



# Lexmark MS310 Series

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## Machine Type 4514-220, -230

### Service Manual

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

**NOTICE** - This manual has not been reviewed for technical accuracy. In addition, this manual has not been checked for grammar or spelling. This will be performed before the final edition is released. Not all graphics have been finalized yet.

September 19, 2012

[www.lexmark.com](http://www.lexmark.com)

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## Product information

Product name:

Lexmark MS310 Series

Machine type:

4514

Model(s):

220, 230

## Edition notice

September 19, 2012

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# Notices and safety information

## Laser notices

### Laser notice

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

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) laser that is nominally a 7 milliwatt gallium arsenide laser operating in the wavelength of 655-675 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-Hinweis

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

Laserprodukte der Klasse I werden nicht als gefährlich eingestuft. Der Drucker enthält im Inneren einen Laser der Klasse IIIb (3b), und zwar einen 7-Milliwatt-Gallium-Arsenid-Laser, der im Wellenlängenbereich von 655 bis 675 Nanometern arbeitet. Das Lasersystem und der Drucker sind so konstruiert, dass unter normalen Betriebsbedingungen, bei der Wartung durch den Benutzer oder bei den vorgeschriebenen Wartungsbedingungen Menschen keiner Laserstrahlung ausgesetzt sind, die die Werte für Klasse I überschreitet.

### Avis relatif à l'utilisation du laser

L'imprimante est certifiée conforme aux exigences de la réglementation des Etats-Unis relative aux produits laser (DHHS 21 CFR, Chapter I, Subchapter J for Class I (1)). Pour les autres pays, elle est certifiée conforme aux exigences des normes IEC 60825-1 relatives aux produits laser de classe I.

Les produits laser de Classe I ne sont pas considérés comme dangereux. L'imprimante contient un laser de classe IIIb (3b), laser arséniure de gallium 7 milliwatts opérant sur une longueur d'onde de l'ordre de 655 à 675 nanomètres. Le système laser ainsi que l'imprimante ont été conçus de manière à ce que personne ne soit exposé à des rayonnements laser dépassant le niveau de classe I dans le cadre d'un fonctionnement normal, de l'entretien par l'utilisateur ou de la maintenance.

### Avvertenze sui prodotti laser

La stampante è certificata negli Stati Uniti come stampante conforme ai requisiti DHHS 21 CFR, Capitolo I, Sottocapitolo J per i prodotti laser di Classe I (1), mentre in altri paesi è certificata come prodotto laser di Classe I conforme ai requisiti IEC 60825-1.

I prodotti laser di Classe I non sono considerati pericolosi. La stampante contiene un laser di Classe IIIb (3b), che è nominalmente un laser ad arseniuro di gallio a 7 milliwatt funzionante a una lunghezza d'onda di 655-675 nanometri. Il sistema laser e la stampante sono stati progettati in modo da impedire l'esposizione a radiazioni laser superiori al livello previsto dalla Classe I durante le normali operazioni di stampa, manutenzione o assistenza.

## Aviso de láser

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

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene un láser interno de Clase IIIb (3b) que nominalmente es un láser de arseniuro de galio de 7 milivatios que funciona en una longitud de onda de 655-675 nanómetros. El sistema láser y la impresora se han diseñado para que ningún individuo acceda nunca a las radiaciones láser por encima del nivel de Clase I durante su uso normal, ni en tareas de mantenimiento o intervenciones de servicio técnico prescritas.

## Aviso sobre laser

A impressora foi certificada nos EUA por estar em conformidade com os requisitos do DHHS 21 CFR, capítulo I, subcapítulo J, para produtos a laser de Classe I (1) e, nos demais países, foi certificada como produto a laser de Classe I em conformidade com os requisitos da IEC 60825-1.

Os produtos a laser de Classe I não são considerados perigosos. A impressora contém, internamente, um laser de Classe IIIb (3b) que é um laser de arsenieto de gálio de 7 miliwatts operando no comprimento de onda de 655-675 nanômetros. O sistema do laser e a impressora foram projetados para que jamais haja acesso humano à radiação do laser acima do nível da Classe I durante a operação normal ou a manutenção pelo usuário ou sob as condições de manutenção prescritas.

## Laserinformatie

Deze printer is in de Verenigde Staten gecertificeerd als een product dat voldoet aan de vereisten van DHHS 21 CFR, hoofdstuk 1, paragraaf J voor laserproducten van klasse I (1). Elders is de printer gecertificeerd als een laserproduct van klasse I dat voldoet aan de vereisten van IEC 60825-1.

Laserproducten van klasse I worden geacht geen gevaar op te leveren. De printer bevat intern een laser van klasse IIIb (3b), een galliumarsenide laser met een nominaal vermogen van 7 milliwatt en een golflengtebereik van 655-675 nanometer. Het lasersysteem en de printer zijn zodanig ontworpen dat gebruikers nooit blootstaan aan laserstraling die hoger is dan het toegestane niveau voor klasse I-apparaten, tijdens normaal gebruik, onderhoudswerkzaamheden door de gebruiker of voorgeschreven servicewerkzaamheden.

## Lasererklæring

Denne printer er certificeret i USA i henhold til kravene i DHHS 21 CFR, afsnit I, underafsnit J, for Klasse I-laserprodukter (1) og certificeret andetsteds som et Klasse I-laserprodukt i henhold til kravene i IEC 60825-1.

Klasse I-laserprodukter anses ikke for at være farlige. Printerens indeholder internt en klasse IIIb (3b)-laser, der nominelt er en 7 milliwatt galliumarsenid-laser, som fungerer i bølglængdeområdet 655-675 nanometer. Lasersystemet og printerens er udviklet på en sådan måde, at der ikke er en direkte laserstråling, der overskrider Klasse I-niveauet under normal brug, brugers vedligeholdelse eller de foreskrevne servicebetingelser.

## Laserilmoitus

Tämä tulostin on sertifioitu Yhdysvalloissa DHHS 21 CFR, Chapter I, 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 IIIb (3b) laser, joka on nimellistehoaltaan 7 mW:n galliumarsenidilaser ja toimii 655–675 nanometrin aallonpituuksilla. Laserjärjestelmä ja tulostin ovat rakenteeltaan sellaisia, että käyttäjä ei joudu alttiiksi luokkaa 1 suuremmalle säteilylle normaalin käytön, ylläpidon tai huollon aikana.

## Lasermeddelande

Skrivaren är certifierad i USA enligt kraven i DHHS 21 CFR, avsnitt I, underavsnitt J för laserprodukter av klass I (1) och i andra länder är den certifierad som en laserprodukt av klass I som uppfyller kraven i IEC 60825-1.

Laserprodukter av klass I anses inte vara skadliga. Skrivaren innehåller en klass IIIb (3b)-laser, vilket är en 7 mW galliumarseniklaser som arbetar inom en våglängd på 655–675 nm. Lasersystemet och skrivaren är utformade så att människor aldrig utsätts för laserstrålning över klass I-nivå under normala förhållanden vid användning, underhåll eller service.

## Lasermerknad

Skriveren er sertifisert i USA for samsvar med kravene i DHHS 21 CFR, kapittel I, underkapittel J for laserprodukter av klasse I (1), og er andre steder sertifisert som et laserprodukt av klasse I som samsvarer med kravene i IEC 60825-1.

Laserprodukter av klasse I anses ikke som helseskadelige. Skriveren inneholder en intern laser av klasse IIIb (3b) som nominelt er en 7 milliwatt galliumarsenid-laser, og som opererer i bølgelengder på 655-675 nanometer. Lasersystemet og skriveren er utformet slik at mennesker ikke utsettes for laserstråling utover nivået i klasse I under normal drift, vedlikehold eller foreskrevet service.

## Avís sobre el làser

Als EUA, la impressora està certificada de conformitat amb els requisits del capítol I, apartat J del CFR 21 del Departament de Salut i Serveis Humans per a productes làser de classe I (1) i a la resta de països està certificada com a producte làser de classe I d'acord amb els requisits de la norma IEC 60825-1.

Els productes làser de classe I no es consideren perillosos. A l'interior de la impressora hi ha un làser de classe IIIb (3b) que nominalment es un arsenur de galió de 7 mil·liwatts que funciona a una longitud d'ona de 655-675 nanòmetres. El sistema làser y la impressora s'han dissenyat amb l'objectiu d'impedir l'accés humà de la radiació làser superior al nivell de classe I durant un funcionament normal, el manteniment per part de l'usuari o les condicions de servei prescrites.

## レーザーに関する通知

本機は、米国においてクラス I (1) レーザー製品に対する DHHS 21 CFR、Chapter I、Subchapter J の要件に準拠し、その他の国では IEC 60825-1 の要件に準拠するクラス I レーザー製品として認可されています。

クラス I レーザー製品は、危険性がないとみなされています。本機には、クラス IIIb (3b) レーザーが内蔵されています。これは、655 ~ 675 ナノメートルの波長で動作する定格 7 ミリワットのガリウムヒ素レーザーです。レーザーシステムとプリンタは、通常の操作、ユーザーによるメンテナンス、または所定のサービス条件の下で、ユーザーがクラス I レベルを超えるレーザー放射に絶対にさらされないように設計されています。

## 레이저 관련 공지

이 프린터는 미국에서 DHHS 21 CFR, Chapter I, Subchapter J 의 요구 사항을 준수하는 클래스 I(1) 레이저 제품으로 승인되었으며 이외 지역에서 IEC 60825-1 의 요구 사항을 준수하는 클래스 I 레이저 제품으로 승인되었습니다.

Class I 레이저 제품은 위험한 제품으로 간주되지 않습니다. 프린터에는 655-675 나노미터의 파장 영역에서 작동하는 공칭 7 밀리와트 갈륨 비소 레이저인 클래스 IIIb(3b) 레이저가 내부에 포함되어 있습니다. 레이저 시스템과 프린터는 정상적인 작동, 사용자 유지 관리 또는 사전 설명된 서비스 조건에는 사람에게 클래스 I 수준 이상의 레이저 방사가 노출되지 않도록 설계되었습니다.

## 激光注意事项

本打印机在美国认证合乎 DHHS 21 CFR Chapter I, Subchapter J 对分类 I (1) 激光产品的标准, 而在其他地区则被认证是合乎 IEC 60825-1 的分类 I 激光产品。

一般认为分类 I 激光产品不具有危险性。本打印机内部含有分类 IIIb (3b) 的激光, 在操作过程中会产生额定 7 毫瓦的砷化镓激光, 其波长范围在 655-675nm 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。

## 雷射聲明

本印表機係經過美國核可, 符合 DHHS 21 CFR, Chapter I, Subchapter J 規定的 I (1) 級雷射產品激光注意事項; 在美國以外的地區, 為符合 IEC 60825-1 規定的 I 級雷射產品。

根據 I 級雷射產品的規定, 這類產品不會對人體造成傷害。本機所採用之 IIIb (3b) 級雷射只會產生 7 百萬分之一瓦特 (milliwatt)、波長 655 至 675 億分之一米 (nanometer) 的鎵砷放射線 (gallium arsenide laser)。使用者只要以正確的方法操作及維護保養, 並依照先前所述之維修方式進行修護, 此印表機與其雷射系統絕不會產生 I 級以上的放射線, 而對人體造成傷害。

## Safety

### Safety information

- The safety of this product is based on testing and approvals of the original design and specific components. The manufacturer is not responsible for safety in the event of use of unauthorized replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- 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—POTENTIAL INJURY

The lithium battery in this product is not intended to be replaced. There is a danger of explosion if a lithium battery is incorrectly replaced. Do not recharge, disassemble, or incinerate a lithium battery. Discard used lithium batteries according to the manufacturer's instructions and local regulations.

### Consignes de sécurité

- La sécurité de ce produit repose sur des tests et des agréments 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.

**AVERTISSEMENT—RISQUE DE BLESSURE**

La batterie lithium de ce produit n'est pas destinée à être remplacée. Il existe un risque d'explosion si une batterie lithium est placée de façon incorrecte. Ne rechargez pas, ne démontez pas et n'incinerez pas une batterie lithium. Mettez les batteries lithium usagées au rebut selon les instructions du fabricant et les réglementations locales.

**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 — PERICOLO DI LESIONI**

La batteria al litio presente del prodotto non deve essere sostituita. In caso di sostituzione errata della batteria al litio, potrebbe verificarsi un'esplosione. Non ricaricare, smontare o bruciare batterie al litio. Smaltire le batterie al litio usate seguendo le istruzioni del produttore e le norme locali.

**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.

**VORSICHT - VERLETZUNGSGEFAHR**

Die Lithiumbatterie in diesem Produkt darf nicht ausgetauscht werden. Wird eine Lithiumbatterie nicht ordnungsgemäß ausgetauscht, besteht Explosionsgefahr. Lithiumbatterien dürfen auf keinen Fall wieder aufgeladen, auseinander genommen oder verbrannt werden. Befolgen Sie zum Entsorgen verbrauchter Lithiumbatterien die Anweisungen des Herstellers und die örtlichen Bestimmungen.

**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: POSIBLES DAÑOS PERSONALES**

La batería de litio de este producto no debe reemplazarse. Existe riesgo de explosión si se sustituye incorrectamente una batería de litio. No recargue, desmonte ni incinere una batería de litio. Deseche las baterías de litio según las instrucciones del fabricante y las normativas locales.

## 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.



### ATENÇÃO — RISCO DE FERIMENTO

A bateria de lítio neste produto não deve ser substituída. Existe o risco de explosão se uma bateria de lítio for substituída incorretamente. Não recarregue, desmonte ou incinere uma bateria de lítio. Descarte as baterias de lítio usadas de acordo com as instruções do fabricante e regulamentos locais.

## 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.



### ATENCIÓ

La bateria de liti d'aquest producte no ha estat dissenyada perquè es substitueixi. Hi ha perill d'explosió si no es substitueix correctament la bateria de liti. No recarregueu, desmunteu o incinereu una bateria de liti. Desfeu-vos de les bateries de liti usades d'acord amb les instruccions del fabricant i les regulacions locals.

## 안전 사항

- 본 제품은 원래 설계 및 특정 구성에 대한 테스트 결과로 안정성이 입증된 것입니다. 따라서 무허가 교체 부품을 사용하는 경우에는 제조업체에서 안전에 대한 책임을 지지 않습니다.
- 본 제품에 관한 유지 보수 설명서는 전문 서비스 기술자 용으로 작성된 것이므로, 비 전문가가 사용할 수 없습니다.
- 본 제품을 해체하거나 정비할 경우, 전기 전 인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고, 필요한 예방 조치를 취하도록 하십시오.



### 주의—부상 위험

이 제품에 들어 있는 리튬 배터리는 교체할 수 없습니다. 리튬 배터리를 잘못 교체하면 폭발할 위험이 있습니다. 리튬 배터리를 재충전하거나, 분해하거나, 태우지 마십시오. 제조업체의 지침과 지역 규정에 따라 다 쓴 리튬 배터리를 폐기하십시오.

## 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，并不打算证其他人使用。
- 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触，并采取必要的预防措施。



**当心—可能的伤害：**

本产品中的**锂电池不可更换**。如果不正确**更换锂电池**，可能会有**爆炸危险**。不要再**充电**、**拆解**或**焚烧锂电池**。**丢弃旧的锂电池时应按照制造商的指导及当地法规进行处理。**



# Preface

This manual contains maintenance procedures for service personnel.

It is divided into the following chapters:

- **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.
- **Diagnostic information** contains diagnostic aids you can use to isolate failing field replaceable units. These diagnostic aids include error code tables, symptom tables, and service checks.
- **Diagnostic aids** contains descriptions of the printer interface, the user and service menus, and the basic theory of printer operation.
- **Repair** information provides instructions for making printer adjustments and removing and installing FRUs.
- **Connector locations** uses illustrations to identify the connector locations.
- **Preventive maintenance** contains the lubrication specifications and recommendations to prevent problems.
- **Parts catalog** contains illustrations and part numbers for individual FRUs.
- Appendix A—Contains service tips and detailed information about the product, including the basic theory of printer operation.
- Appendix B—Contains representative print samples.

## Service manual conventions

**Note:** A *note* provides additional information.

**Warning—Potential Damage:** A *warning* identifies something that might damage the product hardware or software.

This service manual uses several different types of caution statements:



**CAUTION—POTENTIAL INJURY:** A *caution* identifies something that might cause the service technician harm.



**CAUTION—SHOCK HAZARD:** This type of caution indicates a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you start working, or use caution if the product must receive power to perform the task.



**CAUTION—HOT SURFACE:** This type of caution indicates a hot surface.





# General information

The Lexmark™ MS310d and MS310dn are single-function™ monochrome laser printers designed for small and mid-sized workgroups. All information in this service manual pertains to all models unless explicitly noted.

The printers are available in the following models:

| Model   | Configurations                  | Machine type / model |
|---------|---------------------------------|----------------------|
| MS310d  | Duplex printer                  | 4514-220             |
| MS310dn | Duplex printer, network capable | 4514-230             |

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the error code charts, symptom index, and service checks to determine the symptom and then repair the failure. After you complete the repair, perform tests as needed to verify the repair.

To begin diagnosing a problem, go to **“Diagnostic information” on page 31**. See **“Repair information” on page 127** for information about removing and reinstalling parts. See **“Parts catalog” on page 228** to help identify parts.

## Media guidelines

### Paper guidelines

Selecting the correct paper or specialty media reduces printing problems. For the best print quality, try a sample of the paper or specialty media before buying large quantities.

### Paper characteristics

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

#### Weight

The standard printer trays can automatically feed paper weights up to 90-g/m<sup>2</sup> (24-lb) bond grain long paper. The optional trays can automatically feed paper weights up to 120-g/m<sup>2</sup> (32-lb) bond grain long paper. The multipurpose feeder can automatically feed paper weights up to 163-g/m<sup>2</sup> (43-lb) bond grain long paper. Paper lighter than 60 g/m<sup>2</sup> (16 lb) might not be stiff enough to feed properly, causing jams. For best performance, use 75-g/m<sup>2</sup> (20-lb) bond grain long paper. For paper smaller than 182 x 257 mm (7.2 x 10.1 inches), it is recommended to use 90 g/m<sup>2</sup> (24 lb) or heavier paper.

**Note:** Two-sided printing is supported only for 60–90-g/m<sup>2</sup> (16–24-lb) bond 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; smoothness between 150–250 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 24–48 hours before printing. Extend the time to 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 60–90-g/m<sup>2</sup> (16–24-lb) bond paper, grain long paper is recommended.

## 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 can negatively affect paper handling.

## Unacceptable paper

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

- Chemically treated papers used to make copies without carbon paper, also known as carbonless papers, carbonless copy paper (CCP), or no carbon required (NCR) paper
- Preprinted papers with chemicals that may contaminate the printer
- Preprinted papers that can be affected by the temperature in the printer fuser
- Preprinted papers that require a registration (the precise print location on the page) greater or lesser than +/-2.5 mm (+/-0.10 inch), such as optical character recognition (OCR) forms

In some cases, registration can be adjusted with a software application to successfully print on these forms:

- Coated papers (erasable bond), synthetic papers, thermal papers
- Rough-edged, rough or heavily textured surface papers, or curled papers
- Recycled papers that fail EN12281:2002 (European)
- Paper weighing less than 60 g/m<sup>2</sup> (16 lb)
- Multiple-part forms or documents

## Selecting paper

Using the appropriate paper prevents jams and helps ensure trouble-free printing.

To help avoid paper jams and poor print quality:

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

## Selecting preprinted forms and letterhead

Use these guidelines when selecting preprinted forms and letterhead:

- Use grain long for 60 to 90 g/m<sup>2</sup> (16 to 24 lb) 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 230°C (446°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 230°C (446°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 percent. Most label manufacturers recommend printing in a temperature range of 18–24°C (65–75°F) with relative humidity between 40 and 60 percent.
- Store paper in cartons, on a pallet or shelf, rather than on the floor.
- Store individual packages on a flat surface.
- Do not store anything on top of individual paper packages.
- Take paper out of the carton or wrapper only when you are ready to load it in the printer. The carton and wrapper help keep the paper clean, dry, and flat.

## 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/m<sup>2</sup> [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).

## Using specialty media

### Tips on using card stock

Card stock is heavy, single-ply specialty media. Many of its variable characteristics, such as moisture content, thickness, and texture, can significantly impact print quality. Print samples on the card stock being considered for use before buying large quantities.

When printing on card stock:

- Make sure the Paper Type is Card Stock.
- Select the appropriate Paper Texture setting.
- Be aware that preprinting, perforation, and creasing may significantly affect the print quality and cause jams or other paper handling problems.
- Check with the manufacturer or vendor to ensure that the card stock can withstand temperatures up to 240°C (464°F) without releasing hazardous emissions.
- Do not use preprinted card stock manufactured with chemicals that may contaminate the printer. Preprinting introduces semi-liquid and volatile components into the printer.
- Use grain short card stock when possible.

### Tips on using envelopes

Print samples on the envelopes being considered for use before buying large quantities.

- Use envelopes designed specifically for laser printers. Check with the manufacturer or vendor to ensure that the envelopes can withstand temperatures up to 230°C (446°F) without sealing, wrinkling, curling excessively, or releasing hazardous emissions.
- For best performance, use envelopes made from 90-g/m<sup>2</sup> (24-lb bond) paper or 25% cotton. All-cotton envelopes must not exceed 70-g/m<sup>2</sup> (20-lb bond) weight.
- Use only new envelopes from undamaged packages.
- To optimize performance and minimize jams, do not use envelopes that:
  - Have excessive curl or twist
  - Are stuck together or damaged in any way
  - Have windows, holes, perforations, cutouts, or embossing

- Have metal clasps, string ties, or folding bars
- Have an interlocking design
- Have postage stamps attached
- Have any exposed adhesive when the flap is in the sealed or closed position
- Have bent corners
- Have rough, cockle, or laid finishes
- Adjust the width guides to fit the width of the envelopes.

