it performs a Power-On Self Test. Check for correct POST functioning of the base printer by observing the following:

1. The LED turns on.
2. The main fan turns on.
3. The operator panel turns on.
4. A partial row of pixels appears.
5. The operator panel display clears.
6. Another row of pixels appears.
7. The operator panel display clears again.
8. The operator panel displays system information. For example:

*128MB	500Mhz
--------	--------

9. The fuser turns on. The fuser takes longer to warm up from a cold start than a warm start.
10. The operator panel LED starts blinking.
11. The following errors or messages may appear:
 - Close Door or Insert Cartridge displays if the upper front cover is open or the print cartridge is missing.
 - Any cartridge errors, such as Defective Cartridge or Missing Cartridge.
12. Ready appears on the display.
13. The main drive motor turns on.
14. The EP drive assembly drives the developer shaft located in the toner cartridge.
15. The printer calibrates.

Symptom tables

Printer symptom table

Symptom	Action
Dead printer	Go to “Dead printer service check” on page 2-28.
Operator panel—one or more buttons do not work.	Go to “One or more operator panel buttons fail” on page 2-36.
Operator panel—display is blank. Printer may sound five beeps.	Go to “Operator panel display blank, five beeps” on page 2-37.
Operator panel continuously displays all diamonds and does not complete POST.	Go to “Operator panel displays all diamonds, no beeps” on page 2-39.
Operator panel display is dim and unchanging.	Go to “Operator panel display is dim and unchanging” on page 2-41.
Pages print blank after replacing the controller board.	<p>When replacing the controller board, verify the cable from the high-voltage power supply is seated properly. The cable may have come loose from the HVPS.</p> <p>Warning: A blank page that should have toner on it could be an indication that toner is applied to the ITU belt but not transferred. Therefore the toner goes into the ITU cleaner which cannot process massive amounts of toner. It is important to prevent extensive blank pages from being processed if they should have toner on them.</p>
Tray linking does not work.	<ul style="list-style-type: none"> • Check that the same size and type of paper are in each tray. • Check the location of the paper guides. • The multipurpose feeder does not automatically sense the paper size. You must set the size from the Paper Size/Type menu. • Print a menu settings page and compare the settings for each tray, and adjust on the operator panel, if necessary. <p>To print a menu settings page:</p> <ol style="list-style-type: none"> 1. Press Menu (☰) on the operator panel. 2. Select Reports from the Admin Menu, and press Select (✓). 3. Select Menu Settings, and press Select (✓).
Unexpected page breaks occur.	<ul style="list-style-type: none"> • Increase the Print Timeout value on the operator panel (Settings→General Settings→Timeouts→Print Timeout.)
Multipurpose feeder has constant misfeeds or jams.	<ul style="list-style-type: none"> • Remove and flex the paper in the tray. Reload the paper, and try printing. • Remove the paper, turn it over and place it back in the tray. • Make sure the feeder is properly installed. • Make sure the paper is loaded correctly in the tray. • Make sure the paper is not damaged. • Make sure the paper meets specifications. See “Media handling” on page 1-8. • Make sure the paper guides are positioned correctly for the paper size loaded in the tray.
Page that jammed does not reprint after you clear the jam.	Jam Recovery may be set to Off. Change the setting to Auto or On on the operator panel (Settings→General settings→Print Recovery→Jam Recovery.)

Print quality symptom table










Symptom	Action
Background	Go to “Print quality—background” on page 2-43.
Blank page	Go to “Print quality—blank page” on page 2-44.
Blurred or fuzzy print	Go to “Print quality—blurred or fuzzy print” on page 2-45.
Half-color page	Go to “Print quality—half-color page” on page 2-45.
Horizontal banding	Go to “Print quality—horizontal banding” on page 2-46.
Horizontal line	Go to “Print quality—horizontal line” on page 2-46.
Insufficient fusing	Go to “Print quality—insufficient fusing” on page 2-47.
Missing image at edge	Go to “Print quality—missing image at edge” on page 2-47.
Mottle (2–5mm speckles)	Go to “Print quality—mottle (2–5mm speckles)” on page 2-47.
Narrow vertical line	Go to “Print quality—narrow vertical line” on page 2-48.
Random marks	Go to “Print quality—random marks” on page 2-48.
Residual image	Go to “Print quality—residual image” on page 2-49.
Solid color page	Go to “Print quality—solid color page” on page 2-50.
Vertical banding	Go to “Print quality—vertical banding” on page 2-50.
Color matching problems	See “Color theory” on page 3-45.
Light print on solids	See “Media guidelines” on page 1-12.

Error codes and messages









User status and customer attendance messages


User primary message	Explanation
Calibrating	The printer is performing a color adjustment.
Close Door	Message clears when front cover, right cover, and toner door are closed or securely fastened.
Check Config ID	The printer configuration ID is invalid.
Check Model Name	Message clears when a valid model name is set.
Check Serial Num	Message clears when a valid serial number is set.
Defragmenting Flash DO NOT POWER OFF	The printer is performing the defragmentation operation of flash memory. Wait for the message to clear. Warning: Do not turn the printer off while this message appears on the display.
Formatting Flash DO NOT POWER OFF	Wait for the message to appear. Warning: Do not turn the printer off while this message appears on the display.
Insert Tray <x>	This message is displayed when the printer requests the user to insert tray x before it can continue printing the job. The printer needs to pick media from the missing tray or the trays below it. Tray x=Tray 1 or Tray 2 Note: This message displays when refilling the trays during a job. Before filling a tray, take the printer offline by pressing Stop (⏹), and wait for pages to stop feeding into the output bin. The following actions can be taken: <ul style="list-style-type: none"> • Insert the requested tray. • Press Stop (⏹), and then press Select (✓) to cancel printing.
Install Tray <x> or Cancel job	Printer detects that tray <x> is missing, where x is 1 or 2. This message appears if the job was begun, but the paper has not yet been retrieved. The tray is no longer detected. Replace the indicated tray.
Invalid Engine Code	The engine code is invalid.
Invalid Network Code	The network code is invalid.
Load <source> <custom string>	Printer does not detect media meeting the description <custom string> in <source>, where <source> is Tray 1, Tray 2, or multipurpose feeder. <ul style="list-style-type: none"> • Load the input source with the correct type and size media. • Press Stop (⏹), and then press Select (✓) to cancel printing.
Load <source> <custom type>	Printer does not detect media meeting the description <custom type> in <source>, where <source> is Tray 1, Tray 2, or multipurpose feeder. <ul style="list-style-type: none"> • Load the input source with the correct type and size media. • Press Stop (⏹), and then press Select (✓) to cancel printing.
Load <source> <size>	Printer does not detect media meeting the size requested in the source indicated. <ul style="list-style-type: none"> • Load the input source with the correct type and size media. • Press Stop (⏹), and then press Select (✓) to cancel printing.
Load <source> <type> <size>	Printer does not detect media meeting the size or type requested in the source indicated. <ul style="list-style-type: none"> • Load the input source with the correct type and size media. • Press Stop (⏹), and then press Select (✓) to cancel printing.

User primary message	Explanation
Load Manual <custom string>	Printer does not detect media meeting the description <custom string> in the single sheet feeder (manual feeder). The following actions can be taken: <ul style="list-style-type: none"> • Load paper, press Select (✓), and the job continues. • Press Select (✓) to override the source, and an alternate source for media is selected. • Press Stop (✗), and then press Select (✓) to cancel printing.
Load Manual <custom type>	Printer does not detect media meeting the description <custom type> in the single sheet feeder (manual feeder). The following actions can be taken: <ul style="list-style-type: none"> • Load paper and the job continues. • Press Select (✓), and choose an alternate source for media. • Press Stop (✗), and then press Select (✓) to cancel printing.
Load Manual <size>	Printer does not detect media meeting the description <size> in the single sheet feeder (manual feeder). The following actions can be taken: <ul style="list-style-type: none"> • Load paper and the job continues. • Press Select (✓), and choose an alternate source for media. • Press Stop (✗), and then press Select (✓) to cancel printing.
Load Manual <type> <size>	Printer does not detect media meeting the description <type> and <size> in the single sheet feeder (manual feeder). The following actions can be taken: <ul style="list-style-type: none"> • Load paper and the job continues. • Press Select (✓), and choose an alternate source for media. • Press Stop (✗), and then press Select (✓) to cancel printing.
PJL ST Message	Try one or more of the following: <ul style="list-style-type: none"> • Press Select (✓) to clear the message, and continue printing. • Wait for the message to clear.
Programming Code	The printer is receiving a file that is a code update. Do not power off. Wait for the message to clear to continue printing.
Programming Flash	Fonts and macros are being written to flash. Do not power off. Wait for the message to clear to continue printing.
Replace <color> Cartridge	Replace the toner cartridge of the indicated color. The printer continues after the toner door is closed.
Remote Management Active	The printer is offline while it configures settings. Do not power off. Wait for the message to clear to continue printing.
Remove Paper Standard Bin	The standard output bin is full or nearly full. Remove the media from the bin.
Remove Packaging Material	Packaging material is detected by the printer. Remove the packaging material, and press Select (✓). If all the packaging material is removed, then the printer resumes.
Std Bin Full	Empty the standard exit bin to clear the message and continue printing.
Toner Low	Try one or more of the following: <ul style="list-style-type: none"> • Press Select (✓) to clear the message, and continue printing. • Replace the indicated toner cartridge, and then close the toner door.
Tray <x> Empty	Load the paper tray or other source with the correct paper type and size.
Tray <x> Low	Load the paper tray or other source with the correct paper type and size.
Tray <x> Missing	Insert the specified tray into the printer.
Unplug and Change Mode	Camera is not in a proper mode to use the PictBridge feature. Unplug the camera cable to the printer, and change the camera mode.

User primary message	Explanation
Unsupported USB Device, Please Remove	Remove the unrecognized device from the USB port on the front of the printer.
Unsupported USB HUB, Please Remove	Remove the unrecognized USB hub from the USB port on the front of the printer.
30.xx <color> Cartridge Missing	The specified toner cartridge is missing. Re-install the missing toner cartridge to clear the message, and then continue printing. If the message recurs remove and re-install the cartridge. Listen for the <i>click</i> to ensure the cartridge is installed properly. Close the front cover.
31.xx Defective <color> Cartridge	The specified cartridge is defective. Try one of the following: <ul style="list-style-type: none"> • Open and close the top cover. • Remove and re-install the cartridge(s). Listen for the <i>click</i> to ensure the cartridge is installed properly. • Turn the printer power off and turn the printer power on. If the message persists, replace the cartridge with a new one, and close the front cover.
31.xx Defective Imaging Kit	Defective imaging kit. Try one or more of the following: <ul style="list-style-type: none"> • Open and close the top cover. • Remove and re-install the cartridge(s). Listen for the <i>click</i> to ensure the cartridge is installed properly. • Turn the printer power off, and then turn the printer power on. If the message persists, determine if the imaging kit counter indicates it is time for replacement. Print the Menu Setting page, and look on the last page. It will indicate OK, Replace Black, or Replace Black and Color. If the indicator says Replace Black or Replace Black and Color, then replace the appropriate kit. See “Imaging unit (IU) removal” on page 4-35 . If the indicator says OK, replace only the photoconductor unit. Keep the developers from the original unit and reinstall them in the new photoconductor unit.
32.xx Unsupported <color> Cartridge	Remove the specified cartridge, replace with a supported cartridge, and close the front cover.
34 Short Paper	<ul style="list-style-type: none"> • Make sure the print job is requesting the correct size of paper. • Check tray length and width guides to ensure paper is properly fitted in the tray. • Adjust the Paper Size setting for the size paper you are using. If MP Feeder Size is set to Universal, make sure the paper is large enough for the formatted data. <ul style="list-style-type: none"> • Press Select () to clear the message and continue printing. The printer does not automatically reprint the page that prompted the message. <ul style="list-style-type: none"> • Press Stop (), and then press Select () to cancel printing.
37 Insufficient Memory to Collate Job	This message is displayed when the printer memory used to store pages is too full to collate the print job. Try one of the following: <ul style="list-style-type: none"> • Press Select () to clear the message and continue printing. • Press Stop (), and then press Select () to cancel printing.
37 Insufficient Memory for Flash Memory Defragment Operation	This message is displayed when insufficient printer memory is available to perform Flash Memory Defragment operation. This message appears prior to the actual start of the defragment operation. Press Select () to stop the defragment operation. To perform the defragment operation, you can: <ul style="list-style-type: none"> • Delete fonts, macros, and other data in RAM. • Install additional printer memory. • Press Stop (), and then press Select () to cancel printing.

User primary message	Explanation
38 Memory Full	<p>This message is displayed when the printer is processing an incoming job and there is not enough memory available to continue processing the job.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> • Determine how to make more memory available to your print job by: <ul style="list-style-type: none"> - Deleting fonts and other data in RAM. - Simplify your print job by reducing the amount of text or graphics on a page. - Install additional memory • Press Select (✓) to clear the message and continue printing. The job may not print correctly. • Press Stop (✗), and then press Select (✓) to cancel printing.
39 Complex Page	<p>This message is displayed when a page is too complex to print.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> • Press Select (✓) to clear the message and continue printing. The job may not print correctly. • Simplify the print job by reducing the amount of text or graphics on a page. • Press Stop (✗), and then press Select (✓) to cancel printing.
40 <color> Invalid Refill Change Cartridge	Replace the toner cartridge with a new one.
50 PPDS Font Error	<p>This error only occurs when a printer is formatting PPDS print data.</p> <p>The PPDS interpreter has detected a font error. When a specific font, which is not installed, is requested based on a PPDS mode Set Font Global command, a Select Code Page command, or a Comprehensive Font Selection command, and the printer Best Fit setting is off. If Best Fit is on, the printer performs a best fit search to find a similar font, and this error does not occur.</p> <p>This error also displays when the printer receives invalid PPDS download font data.</p> <p>Try one or more of the following:</p> <ul style="list-style-type: none"> • Press Select (✓) to clear the message and continue printing. The job may not print correctly. • The printer cannot find the requested font. From the PPDS menu, select Best Fit, and then select On. The printer will find a similar font and reformat the affected text. • Press Stop (✗), and then press Select (✓) to cancel printing.
51 Defective Flash Detected	<p>Press Select (✓) to clear the message and continue printing.</p> <p>You must install different flash memory before you can download any resources to flash.</p>
52 Flash Full	<p>Not enough free space in flash memory for resources.</p> <p>Try one or more of the following:</p> <ul style="list-style-type: none"> • Press Select (✓) to clear the message and continue printing. • Delete fonts, macros, and other data stored on the flash memory. • Install a larger capacity flash memory card.
53 Unformatted Flash Detected	<p>Try one or more of the following:</p> <ul style="list-style-type: none"> • Press Select (✓) to clear the message and continue printing. • Format the flash memory before you store any resources on it. <p>If the error message remains, the flash memory may be defective and require replacing.</p>

User primary message	Explanation
54 Standard Network Software Error	<p>The printer detects a network port, but cannot communicate with it. The printer disables all communication to the associated network interface.</p> <p>Try one or more of the following:</p> <ul style="list-style-type: none"> Press Select () to clear the message and continue printing. The job may not print correctly. Upgrade the network firmware in the printer or the print server. Turn the printer power off and then back on to reset the printer.
54 Network <x> Software Error	<p>The printer disables all communications to the associated network interface. No data may be received or sent from or to the associated interface.</p> <ul style="list-style-type: none"> Press Select () to clear the message and continue printing. The job may not print correctly. Turn the printer power off and then back on to reset the printer. Upgrade the network firmware in the printer or the print server.
56 Standard USB Port Disabled	<p>This message may appear when data is sent to the printer across a USB port, but the port is disabled.</p> <p>Note: Once the error is displayed the first time, reporting of further errors is suppressed until the printer is reset or menus are entered.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> Press Select () to clear the message. Any data received on the USB port is discarded. Press Menus () to access the Administrative Menus. Make sure the USB Buffer menu item is not set to Disabled. (Press Menus () to access the Administrative Menus, select Network/Ports, USB Menu, and USB Buffer.)
58 Too many Flash Options Installed	<p>Too many optional flash memory cards or optional firmware cards are installed on the printer.</p> <ol style="list-style-type: none"> Turn off and unplug the printer. Remove the excess flash memory or optional firmware cards. Plug in the printer, and turn it on.
58 Too Many Trays Installed	<p>Too many tray are installed.</p> <ol style="list-style-type: none"> Turn off and unplug the printer. Remove the additional trays. Plug in the printer, and turn it on.
59 Incompatible Tray <x>	<ol style="list-style-type: none"> Turn off and unplug the printer. Remove the specified incompatible tray. Plug in the printer, and turn it on.
82 Replace Waste Toner	<p>Replace the waste toner bottle to clear the message and continue printing. See “Waste toner bottle removal” on page 4-60.</p> <p>Note: The printer will not continue until the waste toner bottle is replaced.</p>
82 Waste Toner Nearly Full	<p>Try one or more of the following:</p> <ul style="list-style-type: none"> Replace the waste toner bottle, and then press Select () to clear the message and continue printing. See “Waste toner bottle removal” on page 4-60. Press Select () to clear the message and continue printing. Order the waste toner bottle so it will be available when the replacement message is displayed. Once the replacement message is displayed, the printer will not continue until the waste toner is replaced.
82 Waste Toner Missing	<p>Install a waste toner bottle, and then press Select () to clear the message and continue printing. See “Waste toner bottle removal” on page 4-60.</p>

User primary message	Explanation
88 <color> Cartridge Low	<p>The term <color> includes black, cyan, magenta, and yellow. The cartridge</p> <p>Try one or more of the following:</p> <ul style="list-style-type: none">• Replace the toner cartridge, and then close the toner door to clear the message and continue printing.• Press Select () to clear the message and continue printing.
88 Replace <color> Cartridge	<p>The term <color> includes black, cyan, magenta, and yellow.</p> <p>Replace the toner cartridge, and then close the toner door to continue printing.</p>

Paper Jam messages

Paper jam messages (2xx)

Error code	Description	Action
200.xx Paper Jam Check <area>	A single page of media jam at the input sensor.	Pull out tray 1, and then remove the jammed page. See “200 paper jams” on page 3-30.
200.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed at the input sensor.	Pull out tray 1 and open the front door to remove all the jammed pages. See “200 paper jams” on page 3-30.
201.xx Paper Jam Check <area>	A single page of media is jammed between the input and exit sensors.	Open the front door and then remove the jammed page. See “201 paper jam” on page 3-30.
201.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed between the input and exit sensors.	Open the front door, and then remove all the jammed pages. See “201 paper jam” on page 3-30.
202.xx Paper Jam Check <area>	A single page of media is jammed at the exit sensors.	Open the front door to access the jam area. Remove the jammed page. See “202 paper jam” on page 3-31.
202.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed at the exit sensor.	Open the front door to access the jam area. Remove all the jammed pages. See “202 paper jam” on page 3-31.
230.xx Paper Jam Check <area>	A single page of media is jammed at the inner door.	Open the front door, and then remove the jammed page. See “230 paper jam” on page 3-32.
230.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed at the inner door.	Open the front door, and then remove all the jammed pages. See “230 paper jam” on page 3-32.
24x.xx Paper Jam Check <area>	A single or multiple page media jam in the 650-sheet duo drawer (tray 2).	See “24x paper jam” on page 3-32.
24x.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed in the 650-sheet duo drawer (tray 2).	Pull the tray out and remove all the jams. See “24x paper jam” on page 3-32.
250.xx Paper Jam Check Manual Feeder	A single page of media is jammed in the multipurpose feeder.	Open tray 2 to access the jam area. Remove the jammed page. See “250 paper jam” on page 3-32.
250.xx Paper Jam <x> Pages Jammed	Multiple pages of media are jammed in the multipurpose feeder.	Open tray 2 to access the jam area. Remove all the jammed pages. See “250 paper jam” on page 3-32.

Service error messages

Service error messages (1xx, 9xx)

Error code	Description	Action
106.xx Service Yellow Printhead	Yellow printhead error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.01 Service Yellow Printhead	The yellow printhead lost HSYNC.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.02 Service Yellow Printhead	The yellow printhead failed to complete servo.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.03 Service Yellow Printhead	The yellow printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.04 Service Yellow Printhead	The yellow printhead mirror motors lost motor lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.05 Service Yellow Printhead	Failure reading NVRAM from printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.06 Service Yellow Printhead	The yellow printhead thermistor is open.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.07 Service Yellow Printhead	The yellow printhead thermistor is shorted to ground.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.08 Service Yellow Printhead	The yellow laser showed bad in testing.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.09 Service Yellow Printhead	SOS/EOS measurement did not complete.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.10 Service Yellow Printhead	Bad SOS/EOS measurement.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.11 Service Yellow Printhead	Failure writing data to the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.12 Service Yellow Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
106.13 Service Yellow Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.xx Cyan Printhead Error	Cyan printhead error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.01 Service Cyan Printhead	The cyan printhead lost HSYNC.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
107.02 Service Cyan Printhead	The cyan printhead failed to complete servo.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.03 Service Cyan Printhead	The cyan printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.04 Service Cyan Printhead	The cyan printhead mirror motors lost motor lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.05 Service Cyan Printhead	Failure reading NVRAM from the cyan printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.06 Service Cyan Printhead	The cyan printhead thermistor is open.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.07 Service Cyan Printhead	The cyan printhead thermistor is shorted to ground.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.08 Service Cyan Printhead	The cyan laser showed bad in testing.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.09 Service Cyan Printhead	SOS/EOS measurement did not complete.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.10 Service Cyan Printhead	Bad SOS/EOS measurement.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.11 Service Cyan Printhead	Failure writing data to the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.12 Service Cyan Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
107.13 Service Cyan Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.xx Service Magenta Printhead	Magenta printhead error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.01 Service Magenta Printhead	The magenta printhead lost HSYNC.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.02 Service Magenta Printhead	The magenta printhead failed to complete servo.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.03 Service Magenta Printhead	The magenta printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
108.04 Service Magenta Printhead	The magenta printhead mirror motors lost motor lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.05 Service Magenta Printhead	Failure reading NVRAM from the magenta printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.06 Service Magenta Printhead	The magenta printhead thermistor is open.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.07 Service Magenta Printhead	The magenta printhead thermistor is shorted to ground.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.08 Service Magenta Printhead	The magenta laser showed bad in testing.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.09 Service Magenta Printhead	SOS/EOS measurement did not complete.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.10 Service Magenta Printhead	Bad SOS/EOS measurement.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.11 Service Magenta Printhead	Failure writing data to the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.12 Service Magenta Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
108.13 Service Magenta Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.xx Service Black Printhead	Black printhead error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.01 Service Black Printhead	The black printhead lost HSYNC.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.02 Service Black Printhead	The black printhead failed to complete servo.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.03 Service Black Printhead	The black printhead mirror motors failed to achieve lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.04 Service Black Printhead	The black printhead mirror motors lost motor lock.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.05 Service Black Printhead	Failure reading NVRAM from printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
109.06 Service Black Printhead	The black printhead thermistor is open.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.07 Service Black Printhead	The black printhead thermistor is shorted to ground.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.08 Service Black Printhead	The black laser showed bad in testing.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.09 Service Black Printhead	SOS/EOS measurement did not complete.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.10 Service Black Printhead	Bad SOS/EOS measurement.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.11 Service Black Printhead	Failure writing data to the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.12 Service Black Printhead	Failure reading data from the printhead.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
109.13 Service Black Printhead	Printhead declared error.	Perform a POR. If the problem persists, go to “Printhead service check” on page 2-51.
122.xx Service Fuser Error	Fuser error	Go to “Fuser service check” on page 2-32.
122.01 Service Fuser Error	Attempting to print with estimated power at or below minimum power.	Go to “Fuser service check” on page 2-32.
122.02 Service Fuser Error	Fuser over temperature.	Go to “Fuser service check” on page 2-32.
122.03 Service Fuser Error	Fuser open thermistor check failed.	Go to “Fuser service check” on page 2-32.
122.04 Service Fuser Error	Fuser reached start temperature too quickly.	Go to “122.xx—Fuser temperature incorrect” on page 2-24.
122.05 Service Fuser Error	Fuser failed to reach final temperature in time.	Go to “122.xx—Fuser temperature incorrect” on page 2-24.
122.06 Service Fuser Error	Estimated power is at or below minimum power.	Go to “122.xx—Fuser temperature incorrect” on page 2-24.
122.11 Service Fuser Error	Fuser under temperature error while in standby.	Go to “Fuser service check” on page 2-32.
122.12 Service Fuser Error	Fuser under temperature error while printing.	Go to “Fuser service check” on page 2-32.
122.13 Service Fuser Error	Fuser open thermistor check failed for second thermistor.	Go to “Fuser service check” on page 2-32.
122.14 Service Fuser Error	Fuser shorted thermistor check failed for hot roll thermistor.	Go to “Fuser service check” on page 2-32.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
122.15 Service Fuser Error	Fuser started thermistor check failed for second thermistor	Go to “Fuser service check” on page 2-32.
122.16 Service Fuser Error	Estimated power is at or above maximum power.	Go to “Fuser service check” on page 2-32.
141.xx Service Staging Motor	Staging motor error.	Go to “Autocompensator mechanism service check” on page 2-27.
141.01 Service Staging Motor	Staging motor has exceeded the ramp up table.	Go to “Autocompensator mechanism service check” on page 2-27.
141.02 Service Staging Motor	Staging motor has exceeded number of encoders at minimum PWM.	Go to “Autocompensator mechanism service check” on page 2-27.
141.03 Service Staging Motor	Staging motor has exceeded number of encoders at maximum PWM.	Go to “Autocompensator mechanism service check” on page 2-27.
141.04 Service Staging Motor	Motor encoder count did not change between interrupts.	Go to “Autocompensator mechanism service check” on page 2-27.
141.05 Service Staging Motor	Staging motor has encountered a stall timeout.	Go to “Autocompensator mechanism service check” on page 2-27.
150.xx Service Black/ITU cartridge Motor	Black/ITU Cartridge Motor	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.01 Service Black/ITU cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.02 Service Black/ITU cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.03 Service Black/ITU cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.04 Service Black/ITU cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.05 Service Black/ITU cartridge Motor	Lost lock for motor.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.06 Service Black/ITU cartridge Motor	Excessive SAP BLDC PWM.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
150.07 Service Black/ITU cartridge Motor	Motor stalled in time-based commutation.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.xx Service Cyan Cartridge Motor		Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.01 Service Cyan Cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.02 Service Cyan Cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
152.03 Service Cyan Cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.04 Service Cyan Cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.05 Service Cyan Cartridge Motor	Lost lock for motor.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.06 Service Cyan Cartridge Motor	Excessive SAP BLDC PWM.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
152.07 Service Cyan Cartridge Motor	Motor stalled in time-based commutation.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.xx Service Magenta Cartridge Motor		Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.01 Service Magenta Cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.02 Service Magenta Cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.03 Service Magenta Cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.04 Service Magenta Cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.05 Service Magenta Cartridge Motor	Lost lock for motor.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.06 Service Magenta Cartridge Motor	Excessive SAP BLDC PWM.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
153.07 Service Magenta Cartridge Motor	Motor stalled in time-based commutation.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.xx Service Yellow Cartridge Motor		Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.01 Service Yellow Cartridge Motor	Failed to achieve lock for motor within allotted time.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.02 Service Yellow Cartridge Motor	Timeout waiting for SAP BLDC motor to reach valid FG speed.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.03 Service Yellow Cartridge Motor	Timeout waiting for MP_NUM_INITIAL_SAP_HALLS.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
154.04 Service Yellow Cartridge Motor	Timeout waiting for SAP BLDC motor FG.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.05 Service Yellow Cartridge Motor	Lost lock for motor.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.06 Service Yellow Cartridge Motor	Excessive SAP BLDC PWM.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
154.07 Service Yellow Cartridge Motor	Motor stalled in time-based commutation.	Go to “Main drive gear assembly (EP drive) service check” on page 2-35.
900.xx Service RIP Software	Unrecoverable RIP software error/illegal trap.	Go to “90x.xx error” on page 2-24.
902.xx Service Engine Software	A general engine software error.	Go to “90x.xx error” on page 2-24.
903.xx Service Engine Software	A paperport link driver error.	Go to “90x.xx error” on page 2-24.
904.xx Service Engine Software	An interface violation by RIP.	Go to “90x.xx error” on page 2-24.
905.xx Service Engine Software	An interface violation by paperport device.	Go to “90x.xx error” on page 2-24.
906.xx Service Engine Software	A RIP interface driver error.	Go to “90x.xx error” on page 2-24.
910.xx Service DC Pick Motor	The DC pick motor stalled.	Go to “Autocompensator mechanism service check” on page 2-27.
911.xx Service DC Pick Motor	The DC pick motor has excessive PWM.	Go to “Autocompensator mechanism service check” on page 2-27.
912.xx Service DC Pick Motor	The DC pick motor is below speed.	Go to “Autocompensator mechanism service check” on page 2-27.
913.xx Service DC Pick Motor	The DC pick motor over speed.	Go to “Autocompensator mechanism service check” on page 2-27.
914.xx Service PC Pick Motor	The DC pick has no encoder feedback.	Go to “Autocompensator mechanism service check” on page 2-27.
917.xx Service Transfer Roll	There is a problem with the transfer roll.	Go to “Transfer roll service check” on page 2-53.
925.01 Service Fan Stalled	The printer fan has stalled.	Go to “925.01—Fan error service check” on page 2-25.
927.xx Service Fan Stalled	The printer fan has stalled.	

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
929.xx Service Toner Sensor	The printer doesn't register a transition on the toner sensor for a set period of time. Either the printer's toner sensor is faulty or its print cartridge is defective.	The Servicer should follow these steps to resolve this problem: <ul style="list-style-type: none"> • Use the base sensor test in Diagnostics Menu to inspect the toner sensor's operation. • If the toner sensor is operating correctly, then the problem is the print cartridge.
930.xx Service LVPS Error	The LVPS did not detect zero crossing.	
931.xx Service Printhead Error	There is no first HSYNC.	Go to "930.xx–935.xx—Printhead errors service check" on page 2-25.
932.xx Service Printhead Error	The HSYNCs are lost.	Go to "930.xx–935.xx—Printhead errors service check" on page 2-25.
933.xx Service Printhead Error	Mirror motor is locked. No HSYNC received.	Go to "930.xx–935.xx—Printhead errors service check" on page 2-25.
935.xx Service Printhead Error	Mirror motor is unable to reach operating speed.	Go to "930.xx–935.xx—Printhead errors service check" on page 2-25.
936.xx Service Transport Motor	The transport motor had an initial lock failure.	Go to "936.xx, 937.xx—Transport motor service check" on page 2-26.
937.xx Service Transport Motor	The transport motor lost lock.	Go to "936.xx, 937.xx—Transport motor service check" on page 2-26.
940.xx Service LV Power Supply	A RIP to engine communication failure. The zero crossing signal used for fuser control in the low-voltage (LV) power supply has failed, or the wrong low-voltage power supply has been installed.	Replace the low-voltage power supply. See "Low-voltage power supply (LVPS) assembly removal" on page 4-37.
940.0x Service Cyan TMC Sensor	The cyan cartridge toner meter cycle (TMC) switch error.	Go to "Toner meter sensors (Y, C, M, K) on TMC card" on page 2-52.
941.0x Service Magenta TMC Sensor	The magenta cartridge toner meter cycle (TMC) switch error.	Go to "Toner meter sensors (Y, C, M, K) on TMC card" on page 2-52.
942.0x Service Yellow TMC Sensor	The yellow cartridge toner meter cycle (TMC) switch error.	Go to "Toner meter sensors (Y, C, M, K) on TMC card" on page 2-52.
943.0x Service Black TMC Sensor	The black cartridge toner meter cycle (TMC) switch error.	Go "Toner meter sensors (Y, C, M, K) on TMC card" on page 2-52.
948.xx Service Engine Card	The pel clock check failed.	If this error message persists, replace the controller board. See "Controller board removal" on page 4-19.
949.xx Service Engine Card	Delay line calibration failure	If this error message persists, replace the controller board. See "Controller board removal" on page 4-19.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
950.xx Service NVRAM Failure	<p>There is a mismatch between controller EEPROM and mirror.</p> <ul style="list-style-type: none"> 950.00 through 950.29 codes: mismatch between controller and mirror 950.30 through 950.60 codes: mismatch between secure and controller 	Go to “950.xx NVRAM Failure service check” on page 2-26.
951.xx Service NVRAM Failure	<p>Mismatch between controller EEPROM and mirror.</p> <ul style="list-style-type: none"> 951.00 through 951.29 codes: mismatch between controller and mirror 951.30 through 951.60: mismatch between secure and controller 	
952.xx Service NVRAM Failure: <i>n</i>	A recoverable MVRAM Cyclic Redundancy Check (CRC) error occurred. <i>n</i> is the offset at which the error occurred.	Performing a POR will clear this error.
953.xx Service NVRAM Failure	NVRAM chip failure with mirror.	
954.xx Service NVRAM Failure	The NVRAM chip failure with controller part.	
955.xx Service Code CRC <loc>	<p>The Code ROM or NAND flash failed the Cyclic Redundancy Check (CRC) check or the NAND experienced an uncorrectable multi-bit failure. <loc> indicates the source of the failure and has one of the following values:</p> <ul style="list-style-type: none"> CRC Failure: The source is a failing package indicated by <i>Pn</i> where <i>n</i> is the package number. This error could occur on a controller with ROM or NAND flash and could occur as a result of the CRC check done when the machine is powered on. The range of package numbers is from 0 to 15. Error Correction Code (ECC) Failure: The source is a failing page indicated by <i>Bn</i> where “<i>n</i>” is the page number. This error occurs only if a multi-bit failure is detected during the ECC execution. Single bit failures will be corrected automatically and will not result in a service error. The range of page numbers is from 0 to 1023. 	
956.00 Service System Board	Controller board failure. Processor failure.	Replace the controller board. See “Controller board removal” on page 4-19.
956.01 Service System Board	Processor over temperature.	Replace the controller board. See “Controller board removal” on page 4-19.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
957.xx Service System Board	Controller board failure. ASIC failure.	
958.xx Service NAND Failure	Printer has performed more than 100 "shift and reflash" operations as a result of ECC bit corrections.	
959.01 Service Invalid Firmware	Controller verification failure of system boot code	Update firmware or replace the controller board. See "Controller board removal" on page 4-19.
959.02 Service Invalid Firmware	Failure to authenticate Signature Verification Code.	Update firmware or replace the controller board. See "Controller board removal" on page 4-19.
959.03 Service Invalid Firmware	Signature verification Code failure to authenticate a code partition.	Update firmware or replace the controller board. See "Controller board removal" on page 4-19.
959.04 Service Invalid Firmware	Jump to unverified address.	Update firmware or replace the controller board. See "Controller board removal" on page 4-19.
959.05 Service Invalid Firmware	Unknown Boot Failure.	Update firmware or replace the controller board. See "Controller board removal" on page 4-19.
959.20 Service System Board	System hardware failure.	Replace the controller board. See "Controller board removal" on page 4-19.
959.21 Service System Board	System did not respond to command request.	Replace the controller board. See "Controller board removal" on page 4-19.
959.22 Service System Board	Challenge Secret Failure.	ASIC/SP mismatch. Replace the controller board. See "Controller board removal" on page 4-19.
959.23 Service System Board	System self test failure during initialization.	Replace the controller board. See "Controller board removal" on page 4-19.
959.24 Service System Board	EEPROM Retention Error (write failure)	Replace the controller board. See "Controller board removal" on page 4-19.
959.25 Service System Board	Insufficient device space during hardware programming.	Replace the controller board. See "Controller board removal" on page 4-19.
959.26 Service System Board	Incremental counter reset exceeds maximum value.	Replace the controller board. See "Controller board removal" on page 4-19.
959.27 Service System Board	Increment count failed due to maximum value limit.	Replace the controller board. See "Controller board removal" on page 4-19.
959.28 Service System Board	Invalid SP memory configuration.	Replace the controller board. See "Controller board removal" on page 4-19.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
960.xx Service Memory Error	RAM memory error: RAM soldered on the board is bad.	Replace the controller board. See “Controller board removal” on page 4-19.
961.xx Service Memory Failure	RAM memory error: slot 1 RAM is bad.	Replace the controller board. See “Controller board removal” on page 4-19.
962.xx Service Memory Failure	RAM memory error: slot 2 RAM is bad.	Replace the controller board. See “Controller board removal” on page 4-19.
964.xx Service Emulation Error	Download emulation cyclic redundancy check (CRC) failure has occurred. A checksum failure detected in the emulation header or emulation file.	The following actions may be taken: <ol style="list-style-type: none"> 1. Disable the Download Emulation. 2. Program the download emulation into the code overlay SIMM again. 3. If the problem is not resolved replace the code overlay SIMM, and download emulation again.
975.xx Service Standard Network or 975.xx Service Network Card x	Network error: unrecognizable network port.	Replace the standard network card or the card in the specified slot.
976.xx Service Standard Network or 976.xx Service Network Card x	Unrecoverable software or error in network or network card x.	If unable to clear the error message, check the following: <ul style="list-style-type: none"> • If installed, check network card for correct installation. • If correctly installed, replace the network card. • If a network card is not installed, replace the controller board.
978.xx Service Standard Network or 978.xx Service Network Card x	Bad checksum while programming Standard Network or Network Card x port.	Check the following: <ul style="list-style-type: none"> • Make sure you have downloaded the code in binary mode, not ASCII. • Reprogram the Network card. • If the problem persists, and if installed, check the network card for correct installation. • If correctly installed, replace the network card. If a network card is not installed, replace the controller board.
979.xx Service Standard Network or 979.xx Service Network Card x	Flash parts failed while programming the Standard Network or Network Card x port.	Check the following: <ul style="list-style-type: none"> • If installed, check the network card for correct installation. • If correctly installed, replace the network card. • If a network card is not installed, replace the controller board.

Service error messages (1xx, 9xx) (continued)

Error code	Description	Action
980.xx Service <device> Comm.	Engine is experiencing unreliable communications with the specified device. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	
981.xx Service <device> Comm.	Engine protocol violation detected by the specified device. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	
982.xx Service <device> Comm.	Communications error detected by the specified device. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	
983.xx Service <device> Comm.	Invalid command received by the specified device. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	
984.xx Service <device> Comm.	Invalid command parameter received by the specified device. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	
990.xx Service <device>	This error message indicates that an equipment check condition has occurred in the specified device, but the device is unable to identify the exact component failure. Note: <device> can be one of the following: <ul style="list-style-type: none">• Duplex unit.• Tray 2.	Go to the service check for the device indicated.
991.xx Service <device> Card	The specified device has detected an equipment check in its controller board.	

Service checks

122.xx—Fuser temperature incorrect

This service check covers fuser temperature errors, including 122.xx.

Step	Questions / actions	Yes	No																
1	<p>Check the clearance around the printer. See “Clearances” on page 1-5 or check the chart below:</p> <table><tr><th>Description</th><th>Dimensions</th></tr><tr><td>Rear</td><td>102 mm (4 in.)</td></tr><tr><td>Front</td><td>508 mm (20 in.)</td></tr><tr><td>Right side</td><td>152 mm (6 in.)</td></tr><tr><td>Left side</td><td>76 mm (3 in.)</td></tr><tr><td>Above</td><td>254 mm (10 in.)</td></tr></table> <p>Does the error clear?</p>	Description	Dimensions	Rear	102 mm (4 in.)	Front	508 mm (20 in.)	Right side	152 mm (6 in.)	Left side	76 mm (3 in.)	Above	254 mm (10 in.)	Problem resolved.	Make sure the proper clearance is maintained.				
Description	Dimensions																		
Rear	102 mm (4 in.)																		
Front	508 mm (20 in.)																		
Right side	152 mm (6 in.)																		
Left side	76 mm (3 in.)																		
Above	254 mm (10 in.)																		
2	<p>Check the fuser connections on the fuser, at JFUSES1 on the controller board, and the AC connection at the LVPS.</p> <p>Are the connections correct?</p>	Replace the fuser. See “Fuser assembly removal” on page 4-26.	Problem resolved.																
3	<p>Turn the printer on, and then check the following values at JFUSES1.</p> <table><tr><th colspan="2">JFUSES1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>5</td><td>Between +0.6 V dc and +3.28 V dc</td></tr><tr><td>6</td><td>Ground</td></tr><tr><td>8</td><td>Ground</td></tr><tr><td>9</td><td>+3.3 V dc</td></tr><tr><td>10</td><td>Between +0.6 V dc and +3.15 V dc</td></tr><tr><td>11</td><td>Ground</td></tr></table> <p>Are these values approximately correct?</p>	JFUSES1		Pin	Value	5	Between +0.6 V dc and +3.28 V dc	6	Ground	8	Ground	9	+3.3 V dc	10	Between +0.6 V dc and +3.15 V dc	11	Ground	Replace the fuser assembly. See “Fuser assembly removal” on page 4-26.	Replace the controller board. See “Controller board removal” on page 4-19.
JFUSES1																			
Pin	Value																		
5	Between +0.6 V dc and +3.28 V dc																		
6	Ground																		
8	Ground																		
9	+3.3 V dc																		
10	Between +0.6 V dc and +3.15 V dc																		
11	Ground																		

90x.xx error

Step	Questions / actions	Yes	No
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the cable connections.</p> <p>Are all the cable connections secure?</p>	Replace the controller board. See “Controller board removal” on page 4-19.	Securely make all the connections. POR the printer.

925.01—Fan error service check

Step	Questions / actions	Yes	No										
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the fan cable at JFAN1 for the following values:</p> <table><tr><th colspan="2">JFAN1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>+3.3 V dc</td></tr><tr><td>2</td><td>Ground</td></tr><tr><td>3</td><td>0 (fan off)</td></tr></table> <p>Are the measured values correct?</p>	JFAN1		Pin	Value	1	+3.3 V dc	2	Ground	3	0 (fan off)	<p>Replace the top cover (which includes the fan). See “Top cover assembly removal” on page 4-12.</p>	<p>Replace the controller board. See “Controller board removal” on page 4-19.</p>
JFAN1													
Pin	Value												
1	+3.3 V dc												
2	Ground												
3	0 (fan off)												

930.xx–935.xx—Printhead errors service check

Step	Questions / actions	Yes	No										
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the cables connected at JMIRR1 and JPH1 on the controller board. Check for damage.</p> <p>Are the cables damaged?</p>	<p>Replace the printhead. See “Printhead removal” on page 4-49.</p>	<p>Go to step 2.</p>										
2	<p>Turn the printer on, and verify the following values at JMIRR1:</p> <table><tr><th colspan="2">JMIRR1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>2</td><td>+3.3 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+24 V dc</td></tr></table> <p>Are the values approximately correct?</p>	JMIRR1		Pin	Value	2	+3.3 V dc	4	Ground	5	+24 V dc	<p>Replace the printhead. See “Printhead removal” on page 4-49.</p>	<p>Replace the controller board. See “Controller board removal” on page 4-19.</p>
JMIRR1													
Pin	Value												
2	+3.3 V dc												
4	Ground												
5	+24 V dc												

936.xx, 937.xx—Transport motor service check

Step	Questions / actions	Yes	No																				
1	Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11 . Check the cable at JCARB1 for proper connection to the controller board. Is the cable properly connected?	Reconnect the cable.	Go to step 2.																				
2	Turn the printer on, and then measure the values of the cable at JCARB1: <table><tr><th colspan="2">JCARB1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>4</td><td>+24 V dc</td></tr><tr><td>6</td><td>+24 V dc</td></tr><tr><td>8</td><td>+24 V dc</td></tr><tr><td>9</td><td>Ground</td></tr><tr><td>12</td><td>Ground</td></tr><tr><td>13</td><td>+24 V dc</td></tr><tr><td>15</td><td>+24 V dc</td></tr><tr><td>17</td><td>+24 V dc</td></tr></table> Are the values approximately correct?	JCARB1		Pin	Value	4	+24 V dc	6	+24 V dc	8	+24 V dc	9	Ground	12	Ground	13	+24 V dc	15	+24 V dc	17	+24 V dc	Replace the main drive gear assembly. See “Main drive gear assembly removal” on page 4-45 .	Replace the controller board. See “Controller board removal” on page 4-19 .
JCARB1																							
Pin	Value																						
4	+24 V dc																						
6	+24 V dc																						
8	+24 V dc																						
9	Ground																						
12	Ground																						
13	+24 V dc																						
15	+24 V dc																						
17	+24 V dc																						

950.xx NVRAM Failure service check

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer will be rendered inoperable:

- Operator panel assembly
- Controller board

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**

This error code indicates a mismatch between the memory on the operator panel assembly and the one on the controller board.

Step	Questions / actions	Yes	No
1	Have any updates been made to the firmware?	Reload the firmware and try again. Go to step 2.	Replace the controller board with a new, and not previously installed controller board. See “Controller board removal” on page 4-19 .
2	Did reloading the firmware correct the problem?	Problem resolved.	Replace the controller board with a new, and not previously installed controller board. See “Controller board removal” on page 4-19 .

Autocompensator mechanism service check

Step	Questions / actions	Yes	No																												
1	Turn the printer off, and then remove the rear shield. See “Rear shield removal” on page 4-11 . Check the cable at JSP1 on the controller board for proper connection. Is the cable properly connected?	Go to step 3.	Properly connect the cables, and POR the printer. Go to step 2.																												
2	Did the printer function correctly after reconnecting the cables?	Problem resolved.	Go to step 3.																												
3	Turn the printer on, and then verify the following approximate values at JSP1: <table border="1" data-bbox="331 617 773 907"> <thead> <tr> <th colspan="4">JSP1</th> </tr> <tr> <th>Pin</th><th>Value</th><th>Pin</th><th>Value</th> </tr> </thead> <tbody> <tr> <td>2</td><td>+24 V dc</td><td>10</td><td>+5 V dc</td> </tr> <tr> <td>4</td><td>+24 V dc</td><td>13</td><td>Ground</td> </tr> <tr> <td>6</td><td>Ground</td><td>15</td><td>+5 V dc</td> </tr> <tr> <td>7</td><td>Ground</td><td>16</td><td>Ground</td> </tr> <tr> <td>8</td><td>Ground</td><td></td><td></td> </tr> </tbody> </table> Are the values approximately correct?	JSP1				Pin	Value	Pin	Value	2	+24 V dc	10	+5 V dc	4	+24 V dc	13	Ground	6	Ground	15	+5 V dc	7	Ground	16	Ground	8	Ground			Replace the autocompensator mechanism. See “Autocompensator mechanism (ACM) removal—standard tray” on page 4-15 .	Replace the controller board. See “Controller board removal” on page 4-19 .
JSP1																															
Pin	Value	Pin	Value																												
2	+24 V dc	10	+5 V dc																												
4	+24 V dc	13	Ground																												
6	Ground	15	+5 V dc																												
7	Ground	16	Ground																												
8	Ground																														

Bin full sensor service check


Step	Questions / actions	Yes	No										
1	Is the bin full sensor dislodged or damaged?	Repair or replace the bin full sensor. See “Bin full sensor removal” on page 4-18.	Go to step 2.										
2	Does the flag rotate freely and interrupt the sensor beam when in normal position?	Go to step 3.	Reposition or replace the flag.										
3	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Turn the printer on, and then check the values below at JBIN1:</p> <table><tr><th colspan="2">JBIN1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>> 0 V dc</td></tr><tr><td>2</td><td>+3.3 V dc beam blocked 0 V dc unblocked</td></tr><tr><td>3</td><td>Ground</td></tr></table> <p>Are the values correct?</p>	JBIN1		Pin	Value	1	> 0 V dc	2	+3.3 V dc beam blocked 0 V dc unblocked	3	Ground	Problem resolved.	Replace the controller board. See “Controller board removal” on page 4-19.
JBIN1													
Pin	Value												
1	> 0 V dc												
2	+3.3 V dc beam blocked 0 V dc unblocked												
3	Ground												

Dead printer service check

A dead printer is one which, when powered on from a known good electrical outlet, displays no indication of power to the printer by changes to the LCD, LED, or any movement of the fan or motors. If the printer appears dead but makes a *beeping* sound, check the operator panel. See **“Operator panel display blank, five beeps” on page 2-37**.

If a 650-sheet duo drawer is installed, remove the option and check the base printer for correct operation. If the base printer operates correctly, replace the 650-sheet duo drawer.

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

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





Remove any input paper-handling options from the printer.

Step	Questions / actions	Yes	No																				
1	Check the AC line voltage. Is the line voltage correct?	Go to step 2.	Inform the customer.																				
2	Is the AC line cord damaged?	Replace the line cord.	Go to step 3.																				
3	Is the LVPS cable correctly connected at JLVPS1 on the controller board?	Go to step 5.	Reconnect the cable at JLVPS1, and then go to step 4.																				
4	Turn the printer off, and then on. Does the problem persist?	Go to step 5.	Problem resolved.																				
5	<p>Warning: Damage to the printer is possible. Be careful to touch only one conductor at a time. Rest the probe against the connector to steady it.</p> <p>With the printer on, verify the following values at JLVPS1:</p> <table border="1" data-bbox="284 1367 725 1577"> <thead> <tr> <th colspan="4">JLVPS1 (exposed conductors)</th> </tr> <tr> <th>Pin</th><th>Value</th><th>Pin</th><th>Value</th> </tr> </thead> <tbody> <tr> <td>1</td><td>+5 V dc</td><td>7</td><td>+24 V dc</td> </tr> <tr> <td>3</td><td>+5 V dc</td><td>9</td><td>+24 V dc</td> </tr> <tr> <td>5</td><td>+5 V dc</td><td>11</td><td>+24 V dc</td> </tr> </tbody> </table> <p>Are the values approximately correct?</p>	JLVPS1 (exposed conductors)				Pin	Value	Pin	Value	1	+5 V dc	7	+24 V dc	3	+5 V dc	9	+24 V dc	5	+5 V dc	11	+24 V dc	Replace the controller board. See “Controller board removal” on page 4-19 .	Replace the LVPS. See “Low-voltage power supply (LVPS) assembly removal” on page 4-37 .
JLVPS1 (exposed conductors)																							
Pin	Value	Pin	Value																				
1	+5 V dc	7	+24 V dc																				
3	+5 V dc	9	+24 V dc																				
5	+5 V dc	11	+24 V dc																				

Duplex/manual feed sensor (S1) service check





Step	Questions / actions	Yes	No								
1	Is the printer setting on a hard, flat surface?	Go to step 2.	Make sure the printer is setting on a level, flat surface.								
2	Enter Diagnostics Menu (turn the printer off, press and hold ◀ and ▶, turn the printer on, and then release the buttons when the installed memory and processor speed displays). Perform the Base Sensor Test. See “Base Sensor Test” on page 3-16. 1. Select Base Sensor Test , and press Select (▶). 2. Select S1 , and press Select (▶). 3. Install tray 1. Does the display indicate InputS1—Media Clear...?	Go to step 3.	Go to step 5.								
3	Pull tray 1 out. Does the display indicate InputS1—Media Present...?	The sensor is functioning correctly.	Go to step 4.								
4	Remove the tray, and inspect the sensor. Is there something obstructing the sensor?	Remove the obstruction, and restart the test.	Go to step 5.								
5	Inspect the spring-loaded shaft/flag in the tray. The flag portion of the shaft intercepts the sensor, except when a sheet is being staged for duplexing. Does the shaft rotate freely and return to home position (flag at top of rotation)?	Go to step 6.	Replace the tray with a new one.								
6	Is the flag on the shaft broken?	Replace the tray.	Go to step 7.								
7	Verify the cable is correctly connected to JFUSES1 on the controller board and to the sensor. Is the sensor cable properly connected?	Go to step 8.	Reconnect the cable. If the problem persists, go to step 8.								
8	Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Turn the printer on, and check the values at JFUSES1: <table border="1"><thead><tr><th colspan="2">JFUSES1</th></tr><tr><th>Pin</th><th>Value</th></tr></thead><tbody><tr><td>8</td><td>Ground</td></tr><tr><td>9</td><td>+3.3 V dc</td></tr></tbody></table> Are the values approximately correct?	JFUSES1		Pin	Value	8	Ground	9	+3.3 V dc	Replace the duplex sensor. See “Duplex sensor removal” on page 4-21.	Replace the controller board. See “Controller board removal” on page 4-19.
JFUSES1											
Pin	Value										
8	Ground										
9	+3.3 V dc										

Front door sensor or switches service check

Step	Questions / actions	Yes	No																
1	<p>Enter Diagnostics Menu (turn the printer off, press and hold  and , turn the printer on, and then release the buttons when the installed memory and processor speed displays).</p> <p>Perform the Base Sensor Test. See “Base Sensor Test” on page 3-16.</p> <ol style="list-style-type: none"> 1. Select Base Sensor Test, and press Select (). 2. Select Front Door, and press Select (). 3. Open and close the front door, and observe the display. <p>Does the display indicate Value Closed with the door closed and Value Opened with the door opened?</p>	Sensor, toner door, and right doors are OK.	Go to step 2.																
2	<p>Open the front door, and check the thin, tall, plastic web (pivot plate) at the top right of the printer. With the other covers in place and closed, this web interacts with switches in the door.</p> <p>Open the toner cover, and check the motion of the web. Is the web loose, damaged, or missing?</p>	Replace the right cover assembly. See “Right cover assembly removal” on page 4-10.	Go to step 3.																
3	<p>Open the toner door, and inspect the vertical web that pushes and rotates the pivot plate.</p> <p>Is it damaged?</p>	Replace the top cover assembly. See “Top cover assembly removal” on page 4-12.	Go to step 4.																
4	<p>With the front cover open, inspect the two switches. Using a tool, such as a spring hook, push the metal arms to check the movement.</p> <p>Is there any damage to the switches or the surrounding area?</p>	Replace the right cover assembly. See “Right cover assembly removal” on page 4-10.	Go to step 5.																
5	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Turn the printer on, and verify the following values at JINT1 and JCVR1:</p> <table border="1"> <thead> <tr> <th colspan="2">JINT1</th><th colspan="2">JCVR1</th></tr> <tr> <th>Pin</th><th>Value</th><th>Pin</th><th>Value</th></tr> </thead> <tbody> <tr> <td>1</td><td>+5 V dc</td><td>1</td><td>+24 V dc</td></tr> <tr> <td>2</td><td>Ground</td><td></td><td></td></tr> </tbody> </table> <p>Are the values approximately correct?</p>	JINT1		JCVR1		Pin	Value	Pin	Value	1	+5 V dc	1	+24 V dc	2	Ground			Go to step 6.	Replace the controller board. See “Controller board removal” on page 4-19.
JINT1		JCVR1																	
Pin	Value	Pin	Value																
1	+5 V dc	1	+24 V dc																
2	Ground																		



Step	Questions / actions	Yes	No
6	<p>Close the front cover and the toner door. Be sure the right cover is in place. Turn the printer off, and then disconnect the cables at JINT1 and JCVR1. Test continuity at the connector under the following conditions:</p> <ul style="list-style-type: none"> • With front cover and toner door closed: Test pin 1 and pin 3 at JINT1 cable end and pin 1 and pin 2 at JCVR1 cable end. • With one or both doors open: Pin 2 and 3 at JINT1 cable end should indicate continuity, but pins 1 and 2 at JCVR1 should have no continuity. <p>Are the tests verified?</p>	Contact your next level of support.	Replace the front cover assembly. See “Front cover assembly removal” on page 4-2.

Fuser exit sensor service check

Step	Questions / actions	Yes	No
1	<p>Enter Diagnostics Menu (turn the printer off, press and hold  and , turn the printer on, and then release the buttons when the installed memory and processor speed displays).</p> <p>Perform the Base Sensor Test. See “Base Sensor Test” on page 3-16.</p> <ol style="list-style-type: none"> 1. Select Base Sensor Test, and press Select (. 2. Select Fuser Exit Sensor, and press Select (. 3. Open and close the front door, and inspect the fuser exit sensor located on the LVPS shield. <p>Is the sensor dislodged or damaged?</p>	Correct the sensor, or replace it. See “Fuser exit sensor removal” on page 4-30.	Go to step 2.
2	<p>Rotate the flag (paper diverter) in and out of the sensor.</p> <p>Does the display indicate Media Clear and Media Present with the cycle?</p>	Sensor is good.	Go to step 3.
3	Does the flag rotate freely, but return to block the sensor?	Go to step 4.	Replace the fuser. See “Fuser assembly removal” on page 4-26.
4	<p>Turn the printer off, and then remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Is the cable correctly connected to JBIN1 on the controller board and to the sensor?</p>	Go to step 5.	Reconnect the cable.

Step	Questions / actions	Yes	No										
5	<p>Turn the printer on, and check the values at JBIN1:</p> <table><tr><th colspan="2">JBIN1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>4</td><td>+5 V dc</td></tr><tr><td>5</td><td>+0 V dc (no media), +3.3 V dc (media)</td></tr><tr><td>6</td><td>Ground</td></tr></table> <p>Are the values correct?</p>	JBIN1		Pin	Value	4	+5 V dc	5	+0 V dc (no media), +3.3 V dc (media)	6	Ground	Replace the fuser exit sensor. See “Fuser exit sensor removal” on page 4-30.	Replace the controller board. See “Controller board removal” on page 4-19.
JBIN1													
Pin	Value												
4	+5 V dc												
5	+0 V dc (no media), +3.3 V dc (media)												
6	Ground												





Fuser service check

Step	Questions / actions	Yes	No
1	<p>Some low-voltage power supply FRUs have a voltage selector switch. If it does, the switch needs to be set to the correct voltage for your area.</p>  <p>Has the LVPS been changed?</p>	Check the switch on the side of the LVPS to verify the correct voltage is set.	Go to step 2.
 2	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the cable at JFUSES1 for proper connection to the controller board, the cable for pinch points, and the cable or connector for any other damage.</p> <p>Is the cable damaged?</p>	Replace the fuser cable.	Go to step 3.
3	<p>Check the connector JLVPS1 for proper connection to the controller board, the cable for pinch points, and the cable or connector for any other damage.</p> <p>Is the cable damaged?</p>	Repair or replace the LVPS cable.	Go to step 4.
4	<p>Check the power cable on the left side of the fuser and the thermistor cables and connections on the right side of the fuser.</p> <p>Are the cables or connectors damaged?</p>	Repair the cables. If the cables cannot be repaired, replaced the fuser. See “Fuser assembly removal” on page 4-26.	Go to step 5.

Step	Questions / actions	Yes	No														
5	<p>Check the following values at JFUSES1:</p> <table><tr><th colspan="2">JFUSES1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>5</td><td>+3.3 V dc</td></tr><tr><td>6</td><td>Ground</td></tr><tr><td>8</td><td>Ground</td></tr><tr><td>10</td><td>+2.7 V dc</td></tr><tr><td>11</td><td>Ground</td></tr></table> <p>Are the values approximately correct?</p>	JFUSES1		Pin	Value	5	+3.3 V dc	6	Ground	8	Ground	10	+2.7 V dc	11	Ground	Go to step 6.	Replace the controller board. See “ Controller board removal ” on page 4-19.
JFUSES1																	
Pin	Value																
5	+3.3 V dc																
6	Ground																
8	Ground																
10	+2.7 V dc																
11	Ground																
6	<p>Replace the fuser. See “Fuser assembly removal” on page 4-26.</p> <p>Does the error clear?</p>	Problem resolved.	Replace the controller board. See “ Controller board removal ” on page 4-19.														

Input sensor (S2) service check

The Input sensor (S2) is part of the ACM FRU.

Step	Questions / actions	Yes	No
1	<p>Enter Diagnostics Menu (turn the printer off, press and hold  and , turn the printer on, and then release the buttons when the installed memory and processor speed displays).</p> <p>Perform the Base Sensor Test. See “Base Sensor Test” on page 3-16.</p> <ol style="list-style-type: none"> 1. Select Base Sensor Test, and press Select (. 2. Select S2, and press Select (. 3. Pull tray 1 out, and rotate the S2 sensor flag (S2 is located in front of the center autocompensator mechanism housing.) It should rotate freely and return to its original position. <p>Is the input (S2) sensor flag damaged?</p>	<p>Replace the autocompensator mechanism. See “Autocompensator mechanism (ACM) removal—standard tray” on page 4-15.</p>	Go to step 2.
2	<p>Watch the display while rotating the flag.</p> <p>Does the display indicate Media Clear and Media Present?</p>	Problem resolved.	Go to step 3.
3	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Is the JSP1 cable connector properly connected to the controller board?</p>	Go to step 4.	Reseat the connector.
4	<p>Turn the printer on, and check the voltage at JSP1 pin 15.</p> <p>Is the voltage approximately +5 V dc?</p>	<p>Replace the autocompensator mechanism. See “Autocompensator mechanism (ACM) removal—standard tray” on page 4-15.</p>	<p>Replace the controller board. See “Controller board removal” on page 4-19.</p>

Main drive gear assembly (EP drive) service check

Step	Questions / actions	Yes	No																				
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the cable at JCARTB1 for proper connection to the controller board, the cable for pinch points, and the cable or connector for any other damage.</p> <p>Is the cable damaged?</p>	Replace the JCARTB1 cable.	Go to step 2.																				
2	<p>Verify the following values at JCARTB1 on the controller board.</p> <table><tr><th colspan="2">JCARTB1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>4</td><td>+24 V dc</td></tr><tr><td>6</td><td>+24 V dc</td></tr><tr><td>8</td><td>+24 V dc</td></tr><tr><td>9</td><td>Ground</td></tr><tr><td>12</td><td>Ground</td></tr><tr><td>13</td><td>+24 V dc</td></tr><tr><td>15</td><td>+24 V dc</td></tr><tr><td>17</td><td>+24 V dc</td></tr></table> <p>Are the values approximately correct?</p>	JCARTB1		Pin	Value	4	+24 V dc	6	+24 V dc	8	+24 V dc	9	Ground	12	Ground	13	+24 V dc	15	+24 V dc	17	+24 V dc	Go to step 3.	Replace the controller board. See “Controller board removal” on page 4-19 .
JCARTB1																							
Pin	Value																						
4	+24 V dc																						
6	+24 V dc																						
8	+24 V dc																						
9	Ground																						
12	Ground																						
13	+24 V dc																						
15	+24 V dc																						
17	+24 V dc																						
3	<p>Replace the main drive assembly. See “Main drive gear assembly removal” on page 4-45.</p> <p>Does the error clear?</p>	Problem resolved.	Replace the controller board. See “Controller board removal” on page 4-19 .																				

Operator panel service check

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer will be rendered inoperable:

- Operator panel assembly
- Controller board

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**

One or more operator panel buttons fail

Step	Questions / actions	Yes	No														
1	<p>Enter Diagnostics Menu (turn the printer off, press and hold ◀ and [7], turn the printer on, and then release the buttons when the installed memory and processor speed displays).</p> <p>Perform the Panel Test. See “Panel Test” on page 3-11. The Panel Test should show alternating display of all pixels on, and all pixels off. Press Stop to end the test.</p> <p>Did the test show errors on the display?</p>	Replace the operator panel assembly. See “ Operator panel removal ” on page 4-9 .	Go to step 2.														
2	<p>Perform the Button Test. See “Button Test” on page 3-12 in Diagnostics Menu.</p> <p>Did any of the buttons fail the test?</p>	Replace the operator panel assembly. See “ Operator panel removal ” on page 4-9 .	Go to step 3.														
3	<p>Remove the rear shield. “Rear shield removal” on page 4-11.</p> <p>Turn the printer on, and verify the following values at JOPP1:</p> <table border="1"><thead><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr></thead><tbody><tr><td>2</td><td>+5 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></tbody></table> <p>Are the values approximately correct?</p>	JOPP1		Pin	Value	2	+5 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	<p>Replace the operator panel. See “Operator panel removal” on page 4-9.</p> <p>If this does not fix the problem, replace the front cover assembly which contains the operator panel cables. See “Front cover assembly removal” on page 4-2.</p>	Replace the controller board. See “ Controller board removal ” on page 4-19 .
JOPP1																	
Pin	Value																
2	+5 V dc																
4	Ground																
5	+5 V dc																
6	+3.3 V dc																
7	Ground																

Operator panel display blank, five beeps

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

Step	Questions / actions	Yes	No														
1	Is the operator panel assembly cable properly installed at controller board JOPP1 and at the operator panel assembly?	Go to step 2.	Reinstall the cable.														
2	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Turn the printer on, and verify the following values at JOPP1:</p> <table><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></table> <p>Are the values approximately correct?</p>	JOPP1		Pin	Value	2	+5 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	Go to step 3.	Replace the controller board. See “Controller board removal” on page 4-19 .
JOPP1																	
Pin	Value																
2	+5 V dc																
4	Ground																
5	+5 V dc																
6	+3.3 V dc																
7	Ground																
3	<p>Check continuity of the operator panel assembly cable.</p> <p>Is there continuity?</p>	Replace the operator panel assembly. See “Operator panel removal” on page 4-9 .	Replace the front cover assembly. See “Front cover assembly removal” on page 4-2 .														

Operator panel display blank, printer *beeps* five times and pauses

Step	Questions / actions	Yes	No																		
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Turn the printer on, and verify the following values at JOPP1 on the controller board:</p> <table><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>0 V dc</td></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>3</td><td>0 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></table> <p>Are all these values approximately correct?</p>	JOPP1		Pin	Value	1	0 V dc	2	+5 V dc	3	0 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	Go to step 2.	Replace the controller board. See “ Controller board removal ” on page 4-19.
JOPP1																					
Pin	Value																				
1	0 V dc																				
2	+5 V dc																				
3	0 V dc																				
4	Ground																				
5	+5 V dc																				
6	+3.3 V dc																				
7	Ground																				
2	<p>Turn the printer off, and check for continuity in the operator panel cable.</p> <p>Note: Remove the three screws holding the operator panel, and place it facedown on top of the printer. The cable connector pins will be exposed and easier to contact.</p> <p>Do all the conductors indicate continuity?</p>	Replace the operator panel. See “ Operator panel removal ” on page 4-9.	Replace the front cover assembly. See “ Front cover assembly removal ” on page 4-2.																		

Operator panel displays all diamonds, no beeps

Step	Questions / actions	Yes	No																		
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Disconnect the cable at JOPP1 on the controller board. Verify the following values:</p> <table><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>0 V dc</td></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>3</td><td>0 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></table> <p>Are all these values approximately correct?</p>	JOPP1		Pin	Value	1	0 V dc	2	+5 V dc	3	0 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	Go to step 2.	Replace the controller board. See “ Controller board removal ” on page 4-19.
JOPP1																					
Pin	Value																				
1	0 V dc																				
2	+5 V dc																				
3	0 V dc																				
4	Ground																				
5	+5 V dc																				
6	+3.3 V dc																				
7	Ground																				
2	<p>Check for continuity in the operator panel cable connector.</p> <p>Note: Remove the three screws holding the operator panel, and place it facedown on top of the printer. The cable connector pins will be exposed and easier to contact.</p> <p>Do all the conductors indicate continuity?</p>	Replace the operator panel. See “ Operator panel removal ” on page 4-9.	Replace the front cover assembly. See “ Front cover assembly removal ” on page 4-2.																		

Operator panel displays all diamonds, five *beeps*

Step	Questions / actions	Yes	No																		
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Turn the printer on, and verify the following values at JOPP1:</p> <table><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>0 V dc</td></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>3</td><td>0 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></table> <p>Are all these values approximately correct?</p>	JOPP1		Pin	Value	1	0 V dc	2	+5 V dc	3	0 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	Go to step 2.	Replace the controller board. See “ Controller board removal ” on page 4-19.
JOPP1																					
Pin	Value																				
1	0 V dc																				
2	+5 V dc																				
3	0 V dc																				
4	Ground																				
5	+5 V dc																				
6	+3.3 V dc																				
7	Ground																				
2	<p>Check for continuity in the operator panel cable connector.</p> <p>Note: Remove the three screws holding the operator panel, and place it facedown on top of the printer. The cable connector pins will be exposed and easier to contact.</p> <p>Do all the conductors indicate continuity?</p>	Replace the operator panel. See “ Operator panel removal ” on page 4-9.	Replace the front cover assembly. See “ Front cover assembly removal ” on page 4-2.																		

Operator panel display is dim and unchanging

Step	Questions / actions	Yes	No																		
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11.</p> <p>Turn the printer on, and verify the following values at JOPP1 on the controller board:</p> <table><tr><th colspan="2">JOPP1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>0 V dc</td></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>3</td><td>0 V dc</td></tr><tr><td>4</td><td>Ground</td></tr><tr><td>5</td><td>+5 V dc</td></tr><tr><td>6</td><td>+3.3 V dc</td></tr><tr><td>7</td><td>Ground</td></tr></table> <p>Are all these values approximately correct?</p>	JOPP1		Pin	Value	1	0 V dc	2	+5 V dc	3	0 V dc	4	Ground	5	+5 V dc	6	+3.3 V dc	7	Ground	Go to step 2.	Replace the controller board. See “ Controller board removal ” on page 4-19.
JOPP1																					
Pin	Value																				
1	0 V dc																				
2	+5 V dc																				
3	0 V dc																				
4	Ground																				
5	+5 V dc																				
6	+3.3 V dc																				
7	Ground																				
2	<p>Check for continuity in the operator panel cable connector.</p> <p>Note: Remove the three screws holding the operator panel, and place it facedown on top of the printer. The cable connector pins will be exposed and easier to contact.</p> <p>Do all the conductors indicate continuity?</p>	Replace the operator panel. See “ Operator panel removal ” on page 4-9.	Replace the front cover assembly. See “ Front cover assembly removal ” on page 4-2.																		

Print quality service check




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

Service tip

Before troubleshooting any print quality problems, do the following:

1. Print a menu settings page, and check the life status of all supplies. Any supplies that are low should be replaced.

To print a menu settings page:

- a. Press **Menu** () on the operator panel.
- b. Select **Reports** from the Admin Menu, and press **Select** ().
- c. Select **Menu Settings**, and press **Select** ().





Note: Be sure and keep the original menu page to restore the customer's custom settings if needed.

2. On the menu page, make sure the following is set to the default level:
 - Color Correction: Set to Auto.
 - Print Resolution: Set to 600 dpi (print quality problems should be checked at different resolution settings).
 - Toner Darkness: Set to 4 (default).
 - Color Saver: Set to OFF.
 - RGB Brightness, RGB Contrast, RGB Saturation: Set to 0.
 - Color Balance: Select Reset Defaults to zero out all colors.
 - Check the paper type, texture, and weight settings against what is loaded in the printer.

Once the printer has been restored to its default levels, do the following:

1. Inspect the imaging unit for damage, including the developers and toner cartridges. Replace if damaged.
2. If paper other than 20lb plain letter/A4 paper is being used, load 20lb plain letter/A4.
3. Print the Print Quality pages to see if the problem remains. Look for variations in the print from what is expected.

To print the print Quality pages:

- a. Enter Diagnostics (turn the printer off, press and hold **Left** () and **Select** (), turn the printer on, and release when the installed memory and processor speed displays).
- b. Select **PRINT TESTS**, and press **Select** ().
- c. Select **Print Quality Pgs**, and press **Select** ().
The message **Printing Quality Test Pages** is displayed.

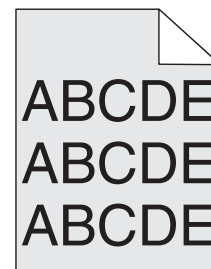
An incorrect printer driver for the installed software can cause problems. Incorrect characters could print, and the copy may not fit the page correctly.

Measure all voltages from the connector to the printer ground.

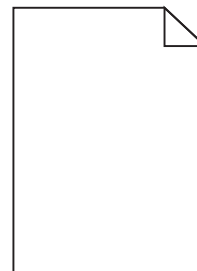
Print quality—background

Service tip: Some background problems can be caused by using rough paper or incorrectly setting the operator panel settings to rough texture when the texture is not rough. Using non-Lexmark toner cartridges may also cause the problem.

Some slick or coated papers may also cause background problems. Some problems occur by running a large amount of graphics in a humid environment.



Step	Questions / actions	Yes	No
1	<p>Read the current status of the imaging unit from the customer menus.</p> <p>To view the status of the photoconductor units:</p> <ol style="list-style-type: none"> 1. In Ready mode, press Menus (☰). 2. Select Reports, and press Select (✓). 3. Select Device Statistics, and press Select (✓). <p>It is possible a new imaging unit was installed, but the counter was not reset.</p> <p>Has the imaging unit been recently replaced?</p>	<p>Reset the value. To reset this value:</p> <ol style="list-style-type: none"> 1. In Ready mode, press Menus (☰). 2. Select Supplies Menu, and press Select (✓). 3. Select Replace Supply, and press Select (✓). 4. Select the imaging unit, and press Select (✓). 5. Select Yes, and press Select (✓). <p>If this does not fix the problem, go to step 2.</p>	Go to step 2.
2	Is the background only one of the primary colors; yellow, cyan, magenta, or black?	<p>Replace the developer unit for the background color and retest. See “Developer unit removal” on page 4-21.</p> <p>Go to step 3.</p>	Go to step 4.
3	Did replacing the developer unit correct the problem?	Problem resolved.	Go to step 4.
4	<p>Replace the photoconductor unit.</p> <p>Does this fix the problem?</p>	Problem resolved.	Go to step 5.
5	<p>Check the high-voltage contact from the HVPS to the image transfer unit (ITU).</p> <p>Is a problem found?</p>	<p>Replace the failing part:</p> <ul style="list-style-type: none"> • Image transfer unit (ITU). See “Image transfer unit (ITU) removal” on page 4-33. • High-voltage power supply (HVPS). See “High-voltage power supply (HVPS) assembly removal” on page 4-31. 	Go to step 6.
6	<p>Reseat the cable in the JHVPS1 connector.</p> <p>Does this fix the problem?</p>	Problem resolved.	Go to step 7.
7	<p>Replace the HVPS. See “High-voltage power supply (HVPS) assembly removal” on page 4-31.</p> <p>Does this fix the problem?</p>	Problem resolved.	Go to step 8.
8	<p>Clean the printhead.</p> <p>Does this fix the problem?</p>	Problem resolved.	Replace the printhead. See “Printhead removal” on page 4-49 .

Print quality—blank page

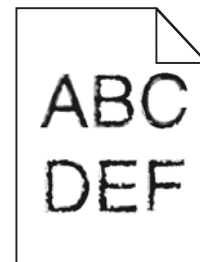
Step	Questions / actions	Yes	No
1	Is all the packing material for the imaging unit in question removed?	Go to step 2.	Remove the packing material.
2	<p>Print a document that requires all four colors with just a few characters to verify if one specific color is a problem. For example, print the Print Quality Test Pages:</p> <ol style="list-style-type: none"> 1. Enter Diagnostic mode. (Turn the printer off, press and hold Left (◀) and Select (✓), turn the printer on, and then release the buttons when the installed memory and processor speed displays.) 2. Select PRINT TESTS, and press Select (✓). 3. Select Prt Qual Pgs, and press Select (✓). <p>Is only one color missing?</p>	Replace the developer unit for the missing color.	Go to step 3.
3	<p>Replace the imaging unit. See “Imaging unit (IU) removal” on page 4-35.</p> <p>Does this fix the problem?</p>	Problem resolved.	Go to step 4.
4	<p>Enter the Diagnostics Menu (turn the printer off, press and hold ◀ and ✓, turn the printer on, and release the buttons when installed memory and processor speed displays), and run the appropriate cartridge drive motor test for the missing color:</p> <ol style="list-style-type: none"> 1. Select MISC TESTS in the Diag Menu, and press Select (✓). 2. Select Motor Detect. Remove Cartridge. Press Select appears. Note: Do not press Select yet. 3. Remove all toner cartridges and the imaging unit. 4. Close the front cover. If you press Select before closing the front cover, a message appears: Close Cover. Press Select. 5. Press Select (✓). Motor Detection In Progress... appears. The motor detection process takes about 10 seconds, and stops automatically. Detect Complete. Rebooting... appears, and the printer performs a POR (Power On Reset). <p>Did the motor run?</p>	Go to step 5.	Replace the Main drive gear assembly. See “Main drive gear assembly removal” on page 4-45 .

Step	Questions / actions	Yes	No
5	Remove the developer unit. See “Developer unit removal” on page 4-21 . Check the developer cartridge contacts from the HVPS to the IU. Are all the toner cartridge contacts clean on both the pins and IU?	Go to step 6.	Clean the developer cartridge contacts. See “Developer unit removal” on page 4-21 .
6	Are all the spring-loaded pins in the HVPS free to move in and out with an equal amount of spring force?	Go to step 7.	Replace the HVPS. See “High-voltage power supply (HVPS) assembly removal” on page 4-31 .
7	Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11 . Check the continuity between the spring-loaded pins and the JSC1 connector on the controller board. Are all conductors continuous?	Go to step 8.	Replace the cable.
8	Replace the printhead. See “Printhead removal” on page 4-49 . Did this fix the problem?	Problem resolved.	Replace the controller board. See “Controller board removal” on page 4-19 .

Print quality—blurred or fuzzy print

Run the automatic alignment. The TPS sensor may be damaged. To run Reset Color Cal:

1. Enter the Diagnostics Menu. (Turn the printer off, press and hold ◀ and [✓], turn the printer on, and release the buttons when installed memory and processor speed displays.
2. Select **TPS Setup** from Diag Menu, and press **Select** ([✓]).
3. Select **Reset Color Cal**, and press **Select** ([✓]).
Resetting appears. When the reset is complete, the screen is automatically returned to TPS Setup.



Blurred or fuzzy print is usually caused by a problem in the main drive gear assembly or in the image transfer unit (ITU). Check the main drive gear assembly and ITU for correct operation.

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

Check the high-voltage spring contacts to ensure they are not bent, corroded, or damaged. Replace the high-voltage power supply as necessary. See **“High-voltage power supply (HVPS) assembly removal” on page 4-31**.

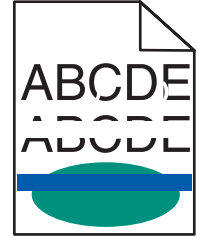
Print quality—half-color page

The imaging unit and developer units may not properly seated. Reseat the imaging unit. If that does not work, remove the imaging unit and reseat each of the developer units.

Print quality—horizontal banding

Print the Print Defect Page:

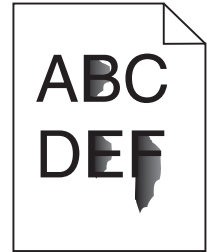
1. At the Ready prompt, press **Menu** (☰).
2. Select **Reports**, and press **Select** (✓).
3. Select **Print Defects**, and press **Select** (✓).



Step	Questions / actions	Yes	No
1	Measure the distance between repeating bands. Is the distance between bands either 34.6 or 94.2 mm?	Replace the photoconductor unit. Remove the imaging unit and remove the original developer units, and then put them back into the new photoconductor unit, and reinstall the imaging unit. See "Imaging unit (IU) removal" on page 4-35.	Go to step 2.
2	Does the distance measure 95 mm or 108 mm?	Replace the fuser. See "Fuser assembly removal" on page 4-26.	Go to step 3.
3	Does the distance measure 37.7, 55, or 78.5 mm?	Replace the ITU. See "Image transfer unit (ITU) removal" on page 4-33.	Go to step 4.
4	Does the distance measure 43.9 mm or 45.5?	Replace the developers that match the missing color (black, cyan, magenta, or yellow). See "Developer unit removal" on page 4-21.	Check the various rollers in the printer for debris.

Print quality—horizontal line

Either the photoconductor unit or one of the developer units that make up the imaging unit is defective. Remove and inspect the imaging unit. Replace the damaged part of the imaging unit. See **"Imaging unit (IU) removal"** on page 4-35.

Print quality—insufficient fusing

Step	Questions / actions	Yes	No
1	Is the printer setup to use the correct media?	Go to step 2.	Change the settings to indicate the correct media.
2	Check the fuser connections on the left and right side of the printer. Are the cables and connection correct?	Go to step 3.	Properly reconnect or replace the cables.
3	Is the fuser properly installed?	Go to step 4.	Install the fuser properly.
4	Replace the fuser. See “Fuser assembly removal” on page 4-26. Does this fix the problem?	Problem resolved.	Replace the LVPS. See “Low-voltage power supply (LVPS) assembly removal” on page 4-37.

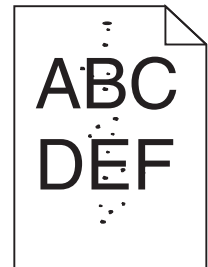
Print quality—missing image at edge

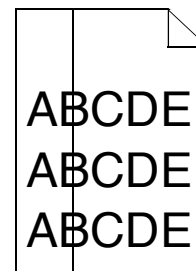
Remove and reseal the following:

- Toner cartridge
- Imaging unit
- Developer units.

Print quality—mottle (2–5mm speckles)

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



Print quality—narrow vertical line

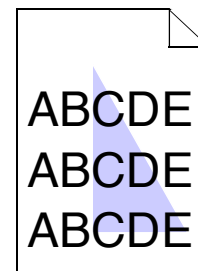
Step	Questions / actions	Yes	No
1	Replace the photoconductor unit. See “Imaging unit (IU) removal” on page 4-35.	Problem resolved.	Replace the developer unit. See “Developer unit removal” on page 4-21.

Print quality—random marks

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

Step	Questions / actions	Yes	No
1	Is there any loose or foreign material on the imaging unit?	Inspect the imaging unit by looking at the individual developers and photo conductors. Clean or replace the faulty unit. See “Imaging unit (IU) removal” on page 4-35.	Go to step 2.
2	Is there any loose or foreign material on the developer roll?	Replace the developer unit.	Go to step 3.
3	Is there any loose or foreign material on the transfer belt?	Replace the image transfer unit. See “Image transfer unit (ITU) removal” on page 4-33.	Contact your next level of support.

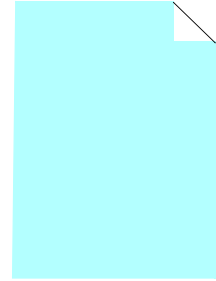
Print quality—residual image



Step	Questions / actions	Yes	No
1	<p>Check the condition of the imaging unit using the customer menus (administrative menus):</p> <ol style="list-style-type: none"> 1. At the Ready prompt, press Menu (). 2. Select Supplies Menu, and press Select (). 3. Select Imaging Kit, and press Select (). <p>Does the display indicate OK?</p>	Go to step 2.	Replace the imaging unit or the photoconductor unit. See “Imaging unit (IU) removal” on page 4-35.
2	<p>Measure the distance from the original image to the same point on the residual image.</p> <p>Is the distance 43.9 mm?</p>	Replace the developer corresponding to the color of the image. See “Developer unit removal” on page 4-21.	Replace the imaging unit or the photoconductor unit. See “Imaging unit (IU) removal” on page 4-35.
3	<p>Is the distance between the original image and the residual image 94.2 mm?</p>	Replace the photoconductor. See “Developer unit removal” on page 4-21.	
4	<p>Run the Menu Setting Page twice to clear any debris.</p> <p>To print a menu settings page:</p> <ol style="list-style-type: none"> 1. Press Menu () on the operator panel. 2. Select Reports from the Admin Menu, and press Select (). 3. Select Menu Settings, and press Select (). <p>Is there still any toner contamination on the fuser assembly?</p>	Replace the fuser. See “Fuser assembly removal” on page 4-26.	Contact your next level of support.

Print quality—solid color page

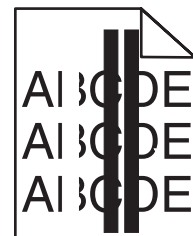
Service tip: A solid color page is generally caused by a problem in the high-voltage controller or an incorrect high-voltage in the printing process resulting in toner development on the entire photoconductor drum.



Step	Questions / actions	Yes	No
1	Replace the photoconductor unit (part of the imaging unit). Remove the imaging unit and remove the developers. Place the original developers in the new photoconductor, and then replace the imaging unit. See “Imaging unit (IU) removal” . Does this fix the problem?	Problem resolved.	Go to step 2.
2	A faulty printhead can cause the problem. To test the printhead for solid colors, place a narrow strip of paper over the gap between the developers. Make sure the paper stays in place when you replace the imaging unit. This will block the laser from discharging the photoconductors. Print a Quality Test Page. Does the page have a white vertical band?	Replace the printhead. See “Printhead removal” on page 4-49 .	Go to step 3.
3	Check the high-voltage contact from the HVPS to the photoconductor charge roll. Ensure the contact springs are properly mounted and that the charge roll contact spring is making good contact with the HPVS spring that runs through the left printer frame. See “Toner cartridge contacts” on page 4-50 to view the proper mounting and for removal procedures. Are the spring(s) defective?	Replace the transfer contact assembly. See “Toner cartridge contacts” on page 4-50 .	Go to step 4.
4	Turn the printer off, and check the continuity of the HVPS cable. Is there continuity?	Go to step 5.	Replace the cable assembly.
5	Replace the HVPS. See “High-voltage power supply (HVPS) assembly removal” on page 4-31 . Did this solve the problem?	Problem resolved.	Replace the controller board. See “Controller board removal” on page 4-19 .

Print quality—vertical banding

Replace the developer unit.



Printhead service check

This service check includes the following errors:

Error code	Color
106.xx	Yellow
107.xx	Cyan
108.xx	Magenta
109.xx	Black

Step	Questions / actions	Yes	No														
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Check the cable at JMIRR1 for proper connection to the controller board, the printhead cable for pinch points, and the cable or connector for any other damage.</p> <p>Is the cable damaged?</p>	Replace the printhead. See “ Printhead removal ” on page 4-49 .	Go to step 2.														
2	<p>Turn the printer on, and then wait until the printer posts an error. Using a voltmeter, check the following values at JMIRR1:</p> <table><tr><th colspan="2">JMIRR1</th></tr><tr><th>Pin</th><th>Volt. (V dc)</th></tr><tr><td>1</td><td>5</td></tr><tr><td>2</td><td>3.3</td></tr><tr><td>3</td><td>5</td></tr><tr><td>4</td><td>GND</td></tr><tr><td>5</td><td>24</td></tr></table> <p>Are the values approximately correct?</p>	JMIRR1		Pin	Volt. (V dc)	1	5	2	3.3	3	5	4	GND	5	24	Replace the controller board See “ Controller board removal ” on page 4-19 .	Replace the printhead. See “ Printhead removal ” on page 4-49 .
JMIRR1																	
Pin	Volt. (V dc)																
1	5																
2	3.3																
3	5																
4	GND																
5	24																

Toner meter cycle (TMC) card

Step	Questions / actions	Yes	No
1	<p>Perform the Base Sensor Test:</p> <ol style="list-style-type: none"> 1. Enter Diagnostics menu (turn the printer off, press and hold ◀ and Select (✓)), turn the printer on, and release the buttons when the installed memory and processor speed displays). 2. Select Base Sensor Test, and press Select (✓). 3. Select the sensor you want to test, open the toner door, remove the corresponding toner cartridge, and press Select (✓). 4. Note whether the operator panel shows a change in state. <p>Note: If the reflective disk is not showing on the cartridge, rotate the gear clockwise to expose the reflective surface.</p> <p>For additional information about the Base Sensor Test, see “Base Sensor Test” on page 3-16.</p> <p>Does the operator panel display a change of state?</p>	Replace the toner cartridge.	Replace the toner meter cycle (TMC) card. See “Toner meter cycle (TMC) card removal” on page 4-55 .

Toner meter sensors (Y, C, M, K) on TMC card

Step	Questions / actions	Yes	No																
1	Remove the toner cartridge, and inspect the lenses on the toner meter cycle (TMC) card. Are the lenses blocked, damaged, or dirty?	Repair or replace the TMC card. See “ Toner meter cycle (TMC) card removal ” on page 4-55.	Go to step 2.																
2	Turn the printer off, and remove the rear shield. See “ Rear shield removal ” on page 4-11. Turn the printer on, and measure the values below at JCTM1 during POR: <table border="1"><thead><tr><th colspan="2">JCTM1</th></tr><tr><th>Pin</th><th>Value</th></tr></thead><tbody><tr><td>1</td><td>+5 V dc</td></tr><tr><td>2</td><td>+3.3 V dc</td></tr><tr><td>3</td><td>+3.3 V dc</td></tr><tr><td>4</td><td>+3.3 V dc</td></tr><tr><td>5</td><td>+3.3 V dc</td></tr><tr><td>6</td><td>Ground</td></tr></tbody></table> Are any of the values incorrect?	JCTM1		Pin	Value	1	+5 V dc	2	+3.3 V dc	3	+3.3 V dc	4	+3.3 V dc	5	+3.3 V dc	6	Ground	Replace the controller board. See “ Controller board removal ” on page 4-19.	Replace the TMC card. See “ Toner meter cycle (TMC) card removal ” on page 4-55.
JCTM1																			
Pin	Value																		
1	+5 V dc																		
2	+3.3 V dc																		
3	+3.3 V dc																		
4	+3.3 V dc																		
5	+3.3 V dc																		
6	Ground																		

Transfer roll service check

Step	Questions / actions	Yes	No														
1	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Turn the printer on, and check the cable at JHVPS1 connector on the controller board without disconnecting it. Verify the following values:</p> <table><tr><th colspan="2">JHVPS1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>7</td><td>+3.3 V dc</td></tr><tr><td>11</td><td>+3.3 V dc</td></tr><tr><td>13</td><td>+24 V dc</td></tr><tr><td>14</td><td>Ground</td></tr><tr><td>16</td><td>Ground</td></tr></table> <p>Are the values approximately correct?</p>	JHVPS1		Pin	Value	7	+3.3 V dc	11	+3.3 V dc	13	+24 V dc	14	Ground	16	Ground	<p>Replace the HVPS. See “High-voltage power supply (HVPS) assembly removal” on page 4-31.</p> <p>If the problem persists, go to step 2.</p>	<p>Replace the controller board. See “Controller board removal” on page 4-19.</p>
JHVPS1																	
Pin	Value																
7	+3.3 V dc																
11	+3.3 V dc																
13	+24 V dc																
14	Ground																
16	Ground																
2	<p>Turn the printer off, and remove the ITU. See “Image transfer unit (ITU) removal” on page 4-33. Check the three spring-loaded contacts between the HVPS and the ITU located at the left rear of the printer and above the HVPS.</p> <p>Are the contact dirty?.</p>	<p>Clean the contacts, and reinstall the ITU.</p>	<p>Replace the ITU. See “Image transfer unit (ITU) removal” on page 4-33.</p>														

Tray 1 sensor service check

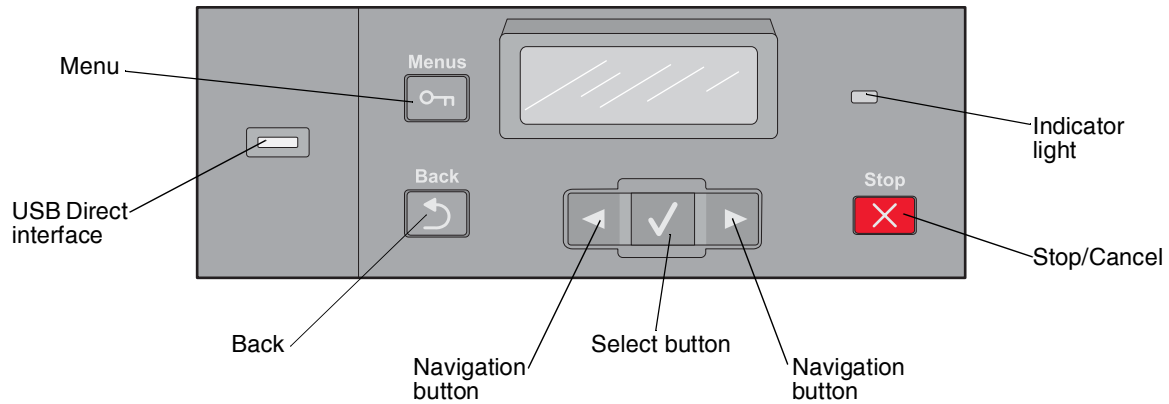
Step	Questions / actions	Yes	No
1	<p>When the printer is in Ready state, pull the standard tray out. The display should indicate Tray 1 Missing. Insert the tray.</p> <p>Does the message remain on the display?</p>	Go to step 2.	Go to step 4.
2	<p>Check the vertical wall (or web) at the right rear of the tray for damage.</p> <p>Is the tray damaged?</p>	Replace the tray.	Go to step 3.
3	<p>Check for a dislodged sensor.</p> <p>Is the sensor dislodged?</p>	Replace the tray 1 sensor.	Go to step 6.
4	<p>Does the message Tray 1 Missing fail to appear when the tray is pulled out?</p>	Go to step 5.	Problem resolved.

Step	Questions / actions	Yes	No										
5	<p>Turn the printer off, and remove the rear shield. See “Rear shield removal” on page 4-11. Disconnect the cable at JTRAY1 connector on the controller board. Turn the printer on, and measure the values below:</p> <table><tr><th colspan="2">JTRAY1</th></tr><tr><th>Pin</th><th>Value</th></tr><tr><td>1</td><td>+5 V dc</td></tr><tr><td>2</td><td>+5 V dc</td></tr><tr><td>3</td><td>Ground</td></tr></table> <p>Are the values approximately correct?</p>	JTRAY1		Pin	Value	1	+5 V dc	2	+5 V dc	3	Ground	Go to step 6.	Replace the controller board. See “Controller board removal” on page 4-19 .
JTRAY1													
Pin	Value												
1	+5 V dc												
2	+5 V dc												
3	Ground												
6	<p>Test the continuity in the cable. See “Tray present sensor removal” on page 4-57 to access both ends of the cable.</p> <p>Is the cable damaged?</p>	Replace the cable (Miscellaneous cables FRU).	Contact the next level of support.										







User operator panel and Administration menus

Printer operator panel

The printer operator panel has a two-line, back lit, grayscale text display. The Back, Menu, and Stop buttons are located to the left of the display and the navigation buttons are located below the display.



Operator panel buttons

Button or indicator	Function										
Select 	Press Select () to initiate action on a menu item.										
Indicator light	Indicates the printer status: <table border="1"> <thead> <tr> <th>Status</th><th>Indicates</th></tr> </thead> <tbody> <tr> <td>Off</td><td>The power is off.</td></tr> <tr> <td>Blinking green</td><td>The printer is warming up, processing data, or printing a job.</td></tr> <tr> <td>Solid green</td><td>The printer is on, but idle.</td></tr> <tr> <td>Blinking red</td><td>Operator intervention is needed.</td></tr> </tbody> </table>	Status	Indicates	Off	The power is off.	Blinking green	The printer is warming up, processing data, or printing a job.	Solid green	The printer is on, but idle.	Blinking red	Operator intervention is needed.
Status	Indicates										
Off	The power is off.										
Blinking green	The printer is warming up, processing data, or printing a job.										
Solid green	The printer is on, but idle.										
Blinking red	Operator intervention is needed.										
Stop/Cancel 	Stops all printer activity. A list of options is offered once Stopped appears on the display.										
Navigation buttons 	Press ◀ or ▶ to scroll through menu lists. Use the Select button in the center to initiate action on a menu item.										
Back 	Returns the display to the previous screen.										
Menu 	Opens the menu index.										
USB Direct interface	Note: The USB connector is available on some models.										

Menu map

This menu map identifies menus available to customers. The diagram shows the menus on the operator panel and items available under each menu.



Some menu items or values are displayed only if a specific option or feature is installed on your printer. Other menu items may only be effective for a particular printer language. You can select these values at any time, but they affect printer function only when you have the optional equipment, feature on your model, or the specified printer language.

<u>Supplies Menu</u> Cyan Cartridge Magenta Cartridge Yellow Cartridge Black Cartridge Imaging Kit Waste Toner Bottle	<u>Paper Menu</u> Default Source Size/Type Paper Texture Paper Weight Paper Loading Custom Types Universal Setup Units of Measure Portrait Width Portrait Height Feed Direction	<u>Reports</u> Menu Settings Page Device Statistics Network Setup Page Profiles List Print Fonts Print Directory Print Defects Print Demo Demo Page PPDS Info Asset Report	<u>Network/Ports</u> Active NIC Network Menu PCL Smartswitch PS Smartswitch NPA Mode Network Buffer Mac Binary PS Network Setup Reports Network Card TCP/IP IPv6 Wireless AppleTalk SE Menu USB Menu PCL Smartswitch PS Smartswitch NPA Mode USB Buffer Mac Binary PS USB With ENA ENA Address ENA Netmask ENA Gateway ENA Gateway	<u>Settings</u> General Settings Display Language Eco-Mode Quiet Mode Run Initial Setup Alarms Timeouts Print Recovery Factory Defaults Setup Menu Printer Language Print Area Download Target Resource Save Finishing Menu Sides (Duplex) Duplex Bind Copies Blank Pages Collate Separator Sheets Separator Source N-up (Pages/Side) N-up Ordering Orientation N-up Border Quality Menu Color Correction Print Resolution Toner Darkness Enhance Fine Lines Color Saver RGB Brightness RGB Contrast RGB Saturation Color Balance Color Samples Manual Color Color Adjust Utilities Menu Format Flash Defragment Flash Hex Trace Coverage Estimator PDF Menu PostScript Menu PCL Emul Menu PPDS Menu Image Menu PictBridge Menu Flash Drive Menu
--	---	--	---	--


3. Diagnostic aids

Accessing service menus

There are different test menus that can be accessed during POR to identify problems with the printer.

Diagnostics Menu	<ol style="list-style-type: none"> 1. Turn the printer off. 2. Press and hold Left (◀) and Select (✓).  <ol style="list-style-type: none"> 3. Turn the printer on. 4. Release the buttons when the installed memory and processor speed displays. 	<p>The Diagnostics menu group contains the settings and operations used while manufacturing and servicing the printer.</p> <p>See “Diagnostics Menu (Diag Menu)” on page 3-2 for more information.</p>
Configuration Menu	<ol style="list-style-type: none"> 1. Turn the printer off. 2. Press and hold Select (✓) and Right (▶).  <ol style="list-style-type: none"> 3. Turn the printer on. 4. Release the buttons when the installed memory and processor speed displays. 	<p>The Configuration menu group contains a set of menus, settings, and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation.</p> <p>See “Configuration menu (Config Menu)” on page 3-24 for more information.</p>

The following menus do not require a POR:

Network SE Menu	<ol style="list-style-type: none"> 1. From the Ready prompt, press Menu (☰). 2. Select Customer Network/Ports menu. 3. Press and hold Left (◀) and Right (▶).  <ol style="list-style-type: none"> 4. Release the buttons when the menu appears. 	
SE Menu	In a browser, add /se to device's IP address. For example, http://158.183.3.2/se.	Enters the SE menus online.
Additional error message information	While the error displays on the panel, press Back (⏮) and Right (▶).	Access secondary debug information.
Enter Invalid Engine Mode (POR Sequence)	Press Back (⏮) and Left (◀).	Load updated engine code.

To run the printer diagnostic tests described in this chapter, you must put the printer in Diagnostics Menu or in the Configuration Menu.

Diagnostics Menu (Diag Menu)

Note: Tray 2 refers to the 550-sheet tray located in the 650-sheet duo drawer.

Diagnostics Menu structure

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

Available tests

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

Diagnostics Menu

Registration (black registration)	
Top Margin	See “Registration” on page 3-4.
Bottom Margin	
Left Margin	
Right Margin	
Skew	See “Skew” on page 3-5.
Quick Test	See “Quick Test” on page 3-5.
Alignment Menu (color alignment)	
Cyan	See “Alignment” on page 3-7.
Yellow	
Magenta	
Factory Scanner	A summary page for all the color alignment settings: it can be used in place of alignment pages for each individual color.
Factory Manual	
PRINT TESTS	
Tray 1	See “Input source tests” on page 3-10.
Tray 2 (if installed)	
Manual Feeder (if installed)	
MP Feeder (if installed)	
Prt Quality Pgs	See “Print quality test pages (Prt Quality Pgs)” on page 3-11.
Hardware Test	
Panel Test	See “Panel Test” on page 3-11.
Button Test	See “Button Test” on page 3-12.
DRAM Test	See “DRAM Test” on page 3-12.
DUPLEX TESTS (if installed)	
Quick Test	See “Quick Test (duplex)” on page 3-13.
Top Margin	See “Top Margin (duplex)” on page 3-14.
Left Margin	See “Left Margin (duplex)” on page 3-14.
INPUT TRAY TESTS	
Feed Tests	See “Feed Tests” on page 3-15.
Sensor Test	See “Sensor Test” on page 3-15.

Diagnostics Menu (continued)

Base Sensor Test	
Input	See “Base Sensor Test” on page 3-16.
Standard Bin	
S1	
S2	
Fuser exit Sensr	
C-TMC Sensor	
M-TMC Sensor	
Y-TMC Sensor	
K-TMC Sensor	
MISC TESTS	
Motor Detect	See “Motor Detect” on page 3-16.
DEVICE TESTS	
Flash Test (if flash memory is installed)	See “Flash Test” on page 3-17.
Printer Setup	
Defaults	See “Defaults” on page 3-17.
Prt Color Pg Count	See “Page counts” on page 3-17.
Prt Mono Pg Count	
Perm Page Count	
Serial Number	See “Serial Number” on page 3-18.
Engine Setting 1	See “Engine Setting 1 through 4” on page 3-18.
Engine Setting 2	
Engine Setting 3	
Engine Setting 4	
Model Name	See “Model Name” on page 3-18.
Config ID (Configuration ID)	See “Configuration ID” on page 3-18.
ITU Barcode	See “ITU Barcode” on page 3-19.
Reset Fuser Cnt	See “Reset Fuser Cnt” on page 3-19.
EP Setup	
EP Defaults	See “EP Defaults” on page 3-19.
Fuser Temp	See “Fuser Temperature” on page 3-19.
DC Charge Adjust	See “DC Charge Adjust, Dev Bias Adj, Transfer Adjust” on page 3-20.
Dev Bias Adjust	
Transfer Adjust	
TPS Setup	
Right	See “Right or Left TPS” on page 3-20.
Left	
Cal Ref Adjust	See “Cal Ref Adj” on page 3-20.
Reset Color Calibration	See “Reset Color Cal” on page 3-21.
Reports	
Menu Settings Page	See “Menu Settings Page” on page 3-21.

Diagnostics Menu (continued)

Event Log	
Display Log	See “Display Log” on page 3-21.
Print Log	See “Print Log” on page 3-22.
Clear Log	See “Clear Log” on page 3-22.
Exit Diags	This selection exits the Diagnostics Menu. The printer performs a POR, and returns to normal mode.

Registration

Print registration makes sure the black printing plane is properly aligned on the page. This is one of the steps in aligning a new printhead. See **“Alignment” on page 3-7.** It is also the first step in aligning the duplex registration. See **“Quick Test (duplex)” on page 3-13.**

To set print registration:

1. Select **Registration** from the Diag Menu, and press **Select** (✓).
2. Use ◀ or ▶ to select **Print Quick Test**, and press ✓. See **“Quick Test” on page 3-5** for additional information.
The message *Printing...* appears on the display, and the page prints.
Retain this page to determine the changes you need to make to the margin settings.
3. Press **Select** (✓) to enter the **Registration**.
4. Use ◀ or ▶ to select the margin setting you need to change, and press **Select** (✓).
5. Use ◀ to decrease or ▶ to increase the offset values, and press **Select** (✓) to confirm the value.

The message *Submitting changes* displays, and the original margin setting screen appears.

The print registration ranges are:

Description	Value	Direction of change
Top margin	-50 to +50 Each increment corresponds to 8 scans at a 600 dpi scan rate (0.0133 inches or 0.339 mm). The default is 0.	A positive change moves the image down the page and increases the top margin. A negative change moves the image up and decreases the top margin. No compression or expansion occurs.
Bottom margin	-25 to +25 Each increment causes approximately 0.55 mm shift in the bottom margin. The default is 0.	A positive offset moves text down the page and narrows the bottom margin, while a negative offset moves text up the page and narrows the bottom margin. The image is compressed or expanded.
Left margin	-50 to +50 Each increment corresponds to 4 pixels at 600 dpi (0.00666 in. or 0.1693 mm). The default is 0.	A positive change moves the image to the left, and a negative change moves the image to the right. No compression or expansion occurs.
Right margin	-50 to +50 Each increment corresponds to an approximate shift of 4 pixels at 600 dpi. The default is 0.	A positive change moves the image to the left, and a negative change moves the image to the right.

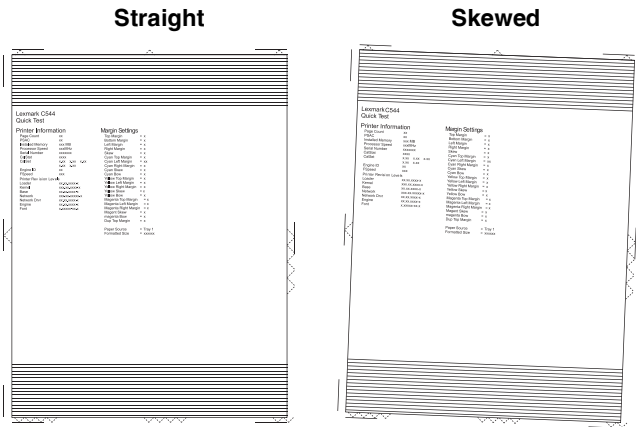
Description	Value	Direction of change
Skew	-100 to +100 Each increment corresponds to 1/1200 of an inch. The default is 0.	A positive value causes the left end of the scan line to move down the page. A negative value causes the left end of the scan line to move up the page. The right end stays fixed. There is no compression or expansion of the image.

- 6. Print another copy of the Quick Test to verify your changes.
- 7. Continue changing the settings by repeating steps 3 through 5.

To exit Registration, press **Back** () or **Stop** ().

Skew

One printhead houses the four color planes. The black plane is aligned to the printer, and the other color planes are internally aligned to black. Electronic alignment fine tunes the alignment of the color planes to the black plane once the printhead is installed. See **“Alignment” on page 3-7** for instructions on setting printhead alignment. This must be performed before color skew adjustment is attempted. The following illustration shows proper alignment versus skewed alignment.

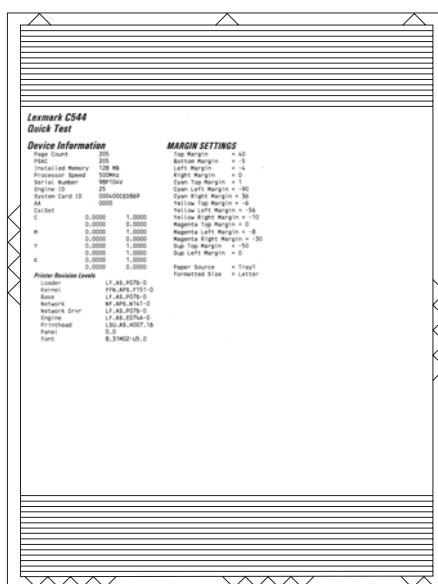


Quick Test

The Quick Test contains the following information:

- Print registration settings
- Alignment diamonds at the left, right, top, and bottom
- Horizontal lines to check for skew

- General printer information, including current page count, installed memory, serial number, and code level.



To print the Quick Test page:

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

1. Select **Registration** from Diag Menu, and press **Select** (✓).
2. Select **Quick Test Page**, and press **Select** (✓).

The message `Printing...` appears on the display.

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

Alignment

Aligns each of the color planes to the black plane. Print the Quick Test under each color, Cyan, Yellow, and Magenta, and adjust the Top Margin, Left Margin, Right Margin, Skew, and Bow.

Prints the Print Alignment Pages and requires that the best line in each set of lines must be selected.

To get started:

1. Select **Alignment Menu** from the Diag Menu, and press **Select** (✓).
2. Select a color (**Cyan**, **Yellow**, or **Magenta**), and press **Select** (✓).
Note: The yellow alignment page markings are more difficult to see, so you might not want to pick it first.
3. Select the **Quick Test**, and press **Select** (✓) to begin printing.

The message **Printing...** appears on the display. A page similar to the following prints:

Cyan Alignment Step 1

Top (T) Coarse Adjustment

Top (T) Fine Adjustment

Skew (Z) Coarse Adjustment

Skew (Z) Fine Adjustment

T

$T = 0 + \text{Current Cyan T value} = \text{New Cyan T value}$

Z

$Z = 0 - \text{Current Cyan Z value} + \text{New Cyan Z value}$

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

Press the up or down buttons until a check appears at the setting in need of adjustment. Press Select. Then use the < and > buttons to enter the new value. Press Select to save.

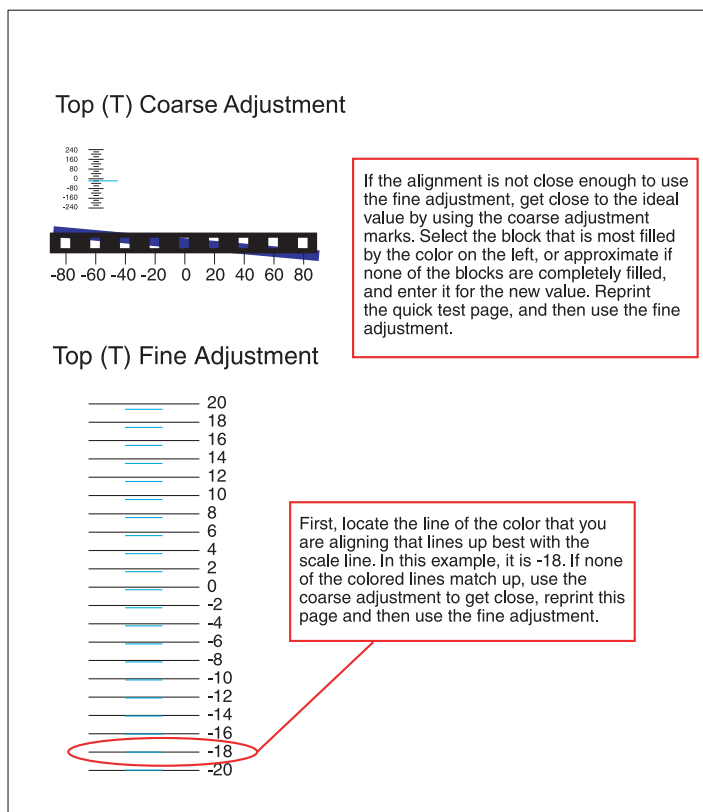
NOTE: If the alignment values cannot be determined by using the fine adjustment scales at the top of the page, then use the coarse adjustment scales at the top of the page.

STEP 2: Go to the next page to adjust the Left (L) margin, Right (R) margin, and Bow (P).

STEP 3: Reprint these pages to confirm final settings.