**Note:** A combination of high humidity (over 60%) and high printing temperature may wrinkle or seal envelopes.

## Tips on using labels

Print samples on the labels being considered for use before buying large quantities.

**Note:** Use only paper label sheets. Vinyl, pharmacy, and two-sided labels are not supported.

For more information on label printing, characteristics, and design, see the *Card Stock & Label Guide* available at <http://support.lexmark.com>.

When printing on labels:

- Use labels designed specifically for laser printers. Check with the manufacturer or vendor to verify that:
  - The labels can withstand temperatures up to 240°C (464°F) without sealing, excessive curling, wrinkling, or releasing hazardous emissions.
  - Label adhesives, face sheet (printable stock), and topcoats can withstand up to 172-kPa (25-psi) pressure without delaminating, oozing around the edges, or releasing hazardous fumes.
- Do not use labels with slick backing material.
- Use full label sheets. Partial sheets may cause labels to peel off during printing, resulting in a jam. Partial sheets also contaminate the printer and the cartridge with adhesive, and could void the printer and toner cartridge warranties.
- Do not use labels with exposed adhesive.
- Do not print within 1 mm (0.04 inch) of the edge of the label, of the perforations, or between die-cuts of the label.
- Make sure the adhesive backing does not reach to the edge of the sheet. Zone coating of the adhesive should be at least 1 mm (0.04 inch) away from edges. Adhesive material contaminates the printer and could void the warranty.
- If zone coating of the adhesive is not possible, then remove a 2-mm (0.08-inch) strip on the leading and driver edge, and then use a non-oozing adhesive.
- Portrait orientation is recommended, especially when printing bar codes.

## Tips on using transparencies

- Print a test page on the transparencies being considered for use before buying large quantities.
- Feed transparencies from the standard tray, or the multipurpose feeder.
- Use transparencies designed specifically for laser printers. Transparencies must be able to withstand temperatures up to 185°C (365°F) without melting, discoloring, offsetting, or releasing hazardous emissions.

**Note:** If the transparency weight is set to Heavy and the transparency texture is set to Rough in the Paper menu, then transparencies can be printed at a temperature up to 195°C (383°F).

- Avoid getting fingerprints on the transparencies to prevent print quality problems.
- Before loading transparencies, flex, fan, and straighten the stack to prevent sheets from sticking together.

## Supported paper sizes, types, and weights

### Supported paper sizes

**Note:** For an unlisted paper size, select the closest *larger* listed size. For information on card stock and labels, see the *Card Stock & Label Guide*.

| Paper size   | Standard tray | Optional 250- or 550-sheet tray | Multipurpose feeder | Duplex mode |
|--|---------------|---------------------------------|---------------------|-------------|
| <b>A4</b><br>210 x 297 mm (8.3 x 11.7 in.)   | ✓             | ✓                               | ✓                   | ✓           |
| <b>A5</b><br>148 x 210 mm (5.8 x 8.3 in.)  | ✓             | ✓                               | ✓                   | X           |
| <b>A6</b><br>105 x 148 mm (4.1 x 5.8 in.)  | ✓             | X                               | ✓                   | X           |
| <b>JIS B5</b><br>182 x 257 mm (7.2 x 10.1 in.)   | ✓             | ✓                               | ✓                   | X           |
| <b>Letter</b><br>216 x 279 mm (8.5 x 11 in.)   | ✓             | ✓                               | ✓                   | ✓           |
| <b>Legal</b><br>216 x 356 mm (8.5 x 14 in.)  | ✓             | ✓                               | ✓                   | ✓           |
| <b>Executive</b><br>184 x 267 mm (7.3 x 10.5 in.)  | ✓             | ✓                               | ✓                   | X           |
| <b>Oficio (Mexico)<sup>1</sup></b><br>216 x 340 mm (8.5 x 13.4 in.)                            | ✓             | ✓                               | ✓                   | ✓           |
| <b>Folio</b><br>216 x 330 mm (8.5 x 13 in.)  | ✓             | ✓                               | ✓                   | ✓           |
| <b>Statement</b><br>140 x 216 mm (5.5 x 8.5 in.)   | ✓             | ✓                               | ✓                   | X           |
| <b>Universal<sup>2</sup></b><br>76.2 x 127 mm (3 x 5 in.) up to<br>216 x 356 mm (8.5 x 14 in.) | ✓             | ✓                               | ✓                   | ✓           |
| <b>7 3/4 Envelope (Monarch)</b><br>98 x 191 mm (3.9 x 7.5 in.)                                 | X             | X                               | ✓                   | X           |
| <b>9 Envelope</b><br>98 x 225 mm (3.9 x 8.9 in.)   | X             | X                               | ✓                   | X           |

<sup>1</sup> This size setting formats the page for 216 x 356 mm (8.5 x 14 in.) unless the size is specified by the software application.

<sup>2</sup> Universal is supported only in the standard tray if the paper size is at least 105 x 148 mm (4.1 x 5.8 in.). Universal is supported only in the optional 250- or 550-sheet tray if the paper size is at least 148 x 210 mm (5.8 x 8.3 in.). Universal is only supported in duplex mode if the width is at least 210 mm (8.3 in.) and length is at least 279 mm (11 in.). The smallest supported Universal size is only supported in the multipurpose feeder.

| Paper size   | Standard tray | Optional 250- or 550-sheet tray | Multipurpose feeder | Duplex mode |
|--|---------------|---------------------------------|---------------------|-------------|
| <b>10 Envelope</b><br>105 x 241 mm (4.1 x 9.5 in.) | X             | X                               | ✓                   | X           |
| <b>DL Envelope</b><br>110 x 220 mm (4.3 x 8.7 in.) | X             | X                               | ✓                   | X           |
| <b>C5 Envelope</b><br>162 x 229 mm (6.4 x 9 in.)   | X             | X                               | ✓                   | X           |
| <b>B5 Envelope</b><br>176 x 250 mm (6.9 x 9.8 in.) | X             | X                               | ✓                   | X           |
| <b>Other Envelope</b><br>229 x 356 mm (9 x 14 in.) | X             | X                               | ✓                   | X           |

<sup>1</sup> This size setting formats the page for 216 x 356 mm (8.5 x 14 in.) unless the size is specified by the software application.

<sup>2</sup> Universal is supported only in the standard tray if the paper size is at least 105 x 148 mm (4.1 x 5.8 in.). Universal is supported only in the optional 250- or 550-sheet tray if the paper size is at least 148 x 210 mm (5.8 x 8.3 in.). Universal is only supported in duplex mode if the width is at least 210 mm (8.3 in.) and length is at least 279 mm (11 in.). The smallest supported Universal size is only supported in the multipurpose feeder.

## Supported paper types and weights

The standard tray supports 60–90-g/m<sup>2</sup> (16–24-lb) paper weights. The optional tray supports 60–120-g/m<sup>2</sup> (16–32-lb) paper weights. The multipurpose feeder supports 60–163-g/m<sup>2</sup> (16–43-lb) paper weights.

| Paper type                      | 250- or 550-sheet tray | Multipurpose feeder | Duplex mode |
|---------------------------------|------------------------|---------------------|-------------|
| <b>Plain paper</b>              | ✓                      | ✓                   | ✓           |
| <b>Card stock</b>               | X                      | ✓                   | X           |
| <b>Transparencies</b>           | ✓                      | ✓                   | X           |
| <b>Recycled</b>                 | ✓                      | ✓                   | ✓           |
| <b>Glossy paper</b>             | X                      | X                   | X           |
| <b>Paper labels<sup>1</sup></b> | ✓                      | ✓                   | X           |
| <b>Vinyl labels</b>             | X                      | X                   | X           |
| <b>Bond<sup>2</sup></b>         | ✓                      | ✓                   | ✓           |
| <b>Envelope</b>                 | X                      | ✓                   | X           |
| <b>Rough envelope</b>           | X                      | ✓                   | X           |
| <b>Letterhead</b>               | ✓                      | ✓                   | ✓           |
| <b>Preprinted</b>               | ✓                      | ✓                   | ✓           |

| Paper type               | 250- or 550-sheet tray | Multipurpose feeder | Duplex mode |
|--------------------------|------------------------|---------------------|-------------|
| Colored Paper            | ✓                      | ✓                   | ✓           |
| Light Paper              | ✓                      | ✓                   | ✓           |
| Heavy Paper <sup>2</sup> | ✓                      | ✓                   | ✓           |
| Rough/Cotton             | ✓                      | ✓                   | X           |

<sup>1</sup> One-sided paper labels designed for laser printers are supported for occasional use. It is recommended to print 20 or fewer pages of paper labels per month. Vinyl, pharmacy, and two-sided labels are not supported.

<sup>2</sup> Bond and Heavy Paper are supported in duplex mode up to 90-g/m<sup>2</sup> (24-lb) paper weight.

## Data security notice

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

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

To erase volatile memory, turn off the printer.

To erase non-volatile memory, see the menu item under **“Configuration menu” on page 119** pertaining to this.

To erase the printer hard disk, see the menu item under **“Configuration menu” on page 119** pertaining to this.

The printer control panel and RIP/controller board contain NVRAM. After removing the old part, it must be returned to your next level of support.

## Tools required for service


- Flat-blade screwdrivers, various sizes
- #1 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic short-blade
- Needle-nose pliers
- Diagonal side cutters
- Spring hook
- Feeler gauges




Analog or digital multimeter  
Flashlight (optional)



## Diagnostic information

 **CAUTION—SHOCK HAZARD:** Remove the power cord from the electrical outlet before you connect or disconnect any cable or electronic card or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.

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

## Troubleshooting overview


### Performing the initial troubleshooting check

Before you start the troubleshooting procedures, perform the following checks:

- With the power cord unplugged from the wall outlet, check that the cord is free from breakage, short-circuits, disconnected wires, or incorrect connections.
- Make sure the printer is properly grounded. Check the power cord ground terminal.
- Make sure the power supply line voltage is within 10% of the rated line voltage.
- Make sure the machine is securely installed on a level surface in a well-ventilated area.
- Make sure the room temperature is between 16 and 32°C (60 and 90°F) and that the relative humidity is between 20 and 80%.
- Avoid sites generating ammonia gas, high temperature, high humidity (near water faucets, kettles, humidifiers), cold spaces, near open flames, and dusty areas.
- Avoid sites exposed to direct sunlight.
- Make sure the paper is the recommended paper for this printer.
- Make a trial print with paper from a newly opened package, and check the result.

### Power-on reset (POR) sequence

The printer performs a POR sequence when turned on. Check for the correct sequence by observing the following process:

1  flashes until the device is ready.

2 The cooling fan turns on.

3 The fuser heater turns on.

**Note:** The fuser takes longer to warm up from a cold start than a warm start.

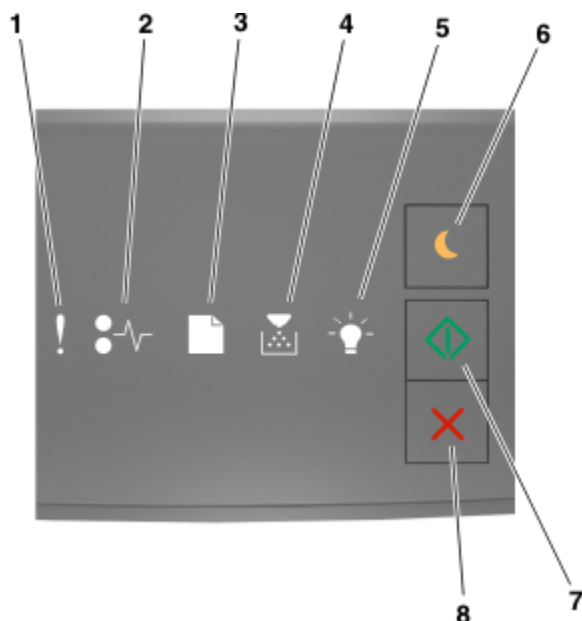
4 The main drive motor turns on.

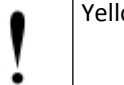

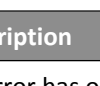





5 The EP drive assembly drives the developer shaft located in the imaging unit.

6 The exit rollers turn.

7 When ready, the equivalent light pattern of the status of the printer is displayed. If there is a problem, the control panel lights indicate the problem.




## Using the printer control panel



|   | Light or button                         |   | Color  | Description  |
|---|---|---|--------|--|
| 1 | Error light                             |   | Yellow | An error has occurred.   |
| 2 | Paper jam light                         |    | Yellow | A paper jam has occurred.  |
| 3 | Load or remove paper light              |    | Yellow | Paper must be loaded in the tray or removed from the bin.                      |
| 4 | Toner low or replace imaging unit light |   | Yellow | The toner cartridge is low on toner, or the imaging unit needs to be replaced. |
| 5 | Ready or data light                     |  | Green  | The printer is in Ready state.   |
| 6 | Sleep button and light                  |  | Amber  | Use this to enable Sleep mode or Hibernate mode.                               |
| 7 | Start button and light                  |  | Green  | Use this to initiate a print job.  |
| 8 | Stop or cancel button                   |  | Red    | Use this to cancel a print job.  |

# Light sequences and error messages

## Light sequences and error messages

User attendance messages, paper jam messages, and service errors display a light sequence. If  is quickly pressed twice (the button is pressed and released twice within 0.5 seconds), a secondary pattern may appear with more detailed information. If  is again quickly pressed twice, the primary pattern usually returns. Not all primary light sequences have secondary patterns. In which case, quickly pressing  twice does not change the pattern.

All service errors are indicated by all lights flashing as the primary light sequence. The secondary sequence indicates an area or function which has the error. Additional tertiary sequences are used to indicate specific errors.

## Light sequences













### Legend

| Symbol | Meaning               |
|--------|-----------------------|
| •      | Light on              |
|        | Light off             |
| *      | Light blinking        |
| x      | Light blinking slowly |

## Status screens

Each screen of information provides various status information to the user. Each status screen includes the capability to display a warning message.

### Status screens

| Description                            | Primary light sequence  |   |   |   |   |   | Secondary light sequence  |   |   |  |   |   |
|--|---|---|---|---|---|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ready                                  |   |   |   |   | •   |   |   |   |   |  |   |   |
| Demo mode                              |   |   |   |   | •   |   |   |   |   |  |   |   |
| Hex Trace                              |   |   |   |   | x   |   |   |   |   |  |   |   |
| Sleep mode                             |   |   |   |   | •   |   |   |   |   |  |   |   |
| Busy                                   |   |   |   |   | *   |   |   |   |   |  |   |   |
| Resolution reduced                     | *   |   |   |   | *   |   |   |   |   |  |   |   |
| Resolution reduced while canceling job | *   | •   | •   | •   | *   | •   |   |   |   |  |   |   |
| Waiting                                |   |   |   |   | •   | •   |   |   |   |  |   |   |

| Description          | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   |
|----------------------|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|
|                      | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬡ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬡ |
| Check config ID      |                        |   |   |    |   |   |                          |   |   |    |   |   |
| MICR cartridge empty |                        |   |   | x  |   |   |                          |   |   |    |   |   |
| Cartridge low        |                        |   |   | •  |   | • |                          |   |   |    |   |   |
| Replace imaging unit | •                      |   |   | *  |   | • |                          |   |   |    |   |   |

### Status messages

These provide information on the current state of the printer. Generally, no user intervention is required.

| Description                | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   |
|----------------------------|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|
|                            | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬡ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬡ |
| Canceling job              | •                      | • | • | •  | • | • |                          |   |   |    |   |   |
| Defragmenting flash        |                        |   |   |    | * |   |                          |   |   |    |   |   |
| Flushing buffer            | *                      |   |   |    | * |   |                          |   |   |    |   |   |
| Formatting flash           |                        |   |   |    | * |   |                          |   |   |    |   |   |
| Invalid engine code        | •                      |   |   |    | • |   | •                        |   | • |    | • |   |
| Invalid network code       |                        |   |   |    |   |   | •                        |   | * |    | • |   |
| Not ready                  |                        |   |   |    |   | • |                          |   |   |    |   |   |
| Programming engine code    |                        |   |   | •  | • | • |                          |   |   |    |   |   |
| Programming flash          |                        |   |   |    |   | * |                          |   |   |    |   |   |
| Programming system code    |                        |   | • | •  | • |   |                          |   |   |    |   |   |
| Resetting the printer      |                        |   |   |    |   |   |                          |   |   |    |   |   |
| Restoring factory defaults | •                      | • | • | •  | • | • |                          |   |   |    |   |   |
| Missing factory license    | x                      |   | x |    |   |   |                          |   |   |    |   |   |
| Invalid factory license    | x                      | x |   |    |   |   |                          |   |   |    |   |   |

## User attendance messages














| Description                      | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   | Action  |
|----------------------------------|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|---|
|                                  | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬠ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬠ |   |
| Cartridge region mismatch        | •                      |   |   | •  |   |   | •                        |   | * | •  |   |   | Go to: <ul style="list-style-type: none"> <li>“Replace cartridge, printer region mismatch[42.xy]” on page 43</li> <li>“User attendance messages (0-99.99)” on page 84</li> </ul>  |
| Cartridge, imaging unit mismatch | •                      | • | x | x  |   |   |                          |   |   |    |   |   | Go to “Cartridge, imaging unit mismatch[41.xy]” on page 42.   |
| Cartridge nearly low             | x                      |   |   | •  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>“Cartridge nearly low[88.xy]” on page 42</li> <li>“User attendance messages (0-99.99)” on page 84</li> </ul>                        |
| Cartridge low                    |                        |   |   | •  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>“Cartridge low[88.xx]” on page 42</li> <li>“User attendance messages (0-99.99)” on page 84</li> </ul>                               |
| Cartridge very low               | *                      |   |   | •  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>“Cartridge very low[88.xy]” on page 42</li> <li>“User attendance messages (0-99.99)” on page 84</li> </ul>                          |
| Replace cartridge                | •                      |   |   | •  |   | • |                          | * |   |    | • |   | Go to: <ul style="list-style-type: none"> <li>“Replace cartridge, 0 estimated pages remain[88.xy]” on page 42</li> <li>“User attendance messages (0-99.99)” on page 84</li> </ul> |

| Description                    | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   | Action   |
|--------------------------------|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|--|
|                                | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬠ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬠ |  |
| Defective or missing cartridge | •                      |   |   | •  |   |   | •                        | • |   |    | • |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Reinstall missing or unresponsive cartridge[31.xy]” on page 43</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>    |
| Imaging unit early wear        | x                      |   |   | *  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Imaging unit nearly low[84.xy]” on page 43</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>                        |
| Imaging unit wear              |                        |   |   | *  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Imaging unit low[84.xy]” on page 43</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>                               |
| Imaging unit near end of life  | *                      |   |   | *  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Imaging unit very low[84.xy]” on page 44</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>                          |
| Replace imaging unit           | •                      |   |   | *  |   | • |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Replace imaging unit, 0 estimated pages remain[84.xy]” on page 44</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul> |



| Description                                | Primary light sequence |   |   |   |   |   | Secondary light sequence |   |   |   |   |   | Action   |
|--|------------------------|---|---|---|---|---|--------------------------|---|---|---|---|---|--|
|  | !                      | ⚡ | 📄 | 📄 | 💡 | ⬠ | !                        | ⚡ | 📄 | 📄 | 💡 | ⬠ |  |
| Defective or missing imaging unit          | •                      |   |   | * |   |   | •                        | • |   | * |   |   | Go to: <ul style="list-style-type: none"> <li>• “Reinstall missing or unresponsive imaging unit[31.xy]” on page 44</li> <li>• “User attendance messages (0-99.99)” on page 84</li> </ul> |
| Non-genuine Lexmark cartridge installed    | *                      | * | * | • |   |   |                          |   |   |   |   |   | Go to: <ul style="list-style-type: none"> <li>• “Non-Lexmark cartridge, see User’s Guide[33.xy]” on page 42</li> <li>• “User attendance messages (0-99.99)” on page 84</li> </ul>        |
| Non-genuine Lexmark imaging unit installed | *                      | * | * | * |   |   |                          |   |   |   |   |   | Go to: <ul style="list-style-type: none"> <li>• “Non-Lexmark imaging unit, see User’s Guide[33.xy]” on page 44</li> <li>• “User attendance messages (0-99.99)” on page 84</li> </ul>     |
| Close front door                           | •                      |   |   |   |   |   |                          |   |   |   |   |   | Close the front door.  |
| Complex page                               | •                      |   |   |   |   | • | •                        |   |   |   | • | • | Go to “Complex page, some data may not have printed[39]” on page 48.   |
| Defective flash                            | •                      |   |   |   |   | • | •                        |   | • |   |   | • |  |
| Flash full                                 | •                      |   |   |   |   | • | •                        | • |   |   | • | • |  |
| Insufficient collation area                | •                      |   |   |   |   | • | •                        |   |   | • |   | • | Go to: <ul style="list-style-type: none"> <li>• “Insufficient memory to collate job[37]” on page 47</li> <li>• “User attendance messages (0-99.99)” on page 84</li> </ul>                |
| Insufficient defrag memory                 | •                      |   |   |   |   | • | •                        |   | * |   |   | • |  |
| Load media                                 |                        |   | • |   |   | • |                          |   |   |   |   |   | Go to “Load media” on page 45.   |




| Description  | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   | Action   |
|--|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|--|
|  | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬠ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬠ |  |
| Change media   |                        |   | * |    |   | • |                          |   |   |    |   |   | Go to <b>“Change media” on page 44.</b>  |
| Memory full  | •                      |   |   |    |   | • | •                        |   |   | •  | • | • | Go to <b>“Memory full[38]” on page 47.</b>   |
| Network interface errors                             | •                      |   |   |    |   | • | •                        | • |   |    |   |   | Go to <b>“Standard network software error[54]” on page 46.</b>   |
| Remove paper from output bin                         |                        |   | * |    |   |   |                          |   |   |    |   |   | Go to <b>“Remove paper from standard output bin” on page 46.</b>   |
| Insufficient memory to support resource save feature | •                      |   |   |    |   | • | •                        |   |   |    | * | • | Go to <b>“Insufficient memory to support Resource Save feature[35]” on page 47.</b>  |
| Short paper  | •                      |   |   |    |   | • | •                        |   | • |    | • | • | Go to: <ul style="list-style-type: none"> <li>• <b>“Incorrect paper size, open[paper source] [34]” on page 45</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul> |
| Too many trays attached                              | •                      |   |   |    |   | • | •                        |   | • | •  |   | • | Go to <b>“Too many trays attached[58]” on page 48.</b>   |
| Unformatted flash                                    | •                      |   |   |    |   | • | •                        | • |   | •  |   | • |  |
| Unsupported cartridge                                | •                      | • | • | •  |   |   |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Replace unsupported cartridge[32.xy]” on page 43</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>          |
| Unsupported imaging unit                             | •                      | • | • | *  |   |   |                          |   |   |    |   |   | Go to: <ul style="list-style-type: none"> <li>• <b>“Replace unsupported imaging unit[32.xy]” on page 44</b></li> <li>• <b>“User attendance messages (0-99.99)” on page 84</b></li> </ul>       |
| Standard USB port disabled                           | •                      |   |   |    |   | • | •                        | * | * |    |   | • | Go to <b>“Standard USB port disabled[56]” on page 47.</b>  |

| Description                     | Primary light sequence  |   |   |   |   |   | Secondary light sequence  |   |   |   |   |   | Action |   |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|--------|---|
|                                 |  |  |  |  |  |  |  |  |  |  |  |  |        |   |
| Standard parallel port disabled | •   |   |   |   |   | •   | •   | x   | x   |   |   |   | •      | Go to <b>“Standard parallel port disabled[56]” on page 46.</b>  |
| Unsupported USB device          | •   |   |   |   |   | •   | •   | x   | •   |   |   |   | •      |   |
| Auto reboot IR                  | *   |   | *   |   | *   | •   |   |   |   |   |   |   |        | Press  to continue printing. |