Go To Step 2

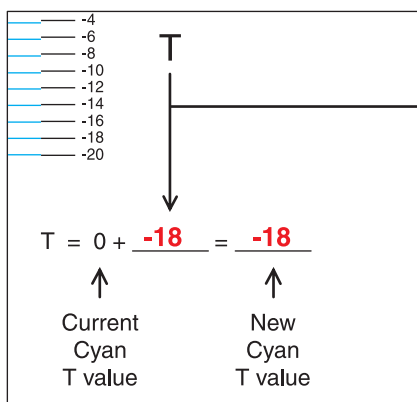
4. Select **Top Margin**, and press **Select** (✓).
5. Select the best choice for fine or coarse adjustment in Step 1 (first page), and add it to the current value for the Top Margin.



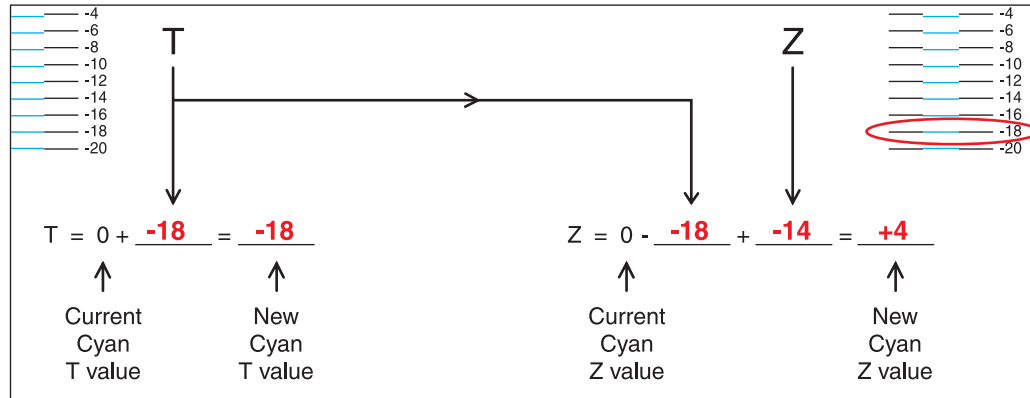
6. Use ◀ or ▶ to enter the sum of the numbers, and press **Select** (✓).

Submitting changes... appears.

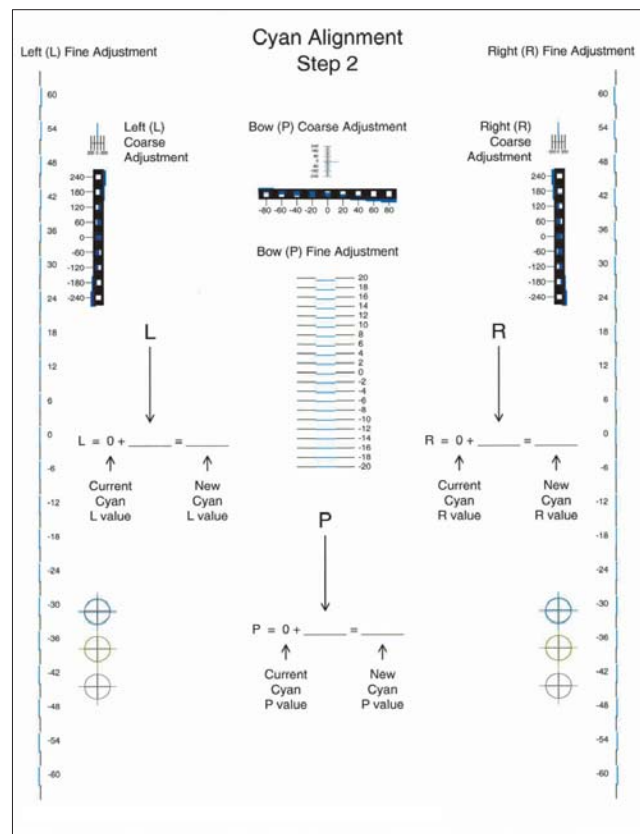
Print the Quick Test again to verify the observed value is the same as the current value (no change is needed). If change is still needed, repeat steps 4–6. When the observed values and the current value are the same, continue to the next step.



7. Select the Skew value in the same way, enter the value, press **Select** (\checkmark), and print the Quick Test to see if the observed values and the current values are the same.



8. On the second page of the latest Quick Test you printed, proceed to Step 2; adjust the left, right, and bow settings. Continue printing the Quick Test after each adjustment to verify your settings.



9. Continue on the other two colors in the same manner.

Print Tests

Input source tests

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

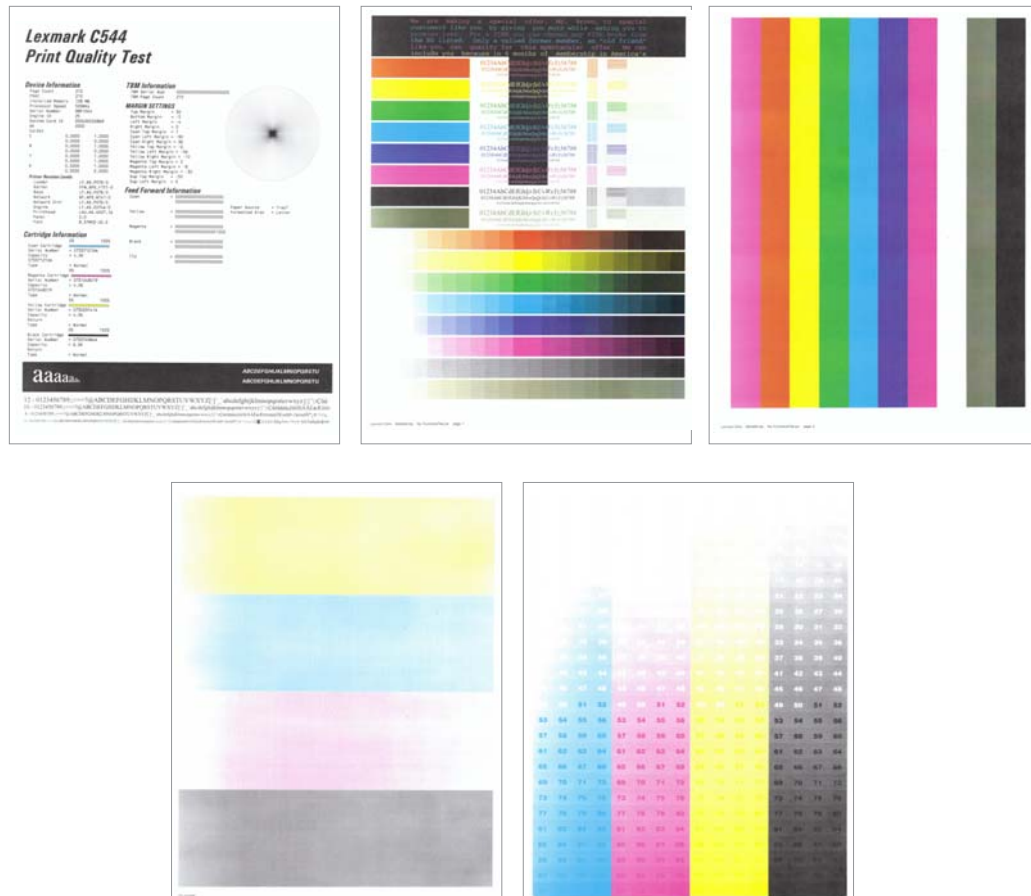
Check each Test Page from each source to assist in print quality and paper feed problems.

To run the Print Test Page:

1. Select **PRINT TESTS** from the Diag Menu, and press **Select** (✓).
 2. Select the media source (**Tray 1**, **Tray 2**, **Manual Feeder**, or **Multi-Purpose Feeder**), and press **Select** (✓),
 3. Select **Single** or **Continuous**, and press **Select** (✓).
 - If **Single** is selected, a single page is printed.
 - If **Continuous** is selected, printing continues until **Stop** (✗) is pressed to cancel the test.
If a source is selected that contains envelopes, an envelope test pattern is printed. If Continuous is selected, the test pattern is printed only on the first envelope.
- Note:** The Print Test Page always prints on one side of the paper, regardless of the duplex setting.
4. Press **Back** (↩) to return to PRINT TESTS.

Print quality test pages (Prt Quality Pgs)

The print quality test consists of five pages. Pages one and two contain a mixture of graphics and text. The remainder of the pages contain only graphics. The test prints on the media in tray 1.



This test may be printed from either the Configuration Menu or the Diagnostics Menu.

To run the print quality pages from the Diagnostics Menu:

1. Select **PRINT TESTS**, and press **Select** (✓).
2. Select **Prt Qual Pgs**, and press **Select** (✓).
The message **Printing Quality Test Pages** is displayed.
Note: Once the test is started, it cannot be canceled.

When the test pages print, the printer returns to the original screen.

Hardware Tests

Panel Test

This test verifies the operator panel LCD function.

To run the Panel Test:

1. Select **Hardware Tests** from Diag Menu, and press **Select** (✓).
2. Select **Panel Test**, and press **Select** (✓).
The Panel Test continually executes.

Press **Stop** (✗) to cancel the test.

Button Test

This test verifies the operator panel button function.

To run the Button Test:

1. Select **Hardware Tests** from Diag Menu, and press **Select** (✓).
2. Select **Button Test**, and press **Select** (✓).
 Press count: 0 appears.
 Press each operator panel button, and watch to see if the count of button presses increases by one for each press.
Note: If you press **Stop** (✗), you end the test.

Press **Stop** (✗) to cancel the test.

DRAM Test

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

To run the DRAM Test:

1. Select **Hardware Tests** in Diag Menu, and press **Select** (✓).
2. Select **DRAM Test**, and press **Select** (✓).
 - a. The printer displays:

DRAM Test Testing...

- b. The printer initiates a POR of the printer, and the following screen is displayed:

Resetting the Printer

- c. After the POR, the printer begins testing the memory.

DRAM Test	128M
P:#####	F:#####

P:##### represents the number of times the memory test has passed and finished successfully. Initially, 000000 displays with the maximum pass count being 99,999.

F:##### represents the number of times the memory test has failed and finished with errors. Initially, 0000 displays with the maximum fail count being 99,999.

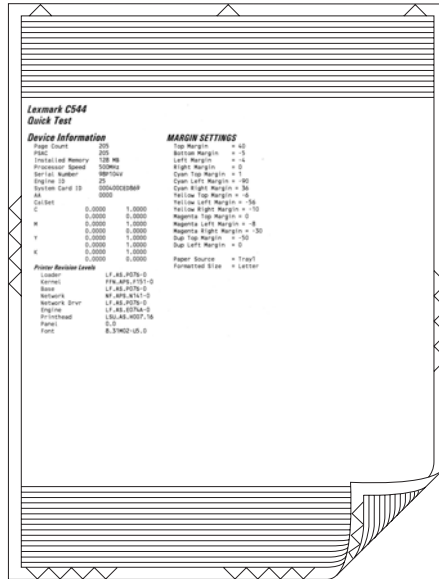
3. Once the all the memory is tested, the test stops.

To stop the test early, turn the printer off.

Duplex Tests

Quick Test (duplex)

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



Note: Before you set the duplex top margin, be sure to set the registration. See **“Registration” on page 3-4**.

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

To run the Quick Test (duplex):

1. Select **DUPLEX TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Quick Test**, and press **Select** (✓).
3. Select **Single** or **Continuous**, and press **Select** (✓).
 - The single Duplex Quick test prints the Quick Test on front and back.
 - The printer attempts to print the Quick Test Page from the default paper source.
 - Check the Quick Test Page for the correct offset between the placement of the first scan line on the front and back side of the duplexed sheet.

For information about changing the margin, see **“Top Margin (duplex)” on page 3-14**.

The single test stops automatically when a single duplex sheet is printed, and the continuous test continues until you press **Stop** (✗).

Top Margin (duplex)

This setting controls the offset between the first scan line on the front of the duplex page and the first scan line on the back of the page. Therefore, be sure to set the top margin in REGISTRATION before setting the duplex top margin. See **“Registration” on page 3-4**.

To set the Top Margin (duplex):

1. Select **DUPLEX TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Quick Test**, and press **Select** (✓).
3. Select **Single**, and press **Select** (✓).
4. Hold the page to the light to see whether the top margin of the back aligns with the top margin of the front.
5. Select **Top Margin** from DUPLEX TESTS.
6. Use ◀ or ▶ to select the margin setting you need to change.
 - Each increment shifts the duplex top margin by 1/100 of an inch.
 - The Top Margin (duplex) range is -50 to +50, and the default value is 0.
 - An increase in the value moves the backside top margin down and widens the top margin. A decrease moves the top margin upward and narrows the top margin.
7. Press **Select** (✓) to save the new value.
8. Print the Quick Test (duplex) again (steps 1–4) to verify the adjustment. Repeat if necessary.

Left Margin (duplex)

This setting shifts the image on the back of the duplex sheet to the left or right to correctly position it on the page. Therefore, be sure to set the top margin in REGISTRATION before setting the duplex top margin. See **“Registration” on page 3-4**.

To set the Left Margin (duplex):

1. Select **DUPLEX TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Quick Test**, and press **Select** (✓).
3. Select **Single**, and press **Select** (✓).
4. Hold the page to the light to see whether the left margin of the back aligns with the left margin of the front.
5. Select **Left Margin** from DUPLEX TESTS.
6. Use ◀ or ▶ to select the margin setting you need to change.
 - Each increment shifts the duplex left margin by 4 pixels at 500 dpi (0.0067 inches or 0.1693 mm).
 - The Left Margin (duplex) range is -25 to +25, and the default value is 0.
 - An increase in the value moves the backside left margin to the right, and widens the left margin. A decrease moves the backside left margin to the left, and narrows the left margin.
7. Press **Select** (✓) to save the new value.
8. Print the Quick Test (duplex) again (steps 1–4) to verify the adjustment. Repeat if necessary.

Input Tray Tests

Feed Tests

Any installed input tray can be tested. The pages fed through the printer are blank.

To run the Feed Test:

1. Select **INPUT TRAY TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Feed Tests**, and press **Select** (✓).
3. Select the tray to be tested. Choices are installed trays, including **Tray 1**, **Tray 2**, **MP Feeder**.
4. Select **Single** or **Continuous**, and press **Select** (✓).
 - Single—a single sheet of blank paper is fed, and the test stops.
 - Continuous—sheets are fed continuously, until **Stop** (✗) is pressed.

Sensor Test

This test is used to verify that the sensors are working correctly for an individual input tray.

1. Select **INPUT TRAY TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Sensor Tests**, and press **Select** (✓).
3. Select the tray where you want to test the sensors.
4. Depending on the tray selected, you may have **Empty Sensor**, **Low Sensor**, or **Passthru Sensor**.
Sensors will be displayed with either **Open** or **Closed**. Toggle the sensor you want to test and note the change of state of that sensor.

Input Tray	Empty Sensor	Low Sensor	Passthru Sensor
Tray 1	✗	✗	✗
Tray 2 (650-sheet duo tray)	✓	✓	✓
MP Feeder	✗	✗	✗

To Exit the text, press **Back** (↩) or **Stop** (✗).

Base Sensor Test

These tests allow you to verify the correct functioning of the front door, input, and output sensors.

1. Select **Base Sensor Test** from Diag Menu, and press **Select** (✓).
2. Select the sensor you want to test, and press **Select** (✓).

The following tests are available:

Sensor	Value	How to test
Front Door	Opened/ Closed	The sensor should change state.
Standard Bin	Bin full	Lift up on the bin full flag, and then release. The sensor should change state.
S1	Media clear... or Media present...	Activate the sensor by removing and re-inserting the paper tray. The sensor should change state.
S2	Media clear... or Media present...	Remove the media tray. Activate the input sensor flag. The sensor should change state.
Fuser exit sensr	Media clear... or Media present...	Open the front cover. Activate the fuser exit flag. The sensor should change state.
C-TMC Sensor	Opened/ Closed	Remove the cyan toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
M-TMC Sensor	Opened/ Closed	Remove the magenta toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
Y-TMC Sensor	Opened/ Closed	Remove the yellow toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.
K-TMC Sensor	Opened/ Closed	Remove the black toner cartridge. Shine a flashlight on the toner level sensor. The sensor should change state.

To exit the test, press **Back** (⏮) or **Stop** (⏹).

Miscellaneous tests

Motor Detect

This test initiates an automatic motor detection process that should be performed whenever the controller board is replaced.

To run Motor Detect:

1. Select **MISC TESTS** in the Diag Menu, and press **Select** (✓).
Remove Cartridge. Press Select appears.
2. Select **Motor Detect**.
Note: Do not press **Select** yet.
3. Remove all toner cartridges and the imaging unit.
4. Close the front cover.
If you press **Select** before closing the front cover, a message appears: Close Cover. Press Select.
5. Press **Select** (✓).
Motor Detection In Progress... appears.
The motor detection process takes about 10 seconds, and stops automatically.
Detect Complete. Rebooting... appears, and the printer performs a POR (Power On Reset).

Device Tests

Flash Test

This menu item appears only if the flash card is installed. Data is written to the flash card and read back to check the accuracy.

Warning: This test deletes all data stored on the flash device. After the test is over, reformat the flash using **Format Flash** in the customer Utilities Menu.

To run the Flash Test:

1. Select **DEVICE TESTS** from Diag Menu, and press **Select** (✓).
2. Select **Flash Test**, and press **Select** (✓).
Contents will be lost. Continue? appears.
3. To continue, select **Yes**, and press **Select** (✓). To end the test, select **No**, and press **Select** (✓).
If you continue, Flash Test Testing... appears.
 - If the test is successful, Flash Test Test Passed appears. Use Format Flash in the Utilities Menu to reformat the flash card.
 - If the test is unsuccessful, Flash Test Test Failed appears. Replace the flash card.
4. Press **Back** (⏮) to remove the message and return to the Device Tests menu.

Printer Setup

Defaults

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

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

To change the Defaults:

1. Select **Printer Setup** from Diag Menu, and press **Select** (✓).
2. Select **Defaults**, and press **Select** (✓).
3. Select **U.S.** (default) or **Non-U.S.**, and press **Select** (✓).

Press **Back** (⏮) to return to Printer Setup.

Page counts

You can view but not change any of the three counts.

To view the PRT Color Pg Count, the PRT Mono Pg Count, or the Perm Page Count:

1. Select **Printer Setup** from Diag Menu, and press **Select** (✓).
2. Select the page count you wish to view:
 - **PRT Color Pg Count**
 - **PRT Mono Pg Count**
 - **Perm Page Count**
3. Press **Select** (✓).
The value of the page count displays.

Press **Back** (⏮) to return to Printer Setup.

Serial Number

The serial number can only be viewed, but cannot be changed.

To view the serial number:

1. Select **Printer Setup** from Diag Menu, and press **Select** (✓).
2. Select **Serial number**, and press **Select** (✓).
The Serial Number is displayed.

Press **Back** (⏮) to return to Printer Setup.

Engine Setting 1 through 4

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

Model Name

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

Configuration ID

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


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

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








To set the configuration ID:

1. Select **Printer Setup** from Diag Menu, and press **Select** (✓).
2. Select **Configuration ID**, and press **Select** (✓).
The current value for Configuration ID 1 is displayed.
3. Enter the Configuration ID 1.
 - Change the left character or digit first.
 - To change the value of a character or digit, press ◀ to decrease or ▶ to increase the underlined value, and press **Select** (✓) to move to the next character or digit.
 - To move to the next character or digit without changing the current value, press **Select** (✓).
 - When you press **Select** (✓) on the last digit, the value will be submitted.
If **Invalid ID** appears, the entry is discarded, and the previous Configuration ID 1 is displayed on the screen.
If the process is successful, **Submitting Selection** appears on the display, followed by the current value for Configuration ID 2.
4. Repeat the steps for entering the Configuration ID 2, and press **Select** (✓).
If the Configuration ID 2 is validated, **Submitting Selection** appears, and a check (✓) appears next to **Printer Setup**.
5. Restart the printer. A POR is not automatically performed.

ITU Barcode

The 16-digit numeric value matches the ITU installed in the printer. If you replace the ITU, reenter this value. **Stop** () exits the menu.




To enter the ITU barcode:


1. Select **PRINTER SETUP** from Diag Menu, and press **Select** ().
2. Select **ITU Barcode**, and press **Select** ().
3. To enter the 16-digit numeric value:
Use  to decrease the leftmost digit value or  to increase the value. Press **Select** () to advance to the next digit. If a digit is already correct, press **Select** () to accept the number and to continue. When the last number is entered and you press **Select** (), *Submitting changes...* should appear. If the entered number is incorrect, *Check Sum Does Not Match* displays. Check and reenter the number.

Reset Fuser Cnt

Resets the fuser count value to zero. The Event Log records each time that a user executes the Reset Fuser Count operation. See “**Event Log**” on page 3-25 for more information. This setting appears only if the Maintenance Warning and Intervention function is enabled in the printer Configuration ID.

To reset the fuser count:

1. Select **Printer Setup** from Diag Menu, and press **Select** ().
2. Select **Reset Fuser Cnt**, and press **Select** ().
3. Select **Reset**, and press **Select** ().
Reset Resetting... appears.



To cancel a reset, press **Back** ().


EP Setup

EP Defaults

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

To restore EP Defaults:

1. Select **EP Setup** from Diag Menu, and press **Select** ().
2. Select **EP Defaults**, and press **Select** ().
3. Select **Restore** to reset the values to the factory settings, and select **Do Not Restore**.



To cancel and return to the menus, press **Back** ().

Fuser Temperature

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

To adjust the fuser temperature:

To restore EP Defaults:

1. Select **EP Setup** from Diag Menu, and press **Select** ().
2. Select **Fuser Temp**, and press **Select** ().
3. Select Normal, High, or Low. The default is Normal.

To return to the menus, press **Back** ().

DC Charge Adjust, Dev Bias Adj, Transfer Adjust

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

TPS Setup

Right or Left TPS

The value of the toner density sensor (also called toner patch sensor or TPS) is set at manufacturing. If a sensor is replaced, enter the 32-digit hexadecimal toner density value (TPS) value from the bar code next to the sensor.

To enter the value:

1. Select **TPS Setup** from Diag Menu, and press **Select** (✓).
2. Select **Right** or **Left**, and press **Select** (✓).
TPS Right 1-16 or TPS Left 1-16 appears above a blinking 0 in the left position.
3. To enter a character or digit:
 - a. Press ◀ to decrease or ▶ to increase the blinking value.
 - b. Pause for several seconds without pressing any buttons. The blinking value becomes solid.
If the value is incorrect, use **Back** (↩) to go back and reenter the number.
 - c. Continue until the last value is reached.
 - d. When the last of the 16 values is entered and becomes solid, TPS Right 17-32 or TPS Left 17-32 appears.
 - e. Continue entering and pausing
4. After the 32nd number is entered and becomes solid, the number is automatically entered.
 - If the number is incorrect, **Checksum does not match** appears, and the original screen appears to reenter the value.
 - If the number is correct, **Saving changes to NVRAM** appears.

Cal Ref Adj

Used with Reset Color Cal, which resets to a default value, Cal Ref Adj allows you to fine tune the TPS function.

To set the Cal Ref Adj:

1. Select **TPS Setup** from Diag Menu, and press **Select** (✓).
2. Select **Cal Ref Adj**, and press **Select** (✓).
3. Select **CMY** or **Black**, and press **Select** (✓).
4. Press ◀ to decrease or ▶ to increase the value.
The values can be -8 to +8, and the default value is 0.

To cancel and return to the menus, press **Back** (↩).

Reset Color Cal

This setting allows the device to adjust the alignment of the color planes using pre-programmed default values.

To reset the programmed value:

1. Select **TPS Setup** from Diag Menu, and press **Select** (✓).
2. Select **Reset Color Cal**, and press **Select** (✓).

Resetting appears. When the reset is complete, the screen is automatically returned to TPS Setup.

Reports

Menu Settings Page

To print the Menu Settings Page:

1. Select **Reports** from Diag Menu, and press **Select** (✓).
2. Select **Menu Settings Page**, and press **Select** (✓).

Event Log

Display Log

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

To view the event log:

1. Select **Event Log** from Diag Menu, and press **Select** (✓).
2. Select **Display Log**, and press **Select** (✓).

As many error codes display as fit on the screen at a time. Press ◀ or ▶ to view additional error codes.
Press ▶ to view additional details.

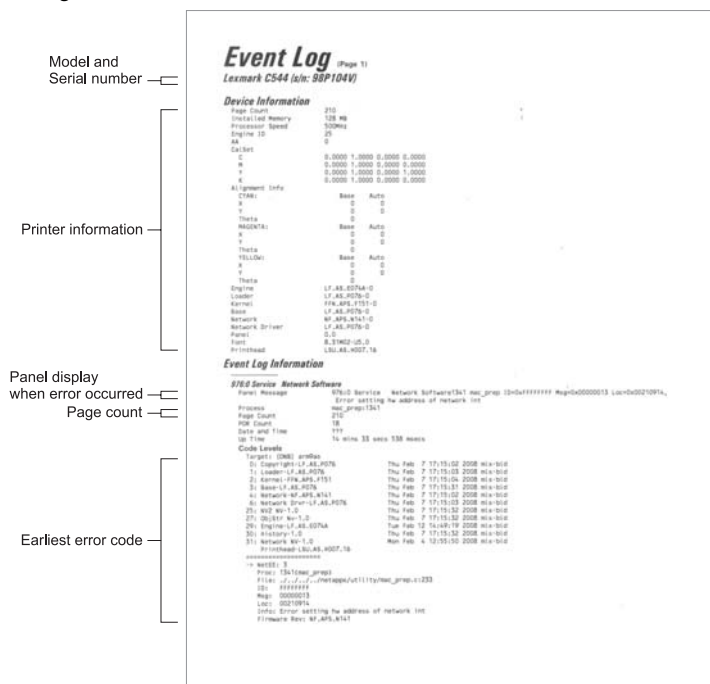
Press **Back** (⏮) to return to the Event Log menu.

Print Log

Additional diagnostic information is available when you print the event log from the Diagnostics Menu rather than the Configuration Menu.

The Event Log printed from Diag Menu includes:

- Detailed printer information, including code versions
- Time and date stamps
- Page counts for most errors
- Additional debug information in some cases



The printed event log can be faxed to your next level of support for verification or diagnosis.

To print the event log:

1. Select **Event Log** from Diag Menu, and press **Select** (✓).
2. Select **Print Log**, and press **Select** (✓).

Press **Back** (⏮) to return to Event Log.


Clear Log

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

1. Select **Event Log** from Diag Menu, and press **Select** (✓).
2. Select **Clear Log**, and press **Select** (✓).
3. Select **YES** to clear the Event Log or **NO** to exit the Clear Log menu. If **YES** is selected, Deleting EVENT LOG displays on the screen.

Press **Back** (⏮) to return to Event Log.

EXIT Diags

Press **Select** () to exit Diag Menu. The printer performs a power-on reset and returns to normal mode.

Configuration menu (Config Menu)

Available tests

The tests display on the operator panel in the order shown for all models.

Configuration menu

Prt Quality Pgs	See “Prt Quality Pgs” on page 3-24.
Color Trapping	See “Color Trapping” on page 3-24.
Reports	See “Color Trapping” on page 3-24.
Panel Menus	See “Panel Menus” on page 3-25.
PPDS Emulation	See “PPDS Emulation” on page 3-25.
Demo Mode	See “Demo Mode” on page 3-25.
Factory Defaults	See “Factory Defaults” on page 3-26.
Energy Conserve	See “Energy Conserve” on page 3-26.
Auto Color Adj	See “Auto Color Adj” on page 3-27.
Font Sharpening	See “Font Sharpening” on page 3-27.
Exit Config Menu	This selection exits Configuration Menu, and Resetting the Printer displays. The printer performs a POR and returns to normal mode.

Prt Quality Pgs

The Print Quality Pages can be printed from both the Configuration Menu and the Diagnostics Menu. The Configuration Menu is limited in information compared to the pages printed from the Diagnostics Menu.

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

Press **Select** (☒) to print the pages. The Print Quality Test Pages contain several pages. The first page, which is printed in English text only, contains a mixture of text and graphics. The information includes values of the Quality Menu settings in Settings and printer and toner cartridge configuration information. The remaining pages contain only graphics. For samples of the pages, see **“Print quality test pages (Prt Quality Pgs)”** on page 3-11.

Color Trapping

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



Values include Off and numbers 1–5 (the default is 2). Values 1 through 5 indicate the amount of color remaining beneath the black content. Each setting increments by 1/600 of an inch. The more inaccurate the registration setting, the higher the setting needs to be adjusted. Selecting **Off** disables color trapping.

Reports

Menu Settings Page

Print the menu settings pages to list the customer settings and to verify printer options are installed correctly. It is helpful to print the customer settings before you restore factory defaults or make major changes.

To print the menu settings:

1. Select **Reports** from the Config Menu, and press **Select** (.
2. Select **Menu Setting Page**, and press **Select** (.


Event Log

Lets the system support person print a limited set of the information contained in the Diagnostics Menu version of the printed Event Log. For a sample of a printout, see “**Event Log**” on page 3-21. The limited Configuration log and the full Diagnostics log printed versions show the same operator panel messages when they print and follow the same layout guidelines.

To print the event log:

1. Select **Reports** from the Config Menu, and press **Select** (.
2. Select **Print Log**, and press **Select** () to begin printing the log.

Panel Menus

Lets the system support person enable or disable the operator panel menus. Selecting **On** (the default) allows users to change values for the printer. **Off** disables the users' access to menus. If a user presses **Menu** () , they receive a message that the panel menus are locked. When set to **Off**, this setting restricts all menu access, even to menus or items set for PIN access. However, when set to **On**, all PIN restrictions are restored.

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

PPDS Emulation

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

Demo Mode

Lets marketing personnel or merchandisers demonstrate the printer to potential customers by printing the demo page.

Selections include Deactivate (default) and Activate. Select **Deactivate** to turn Demo Mode off; or select **Activate** to turn Demo Mode on.

Factory Defaults

Sets the majority of printer values back to their factory default settings.

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

- All downloaded resources (fonts, macros, symbol sets) in the printer memory (RAM) are deleted.
- All menu settings return to the factory default setting *except*:
 - The Display Language setting in the Setup Menu.
 - All settings in the Parallel Menu, Serial Menu, Network Menu, Infrared Menu, LocalTalk Menu, and USB Menu.

To print current menu settings:

It is recommended that you first print the customer's current settings by printing a copy of the Menu Settings pages. Customer settings are available from the Ready prompt, Diagnostics Menu settings are available in the Diagnostics Menu, and Config Menu settings are available in the Config Menu.

1. Turn the printer off, or select **Exit Config Menu**.
2. At the Ready prompt, select **Menus** (⏮), and press **Select** (✓).
3. Select **Reports**, and press **Select** (✓).
4. Select **Menu Settings Page**, and press **Select** (✓).
5. Enter the Diagnostic Menu, select **Reports**, **Menu Settings Page**, and press **Select** (✓).
See "**Menu Settings Page**" on page 3-21.
6. Turn the printer off, or select **Exit Diags**.
7. Enter Configuration Menu, select **Reports**, **Menu Settings Page**, and press **Select** (✓).
See "**Menu Settings Page**" on page 3-25.

To reset factory defaults:

1. Select **Reports** from the Config Menu, and press **Select** (✓).
2. Select **Factory Defaults**, and press **Select** (✓).
3. Select **Restore Base** (for locally attached printers) or **Restore STD NET** (if you have integrated network support).
Submitting Changes... appears on the operator panel, and then the printer PORs (restarts in Ready mode).

Energy Conserve

Affects the values that appear in the Power Saver menu in the customer Setup Menu. This menu item appears only when the printer model does not support Automatic Power Saver or has deactivated Automatic Power Saver. Energy Conserve affects only the values that are displayed in the Power Saver menu.

Select **Off** in Energy Conserve to allow Power Saver in the customer menu to display Disable as an option. If **Disable** is selected in the customer Power Saver, the printer deactivates the Power Saver feature. Select **On** (the default) in Energy Conserve to prevent **Disable** from appearing as an option in the Power Saver setting, and preventing the customer from turning off Power Saver.

Auto Color Adj

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

Selections are **Off** and the values between **100** and **1000** in increments of 50. The default is 500 pages.

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


When an event other than page count triggers this calibration, the count that monitors the maximum number of pages printed will be reset. For example, if the user replaces an empty toner cartridge, the next time the printer is started, it will sense the new cartridge and perform the automatic color adjustment, even though the page counter for Auto Color Adj is fewer than required. The Auto Color Adj page counter is then reset.

Font Sharpening

This setting allows a user to set a text point-size value below the setting of the high-frequency screens used when printing font data. This menu item affects only the PostScript, PCL 5, PCL XL, and PDF emulators.

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

Exit Config

Press **Select** () to exit the Configuration Menu. The printer performs a power-on reset and returns to normal mode.

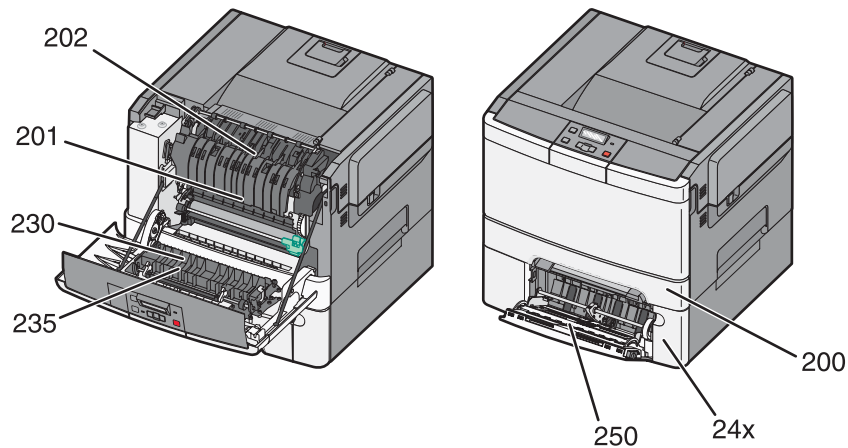
Paper jams

Avoiding jams

The following hints can help you avoid jams:

- Use only recommended paper or specialty media.
For more information, see the *Card Stock & Label Guide* available on the Lexmark Web site at www.lexmark.com/publications.
- Do not load too much paper. Make sure the stack height does not exceed the indicated maximum height.
- Do not load wrinkled, creased, damp, or curled paper.
- Flex, fan, and straighten paper before loading it.
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, weights, or types in the same stack.
- Store the paper in an appropriate environment.
- Do not remove trays while the printer is printing. Wait for Load tray <x> or Ready to appear before removing a tray.
- Do not load the manual feeder while the printer is printing. Wait for Load Manual feeder with <x> to appear.
- Push all trays in firmly after loading paper.
- Make sure the guides in the trays are properly positioned, and are not pressing too tightly against the paper.
- Make sure all paper sizes and paper types are set correctly in the operator panel menu.
- Make sure all printer cables are attached correctly.

Understanding jam numbers and locations

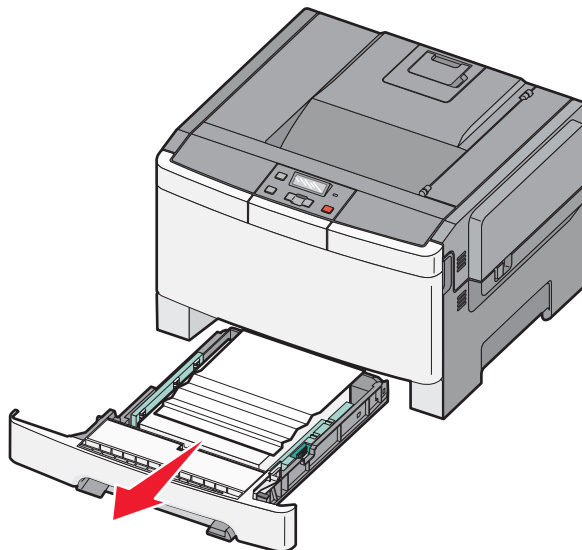


When a jam occurs, a message indicating the jam location appears. The following illustration and table list the paper jams that can occur and the location of each jam. Open doors and covers, and remove trays to access jam locations.

#	Error message	Jam message	Instructions	Go to page
1	200	Standard 250-sheet tray and manual feeder (tray 1)	Pull tray 1 out, and remove the jam.	3-30
2	201	Jam under the fuser	Open the front door, and remove the jam.	3-30
3	202	Jam in the fuser	Open the front door, and pull the fuser cover toward you. Remove the jam.	3-31
4	230	Jam in the duplex	Open the front door, and remove the jam.	3-32
5	235	Media not supported in the duplex	Load the tray with the correct paper size.	3-32
6	24x	650-sheet duo drawer (tray 2) /MP feeder	Pull tray 2 out, and remove the jam.	3-32
7	250	Jam in the multipurpose feeder	Pull tray 2 out, and remove the jam.	3-32

200 paper jams

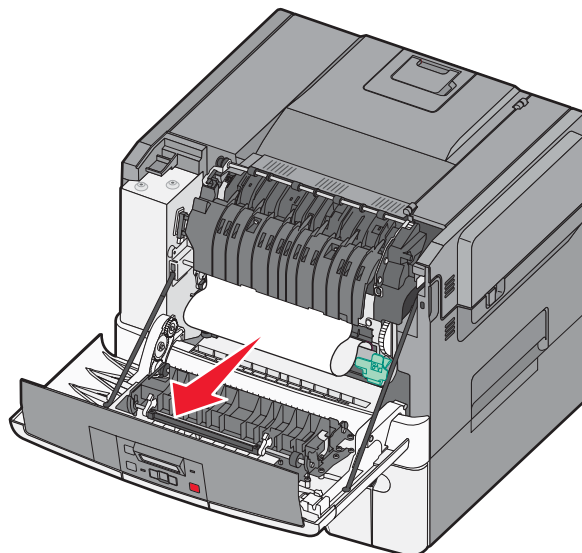
1. Remove the standard 250-sheet tray (tray 1).
 2. Remove the jam.
- Note:** Make sure all paper fragments are removed.



3. Insert the tray.
4. Press **Select** (✓).

201 paper jam

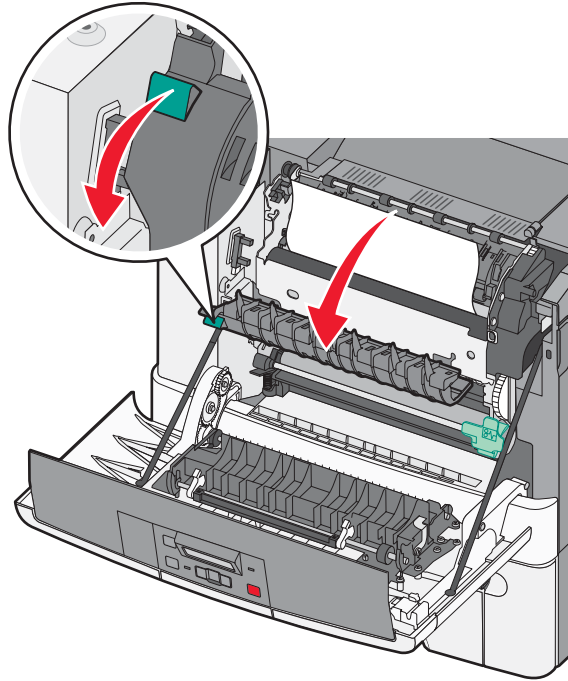
1. Grasp the front door at the side handholds, and then pull it toward you to open it.
 2. Remove the jammed paper.
- Note:** Make sure all paper fragments are removed.



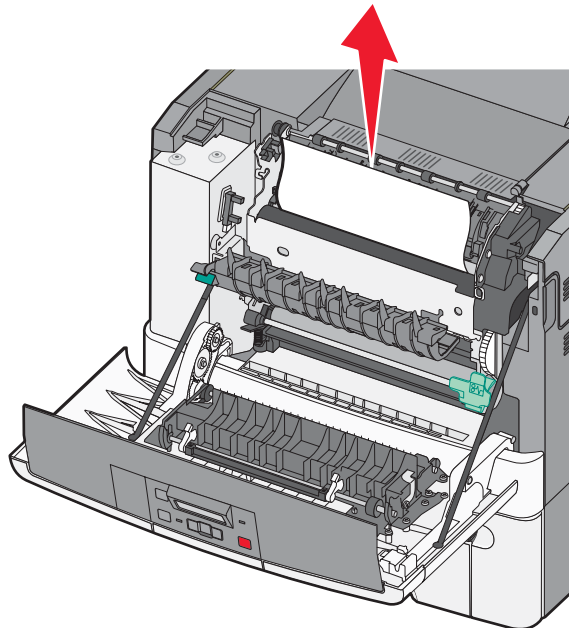
3. Close the top door.
4. Press **Select** (✓).

202 paper jam

1. Grasp the front door at the side handholds, and then pull it toward you to open it.
2. Grasp the green lever, and pull the fuser cover toward you.



3. Hold the fuser cover down, and then remove the jammed paper. The fuser cover closes when released.



4. Close the fuser cover.
5. Close the front door.
6. Press **Select** (✓) to continue.

230 paper jam

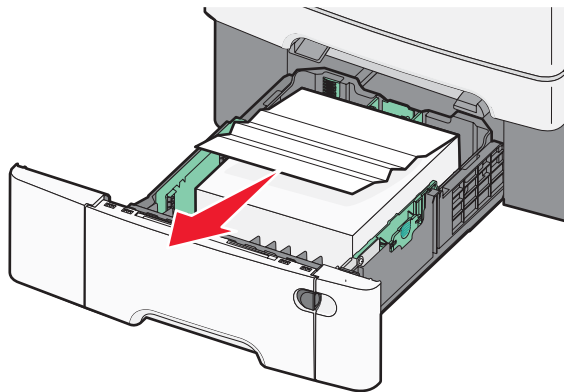
1. Grasp the front door at the side handholds, and pull it toward you to open it.
2. Remove the jam.
3. Press **Select** (✓) to continue printing.

235 paper jam

1. Load the tray with the correct paper size (supported for duplex).
2. Insert the tray.
3. Close the front door.
4. Press **Select** (✓) to continue printing.

24x paper jam

1. Remove the 650-sheet duo drawer (tray 2).
2. Remove the jam.
Note: Make sure all paper fragments are removed.

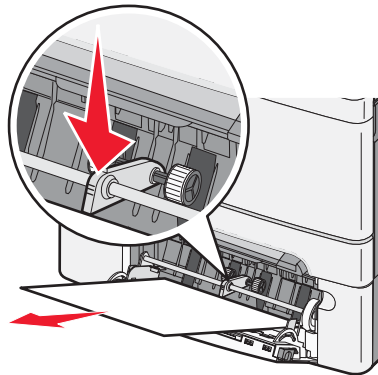


3. Align the tray, and insert it.
4. Press **Select** (✓) to continue.

250 paper jam

Push the lever to remove the media jam in the multipurpose feeder.

Note: Make sure all paper fragments are removed.



5. Press **Select** (✓).

Theory of operation

Print engine theory

Electrophotographic process (EP process)

The method that all laser and LED printers use to print is called the electrophotographic process. These machines use differences in charge to manipulate and move toner from the toner cartridge to the printed page.

Even though the basic EP process is the same for every laser and LED printer, the specifics for each printer are different.

Electrophotographic process basics

This printer is a single laser printer that uses four toner cartridges (cyan, yellow, magenta and black) to create text and images on media.

The printer has four photoconductors (called a photodeveloper cartridge or PC unit) and an image transfer unit (ITU). Each color toner is painted to its respective photoconductor at the same time. The transfer belt passes under the four photoconductors and the four color image is produced and transferred to the media in one pass.

During the printing process, the printer follows the six basic EP process steps to create its output to the page. These six steps are:

1. Charge the photoconductor (PC unit)
2. Expose the photoconductor (PC unit)
3. Develop the toner on the photoconductor (PC unit)
4. First and second transfer of toner to the ITU and then to the media.
5. Fuse the toner to the media
6. Clean/erase the photoconductor and the ITU.

In summary, the printer's 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 coordinates the various motors and signals.

The high-voltage power supply sends charge to various components in the EP process. The laser fires on the photoconductors and alters the surface charge relative to the planned image for each photoconductor. Each photoconductor rotates past its respective developer roll and toner is developed on the surface of each photoconductor. The four separate color images are then transferred to the transfer belt on the ITU as it passes under the photoconductors. After the image is transferred to the transfer belt the photoconductors are cleaned and recharged.

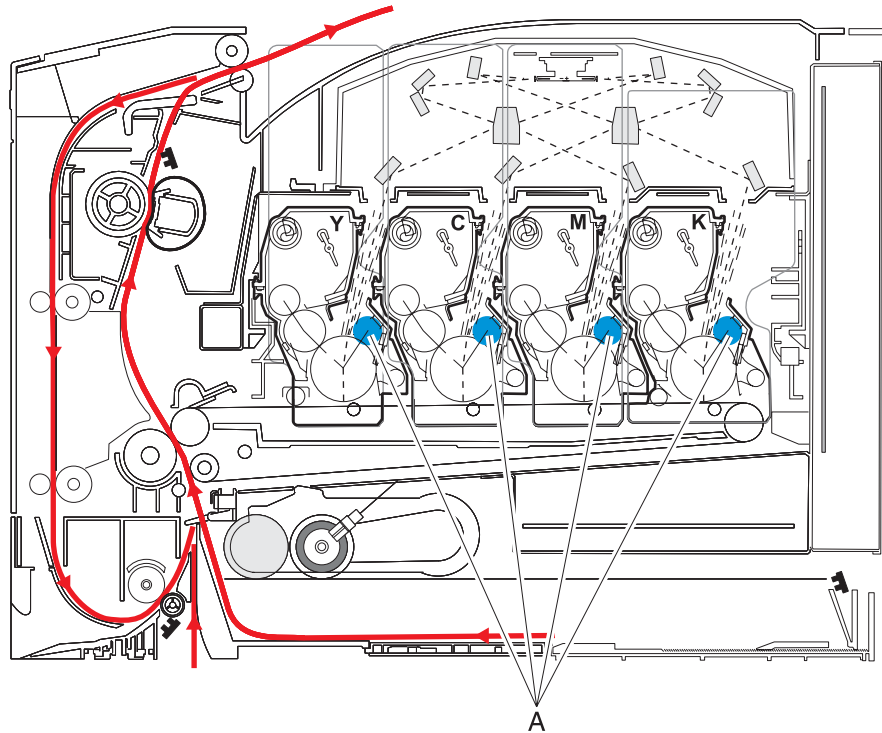
The transfer belt, carries the four-colored image towards the transfer roll. Media is picked up from the tray and carried to the transfer roll where the image is transferred from the transfer belt to the media. The timing of the paper pick is determined by the speed of the transfer belt.

The media is carried to the fuser rollers where heat and pressure are applied to the page to permanently bond the toner to the page. The fuser rollers push the media into the output bin. The transfer unit is cleaned and the process begins again for the next page.


Step 1: Charge

During the charge step, voltage is sent from the high-voltage power supply to the charge roll inside each of the four photoconductors. The charge roll is part of the photoconductor unit.

The charge rolls (A) put a uniform negative charge over the entire surface of the photoconductor to prepare it for the laser beam.



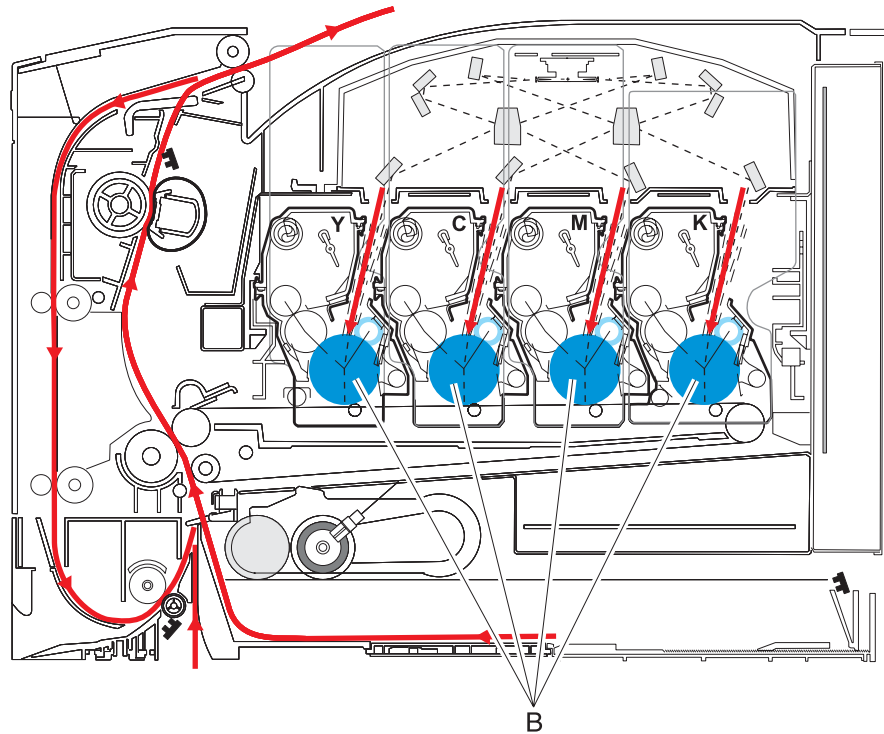
Service tips:

- If the surface of the charge roll is damaged (such as a nick or pit), it will cause the charge to be uneven on the photoconductor. This will cause a repeating mark on the printed page. Check the repeating marks table that prints from the operator panel. (Press **Menu** (), select **Reports**, and select **Print Defects**.)
- If the charge roll is severely damaged, the surface of the photoconductor will not be charged properly and heavy amounts of toner will be deposited on the photoconductor. This causes the printed page to be saturated with 100% of each color. The imaging unit will need to be replaced sooner.

Step 2: Expose

During the expose step, the laser fires a focused beam of light at the surface of each photoconductor (B) and writes an invisible image called a latent image or electrostatic image for each color.

The laser beam actually discharges the surface only where the beam hits the photoconductor. This creates a difference in charge potential between the exposed area and the rest of the photoconductor surface.



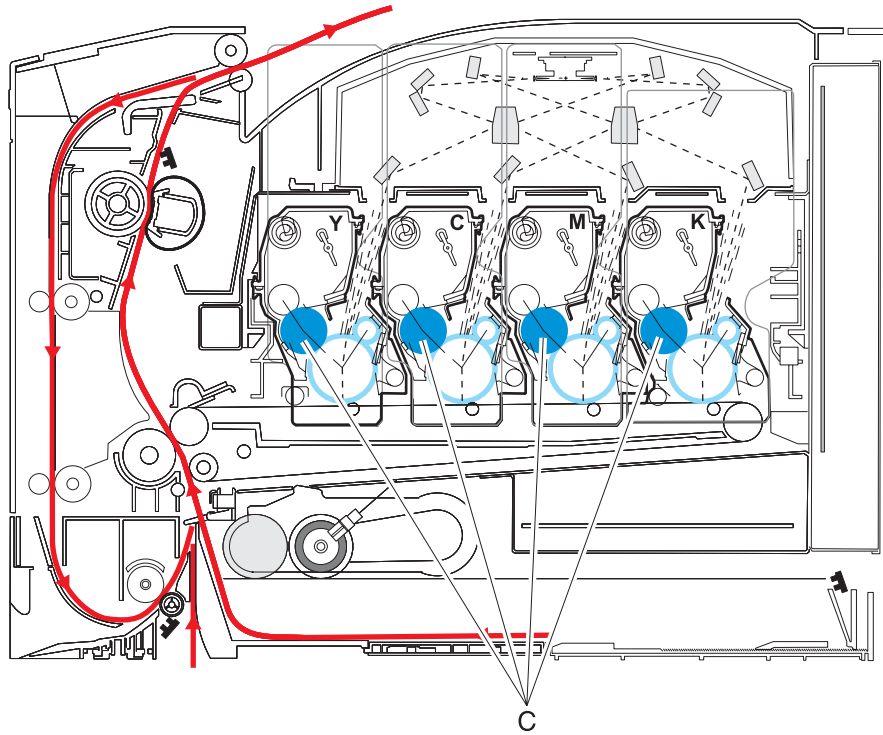
Service tips:

- The laser beam passes through a glass lens as it exits the laser unit. If this lens gets contaminated with toner or other debris, it will cause white or light vertical streaks on the page. Cleaning the lens solves the problem.
- Never touch the surface of the photoconductor with your bare hand. The oil from your skin may cause a charge differential on the surface and toner will not stick properly. The result would be repeating patches of voids or light print on a page. Then the photoconductor will have to be replaced.
- The surface of the photoconductor is coated with an organic substance that makes it sensitive to light. Be sure and cover the photoconductor when you are working on the printer so you don't "burn" it. If exposed to light for too long, it will cause light/dark print quality problems and have to be replaced.

Step 3: Develop

Once the laser exposes the photoconductor, the high-voltage power supply sends charge to the developer roll (C). For each color, the toner cartridge engages the photoconductor so it applies toner to the surface. Because of the charge difference between the toner on the developer roll and the electrostatic image created by the laser, the toner will cling to the PC. The toner will only stick where the laser exposed the surface.

This process would be similar to using glue to write on a can and then rolling it over glitter. The glitter sticks to the glue but won't stick to the rest of the can.



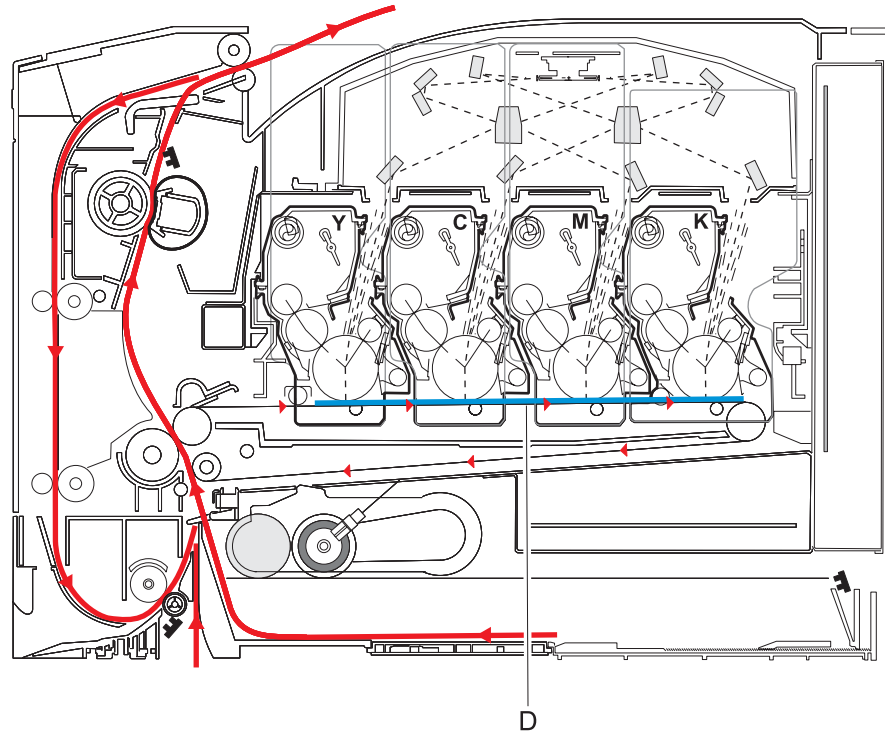
Service tips:

- Never 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 toner will not stick properly. The result would be repeating blotches of voids/light print on a page. Then the affected cartridge will have to be replaced.
- If the developer roll is damaged, it will not contact the surface of the photoconductor properly. The result could be repeating marks, thin vertical voids or thin vertical lines of color on the printed page. Check the surface of the developer for damage.

Step 4a: First transfer

When the latent images are developed on each photoconductor, the high-voltage power supply sends voltage to the first transfer rolls located in the ITU (D).

The charge difference between the developed toner image on the photoconductor surface and the first transfer roll causes the images to transfer to the surface of the ITU belt for each color. This takes place by a direct surface-to-surface contact between the photoconductors and the ITU belt.



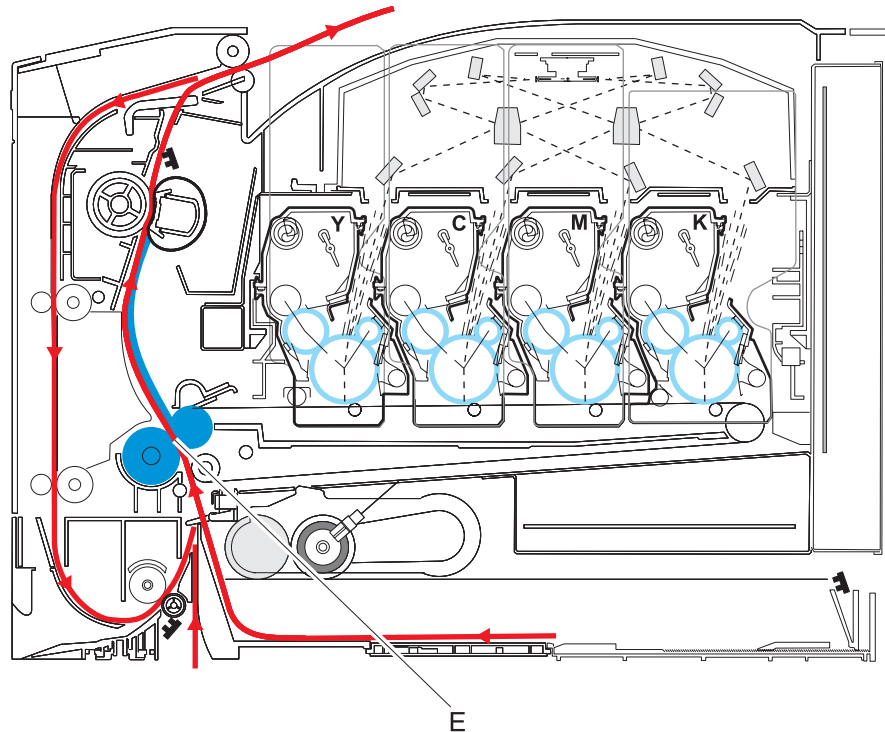
Service tips:

- Never touch the surface of the ITU belt with your bare hand. The oil from your skin will cause a charge differential on the surface and toner will not stick properly. The result would be repeating blotches of voids/light print on a page. Then the ITU belt will have to be replaced.
- Don't use solvents or other cleaners to clean the ITU belt surface. No matter how careful you are, the surface will be compromised causing scratches or a charge differential that will produce a void or light blotch on the printed page. Then the ITU belt will need to be replaced.

Step 4b: Second transfer

Once the four planes of color are transferred to the transfer belt from the photoconductors, the image is carried towards the transfer roll (E). The transfer roll is also part of the ITU. Based on the speed of the transfer belt, the proper time to send the signal to pick the media from an input source is determined. The timing of the pick is such that the media reaches the point where the transfer belt and transfer roll meet. The paper passes between the transfer belt and transfer roll when the image on the belt reaches the second transfer area.

The high-voltage power supply sends voltage to the transfer roll to create a positive charge. Once the image on the transfer belt reaches the transfer roll, the negatively charged toner clings to the media and the entire image is transferred from the transfer belt to the media.



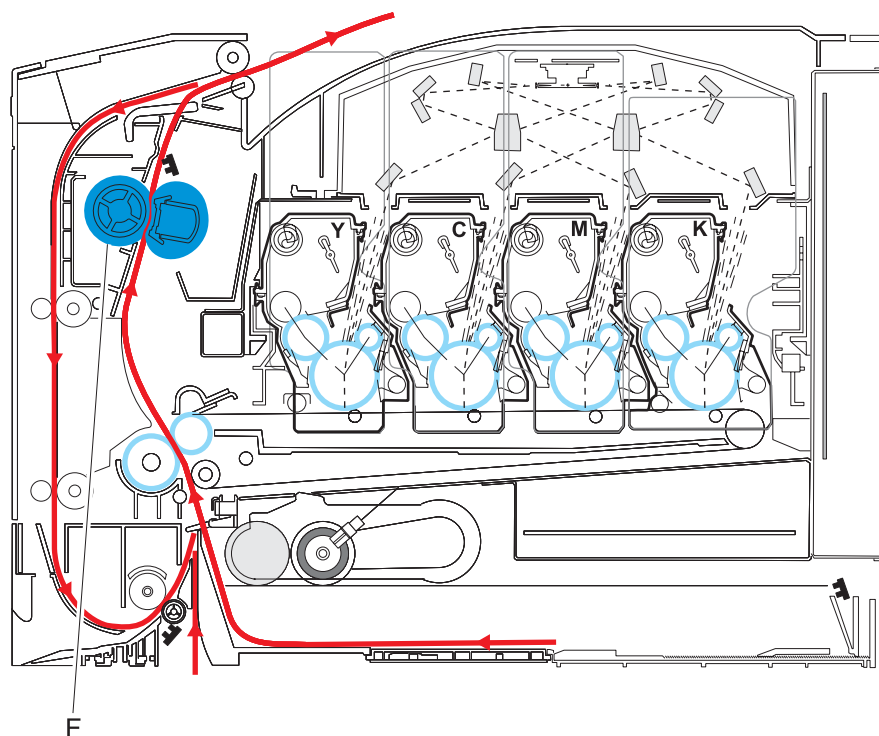
Service tips:

- If the transfer roll has nicks, pits or flat spots on it, the surface doesn't come into contact with the media and transfer unit properly. This will cause voids or light spots on the page or repeating voids/light areas, because the toner can't be fully transferred due to the charge difference in the areas of damage.
- If the transfer roll does not engage the transfer unit, or does not have voltage coming from the high-voltage power supply, the toner will not fully transfer from the transfer unit; the entire page will be very light or blank. Any toner that does transfer will be due to a "contact" transfer instead of a "charge" transfer. Check the transfer roll clutch and the high-voltage power supply contacts to the transfer roll.

Step 5: Fuse

Once the image has been fully transferred to the media, the transfer roll helps move the paper into the fuser area.

The fuser (F) applies heat and pressure to the page to melt the tiny toner particles and bond them permanently to the media. The fuser moves the paper from the rollers and into the exit bin.



Service tips:

- If the fuser rolls are damaged, they can cause toner to be pulled off the page or cause paper jams.
- Toner that rubs off a printed page can be a sign of a malfunctioning fuser or an improper media setting. Always check the paper type setting before replacing the fuser. A common mistake is to print on heavier media (such as card stock) with the paper type set to plain paper.
- Never pull media with unfused toner up through the fuser if you can help it; try to back the jammed page out of the fuser in the opposite direction it was traveling.

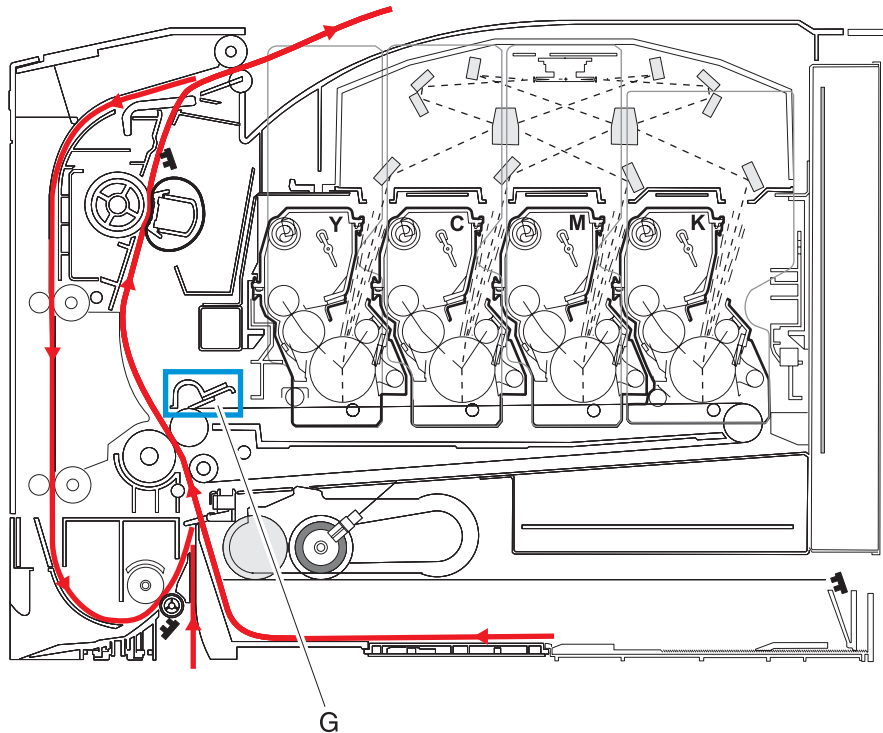
Step 6: Clean/erase

There are two main cleaning processes that take place during the EP process. One process cleans the transfer belt and the other cleans the photoconductors.

Transfer unit clean

Once the toner image on the transfer belt has been transferred to the page, the transfer belt rotates around and is cleaned by the cleaning blade (G). This occurs for every page that is printed.

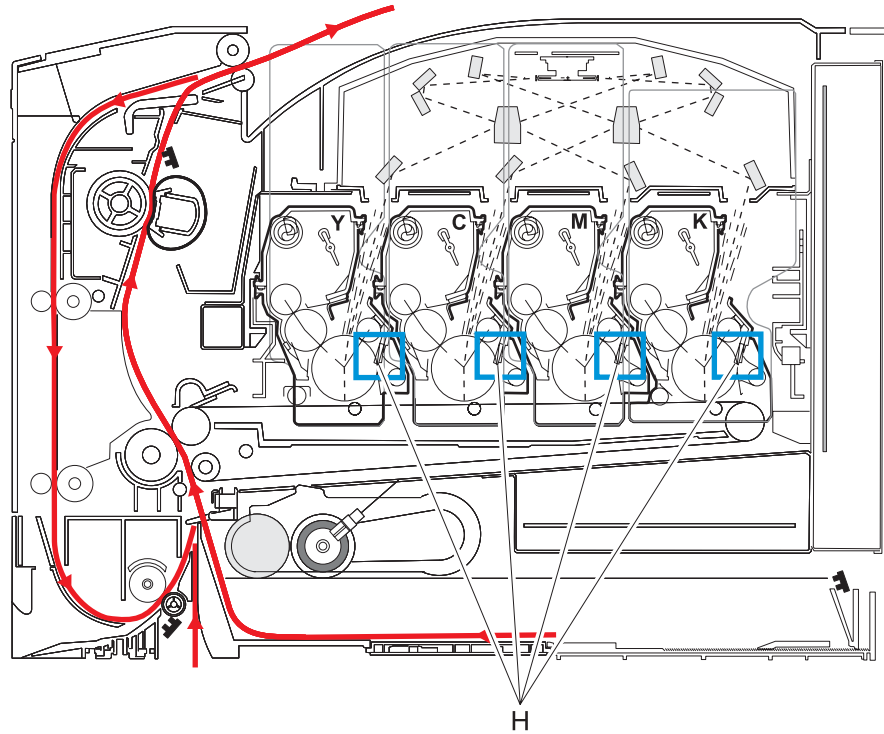
After the toner is moved to the cleaning blade, the toner is moved from the cleaning blade to the waste toner area using an auger system.



Photoconductor clean/erase

After each plane of color has been transferred to the transfer belt from the photoconductors, a cleaning blade (H) scrapes the left over toner from the surface of each photoconductor. This is the clean/erase process.

Now the photoconductor surface is prepared to begin the EP cycle once again. This cleaning/erasing cycle happens after each plane of color is transferred to the transfer belt.



Paper path, transport components

In order for an image to be printed, the media has to be moved from an input source (such as a tray) into the printer and eventually exit into the output bin.

The most important component in this process is this media itself. Old, damaged or out-of-specification media can and will cause feed and transport problems. If you encounter problems, you should always check the media first. See **“Media guidelines” on page 1-12**. In addition, it is always good practice to check the printer and driver settings to see if the media being used matches the user’s settings. It is not uncommon to find a user printing on card stock with the printer programmed to print on a plain paper setting.

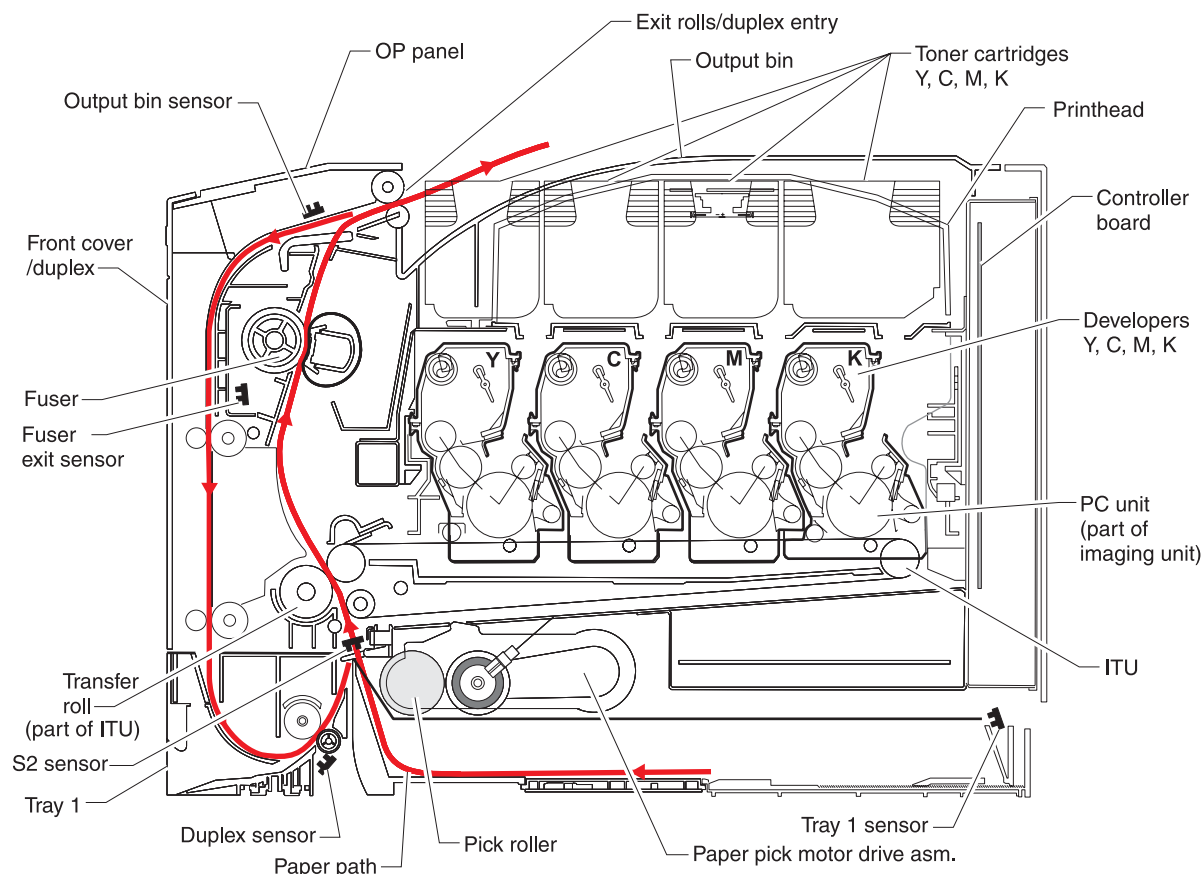
The printer’s feed and transport components can fail and cause paper jams or other feed and transport problems. These components should be examined for damage or wear and replaced if necessary.

Paper path Information

This printer has a simple “C” shaped paper path (see the picture below). The tray 1 paper path is shown in red and the optional 650-sheet duo drawer paper path is not shown.

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

There is a duplex unit on this printer. The duplex unit is built into the front cover and tray 1. The duplex process is described later. See **“Duplex process” on page 3-44**.



Transport components

In summary, the media is fed from the tray into the printer by a feed roll and carried to the transfer roll (ITU). The pick rollers time the media to enter the EP process at just the right moment.

The pick rollers push the media to the ITU where the image is transferred to the page.

The transfer roller moves the media to the fuser where heat and pressure are applied to the page. The fuser rollers push the media toward the exit bin and past the exit sensor. The exit rollers guide the paper into the output bin.

Service tip:

If the printer posts a paper jam message but no paper is found, paper dust or paper particles may have fallen on one of the sensors. Use a can of compressed air to gently clean the sensor.

Duplex process

The duplex paper path is a secondary paper path in the front cover and the 250-sheet paper tray to print on the second side of a sheet of paper.

After the first side of the media is printed and the trailing edge of the paper clears the fuser exit sensor, the fuser motor reverses. The reversed motor pulls the media into the duplex paper path. In addition to the fuser motor reversing, the pick motor also reverses. The pick motor drives the duplex aligner rolls (A) which push the media down to the bottom turnaround in the paper tray and gate aligner (B).

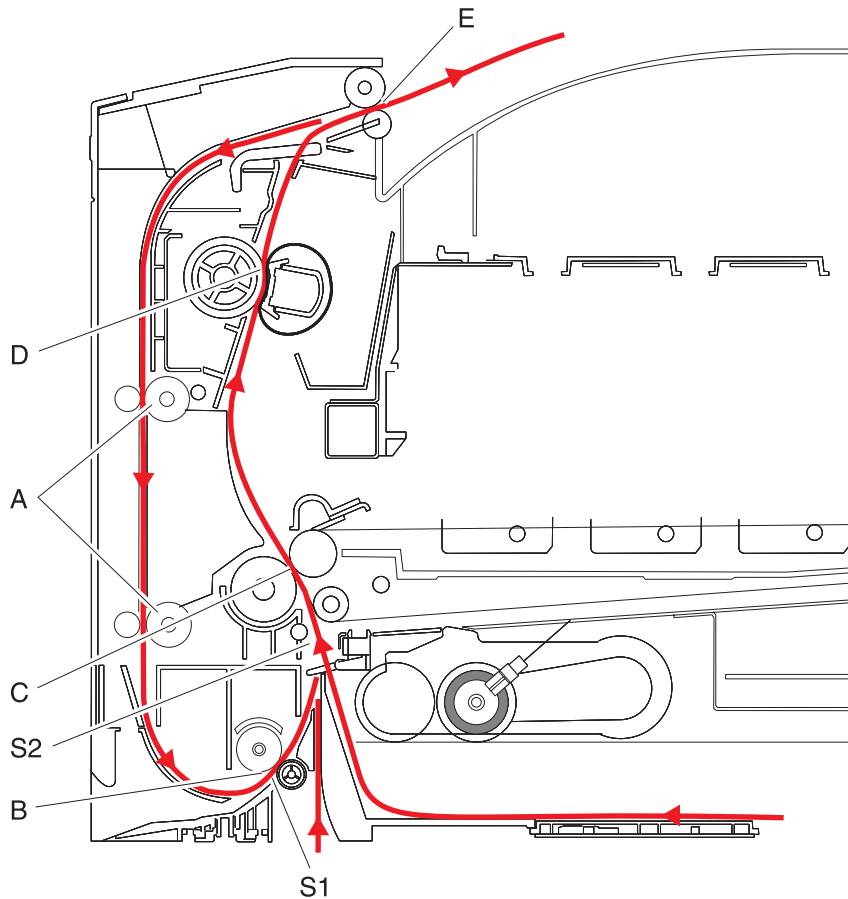
Note: While the sheet is being transported through the front door and paper tray, it is the only piece of media being processed by the print engine. A user should not attempt to insert a piece of media into the manual paper feed while a duplex job is being processed. This would invoke a jam error.

When the trailing edge of the media clears the fuser, the fuser engine rotates forward to prepare the fuser for the page traveling through the duplex unit.

As the media reaches the gate aligner, a sensor (S1) is triggered, indicating the presence of the leading edge.

When the S1 sensor is triggered, the paper continues to the S2 sensor (S2). When the S2 signal is detected, the speed of the pick motor is adjusted to accommodate the speed of the transfer belt, ensuring the proper registration of the image on the media. The paper travels to the ITU (C), and the second image is transferred to the reverse side of the media.

Once the image is transferred, the media travels to the fuser (D), the fuser exit rolls (E), and the output bin.



Color theory

What is RGB color?

Red, green, and blue light can be added together in various amounts to produce a large range of colors observed in nature. For example, red and green can be combined to create yellow. Televisions and computer monitors create colors in this manner. RGB color is a method of describing colors by indicating the amount of red, green, or blue needed to produce a certain color.

What is CMYK color?

Cyan, magenta, yellow, and black inks or toners can be printed in various amounts to produce a large range of colors observed in nature. For example, cyan and yellow can be combined to create green. Printing presses, inkjet printers, and color laser printers create colors in this manner. CMYK color is a method of describing colors by indicating the amount of cyan, magenta, yellow, and black needed to reproduce a particular color.

How is color specified in a document to be printed?

Software programs typically specify document color using RGB or CMYK color combinations. Additionally, they allow users to modify the color of each object in a document. For more information, see the software program Help topics.

How does the printer know what color to print?

When a user prints a document, information describing the type and color of each object is sent to the printer. The color information is passed through color conversion tables that translate the color into the appropriate amounts of cyan, magenta, yellow, and black toner needed to produce the desired color. The object information determines the application of color conversion tables. For example, it is possible to apply one type of color conversion table to text while applying a different color conversion table to photographic images.

Should I use PostScript or PCL emulation printer software? What settings should I use for the best color?

The PostScript driver is strongly recommended for best color quality. The default settings in the PostScript driver provide the preferred color quality for the majority of printouts.

Why doesn't the printed color match the color I see on the computer screen?

The color conversion tables used in Auto Color Correction mode generally approximate the colors of a standard computer monitor. However, because of technology differences that exist between printers and monitors, there are many colors that can also be affected by monitor variations and lighting conditions. For recommendations on how the printer color sample pages may be useful in solving certain color-matching problems, see **“How can I match a particular color (such as a corporate logo)?” on page 3-47.**

The printed page appears tinted. Can I adjust the color?

Sometimes a printed page may appear tinted (for example, everything printed seems to be too red). This can be caused by environmental conditions, paper type, lighting conditions, or user preference. In these instances, adjust the Color Balance setting to create a more preferable color. Color Balance provides the user with the ability to make subtle adjustments to the amount of toner being used in each color plane. Selecting positive or negative values for cyan, magenta, yellow, and black (from the Color Balance menu) will slightly increase or decrease the amount of toner used for the chosen color. For example, if a printed page has a red tint, then decreasing both magenta and yellow could potentially improve the color balance.

My color transparencies seem dark when they are projected. Is there anything I can do to improve the color?

This problem most commonly occurs when projecting transparencies with reflective overhead projectors. To obtain the highest projected color quality, transmissive overhead projectors are recommended. If a reflective projector must be used, then adjusting the Toner Darkness setting to 1, 2, or 3 will lighten the transparency. Make sure to print on the recommended type of color transparencies.

What is manual color correction?

When manual color correction is enabled, the printer employs user-selected color conversion tables to process objects. However, Color Correction must be set to Manual, or no user-defined color conversion will be implemented. Manual color correction settings are specific to the type of object being printed (text, graphics, or images), and how the color of the object is specified in the software program (RGB or CMYK combinations).

Notes:

- Manual color correction is not useful if the software program does not specify colors with RGB or CMYK combinations. It is also not effective in situations in which the software program or the computer operating system controls the adjustment of colors.
- The color conversion tables—applied to each object when Color Correction is set to Auto—generate preferred colors for the majority of documents.

To manually apply a different color conversion table:






1. Press **Menus** (☰) to open the Admin menus.
2. Select **Settings**, and press **Select** (✓).
3. Select **Quality**, and press **Select** (✓).
4. Select **Color Correction**, and press **Select** (✓).
5. Select **Manual**, and press **Select** (✓).
The printer is in manual mode, and you need to select a color conversion table.
6. Press **Back** (⏮) to return to the Quality menu, select **Manual Color**, and press **Select** (✓).
7. Select the appropriate color conversion table for the affected object type.

Object type	Color conversion tables
RGB Image RGB Text RGB Graphics	<ul style="list-style-type: none"> • Vivid—Produces brighter, more saturated colors and may be applied to all incoming color formats. • sRGB Display—Produces an output that approximates the colors displayed on a computer monitor. Black toner usage is optimized for printing photographs. • Display—True Black—Produces an output that approximates the colors displayed on a computer monitor. Uses only black toner to create all levels of neutral gray. • sRGB Vivid—Provides an increased color saturation for the sRGB Display color correction. Black usage is optimized for printing business graphics. • Off—No color correction is implemented.
CMYK Image CMYK Text CMYK Graphics	<ul style="list-style-type: none"> • US CMYK—Applies color correction to approximate the SWOP (Specifications for Web Offset Publishing) color output. • Euro CMYK—Applies color correction to approximated EuroScale color output. • Vivid CMYK—Increases the color saturation of the US CMYK color correction setting. • Off—No color correction is implemented.

How can I match a particular color (such as a corporate logo)?

From the printer Quality menu, nine types of Color Samples sets are available. These are also available from the Color Samples page of the Embedded Web Server. Selecting any sample set generates a multiple-page printout consisting of hundreds of colored boxes. Either a CMYK or RGB combination is located on each box, depending on the table selected. The observed color of each box is obtained by passing the CMYK or RGB combination labeled on the box through the selected color conversion table.

To print Color samples from the printer:

1. Press **Menu** () to open the Admin menus.
2. Select **Settings**, and press **Select** ()
3. Select **Quality**, and press **Select** ()
4. Select **Color Samples**, and press **Select** ()
5. Select the **Color Conversion** table to print, and press **Select** ()

By examining Color Samples sets, a user can identify the box whose color is the closest to the desired color. The color combination labeled on the box can then be used for modifying the color of the object in a software program. For more information, see the software program Help topics. Manual color correction may be necessary to utilize the selected color conversion table for the particular object.

Selecting which Color Samples set to use for a particular color-matching problem depends on the Color Correction setting being used (Auto, Off, or Manual), the type of object being printed (text, graphics, or images), and how the color of the object is specified in the software program (RGB or CMYK combinations). When the printer Color Correction setting is set to Off, the color is based on the print job information; and no color conversion is implemented.

Note: The Color Samples pages are not useful if the software program does not specify colors with RGB or CMYK combinations. Additionally, certain situations exist in which the software program or the computer operating system adjusts the RGB or CMYK combinations specified in the program through color management. The resulting printed color may not be an exact match of the Color Samples pages.

What are detailed Color Samples, and how do I access them?

Detailed Color Samples sets are available only through the Embedded Web Server of a network printer. A detailed Color Samples set contains a range of shades (displayed as colored boxes) that are similar to a user-defined RGB or CMYK value. The likeness of the colors in the set are dependent on the value entered in the RGB or CMYK Increment box.

To access a detailed Color Samples set from the Embedded Web Server:

1. Open a Web browser.
2. In the address bar, type the network printer IP address.
3. Click **Configuration**.
4. Click **Color Samples**.
5. Click **Detailed Options** to narrow the set to one color range.
6. When the Detailed Options page appears, select a color conversion table.
7. Enter the RGB or CMYK color number.
8. Enter an Increment value from 1–255.
Note: The closer the value is to 1, the narrower the color sample range will appear.
9. Click **Print** to print the detailed Color Samples set.

5025-2xx, 4xx

4. Repair information

Warning: Read the following before handling electronic parts.

Handling ESD-sensitive parts

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

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

Removal procedures



CAUTION

Remove the power cord from the electrical outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.

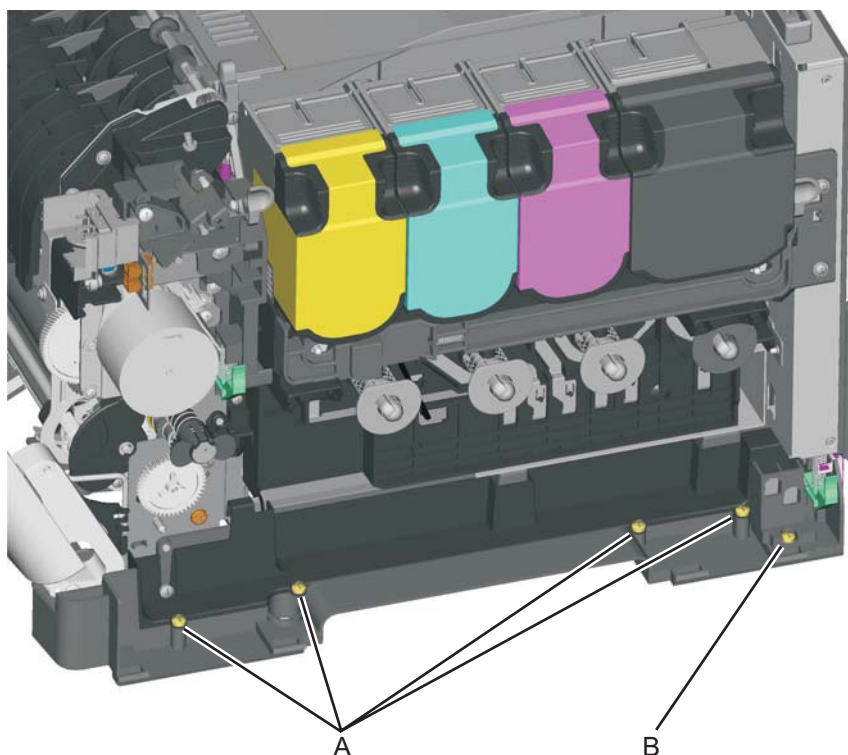
Notes:

- Remove the waste toner bottle, color toner cartridges, imaging unit, and media tray before removing other printer parts. The imaging unit should be carefully set on a clean, smooth, and flat surface. It should also be protected from light while out of the printer.
- Unless otherwise stated, reinstall the parts in reverse order of removal.
- When reinstalling a part held with several screws, start all screws before final tightening.
- 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.

Front cover assembly removal

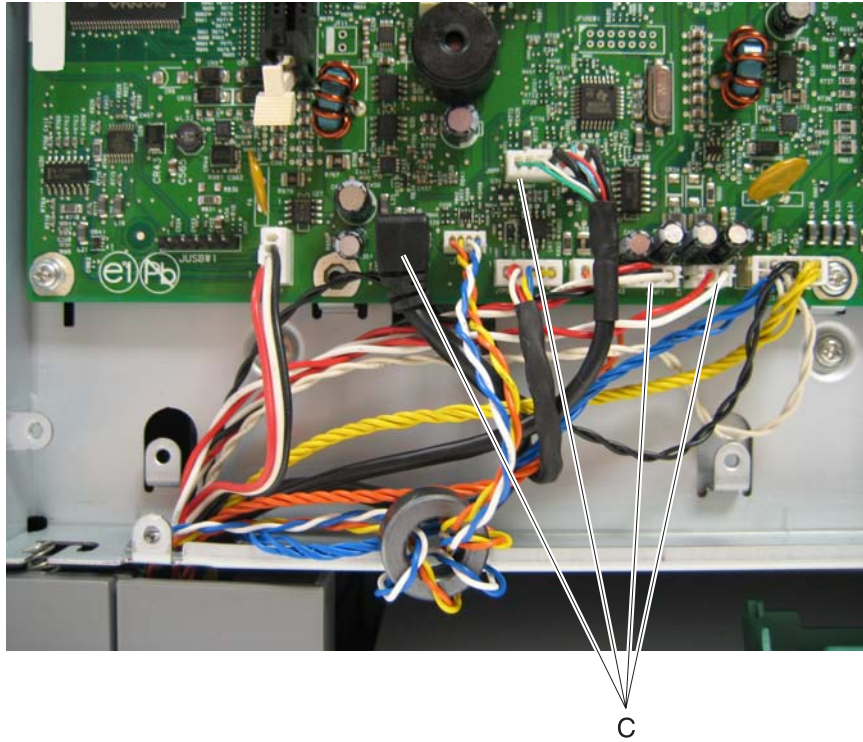
See the front cover assembly on [page 7-3](#) for the part number.

1. Open the front cover.
2. Remove the operator panel. See [“Operator panel removal” on page 4-9](#).
3. Remove the right cover assembly. See [“Right cover assembly removal” on page 4-10](#).
4. Remove the waste toner bottle. See [“Waste toner bottle removal” on page 4-60](#).
5. Remove the four screws (A) from the cable cover, and remove the cable cover.
6. Remove the screw (B) from the back of the waste toner cartridge ground connector.



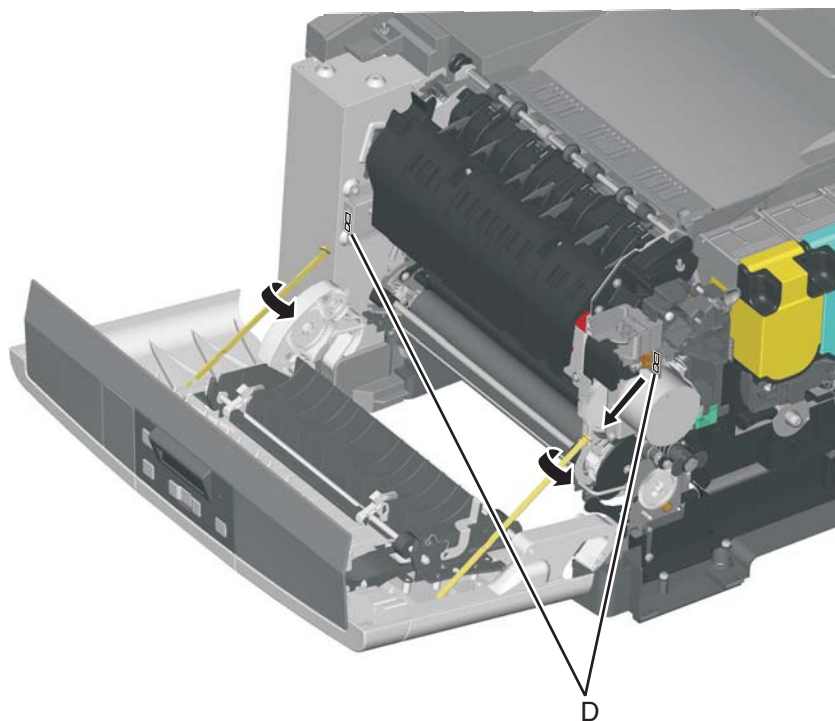
7. Remove the rear shield. See [“Rear shield removal” on page 4-11](#).

8. Disconnect the operator panel cable, the USB port (if installed) cable, and the front door open sensor cables from the controller board (C).

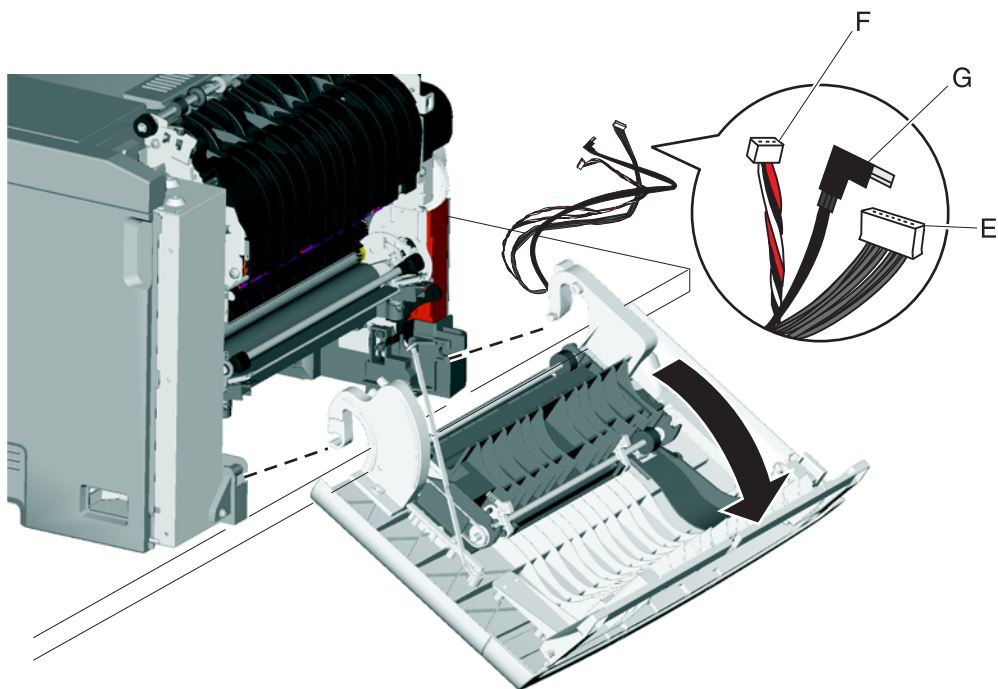


9. Pull the cables through the opening in the rear.
Note: Remove the toroid by unwrapping the loops, and pulling the connector through the opening. When you re-install the cable, wrap five loops around the toroid before connecting to the controller board.
10. Position the printer with the front cover overlapping the front edge of the table.

11. Remove the two restraining straps from the printer by turning the end sideways and lifting out of the connector (D).



12. Lower the front cover to align the flats on the hinges, and remove the front cover.
Note: Not all models have all three cables shown. See the chart below.



Installation notes:

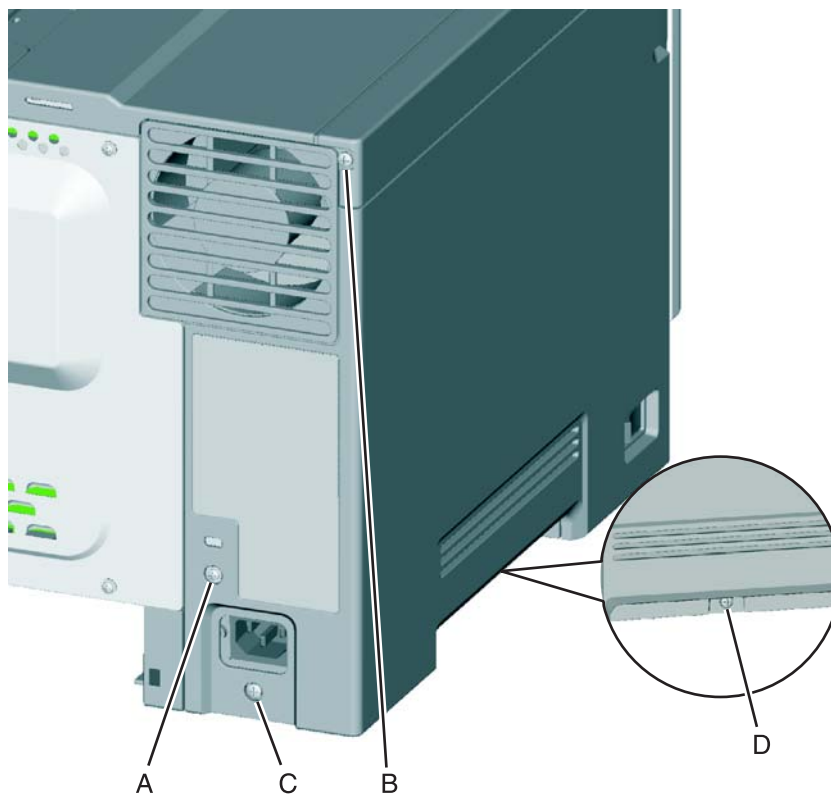
When installing the front cover on the following models, note the differences relating to the USB port cable:

Models	Contents of front cover FRU	Order front cover P/N
C540n (5025-210)	<ul style="list-style-type: none"> • Operator panel cable (E) • Front door switch cable (F) Note: The USB port cable (G) is not included.	40X5420
C543dn (5025-230)	<ul style="list-style-type: none"> • Operator panel cable (E) • Front door switch cable (F) • USB port cable (G)—not used Note: Clip the USB cable at each end before installing. There is no place to plug the cable in.	40X5430
C544n, C544dn, C544dw (5025-410, -430, -43W)	<ul style="list-style-type: none"> • Operator panel (E) • Front door switch cable (F) • USB port cable (G) 	40X5430

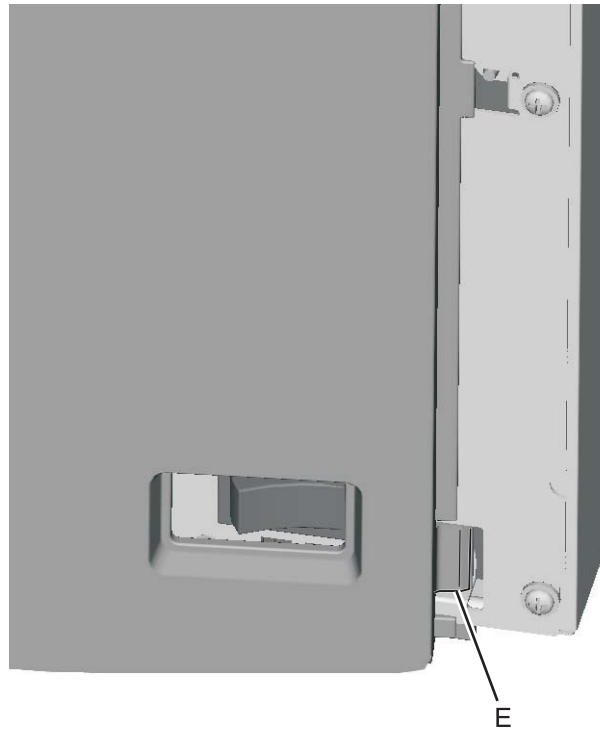
Left cover assembly removal

See **“Left cover assembly” on page 7-3** for the part number.

1. Remove the media tray.
2. Position the printer with the left side hanging over the edge of the table.
3. On the rear, remove the metal screw (A), the short plastic screw (B), and the longer plastic screw (C).
4. Remove the screw (D) on the bottom of the cover.



5. Unlatch the front bottom corner tab (E), and lower the front while disengaging from the top cover.



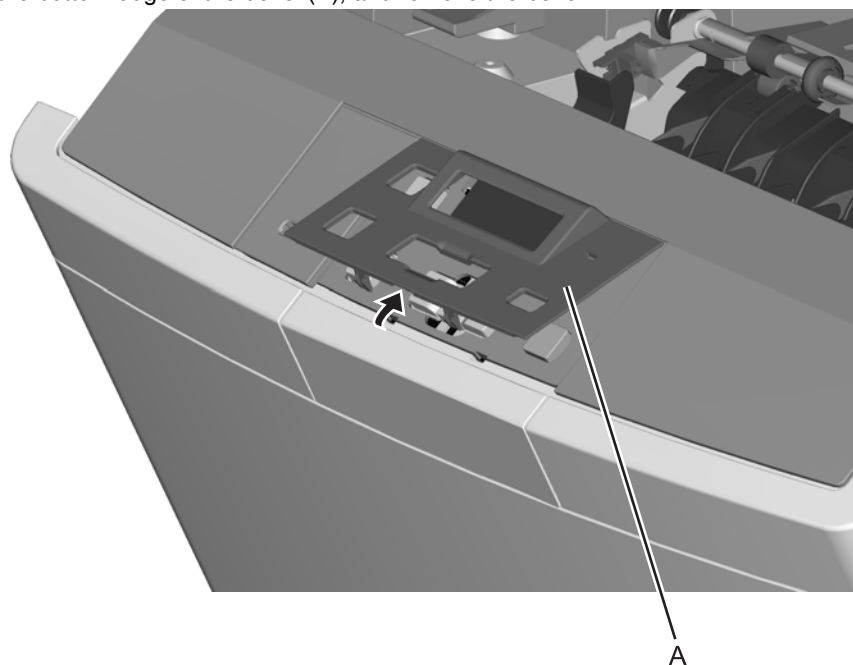
Installation note: When replacing the left cover, flex the cover slightly to engage the tab (E) near the power switch.



Operator panel bezel and name plate removal

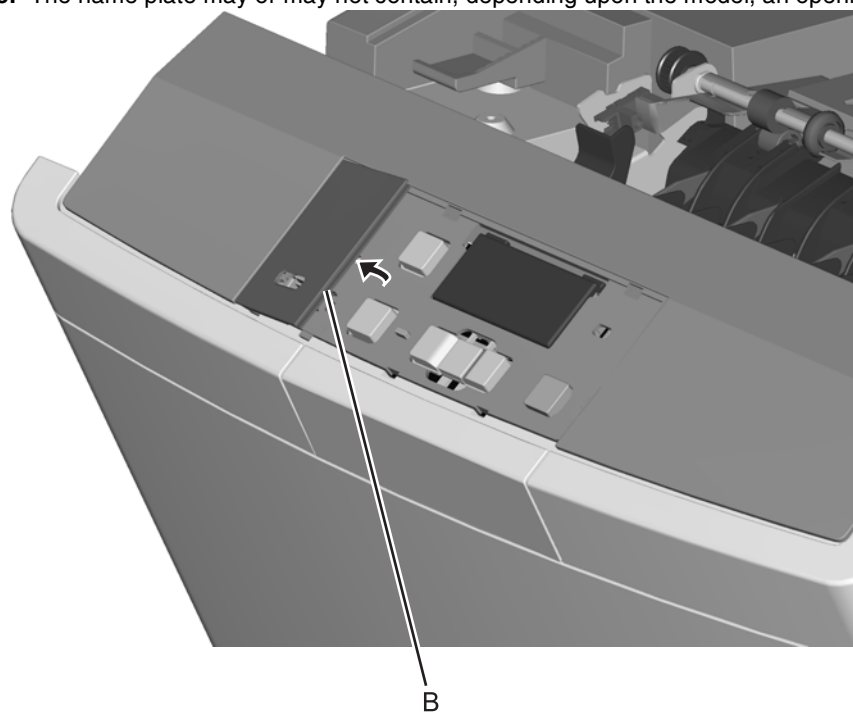
See **“Operator panel bezel and name plates, including:” on page 7-3** for the part number.

1. Lift the bottom edge of the bezel (A), and remove the bezel.



2. Lift the name plate (B).

Note: The name plate may or may not contain, depending upon the model, an opening for the USB port.



Operator panel removal

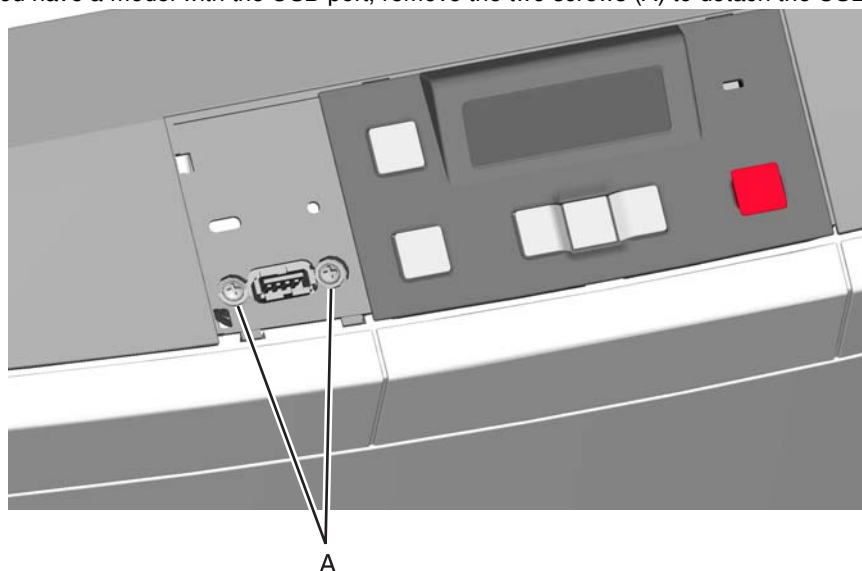
See **“Operator panel and display assembly” on page 7-3** for the part number.

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer may be rendered inoperable:

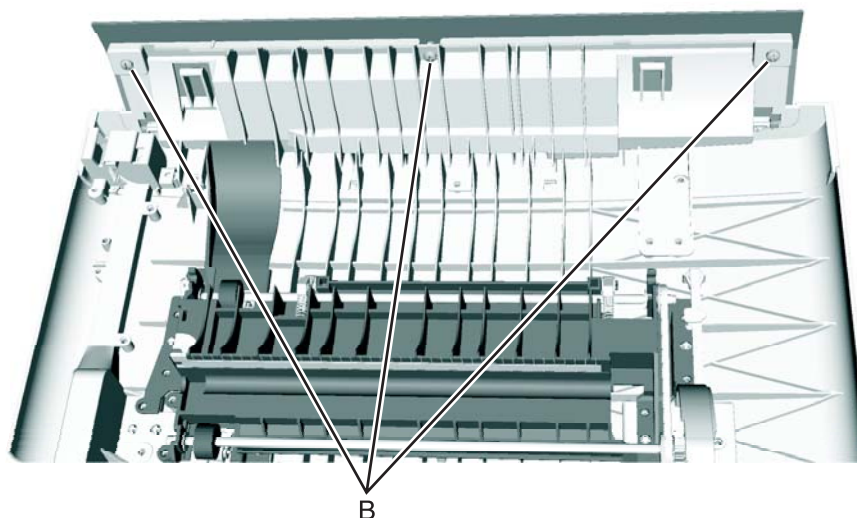
- Operator panel assembly
- Controller board

Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**

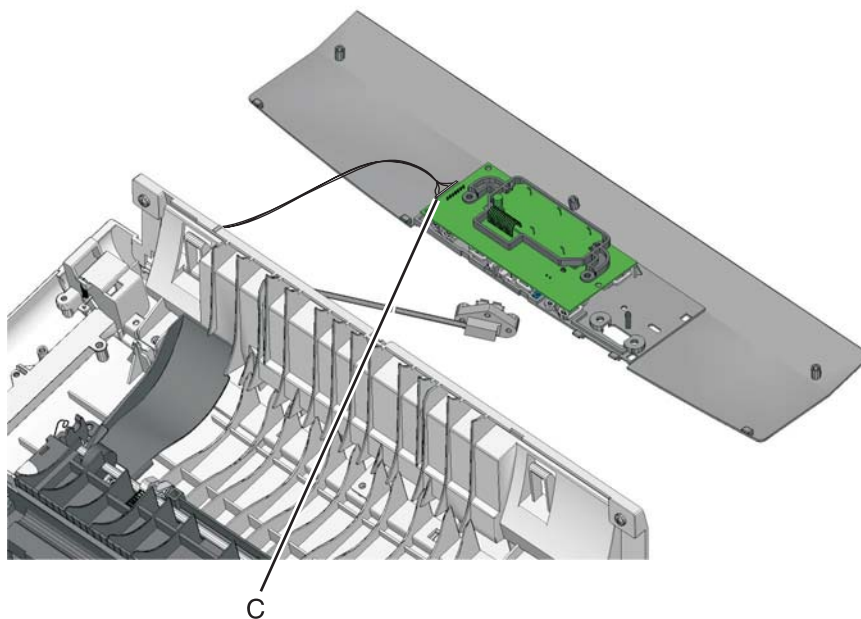
1. Remove the operator panel bezel and name plate. See **“Operator panel bezel and name plate removal” on page 4-8**.
2. If you have a model with the USB port, remove the two screws (A) to detach the USB connector.



3. Open the front cover.
4. Remove the three screws (B) attaching the operator panel to the front cover assembly.



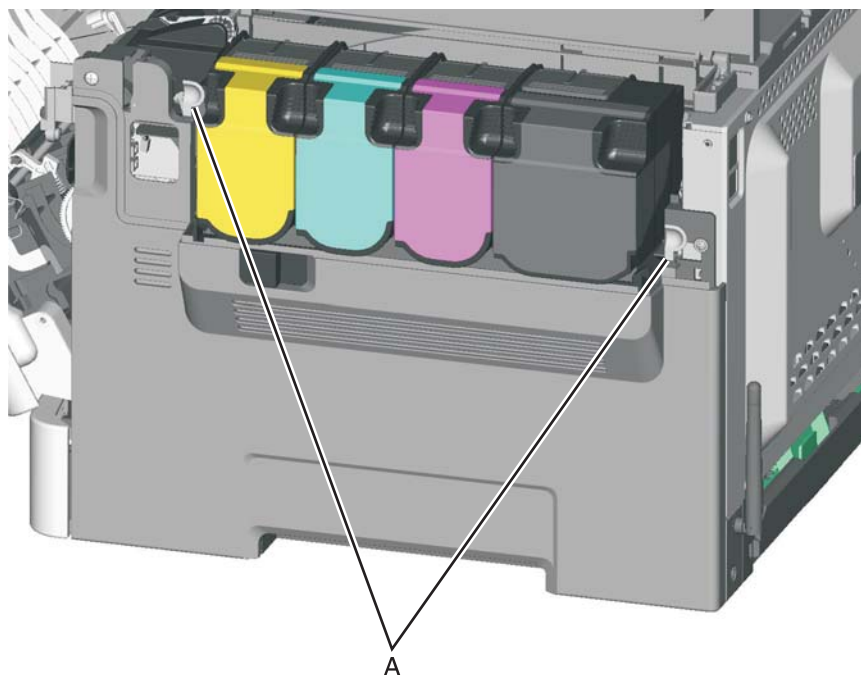
5. Detach the operator panel cable (C) from the panel.



Right cover assembly removal

See **“Right cover assembly” on page 7-3** for the part number.

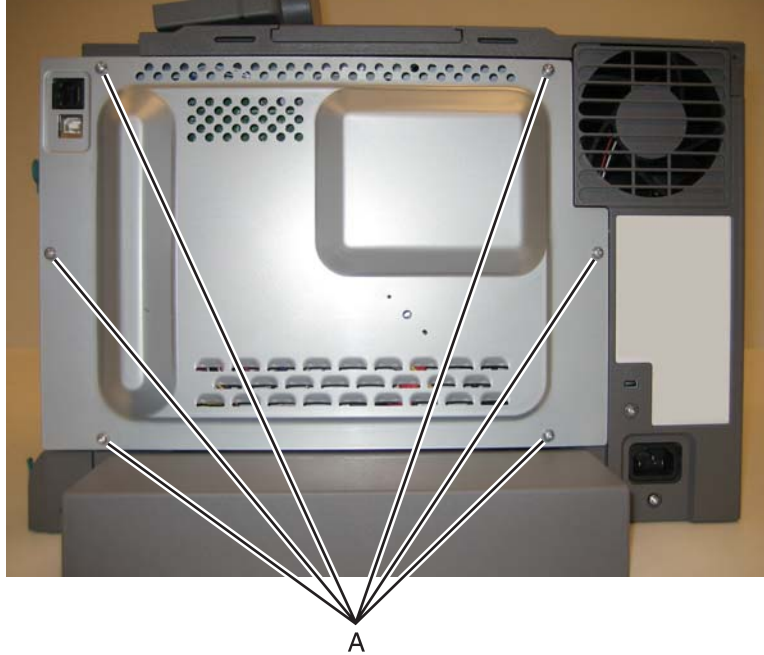
1. Open the toner supply door.
2. Open the front cover.
3. Release the latches (A), and lift off the cover.



Rear shield removal

The rear shield is not a field replaceable unit (FRU).