## Paper jams

| Description                              | Primary light sequence |   |   |    |   |   | Secondary light sequence |   |   |    |   |   | Action   |
|--|------------------------|---|---|----|---|---|--------------------------|---|---|----|---|---|--|
|  | !                      | ⚡ | 📄 | 🖨️ | 💡 | ⬠ | !                        | ⚡ | 📄 | 🖨️ | 💡 | ⬠ |  |
| 200 paper jam<br>Printer input sensor    |                        |   |   |    |   |   |                          | • |   |    | • | • | Go to <b>“202 paper jam messages” on page 68.</b>    |
| 202 paper jam<br>Printer exit sensor     |                        |   |   |    |   |   |                          | • | • |    |   | • | Go to <b>“202 paper jam messages” on page 68.</b>    |
| 230 paper jam<br>Duplex                  |                        |   |   |    |   |   |                          | • |   | •  |   | • | Go to <b>“23y.xx paper jam messages” on page 71.</b> |
| 231 paper jam<br>Duplex—rear             |                        |   |   |    |   |   |                          | • | * |    |   | • |  |
| 232 paper jam<br>Duplex                  |                        |   |   |    |   |   |                          | • |   | •  |   | • |  |
| 233 paper jam<br>Duplex                  |                        |   |   |    |   |   |                          | • | * | *  |   | • |  |
| 234 paper jam<br>Duplex—unknown location |                        | • |   |    |   | • |                          | • |   |    | * | • |  |
| 235 paper jam<br>Duplex—unsupported size |                        |   |   |    |   |   |                          | • | * |    | * | • |  |
| 241 paper jam<br>Tray 1                  |                        |   |   |    |   |   |                          | • | • | •  |   | • |  |
| 242 paper jam<br>Tray 2                  |                        |   |   |    |   |   |                          | • | • |    | • | • |  |
| 250 paper jam<br>MPF                     |                        |   |   |    |   |   |                          | • |   |    | * | • | Go to <b>“25y.xx paper jam messages” on page 82.</b> |
| 251 paper jam<br>Manual feeder           |                        |   |   |    |   |   |                          | • |   | •  | • | • |  |













## Service errors

All service errors are indicated by all lights flashing as the primary light sequence. The secondary light sequence indicates an area or function which has the error. Tertiary light sequence indicates a specific device error. When all lights flash, quickly press  twice to see the secondary light sequence. Quickly press  twice again to see the tertiary light sequence. Quickly press  twice a third time to return to the primary light sequence.

**Primary light sequence**

| Description                                | Primary light sequence  |   |   |   |   |   |
|--|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| Primary light sequence for service errors. | *   | *   | *   | *   | *   | *   |

**Secondary and tertiary light sequences**

| Description            | Secondary light sequence  |   |   |   |   |   | Tertiary light sequence   |   |   |   |   |   | Action  |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
|                        |  |  |  |  |  |  |  |  |  |  |  |  |   |
| 900 RIP software error | *   |   |   |   |   |   |   | *   |   |   |   |   | Go to <b>“9xx error messages”</b> on page 96. |
| 900 Watchdog           |   | *   |   | *   | *   | *   |   | *   |   | *   |   |   |   |
| 901 Engine flash       | *   |   |   |   |   |   |   | *   |   |   |   |   |   |
| 902-906                |   | *   |   | *   | *   | *   |   | *   |   | *   |   |   |   |
| 910-914                | *   |   |   |   |   | *   |   | *   |   |   |   |   |   |
| 917                    | *   |   |   |   |   | *   |   | *   |   | *   | *   | *   |   |
| 920-926                | *   |   |   |   | *   |   |   | *   |   |   |   |   |   |
| Fan stalled            | *   |   |   |   | *   |   |   | *   |   | *   | *   | *   |   |
| 928                    | *   |   |   |   | *   |   |   | *   | *   |   |   |   |   |
| 929                    | *   |   |   |   | *   |   |   | *   | *   |   |   | *   |   |
| 930-935                | *   |   |   |   | *   | *   |   | *   |   |   |   |   |   |
| 936-937                | *   |   |   |   | *   | *   |   | *   |   | *   | *   |   |   |
| 939                    | *   |   |   |   | *   | *   |   | *   | *   |   | *   |   |   |
| 950-951                | *   |   |   | *   |   | *   |   | *   |   |   |   |   |   |
| 952-954                | *   |   |   | *   |   | *   |   | *   |   | *   |   |   |   |
| 955                    | *   |   |   | *   |   | *   |   | *   |   | *   |   | *   |   |
| 956-957                | *   |   |   | *   |   | *   |   | *   |   | *   | *   |   |   |
| 958                    | *   |   |   | *   |   | *   |   | *   | *   |   |   |   |   |
| 960-963                | *   |   |   | *   | *   |   |   | *   |   |   |   |   |   |
| 970-979                | *   |   |   | *   | *   | *   |   | *   |   |   |   |   |   |

# Understanding the printer messages

## Toner cartridge messages


### Cartridge, imaging unit mismatch [41.xy]

- 1 Check if the toner cartridge and imaging unit are both MICR or non-MICR supplies.
- 2 Change the toner cartridge or imaging unit so that both are MICR or non-MICR supplies.

#### Notes:

- Use a MICR toner cartridge and imaging unit for printing checks and other similar documents.
- Use a non-MICR toner cartridge and imaging unit for regular print jobs.


### Cartridge low [88.xx]

You may need to order a toner cartridge. If necessary, press  on the printer control panel to continue printing.

### Cartridge nearly low [88.xy]

Press  on the printer control panel, if necessary, to continue printing.

### Cartridge very low [88.xy]

You may need to replace the toner cartridge very soon. If necessary, press  on the printer control panel to continue printing.



### Non-Lexmark cartridge, see User's Guide [33.xy]

The printer has detected a non-Lexmark supply or part installed in the printer.

Your Lexmark printer is designed to function best with genuine Lexmark supplies and parts. Use of third-party supplies or parts may affect the performance, reliability, or life of the printer and its imaging components.

**Warning—Potential Damage:** Use of third-party supplies or parts may affect warranty coverage. Damage caused by the use of third-party supplies or parts are not covered by the warranty.

All life indicators are designed to function with Lexmark supplies and parts, and may deliver unpredictable results if third-party supplies or parts are used. Imaging component usage beyond the intended life may damage your Lexmark printer or associated components.

To accept any and all of these risks and to proceed with the use of non-genuine supplies or parts in your printer, press  and  simultaneously for at least three seconds to clear the light sequence.

### Replace cartridge, 0 estimated pages remain [88.xy]

Replace the toner cartridge. For more information, see the instruction sheet that came with the supply.

## Replace cartridge, printer region mismatch [42.xy]

Install a toner cartridge that matches the region number of the printer. x indicates the value of the printer region. y indicates the value of the cartridge region. x and y can have the following values:

### Printer and toner cartridge regions

| Region number (x) | Region (y)                                |
|-------------------|---|
| 0                 | Global                                    |
| 1                 | United States, Canada                     |
| 2                 | European Economic Area (EEA), Switzerland |
| 3                 | Asia Pacific, Australia, New Zealand      |
| 4                 | Latin America                             |
| 5                 | Africa, Middle East, rest of Europe       |
| 9                 | Invalid                                   |

#### Notes:

- The x and y values are the **.xy** of the error code displayed on the Embedded Web Server.
- The x and y values must match for printing to continue.

## Reinstall missing or unresponsive cartridge [31.xy]

Try one or more of the following:

- Remove the toner cartridge, and then reinstall it.
- Remove the toner cartridge, and then install a new one. For more information, see the instruction sheet that came with the supply.

## Replace unsupported cartridge [32.xy]

Remove the toner cartridge, and then install a supported one. For more information, see the instruction sheet that came with the supply.

## Imaging unit messages


### Imaging unit low [84.xy]

You may need to order an imaging unit. If necessary, press  on the printer control panel to continue printing.

### Imaging unit nearly low [84.xy]

Press  on the printer control panel, if necessary, to continue printing.

## Imaging unit very low [84.xy]



You may need to replace the imaging unit very soon. If necessary, press  on the printer control panel to continue printing.

## Non-Lexmark imaging unit, see User's Guide [33.xy]

The printer has detected a non-Lexmark supply or part installed in the printer. Your Lexmark printer is designed to function best with genuine Lexmark supplies and parts. Use of third-party supplies or parts may affect the performance, reliability, or life of the printer and its imaging components.

**Warning—Potential Damage:** Use of third-party supplies or parts can affect warranty coverage. Damage caused by the use of third-party supplies or parts is not covered by the warranty.

All life indicators are designed to function with Lexmark supplies and parts, and may deliver unpredictable results if third-party supplies or parts are used. Imaging component usage beyond the intended life may damage your Lexmark printer or associated components.

To accept any and all of these risks and to proceed with the use of non-genuine supplies or parts in your printer, press  and  simultaneously for at least four seconds to clear the light sequence.

## Replace imaging unit, 0 estimated pages remain [84.xy]

Replace the imaging unit. For more information, see the instruction sheet that came with the supply.

## Reinstall missing or unresponsive imaging unit [31.xy]

Try one or more of the following:

- Remove the imaging unit, and then reinstall it.
- Remove the imaging unit, and then install a new one. For more information, see the instruction sheet that came with the supply.


## Replace unsupported imaging unit [32.xy]

Remove the imaging unit, and then install a supported one. For more information, see the instruction sheet that came with the supply.

## Paper loading messages

### Change media

Try one or more of the following:

- Load the tray or feeder with the correct size and type of paper, and then press  on the printer control panel to continue printing.
- Make sure the correct paper size and type are specified in the Paper menu:
  - If the printer is on a network, then access the Embedded Web Server.
    - 1 Open a Web browser, and then type the printer IP address in the address field.




**Notes:**

- Print a network setup page or menu settings page, and then locate the IP address in the TCP/IP section.
- If you are using a proxy server, then temporarily disable it to load the Web page correctly.


**2 Click Settings > Paper Menu.**

- If the printer is connected to a computer by a USB or parallel cable, then access the Paper menu through the Local Printer Settings Utility for Windows or through Printer Settings for Macintosh.

- Press  to cancel the print job.

**Incorrect paper size, open [paper source] [34]**

Try one or more of the following:

- Load the correct size of paper.
- From the printer control panel, press  to clear the light sequence and print using a different tray.
- Check the length and width guides and make sure the paper is loaded properly in the tray.
- Make sure the correct paper size and type are specified in Print Properties or the Print dialog settings.
- Make sure the correct paper size and type are specified in the Paper menu on the printer control panel:
  - If the printer is on a network, then access the Embedded Web Server.
    - 1 Open a Web browser, and then type the printer IP address in the address field.

**Notes:**

- Print a network setup page or menu settings page, and then locate IP address in TCP/IP section.
- If you are using a proxy server, then temporarily disable it to load the Web page correctly.


**2 Click Settings > Paper Menu.**

- If the printer is connected to a computer by a USB or parallel cable, then access the Paper menu through the Local Printer Settings Utility for Windows or through Printer Settings for Macintosh.


**Note:** Make sure the paper size is correctly set. For example, if the MP Feeder Size is set to Universal, then make sure the paper is large enough for the data being printed.

**Load media**

Try one or more of the following:


- Load the tray or feeder with the correct size and type of paper.
- From the printer control panel, press  to continue printing.

**Note:** If the printer finds a tray that has the correct size and type of paper, then it feeds from that tray. If the printer cannot find a tray that has the correct size and type of paper, then it prints from the default paper source.

- From the printer control panel, press  to cancel the print job.

## Remove paper from standard output bin


Do the following:

- 1 Remove the paper stack from the standard output bin.
- 2 From the printer control panel, press  to continue printing.

## Printer communication error messages


### Network [x] software error [54]

Try one or more of the following:

- From the printer control panel, press  to continue printing.
- Unplug the router, then wait for 30 seconds, and then plug the router back again.
- Turn off the printer, wait for about 10 seconds, and then turn the printer back on.
- Update the network firmware in the printer or print server. For more information, contact customer support.


### Standard network software error [54]

Try one or more of the following:

- From the printer control panel, press  to continue printing.
- Turn off the printer, and then turn it back on.
- Update the network firmware in the printer or on the print server. For more information, contact customer support.

### Standard parallel port disabled [56]

Try one or more of the following:

- From the printer control panel, press  to continue printing.

**Note:** The printer discards any data received through the parallel port.

- Set the Parallel Buffer to Auto.

– If the printer is on a network, then access the Embedded Web Server.

- 1 Open a Web browser, and then type the printer IP address in the address field.

**Notes:**

- Print a network setup page or menu settings page, and then locate the IP address in the TCP/IP section.
- If you are using a proxy server, then temporarily disable it to load the Web page correctly.

- 2 Click **Settings > Network/Ports > Parallel**.


- 3 In the Parallel Buffer field, enter 2.

- 4 Click **Submit**.

– If the printer is connected to a computer by a USB or parallel cable, then access the Parallel menu through the Local Printer Settings Utility for Windows or through Printer Settings for Macintosh.

## Standard USB port disabled [56]

Try one or more of the following:

- From the printer control panel, press  to continue printing.

**Note:** The printer discards any data received through the USB port.

- Set the USB Buffer to Auto:
  - If the printer is on a network, then access the Embedded Web Server.
    - 1 Open a Web browser, and then type the printer IP address in the address field.

**Notes:**

- Print a network setup page or menu settings page, and then locate the IP address in the TCP/IP section.
- If you are using a proxy server, then temporarily disable it to load the Web page correctly.

**2** Click **Settings > Network/Ports > Standard USB**.

**3** In the USB Buffer field, enter 2.



**4** Click **Submit**.

- If the printer is connected to a computer by a USB or parallel cable, then access the Standard USB menu through the Local Printer Settings Utility for Windows or through Printer Settings for Macintosh.


## Insufficient memory error messages

### Insufficient memory to collate job [37]

Try one or more of the following:

- From the printer control panel, press  to print the portion of the job already stored and begin collating the rest of the print job.
- From the printer control panel, press  to cancel the print job.



### Insufficient memory to support Resource Save feature [35]

Press  on the printer control panel to clear the light sequence.

The job will be printed without using Resource Save.

### Memory full [38]



Try one or more of the following:

- From the printer control panel, press  to continue printing. A data loss will occur.
- From the printer control panel, press  to cancel the print job.
- Install additional printer memory.
- Decrease the resolution setting.

## Miscellaneous messages

### Complex page, some data may not have printed [39]

Try one or more of the following:

- From the printer control panel, press  to continue printing. A data loss may occur.
- From the printer control panel, press  to cancel the print job.
- Install additional printer memory.
- Reduce the number and size of fonts, the number and complexity of images, and the number of pages in the print job.

### Too many trays attached [58]

Do the following:

- 1 Turn off the printer.
- 2 Unplug the power cord from the electrical outlet.  
**Note:** Optional trays lock together when stacked. Remove stacked trays one at a time from the top to the bottom.
- 3 Remove the extra tray or trays.
- 4 Connect the power cord to a properly grounded electrical outlet.
- 5 Turn the printer back on.

## Fixing print quality issues

- **“Initial print quality check” on page 48**
- **“Print quality checks” on page 49**

The symptoms described in this chapter might 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 might need to install a toner cartridge.

### Initial print quality check

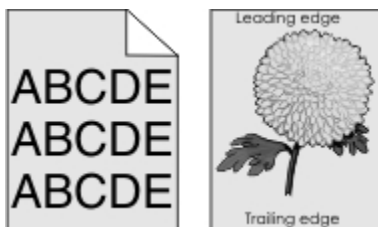
Before troubleshooting specific print problems, complete the following initial print quality check:

- 1 The printer must be in a location that follows the recommended operating environment specifications. See **“Operating environment” on page 243**.
- 2 Check the life status of all supplies. Any supply that is low should be replaced.
- 3 Load 20-lb plain letter or A4 paper. Make sure the paper guides are properly set and locked. From the control panel, set the paper size and type to match the paper loaded in the tray.
- 4 Print a Menu settings page. Be sure to keep the original Menu settings page to restore the customer's custom settings if needed.

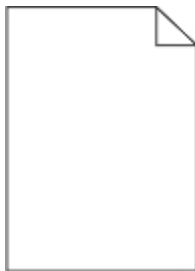
- 5 Verify on the Menu settings page if the following are set to their default values:
  - Print resolution: 600 dpi
  - Toner darkness: 8
- 6 Inspect the transfer roll for damage. Replace if damaged.
- 7 Inspect the toner cartridge and imaging unit for damage. Replace if damaged.
- 8 Print the Print quality pages to see if the problem remains. Use Tray 1 to test print quality problems.
- 9 Check to ensure the correct printer driver for the installed software is being used. An incorrect printer driver for the installed software can cause problems. Incorrect characters could print, and the copy may not fit the page correctly.