1. Remove the six screws (A).

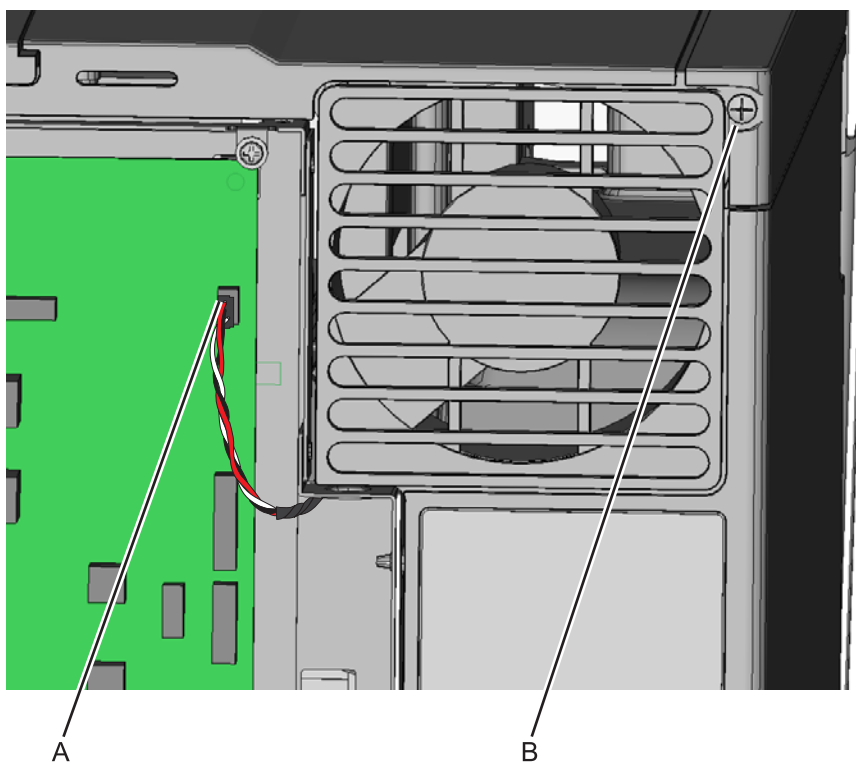


2. Remove the rear shield.

Top cover assembly removal

See **“Top cover assembly” on page 7-3** for the part number.

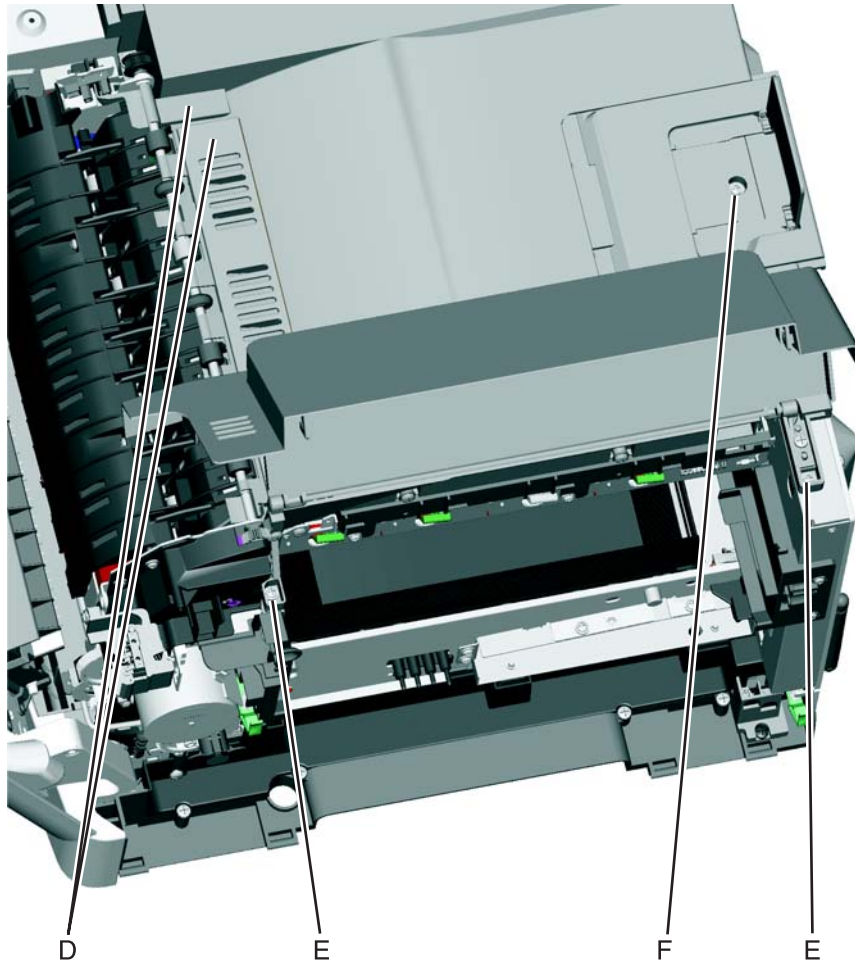
1. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10**.
2. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-60**.
3. Remove the imaging unit. See **“Imaging unit (IU) removal” on page 4-35**.
4. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
5. Disconnect the fan cable from JFAN1 (A) on the controller board.
6. Remove the screw (B).



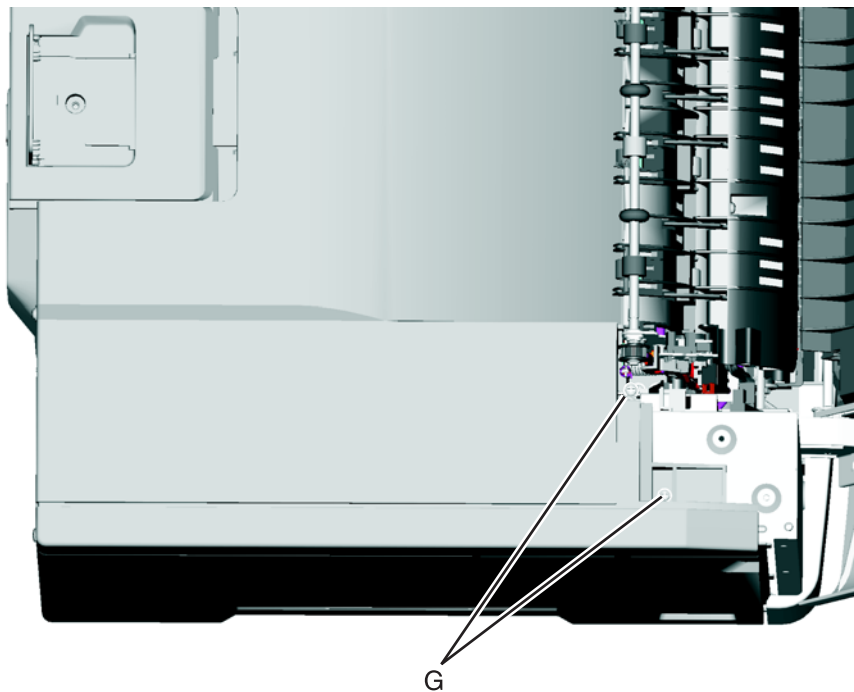
7. Lift the exit deflector, and remove the screw (C) holding the ground cable.



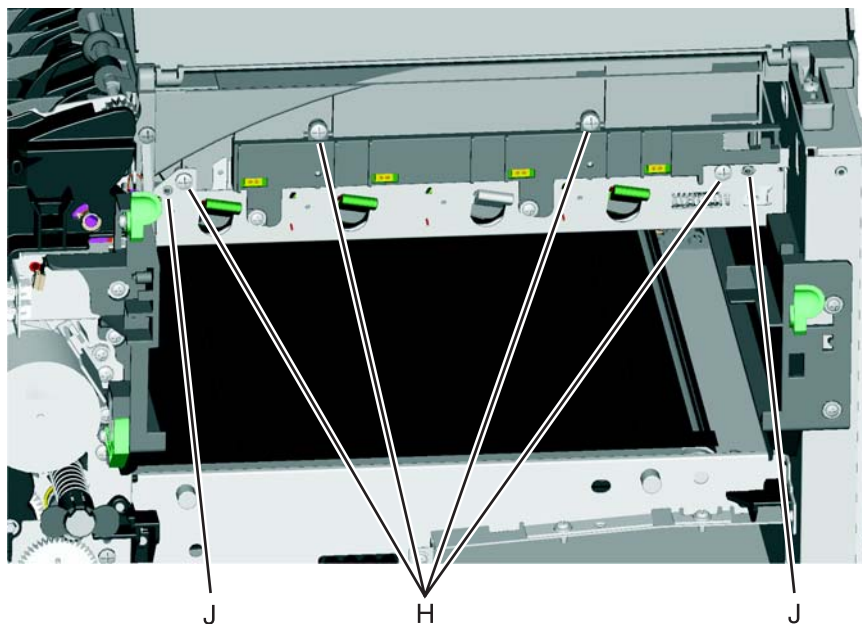
8. Remove the exit deflector and the bin full sensor flag (D). See **“Exit deflector and bin full sensor flag removal” on page 4-24.**
9. Remove the machine screws (E).
10. Lift and slide the paper stop to expose the screw (F), and remove the screw.



11. Remove the two top screws (G) near the front.



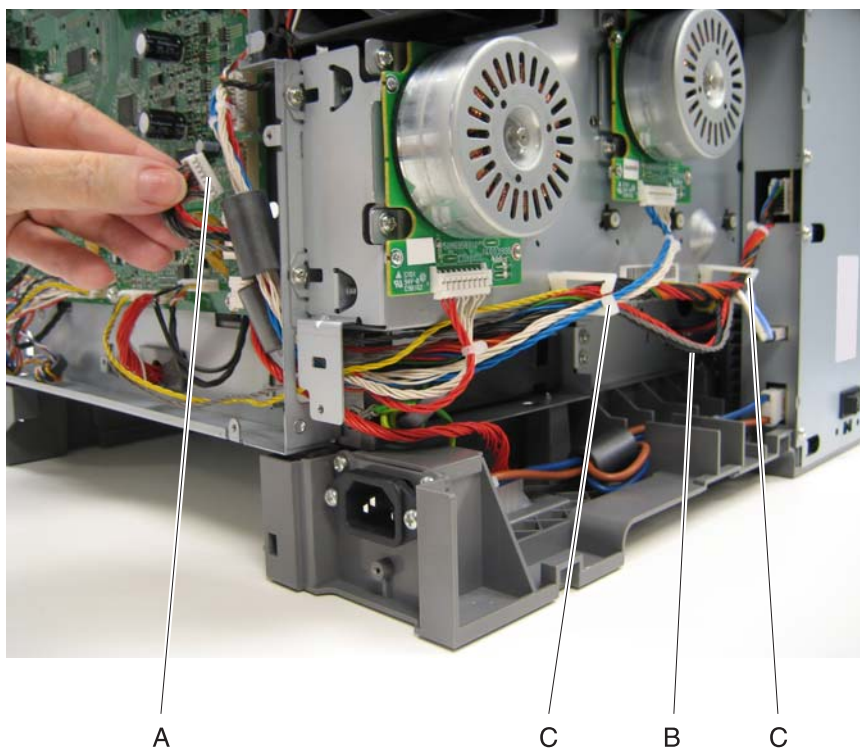
12. Remove the remaining four screws (H).
 13. Push in on the cover above the locating pins (J) while lifting to disengage the cover. Carefully lift the cover while keeping it horizontal.
- Note:** Guide the front edge around the fuser, and guide the fan connector through the hole.



Autocompensator mechanism (ACM) removal—standard tray

See **“Autocompensator mechanism (ACM)—standard tray” on page 7-5** for the part number.

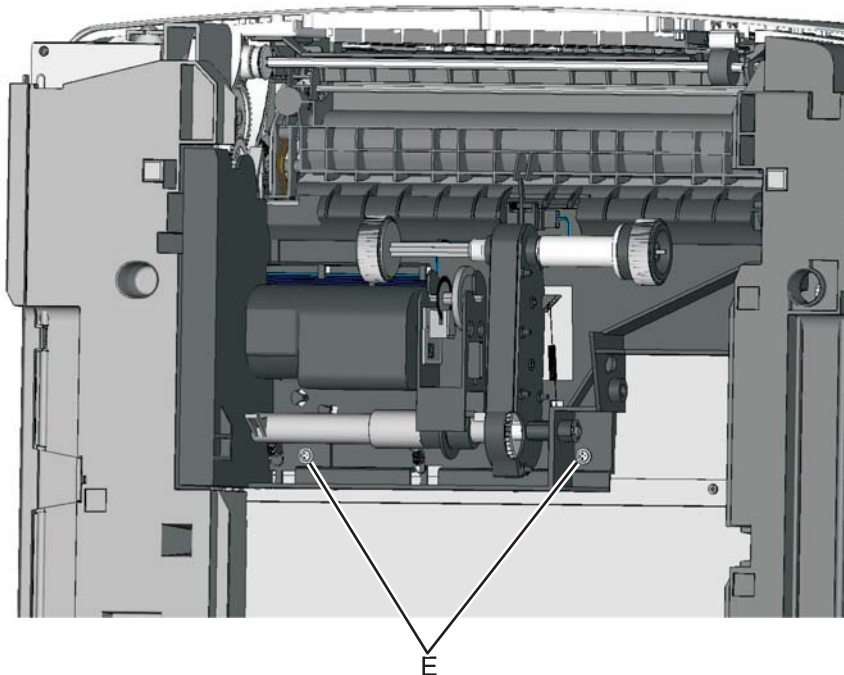
1. Remove the toner cartridges, the waste toner bottle, and the imaging unit (IU). See **“Waste toner bottle removal” on page 4-60**, and see **“Imaging unit (IU) removal” on page 4-35**.
2. Remove the left cover. See **“Left cover assembly removal” on page 4-6**.
3. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
4. Disconnect the autocompensator mechanism (ACM) cable connector (A) from the controller board.
5. Pull the cable (B) through the opening, and free the cables from the retainers (C) on the left side.



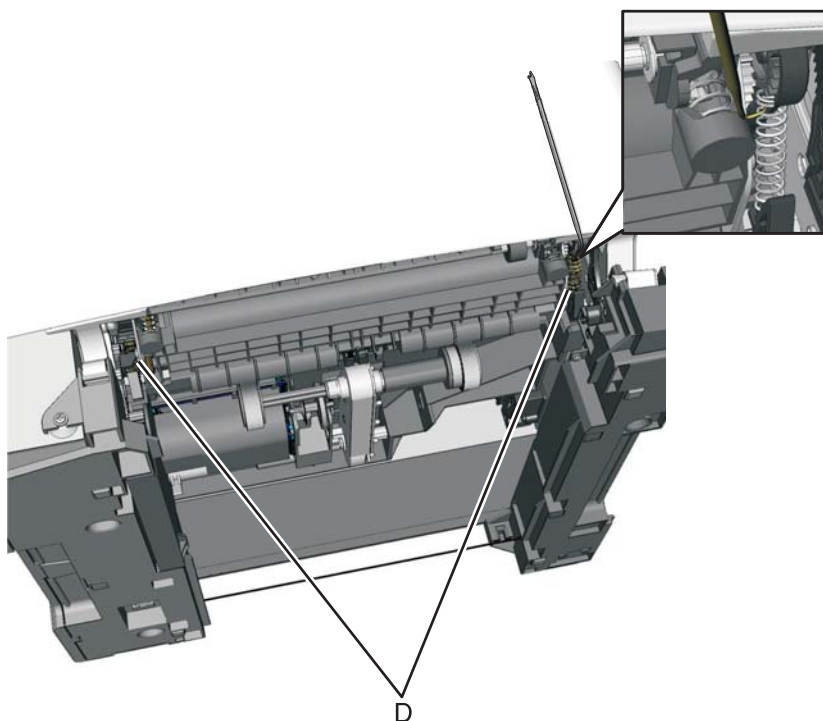
6. Reinstall the rear shield to protect the controller board, and turn the printer so the rear shield rests on the table and the bottom is facing you.

Warning: For models with a wireless antenna, use supports to prevent the antenna from taking the weight of the printer.

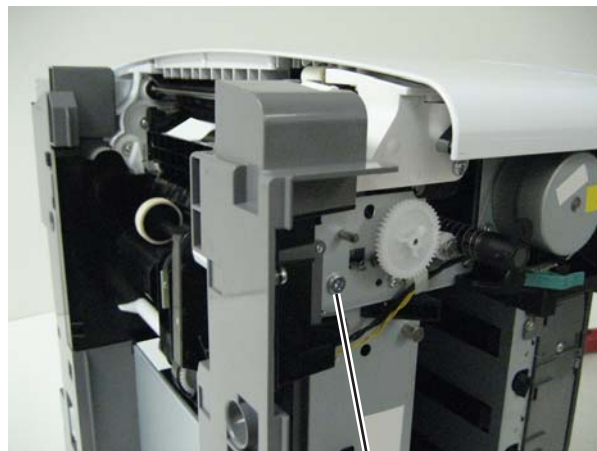
7. Remove the two screws (E) on the bottom.



8. Remove the two springs (D), one on each side.



9. On the right side, loosen the screw (F) with a screwdriver, and hold the ACM in place as you use your fingers to remove the screw.



F

10. Move the right side of the ACM out to free the shaft from the hole in the frame.
Note: Observe the location of the shaft and hole for reinstallation.
11. Remove the ACM.

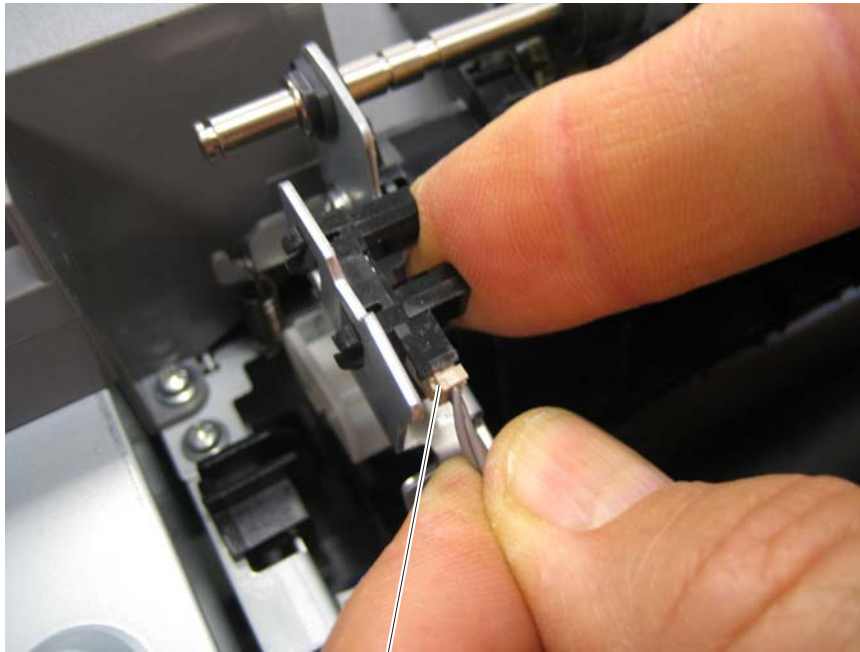
Installation notes:

1. Place the left side of the ACM in the printer. Make sure the shaft on the left side aligns with the hole in the frame.
2. Install the two springs
3. Reinstall the three screws holding the ACM to the printer.
4. Turn the printer to the proper upright position.
5. Reroute the cable, making sure to clamp the cables into the two retainers on the left side.
6. Remove the rear shield, and reconnect the cable.
7. Replace the rear shield.

Bin full sensor removal

See “Photo sensor” on **page 7-7** for the part number.

1. Open the front cover.
2. Remove the bin full sensor flag. See **“Bin full sensor flag and exit deflector removal” on page 4-18.**
3. Remove the cable from the retainer.
Note: Be sure to note the routing for re-installation.
4. Disconnect the cable (A) from the bin full sensor.
5. Gently remove the sensor from the bracket by hand.



A

Installation notes:

1. Guide the latches that hold the sensor in the bracket into place.
2. Squeeze the latches together until they fit into place
3. Reconnect the cable, and reroute the cable through the retainer.

Bin full sensor flag and exit deflector removal

The bin full sensor flag and the exit deflector are in the same FRU. See **“Exit deflector and bin full sensor flag removal” on page 4-24.**

Controller board removal

See “**Controller board—C544n, C544dn, C544dw**” on page 7-7 or “**Controller board—C540n, C543dn**” on page 7-7 for the part number.



CAUTION

After disconnecting the high-voltage power cable from the controller board, always check that the HVPS connector was not loosened. Make this check anytime you are working near the HVPS cable.

Warning: Observe all ESD precautions while handling electrostatic-discharge sensitive parts. See “**Handling ESD-sensitive parts**” on page 4-1.

Warning: Replace one of the following components, and perform a POR before replacing a second component. Never replace both of the components without performing a POR after installing each one, or the printer may be rendered inoperable:

- Operator panel assembly
- Controller board

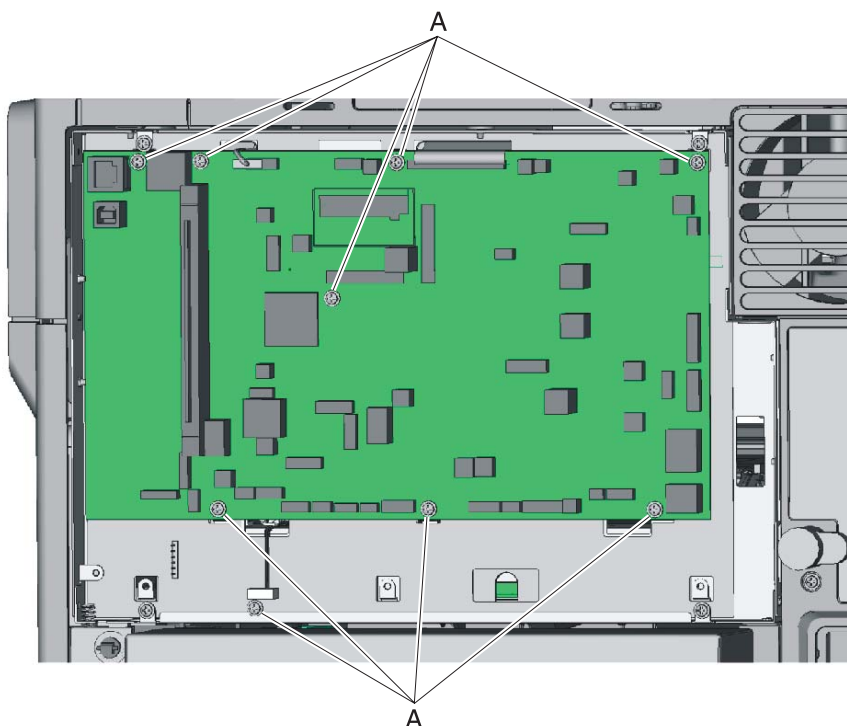
Warning: Never install and remove components listed above as a method of troubleshooting components. **Once a component has been installed in a printer, and the printer is powered on, it cannot be used in another printer. It must be returned to the manufacturer.**



CAUTION

This product contains a lithium battery. THERE IS A RISK OF EXPLOSION IF THE BATTERY IS REPLACED BY AN INCORRECT TYPE. Discard used batteries according to the battery manufacturer’s instructions and local regulations.

1. Remove the rear shield. See “**Rear shield removal**” on page 4-11.
2. Disconnect all the cables from the controller board.
3. Remove the nine screws (A) that are securing the controller board.



4. Remove the board.

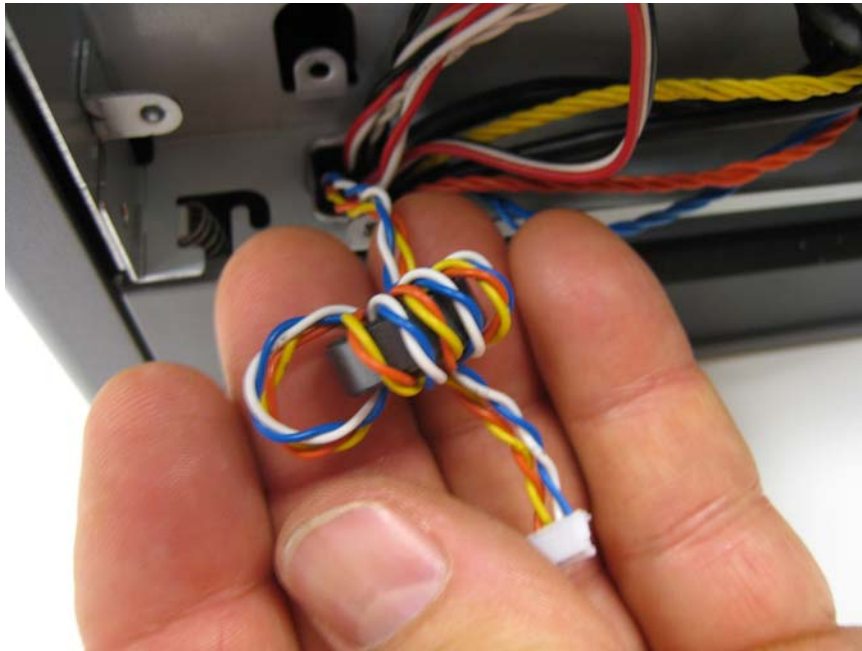
Installation notes:

Warning: When replacing the controller board, verify the cable from the high-voltage power supply is seated properly. The cable may have come loose from the HVPS.

Print a few pages to verify the installation. If the pages are blank, confirm that the high-voltage power supply cable is properly seated. The connector may have been loosened at the HVPS.

A blank page that should have toner on it could be an indication that toner is applied to the ITU belt but not transferred. Therefore the toner goes into the ITU cleaner which cannot process massive amounts of toner. It is important to prevent extensive blank pages from being processed if they should have toner on them.

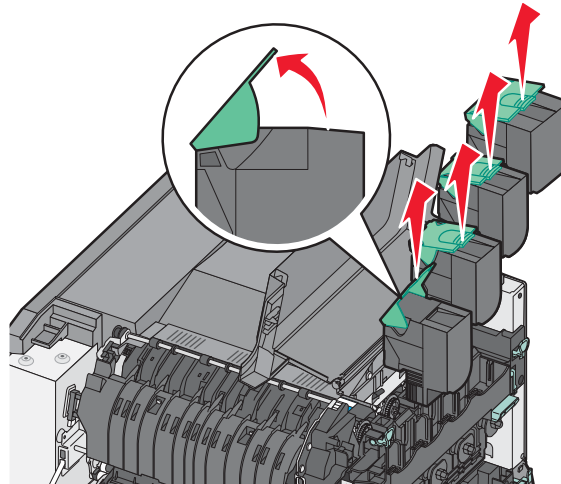
- When replacing the controller board, make sure to route all of the cables through the correct openings. If there is a toroid, replace the toroid after routing the cables.



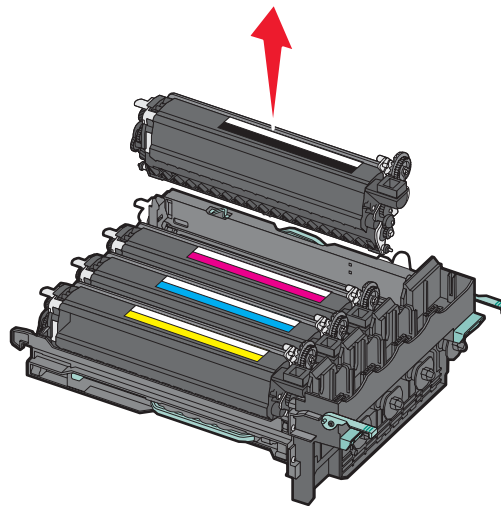
Developer unit removal

The developer units are not FRUs.

1. Open the toner access door.
2. Remove the toner cartridges.



3. Remove the imaging unit. See **“Imaging unit (IU) removal”**.
Warning: Do not touch the underside of the imaging unit. This could damage the developer units.
4. Remove the developer unit you need or remove all of them.

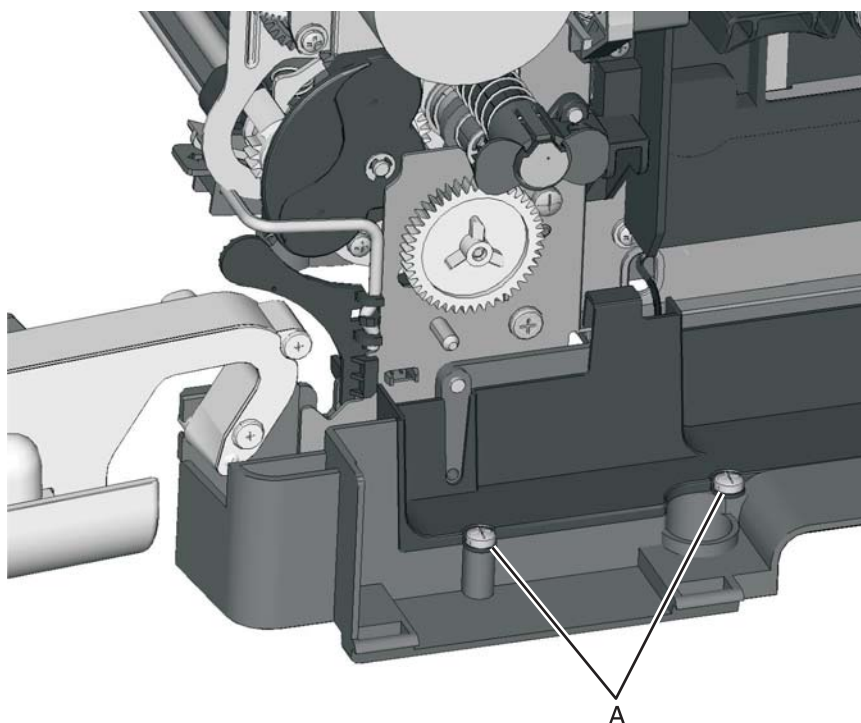


Duplex sensor removal

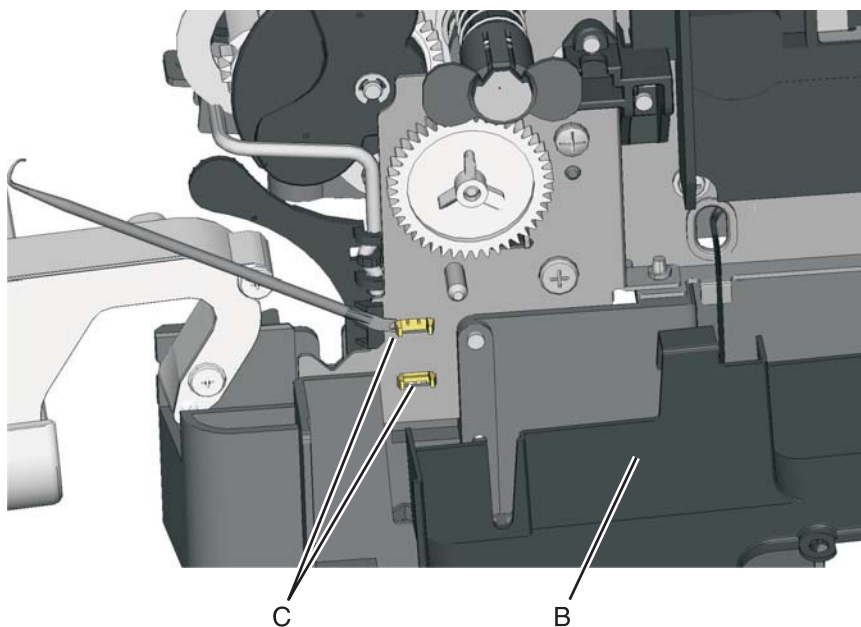
See “photo sensors” on **page 7-7** for the part number.

1. Open the front cover.
2. Remove the right cover assembly. See **“Right cover assembly removal”** on **page 4-10**.
3. Remove the waste toner bottle. See **“Waste toner bottle removal”** on **page 4-60**.

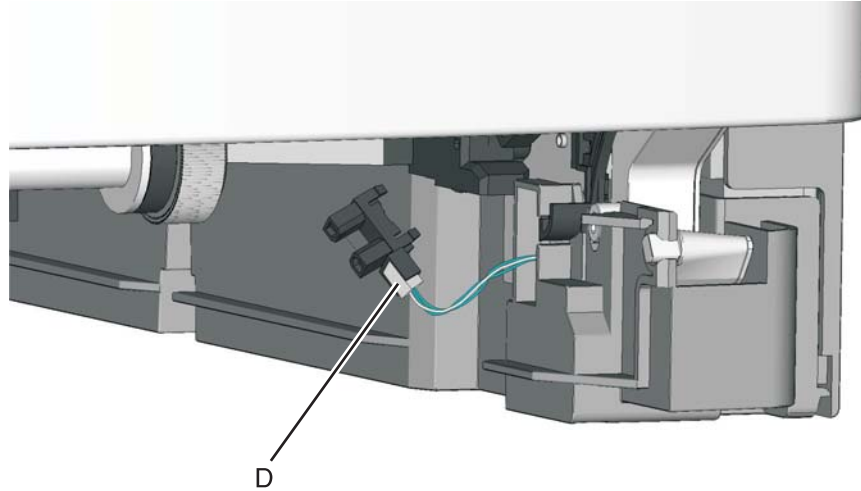
4. Remove the two screws (A) from the cable cover.



5. Pull corner of cable cover (B) away from the right side to access the sensor posts (C). Unlatch the sensor.



6. Remove the sensor, and disconnect the cable (D) from the duplex sensor.
- Note:** Close the front cover, and slightly lift the front of the printer to get better access.

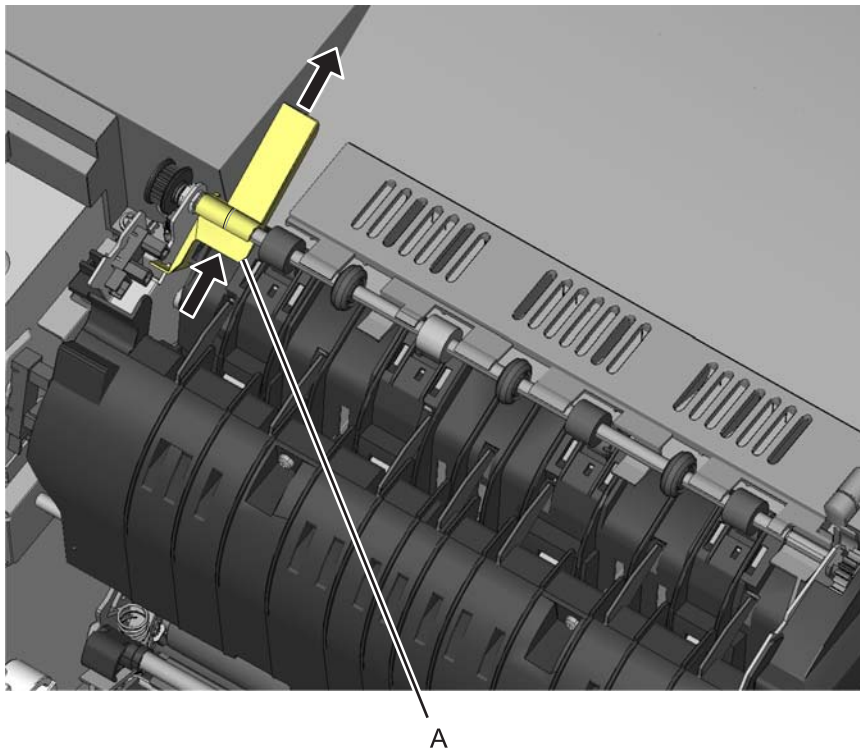


Exit deflector and bin full sensor flag removal

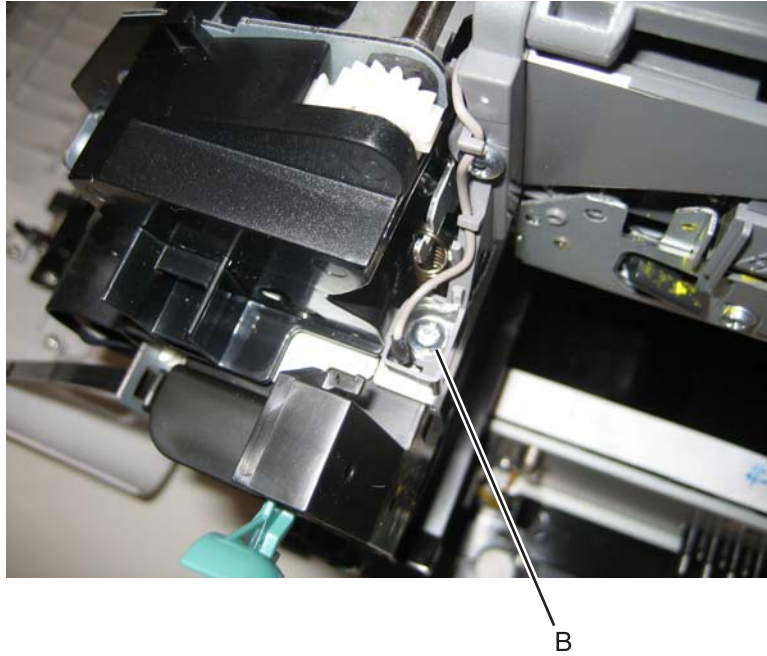
See **“Exit deflector and bin full sensor flag”** on page 7-5 for the part number.

The exit deflector and bin full sensor flag are in the same FRU and should be replaced together.

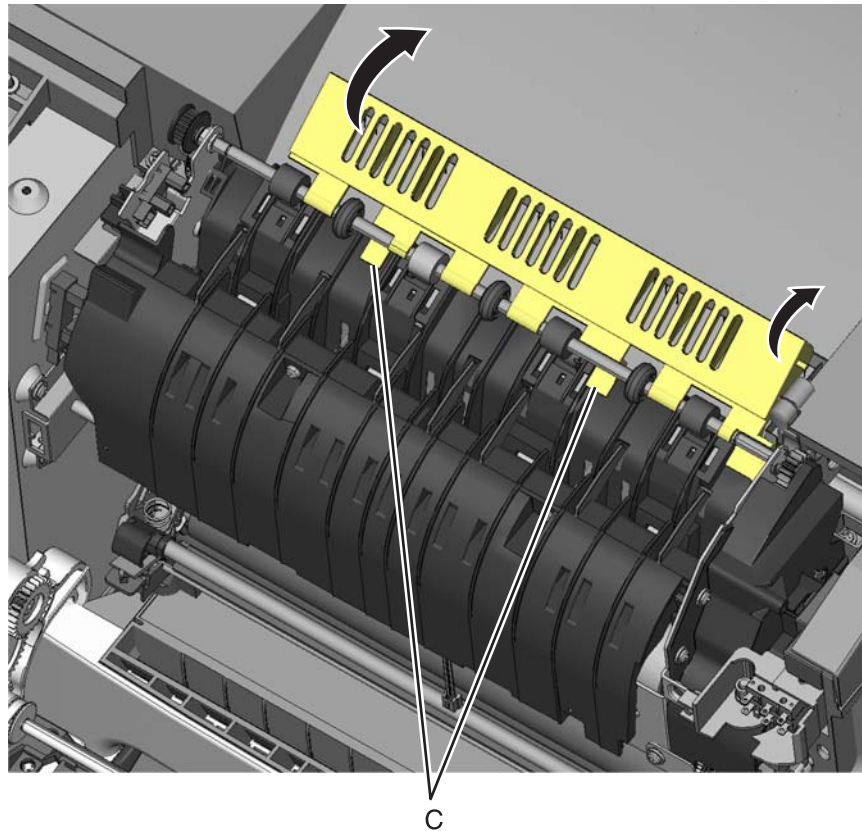
1. Open the front cover.
2. Press upward on the tab (A) to unsnap the bin full sensor flag, and remove the flag.



3. Remove the exit deflector ground screw (B), and remove the cable from the retainers.
Note: Note the routing of the cable through the retainers for reinstallation.



4. With one hand, gently pull the exit deflector towards the rear, and with the other hand, press to *unsnap* the tabs (C).



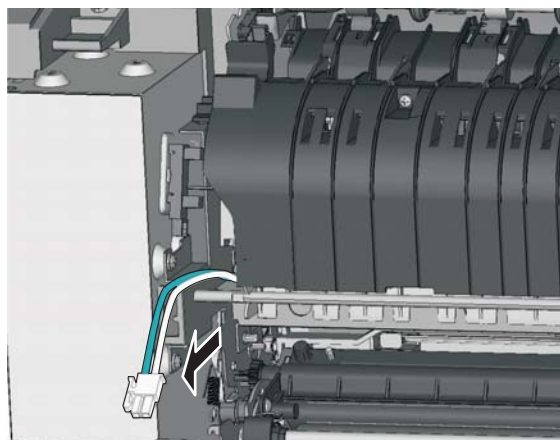
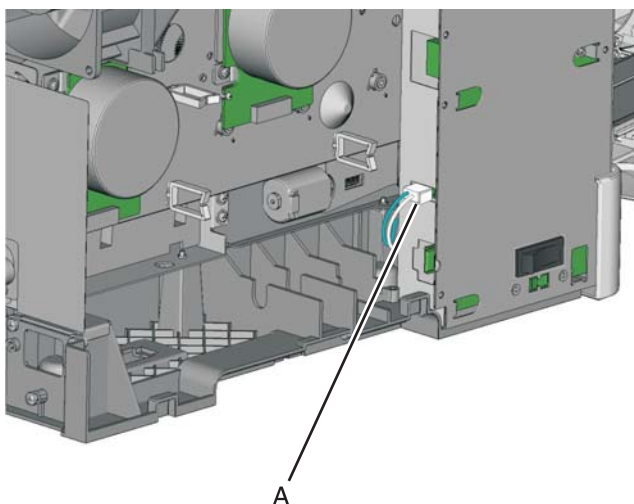
Fuser assembly removal



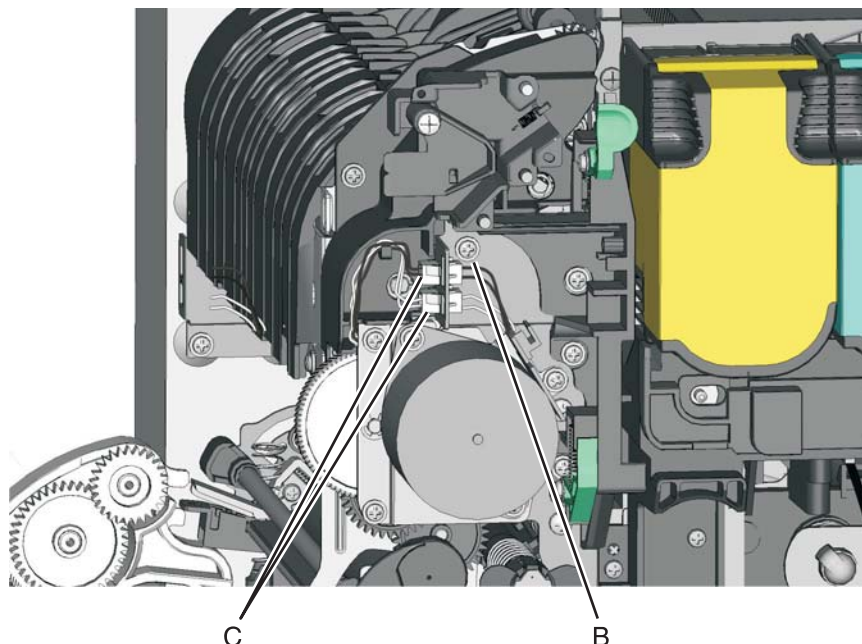
See “Fuser assembly” on **page 7-5** for the part number.

1. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10.**
2. Remove the left cover. See **“Left cover assembly removal” on page 4-6.**
3. Disconnect the two-wire fuser cable (A) from the LVPS.
4. Position the fuser cable so that it can be pulled through from the front of the printer, and guide the cable through to the front.

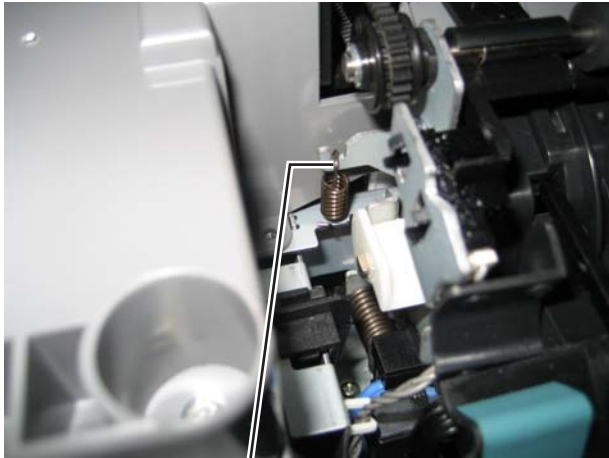
Warning: Be careful not to damage the cable by pulling too hard or cutting the cable insulation.



5. Remove the screw and grounding washer (B) on the right side of the frame.
- Note:** Be careful not to lose the grounding washer.
6. Disconnect the thermistor cables (C).



7. Remove the exit deflector and bin full sensor flag. See **“Exit deflector and bin full sensor flag removal” on page 4-24.**
8. Remove the bin full sensor. See **“Bin full sensor removal” on page 4-18.**
9. Unhook the springs (D) from both sides of the fuser.



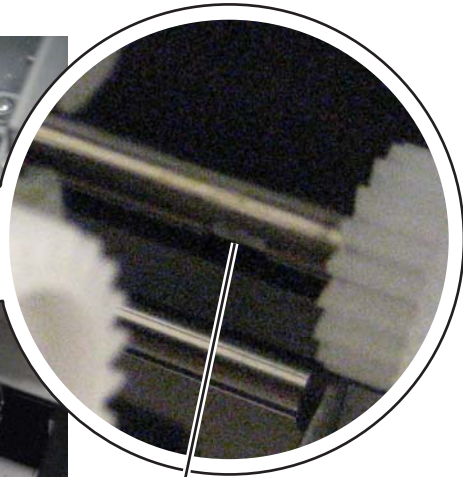
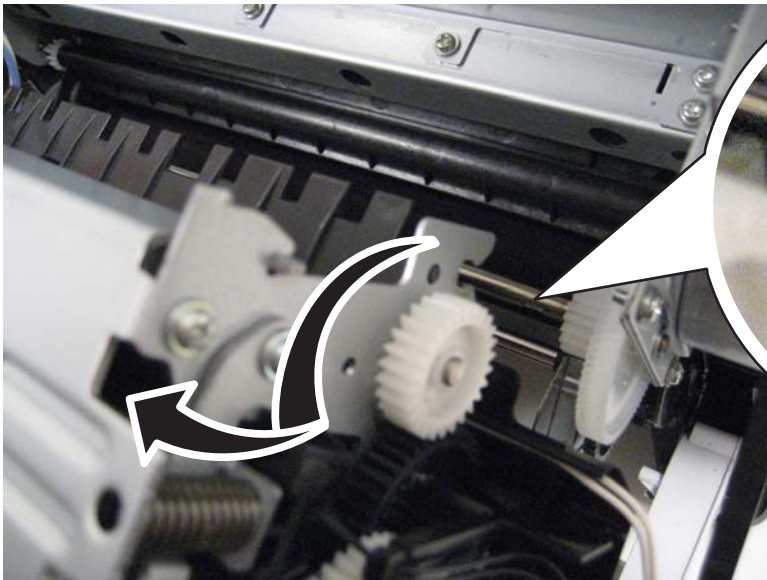
D



D

10. Rotate the top of the fuser toward the front, slide it to the left to align the fuser side frames with the flat areas of the shaft (E), and lift to remove the fuser.

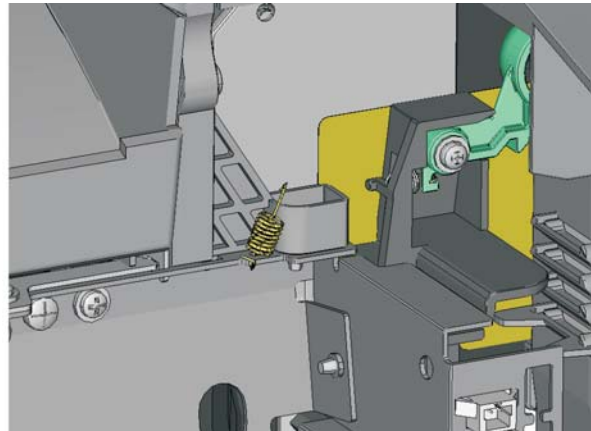
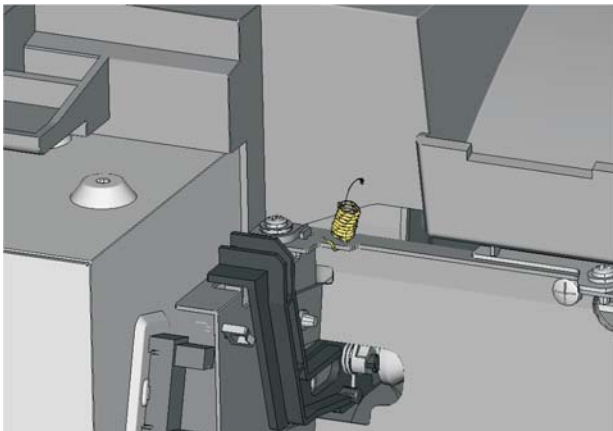
Warning: Be careful to not interfere with or damage the fuser exit sensor to the left of the fuser when rotating the fuser.



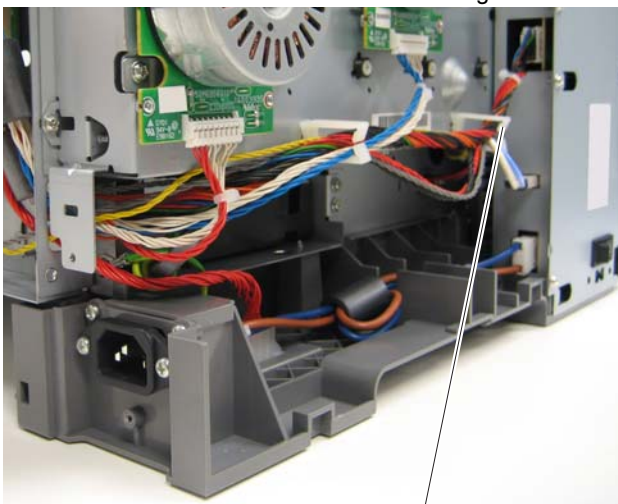
E

Installation notes:

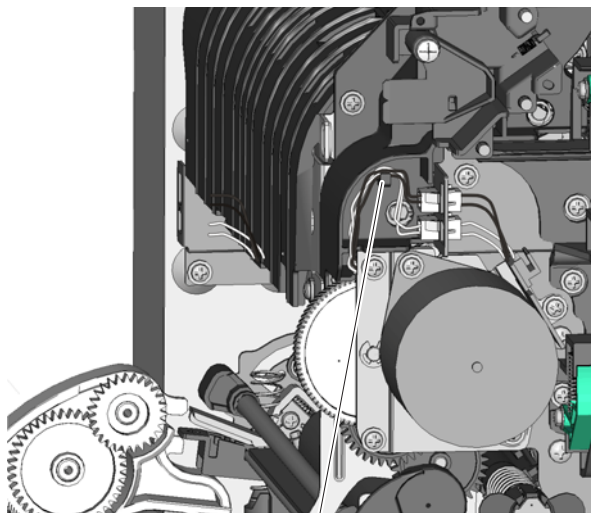
- Make sure the springs are resting on the frame so they can be located once the new fuser is in place. They can be difficult to reach if they hang down.



- Be careful not to bump into the fuser exit sensor on the left side.
- When reinstalling on the right side, make sure the gears mesh.
- Reroute the cables back through their retainers.



A

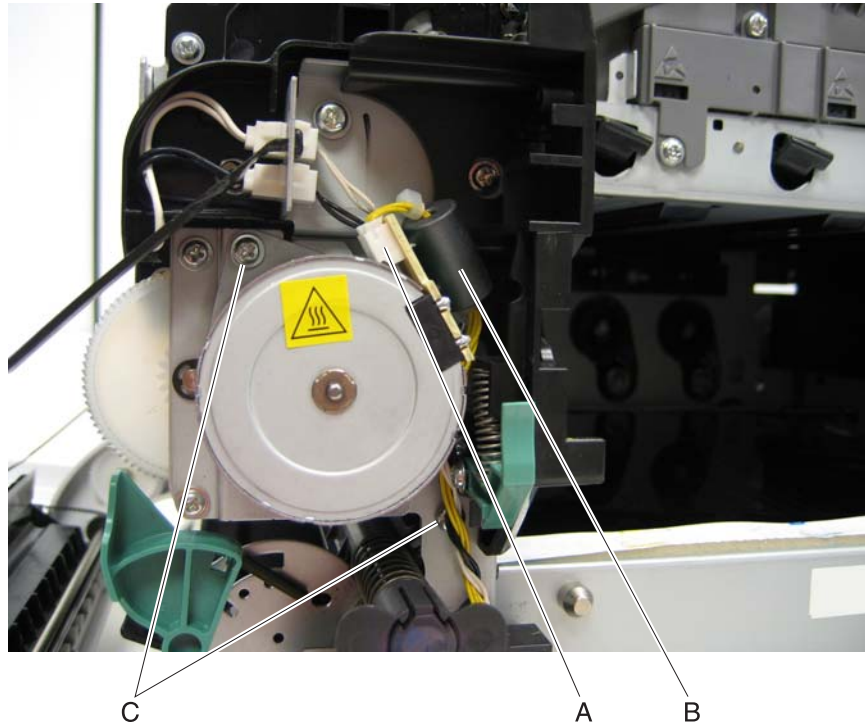


B

Fuser drive motor assembly removal

See **“Fuser drive motor assembly” on page 7-5** for the part number.

1. Open the front cover.
2. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10**.
3. Disconnect the cable (A) from the fuser drive motor assembly.
Note: If you remove the toroid (B) from the cable, be sure to return the toroid to the cable when you re-install.
4. Remove the two screws (C).

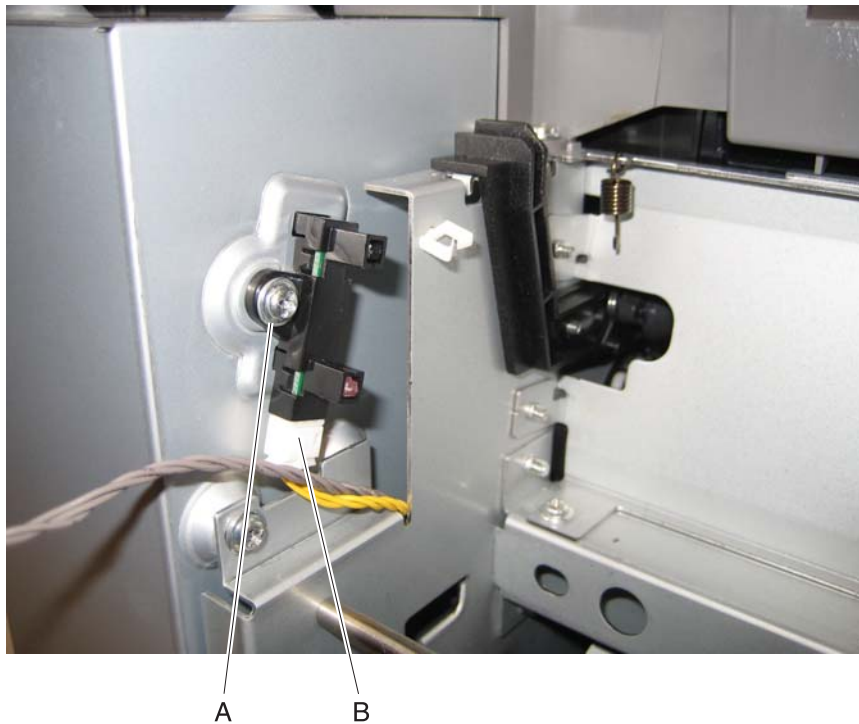


5. Remove the fuser drive motor assembly.

Fuser exit sensor removal

See **“Fuser exit sensor” on page 7-7** for the part number.