## Print quality checks

### Gray background or toner fog on prints

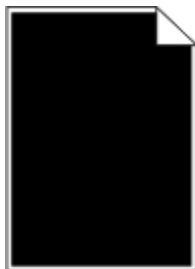


| Actions   | Yes  | No   |
|---|--|--|
| <p><b>Step 1</b><br/>Check the cartridge plunger.</p> <p>Is the cartridge plunger properly attached to the front door and is the spring functioning properly?</p> | Go to step 2.  | Replace the cartridge plunger. See <b>“Cartridge plunger removal” on page 169.</b> |
| <p><b>Step 2</b><br/>Remove any contamination from the CTLS contacts. Perform a print test.</p> <p>Does the problem remain?</p>                                   | Go to step 3.  | The problem is solved.   |
| <p><b>Step 3</b><br/>Check the CTLS for damage.</p> <p>Is it free of damage?</p>  | Go to step 4.  | Replace the printer.   |
| <p><b>Step 4</b><br/>Check the transfer roll for surface contamination or excessive wear.</p> <p>Is it free of contamination and wear?</p>                        | Go to step 5.  | Replace the transfer roll. See <b>“Transfer roll removal” on page 168.</b>         |
| <p><b>Step 5</b><br/>Check the transfer roll left contact spring for damage.</p> <p>Is it free of damage?</p>   | Replace the power supply. See <b>“Power supply removal” on page 189.</b> | Replace the printer.   |

**Printer is printing blank pages**

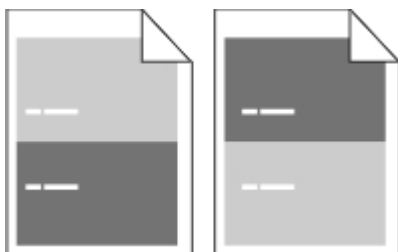
| Actions   | Yes  | No   |
|---|--|--|
| <b>Step 1</b><br>Check the toner cartridge level.<br><br>Is the toner level low?  | Replace the toner cartridge.   | Go to step 2.  |
| <b>Step 2</b><br>Check the cartridge plunger.<br><br>Is the cartridge plunger properly attached to the front door and is the spring functioning properly? | Go to step 3.  | Replace the cartridge plunger. See <b>“Cartridge plunger removal” on page 169.</b> |
| <b>Step 3</b><br>Check the imaging unit for wear or damage.<br><br>Is it free of wear or damage?  | Go to step 4.  | Replace the imaging unit.  |
| <b>Step 4</b><br>Check the transfer roll for surface contamination or excessive wear.<br><br>Is it free of contamination and wear?                        | Go to step 5.  | Replace the transfer roll. See <b>“Transfer roll removal” on page 168.</b>         |
| <b>Step 5</b><br>Check the transfer roll left contact spring for damage.<br><br>Is it free of damage?   | Go to step 6.  | Replace the printer.   |
| <b>Step 6</b><br>Reseat the cables JGLV1 and JVIDEO1 or JUICC1 on the controller board.<br><br>Does the problem remain?                                   | Replace the power supply. See <b>“Power supply removal” on page 189.</b> | The problem is solved.   |

## Printer is printing solid black pages



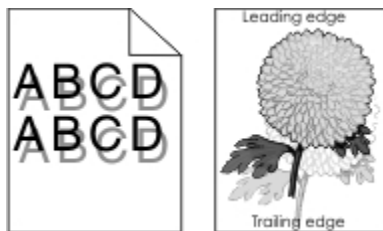
| Actions   | Yes  | No                        |
|---|--|---------------------------|
| <b>Step 1</b><br>Check the imaging unit for damage.<br><br>Is it free of damage?                          | Go to step 2.  | Replace the imaging unit. |
| <b>Step 2</b><br>Remove any contamination from the imaging unit contacts.<br><br>Does the problem remain? | Go to step 3.  | The problem is solved.    |
| <b>Step 3</b><br>Check the imaging unit contacts for damage.<br><br>Are they free of damage?              | Replace the power supply. See <b>“Power supply removal” on page 189.</b> | Replace the printer.      |

## Repeating defects



| Actions   | Yes                       | No                                 |
|---|---------------------------|------------------------------------|
| <b>Step 1</b><br>Measure the distance between defects. Is the distance between defects equal to any of the following? <ul style="list-style-type: none"> <li>• 3.82 in. (97 mm)</li> <li>• 1.85 in. (47 mm)</li> <li>• 1.5 in. (38 mm)</li> </ul> | Replace the imaging unit. | Go to step 2.                      |
| <b>Step 2</b><br>Is the distance between defects equal to 3.15 in. (80 mm)?   | Replace the fuser.        | Contact the next level of support. |

## Shadow images appear on prints




| Actions  | Yes                    | No   |
|--|------------------------|--|
| <b>Step 1</b><br>Does the shadow image appear every two pages?   | Go to step 2.          | Go to step 3.  |
| <b>Step 2</b><br>Check the redrive assembly for wear or damage.<br><br>Is it free of wear or damage?   | Go to step 3.          | Replace the redrive assembly. See <b>“Redrive assembly removal” on page 208.</b> |
| <b>Step 3</b><br>Check the transfer roll for surface contamination or excessive wear.<br><br>Is it free of contamination and wear?   | Go to step 4.          | Replace the transfer roll. See <b>“Transfer roll removal” on page 168.</b>       |
| <b>Step 4</b><br>Check the following fuser components for wear or damage: <ul style="list-style-type: none"> <li>• Gears</li> <li>• Exit rollers</li> <li>• Belt fuser</li> </ul> Are they free of damage?   | Go to step 5.          | Replace the fuser. See <b>“Fuser removal” on page 209.</b>                       |
| <b>Step 5</b> <ol style="list-style-type: none"> <li>a Turn off the printer.</li> <li>b Remove the rear door and cover.</li> <li>c Disconnect the fuser cable connected to PCN5 of the power supply.</li> <li>d Check for approximate correct resistance on the fuser cable:               <ul style="list-style-type: none"> <li>• 220V fuser—43 ohms</li> <li>• 110V fuser—10 ohms</li> <li>• 100V fuser—8 ohms</li> </ul> </li> </ol> Is the resistance equal to any of the above values? | The problem is solved. | Replace the fuser. See <b>“Fuser removal” on page 209.</b>                       |

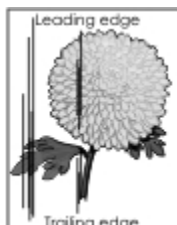


**Skewed print**

| Actions   | Yes            | No   |
|---|----------------|--|
| <b>Step 1</b><br>Does the skew appear every two pages?  | Go to step 8.  | Go to step 2.                                  |
| <b>Step 2</b><br><b>a</b> Check the media source.<br><b>b</b> If the media is from tray 1, go to step 3.<br>If the media is from the MPF, go to step 5. |                |  |
| <b>Step 3</b><br>Make sure the pick tires are free of debris. Check for wear or damage.<br><br>Are they free of wear or damage?                         | Go to step 4.  | Replace the pick tires.                        |
| <b>Step 4</b><br>If applicable, check the lift plate on the input tray for damage.<br><br>Is it free of damage?   | Go to step 11. | Replace the input tray.                        |
| <b>Step 5</b><br>Make sure the MPF pick roller and separator pad are free of debris. Check for wear or damage.<br><br>Are they free of wear or damage?  | Go to step 6.  | Replace the MPF pick roller and separator pad. |
| <b>Step 6</b><br>Check the MPF gearbox for wear or damage.<br><br>Is it free of wear or damage?   | Go to step 7.  | Replace the MPF gearbox.                       |
| <b>Step 7</b><br>Make sure the front input guide rollers are free of debris. Check for wear or damage.<br><br>Are they free of wear or damage?          | Go to step 11. | Replace the front input guide.                 |
| <b>Step 8</b><br>Make sure the redrive rollers are free of debris. Check for wear or damage.<br><br>Are they free of wear or damage?                    | Go to step 9.  | Replace the redrive assembly.                  |

| Actions   | Yes                                       | No                                   |
|---|---|--------------------------------------|
| <p><b>Step 9</b></p> <p><b>a</b> Remove the left cover.</p> <p><b>b</b> Perform a duplex print test:<br/> <b>Diagnostics Menu &gt; Cont Prt Duplex Tray 1</b></p> <p><b>Note:</b> Press  when the first page picks to prevent printing additional pages.</p> <p><b>c</b> Observe the reverse solenoid for proper operation.</p> <p>Does it properly operate?</p> | <p>Go to step 10.</p>                     | <p>Replace the reverse solenoid.</p> |
| <p><b>Step 10</b></p> <p>Make sure the input roller/deskew assembly is free of debris. Check for wear or damage.</p> <p>Are they free of wear or damage?</p>  | <p>Contact the next level of support.</p> | <p>Replace the printer.</p>          |

**Streaked horizontal or vertical lines appear on prints**



| Actions  | Yes                  | No                               |
|--|----------------------|----------------------------------|
| <p><b>Step 1</b></p> <p>Check the imaging unit for wear or damage.</p> <p>Is it free of wear or damage?</p>                    | <p>Go to step 2.</p> | <p>Replace the imaging unit.</p> |
| <p><b>Step 2</b></p> <p>Make sure the paper path is free of debris or toner contamination.</p> <p>Does the problem remain?</p> | <p>Go to step 3.</p> | <p>The problem is solved.</p>    |

| Actions   | Yes  | No   |
|---|--|--|
| <p><b>Step 3</b></p> <p>Check the transfer roll for contamination or excessive wear.</p> <p>Is it free of contamination or wear?</p>          | Go to step 4.  | Replace the transfer roll. See <b>“Transfer roll removal” on page 168.</b> |
| <p><b>Step 4</b></p> <p>Remove the fuser and check for damage or debris on the rollers and belts.</p> <p>Is it free of damage and debris?</p> | Go to step 5.  | Replace the fuser. See <b>“Fuser removal” on page 209.</b>                 |
| <p><b>Step 5</b></p> <p>Reseat the cables JVIDEO1 and JGLV on the controller board.</p> <p>Does the problem remain?</p>                       | Replace the LSU. See <b>“Laser scanning unit (LSU) removal” on page 211.</b> | The problem is solved.   |

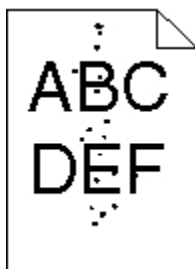
### Toner rubs off



| Actions  | Yes           | No   |
|--|---------------|--|
| <p><b>Step 1</b></p> <p>Check if the fuser screws are tightly fastened.</p> <p>Are they tightly fastened?</p>  | Go to step 2. | Tighten the screws.  |
| <p><b>Step 2</b></p> <p><b>a</b> Turn off the printer.</p> <p><b>b</b> Remove the rear door and cover.</p> <p><b>c</b> Disconnect the fuser cable connected to PCN5 of the power supply.</p> <p><b>d</b> Check for approximate correct resistance on the fuser cable:</p> <ul style="list-style-type: none"> <li>• 220V fuser—43 ohms</li> <li>• 110V fuser—10 ohms</li> <li>• 100V fuser—8 ohms</li> </ul> <p>Is the resistance equal to any of the above values?</p> | Go to step 3. | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |

| Actions  | Yes   | No  |
|--|---|---|
| <p><b>Step 3</b></p> <p>Check the following fuser components for wear or damage:</p> <ul style="list-style-type: none"> <li>• Gears</li> <li>• Exit rollers</li> <li>• Belt fuser</li> </ul> <p>Are they free of damage?</p> | <p>Replace the power supply. See <b>“Power supply removal” on page 189.</b></p> | <p>Replace the fuser. See <b>“Fuser removal” on page 209.</b></p> |

### Toner specks appear on prints



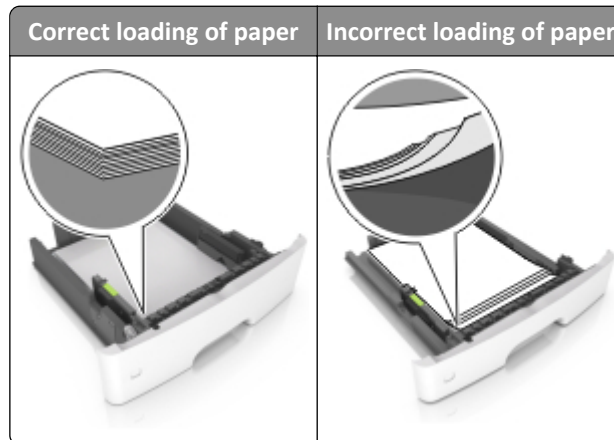
| Actions   | Yes   | No  |
|---|---|---|
| <p><b>Step 1</b></p> <p>Check the imaging unit for wear or damage.</p> <p>Is it free of wear or damage?</p>                                   | <p>Go to step 2.</p>  | <p>Replace the imaging unit.</p>  |
| <p><b>Step 2</b></p> <p>Make sure the paper path is free of debris or toner contamination.</p> <p>Does the problem remain?</p>                | <p>Go to step 3.</p>  | <p>The problem is solved.</p>   |
| <p><b>Step 3</b></p> <p>Check the transfer roll for contamination or excessive wear.</p> <p>Is it free of contamination or wear?</p>          | <p>Go to step 4.</p>  | <p>Replace the transfer roll. See <b>“Transfer roll removal” on page 168.</b></p> |
| <p><b>Step 4</b></p> <p>Remove the fuser and check for damage or debris on the rollers and belts.</p> <p>Is it free of damage and debris?</p> | <p>Go to step 5.</p>  | <p>Replace the fuser. See <b>“Fuser removal” on page 209.</b></p>                 |
| <p><b>Step 5</b></p> <p>Reseat the cables JVIDEO1 and JGLV on the controller board.</p> <p>Does the problem remain?</p>                       | <p>Replace the LSU. See <b>“Laser scanning unit (LSU) removal” on page 211.</b></p> | <p>The problem is solved.</p>   |

# Paper jams

## Avoiding jams

### Load paper properly

- Make sure paper lies flat in the tray.



- Do not remove a tray while the printer is printing.
- Do not load a tray while the printer is printing. Load it before printing, or wait for a prompt to load it.
- Do not load too much paper. Make sure the stack height is below the maximum paper fill indicator.
- Do not slide the paper into the tray. Load paper as shown in the illustration.



- Make sure the guides in the tray or the multipurpose feeder are properly positioned and are not pressing tightly against the paper or envelopes.
- Push the tray firmly into the printer after loading paper.

## Use recommended paper

- Use only recommended paper or specialty media.
- Do not load wrinkled, creased, damp, bent, or curled paper.
- Flex, fan, and straighten paper before loading it.



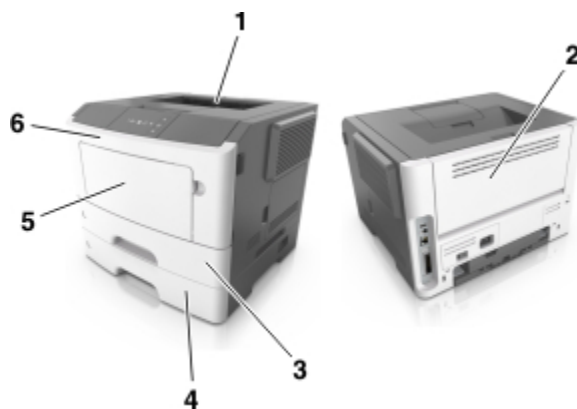
- Do not use paper that has been cut or trimmed by hand.
- Do not mix paper sizes, weights, or types in the same tray.
- Make sure the paper size and type are set correctly on the Embedded Web Server or the computer.

**Note:** Depending on your operating system, access the Paper menu using Local Printer Settings Utility or Printer Settings.

- Store paper according to manufacturer recommendations.

## Accessing jam areas

Open the doors and pull out the trays to access jam areas.



| Access area | Description                              |
|-------------|--|
| 1           | Standard bin                             |
| 2           | Rear door                                |
| 3           | Standard 250-sheet tray (Tray 1)         |
| 4           | Optional 250- or 550-sheet tray (Tray 2) |
| 5           | Multipurpose feeder door                 |
| 6           | Front door                               |

### Notes:

- When Jam Assist is set to On, the printer automatically flushes blank pages or pages with partial prints to the standard bin after a jammed page has been cleared. Check your printed output stack for discarded pages.

- When Jam Recovery is set to On or Auto, the printer reprints jammed pages. However, the Auto setting does not guarantee that the page will print.


## 200 paper jams

### 200 paper jam messages

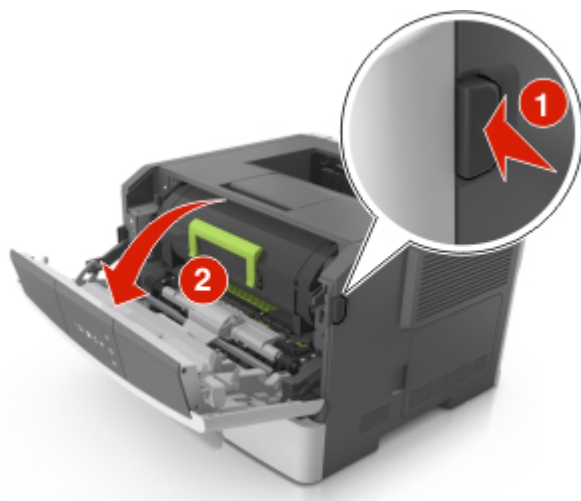
| Error code | Description   | Action  |
|------------|---|---|
| 200.01     | Input sensor covered during warm-up sequence.   | Go to <b>“Sensor (input) static jam service check” on page 63.</b>          |
| 200.02     | Input sensor covered too quickly.   | Go to <b>“Sensor (input) early/late arriving service check” on page 64.</b> |
| 200.03     | Media did not reach input sensor from MPF.  |   |
| 200.05     | Input sensor covered too long.  |   |
| 200.07     | Input sensor failed to become uncovered from sheet ahead.   |   |
| 200.08     | Page arrive at input sensor at unexpected time  |   |
| 200.09     | Printhead did not receive proper motor feedback to start laser servo.   | Go to <b>“Sensor (input) jam service check” on page 65.</b>                 |
| 200.10     | Printhead motor not locked when media reaches the input sensor.   |   |
| 200.11     | Printhead motor fell out of lock after page reaches the input sensor.   |   |
| 200.12     | Printhead was not ready for media.  |   |
| 200.13     | Media at input sensor is not the next media to be imaged.   |   |
| 200.14     | Media reached the input sensor before EP was ready.   |   |
| 200.15     | Image data did not start on time.   |   |
| 200.16     | Fuser motor stalled.  | Go to <b>“Main drive motor control jam service check” on page 65.</b>       |
| 200.19     | Page that was successfully picked from option tray never reached the input sensor   | Go to <b>“Sensor (input) early/late arriving service check” on page 64.</b> |
| 200.21     | No response from paper port driver while waiting for the source to deactivate the Input Source Ready flag to indicate it has initiated picking. |   |

| Error code | Description   | Action  |
|------------|---|---|
| 200.23     | Laser servo never started due to potential conflict with the transfer servo.  | Go to <b>“Sensor (input) jam service check” on page 65.</b>                 |
| 200.24     | Measured gap at input sensor too small to meet video delivery requirements. (Not enough time since prior image finished to start new image).  |   |
| 200.29     | Printhead drive control out of range due to an external event beyond what the control is designed to handle.  |   |
| 200.30     | Invalid printhead NVRAM   |   |
| 200.31     | Paper, in the middle of a job, at input sensor before interrupt occurred.   | Go to <b>“Sensor (input) early/late arriving service check” on page 64.</b> |
| 200.32     | Detected cover switch bounce.   |   |
| 200.33     | Input sensor covered too quickly.   |   |
| 200.38     | Interpage servo gap smaller than expected for galvo offset target evaluation  | Go to <b>“Sensor (input) early/late arriving service check” on page 64.</b> |
| 200.42     | Rogue sheet at ACM sensor while flushing the paper path prior to declaring tray 1 source empty  |   |
| 200.44     | Page from tray 1 did not reach the input sensor (or the manual feed sensor, if present) after multiple pick attempts. Page did make it out of the tray at least as far as the ACM sensor. |   |
| 200.45     | During warm up flush, sheet detected too long over input sensor.  |   |

### [x]-page jam, open front door. [20y.xx]

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

- 1 Press the button on the right side of the printer, and then open the front door.

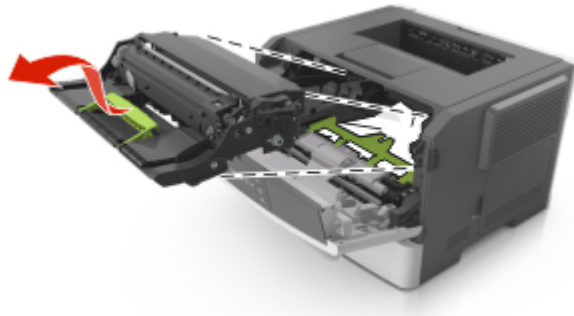




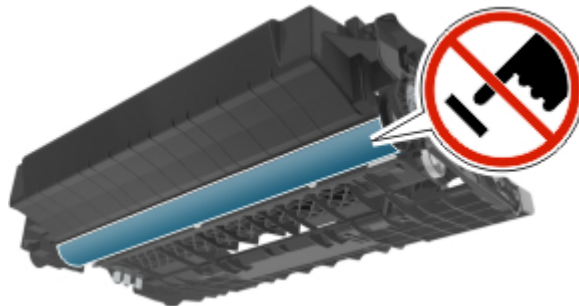
- 2 Pull out the toner cartridge using the handle.



- 3 Lift the green handle, and then pull out the imaging unit from the printer.



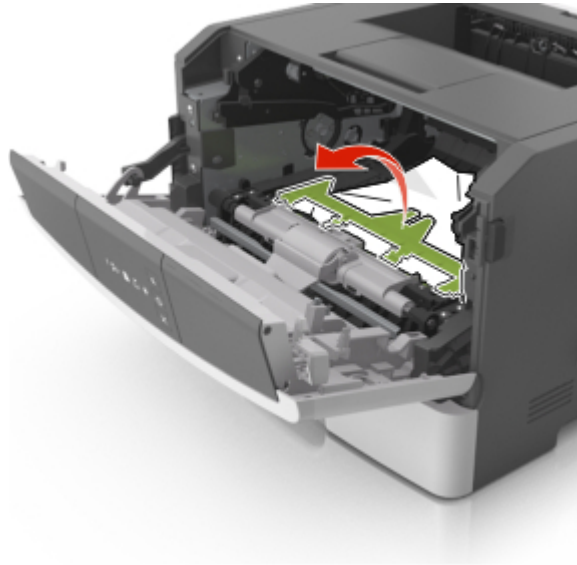
**Warning—Potential Damage:** Do not touch the photoconductor drum. Doing so may affect the print quality of future print jobs.



- 4 Place the imaging unit aside on a flat, smooth surface.

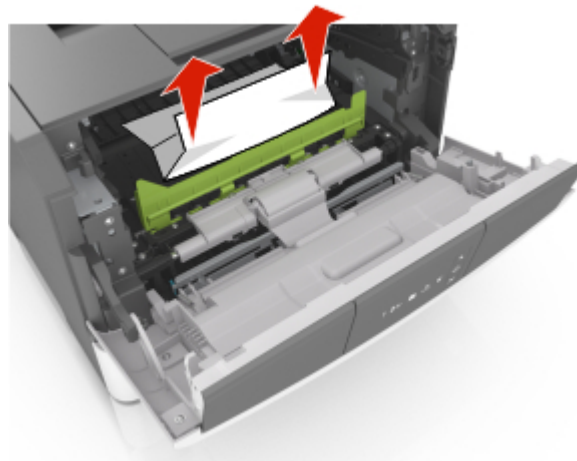
**Warning—Potential Damage:** Do not expose the imaging unit to direct light for more than 10 minutes. Extended exposure to light can cause print quality problems.

- 5 Lift the green flap in front of the printer.

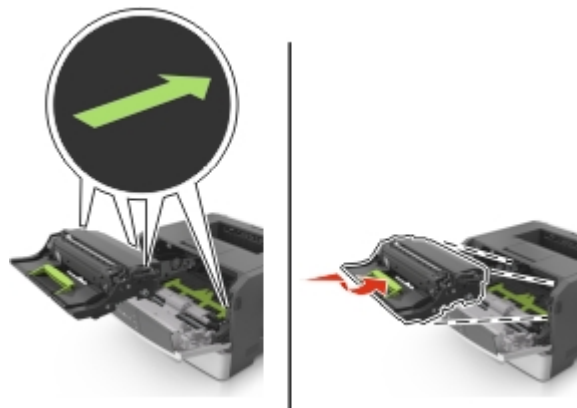


- 6 Firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.