1. Open the front cover.
2. Remove the fuser assembly. See **“Fuser assembly removal” on page 4-26**.
3. Remove the screw (A) securing the fuser exit sensor.
4. Disconnect the cable (B) from the fuser exit sensor.
5. Remove the lower end of the sensor with a flat blade screwdriver, and gently pull the sensor from the bracket.



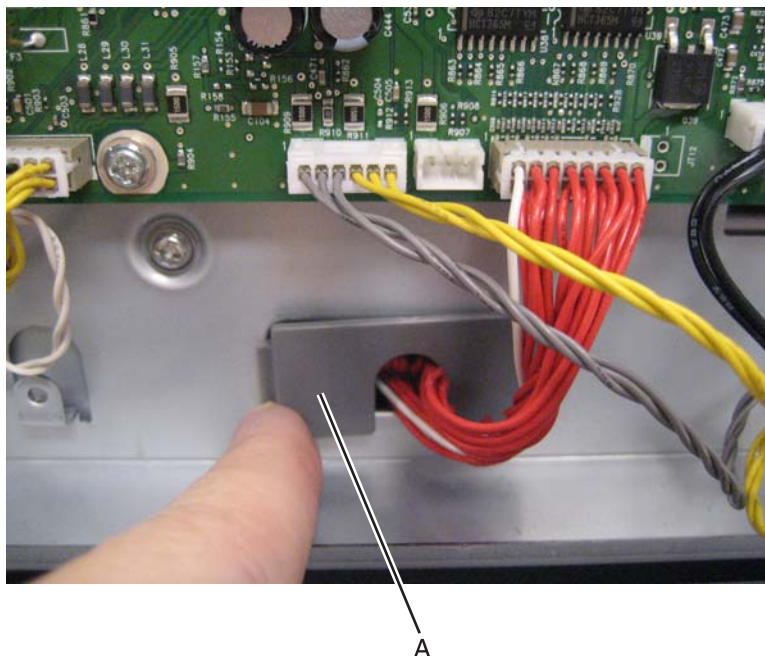
6. Remove the sensor.

High-voltage power supply (HVPS) assembly removal

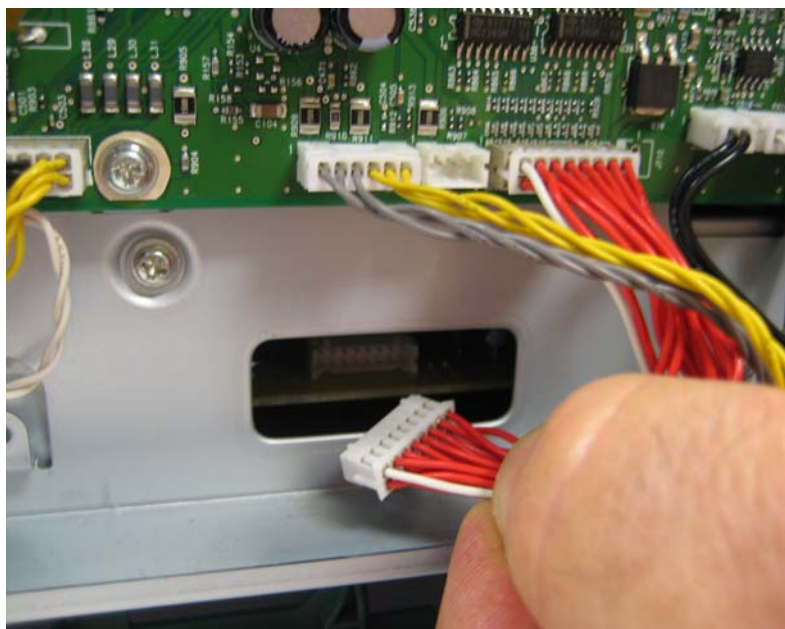
See **“High-voltage power supply”** on page 7-7 for the part number.

Note: This removal requires a magnetized, long-shank Phillips screwdriver at least 8 in. or 200 mm long.

1. Remove the top cover assembly. See **“Top cover assembly removal”** on page 4-12.
2. Remove the rear shield. See **“Rear shield removal”** on page 4-11.
3. Remove the cable cover (A).



4. Disconnect the high-voltage power supply (HVPS) cable at the HVPS and at the controller board.



5. Remove the screw (B).

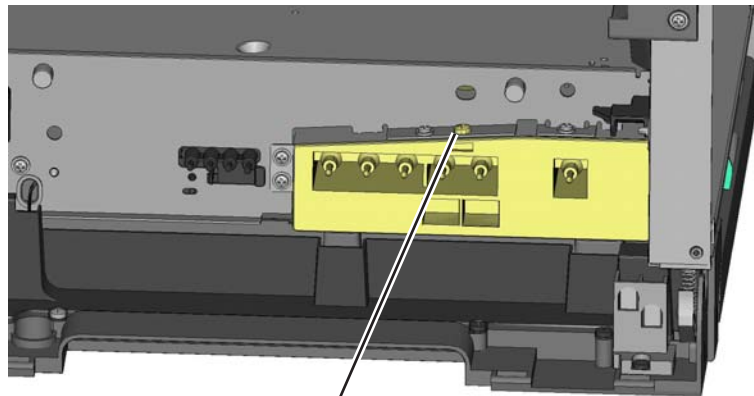
The screw is accessible from the top of the printer, and requires a long-shank, magnetized Phillips screwdriver. It is the only screw without a flanged head, and is about 8 inches below the top of the printer.



B

6. Remove the screw (C) securing the HVPS.

7. Carefully slide the HVPS out.



C

Installation notes:



CAUTION

After disconnecting the high-voltage power cable from the controller board, always check that the HVPS connector was not loosened. Make this check anytime you are working near the HVPS cable.

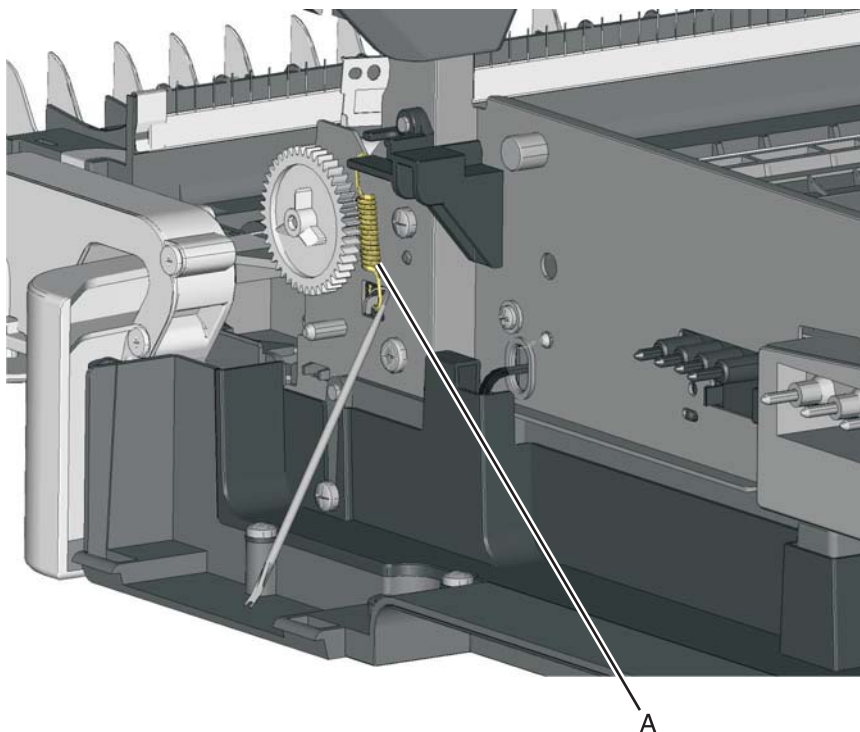
Warning: Connect the high-voltage power supply (HVPS) cable to the high-voltage power supply before sliding the board into the printer. Pull the HVPS cable through the access hole and plug into the controller board.

Loosely replace screw (C), replace (tighten) screw (B), and tighten screw (C).

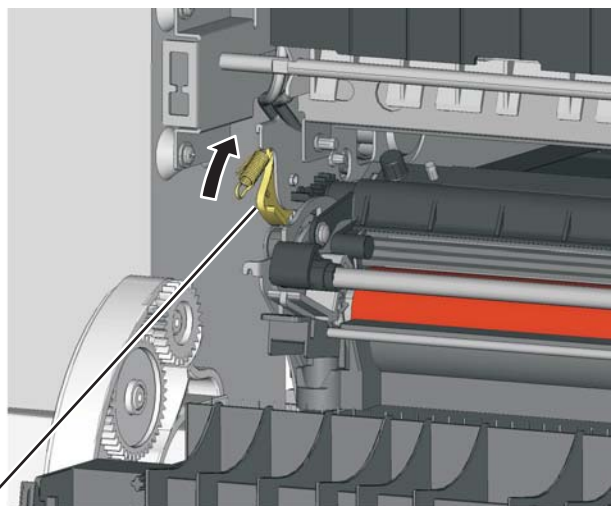
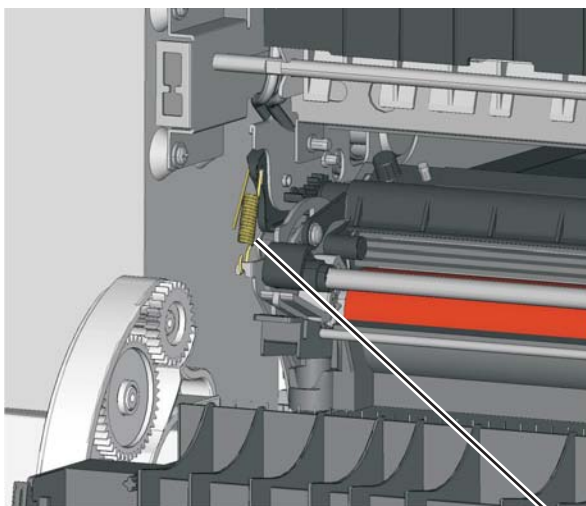
Image transfer unit (ITU) removal

See **“Image transfer unit (ITU) assembly”** on page 7-5 for the part number.

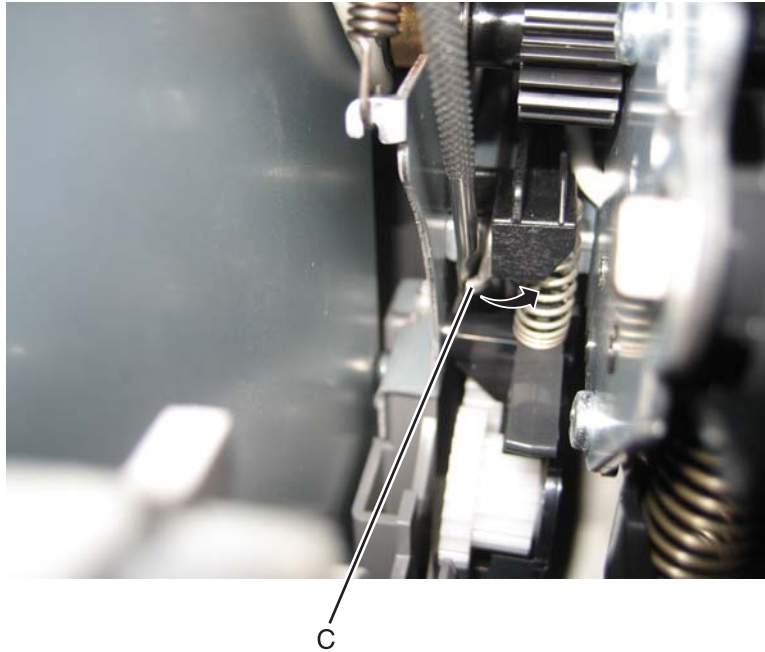
1. Write down the number of the new ITU before installing it. You will need the 16-digit numeric value from the barcode after the installation, and it is easier to see at this point.
2. Remove the right cover assembly. See **“Right cover assembly removal”** on page 4-10.
3. Remove the waste toner bottle. See **“Waste toner bottle removal”** on page 4-60.
4. Remove the imaging unit (IU). See **“Imaging unit (IU) removal”** on page 4-35.
5. Disconnect the two springs (A) from the side frames, leaving the right one attached to the ITU.



6. Rotate the left spring (B), and pivot the cam away from the ITU so the spring and the cam are held out of the ITU path.



7. Rotate the release lever (C) in a counterclockwise direction with a springhook or needlenose pliers to decouple the ITU while pulling the ITU toward the front.



8. Hold the release lever for the first four inches (100 mm) as you pull out the ITU, but a quick, firm push should overcome the latch.

Installation note:

- Write down the 16-digit numeric value of the new FRU before you begin to install it.
- You may have to rotate the release lever again to install the new ITU.
- When you have replaced the ITU, be sure to enter the 16-digit numeric value from the barcode on the new ITU into the printer.

1. Enter the Diagnostics Menu:

- a. Turn the printer off.
- b. Press and hold ◀ and [✓].



- c. Turn the printer on.
- d. Release the buttons when the installed memory and processor speed displays.

2. Select **PRINTER SETUP** from Diag Menu, and press **Select** ([✓]).

3. Select **ITU Barcode**, and press **Select** ([✓]).

4. To enter the 16-digit numeric value:

Use ◀ to decrease the leftmost digit value or ▶ to increase the value. Press **Select** ([✓]) to advance to the next digit. If a digit is already correct, press **Select** ([✓]) to accept the number and to continue. When the last number is entered, press **Select** ([✓]), and *Submitting changes...* should appear. If the entered number is incorrect, *Check Sum Does Not Match* displays. Check and reenter the number.

Imaging unit (IU) removal

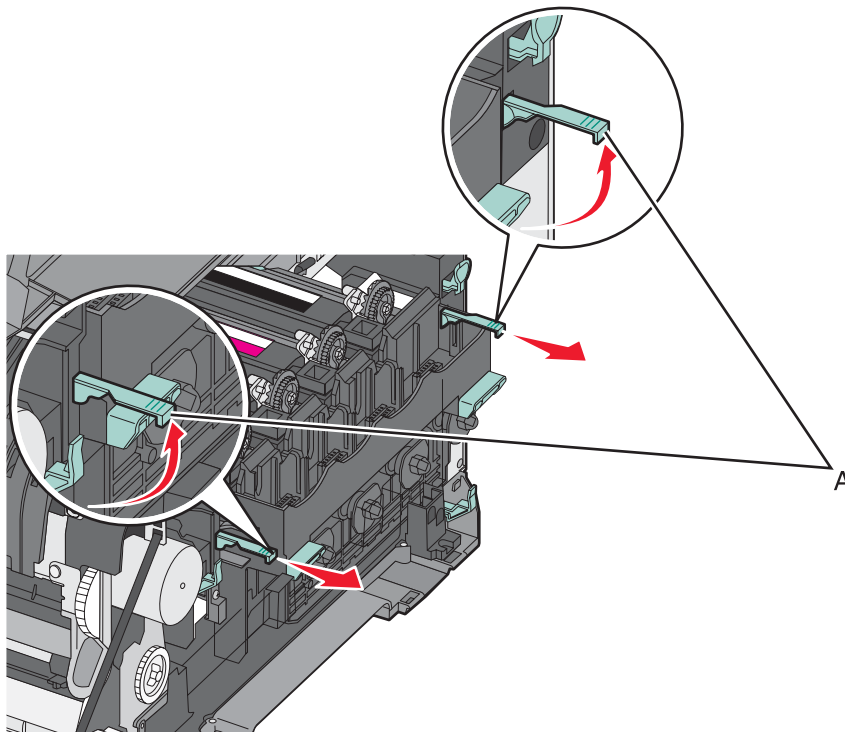
The imaging unit is customer replaceable unit and is not a FRU.

Note: The imaging unit contains:

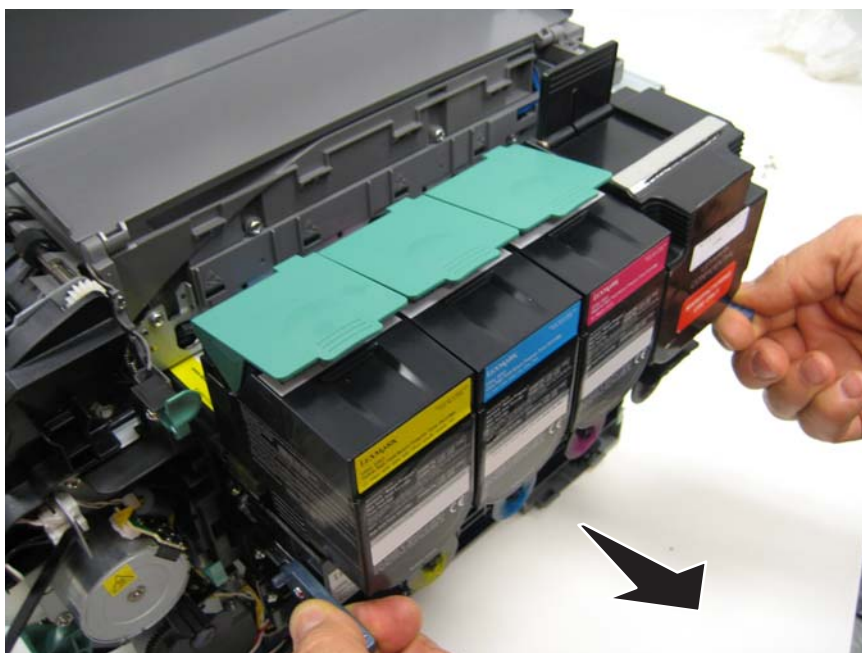
- Photoconductor unit
- Developer units

To remove only the photoconductor, remove the entire imaging unit, remove the developer units, place the original developer units in the new photoconductor, and re-install the imaging unit. When you replace the imaging kit, you are replacing *both* the photoconductor and the developer units.

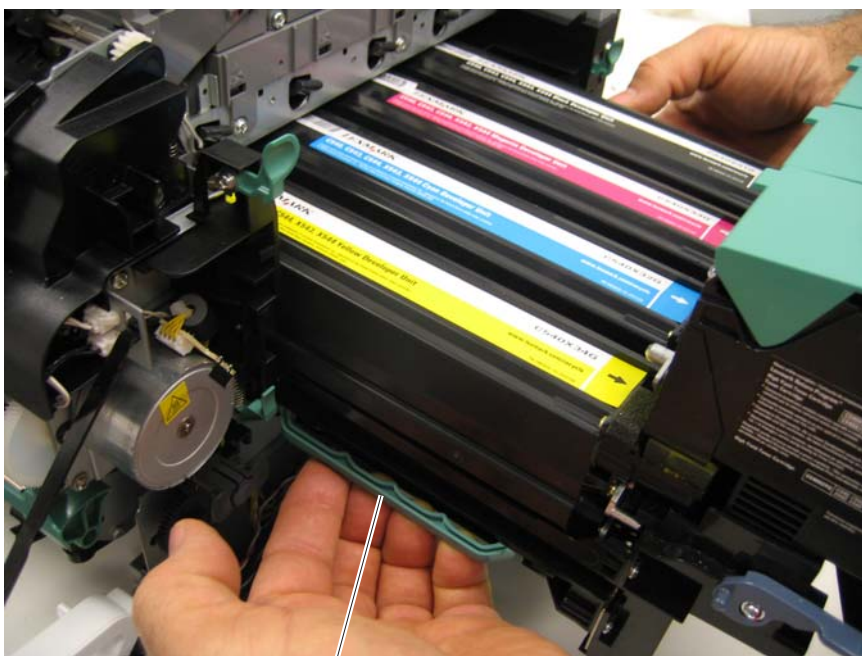
1. Open the front cover.
2. Lift the toner cover by sliding the latch to the left.
3. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10.**
4. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-60.**
5. Remove the toner cartridges.
6. Lift the two latches (A) to unlock the imaging unit.



7. Pull the two latches until the imaging unit meets resistance.



8. Press and hold the handles (B), and pull the imaging unit straight out.
Note: Do not wrap your fingers around the imaging unit. Avoid touching the bottom.



B

Low-voltage power supply (LVPS) assembly removal

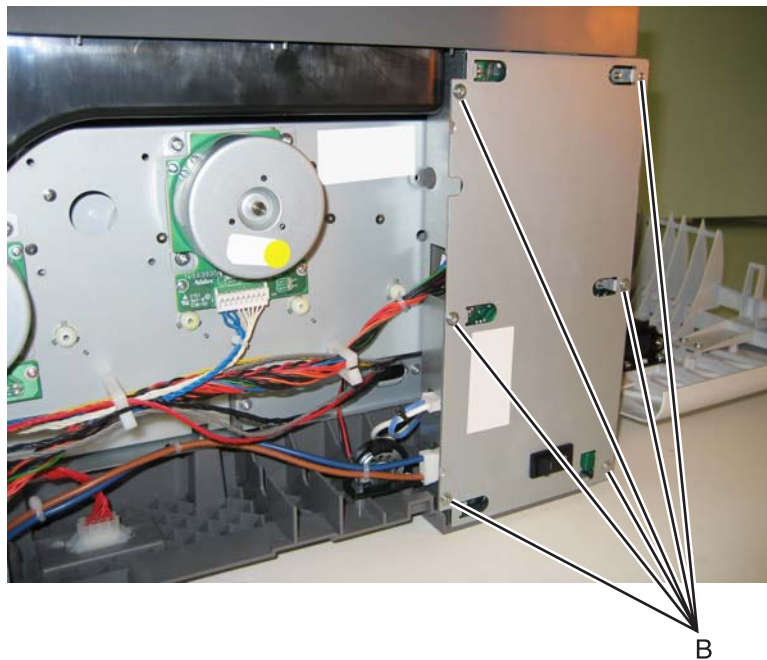
See “**Low-voltage power supply (universal power supply)**” on page 7-7 for the part number.



1. Remove the left cover. See “**Left cover assembly removal**” on page 4-6.
2. Disconnect the three cables (A) from the LVPS.



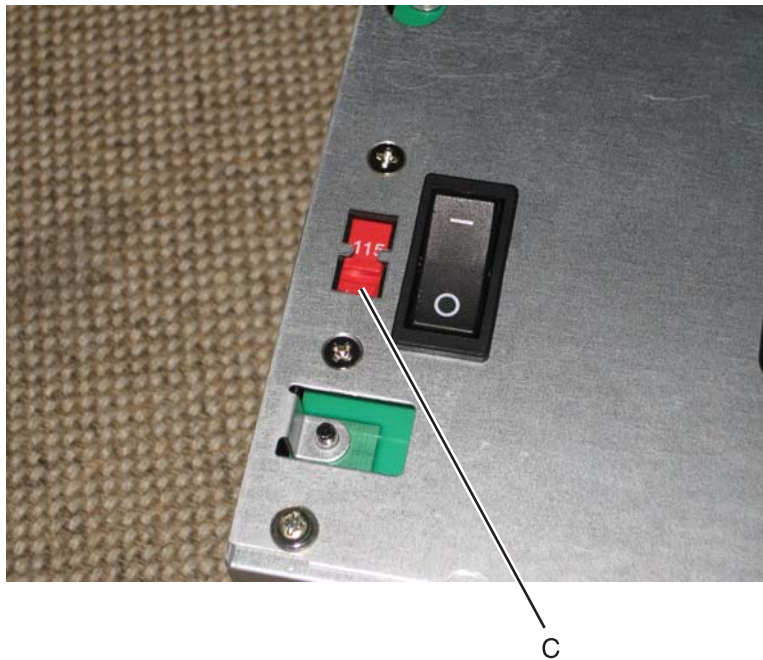
3. Remove the seven screws (B).



4. Remove the LVPS.

Warning: If you receive a new low-voltage power supply with a voltage selector switch (C), be sure to set the switch to the correct setting for your voltage requirements before installing the low-voltage power supply. The switch can be set for either 115 V or 230 V. Failure to do so could result in damage to the power supply.

Note: If there is no switch, the LVPS automatically senses the line voltage.



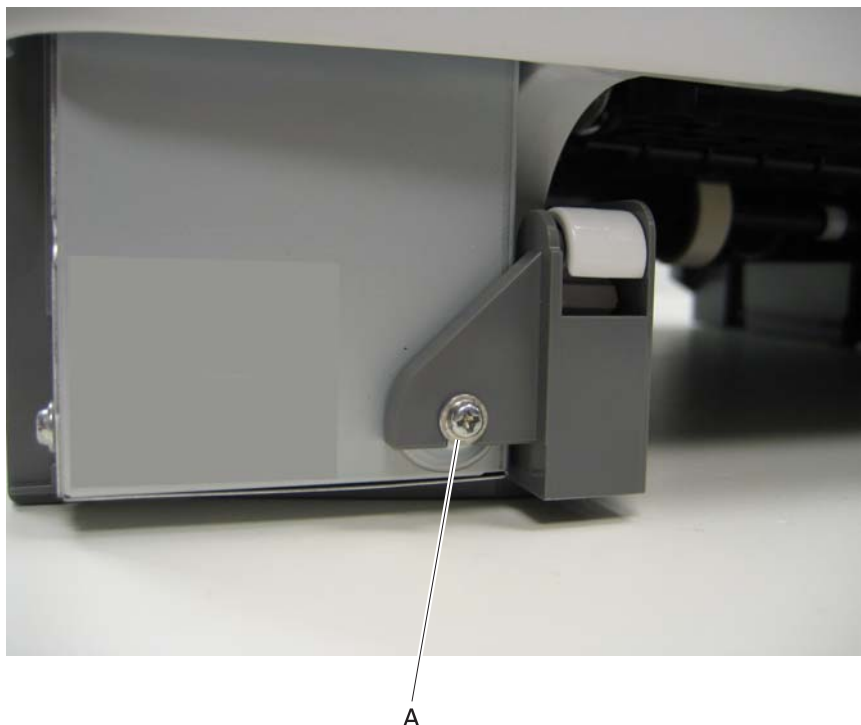
Lower frame removal, right and left

See **“Lower left frame and lower right frame with cable cover”** on page 7-5 for the part number.

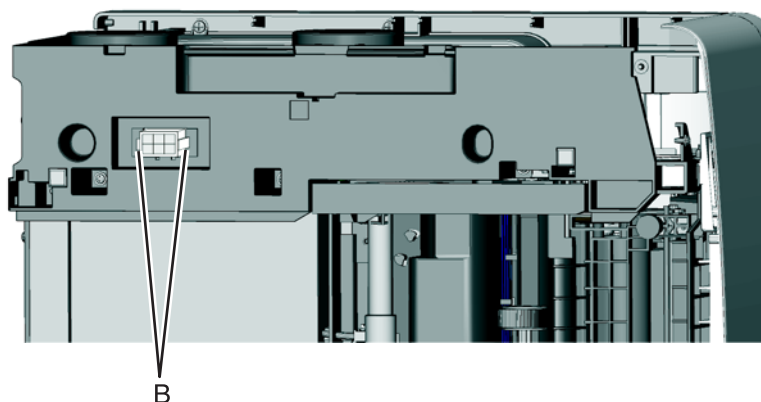
The right and left lower frames are in the same FRU.

Left lower frame

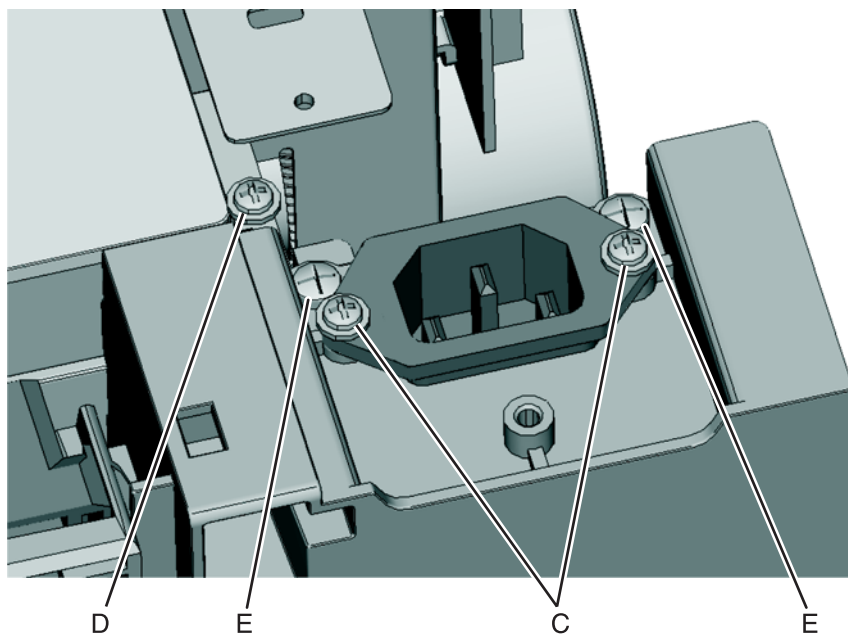
1. Remove the media tray, and remove the screw (A) in front.



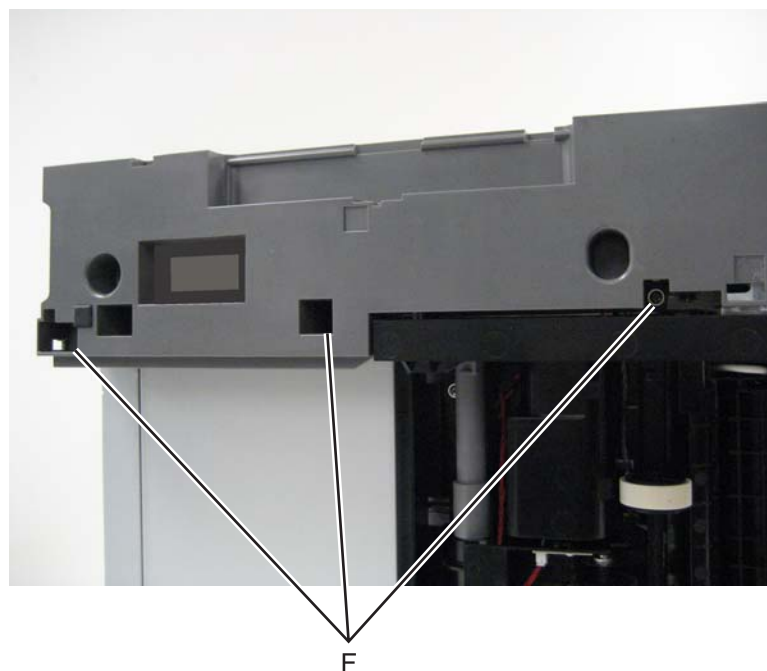
2. Open the front cover.
3. Remove the waste toner bottle. See **“Waste toner bottle removal”** on page 4-60.
4. Remove the imaging unit. See **“Imaging unit (IU) removal”** on page 4-35.
5. Remove the low-voltage power supply. See **“Low-voltage power supply (LVPS) assembly removal”** on page 4-37.
6. Place the printer on the right side.
7. Remove the tray 2 connector (B) by pinching the tabs together and pushing the connector into the printer.



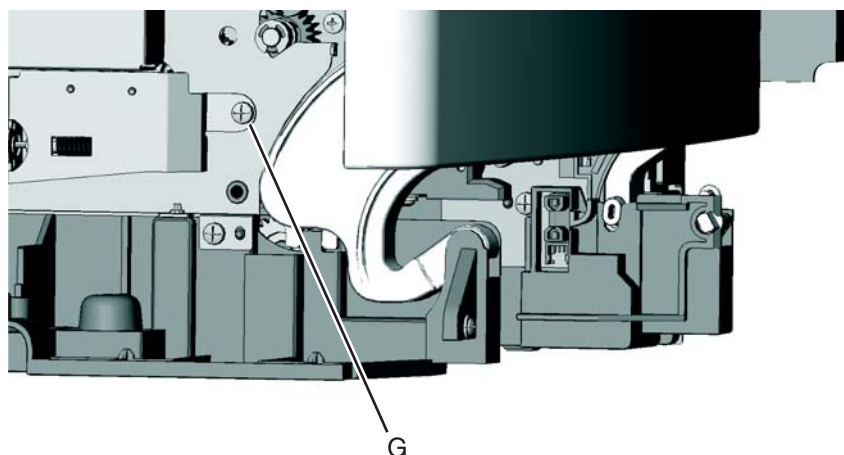
8. At the rear of the printer, remove the two screws (C) from the AC receptacle, and the ground screw (D).
9. Remove the two screws (E) holding the plastic shield.



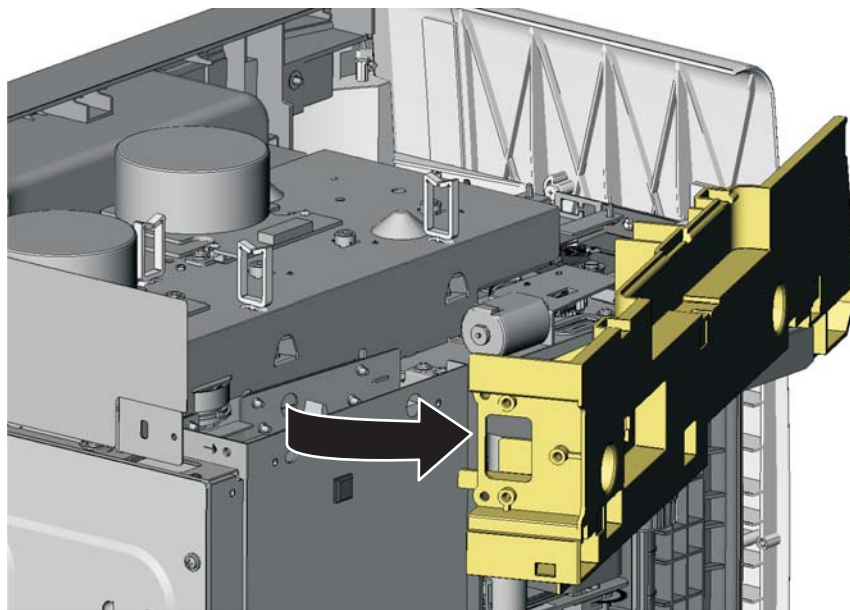
10. Remove the AC receptacle from the left lower frame.
11. Remove the three screws (F) securing the left lower frame.



12. Remove the screw (G) above the frame.



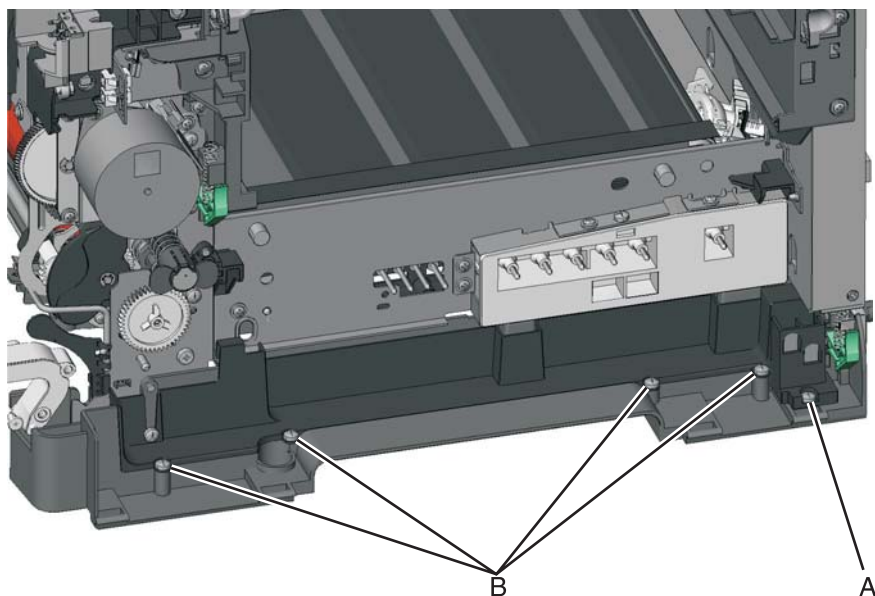
13. Swing the left lower frame away from the printer, and remove.



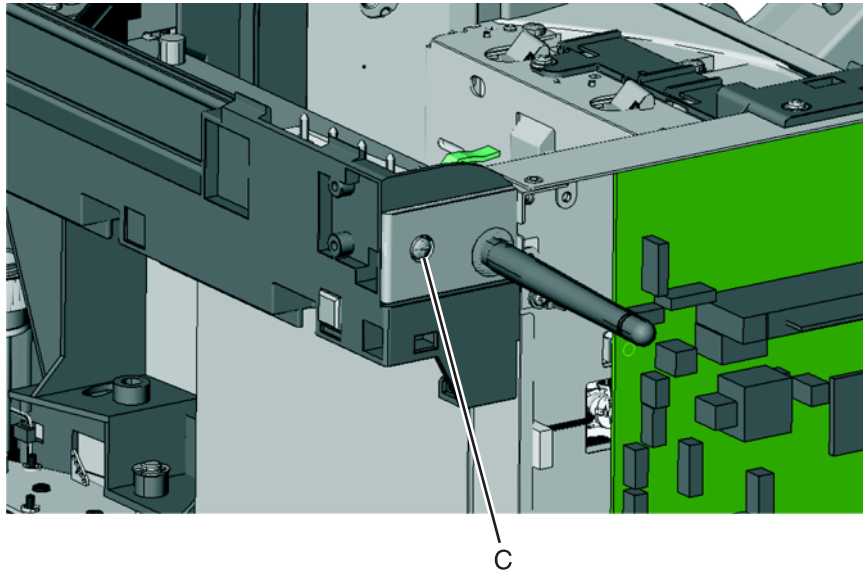
Right lower frame

1. Open the front cover.
 2. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10.**
 3. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-60.**
 4. Remove the imaging unit. See **“Imaging unit (IU) removal” on page 4-35.**
 5. Remove the rear shield. See **“Rear shield removal” on page 4-11.**
 6. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
- Note:** The waste toner bottle sensor contact does not need to be unplugged.

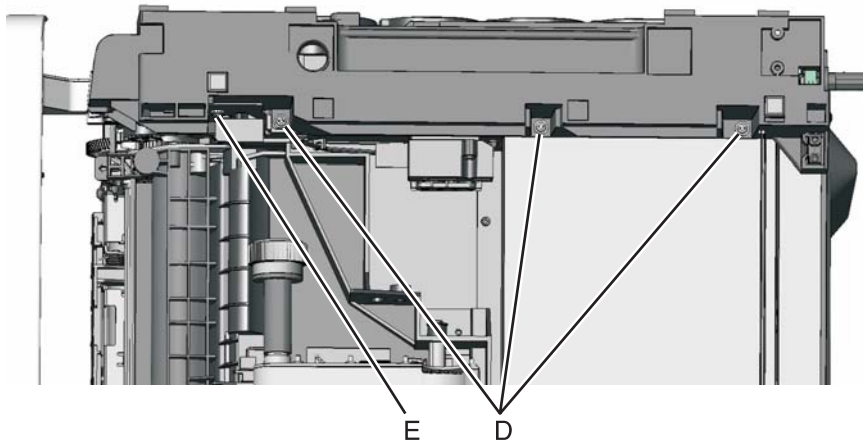
7. Remove the four screws (B) securing the cable cover.
- Note:** The cable cover is part of the right lower frame FRU.



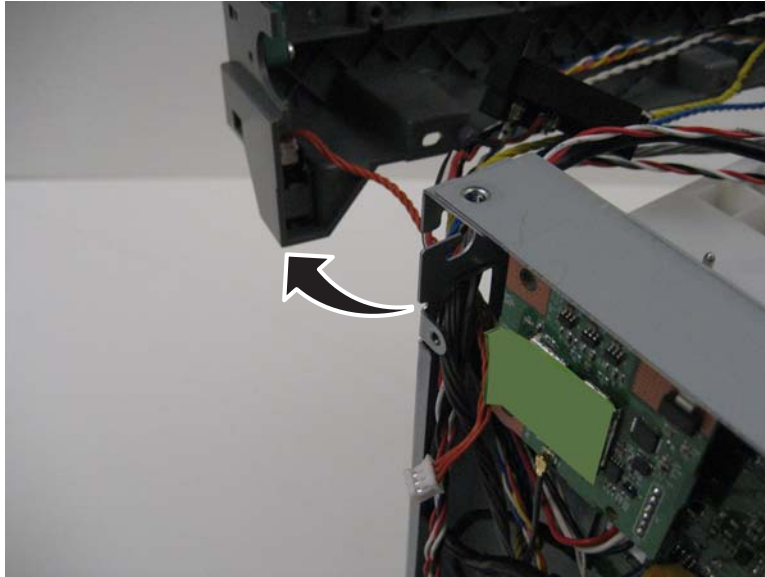
8. Carefully place the printer on its left side.
9. If the printer is a model with a wireless antenna, remove the screw (C) securing the wireless antenna to access the right frame. Do not remove the antenna.



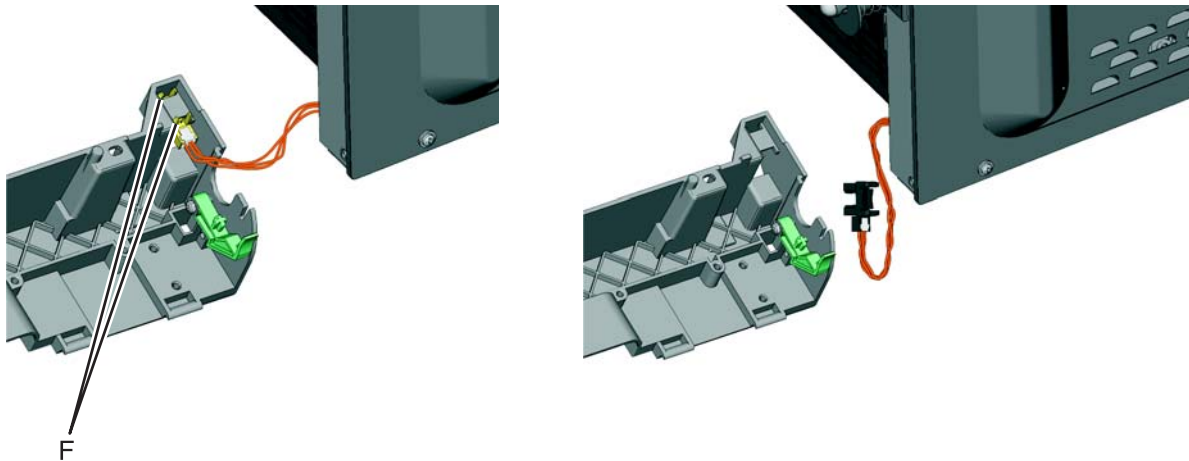
10. Remove the three screws (D) securing the lower right frame to the printer.
11. Remove the screw from the front of the printer (E)



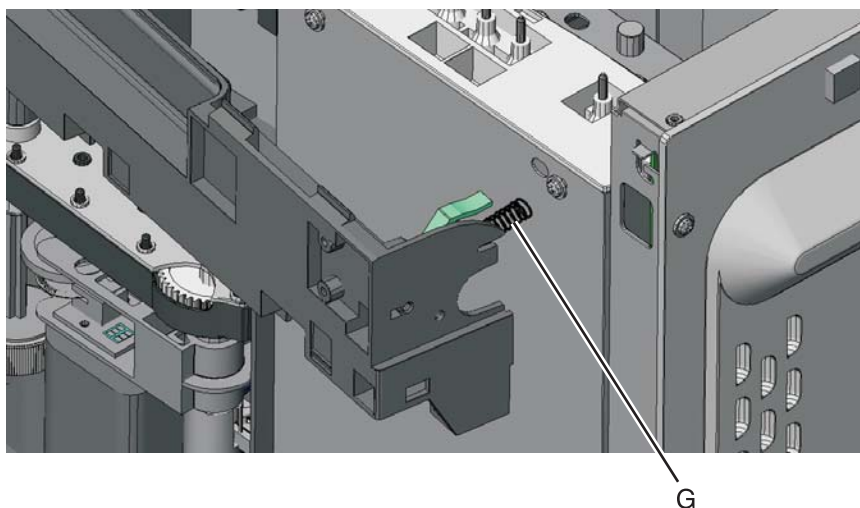
12. Remove the duplex sensor. See **“Duplex sensor removal”** on page 4-21.
13. Swing the rear part away from the printer to access the spring and sensor.



14. Release the tabs to remove the tray present sensor (F) from the side frame.
Note: The sensor is not part of the left lower frame FRU.



15. Remove the spring (G) from the left lower frame FRU.



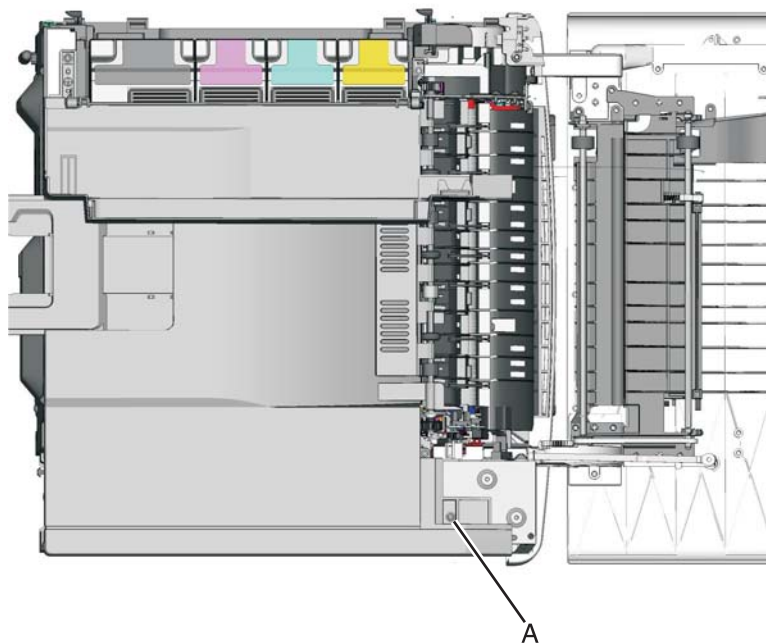
16. Swing the rear of the lower frame away from the printer, and remove.

Main drive gear assembly removal

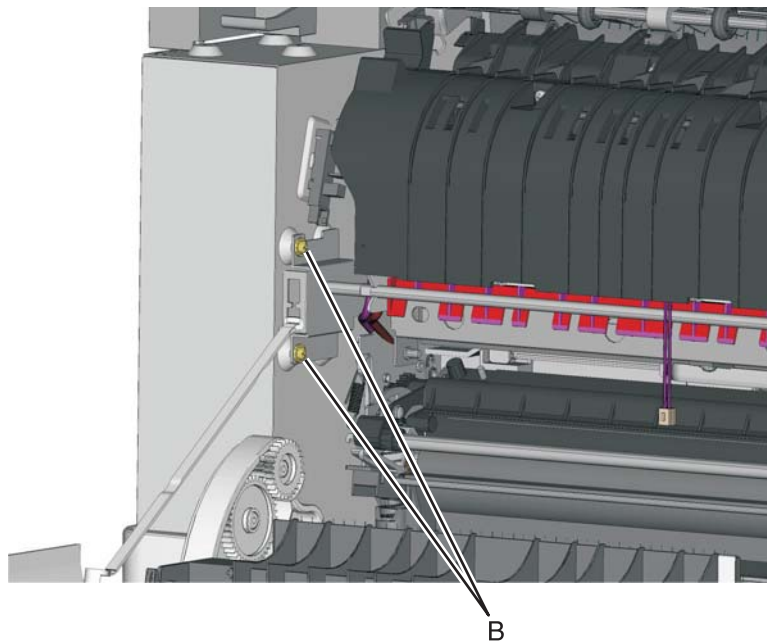
See **“Main drive gear assembly, with motors”** on page 7-5 for the part number.



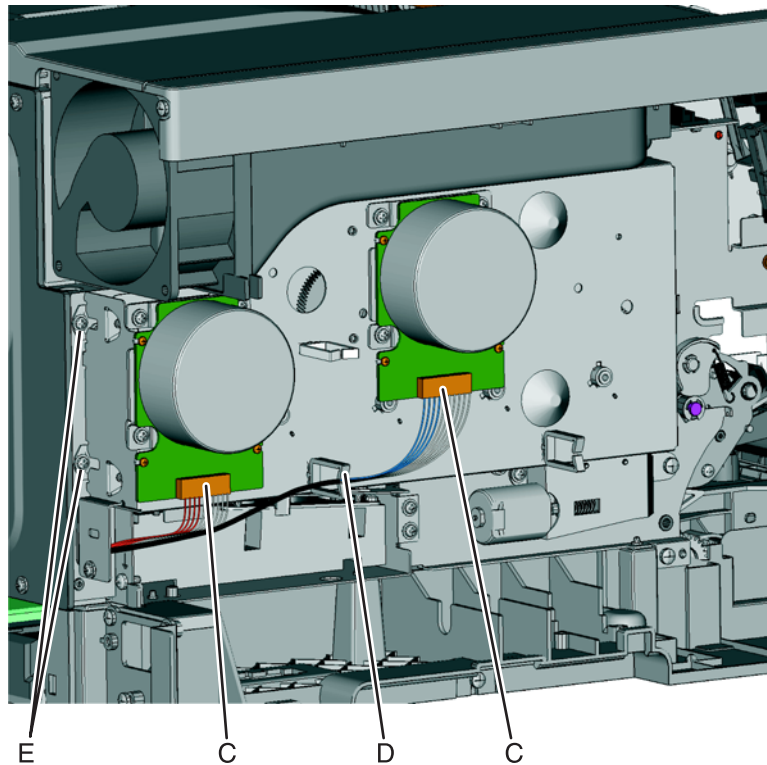
1. Remove the left cover. See **“Left cover assembly removal”** on page 4-6.
2. Remove the LVPS. See **“Low-voltage power supply (LVPS) assembly removal”** on page 4-37.
3. Remove the screw (A) on the top cover.



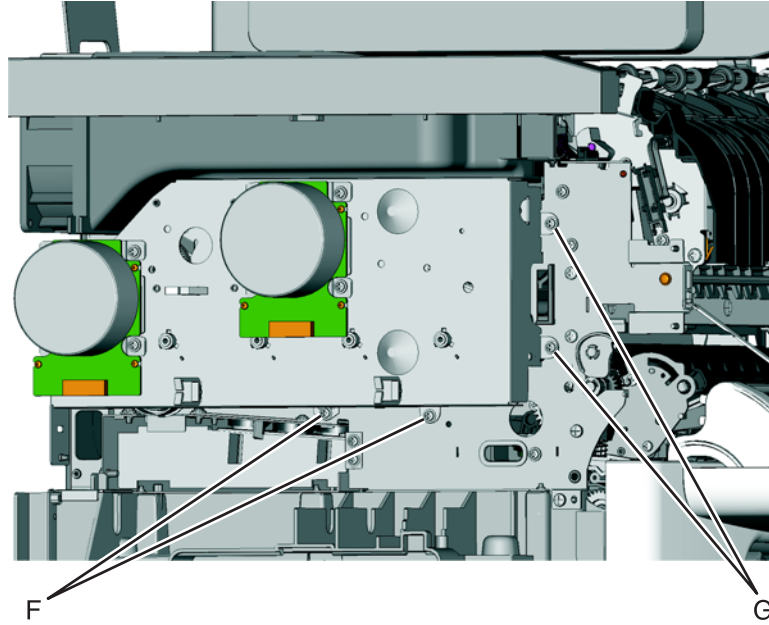
4. Remove the two screws (B) from the inside left side.



5. Disconnect the cable from the fuser exit sensor.
6. Remove the screws securing the LVPS shield.
7. Unplug the cables from the motors (C), and remove all cables from the retainer (D).
- Note:** Observe the cable routing for reinstallation.
8. Remove the two screws (E) from the rear.



9. Remove the two screws (F) from below the main drive gear assembly.
10. Remove the two screws (G) on the right of the main drive gear assembly



11. Lift the main drive gear assembly, and remove.

Pick tires removal—standard media tray

See **“Pick tires” on page 7-9** for the part number.

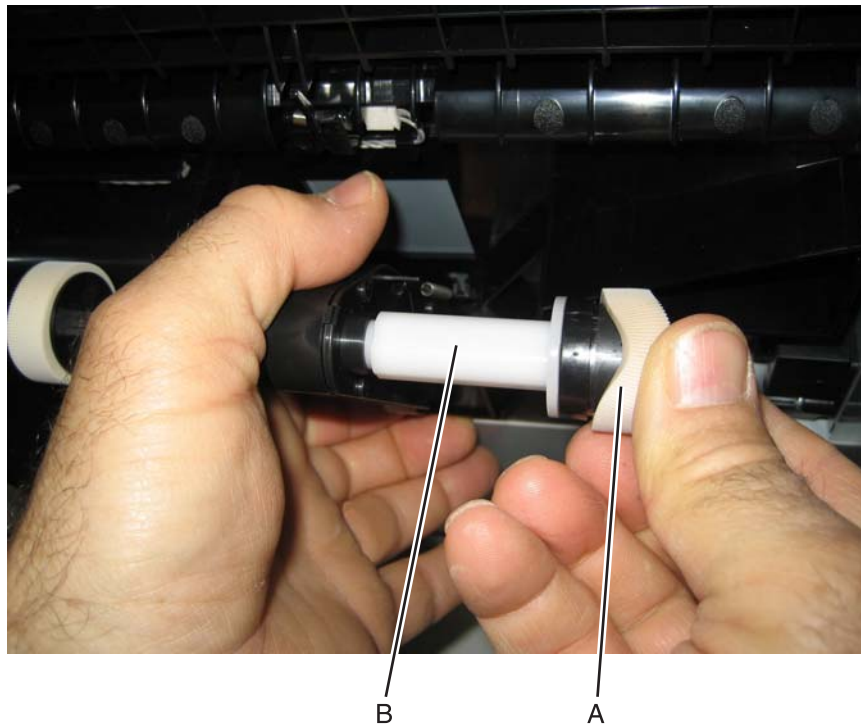
Note: You will need to have a soft, padded work surface.

Warning: Remove only the rubber tires and not the paper pick tire assembly to avoid losing small parts.

The paper pick tires are located in the base printer. There are also tires in the optional 650-sheet duo drawer/MP feeder. If you have this additional option, and you are having problems with media picking, replace these tires also. Always replace the paper pick tires in pairs. The tires come in a package of two.

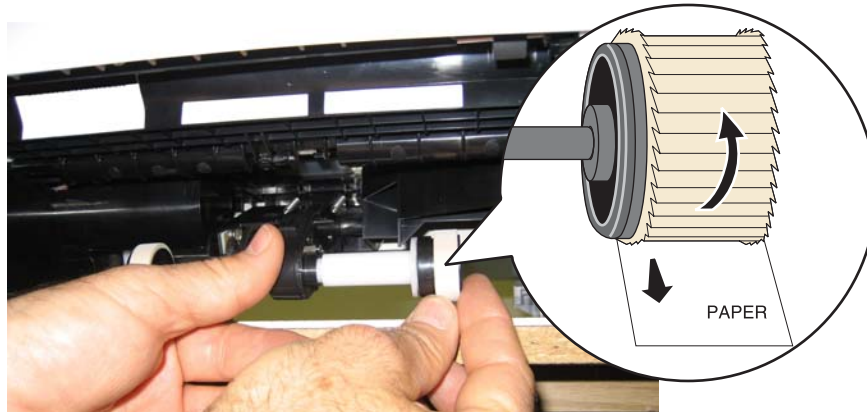
1. Remove the media tray.
2. Place the printer so the front edge extends over the edge of the table or desk.
3. Lower the autocompensator mechanism.
4. Remove the rubber tire (A) from the pick roll assembly (B). Repeat for the other tire.