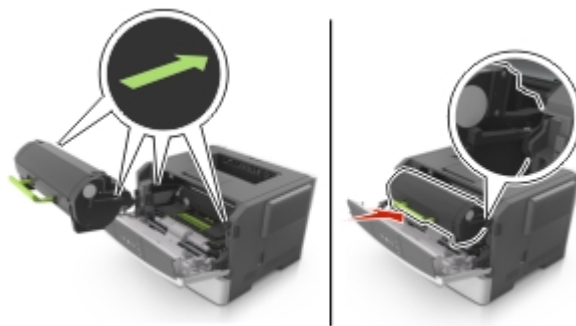


- 7 Insert the imaging unit by aligning the arrows on the side rails of the unit with the arrows on the side rails inside the printer, and then insert the imaging unit into the printer.



Diagnostic information

- 8 Insert the toner cartridge by aligning the side rails of the cartridge with the arrows on the side rails inside the printer, and then insert the cartridge into the printer.



- 9 Close the front door.

- 10 From the printer control panel, press  to clear the message and continue printing.

### Sensor (input) static jam service check

| Action   | Yes  | No   |
|--|--|--|
| <p><b>Step 1</b><br/>Check the input sensor area for jammed media fragments.</p> <p>Is the paper path free of partially fed or jammed media?</p> | Go to step 2.  | Clear the paper path of any media fragments.   |
| <p><b>Step 2</b><br/>Check the jam access cover if it is blocking the input sensor.</p> <p>Is it blocking the input sensor?</p>                  | Replace the jam access cover. See <b>“Jam access cover removal” on page 180.</b> | Go to step 3.  |
| <p><b>Step 3</b><br/>Check the input sensor cable for proper connection to the controller board.</p> <p>Is it properly connected?</p>            | Go to step 4.  | Reseat the cable.  |
| <p><b>Step 4</b><br/>Check the input sensor.</p> <p>Is it free of damage?</p>  | Go to step 5.  | Replace the input sensor. See <b>“Duplex sensor and input sensor removal” on page 192.</b> |
| <p><b>Step 5</b><br/>Does the error remain?</p>  | Contact the next level of support.   | The problem is solved.   |

**Sensor (input) early/late arriving service check**

| Action   | Yes   | No   |
|--|---|--|
| <p><b>Step 1</b><br/>Check the paper source.</p> <p>Is the paper from the MPF?</p>   | Go to step 2.   | Go to step 5.  |
| <p><b>Step 2</b><br/>Check the MPF pick roller and separator pad for damage and contamination.</p> <p>Are they free of damage and contamination?</p>   | Go to step 3.   | Replace the MPF pick roller and separator pad. See <b>“MPF pick roller removal” on page 179</b> and <b>“Separator pad removal” on page 187</b> . |
| <p><b>Step 3</b><br/>Check the MPF solenoid for proper operation:</p> <ul style="list-style-type: none"> <li>a Remove the left cover.</li> <li>b Perform a print job from the MPF.</li> <li>c Check if the MPF solenoid moves when doing the feed test.</li> </ul> <p>Does it move when doing the feed test?</p> | Go to step 4.   | Replace the MPF solenoid. See <b>“MPF solenoid removal” on page 147</b> .  |
| <p><b>Step 4</b><br/>Make sure the MPF gearbox spring is properly installed and free of damage. Check the MPF gearbox for wear or damage.</p> <p>Are they free of wear or damage?</p>  | Go to step 5.   | Replace the MPF gearbox. See <b>“MPF gearbox removal” on page 149</b> .  |
| <p><b>Step 5</b><br/>Check the input sensor area for jammed media fragments.</p> <p>Is the paper path free of partially fed or jammed media?</p>   | Go to step 6.   | Clear the paper path of any media fragments.   |
| <p><b>Step 6</b><br/>Check the jam access cover if it is blocking the input sensor.</p> <p>Is it blocking the input sensor?</p>  | Replace the jam access cover. See <b>“Jam access cover removal” on page 180</b> | Go to step 7.  |
| <p><b>Step 7</b><br/>Check the input sensor cable for proper connection to the controller board.</p> <p>Is it properly connected?</p>  | Go to step 8.   | Reseat the cable.  |
| <p><b>Step 8</b><br/>Check the input sensor.</p> <p>Is it free of damage?</p>  | Go to step 9.   | Replace the input sensor. See <b>“Duplex sensor and input sensor removal” on page 192</b> .  |

| Action                                  | Yes                                | No                     |
|---|------------------------------------|------------------------|
| <b>Step 9</b><br>Does the error remain? | Contact the next level of support. | The problem is solved. |

### Sensor (input) jam service check

| Action  | Yes                                | No   |
|---|------------------------------------|--|
| <b>Step 1</b><br>Check the LSU cables for proper connection.<br><br>Are they properly connected to the LSU and to the controller board? | Go to step 2.                      | Reseat the cables.   |
| <b>Step 2</b><br>Inspect the LSU cables and connectors.<br><br>Are they free of damage?   | Go to step 3.                      | Replace the LSU. See <b>“Laser scanning unit (LSU) removal” on page 211.</b>               |
| <b>Step 3</b><br>Check the input sensor cable for proper connection to the controller board.<br><br>Is it properly connected?           | Go to step 4.                      | Reseat the cable.  |
| <b>Step 4</b><br>Check the input sensor.<br><br>Is it free of damage?   | Go to step 5.                      | Replace the input sensor. See <b>“Duplex sensor and input sensor removal” on page 192.</b> |
| <b>Step 5</b><br>Check the controller board for any damage.<br><br>Is it free of damage?  | Go to step 6.                      | Replace the controller board. See <b>“Controller board removal” on page 162.</b>           |
| <b>Step 6</b><br>Does the error remain?   | Contact the next level of support. | The problem is solved.   |

### Main drive motor control jam service check

| Action  | Yes           | No                |
|---|---------------|-------------------|
| <b>Step 1</b><br><b>a</b> Remove the main drive gearbox.<br><b>b</b> Check the main drive gearbox cable for proper connection.<br><br>Is it properly connected? | Go to step 2. | Reseat the cable. |

| Action  | Yes  | No   |
|---|--|--|
| <b>Step 2</b><br><b>a</b> Remove the main drive gearbox.<br><b>b</b> Check the gears of main drive gearbox for wear or damage.<br><br>Are they free of wear or damage?  | Go to step 3.  | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b> |
| <b>Step 3</b><br>Check the main drive motor for proper operation:<br><b>a</b> Remove the main drive gearbox.<br><b>Note:</b> Do not disconnect the main drive gearbox cable.<br><b>b</b> Perform a print job.<br><b>c</b> Check if the main drive motor rotates when printing.<br><br>Does it rotate when printing? | Go to step 4.  | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b> |
| <b>Step 4</b><br>Check the fuser gear for damage or toner contamination.<br><br>Is it free of damage and contamination?   | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the fuser. See <b>“Fuser removal” on page 209.</b>                           |

## 201 paper jams

### [x]-page jam, clear standard bin. [20y.xx]

- 1 Firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.



- 2 From the printer control panel, press  to clear the message and continue printing.

### 201 paper jam messages

| Error code | Description  | Action   |
|------------|--|--|
| 201.01     | Narrow media sensor is covered during warm up.<br>Input sensor is not covered. | Go to <b>“Sensor (narrow media) jam service check” on page 67.</b> |

**Sensor (narrow media) jam service check**

| Action   | Yes                                | No  |
|--|------------------------------------|---|
| <p><b>Step 1</b><br/>Check the narrow media sensor cable JNRW1 for proper connection.</p> <p>Is it properly connected?</p>   | Go to step 2.                      | Reseat the cable.   |
| <p><b>Step 2</b><br/>POR into the Diagnostics menu and perform a sensor test:<br/><b>Diagnostics Menu &gt; Base Sensor Test &gt; Narrow Media</b></p> <p>Does the sensor state on the control panel display change when it is toggled?</p> | Go to step 3.                      | Replace the narrow media sensor. See <b>“Narrow media/bin full sensor removal” on page 206.</b> |
| <p><b>Step 3</b><br/>Check the redrive rollers for damage.</p> <p>Are they free of damage?</p>   | Go to step 4.                      | Replace the redrive assembly. See <b>“Redrive assembly removal” on page 208.</b>                |
| <p><b>Step 4</b><br/>Does the error remain?</p>  | Contact the next level of support. | The problem is solved.  |

## 202 paper jams

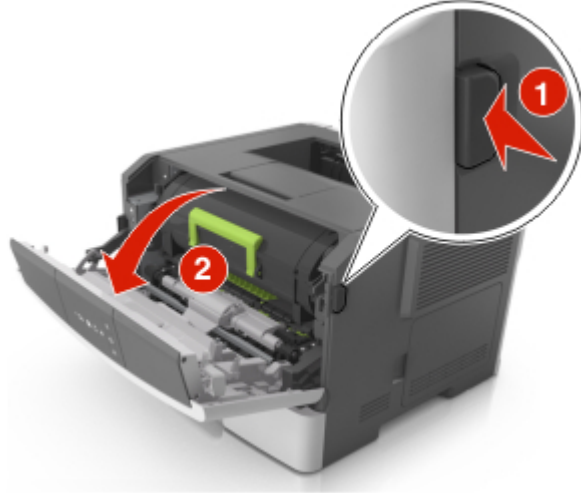
### 202 paper jam messages

| Error code | Description   | Action   |
|------------|---|--|
| 202.01     | Exit sensor is covered during warm up.  | Go to <b>“Sensor (fuser exit) jam service check” on page 70.</b> |
| 202.03     | Media did not reach the fuser exit sensor.  |  |
| 202.05     | Fuser exit sensor covered too long by the current sheet.  |  |
| 202.07     | Fuser exit sensor covered too long by the previous sheet.   |  |
| 202.13     | Restart attempted after an internal jam without cover open. Close event. Likely that the jam was not actually cleared.                                  |  |
| 202.14     | Expected banner sheet ( assumed wide ) not detected by narrow media sensor, possible accordion jam, unsupported narrow banner media, or missing signal. |  |
| 202.16     | Page at fuser nip before fuser started ramping toward desired. Indicates code may be receiving more hall interrupts than intended.                      |  |
| 202.17     | Page at fuser nip before fuser reached acceptable operating temperature. Page arrived at fuser earlier than expected, so it was probably staged.        |  |
| 202.22     | Cartridge Motor - Motor Underspeed Error. Motor made it to closed loop steady state, but then detected speed was below threshold                        |  |
| 202.28     | Exit sensor bounce issue.   |  |
| 202.32     | The sheet is too long to be duplexed. The blow through is enabled.  | Go to <b>“Duplex service check” on page 73.</b>                  |
| 202.36     | Long paper or shingled multi feed stopped before sending to duplex.   |  |
| 202.43     | During warm up flush, media that passed the input sensor failed to reach the exit sensor.   | Go to <b>“Sensor (fuser exit) jam service check” on page 70.</b> |
| 202.45     | During warm up flush, sheet detected too long over exit sensor.   |  |



**[x]-page jam, open rear door. [20y.xx]**

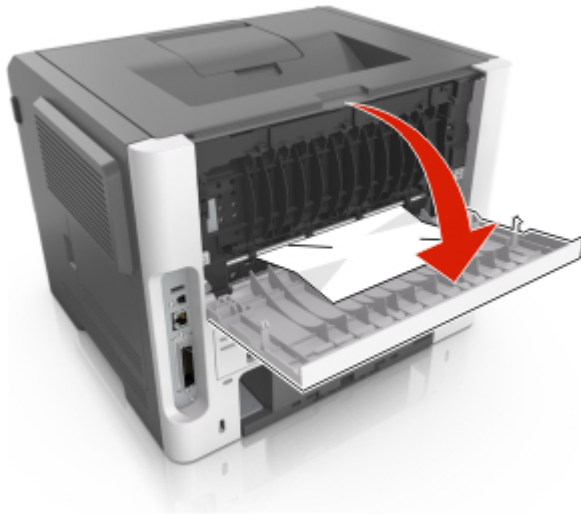
- 1 Press the button on the right side of the printer, and then open the front door.



- 2 Gently pull down the rear door.

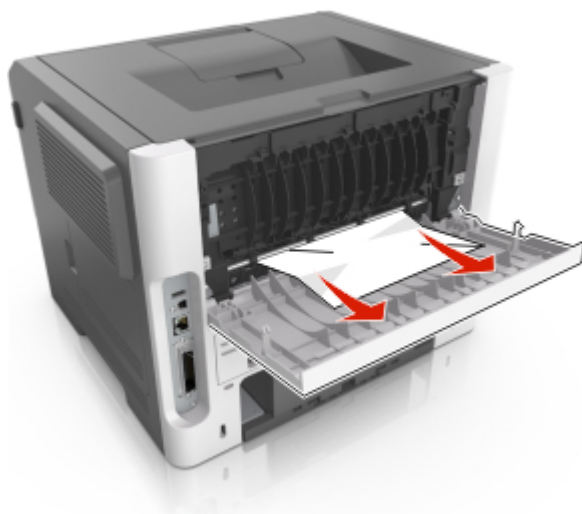


**CAUTION—HOT SURFACE:** The inside of the printer might be hot. To reduce the risk of injury from a hot component, allow the surface to cool before touching it.



- 3 Firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.



4 Close the rear and front doors.

5 From the printer control panel, press  to clear the message and continue printing.

### Sensor (fuser exit) jam service check


| Action  | Yes                                | No   |
|---|------------------------------------|--|
| <p><b>Step 1</b><br/>Check the input sensor area for jammed media fragments.</p> <p>Is the paper path free of partially fed or jammed media?</p>  | Go to step 2.                      | Clear the paper path of any media fragments.               |
| <p><b>Step 2</b><br/>Check the fuser exit sensor cable JEXIT1 for proper connection to the controller board.</p> <p>Is it properly connected?</p> | Go to step 3.                      | Reseat the cable.  |
| <p><b>Step 3</b><br/>Check the fuser exit sensor for damage.</p> <p>Is it free of damage?</p>   | Go to step 4.                      | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |
| <p><b>Step 4</b><br/>Check the fuser gears and rollers for damage.</p> <p>Are they free of damage?</p>  | Go to step 5.                      | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |
| <p><b>Step 5</b><br/>Does the error remain?</p>   | Contact the next level of support. | The problem is solved.                                     |

## 230 paper jams

### 23y.xx paper jam messages

| Error code | Description   | Action  |
|------------|---|---|
| 230.01     | Sheet covering internal duplex sensor during warm up.                 | Go to <b>“Duplex service check” on page 73.</b> |
| 230.02     | Paper jam around internal duplex.                                     |   |
| 230.03     | Internal duplex sensor never made by leading edge of page.            |   |
| 230.04     | Page in duplexer ahead of current reversing page never staged.        |   |
| 230.05     | Internal duplex sensor never broke on the trailing edge of the sheet. |   |
| 230.07     | Internal duplex sensor never broke from sheet ahead of page.          |   |
| 230.09     | Page in duplexer never picked.  |   |
| 230.10     | Narrow page reversing into duplexer.                                  |   |
| 230.28     | Bouncy duplex sensor never made.                                      |   |
| 232.03     | Input sensor never detected sheet from internal duplex path.          |   |
| 232.10     | Feed error picking from the duplexer.                                 |   |

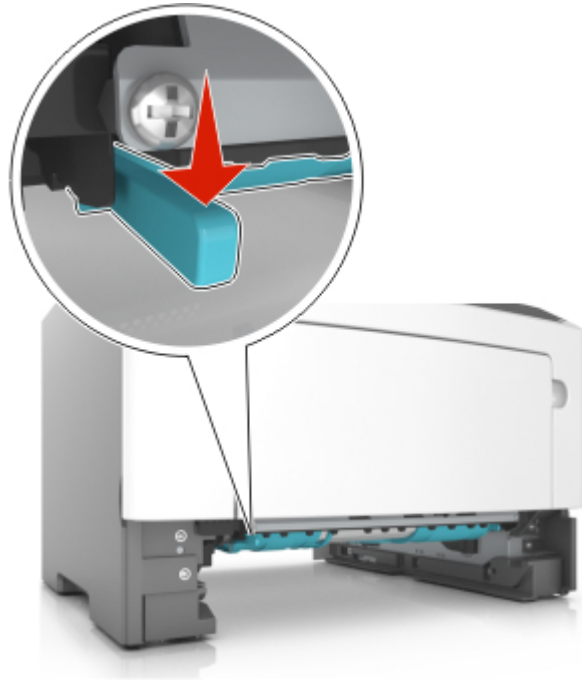
### [x]-page jam, remove tray 1 to clear duplex. [23y.xx]

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

- 1 Pull out the tray completely.



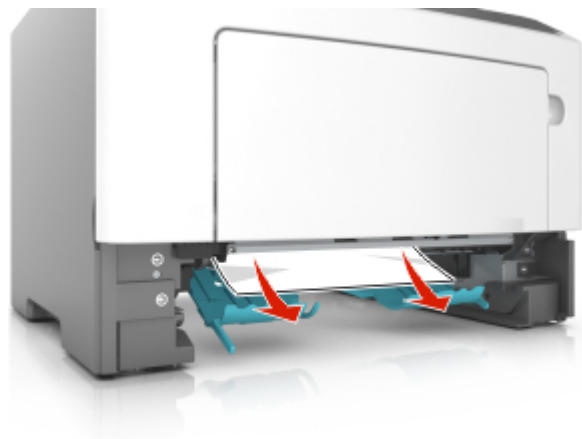
- 2 Locate the blue lever, and then pull it down to release the jam.



**Note:** If the jammed paper is not visible in the duplex area, then open the rear door, and then gently remove the jammed paper. Make sure all paper fragments are removed.

- 3 Firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.



- 4 Insert the tray.

- 5 From the printer control panel, press  to clear the message and continue printing.

## Duplex service check

| Action   | Yes                                | No  |
|--|------------------------------------|---|
| <p><b>Step 1</b></p> <p><b>a</b> Remove the rear cover. See <b>“Rear door and cover removal” on page 205.</b></p> <p><b>b</b> Check the redrive rollers for wear or damage.</p> <p>Are they free of wear or damage?</p>  | Go to step 2.                      | Replace the redrive assembly. See <b>“Redrive assembly removal” on page 208.</b>            |
| <p><b>Step 2</b></p> <p><b>a</b> Remove the left cover. See <b>“Left cover removal” on page 144.</b></p> <p><b>b</b> Perform a duplex print test:<br/><b>Diagnostics Menu &gt; Cont Prt Duplex Tray 1</b></p> <p><b>c</b> Check the reverse solenoid for proper operation.</p> <p>Does it function properly?</p> | Go to step 3.                      | Replace the reverse solenoid. See <b>“Reverse solenoid removal” on page 152.</b>            |
| <p><b>Step 3</b></p> <p><b>a</b> Remove the input tray.</p> <p><b>b</b> From under the printer, check the duplex gear assembly and duplex link for wear and damage.</p> <p>Are the they free of wear and damage?</p>   | Go to step 4.                      | Replace the duplex gear assembly. See <b>“Duplex gear assembly removal” on page 158.</b>    |
| <p><b>Step 4</b></p> <p>From under the printer, check the duplex, belt, and roller for wear and damage.</p> <p>Are they free of wear and damage?</p>   | Go to step 5.                      | Replace the duplex. See <b>“Duplex removal” on page 191.</b>                                |
| <p><b>Step 5</b></p> <p><b>a</b> Remove the input tray.</p> <p><b>b</b> Check the duplex sensor for damage.</p> <p>Is it free of damage?</p>   | Go to step 6.                      | Replace the duplex sensor. See <b>“Duplex sensor and input sensor removal” on page 192.</b> |
| <p><b>Step 6</b></p> <p>Does the error remain?</p>   | Contact the next level of support. | The problem is solved.  |