Warning: Be very careful **not** to unlatch the right side hub, or the clutch may be damaged. If the ball bearings come out of the clutch, it will have to be reassembled on a flat surface, and may be very difficult.



Installation notes:

Install the new rubber tires with the surface texture turning in the direction as shown.



Note: Feel each rubber surface to verify it turns properly in the direction shown. The smoother surface pushes the paper toward the front of the printer.

Printhead removal

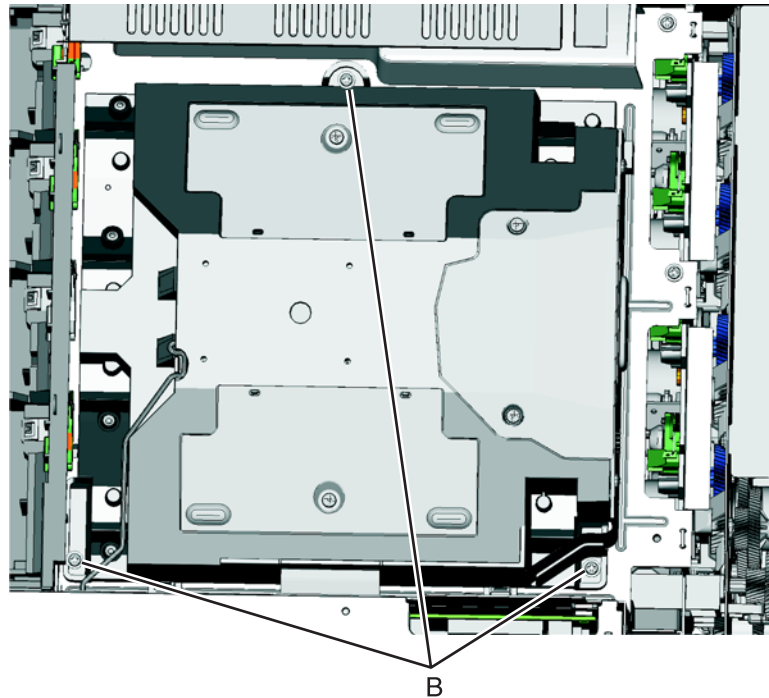
See **“Printhead” on page 7-5** for the part number.

1. Remove the top cover. See **“Top cover assembly removal” on page 4-12**.
2. Disconnect the cables from the controller board.
Note: Be very careful disconnecting handling the ribbon cable.
3. Remove the toroid (A) from the ribbon cable.
Note: Be sure to replace the toroid on the cable when you reinstall the printhead.



A

4. Remove the three screws (B).



5. Remove the printhead.

Installation note:

When the printhead is replaced, perform the registration (black planes) and alignment (color planes). See **“Registration” on page 3-4** and **“Alignment” on page 3-7**.

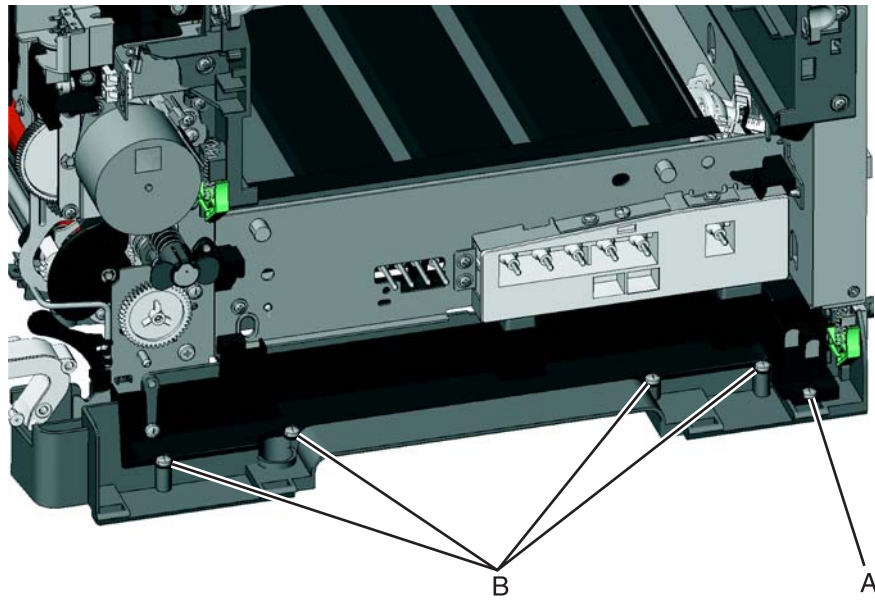
Toner cartridge contacts

See **“Toner cartridge contacts (Pogo pin)” on page 7-8** for the part number.

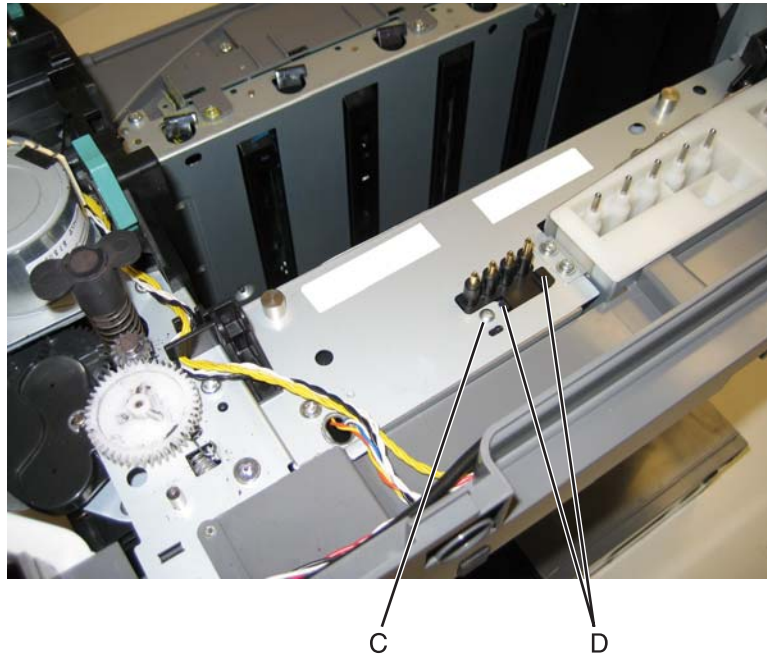
1. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10**.
2. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-60**.
3. Remove the imaging unit. See **“Imaging unit (IU) removal” on page 4-35**.
4. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
5. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.

Note: The waste toner bottle sensor contact does not need to be unplugged or removed.

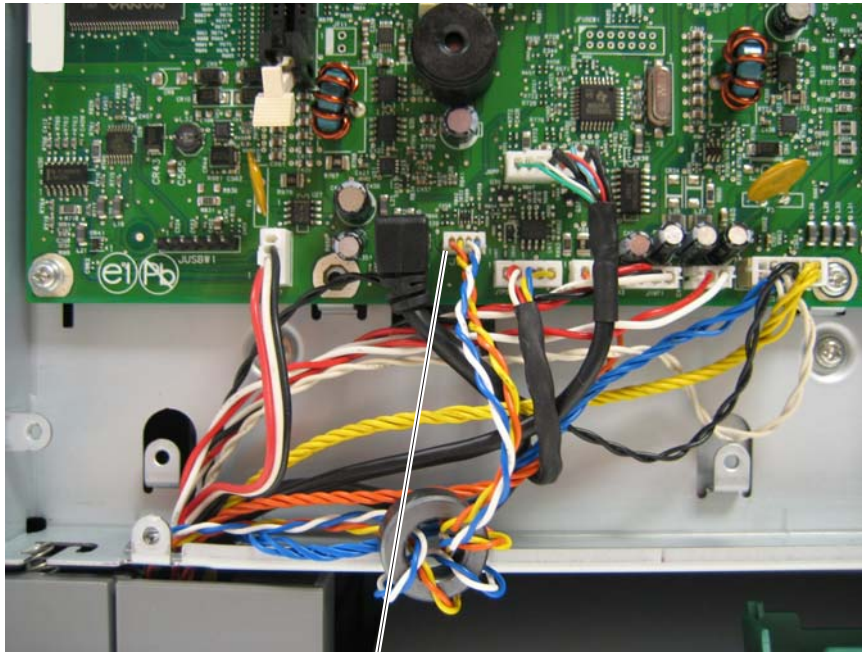
6. Remove the four screws (B) securing the cable cover, and remove the cable cover.



7. Rotate the printer to view the right side.
8. Remove the screw (C) securing the spring contacts.
9. Release the tabs (D) on the spring contact to release the spring contacts.

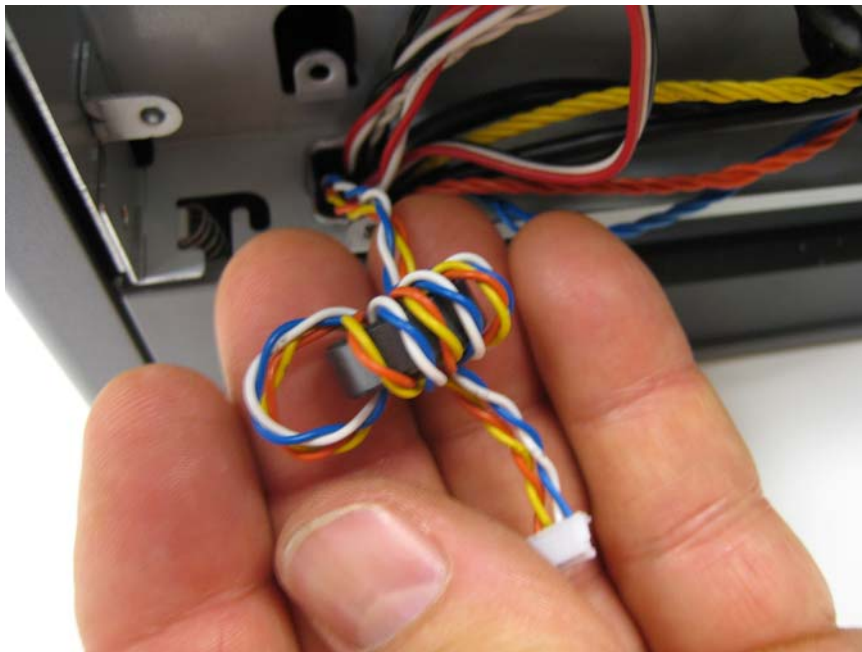


10. Disconnect the cable (E) from the controller board at JSC1.



E

11. Remove the cable from the retainer on the bottom of the printer.
12. Extract the cable through the frame, and remove the cable with the spring contacts.
Note: To remove the cable, be sure to unwrap the toroid. When you re-install, be sure to wrap the toroid five times as shown.



Toner density sensor (TDS) removal—left or right sensor

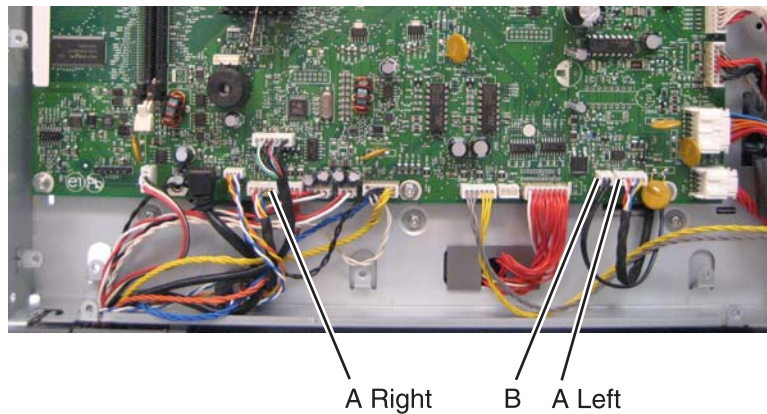
See **“Toner density sensors, left or right (one in package)”** on page 7-8 for the part number.

Note: The toner density sensor is also called the toner patch sensor (TPS).

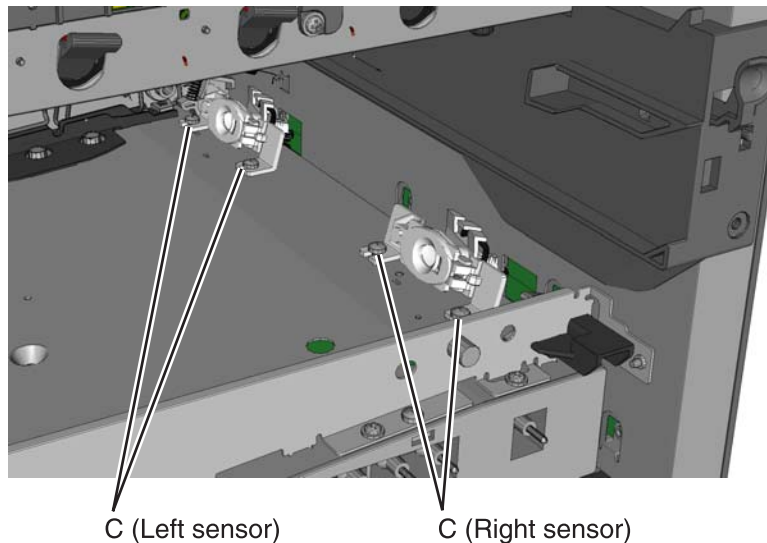
The toner density sensors are the same, but the left sensor has a thermistor attached which needs to be removed when you install a new TDS on the left side. Reinstall the thermistor on the new TDS.

1. Remove the ITU. See **“Image transfer unit (ITU) removal”** on page 4-33.
2. Remove the rear shield. See **“Rear shield removal”** on page 4-11.
3. Disconnect the toner density sensor cable from JTDS1 connector (A Right) or JTDS2 connector (A Left) on the controller board. If you are removing the left toner density sensor, also disconnect the thermistor from JFUSES1 connector (B) on the controller board.

Note: Observe the routing of the cable(s) for reinstallation.



4. Remove the two screws (C) securing each sensor.



Installation notes

- Before beginning the installation of the new left or right toner density sensor, note the 32-digit TPS value printed on the barcode on the new FRU.
- After installation, perform the TPS Setup. Enter the factory preset alignment number.

1. Enter the Diagnostics Menu:

- a. Turn the printer off.
- b. Press and hold ◀ and [✓].



- c. Turn the printer on.
- d. Release the buttons when the installed memory and processor speed displays.

2. Select **TPS SETUP** from Diag Menu, and press **Select** ([✓]).

3. Select **Right** or **Left**, and press **Select** ([✓]).

TPS Right 1-16 or TPS Left 1-16 appears above a blinking 0 in the left position.

4. To enter a character or digit:

- a. Press ◀ to decrease or ▶ to increase the blinking value.
- b. Pause for several seconds without pressing any buttons. The blinking value becomes solid.
If the value is incorrect, use **Back** ([↶]) to go back and reenter the number.
- c. Continue until the last value is reached.
- d. When the last of the 16 values is entered and becomes solid, TPS Right 17-32 or TPS Left 17-32 appears.
- e. Continue entering and pausing.

5. After the 32nd number is entered and becomes solid, the number is automatically entered.

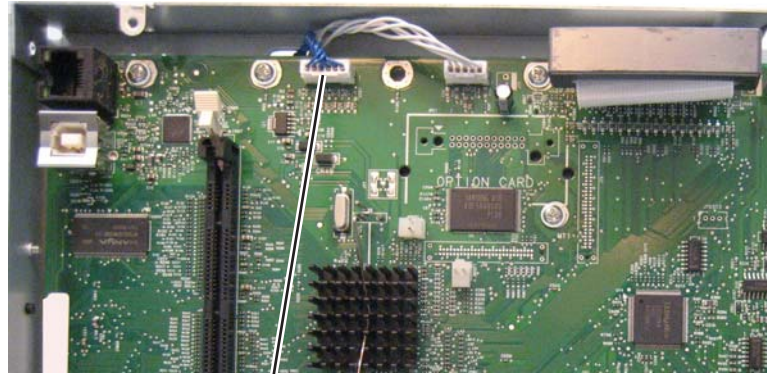
- If the number is incorrect, **Checksum does not match** appears, and the original screen appears to reenter the value.
- If the number is correct, **Saving changes to NVRAM** appears.

Toner meter cycle (TMC) card removal

See **“Toner meter cycle card assembly” on page 7-7** for the part number.

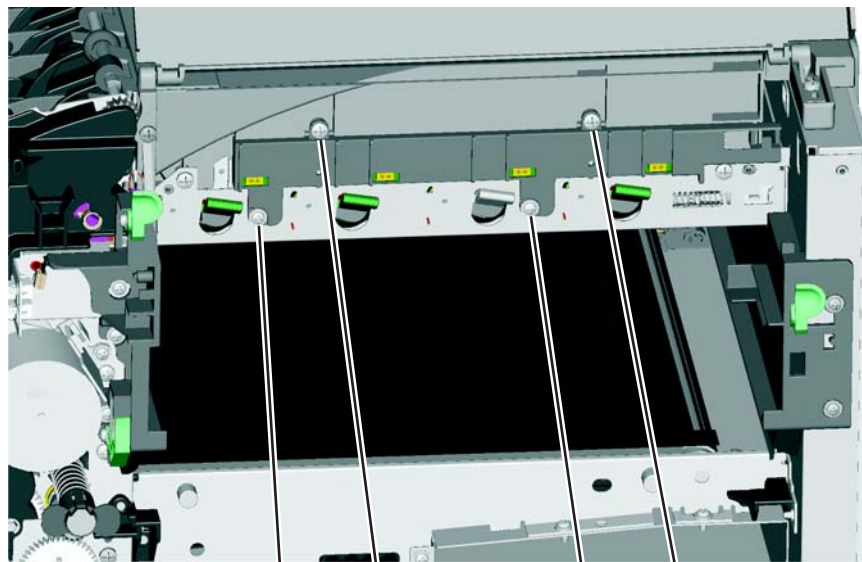
1. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
2. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10**.
3. Remove the waste toner bottle. See **“Waste toner bottle removal” on page 4-60**.
4. Remove the imaging unit (IU). See **“Imaging unit (IU) removal” on page 4-35**.
5. Disconnect the TMC cable from JCTM1 connector (A), and push the toner meter cycle card cable through the frame opening.

Note: Observe the routing for reinstallation.



A

6. Remove the two plastic screws (B), the two metal screws (C), and remove the card.



C

B

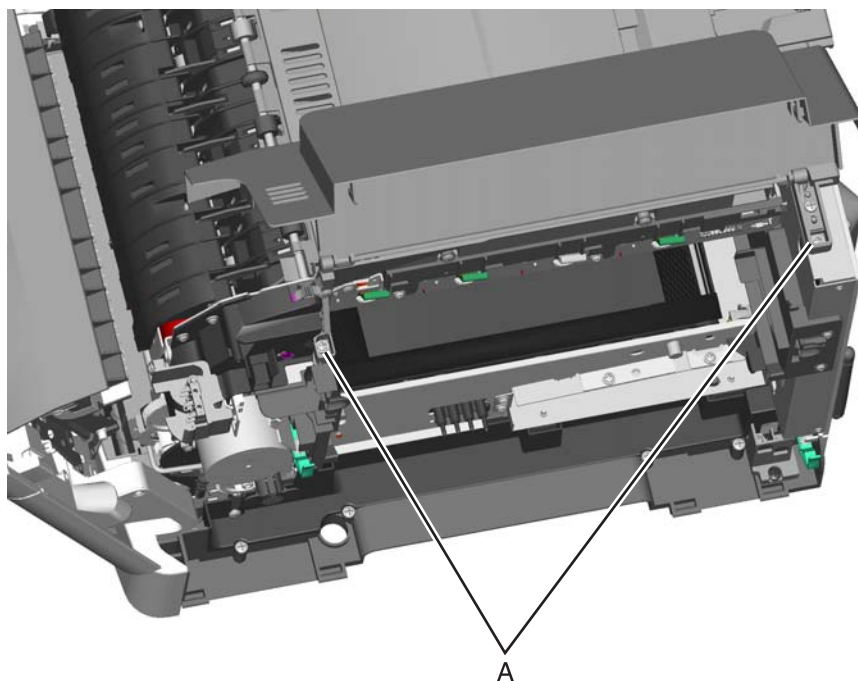
C

B

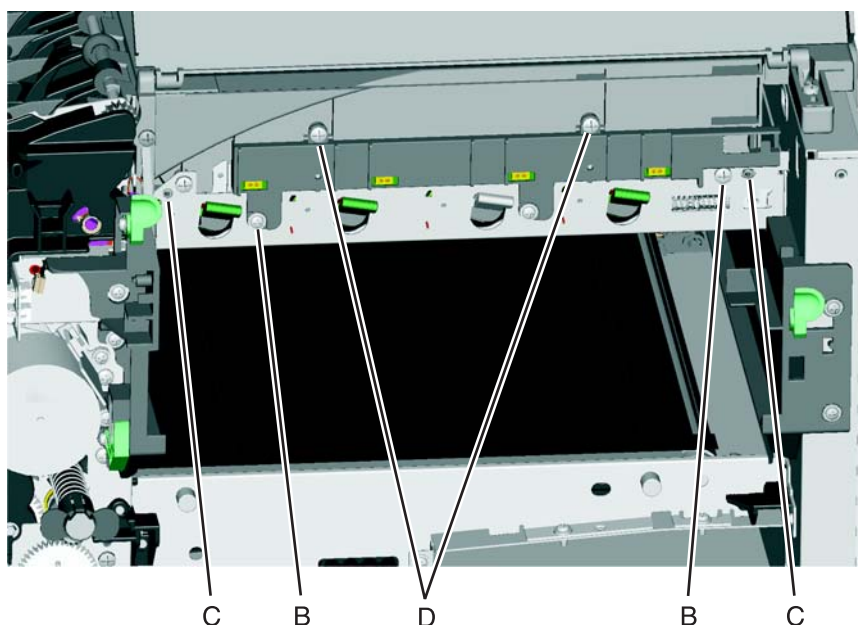
Installation notes:

- Be sure the cable runs through the retainer.
- The toner meter cycle card is a tight fit. Insert the bottom edge inside the frame, and then push down on the top edge to clear the top cover.
- In some cases, the top cover will have to be loosened so the right edge of the top cover can be lifted to get the toner meter cycle card back into position.

1. Remove the two machine screws (A).



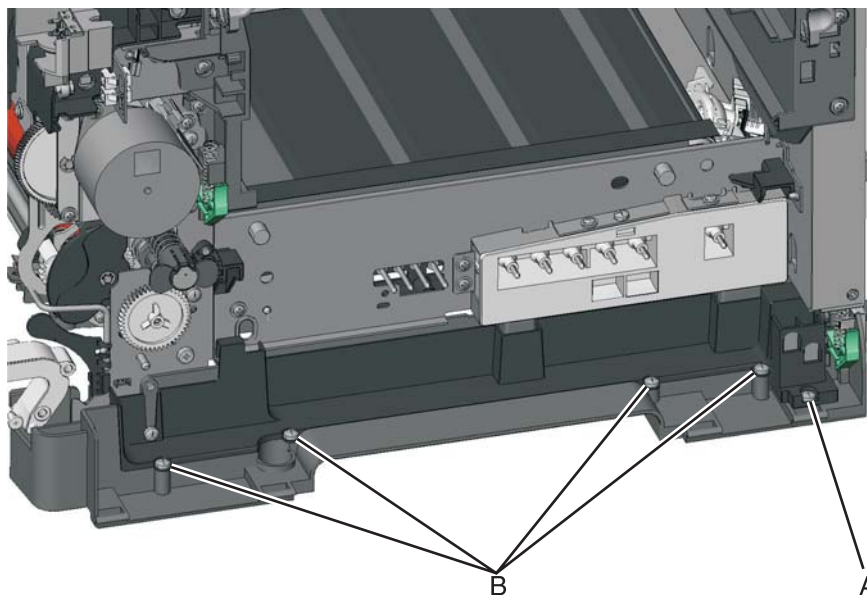
2. Remove the two screws (B).
3. Push in on the cover above the locating pins (C) while lifting to disengage the cover. Carefully lift the cover just enough for clearance for the toner meter cycle card.
4. Position the toner meter cycle card.
5. Replace the screws (D), and replace the top cover.



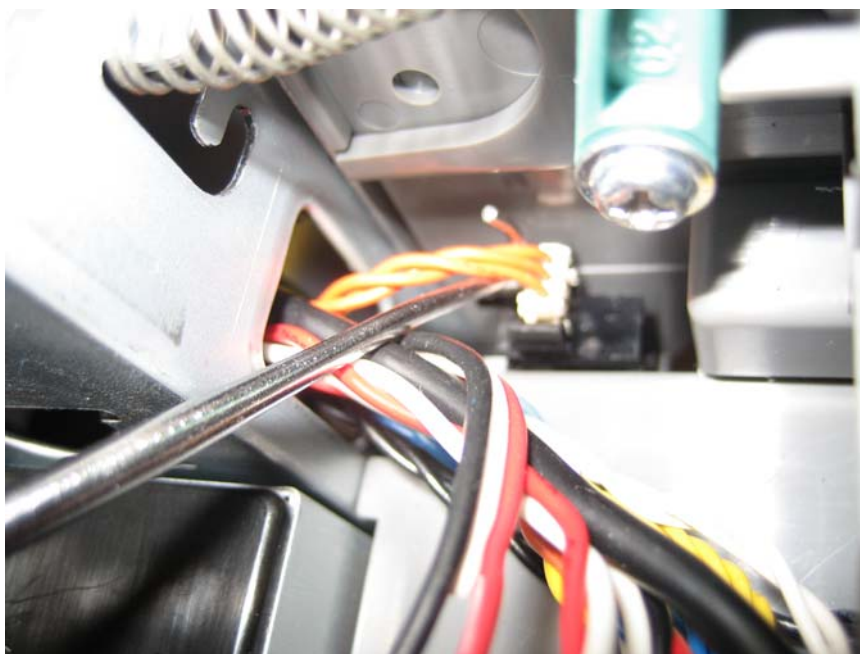
Tray present sensor removal

See “photo sensors” on [page 7-7](#) for the part number.

1. Remove the media tray.
2. Remove the imaging unit. See [“Imaging unit \(IU\) removal” on page 4-35](#).
3. Remove the waste toner bottle. See [“Waste toner bottle removal” on page 4-60](#).
4. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
Note: The waste toner bottle sensor contact does not need to be unplugged or removed.
5. Remove the four screws (B) from the cable cover, and remove the cable cover.



6. Turn the printer on the back.
7. Remove the connector and the sensor from the bracket, tilt them, and push them through the opening.
Note: You may need a springhook to disconnect the sensor from the bracket.



8. Tilt the sensor (C) and push it through.
9. Disconnect the cable from the tray present sensor, and remove the sensor.

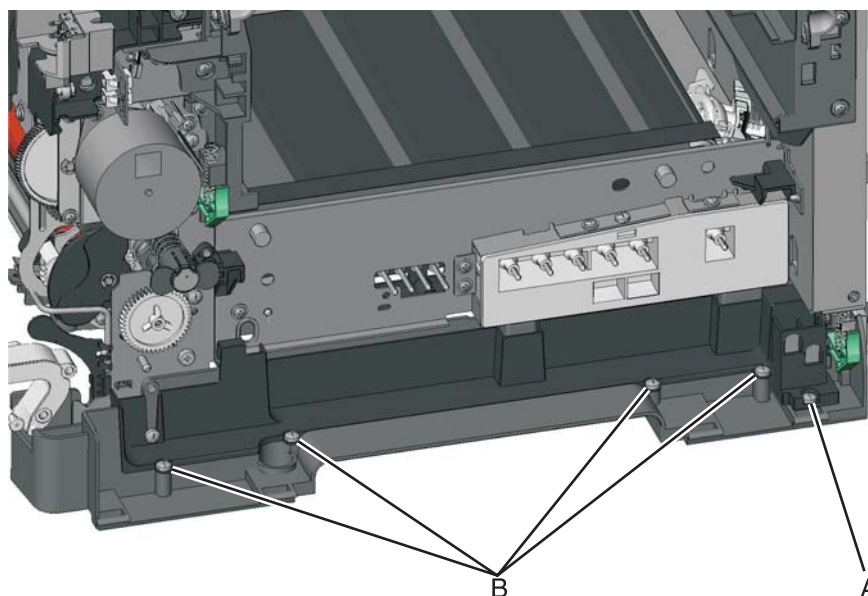


USB port connector removal

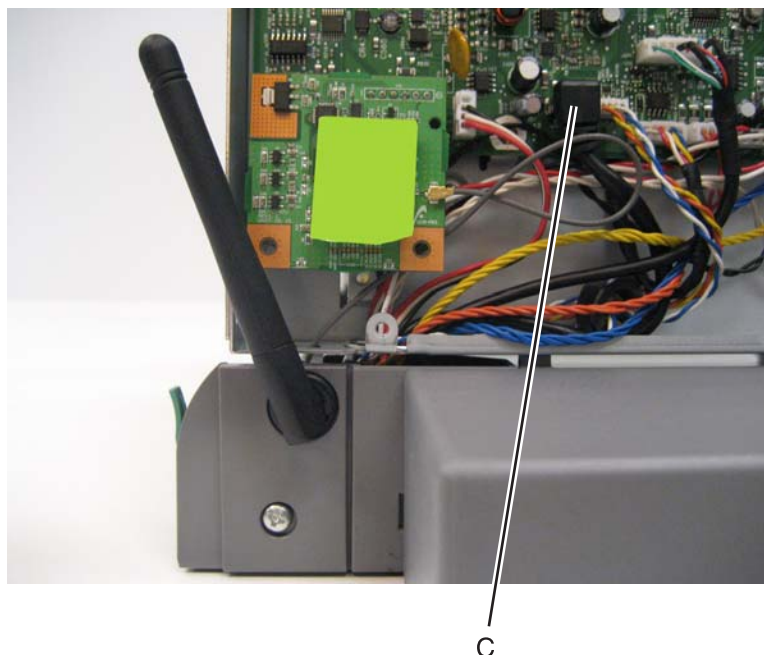
See **“USB port and cable (for portable flash drive)”** on page 7-8 for the part number.

The FRU includes the USB port connector and cable.

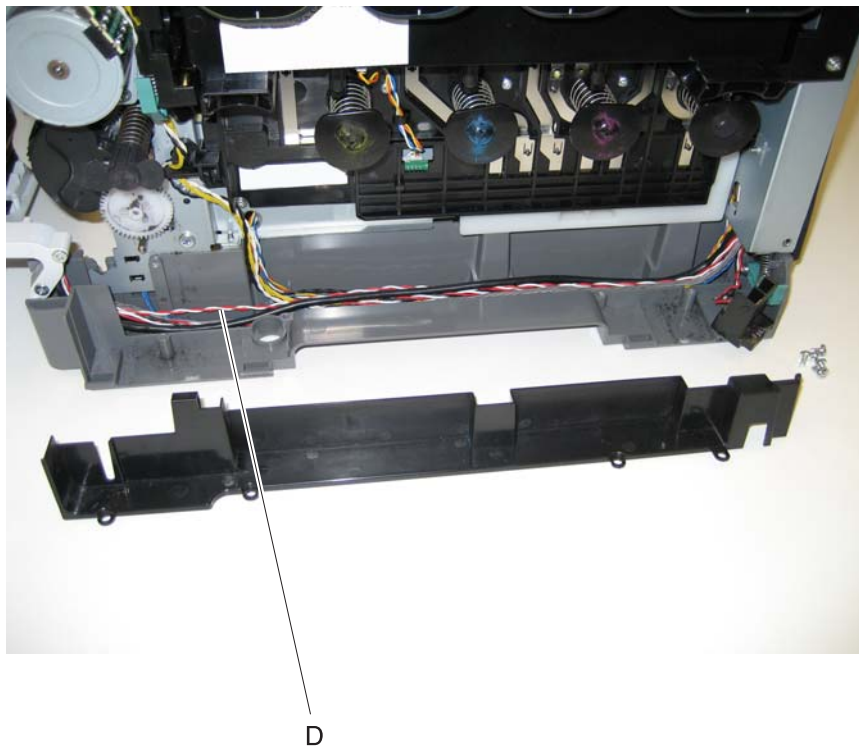
1. Remove the operator panel. See **“Operator panel removal”** on page 4-9.
2. Remove the right cover assembly. See **“Right cover assembly removal”** on page 4-10.
3. Remove the waste toner bottle. See **“Waste toner bottle removal”** on page 4-60.
4. Remove the rear shield. See **“Rear shield removal”** on page 4-11.
5. Remove the rear screw (A) in the waste toner bottle sensor contact to allow access to the cable cover.
Note: The waste toner bottle sensor contact does not need to be unplugged or removed.
6. Remove the four screws (B) from the cable cover.



7. Disconnect the USB port cable (C) from the controller board.



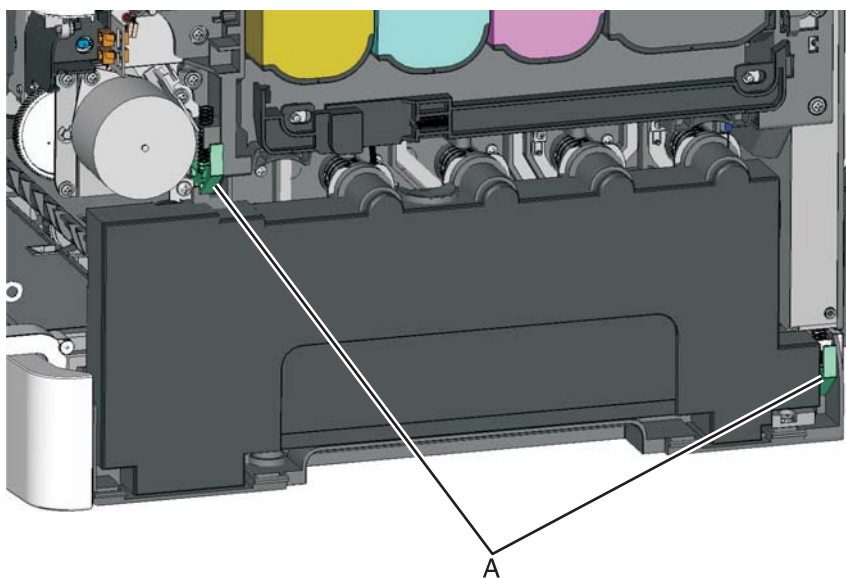
8. Remove the USB port cable from the cable channel on the right side.



Waste toner bottle removal

The waste toner bottle is not a FRU.

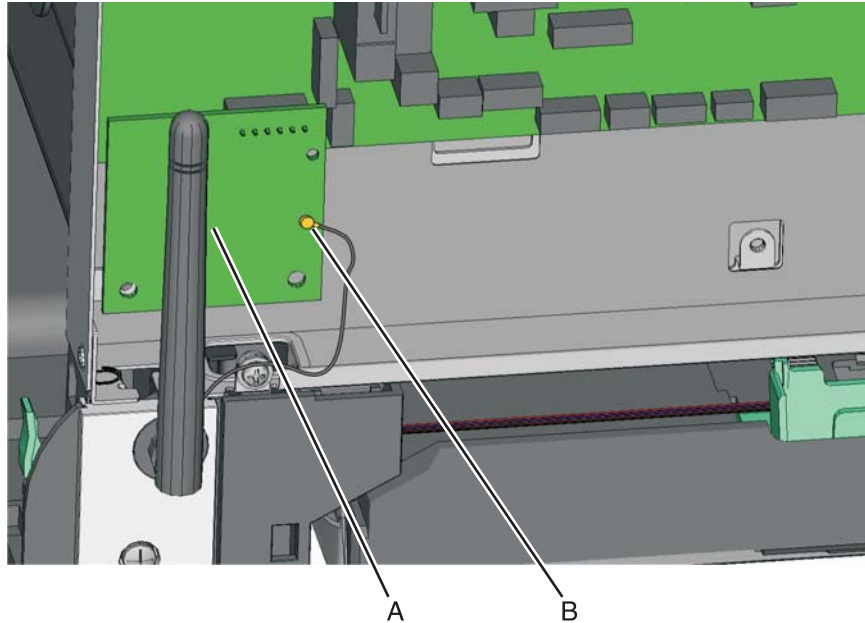
1. Open the front cover.
2. Lift the toner cover by sliding the latch to the left.
3. Remove the right cover assembly. See **“Right cover assembly removal” on page 4-10.**
4. Press the two tabs (A) to release the waste toner bottle, and remove it.



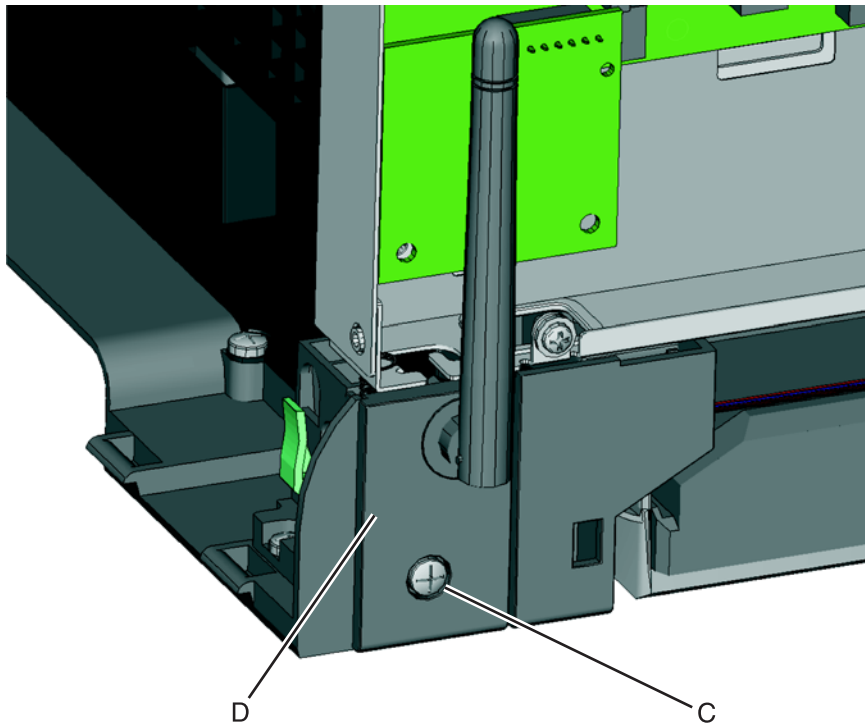
Wireless network antenna removal

See **“Antenna for wireless card—C544dw only” on page 7-7** for the part number.

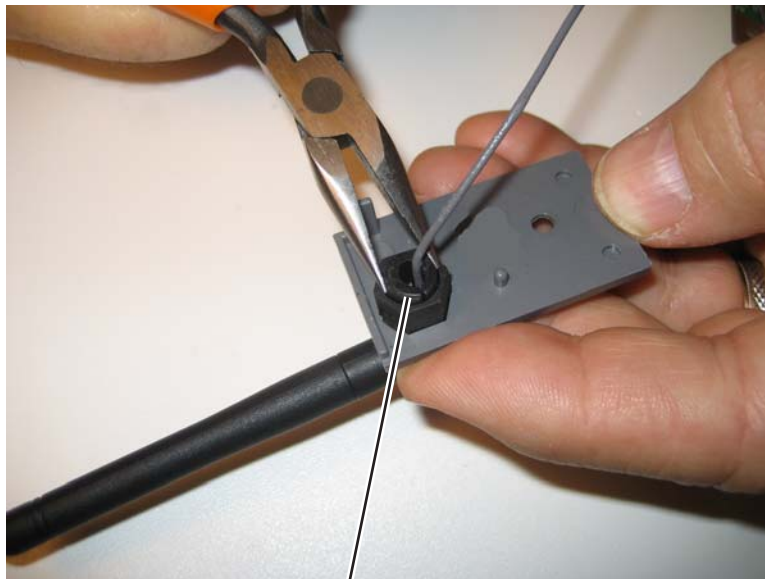
1. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
2. Lift to disconnect the wireless card (A) from the controller board.
3. Carefully disconnect the antenna cable (B) from the wireless card at the card.



4. Remove the screw (C) that secures the antenna cover (D) to the frame, and remove the antenna cover and antenna.

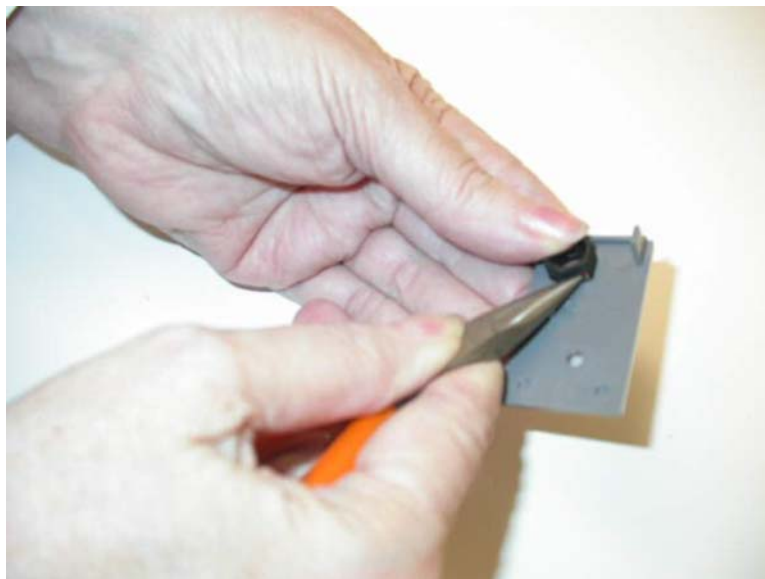


5. Gently squeeze the fastener (E) with needlenose pliers. Slide the antenna cable and cable through the hole in the bracket.



E

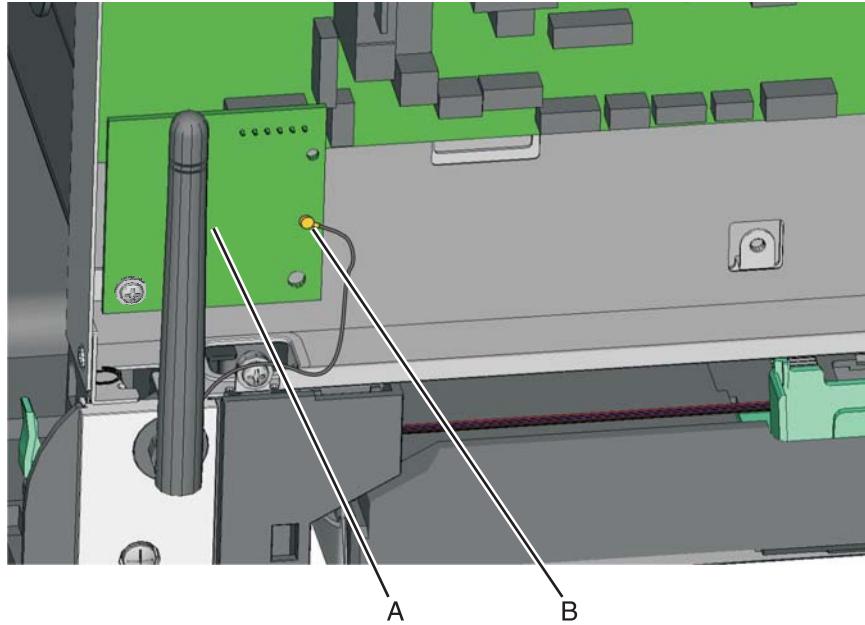
6. If the bushing is damaged, remove it by pressing the tabs on each side.
Note: Take note of the orientation of the bushing. When reinstalling, place the cover upright, bend the antenna as it would be positioned, and make sure the antenna can move about 30° in each direction from the vertical.



Wireless network card

See **“Wireless network card assembly—C544dw only” on page 7-7** for the part number.

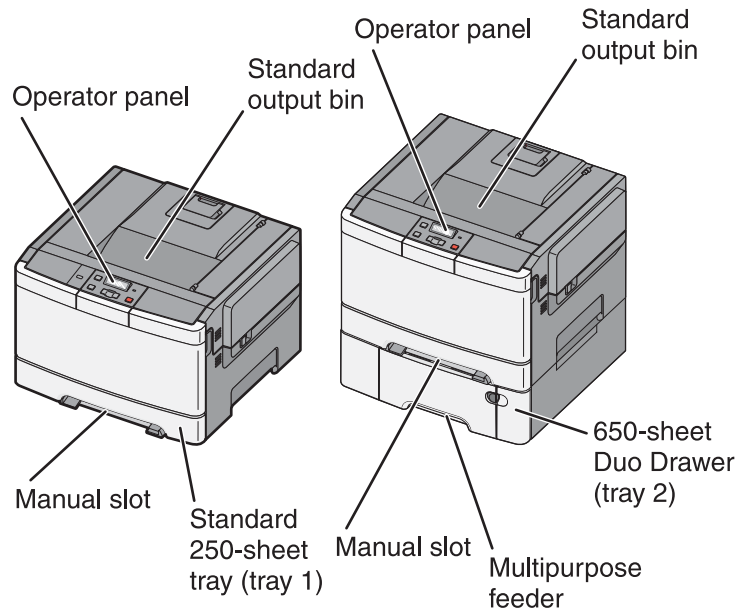
1. Remove the rear shield. See **“Rear shield removal” on page 4-11**.
2. Lift to remove the wireless card (A) from the controller board.
3. Carefully disconnect the antenna cable (B) from the wireless card at the card.



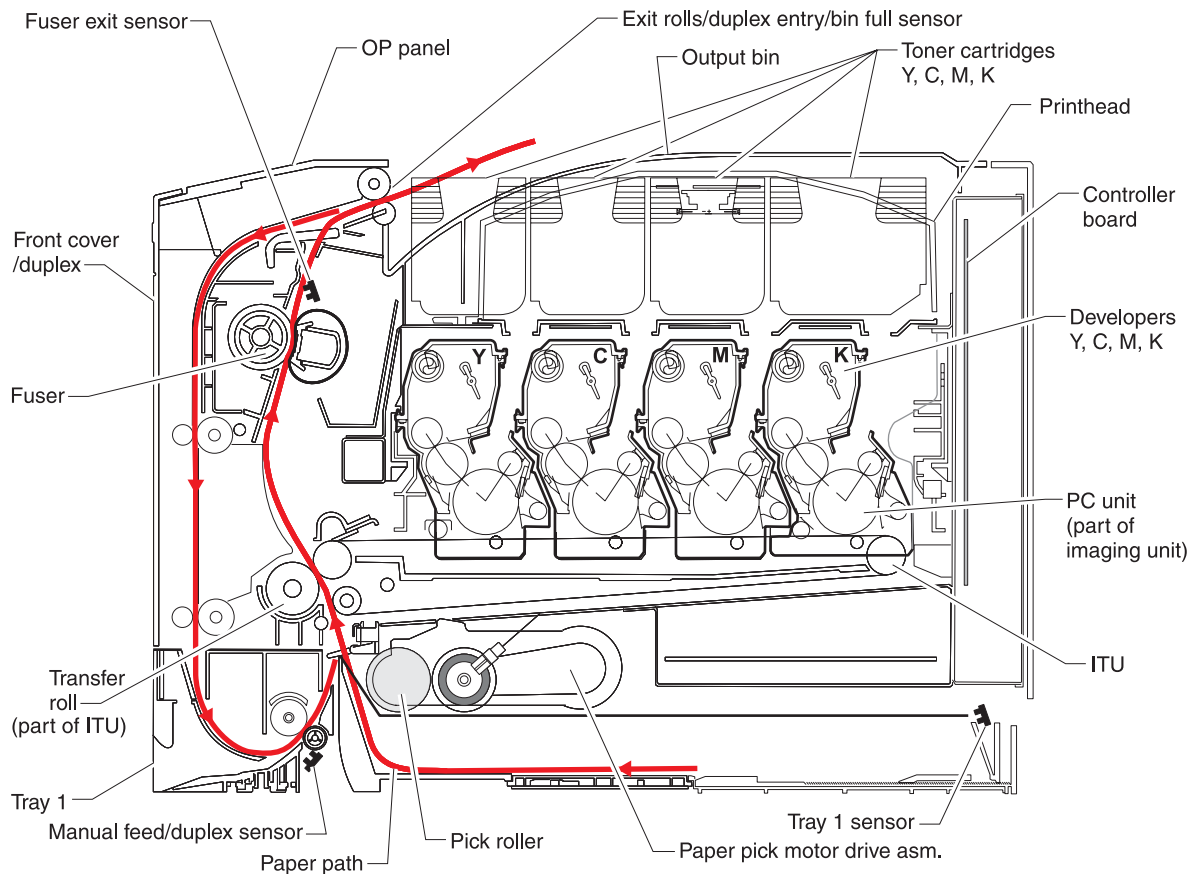
5025-2xx, 4xx

5. Connector locations

Locations

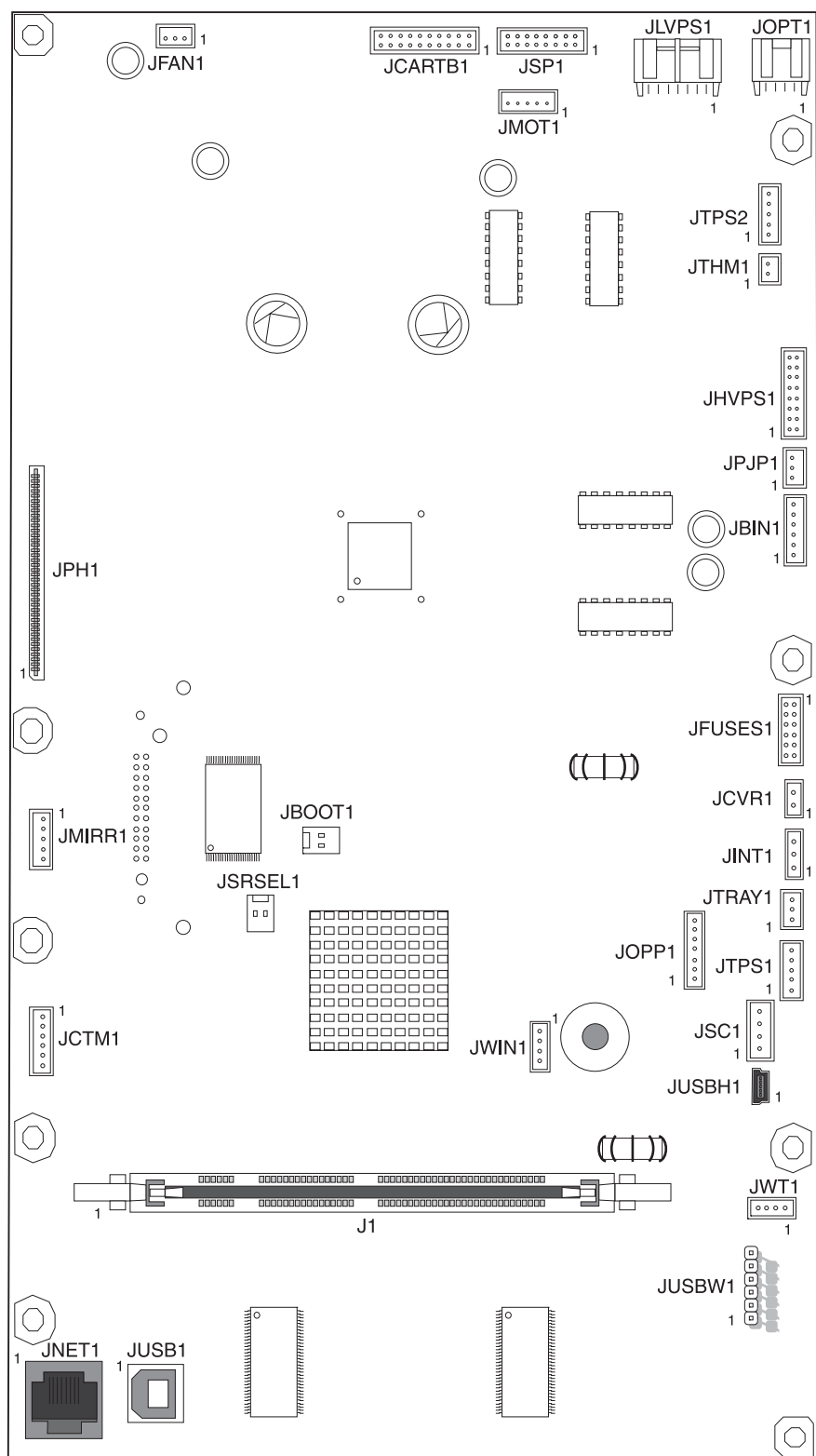


Note the paper path shown in red.