## 240 paper jams

### 24y.xx paper jam messages

| Error code | Description  | Action  |
|------------|--|---|
| 241.01     | Paper over tray 1 pass thru sensor on warmup   | Go to <b>“Tray 1 jam service check” on page 80.</b> |
| 241.02     | Sensor (input) early arriving jam  |   |
| 241.03     | Tray 1 pass thru sensor never became covered when feeding a sheet from an option below.  |   |
| 241.07     | Option tray 1 pass thru sensor never became uncovered when feeding a sheet from an option below.   |   |
| 241.13     | The media is late reaching the sensor (input) within the specified time from tray 1  |   |
| 241.14     | The media is late reaching the sensor (input) within the specified time from tray 1  | Go to <b>“Tray 1 jam service check” on page 80.</b> |
| 241.15     | Media tray 1, tray pulled jam  |   |
| 241.16     | The engine timed out waiting for the tray 1 to report 'ready' before the 1st pick attempt.   |   |
| 241.17     | Page was not properly picked from tray 1. Have not exhausted all pick retry attempts as there are sheets committed to the paper path from below. |   |
| 241.18     | Failed to feed from tray 1. Exhausted all pick retries. Paper present sensing indicates media is in the tray.                                    |   |
| 241.20     | Took too long to ramp up media feeder motor in tray 1  | Go to <b>“Tray 1 jam service check” on page 80.</b> |
| 241.21     | Media feeder motor stall in tray 1   |   |
| 241.22     | Media feeder motor pick motor underspeed in tray 1   |   |
| 241.24     | Media feeder motor stalled on the last pick attempt in tray 1  |   |
| 241.29     | Tray 1 lift plate failed to make the index sensor while elevating.   | Go to <b>“Tray 1 jam service check” on page 80.</b> |
| 241.32     | Media tray not ready   |   |
| 241.33     | The media tray was pulled during the media pick process  |   |
| 241.41     | Media feeder motor stall in tray 1   |   |
| 241.42     | Media feeder motor pick motor under-speed in tray 1  |   |
| 241.43     | Media feeder motor stalled on the last pick attempt in tray 1  | Go to <b>“Tray 1 jam service check” on page 80.</b> |
| 241.44     | Motor 2 (Separator/Passthru) motor stalled   |   |

| Error code | Description   | Action   |
|------------|---|--|
| 241.45     | Motor 2 (Separator/Passthru) motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)      | Go to <b>“Tray 1 jam service check” on page 80.</b>      |
| 241.46     | Motor 2 (Separator/Passthru) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |
| 241.47     | Motor 3 motor stalled   |  |
| 241.48     | Motor 3 motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)                           |  |
| 241.49     | Motor 3 motor ramp (end ramp - did not reach speed, typical pack feed paper jam)  |  |
| 242.01     | Paper over tray 2 pass thru sensor on warmup  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.02     | Input sensor detected late feed during a pick retry from tray 2.  |  |
| 242.03     | Tray 2 pass thru sensor never became covered when feeding a sheet from an option below.   |  |
| 242.06     | Failed to feed from tray. Paper present sensing supported and indicates media still in tray   |  |
| 242.07     | Option tray 2 pass thru sensor never became uncovered when feeding a sheet from an option below.  |  |
| 242.09     | Tray 2 pick motor lost encoder  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.11     | Autocomp Pick/Lift Motor—Encoder Never Detected in tray 2.  |  |
| 242.12     | Motor ramp up error in tray 2.  |  |
| 242.13     | Page to be stapled failed to feed from tray.  |  |
| 242.14     | Sheets flushed from paper path either due to feed error or cartridge error  |  |
| 242.15     | One or more trays located above the source tray 2 has been pulled.  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.16     | The engine timed out waiting for the tray 2 to report ready before the 1st pick attempt.  |  |
| 242.17     | Page was not properly picked from tray 2. Have not exhausted all pick retry attempts as there are sheets committed to the paper path from below |  |
| 242.19     | Tray 2 fail to feed error. Detected while trying to pick a sheet, and that leading edge was not detected by tray sensor.                        |  |
| 242.20     | Took too long to ramp up dc feed motor in tray 2.   |  |
| 242.21     | Pick motor stall in tray 2.   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.22     | Tray 2 pick motor underspeed.   |  |

| Error code | Description  | Action   |
|------------|--|--|
| 242.24     | DC Feed autocompensator stalled on the last pick attempt in tray 2.  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.32     | Tray not ready   |  |
| 242.33     | Pick received but detected a tray pulled   |  |
| 242.41     | Motor 1 (Pick/Lift) Elevator motor stalled   |  |
| 242.42     | Motor 1 (Pick/Lift) Elevator motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam) | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.43     | Motor 1 (Pick/Lift) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |
| 242.44     | Motor 2 (Separator/Passthru) motor stalled   |  |
| 242.45     | Motor 2 (Separator/Passthru) motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam) |  |
| 242.46     | Motor 2 (Separator/Passthru) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)                                      | Go to <b>“Option tray jam service check” on page 81.</b> |
| 242.47     | Motor 3 motor stalled  |  |
| 242.48     | Motor 3 motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)                      |  |
| 242.49     | Motor 3 motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |
| 243.01     | Paper over tray 3 pass thru sensor on warmup   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.02     | Input sensor detected late feed during a pick retry from tray 3.   |  |
| 243.03     | tray 3 pass thru sensor never became covered when feeding a sheet from an option below.  |  |
| 243.06     | Failed to feed from tray. Paper present sensing supported and indicates media still in tray  |  |
| 243.07     | Option tray 3 pass thru sensor never became uncovered when feeding a sheet from an option below.   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.09     | Tray 3 pick motor lost encoder   |  |
| 243.10     | Failed to feed from tray.  |  |
| 243.11     | Autocomp Pick / Lift Motor - Encoder never detected in tray 3.   |  |
| 243.12     | Motor ramp up error in tray 3.   |  |



| Error code | Description   | Action   |
|------------|---|--|
| 243.13     | Page to be stapled failed to feed from tray.  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.14     | Sheets flushed from paper path either due to feed error or cartridge error  |  |
| 243.15     | One or more trays located above the source tray 3 has been pulled.  |  |
| 243.16     | The engine timed out waiting for the tray 3 to report 'ready' before the 1st pick attempt.  |  |
| 243.17     | Page was not properly picked from tray 3. Have not exhausted all pick retry attempts as there are sheets committed to the paper path from below | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.19     | Tray 3 fail to feed error. Detected while trying to pick a sheet, and that leading edge was not detected by tray sensor.                        |  |
| 243.20     | Took too long to ramp up dc feed motor in tray 3.   |  |
| 243.21     | Pick motor stall in tray 3.   |  |
| 243.22     | Tray 3 pick motor underspeed.   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.24     | DC Feed autocompensator stalled on the last pick attempt in tray 3.   |  |
| 243.32     | Tray not ready  |  |
| 243.33     | Pick received but detected a tray pulled  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.41     | Motor 1 (Pick/Lift) Elevator motor stalled  |  |
| 243.42     | Motor 1 (Pick/Lift) Elevator motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)      |  |
| 243.43     | Motor 1 (Pick/Lift) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)  |  |
| 243.44     | Motor 2 (Separator/Passthru) motor stalled  |  |
| 243.45     | Motor 2 (Separator/Passthru) motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)      | Go to <b>“Option tray jam service check” on page 81.</b> |
| 243.46     | Motor 2 (Separator/Passthru) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |
| 243.47     | Motor 3 motor stalled   |  |
| 243.48     | Motor 3 motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)                           |  |

| Error code | Description   | Action   |
|------------|---|--|
| 243.49     | Motor 3 motor ramp (end ramp - did not reach speed, typical pack feed paper jam)  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.01     | Paper over tray 4 pass thru sensor on warmup  |  |
| 244.02     | Input sensor detected late feed during a pick retry from tray 4.  |  |
| 244.03     | Tray 4 pass thru sensor never became covered when feeding a sheet from an option below.   |  |
| 244.06     | Failed to feed from tray. Paper present sensing supported and indicates media still in tray   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.07     | Option tray 4 pass thru sensor never became uncovered when feeding a sheet from an option below.  |  |
| 244.09     | tray 4 pick motor lost encoder  |  |
| 244.11     | Autocomp Pick / Lift Motor - Encoder Never Detected in tray 4.  |  |
| 244.12     | Motor ramp up error in tray 4.  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.13     | Page to be stapled failed to feed from tray.  |  |
| 244.14     | Sheets flushed from paper path either due to feed error or cartridge error  |  |
| 244.15     | One or more trays located above the source tray 4 has been pulled.  |  |
| 244.16     | The engine timed out waiting for the tray 4 to report 'ready' before the 1st pick attempt.  | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.17     | Page was not properly picked from tray 4. Have not exhausted all pick retry attempts as there are sheets committed to the paper path from below |  |
| 244.19     | Tray 4 fail to feed error. Detected while trying to pick a sheet, and that leading edge was not detected by tray sensor.                        |  |
| 244.20     | Took too long to ramp up dc feed motor in tray 4.   |  |
| 244.21     | Pick motor stall in tray 4.   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.22     | Tray 4 pick motor underspeed.   |  |
| 244.24     | DC Feed autocompensator stalled on the last pick attempt in tray 4.   |  |
| 244.32     | Tray not ready  |  |

| Error code | Description  | Action   |
|------------|--|--|
| 244.33     | Pick received but detected a tray pulled   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.41     | Motor 1 (Pick/Lift) Elevator motor stalled   |  |
| 244.42     | Motor 1 (Pick/Lift)Elevator motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)  |  |
| 244.43     | Motor 1 (Pick/Lift) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |
| 244.44     | Motor 2 (Separator/Passthru) motor stalled   | Go to <b>“Option tray jam service check” on page 81.</b> |
| 244.45     | Motor 2 (Separator/Passthru) motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam) |  |
| 244.46     | Motor 2 (Separator/Passthru) motor ramp (end ramp - did not reach speed, typical pack feed paper jam)                                      |  |
| 244.47     | Motor 3 motor stalled  |  |
| 244.48     | Motor 3 motor PWM overflow error (underspeed). Motor underspeed (max PWM and motor underspeed, typical accordion jam)                      |  |
| 244.49     | Motor 3 motor ramp (end ramp - did not reach speed, typical pack feed paper jam)   |  |

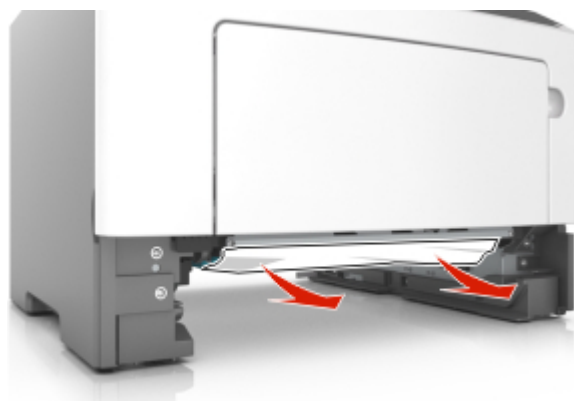
### [x]-page jam, remove tray [x]. [24y.xx]

- 1 Pull out the tray completely.



- 2 Firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.



**3** Insert the tray.

**4** From the printer control panel, press  to clear the message and continue printing.

### Tray 1 jam service check

| Action  | Yes           | No   |
|---|---------------|--|
| <p><b>Step 1</b><br/>Check the pick tires.<br/><br/>Are they free of wear or damage?</p>  | Go to step 2. | Replace the pick tires.  |
| <p><b>Step 2</b><br/>Check the tray guides and wear strips.<br/><br/>Are they free of wear or damage?</p>   | Go to step 3. | Replace the tray insert.   |
| <p><b>Step 3</b><br/> <b>a</b> POR into the Diagnostics menu and perform a print test:<br/> <b>Diagnostics Menu &gt; Cont Prt Simplex Tray 1</b><br/> <b>b</b> Cancel the test after five pages.<br/><br/>           Does the printer successfully feed the five pages into the output bin?</p> | Go to step 7. | Go to step 4.  |
| <p><b>Step 4</b><br/>Observe the location of the jammed paper.<br/><br/>Are the first page fed to the output bin, the second page jammed in the rear door, and the third page jammed in the input tray?</p>   | Go to step 5. | Replace the trailing edge sensor. See <b>“Trailing edge sensor removal” on page 195.</b> |
| <p><b>Step 5</b><br/>Check the ACM assembly.<br/><br/>Is it free of wear or damage?</p>   | Go to step 6. | Replace the ACM assembly. See <b>“ACM assembly removal” on page 200.</b>                 |
| <p><b>Step 6</b><br/>Check the MPF gearbox.<br/><br/>Is it free of wear or damage?</p>  | Go to step 7. | Replace the MPF gearbox. See <b>“MPF gearbox removal” on page 149.</b>                   |

| Action  | Yes                                | No   |
|---|------------------------------------|--|
| <b>Step 7</b><br>Check the main drive gearbox.<br><br>Is it free of wear or damage? | Go to step 8.                      | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b> |
| <b>Step 8</b><br>Does the error remain?   | Contact the next level of support. | The problem is solved.   |

### Option tray jam service check

| Action  | Yes  | No   |
|---|--|--|
| <b>Step 1</b><br>Restart the printer.<br><br>Does it fail to complete the POST sequence and display a 242.01 error?   | Replace the option tray.   | Go to step 2.  |
| <b>Step 2</b><br>a POR into the Diagnostics menu and perform a print test:<br><b>Diagnostics Menu &gt; Cont Prt Simplex Tray 2</b><br>b Cancel the test after five pages.<br><br>Does the printer successfully feed the five pages into the output bin? | The problem is solved.   | Go to step 3.  |
| <b>Step 3</b><br>Does the printer display a 242.06 error?   | Replace the ACM assembly. See <b>“ACM assembly removal” on page 215.</b> | Go to step 4.  |
| <b>Step 4</b><br>Check the pick roller assembly.<br><br>Is it free of wear or damage?   | Go to step 5.  | Replace the pick roller assembly. See <b>“Pick roller removal” on page 212.</b>                |
| <b>Step 5</b><br>Check the separator roll assembly.<br><br>Is it free of wear or damage?  | Go to step 6.  | Replace the separator roll assembly. See <b>“Separator roll assembly removal” on page 213.</b> |
| <b>Step 6</b><br>Check the tray guides and wear strips.<br><br>Are they free of wear or damage?   | Go to step 7.  | Replace the tray insert.   |
| <b>Step 7</b><br>Check the ACM assembly.<br><br>Is it free of wear or damage?   | Go to step 8.  | Replace the ACM assembly. See <b>“ACM assembly removal” on page 215.</b>                       |

| Action  | Yes                                | No                       |
|---|------------------------------------|--------------------------|
| <b>Step 8</b><br>POR into the Diagnostics menu and perform a print test:<br><b>Diagnostics Menu &gt; Cont Prt Simplex Tray 2</b><br><br>Does the pick/lift motor gearbox pass the test? | Go to step 9.                      | Replace the option tray. |
| <b>Step 9</b><br>Does the error remain?   | Contact the next level of support. | The problem is solved.   |

## 250 paper jams

### 25y.xx paper jam messages

| Error code | Description   | Action                                       |
|------------|---|--|
| 250.06     | Input sensor did not detect sheet picked from MPF. No other sheets should be in the path. | Go to <b>“MPF service check” on page 83.</b> |
| 250.10     | Input sensor did not detect sheet picked from MPF. No other sheets should be in the path. |  |
| 250.13     | Input sensor did not detect sheet picked from MPF. Sheet also last page of stapled job.   |  |
| 250.14     | Input sensor did not detect sheet picked from MPF. Other sheets should have been flushed. |  |
| 250.17     | Input sensor did not detect sheet picked from MPF. No other sheets should be in the path. |  |
| 250.18     | Input sensor did not detect sheet picked from MPF. Other sheets could be in the path.     |  |

### [x]-page jam, clear manual feeder. [250.xx]

- 1 From the multipurpose feeder, firmly grasp the jammed paper on each side, and then gently pull it out.

**Note:** Make sure all paper fragments are removed.



- 2 Flex the sheets of paper back and forth to loosen them, and then fan them. Do not fold or crease the paper. Straighten the edges on a level surface.



- 3 Reload paper into the multipurpose feeder.



**Note:** Make sure the paper guide lightly rests against the edge of the paper.

- 4 From the printer control panel, press  to clear the message and continue printing.

### MPF service check

| Action  | Yes           | No   |
|---|---------------|--|
| <p><b>Step 1</b><br/>Check the springs, links, and tray guides on the MPF assembly for damage.<br/><br/>Are they free of damage?</p>                          | Go to step 2. | Replace the MPF assembly.                      |
| <p><b>Step 2</b><br/>Check the MPF sensor cable for proper connection to the controller board.<br/><br/>Is it properly connected?</p>                         | Go to step 3. | Reseat the cable.                              |
| <p><b>Step 3</b><br/>Check the MPF sensor for damage.<br/><br/>Is it free of damage?</p>  | Go to step 4. | Replace the front input guide.                 |
| <p><b>Step 4</b><br/>Make sure the MPF pick roller and separator pad are free of debris. Check both for wear or damage.<br/><br/>Are they free of damage?</p> | Go to step 5. | Replace the MPF pick roller and separator pad. |

| Action  | Yes                                | No                        |
|---|------------------------------------|---------------------------|
| <b>Step 5</b><br><b>a</b> Remove the left cover.<br><b>b</b> Run a print job from the MPF.<br><b>c</b> Check the MPF solenoid for proper operation.<br><br>Does it function properly? | Go to step 6.                      | Replace the MPF solenoid. |
| <b>Step 6</b><br><b>a</b> Make sure the MPF gearbox is free of debris.<br><b>b</b> Check the gears and spring of the MPF gearbox for wear or damage.<br><br>Are they free of damage?  | Go to step 7.                      | Replace the MPF gearbox.  |
| <b>Step 7</b><br>Does the error remain?   | Contact the next level of support. | The problem is solved.    |

## User attendance messages (0-99.99)

### User attendance messages (0-99.99)

#### User attendance messages

| Error code | Description  | Action   |
|------------|--|--|
| 31.21      | Capactive Toner Level Sensing (CTLS) reading out of range.                                   | Go to <b>“CTLS service check” on page 95.</b>  |
| 31.22      | Excessive CTLS noise.  |  |
| 31.23      | Abrupt change detected in CTLS reading.  |  |
| 31.25      | CTLS calibration capacitor reading is too low  |  |
| 31.40      | Toner cartridge smart chip error   | <ol style="list-style-type: none"> <li><b>1</b> Make sure that the toner cartridge is properly installed.</li> <li><b>2</b> Check if the toner cartridge is supported. Replace with a supported toner cartridge if necessary.</li> <li><b>3</b> If the problem remains, go to <b>“Toner cartridge smart chip contact service check” on page 87.</b></li> </ol> |
| 31.41      | Toner cartridge I2C packet timeout   |  |
| 31.42      | Toner cartridge I2C packet has been sent but code timed-out on receiving the data (callback) |  |
| 31.43      | Toner cartridge security error in the send challenge sequence                                |  |
| 31.44      | Toner cartridge ROM signature error  |  |
| 31.45      | Toner cartridge stuck busy (Status register and/or CRI Arbiter register report busy)         |  |



| Error code | Description  | Action   |
|------------|--|--|
| 31.46      | Toner failed to replenish into the imaging unit  | <ol style="list-style-type: none"> <li>1 Make sure that the toner cartridge is properly installed.</li> <li>2 Check if the toner cartridge is supported. Replace with a supported toner cartridge if necessary.</li> <li>3 If the problem remains, go to <b>“Cartridge gearbox service check” on page 96.</b></li> </ol>   |
| 31.60      | Imaging unit smart chip error  | <ol style="list-style-type: none"> <li>1 Make sure that the imaging unit is properly installed.</li> <li>2 Check if the imaging unit is supported. Replace with a supported imaging unit if necessary.</li> <li>3 If the problem remains, go to <b>“Imaging unit smart chip contact service check” on page 87.</b></li> </ol>  |
| 31.61      | Imaging unit I2C packet timeout  |  |
| 31.62      | Imaging unit I2C packet has been sent but code timed-out on receiving the data (callback)                            |  |
| 31.63      | Imaging unit security error in the send challenge sequence   |  |
| 31.64      | Imaging unit ROM signature error   |  |
| 31.65      | Imaging unit stuck busy (status register and/or CRI Arbiter register report busy)                                    |  |
| 31.66      | Toner failed to replenish into the imaging unit  | <ol style="list-style-type: none"> <li>1 Make sure that the toner cartridge is properly installed.</li> <li>2 Check if the toner cartridge is supported. Replace with a supported toner cartridge if necessary.</li> <li>3 If the problem remains, go to <b>“Cartridge gearbox service check” on page 96.</b></li> </ol>   |
| 32.01      | Capacity Class/ Model compatibility mismatch. The supplies CC/MC is not compatible with the printer's CC/MC setting. | <ol style="list-style-type: none"> <li>1 Check if the toner cartridge is supported. Replace with a supported toner cartridge if necessary.</li> <li>2 Check if the firmware level is compatible with the printer serial number. Flash with the correct firmware level if necessary.</li> <li>3 If problem remains, contact next level of support.</li> </ol>   |
| 32.05      | OEM Mismatch. The supplies OEM ID is not compatible with the printer's machine class.                                |  |
| 32.10      | Toner cartridge smart chip compatibility error   |  |
| 32.11      | Imaging unit smart chip compatibility error  | <ol style="list-style-type: none"> <li>1 Check if the imaging unit is supported. Replace with a supported imaging unit if necessary.</li> <li>2 Check if the firmware level is compatible with the printer serial number. Flash with the correct firmware level if necessary.</li> <li>3 If problem remains, contact next level of support.</li> </ol>   |
| 34         | Media size mismatch (too short or too narrow)  | <ol style="list-style-type: none"> <li>1 Make sure the media size setting matches the paper in the tray.</li> <li>2 Restore the engine settings to their defaults:<br/><b>Diagnostics Menu &gt; Printer Setup &gt; Defaults</b></li> <li>3 Restore the EP setup settings to their defaults:<br/><b>Diagnostics Menu &gt; EP Setup &gt; Defaults</b></li> <li>4 If the problem remains, go to <b>“Media size mismatch service check” on page 87.</b></li> </ol> |

| Error code | Description                            | Action   |
|------------|--|--|
| 35         | Res save off deficient memory          | <b>1</b> Disable the Resource save feature:<br><b>Settings &gt; Print Settings &gt; Setup Menu &gt; Resource Save &gt; Off</b><br><b>2</b> If the problem remains, go to <b>“Insufficient memory service check” on page 89.</b>  |
| 37         | Insufficient collation area            |  |
| 38         | Memory full                            |  |
| 41.xy      | Bottle/IU toner type mismatch          | <b>1</b> Check if the toner cartridge is supported. Replace with a supported toner cartridge if necessary.<br><b>2</b> If the problem remains, go to <b>“Printer/cartridge mismatch service check” on page 88.</b>   |
| 42         | Printer/cartridge mismatch             |  |
| 52         | Flash full                             | Format the flash memory:<br><b>Settings &gt; Print Settings &gt; Utilities &gt; Format Flash</b><br>If the problem remains:<br><b>1</b> Remove the installed memory, and reset the printer. If the problem does not reoccur, replace the memory card.<br><b>2</b> If the problem remains, replace the controller board.  |
| 54         | Network error                          | Make sure the printer is properly setup on the network.<br>If the problem remains:<br><b>1</b> Remove the wireless network option, and reset the printer. If the problem does not reoccur, replace the wireless network option.<br><b>2</b> If the problem remains, replace the controller board.  |
| 80         | Maintenance kit (MS510 and MS610 only) | Replace the maintenance kit, and then reset the Maintenance counter.   |
| 84         | Imaging unit low                       | <b>1</b> Replace the imaging unit.<br><b>2</b> Make sure the imaging unit smart chip contact cable is properly connected to the controller board.<br><b>3</b> Make sure the contacts are free of debris.<br><b>4</b> Check the contacts for damaged pins. If damaged, replace the printer.<br><b>5</b> If the contacts are free of damage, contact your next level of support. |
| 88         | Toner cartridge low                    | <b>1</b> Make sure the toner cartridge smart chip contact cable JARW1 is properly connected to the controller board.<br><b>2</b> Make sure the contacts are free of debris.<br><b>3</b> Check the contacts for damaged pins. If damaged, replace the toner cartridge smart chip contact.<br><b>4</b> If the contacts are free of damage, contact your next level of support.   |

## Toner cartridge smart chip contact service check

| Action   | Yes  | No   |
|--|--|--|
| <b>Step 1</b><br>Check the cable JARW1 for proper connection to the controller board.<br><br>Is it properly connected? | Go to step 2.  | Reseat the cable.  |
| <b>Step 2</b><br>Check the toner cartridge smart chip contact for damaged pins.<br><br>Is it free of damage?           | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the toner cartridge smart chip contact. See <b>“Toner cartridge smart chip contact removal” on page 164.</b> |

## Imaging unit smart chip contact service check

| Action   | Yes  | No                   |
|--|--|----------------------|
| <b>Step 1</b><br>Check the cable JARW2 for proper connection to the controller board.<br><br>Is it properly connected? | Go to step 2.  | Reseat the cables.   |
| <b>Step 2</b><br>Check the imaging unit smart chip contact for damaged pins.<br><br>Is it free of damage?              | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the printer. |

## Media size mismatch service check

| Action  | Yes           | No   |
|---|---------------|--|
| <b>Step 1</b><br>Check the input tray for damage.<br><br>Is it free of damage?  | Go to step 2. | Replace the input tray.  |
| <b>Step 2</b><br>a Make sure the trailing edge sensor is free of debris.<br>b Check it for damage.<br><br>Is it free of damage?       | Go to step 3. | Replace the trailing edge sensor. See <b>“Trailing edge sensor removal” on page 195.</b>   |
| <b>Step 3</b><br>a Make sure the input sensor is free of debris.<br>b Check the input sensor for damage.<br><br>Is it free of damage? | Go to step 4. | Replace the input sensor. See <b>“Duplex sensor and input sensor removal” on page 192.</b> |

| Action  | Yes                | No   |
|---|--------------------|--|
| <p><b>Step 4</b></p> <p>Check the narrow media/bin full sensor for damage.</p> <p>Is it free of damage?</p>   | Go to step 5.      | Replace the narrow media/bin full sensor. See <b>“Narrow media/bin full sensor removal” on page 206.</b> |
| <p><b>Step 5</b></p> <p>a Remove the main drive gearbox.<br/>b Check the gears for wear or damage.<br/>c Check the main drive motor for rotation.</p> <p>Are the gears free of wear or damage and does the main drive motor rotate?</p> | Go to step 6.      | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b>                     |
| <p><b>Step 6</b></p> <p>Replace the controller board.</p> <p>Does the error remain?</p>   | Problem is solved. | Contact the next level of support.   |

### Printer/cartridge mismatch service check

| Action  | Yes  | No   |
|---|--|--|
| <p><b>Step 1</b></p> <p>a Make sure the toner cartridge smart chip contact cable JARW1 is properly connected to the controller board.<br/>b Make sure the toner cartridge smart chip contact is free of debris.<br/>c Check the toner cartridge smart chip contact for damaged pins.</p> <p>Is it free of damage?</p> | Go to step 2.  | Replace the toner cartridge smart chip contact. See <b>“Toner cartridge smart chip contact removal” on page 164.</b> |
| <p><b>Step 2</b></p> <p>Check if the firmware level matches the serial number.</p> <p>Do they match?</p>  | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Reflash the firmware.  |

## Insufficient memory service check

| Action   | Yes                           | No                       |
|--|-------------------------------|--------------------------|
| <p><b>Step 1</b><br/>Check the memory card for proper installation.</p> <p>Is it properly installed?</p>   | Go to step 2.                 | Reseat the memory card.  |
| <p><b>Step 2</b></p> <p><b>a</b> POR into the Configuration menu and reset the printer's settings to factory default:<br/><b>Configuration Menu &gt; Restore Base</b></p> <p><b>b</b> Remove the memory card.</p> <p><b>c</b> Restart the printer.</p> <p>Does the error remain?</p> | Replace the controller board. | Replace the memory card. |

# Printer hardware errors

## 1xx error messages

| Error code | Description  | Action  |
|------------|--|---|
| 111.00     | PeI clock check failed.  | Go to <b>“111.xx LSU service check” on page 93.</b> |
| 111.01     | Downlevel ASIC detected.   |   |
| 111.31     | Printhead never delivered HSYNCs.  |   |
| 111.32     | Printhead lost HSYNCs.   |   |
| 111.40     | Wrong printhead installed  |   |
| 111.50     | Open-loop printhead error, open-loop sweep state.  |   |
| 111.51     |  |   |
| 111.52     | Open-loop printhead error, check prelim amp state.   |   |
| 111.53     | Open-loop printhead error, enable amp Kp state.  |   |
| 111.54     | Closed-loop printhead error, amp Kp failed to converge.  |   |
| 111.55     | Closed-loop printhead error while waiting for amp Kp to converge.  |   |
| 111.56     | Closed-loop printhead error, amp Ki failed to converge.  |   |
| 111.57     | Closed-loop printhead error while waiting for amp Ki to converge.  |   |
| 111.58     | Closed-loop printhead error, load scan regs state.   |   |
| 111.59     | Closed-loop printhead error, forward and reverse capture times differ by too much.                           |   |
| 111.60     | Closed-loop printhead sweep error, check sweep accuracy state.   |   |
| 111.61     | Printhead drive control out of range due to an external event beyond what the control is designed to handle. |   |
| 111.62     | Closed-loop printhead error, off-resonant PI effort state.   |   |
| 111.63     | Timed out on POR sweep.  |   |
| 111.64     | Attempted to exceed open loop drive limits.  |   |
| 111.65     |  |   |
| 111.66     | Failed alignment of printhead.   |   |
| 111.67     |  |   |
| 111.68     | Too many fake HSYNCs while aligning printhead.   |   |
| 111.69     |  |   |

| Error code | Description   | Action   |
|------------|---|--|
| 121.07     | Fuser has been on for more than allowed after a gap blowout, and the temperature is still too cold. | <ol style="list-style-type: none"> <li><b>1</b> Restore the engine settings to their defaults:<br/><b>Diagnostics Menu &gt; Printer Setup &gt; Defaults</b></li> <li><b>2</b> Restore the EP setup settings to their defaults:<br/><b>Diagnostics Menu &gt; EP Setup &gt; Defaults</b></li> <li><b>3</b> If the problem remains, go to <b>“Fuser service check” on page 93.</b></li> </ol> |
| 121.08     | Fuser was under temp when page was in fuser.  |  |
| 121.20     | Fuser undertemp during steady state control. Can occur in printing or standby modes.                |  |
| 121.22     | Fuser did not warm enough to start line voltage detection.  |  |
| 121.23     | Fuser took too long to heat to line detection temp.   |  |
| 121.24     | Fuser never reached detection temperature.  |  |
| 121.25     | After line voltage detection, control did not roll over to steady state control in time.            |  |
| 121.26     | Failed to reach temperature during warm up.   |  |
| 121.28     | Failed to reach EP warm up temperature in time.   |  |
| 121.29     | Fuser failed to reach pre-heat temperature for motor start during warm up.                          |  |
| 121.30     | Fuser failed to reach printing temperature by the time a page reached the fuser.                    |  |
| 121.31     | Fuser is too hot. Global overtemp check.  |  |
| 121.32     | Open fuser main thermistor.   |  |
| 121.33     | Open fuser edge thermistor.   |  |
| 121.34     | Open fuser backup roll thermistor.  |  |
| 121.35     | Attempting to POR after receiving a 121.34.   |  |
| 121.36     | Fuser did not heat to allow compression jog.  |  |
| 121.37     | Fuser heated faster than allowed during line voltage detection.                                     |  |
| 126.01     | Line frequency outside operating range of device.   | <ol style="list-style-type: none"> <li><b>1</b> Check the power cord for continuity. Replace if necessary.</li> <li><b>2</b> Make sure the nominal voltage source is within specification. See <b>“Electrical specifications” on page 241.</b></li> <li><b>3</b> If the problem remains, go to <b>“LVPS service check” on page 94.</b></li> </ol>  |
| 126.02     | No line frequency detected.   |  |

| Error code | Description   | Action  |
|------------|---|---|
| 132.01     | TDS baseline too low.                               | Go to <b>“Toner density sensor service check” on page 94.</b> |
| 132.02     | TDS baseline too high.                              |   |
| 132.03     | TDS baseline excessive range.                       |   |
| 132.16     | TDS calibration at maximum.                         |   |
| 132.17     | TDS calibration too low.                            |   |
| 132.18     | TDS calibration too close to baseline.              |   |
| 132.32     | PC drum measurement too high.                       |   |
| 132.33     | PC drum measurement too different from calibration. |   |
| 132.34     | PC drum measurement too close to baseline.          |   |
| 133.05     | CTLS reading above maximum expected value.          | Go to <b>“CTLS service check” on page 95.</b>                 |
| 133.06     | CTLS reading below minimum expected value.          |   |
| 133.08     | Excessive CTLS noise.                               |   |
| 140.10     | Transport motor halls not detected.                 | Go to <b>“Main drive gearbox service check” on page 95.</b>   |
| 140.20     | Transport motor took too long to stop.              |   |
| 140.30     | Transport motor unable to lock (before motor ID).   |   |
| 140.40     | Transport motor overspeed detected.                 |   |
| 140.60     | Transport motor unable to lock (after motor ID).    |   |
| 140.70     | Transport motor out of lock detected.               |   |
| 140.80     | Transport motor excessive PWM or overtemp.          |   |
| 155.00     | No encoder received from auger motor.               | Go to <b>“Cartridge gearbox service check” on page 96.</b>    |
| 171.03     | Fuser fan error.                                    | Go to <b>“Cooling fan service check” on page 109.</b>         |
| 171.04     |   |   |
| 171.05     |   |   |
| 171.06     |   |   |
| 171.07     |   |   |
|            |   |   |



## 111.xx LSU service check

| Action   | Yes  | No   |
|--|--|--|
| <p><b>Step 1</b><br/>Check the LSU cables JVIDEO1 and JGLV1 for proper connection.</p> <p>Are they properly connected?</p> | Go to step 2.  | Reseat the cables.   |
| <p><b>Step 2</b><br/>Inspect the LSU cables and connectors.</p> <p>Are they free of damage?</p>                            | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the LSU. See <b>“Laser scanning unit (LSU) removal” on page 211.</b> |

## Fuser service check

| Action   | Yes  | No   |
|--|--|--|
| <p><b>Step 1</b></p> <ul style="list-style-type: none"> <li>• Check the fuser cables JTHERM1 and JEXIT for proper connection to the controller board.</li> <li>• Check the cable PCN5 for proper connection to the power supply.</li> </ul> <p>Are they properly connected?</p>  | Go to step 2.  | Reseat the cables.   |
| <p><b>Step 2</b><br/>Are the cables JTHERM1, JEXIT and PCN5 free of damage?</p>  | Go to step 3.  | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |
| <p><b>Step 3</b></p> <ol style="list-style-type: none"> <li>Turn off the printer.</li> <li>Remove the rear door and cover.</li> <li>Disconnect the fuser cable connected to PCN5 of the power supply.</li> <li>Check for approximate correct resistance on the fuser cable:           <ul style="list-style-type: none"> <li>• 220V fuser—43 ohms</li> <li>• 110V fuser—10 ohms</li> <li>• 100V fuser—8 ohms</li> </ul> </li> </ol> <p>Is the resistance equal to any of the above values?</p> | Perform an LVPS service check. See <b>“LVPS service check” on page 94.</b>   | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |
| <p><b>Step 4</b><br/>Check the fuser rollers, belts and gears for damage and debris.</p> <p>Are they free of damage and debris?</p>  | Perform a cooling fan service check and LVPS service check. See <b>“Cooling fan service check” on page 109</b> and <b>“LVPS service check” on page 94.</b> | Replace the fuser. See <b>“Fuser removal” on page 209.</b> |

## LVPS service check

| Action   | Yes                                 | No   |
|--|-------------------------------------|--|
| <p><b>Step 1</b><br/>Check if the power supply cable is properly connected to the controller board.</p> <p>Is it properly connected?</p>   | Go to step 2.                       | Reseat the cables.   |
| <p><b>Step 2</b><br/> <ul style="list-style-type: none"> <li>a Turn off the printer.</li> <li>b Remove the power cord.</li> <li>c Measure the resistance between terminals A and D of the power supply socket.</li> </ul> </p> <p>Is the resistance approximately 30 ohms?</p> | Contact your next level of support. | Replace the power supply. See <b>"Power supply removal" on page 189.</b> |

## Toner density sensor service check

| Action   | Yes  | No   |
|--|--|--|
| <p><b>Step 1</b><br/>Remove the transfer roll, and check for loose toner blocking the toner density sensor.</p> <p>Is it free of loose toner?</p>  | Go to step 2.  | Clean the sensor.  |
| <p><b>Step 2</b><br/>Check the toner density sensor for proper operation:<br/> <ul style="list-style-type: none"> <li>a Lower the ACM assembly.</li> <li>b Move the toner density sensor wiper from left to right.</li> </ul> </p> <p>Does it move freely?</p> | Go to step 3.  | Reinstall the wiper properly. If it still cannot move freely, replace the toner density sensor. See <b>"Toner density sensor removal" on page 194.</b> |
| <p><b>Step 3</b><br/>Check the toner density sensor cable for proper connection to the controller board.</p> <p>Is it properly connected?</p>  | Go to step 4.  | Reseat the cable.  |
| <p><b>Step 4</b><br/>Check the toner density sensor cable for damage and pinch points.</p> <p>Is it free of damage?</p>  | Replace the controller board. See <b>"Controller board removal" on page 162.</b> | Replace the toner density sensor. See <b>"Toner density sensor removal" on page 194.</b>   |

## CTLS service check

| Action  | Yes  | No                   |
|---|--|----------------------|
| <b>Step 1</b><br>Check for loose toner blocking the CTLS.<br><br>Is it free of any loose toner?   | Go to step 2.  | Clean the CTLS.      |
| <b>Step 2</b> <ul style="list-style-type: none"> <li>• Check the cable PCN3 for proper connection to the power supply.</li> <li>• Check the CTLS cable for proper connection to the controller board.</li> </ul> Are they properly connected? | Go to step 3.  | Reseat the cables.   |
| <b>Step 3</b><br>Check the cable PCN3 and CTLS cable for damage.<br><br>Are they free of damage?  | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the printer. |

## Main drive gearbox service check

| Action   | Yes  | No   |
|--|--|--|
| <b>Step 1</b><br>Remove the main drive gearbox and check for any debris.<br><br>Is it free of debris?  | Go to step 2.  | Remove the debris.   |
| <b>Step 2</b><br>Check the gears of main drive gearbox for wear or damage.<br><br>Are they free of wear or damage?   | Go to step 3.  | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b> |
| <b>Step 3</b><br>Check the main drive motor for proper operation: <ol style="list-style-type: none"> <li>Remove the main drive gearbox.<br/> <b>Note:</b> Do not disconnect the main drive gearbox cable.</li> <li>Perform a print job.</li> <li>Check if the main drive motor rotates when printing.</li> </ol> Does it rotate when printing? | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the main drive gearbox. See <b>“Main drive gearbox removal” on page 145.</b> |

## Cartridge gearbox service check

| Action   | Yes  | No   |
|--|--|--|
| <b>Step 1</b><br>Check the gear on the toner cartridge for wear or damage.<br><br>Is it free of wear or damage?  | Go to step 2.  | Replace the toner cartridge.   |
| <b>Step 2</b><br>Check the gears on the cartridge gearbox for proper rotation and for wear or damage.<br><br>Does it rotate properly and is it free of wear or damage? | Go to step 3.  | Replace the cartridge gearbox. See <b>“Cartridge gearbox removal” on page 158.</b> |
| <b>Step 3</b><br>Check the cartridge gearbox cable for proper connection to the controller board.<br><br>Is it properly connected?                                     | Go to step 4.  | Reseat the cable.  |
| <b>Step 4</b><br>Check the cartridge gearbox cable for damage.<br><br>Is it free of damage?  | Replace the controller board. See <b>“Controller board removal” on page 162.</b> | Replace the cartridge gearbox. See <b>“Cartridge gearbox removal” on page 158.</b> |

## 9xx error messages

| Error code | Description  | Action   |
|------------|--|--|
| 900.xx     | RIP firmware errors  | Go to <b>“System software error service check” on page 99.</b>   |
| 912.xx     | Unrecoverable Engine firmware error  | POR the machine. If the error re-occurs, then update the firmware. If the error continues occurring, then replace the controller board. Go to <b>“Controller board removal” on page 162.</b> |
| 940.xx     | 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. | Check the LVPS. Go to <b>“LVPS service check” on page 94.</b>  |
| 948.xx     | Failed engine card—pel clock check failed.   | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>   |
| 949.xx     | Failed engine card—delay line calibration failure.   |  |

| Error code | Description  | Action  |
|------------|--|---|
| 950.xx     | NVRAM mismatch failure—mismatch between controller board EEPROM and control panel mirror. ".xx" codes: <ul style="list-style-type: none"> <li>• 00-29— mismatch between system and mirror</li> <li>• 30-60—mismatch between secure and system</li> </ul> | <p><b>Warning—Potential Damage:</b> When replacing any of the following components:</p> <ul style="list-style-type: none"> <li>• Control panel assembly</li> <li>• Controller board assembly</li> </ul> <p>Replace only one component at a time. Replace the required component and perform a POR before replacing a second component listed above. If this procedure is not followed, the printer will be rendered inoperable. Never replace two or more of the components listed above without a POR after installing each one or the printer will be rendered inoperable.</p> <p>Never install and remove components listed above as a method of troubleshooting components. Once a component has been installed in a machine, it can not be used in another machine. It must be returned to the manufacturer.</p> <p>Go to <b>“NVRAM mismatch failure service check” on page 104.</b></p> |
| 952.xx     | A recoverable NVRAM Cyclic Redundancy Check (CRC) error occurred—n is the offset at which the error occurred.  | POR the printer.  |
| 953.xx     | NVRAM chip failure with mirror part  | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>  |
| 954.xx     | NVRAM chip failure with system part  |   |
| 955.xx     | The Code ROM or NAND flash failed the Cyclic Redundancy Check (CRC) or the NAND experienced an uncorrectible multi-bit failure.  |   |
| 956.xx     | RIP card failure—processor failure   |   |
| 956.01     | Processor Overtemp   |   |
| 957.xx     | RIP card failure—ASIC failure  |   |
| 958.xx     | Controller Board NAND Failure—printer has performed more than 100 shift and reflash operations as a result of ECC bit corrections.   |   |
| 959.01     | Controller verification failure of pensive boot code   | Upgrade firmware. If that fails, replace the controller board. Go to <b>“Controller board removal” on page 162.</b>   |
| 959.02     | Failure to authenticate Signature Verification Code  |   |
| 959.03     | Signature Verification Code failed to authenticate a code partition  |   |
| 959.04     | Jump to unverified address   |   |
| 959.05     | Unknown Boot Failure   |   |
| 959.20     | Pensive hardware failure   | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>  |

| Error code | Description   | Action  |
|------------|---|---|
| 959.21     | Pensive did not respond to command request  | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>  |
| 959.22     | Challenge Secret Failure  |   |
| 959.23     | Pensive self test failed during initialization  |   |
| 959.24     | EEPROM Retention Error (Write failure)  |   |
| 959.25     | Insufficient device space during HW prog  |   |
| 959.26     | Incremental counter reset exceeds maximum value   |   |
| 959.27     | Increment count failed due to max value limit   |   |
| 959.28     | Invalid SP Memory Configuration   |   |
| 959.30     | Pensive library flagged an invalid argument(s)  |   |
| 959.31     | Pensive library flagged an invalid device address   |   |
| 959.32     | Failure to init physical interface  |   |
| 959.33     | Unknown/unexpected Error  |   |
| 959.34     | System Pensive Bus Busy Error   |   |
| 959.35     | Transmission Error  |   |
| 959.36     | Pensive command is invalid due to unlocked device status  |   |
| 959.37     | Pensive command is invalid due to locked device status  |   |
| 959.38     | Incremental counter id(s) are invalid   |   |
| 959.39     | Invalid NV address  |   |
| 959.40     | Invalid Pensive command   | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>  |
| 960.xx     | RAM Memory Error—RAM soldered on the card is bad  |   |
| 961.xx     | RAM Memory Error—optional DRAM is bad   | Replace the bad memory card.  |
| 964.xx     | Download Emulation Cyclic Redundancy Check (CRC) Error—checksum failure detected in the emulation header or emulation file. | <ol style="list-style-type: none"> <li><b>1</b> Disable the Download Emulation.</li> <li><b>2</b> Program the download emulation into the firmware card again.</li> <li><b>3</b> If the above steps do not resolve the problem, then replace the firmware card and download the emulation again.</li> </ol> |
| 975.xx     | Network Error—unrecognizable network port   | Call the next level of support.   |
| 976.xx     | Network Error—unrecoverable software error in network port  |   |
| 978.xx     | Network Error—bad checksum while programming network port   |   |
| 979.xx     | Network Error—flash parts failed while programming network port   |   |

| Error code | Description  | Action                          |
|------------|--|---------------------------------|
| 980.xx     | Engine experiencing unreliable communication with the specified device   | Call the next level of support. |
| 981.xx     | Engine protocol violation detected by the specified device   |                                 |
| 982.xx     | Communications error detected by the specified device—device can be: <ul style="list-style-type: none"> <li>• Engine, Duplex, Tray x, Env Feeder</li> <li>• Output Bin x (Note: Used for single bin devices)</li> <li>• Bins x to y (Note: Used for multiple bin devices)</li> </ul>   |                                 |
| 983.xx     | Invalid command received by the specified device   |                                 |
| 984.xx     | Invalid command parameter received by the specified device   |                                 |
| 990.xx     | An equipment check condition has occurred in the specified device, but the device is unable to identify the exact component failure—device can be: <ul style="list-style-type: none"> <li>• Engine, Duplex, Tray x, Env Feeder</li> <li>• Output Bin x (Note: Used for single bin devices)</li> <li>• Bins x to y (Note: Used for multiple bin devices)</li> </ul> | Call the next level of support. |
| 991.xx     | The specified device has detected an equipment check in its controller board—device can be: <ul style="list-style-type: none"> <li>• Engine, Duplex, Tray x, Env Feeder</li> <li>• Output Bin x (Note: Used for single bin devices)</li> <li>• Bins x to y (Note: Used for multiple bin devices)</li> </ul>  |                                 |

## System software error service check

There are different types of 900.xx errors that can occur. There may be a communication problem (bad cable, network connection, and so on) software issue, or a hardware problem with the controller board, or ISP (internal solutions port). The communication and software aspects should be checked first. Determine if the problem is constant or intermittent. Use the troubleshooting procedure below to isolate the issue. Take any notes as instructed. You will need that information in the event you need to contact your next level of support.