Connectors

Controller board diagram



Controller board connectors

Connector	Pin no.	Signal
JBIN1 Bin full connector	1	V_BF
	2	S_BIN_FB
	3	Ground
	4	V_BIN_4
	5	FUSER_EXIT_SNSR
	6	Ground
JCARTB1 Cyan, magenta, and yellow cartridges I/F	1	CART1_HALL_U
	2	NC_CARTB1_2
	3	+CART1_HALL_V
	4	V_CART2_WING_W
	5	CART1_HALL_W
	6	V_CART2_WING_V
	7	CART1_PG
	8	V_CART2_WIND_U
	9	Ground
	10	+5 V dc
	11	+5V dc
	12	Ground
	13	V_CARTR1_WIND_U
	14	CART2_FG
	15	V_CARTR1_WIND_V
	16	CART2_HALL_W
	17	V_CARTR1_WIND_W
	18	CART2_HALL_V
	19	NC_JCARTB1_19
	20	CART2_HALL_U
JCTM1 Toner meter connector	1	+5V_SW
	2	CART_METER_C_IN
	3	CART_METER_M_IN
	4	CART_METER_Y_IN
	5	CART_METER_K_IN
	6	Ground
JCVR1 Cover open switch	1	V_24V_CVR
	2	COVER_OPEN
JFAN1 System fan	1	FAN_FG
	2	Ground
	3	V_FAN_P3

Controller board connectors (continued)

Connector	Pin no.	Signal
JFUSES1 Fuser I/F	1	V_FUSER_PHA+
	2	V_FUSER_PHA-
	3	V_FUSER_PHB+
	4	V_FUSER_PHB-
	5	FUSER_HQ_THM
	6	FUSER_HK_THM_RTN
	7	+5V_SW
	8	Ground
	9	S1_MPF_SNS
	10	BUR_THM
	11	FUSER_BUR_THM_RTN
	12	Ground
JHVPS1 Developer/transfer HVPS	1	M_DEV_PWM_OUT
	2	K_DEV_PWM_OUT
	3	C_DEV_PWM_OUT
	4	CMY_CHG_PWM_OUT
	5	Y_DEV_PWM_OUT
	6	K_CHG_PWM_OUT
	7	CMY_SRVO_OUT
	8	ITM_TX_PWM_OUT
	9	CMY_TX_PWM_OUT
	10	ITM_SRVO_OUT
	11	K_SRVO_OUT
	12	K_TX_PWM_OUT
	13	+24 V dc
	14	Ground
	15	5V_HVPS_REF
	16	Ground
JINT1 +5V safety interlock connector	1	VS_JINT-1
	2	Ground
	3	VS_INT

Controller board connectors (continued)

Connector	Pin no.	Signal
JLVPS1 Low-voltage power supply	1	+5 V dc
	2	Ground
	3	+5 V dc
	4	Ground
	5	+5 V dc
	6	Ground
	7	+24 V dc
	8	Ground
	9	+24 V dc
	10	Ground
	11	+24 V dc
	12	Ground
	13	RELAY_DRIVE
	14	ZERO_XING_IN
	15	HEAT1_ON
	16	Ground
JMIRR1 Mirror motor connector	1	MM_REFR
	2	MM_LOCK
	3	MM_START
	4	Ground
	5	+24 V dc
JMOT1	1	MOT1_OUT1
	2	MOT1_OUT2
	3	+5V_SW
	4	MOT3_BOR (0)
	5	Ground
JNET1 RJ45 Ethernet connector	1	TD+
	2	V_CT_CS
	3	TD–
	4	RD+
	5	V_CT_CS
	6	RD–
	7	NC_JNET1–7
	GRN1A	1A +3.3 V dc
	GRN1C	1C
	GRN2A	2A Ground
	GRN2C	2C G_LED

Controller board connectors (continued)

Connector	Pin no.	Signal
JOPP1 Operator panel connector	1	I2C_DATA
	2	V_PANEL+5 V
	3	I2C_CLK
	4	Ground
	5	OP_IRQ_N
	6	+3.3 V dc
	7	Ground
JOPT1 Options I/F	1	TXD_PP
	2	Ground
	3	Ground
	4	RXD_PP
	5	+24 V dc
	6	Ground
	7	+5V_OPTIONS
	8	S2
	9	Ground
	10	Ground
JPH1 Printhead flat cable connector	1	VDO_HSYNC1_C
	2	VDO_PH_OK
	3	VDO_HSYNC0
	4	VDO_LEN0
	5	VDO_BOOST3
	6	-3.3 V dc
	7	VDO_BOOST1
	8	_5V_PH
	9	VDO_BOOST2 (Shade B)
	10	+5_PH
	11	VDO_BOOST0
	12	Ground
	13	D_VDO_7+
	14	D_VDO_7-
	15	Ground
	16	D_VDO_3+
	17	D_VDO_3-
	18	Ground
	19	D_VDO_6+
	20	D_VDO_6-
	21	Ground

Controller board connectors (continued)

Connector	Pin no.	Signal
JPH1 Printhead flat cable connector (continued)	22	D_VDO_2+
	23	D_VDO_2–
	24	Ground
	25	D_VDO_5+
	26	D_VDO_5–
	27	Ground
	28	D_VDO_1+
	29	D_VDO_1–
	30	Ground
	31	D_VDO_4+
	32	D_VDO_4–
	33	Ground
	34	D_VDO_0+
	35	D_VDO_0–
	36	Ground
	37	I2CCLK_PH
	38	VDO_LADJ1
	39	I2CDATA_PH
	40	VDO_LADJ0
JPJ1 Paper jam detection	1	+5V_SW
	2	PAPER_JAM_DET
	3	Ground
JSC1 SC cartridge	1	+3.3 V dc
	2	DATA_SC
	3	SCK_SC
	4	Ground

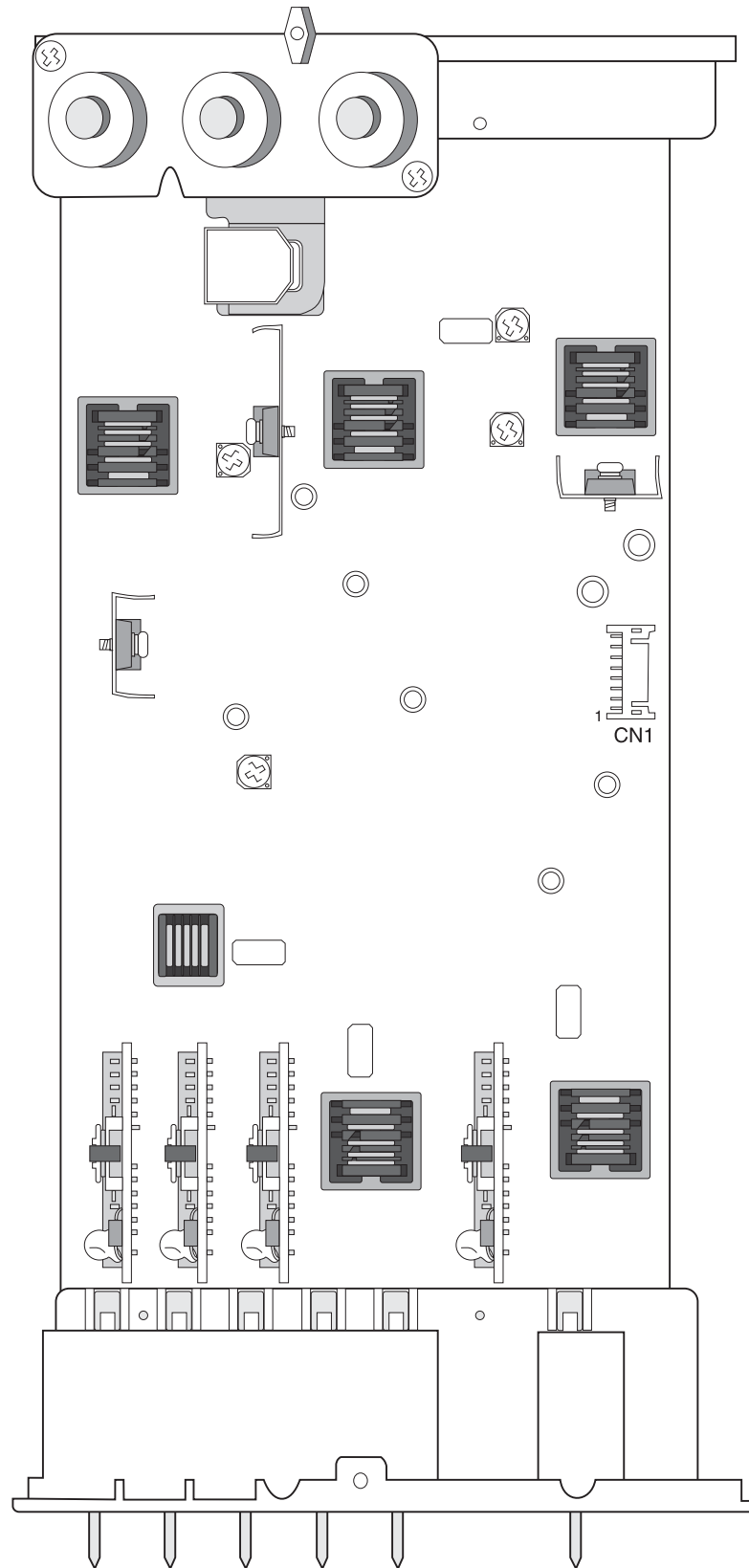
Controller board connectors (continued)

Connector	Pin no.	Signal
JSP1 Smart pick drive	1	ANODE
	2	M1_OUT1
	3	CATHODE
	4	M1_OUT2
	5	VCC
	6	Ground
	7	Ground
	8	CATHODE
	9	VOUTA
	10	+5 V dc
	11	VOUTB
	12	ANODE
	13	Ground
	14	ANODE
	15	+5 V dc
	16	CATHODE
JSRSEL1 Serial select	1	SERIAL_SEL
	2	Ground
JTHM1 TPS therm connector	1	TPS_THERM_SNS
	2	TPS_SNS_RTN
JTPS1 TPS1 connector	2	ANODE
	1	CATHODE
	3	Ground
	4	+5V_SW
	5	Ground
JTPS2 TPS2 connector	1	ANODE
	2	CATHODE
	3	Ground
	4	+5 V_SW
	5	Ground
JTRAY1 Bottle sensors	1	+5V_SW
	2	DUPLEX_ENT
	3	Ground

Controller board connectors (continued)

Connector	Pin no.	Signal
JUSB1 Port USB connector	G2	Ground
	1	USB +5 V dc
	2	USB D–
	3	USB D+
	4	Ground
	G1	Ground
JUSBW1 USB wireless connector	1	Ground
	2	USB_HST_VP
	3	USB_HST_VM
	4	Ground
	5	+3.3 V dc
	6	+3.3 V dc
JWT1 Waste toner detection	1	SENSE
	2	VREF
	3	VAC
	4	Ground

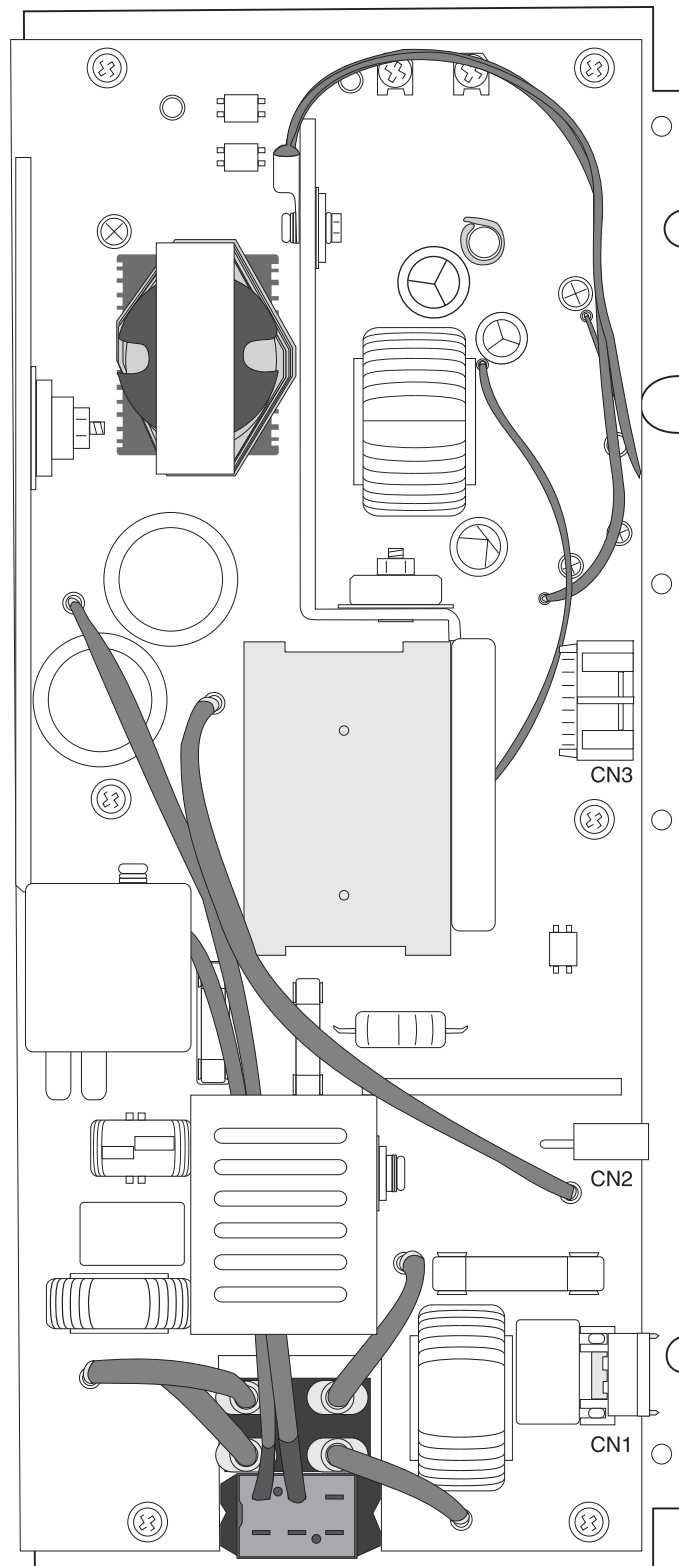
High-voltage power supply (HVPS) diagram



High-voltage power supply (HVPS) connectors

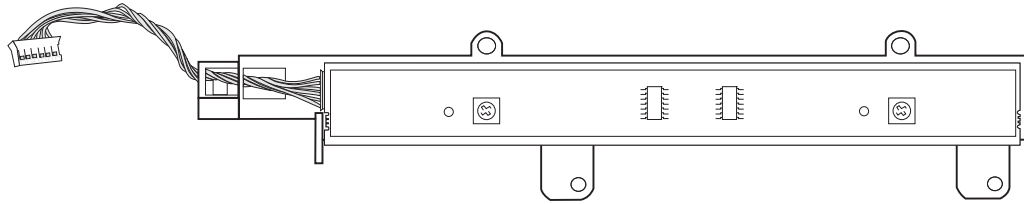
Connector	Pin no.	Signal
J1 USB Port	G1	Ground
	1	USB +5 V dc
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground

Low-voltage power supply (LVPS) diagram



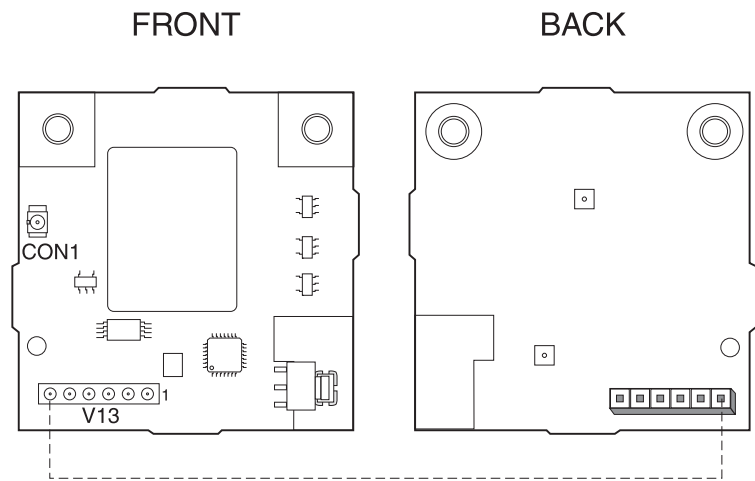
Low-voltage power supply (LVPS) connectors

Connector	Pin no.	Signal
J1 USB Port	G1	Ground
	1	USB +5 V dc
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground

Toner meter cycle (TMC) card**Wireless network card**

Connector	Pin no.	Signal
	G1	Ground
	1	USB +5 V dc
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground

Wireless network card



Wireless network card

Connector	Pin no.	Signal
	G1	Ground
	1	USB +5 V dc
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground

6. Preventive maintenance

This chapter describes procedures for printer preventive maintenance. Follow these recommendations to help prevent problems and maintain optimum performance.

Safety inspection guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

If any unsafe conditions exist, find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items:

- Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply
- Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover
- Possible safety exposure from any non-Lexmark attachments

5025-2xx, 4xx

7. Parts catalog

How to use this parts catalog

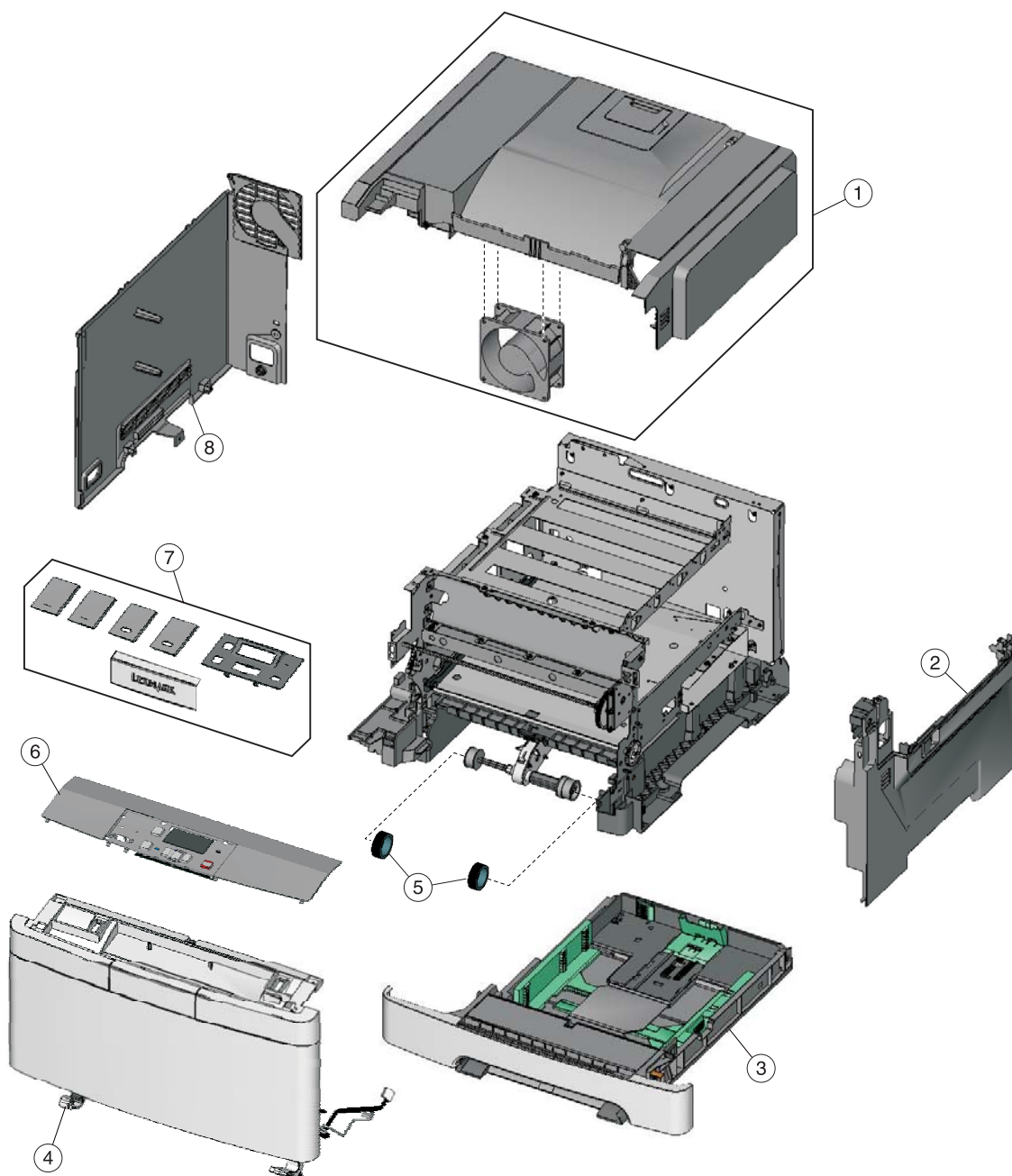
The following legend is used in the parts catalog:

Asm-index	Part number	Units/mach	Units/FRU	Description
-----------	-------------	------------	-----------	-------------

- **Asm-index:** Identifies the assembly and the item in the diagram. For example, 3-1 indicates Assembly 3 and item number 1 in the table.
- **Part number:** Identifies the unique number that identifies this FRU.
- **Units/mach:** Refers to the number of units actually used in the base machine or product.
- **Units/FRU:** Refers to the number of units packaged together and identified by the part number.
- **NS:** (Not shown) in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- **PP:** (Parts Packet) in the parts description column indicates the part is contained in a parts packet.
- Model information used in the parts catalog:

Machine type/model	Term used in parts	Product name	Description
5025-210	210	Lexmark C540n	Network
5025-230	230	Lexmark C543dn	Network, duplex
5025-410	410	Lexmark C544n	Network
5025-430	430	Lexmark C544dn	Network, duplex
5025-43W	43W	Lexmark C544dw	Wireless network, duplex

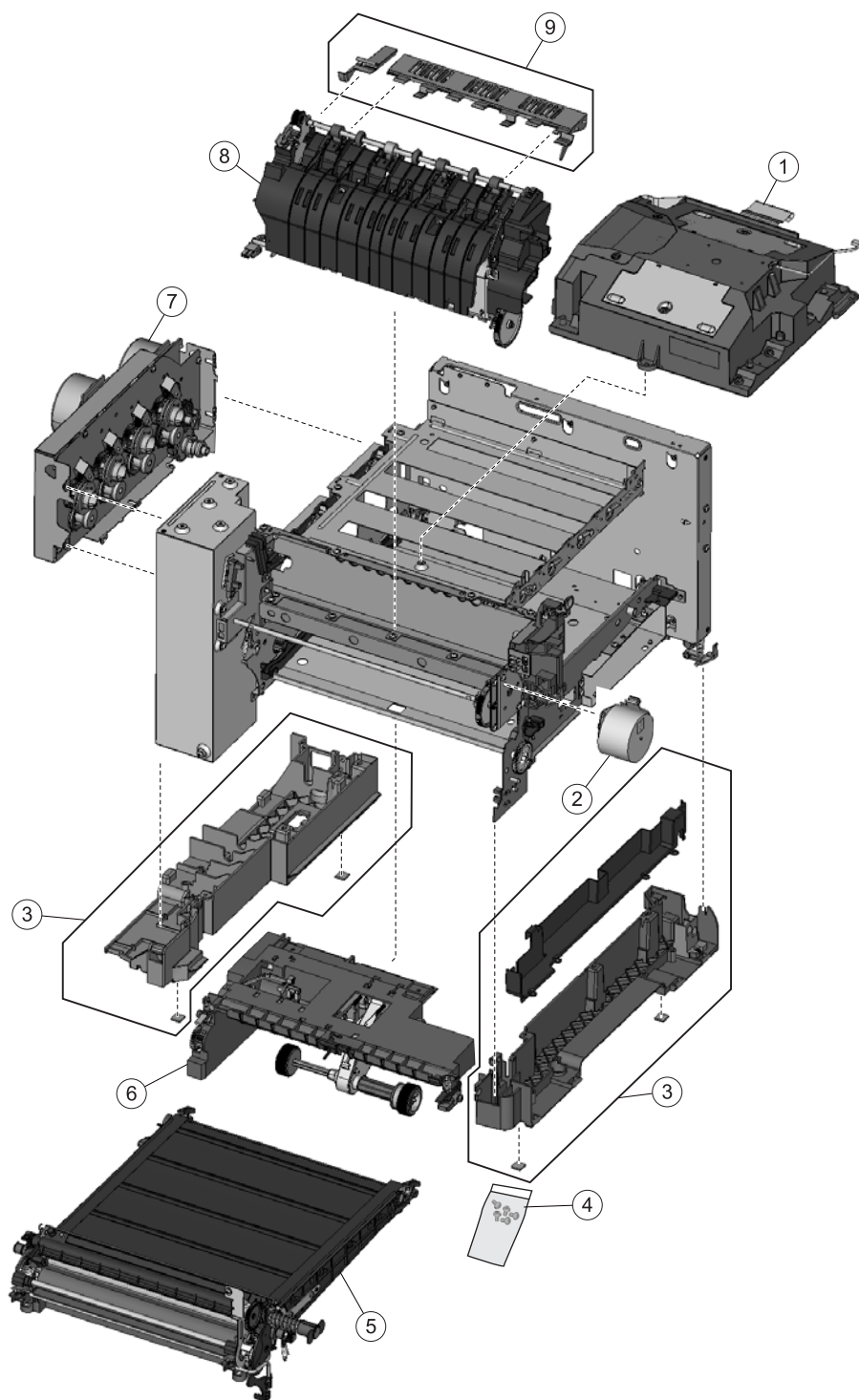
Assembly 1: Covers



Assembly 1: Covers

Asm-Index	Part number	Units/mach	Units/FRU	Description
1—1	40X5418	1	1	Top cover assembly
2	40X5416	1	1	Right cover assembly
3	40X5419	1	1	250-sheet tray assembly
4	40X5430	1	1	Front cover assembly (including duplex and USB port cable)—C543dn, C544dn, C544n
4	40X5420	1	1	Front cover assembly (excluding duplex and USB port cable)—C540n
5	40X5168	2	2	Pick tires
6	40X5431	1	1	Operator panel and display assembly
6	40X5436	1	1	Operator panel (DBCS) and display assembly
7	40X5432	1	1	Operator panel bezel and name plates, including: <ul style="list-style-type: none"> • Bezel (1) • Name plates (4) • Logo plate (1)
8	40X5417	1	1	Left cover assembly
NS	40X5441	1	1	Dust cover

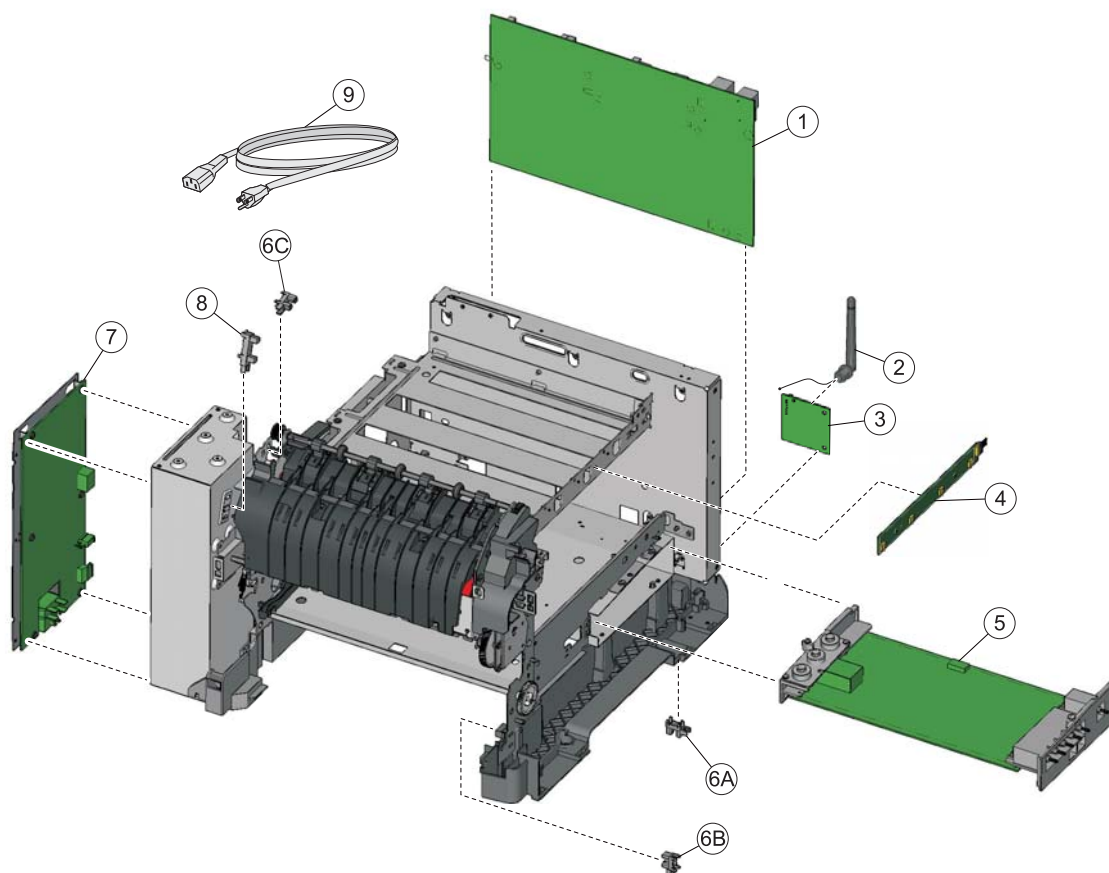
Assembly 2: Frames



Assembly 2: Frames

Asm-Index	Part number	Units/mach	Units/FRU	Description
2—1	40X5411	1	1	Printhead
2	40X5415	1	1	Fuser drive motor assembly
3	40X5422	1	1	Lower left frame and lower right frame with cable cover
4	40X5424	1	1	Screw packet, miscellaneous screws <ul style="list-style-type: none"> • TAPTITE M3 L6 PANHD(4) • Tray Bias (2) • Fuser Latch (2) • ITU Front Hold Down (1) • Front Cover Latch Spring (2) • M3 x 6 Pan Head (2) • M3 x 6 Shoulder (1) • M3.5 X 5 Flat Head Plastite (1) • METAL ROLN M3.5 8L (2) • PLAST ROLN 2.9 8L (2) • PLAST ROLN 3.5 6L (4)
5	40X5403	1	1	Image transfer unit (ITU) assembly
6	40X5410	1	1	Autocompensator mechanism (ACM)—standard tray
7	40X5412	1	1	Main drive gear assembly, with motors
8	40X5437	1	1	Fuser assembly, 115 V
8	40X5438	1	1	Fuser assembly, 230 V
8	40X5439	1	1	Fuser assembly 100 V
9	40X5433	1	1	Exit deflector and bin full sensor flag

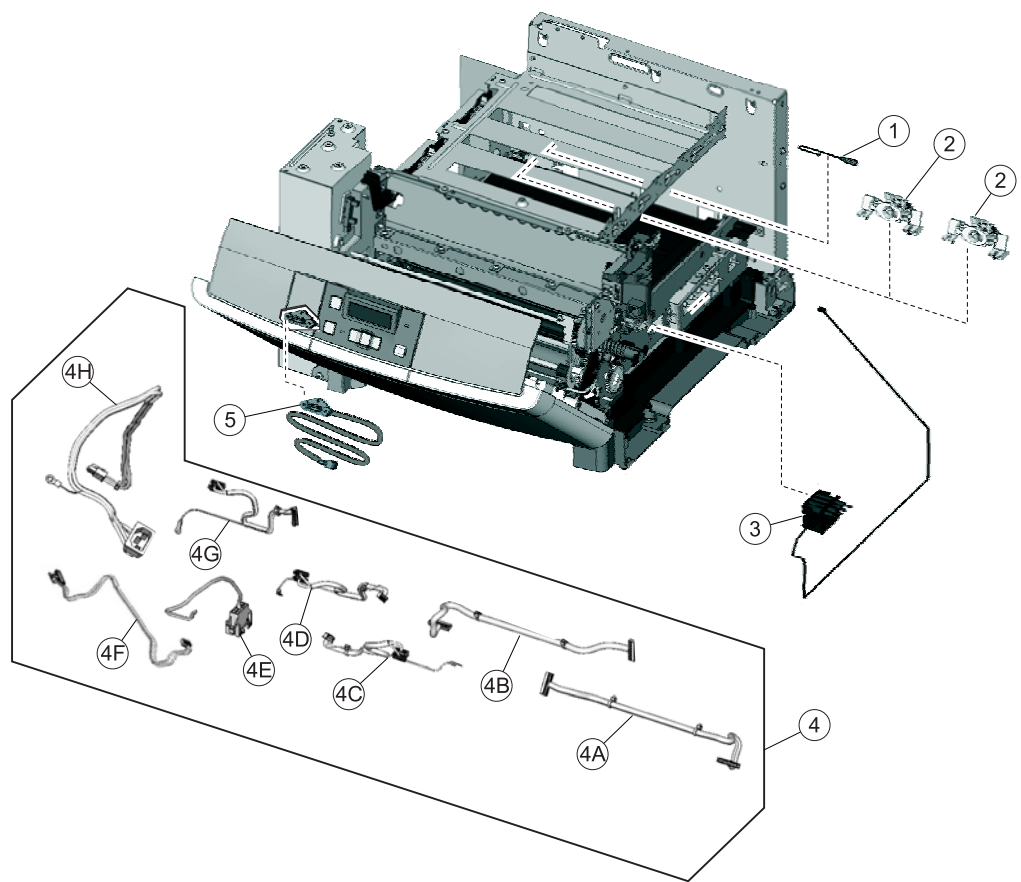
Assembly 3: Electronics



Assembly 3: Electronics

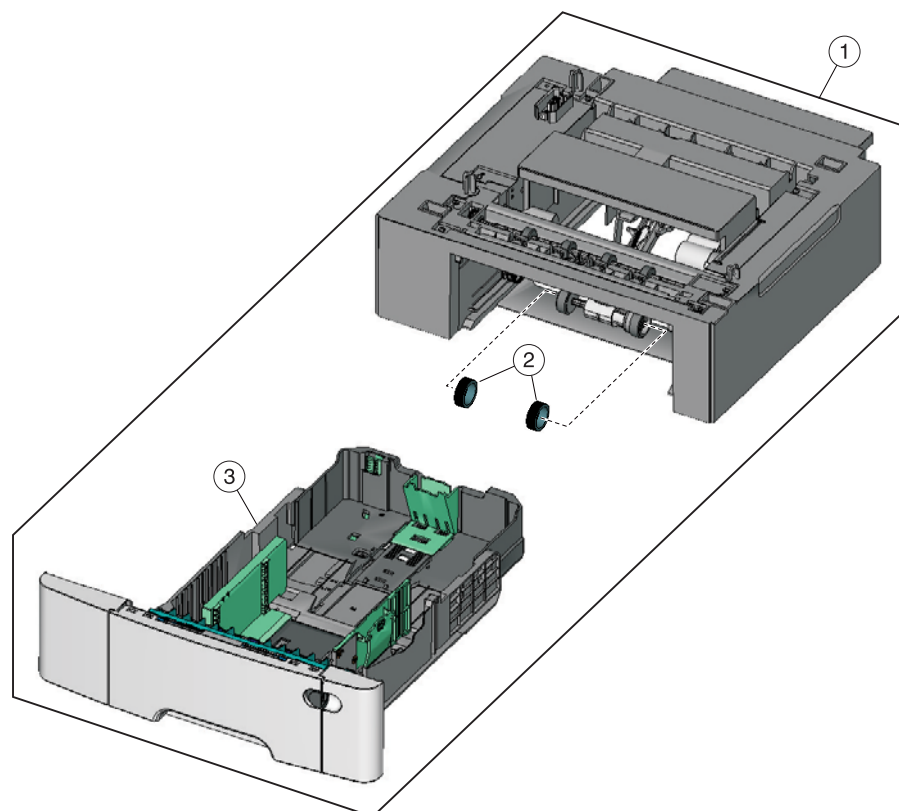
Asm-Index	Part number	Units/mach	Units/FRU	Description
3—1	40X5427	1	1	Controller board—C544n, C544dn, C544dw
1	40X5428	1	1	Controller board—C540n, C543dn
2	40X5319	1	1	Antenna for wireless card—C544dw only
3	40X5036	1	1	Wireless network card assembly—C544dw only
4	40X5404	1	1	Toner meter cycle card assembly
5	40X5405	1	1	High-voltage power supply
6	40X5426	3	1	Photo sensor (one per package), used for: A Tray present B Duplex C Exit/Bin full/narrow media sensor
7	40X5409	1	1	Low-voltage power supply (universal power supply)
8	40X5413	1	1	Fuser exit sensor
9	40X1766	1	1	Power cord, 2.5M (straight)—USA, Canada, Bolivia, Peru, (shown)
9	40X0288	1	1	Power cord, 2.5M (straight)—Argentina
9	40X0301	1	1	Power cord, 2.5M (straight)—Australia
9	40X0277	1	1	Power cord, 1.8M (straight)—Brazil
9	40X0273	1	1	Power cord, 2.5M (straight)—Chile, Uruguay
9	40X0279	1	1	Power cord, 2.5M (straight)—Denmark
9	40X0275	1	1	Power cord, 2.5M (straight)—Israel
9	40X0270	1	1	Power cord, 2.5M (straight)—Japan
9	40X1792	1	1	Power cord, 2.5M (straight)—Korea
9	40X3141	1	1	Power cord, 2.5M (straight)—Paraguay
9	40X0303	1	1	Power cord, 2.5M (straight)—PRC
9	40X1773	1	1	Power cord, 2.5M (straight)—South Africa
9	40X1772	1	1	Power cord, 2.5M (straight)—Switzerland
9	40X1791	1	1	Power cord, 2.5M (straight)—Taiwan
9	40X0287	1	1	Power cord, 2.5M (straight)—Traditional Italy
9	40X0271	1	1	Power cord, 2.5M (straight)—United Kingdom

Assembly 4: Cables



Asm-Index	Part number	Units/mach	Units/FRU	Description
4—1	40X5429	1	1	ITU paper path thermistor
2	40X5414	2	1	Toner density sensors, left or right (one in package)
3	40X5421	4	4	Toner cartridge contacts (Pogo pin)
4	40X5423	1	1	Cable packet, used for: A AC power in B Low-voltage power supply C High-voltage power supply D Fuser / S1 E CYM / K motors F Option Tray G Fuser exit/narrow media/bin full H Wire tie—1.0mm I Tray present cable
5	40X5425	1	1	USB port and cable (for portable flash drive)

Assembly 5: Options and miscellaneous



Asm-Index	Part number	Units/opt.	Units/FRU	Description
5—1	40X5434	1	1	Optional 550-sheet duo drawer with 100-sheet MPF unit (complete)
2	40X5168	2	2	Pick tires
3	40X5435	1	1	550-sheet duo drawer with 100-sheet MPF tray assembly
NS	40X5937	1	1	128MB DDR DRAM DIMM card assembly
NS	40X5938	1	1	256MB DDR DRAM DIMM card assembly
NS	40X5939	1	1	512MB DDR DRAM DIMM card assembly
NS	40X1455	1	1	64MB Flash card assembly
NS	40X5969	1	1	Korean font card assembly
NS	40X5970	1	1	Simplified Chinese font card assembly
NS	40X5971	1	1	Traditional Chinese font card assembly
NS	40X5972	1	1	Japanese font card assembly
NS	40X1368	1	1	USB cable, packaged (2 m)
NS		1	1	Field relocation package assembly

5025-2xx, 4xx

Index

Numerics

- 1xx service errors **2-12-2-18**
- 250-sheet media tray
 - autocompensator mechanism (ACM) **4-15**
 - pick tires removal **4-48**
- 2xx paper jam
 - locations **3-29**
 - messages **2-11**
- 3x–9x user messages **2-7-2-10**
- 650-sheet duo drawer
 - description **1-1**
 - parts catalog **7-9**
- 9xx service errors **2-18-2-23**

A

- accessing service menus **3-1**
- acoustics **1-7**
- acronyms **1-15**
- alignment **3-7**
- antenna, wireless network
 - parts catalog **7-6**
 - removal **4-61**
- attendance messages **2-5**
- Auto Color Adj **3-27**
- autocompensator mechanism (ACM)
 - parts catalog **7-4**
 - removal **4-15**
 - service checks **2-27**

B

- bezel
 - parts catalog **7-2**
 - removal **4-8**
- bin full sensor
 - flag removal **4-24**
 - locations **5-1**
 - parts catalog **7-6**
 - removal **4-18**
 - service check **2-27**
- bin full sensor flag
 - locations **5-1**
 - parts catalog **7-4, 7-5**
- Button Test **3-12**
- buttons, operator panel **2-55**

C

- clearances, printer **1-5**
- CMYK color **3-45**
- color conversion tables **3-46**
- color correction, manual **3-46**
- color samples **3-47**
- color theory **3-45**
- Color Trapping **3-24**
- configuration ID **3-18**
- configuration menu

- accessing **3-1**
- Auto Color Adj **3-27**
- available tests **3-24**
- Color Trapping **3-24**
- Demo Mode **3-25**
- Energy Conserve **3-26**
- Event Log **3-25**
- exit Config Menu **3-27**
- Factory Defaults **3-26**
- Font Sharpening **3-27**
- Panel Menus **3-25**
- PPDS Emulation **3-25**
- Printer Setup
 - Reset Fuser Cnt **3-19**
- Prt Quality Pages **3-24**
- Reports
 - Menu Settings Page **3-25**

- controller board
 - connections **5-2**
 - Motor Detect **3-16**
 - parts catalog **7-6**
 - removal **4-19**

- covers
 - parts catalog **7-2**
 - removals **4-2**

D

- dead printer service check **2-28**
- defaults **3-17**
 - EP Defaults **3-19**
 - factory defaults **3-26**
- Demo Mode **3-25**
- developer units
 - description **4-35**
 - removal **4-21**
- diagnostics
 - 2xx paper jam messages **2-11**
 - 9xx service error messages **2-12**
 - power on reset (POR) **2-2**
 - service checks **2-24**
 - service error messages **2-12**
 - start **2-1**
 - symptom tables **2-3**
 - user status/attendance messages **2-5**
- diagnostics menu
 - accessing **3-1**
 - Alignment Menu **3-7**
 - available tests **3-2**
 - Base Sensor Tests
 - C TMC Sensor **3-16**
 - Fuser Exit **3-16**
 - Input **3-16**
 - K TMC Sensor **3-16**
 - M TMC Sensor **3-16**

- S1 **3-16**
- S2 **3-16**
- Standard Bin **3-16**
- Y TMC Sensor **3-16**
- Device Tests
 - Flash Test **3-17**
- Duplex Tests
 - Left Margin **3-14**
 - Quick Test **3-13**
 - Top Margin **3-14**
- EP Setup
 - DC Charge Adjust **3-20**
 - Dev Bias Adj **3-20**
 - EP Defaults **3-19**
 - Fuser Temp **3-19**
 - Transfer Adjust **3-20**
- Event Log
 - Clear Log **3-22**
 - Display Log **3-21**
 - Print Log **3-22**
- exit diagnostics **3-23**
- Hardware Tests
 - Button Test **3-12**
 - DRAM Test **3-12**
 - Panel Test **3-11**
- Input Tray Tests
 - Feed Tests **3-15**
 - Sensor Test **3-15**
- Miscellaneous Tests
 - Motor Detect **3-16**
- Print Tests
 - input source tests **3-10**
 - Prt Quality Pgs **3-11**
- Printer Setup
 - Configuration ID **3-18**
 - Defaults **3-17**
 - Engine Setting 1–4 **3-18**
 - ITU Barcode **3-19**
 - Model Name **3-18**
 - Page Counts **3-17**
 - Serial Number **3-18**
- Registration **3-4**
 - Bottom Margin **3-4**
 - Left Margin **3-4**
 - Quick Test **3-5**
 - Right Margin **3-4**
 - Skew **3-5**
 - Top Margin **3-4**
- Reports
 - Menu Settings Page **3-21**
- TPS Setup
 - Cal Ref Adj **3-20**
 - Left **3-20**
 - Reset Color Cal **3-21**
 - Right **3-20**
- diagram, menu **2-56**
- DRAM Test **3-12**

- duplex
 - duplex sensor **2-29, 4-21**
 - Left Margin **3-14**
 - models **1-8**
 - Quick Test **3-13**
 - theory **3-44**
 - Top Margin **3-14**
- duplex sensor
 - locations **5-1**
- duplex unit
 - parts catalog **7-2**

E

- electrophotographic process (EP process) **3-33**
- Energy Conserve **3-26**
- engine setting **3-18**
- error codes
 - 1xx service error codes **2-12**
 - 2xx paper jams **2-11**
 - 9xx service error codes **2-18**
 - attendance messages **2-5**
- ESD-sensitive parts **4-1**
- event log
 - configuration menu **3-25**
 - diagnostics mode **3-21**
- exit deflector
 - parts catalog **7-4**
 - removal **4-24**

F

- Factory Defaults **3-26**
- fan, service check **2-25**
- Flash Test **3-17**
- Font Sharpening **3-27**
- frame, lower
 - left removal **4-39**
 - right removal **4-41**
- fuser assembly
 - parts catalog **7-4**
 - removal **4-26**
 - Reset Fuser Cnt **3-19**
 - service check **2-24, 2-32**
- fuser exit sensor
 - locations **5-1**
 - parts catalog **7-6**
 - removal **4-30**
 - service check **2-31**

H

- high-voltage power supply (HVPS)
 - connections **5-10**
 - parts catalog **7-6**
 - removal **4-31**

I

- image transfer unit (ITU)
 - ITU Barcode **3-19**
 - parts catalog **7-4**
 - removal **4-33**

imaging unit (IU)
 description **4-35**
 parts catalog **7-4**
 removal **4-35**
 input source tests **3-10**

L

lithium battery **ix, 4-19**
 low-voltage power supply (LVPS)
 connections **5-12**
 parts catalog **7-6**
 removal **4-37**

M

main drive gear assembly
 parts catalog **7-4**
 removal **4-45**
 media
 guidelines **1-12**
 input size **1-9**
 input sources **1-8**
 input type **1-10**
 output size and type **1-11**
 recycled **1-13**
 unacceptable media **1-12**
 weights **1-11**
 media jams **3-28**
 memory **1-2**
 menu (users), map **2-56**
 menu settings page
 configuration menu **3-25**
 diagnostics menu **3-21**
 menus
 accessing service menus **3-1**
 diagram **2-56**
 Menu Settings Page
 configuration menu **3-25**
 customer menu **2-42**
 diagnostic menu **3-21**
 messages
 customer attendance **2-5**
 Model Name **3-18**
 models **1-1**
 motors, main drive **4-45**
 MP feeder
 parts catalog **7-9**

N

name plate
 parts catalog **7-2**
 removal **4-8**

O

operating modes **1-3**
 operator panel
 buttons **2-55**
 overview **2-55**
 parts catalog **7-2**
 removal **4-9**
 service check **2-36**

display blank, 5 beeps **2-37**
 one or more buttons fail **2-36**
 options and features
 description **1-1**
 parts catalog **7-9**

P

Panel Menus **3-25**
 Panel Test **3-11**
 paper
 guidelines **1-12**
 input size **1-9**
 input sources **1-8**
 input type **1-10**
 output capacity **1-11**
 recycled **1-13**
 unacceptable paper **1-12**
 weights **1-11**
 paper jams
 avoiding **3-28**
 error messages **2-11**
 messages **3-28**
 paper path, theory **3-42**
 paper pick motor assembly
see autocompensator mechanism (ACM) **4-15**
 parts catalog
 cables **7-8**
 covers **7-2**
 electronics **7-6**
 frames **7-4**
 options and miscellaneous **7-9**
 password, panel menus **3-25**
 Perm Page Count **3-17**
 photoconductor unit
 description **4-35**
 imaging kit **4-35**
 pick tires
 parts catalog **7-2, 7-9**
 removal **4-48**
 pogo pin
see toner cartridge contacts
 POR sequence **2-2**
 power-on sequence (POR) **2-2**
 PPDS Emulation **3-25**
 print quality
 background **2-43**
 blank page **2-44**
 blurred or fuzzy print **2-45**
 half-color page **2-45**
 horizontal banding **2-46**
 horizontal line **2-46**
 insufficient fusing **2-47**
 menu settings page **2-42**
 missing image at edge **2-47**
 mottle (2–5mm speckles) **2-47**
 narrow vertical line **2-48**
 random marks **2-48**
 residual image **2-49**
 solid color page **2-50**
 vertical banding **2-50**

printhead

parts catalog **7-4**removal **4-49**service check **2-25**Prt Color Pg Count **3-17**Prt Mono Pg Count **3-17**

Prt Quality Pgs

configuration menu **3-24**diagnostic menu **3-11****Q**

quick test

duplex **3-13**single-page **3-5****R**

removals

autocompensator mechanism (ACM) **4-15**bin full sensor **4-18**bin full sensor flag **4-24**controller board **4-19**

covers

front cover assembly **4-2**left cover assembly **4-6**operator panel **4-9**operator panel bezel **4-8**operator panel name plate **4-8**rear shield **4-11**right cover **4-10**top cover assembly **4-12**developer unit **4-21**duplex sensor **4-21**exit deflector **4-24**fuser assembly **4-26**fuser drive motor assembly **4-29**fuser exit sensor **4-30**getting started **4-2**high-voltage power supply (HVPS) **4-31**image transfer unit (ITU) **4-33**imaging unit (IU) **4-35**left lower frame **4-39**low-voltage power supply (LVPS) **4-37**main drive gear assembly **4-45**photoconductor unit **4-35**pick tires, 250-sheet media tray **4-48**printhead **4-49**right lower frame **4-41**toner cartridge contacts **4-50**toner density sensor (TDS), left and right **4-53**toner meter cycle (TMC) card **4-55**tray present sensor **4-57**USB port connector **4-59**waste toner bottle **4-60**wireless network antenna **4-61**wireless network card **4-63**

reports

event log **3-21**, **3-25**menu settings page **3-21**, **3-25**Print Quality Pages **3-11**, **3-24**Quick Test **3-5**Quick Test (duplex) **3-13**Reset Fuser Cnt **3-19**RGB color **3-45****S**S1 sensor **2-29**safety information **xv**safety inspection guide **6-1**

sensors

bin full

Base Sensor Test (standard bin) **3-16**parts catalog **7-6**removal **4-18**

duplex

parts catalog **7-6**removal **4-21**service check **2-29**

front door

service check **2-30**

fuser exit

Base Sensor Test **3-16**parts catalog **7-6**removal **4-30**service check **2-31**

input

Base Sensor Test **3-16**service check **2-34**

S1

Base Sensor Tests **3-16**service check **2-29**

S2

Base Sensor Tests **3-16**service check **2-34**

toner density

parts catalog **7-8**

toner density sensor (TDS)

removal **4-53**

toner meter cycle

Base Sensor Tests **3-16**

tray present

parts catalog **7-6**removal **4-57**

serial number

viewing **3-18**

service checks

122.xx—fuser temperature incorrect **2-24**90x.xx error **2-24**925.01—fan error **2-25**930.xx—935.xx—printhead errors **2-25**936.xx, 937.xx—transport motor **2-26**950.xx EPROM mismatch failure **2-26**autocompensator mechanism **2-27**bin full sensor **2-27**dead printer **2-28**duplex/manual feed sensor (S1) **2-29**front door sensor or switches **2-30**fuser **2-32**fuser exit sensor **2-31**input sensor (S2) **2-34**

- main drive gear assembly **2-35**
- operator panel **2-36**
- print quality **2-42**
- service error codes **2-12**
- skew
 - setting **3-5**
 - values **3-5**
- specifications
 - acoustics **1-7**
 - clearances **1-5**
 - connectivity (network) **1-3**
 - data streams **1-4**
 - dimensions **1-4**
 - duplex capability **1-8**
 - environmental **1-7**
 - memory **1-2**
 - operating modes **1-3**
 - print quality **1-2**
- specifications power and electrical **1-6**
- start **2-1**
- symptoms
 - print quality **2-4**
 - printer **2-3**

T

- test pages
 - print quality test pages **3-11, 3-24**
 - Quick Test **3-5**
 - Quick Test (duplex) **3-13**
- theory
 - color theory **3-45**
 - duplex process **3-44**
 - EP process **3-33**
 - paper path **3-42**
 - transport components **3-42**
- toner cartridge contacts
 - parts catalog **7-8**
 - removals **4-50**
- toner density sensors (TDS)
 - parts catalog **7-8**
 - removal **4-53**
 - TPS Setup **3-20**
- toner meter cycle (TMC) card
 - Base Sensor Tests **3-16**
 - connectors **5-13**
 - parts catalog **7-6**
 - removal **4-55**
- tools required **1-14**
- tray 1 sensor, location **5-1**
- tray tests
 - Feed Tests **3-15**
 - Sensor Test **3-15**

U

- USB port
 - clipping the cable **4-5**
 - parts catalog **7-8**
 - removal **4-59**

W

- waste toner bottle, removal **4-60**
- wireless network antenna
 - parts catalog **7-6**
 - removal **4-61**
- wireless network card
 - connections **5-14**
 - parts catalog **7-6**
 - removal **4-63**

5025-2xx, 4xx

Part number index

Description and P/N	Page
64MB Flash card assembly (40X1455) - - - - -	7-9
128MB DDR DRAM DIMM card assembly (40X5937) - - - - -	7-9
250-sheet tray assembly (40X5419) - - - - -	7-3
256MB DDR DRAM DIMM card assembly (40X5938) - - - - -	7-9
512MB DDR DRAM DIMM card assembly (40X5939) - - - - -	7-9
550-sheet duo drawer with 100-sheet MPF tray assembly (40X5435) - - - - -	7-9
A–E	
Antenna for wireless card—C544dw only (40X5319) - - - - -	7-7
Autocompensator mechanism (ACM)—standard tray (40X5410) - - - - -	7-5
Cable packet (40X5423) - - - - -	7-8
Controller board, model (high) (40X5427) - - - - -	7-7
Controller board, model (low) (40X5428) - - - - -	7-7
Dust cover (40X5441) - - - - -	7-3
Exit deflector and bin full sensor flag (40X5433) - - - - -	7-5
F–J	
Front cover assembly (including duplex and USB port cable)—C543dn, C544dn, C544n (40X5430) - - - - -	7-3
Fuser assembly 100 V (40X5439) - - - - -	7-5
Fuser assembly, 115 V (40X5437) - - - - -	7-5
Fuser assembly, 230 V (40X5438) - - - - -	7-5
Fuser drive motor assembly (40X5415) - - - - -	7-5
Fuser exit sensor (40X5413) - - - - -	7-7
High-voltage power supply (40X5405) - - - - -	7-7
Image transfer unit (ITU) assembly (40X5403) - - - - -	7-5
ITU paper path thermistor (40X5429) - - - - -	7-8
Japanese font card assembly (40X5972) - - - - -	7-9
K–O	
Korean font card assembly (40X5969) - - - - -	7-9
Left cover assembly (40X5417) - - - - -	7-3
Lower left frame and lower right frame with cable cover (40X5422) - - - - -	7-5
Low-voltage power supply (universal power supply) (40X5409) - - - - -	7-7
Main drive gear assembly, with motors (40X5412) - - - - -	7-5
Operator panel (DBCS) (40X5436) - - - - -	7-3
Operator panel and display assembly (40X5431) - - - - -	7-3
Operator panel bezel and name plates (40X5432) - - - - -	7-3
Optional 550-sheet duo drawer with 100-sheet MPF unit (complete) (40X5434) - - - - -	7-9
Photo sensor (one per package) (40X5426) - - - - -	7-7
Pick tires (40X5168) - - - - -	7-9
Power cord, 1.8M (straight)—Australia (40X0301) - - - - -	7-7
Power cord, 1.8M (straight)—Korea (40X1792) - - - - -	7-7
Power cord, 1.8M (straight)—PRC (40X0303) - - - - -	7-7
Power cord, 1.8M (straight)—Taiwan (40X1791) - - - - -	7-7
Power cord, 2.5M (straight)—Chile, Uruguay (40X0273) - - - - -	7-7
Power cord, 2.5M (straight)—Japan (40X0270) - - - - -	7-7
Power cord, 2.5M (straight)—Paraguay (40X3141) - - - - -	7-7
Power cord, 2.5M (straight)—USA, Canada, Bolivia, Peru (40X1766) - - - - -	7-7
Power cord, 6 foot (straight)—Brazil (40X0277) - - - - -	7-7
Power cord, 6 foot (straight)—Denmark (40X0279) - - - - -	7-7
Power cord, 6 foot (straight)—Israel (40X0275) - - - - -	7-7
Power cord, 6 foot (straight)—South Africa (40X1773) - - - - -	7-7
Power cord, 6 foot (straight)—Switzerland (40X1772) - - - - -	7-7
Power cord, 6 foot (straight)—Traditional Italy (40X0287) - - - - -	7-7

Power cord, 8 foot (straight)—Argentina (40X0288)	7-7
Power cord, 8 foot (straight)—United Kingdom (40X0271)	7-7
Printhead (40X5411)	7-5

P–T

Right cover assembly (40X5416)	7-3
Screw packet (40X5424)	7-5
Simplified Chinese font card assembly (40X5970)	7-9
toner cartridge contacts (Pogo pin) (40X5421)	7-8
Toner density sensors, left or right (one in package) (40X5414)	7-8
Toner meter cycle card assembly (40X5404)	7-7
Top cover assembly (40X5418)	7-3
Traditional Chinese font card assembly (40X5971)	7-9
USB cable, packaged (2 m) (40X1368)	7-9
USB port and cable (for portable flash drive) (40X5425)	7-8

U–Z

Wireless network card assembly—C544dw only (40X5036)	7-7
--	-----