**Note:** Before troubleshooting, determine the operating system used when the error occurred. If possible determine whether a PostScript or PCL file was sent to the device when the error occurred. Ask the customer which Lexmark Solutions applications are installed on the device.

| Action  | Yes            | No                     |
|---|----------------|------------------------|
| <p><b>Step 1</b><br/>POR the printer.</p> <p>Does the error remain?</p>   | Go to step 2.  | The problem is solved. |
| <p><b>Step 2</b></p> <ul style="list-style-type: none"> <li>a Write down the exact 900.xx error code displayed on the device.</li> <li>b Turn off the printer.</li> <li>c Clear the print queues.</li> <li>d Disconnect all communication cables, and remove all memory options.</li> <li>e Remove any installed ISP.</li> <li>f POR the printer into the Diagnostics menu.</li> </ul> <p>Does the error remain during startup?</p> | Go to step 3.  | Go to step 6.          |
| <p><b>Step 3</b><br/>Check all the cables connected to the controller board for proper connectivity.</p> <p>Are the cables properly connected?</p>  | Go to step 5.  | Go to step 4.          |
| <p><b>Step 4</b></p> <ul style="list-style-type: none"> <li>a Properly connect the cables to the controller board.</li> <li>b POR the printer into the Diagnostics menu.</li> </ul> <p>Does the error remain during startup?</p>  | Go to step 5.  | Go to step 6.          |
| <p><b>Step 5</b></p> <ul style="list-style-type: none"> <li>a Replace the controller board.</li> <li>b POR the printer.</li> </ul> <p>Does the error remain during startup?</p> <p><b>Note:</b> If an error different from the original 900.xx is displayed, consult the service check for that error.</p>  | Go to step 31. | The problem is solved. |
| <p><b>Step 6</b><br/>Print the following:</p> <ul style="list-style-type: none"> <li>• Error log</li> <li>• Menu settings page</li> <li>• Network settings page</li> </ul> <p>Does the error remain while these pages were printing?</p>  | Go to step 31. | Go to step 7.          |



| Action   | Yes            | No             |
|--|----------------|----------------|
| <p><b>Step 7</b></p> <p><b>Note:</b> Before performing this step, write down the following information about the file being sent to the printer:</p> <ul style="list-style-type: none"> <li>• Application used</li> <li>• Operating system</li> <li>• Driver type</li> <li>• File type (PCL, PostScript, XPS, etc.)</li> </ul> <p><b>a</b> Reattach the communications cable.</p> <p><b>b</b> POR the printer.</p> <p><b>c</b> Send the printer a print job.</p> <p>Does the error remain?</p> | Go to step 8.  | Go to step 10. |
| <p><b>Step 8</b></p> <p><b>a</b> POR the printer.</p> <p><b>b</b> Send a different print job to the printer.</p> <p>Does the error remain?</p>   | Go to step 9.  | Go to step 10. |
| <p><b>Step 9</b></p> <p><b>a</b> Upgrade the firmware.</p> <p><b>Note:</b> Contact your next level of support for the correct firmware level to use.</p> <p><b>b</b> POR the printer.</p> <p><b>c</b> Send the printer a print job.</p> <p>Does the error remain?</p>  | Go to step 31. | Go to step 10. |
| <p><b>Step 10</b></p> <p>Is the device an MFP?</p>   | Go to step 11. | Go to step 13. |
| <p><b>Step 11</b></p> <p>Run a copy job.</p> <p>Does the error remain?</p>   | Go to step 31. | Go to step 12. |
| <p><b>Step 12</b></p> <p>Run a scan to PC job.</p> <p>Does the error remain?</p>   | Go to step 31. | Go to step 13. |
| <p><b>Step 13</b></p> <p>Is there optional memory installed?</p>   | Go to step 14. | Go to step 16. |
| <p><b>Step 14</b></p> <p><b>a</b> Reinstall the memory.</p> <p><b>b</b> Send a print job to the printer.</p> <p>Does the error remain?</p>   | Go to step 15. | Go to step 16. |

| Action   | Yes            | No                     |
|--|----------------|------------------------|
| <p><b>Step 15</b></p> <p><b>a</b> Install a Lexmark recommended memory option.</p> <p><b>b</b> Send a print job to the printer.</p> <p>Does the error remain?</p>  | Go to step 31. | The problem is solved. |
| <p><b>Step 16</b></p> <p>Is there a modem installed?</p>   | Go to step 17. | Go to step 21.         |
| <p><b>Step 17</b></p> <p><b>a</b> Reinstall the modem.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>  | Go to step 18. | Go to step 20.         |
| <p><b>Step 18</b></p> <p><b>a</b> Upgrade the firmware if it was not upgraded in a previous step.</p> <p><b>Note:</b> Contact your next level of support for the correct firmware level to use.</p> <p><b>b</b> POR the printer.</p> <p><b>c</b> Send the printer a print job.</p> <p>Does the error remain?</p> | Go to step 19. | The problem is solved. |
| <p><b>Step 19</b></p> <p><b>a</b> Replace the modem.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>  | Go to step 31. | The problem is solved. |
| <p><b>Step 20</b></p> <p>Run a fax job.</p> <p>Does the error remain?</p>  | Go to step 31. | Go to step 21.         |
| <p><b>Step 21</b></p> <p>Is there an ISP option installed?</p>   | Go to step 22. | The problem is solved. |
| <p><b>Step 22</b></p> <p><b>a</b> Reinstall the first ISP option.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>   | Go to step 24. | Go to step 23.         |
| <p><b>Step 23</b></p> <p>Run a job to test the option.</p> <p>Does the error remain?</p>   | Go to step 24. | Go to step 26.         |

| Action   | Yes            | No                     |
|--|----------------|------------------------|
| <p><b>Step 24</b></p> <p><b>a</b> Upgrade the firmware if it was not upgraded in a previous step.<br/> <b>Note:</b> Contact your next level of support for the correct firmware level to use.</p> <p><b>b</b> POR the printer.</p> <p><b>c</b> Send the printer a print job.</p> <p>Does the error remain?</p> | Go to step 25. | The problem is solved. |
| <p><b>Step 25</b></p> <p><b>a</b> Replace the faulty ISP option.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>  | Go to step 31. | Go to step 26.         |
| <p><b>Step 26</b></p> <p>Are there any more ISP options to install?</p>  | Go to step 27. | The problem is solved. |
| <p><b>Step 27</b></p> <p><b>a</b> Install the next ISP option.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>  | Go to step 29. | Go to step 28.         |
| <p><b>Step 28</b></p> <p>Run a job to test the option.</p> <p>Does the error remain?</p>   | Go to step 29. | Go to step 26.         |
| <p><b>Step 29</b></p> <p><b>a</b> Upgrade the firmware if it was not upgraded in a previous step.<br/> <b>Note:</b> Contact your next level of support for the correct firmware level to use.</p> <p><b>b</b> POR the printer.</p> <p><b>c</b> Send the printer a print job.</p> <p>Does the error remain?</p> | Go to step 30. | Go to step 26.         |
| <p><b>Step 30</b></p> <p><b>a</b> Replace the faulty ISP option.</p> <p><b>b</b> POR the printer.</p> <p>Does the error remain?</p>  | Go to step 31. | Go to step 26.         |

| Action   | Yes | No |
|--|-----|----|
| <p><b>Step 31</b></p> <p>Contact your next level of support. You will need the following information:</p> <ul style="list-style-type: none"> <li>• Exact 900.xx error digits and complete error message</li> <li>• Printed menu settings page</li> <li>• Printed network settings page</li> <li>• Device error log</li> <li>• A sample print file if the error appears to be isolated to a single file</li> <li>• File/Application used if the error is related to specific print file</li> <li>• Device operating system</li> <li>• Driver used (PCL/PS)</li> <li>• Frequency of the occurrence of the error</li> </ul> |     |    |

## NVRAM mismatch failure service check

**Warning—Potential Damage:** When replacing any of the following components:

- Control panel assembly
- Controller board assembly

Replace only one component at a time. Replace the required component and perform a POR before replacing a second component listed above. If this procedure is not followed, the printer will be rendered inoperable. Never replace two or more of the components listed above without a POR after installing each one or the printer will be rendered inoperable.

**Warning—Potential Damage:** These components can be used as a method of troubleshooting as long as the machine is booted into diagnostic mode or is operating in diagnostic mode. Once a component has been installed in a machine and powered up into user mode, it cannot be used in another machine. It must be returned to the manufacturer.

| Action   | Yes           | No                             |
|--|---------------|--------------------------------|
| <p><b>Step 1</b></p> <p>Check the control panel assembly.</p> <p>Was the control panel assembly recently replaced?</p>   | Go to step 3. | Go to step 2.                  |
| <p><b>Step 2</b></p> <p>Check the controller board assembly.</p> <p>Was the controller board assembly recently replaced?</p>   | Go to step 4. | Contact next level of support. |
| <p><b>Step 3</b></p> <p>Replace the current control panel assembly with the control panel assembly. Go to <b>“Control panel assembly removal” on page 173.</b></p> <p>Does the error remain?</p> | Go to step 5. | The problem is solved.         |

| Action  | Yes                                | No                     |
|---|------------------------------------|------------------------|
| <p><b>Step 4</b></p> <p>Replace the current controller board assembly with the original controller board assembly. Go to <b>“Controller board removal” on page 162.</b></p> <p>Does the problem continue?</p> | Go to step 6.                      | The problem is solved. |
| <p><b>Step 5</b></p> <p>Replace the original control panel assembly with a new and not previously installed control panel assembly.</p> <p>Does the error continue?</p>                                       | Contact the next level of support. | The problem is solved. |
| <p><b>Step 6</b></p> <p>Replace the original control panel assembly with a new and not previously installed control panel door assembly.</p> <p>Does the error continue?</p>                                  | Contact the next level of support. | The problem is solved. |

## Input option errors

### 3xx error messages

| Error code | Description  | Action  |
|------------|--|---|
| 321.51     | Motor 1 (Pick/Lift) motor no first encoder                   | Go to <b>“Option tray pick/lift motor service check” on page 106.</b>             |
| 321.52     | Motor 1 (Pick/Lift) motor stop error                         |   |
| 321.53     | Motor 1 (Pick/Lift) PWM underflow (motor overspeed)          |   |
| 322.54     | Motor 2 (Separator/Passthru) motor no first encoder          | Go to <b>“Option tray separator/passthrough motor service check” on page 107.</b> |
| 322.55     | Motor 2 (Separator/Passthru) motor stop error                |   |
| 322.56     | Motor 2 (Separator/Passthru) PWM underflow (motor overspeed) |   |
| 324.57     | Motor 3 motor no first encoder                               | Go to <b>“Option tray ACM motor service check” on page 108.</b>                   |
| 324.58     | Motor 3 motor stop error                                     |   |
| 324.59     | Motor 3 PWM underflow (motor overspeed)                      |   |
| 325.60     | Hardware error—Board ID unknown                              | Go to <b>“Option tray controller card service check” on page 108.</b>             |
| 325.61     | Hardware error—Option type unknown                           |   |
| 325.62     | Hardware error—Product ID unknown                            |   |
| 325.63     | Hardware error—Sensors are not plugged on the board.         |   |

| Error code | Description  | Action  |
|------------|--|---|
| 331.51     | Motor 1 (Pick/Lift) motor no first encoder                   | Go to <b>“Option tray pick/lift motor service check” on page 106.</b>             |
| 331.52     | Motor 1 (Pick/Lift) motor stop error                         |   |
| 331.53     | Motor 1 (Pick/Lift) PWM underflow (motor overspeed)          |   |
| 332.54     | Motor 2 (Separator/Passthru) Motor no first encoder          | Go to <b>“Option tray separator/passthrough motor service check” on page 107.</b> |
| 332.55     | Motor 2 (Separator/Passthru) motor stop error                |   |
| 332.56     | Motor 2 (Separator/Passthru) PWM underflow (motor overspeed) |   |
| 334.57     | Motor 3 motor no first encoder                               | Go to <b>“Option tray ACM motor service check” on page 108.</b>                   |
| 334.58     | Motor 3 motor stop error                                     |   |
| 334.59     | Motor 3 PWM underflow (motor overspeed)                      |   |
| 335.60     | Hardware error—Board ID unknown                              | Go to <b>“Option tray controller card service check” on page 108.</b>             |
| 335.61     | Hardware error—Option type unknown                           |   |
| 335.62     | Hardware error—Product ID unknown                            |   |
| 335.63     | Hardware error—Sensors are not plugged on the board.         |   |
| 341.51     | Motor 1 (Pick/Lift) motor no first encoder                   | Go to <b>“Option tray pick/lift motor service check” on page 106.</b>             |
| 341.52     | Motor 1 (Pick/Lift) motor stop error                         |   |
| 341.53     | Motor 1 (Pick/Lift) PWM underflow (motor overspeed)          |   |
| 342.54     | Motor 2 (Separator/Passthru) motor no first encoder          | Go to <b>“Option tray separator/passthrough motor service check” on page 107.</b> |
| 342.55     | Motor 2 (Separator/Passthru) motor stop error                |   |
| 342.56     | Motor 2 (Separator/Passthru) PWM underflow (motor overspeed) |   |
| 344.57     | Motor 3 motor no first encoder                               | Go to <b>“Option tray ACM motor service check” on page 108.</b>                   |
| 344.58     | Motor 3 motor stop error                                     |   |
| 344.59     | Motor 3 PWM underflow (motor overspeed)                      |   |

## Option tray pick/lift motor service check

| Action  | Yes           | No                       |
|---|---------------|--------------------------|
| <p><b>Step 1</b></p> <p><b>a</b> Remove the option tray insert.</p> <p><b>b</b> Check the lift plate and gears for proper operation by moving the metal plate.</p> <p>Do the lift plate and gears move freely, and are they free of wear or damage?</p> | Go to step 2. | Replace the tray insert. |

| Action   | Yes                                | No                |
|--|------------------------------------|-------------------|
| <p><b>Step 2</b></p> <p>Check the pick/lift motor for the following:</p> <ul style="list-style-type: none"> <li>• Gear tooth breakage</li> <li>• Freedom of rotation</li> </ul> <p>Is it free of wear or damage?</p> | Go to step 3.                      | Replace the tray. |
| <p><b>Step 3</b></p> <p>Check the cable J11 on the option tray controller card.</p> <p>Is it properly connected and free of damage?</p>  | Contact the next level of support. | Replace the tray. |

### Option tray separator/passthrough motor service check

| Action   | Yes                                | No   |
|--|------------------------------------|--|
| <p><b>Step 1</b></p> <p><b>a</b> Remove the option tray insert.</p> <p><b>b</b> Check the separator roll assembly gear under the tray base for the following:</p> <ul style="list-style-type: none"> <li>• Gear tooth breakage</li> <li>• Freedom of rotation</li> </ul> <p>Does it move freely, and is it free of wear or damage?</p> | Go to step 2.                      | Replace the tray.  |
| <p><b>Step 2</b></p> <p>Check the cable J10 on the option tray controller card.</p> <p>Is it properly connected and free of damage?</p>  | Go to step 3.                      | Replace the tray.  |
| <p><b>Step 3</b></p> <p>Check the separator roll assembly for wear or damage.</p> <p>Is it free of wear or damage?</p>   | Contact the next level of support. | Replace the separator roll assembly. See <b>“Separator roll assembly removal” on page 213.</b> |

## Option tray ACM motor service check

| Action  | Yes                                | No   |
|---|------------------------------------|--|
| <b>Step 1</b><br>Check the cable J11 on the option tray controller card.<br><br>Is it properly connected?   | Go to step 2.                      | Reseat the cable.  |
| <b>Step 2</b><br><b>a</b> Remove the option tray insert and bypass the tray present sensor.<br><b>b</b> POR into the Diagnostics Menu and perform a feed test:<br><b>Diagnostics Menu &gt; Feed Test</b> > choose an option tray<br><b>c</b> Check the ACM for proper operation.<br><br>Does the ACM freely rotate three times before displaying a jam message? | Go to step 3.                      | Replace the ACM assembly. See <b>“ACM assembly removal” on page 215.</b> |
| <b>Step 3</b><br>Is the ACM gear free of wear or damage?  | Contact the next level of support. | Replace the ACM assembly. See <b>“ACM assembly removal” on page 215.</b> |

## Option tray controller card service check

| Action  | Yes                                | No                     |
|---|------------------------------------|------------------------|
| <b>Step 1</b><br>Check all connections to the option tray controller card.<br><br>Are the properly connected? | Go to step 2.                      | Reseat the cables.     |
| <b>Step 2</b><br>Check printer’s firmware level.<br><br>Is it up to date?                                     | Go to step 3.                      | Update the firmware.   |
| <b>Step 3</b><br>Replace the option tray.<br><br>Does the error remain?                                       | Contact the next level of support. | The problem is solved. |

## Symptoms

### Base printer symptoms

| Symptom  | Action  |
|--|---|
| <ul style="list-style-type: none"> <li>Control panel LEDs do not illuminate</li> <li>Control panel buttons do not respond</li> </ul> | Go to <b>“Control panel service check” on page 112.</b> |



| Symptom  | Action  |
|--|---|
| <ul style="list-style-type: none"> <li>Fan does not come on</li> <li>Fan is noisy</li> </ul> | Go to <b>“Cooling fan service check” on page 109.</b>   |
| Printer not communicating with host  | Go to <b>“USB print service check” on page 112.</b>   |
| Machine does not POR (no power)  | <ol style="list-style-type: none"> <li>Check the power cord for continuity. Replace if necessary.</li> <li>Make sure the nominal voltage source is within specification. See <b>“Electrical specifications” on page 241.</b></li> <li>If the problem remains, go to <b>“Dead machine service check” on page 110.</b></li> </ol> |
| Print job not printing on network attached printer   | Go to <b>“Network service check” on page 113.</b>   |
| Network attached printer offline   |   |

## Cooling fan service check

| Action  | Yes  | No   |
|---|--|--|
| <p><b>Step 1</b></p> <p><b>a</b> Make sure that the cable JFAN1 is properly connected to the controller board.</p> <p><b>b</b> Check if the cooling fan is rotating properly.</p> <p>Is it rotating properly?</p>               | Go to step 2.  | Replace the cooling fan. See <b>“Cooling fan removal” on page 161.</b>           |
| <p><b>Step 2</b></p> <p><b>a</b> Turn off the printer, and disconnect JFAN1 from the controller board.</p> <p><b>b</b> Turn on the printer, and measure the voltage across JFAN1.</p> <p>Is the voltage approximately 24 V?</p> | Go to step 3.  | Replace the controller board. See <b>“Controller board removal” on page 162.</b> |
| <p><b>Step 3</b></p> <p>Is the fan idle?</p>  | Replace the cooling fan. See <b>“Cooling fan removal” on page 161.</b> | The problem is solved.   |

## Dead machine service check

| Action  | Yes   | No   |
|---|---|--|
| <b>Step 1</b><br>Check if the power supply cable is properly connected to the controller board.<br><br>Are they properly connected?   | Go to step 2.   | Reseat the cables.   |
| <b>Step 2</b><br><b>a</b> Turn off the printer.<br><b>b</b> Remove the power cord.<br><b>c</b> Measure the resistance between terminals A and D of the power supply socket.<br><br>Is the resistance approximately 30 ohms? | Go to <b>“Controller board service check” on page 110</b> | Replace the LVPS. See <b>“Power supply removal” on page 189.</b> |

## Controller board service check

Service checks which involve measuring voltages on the power supply should be performed with the printer positioned on its rear side.

**Note:** When making voltage readings, always use frame ground unless another ground is specified. See the wiring diagram in the back of the book for more information.

**Warning—Potential Damage:** Do not replace the control panel and controller board at the same time. Each card contains the printer settings. When either of these cards is new, it obtains some of the settings from the other card. Settings are lost when both are new and replaced at the same time.

| Action   | Yes                    | No                     |
|--|------------------------|------------------------|
| <b>Step 1</b><br>POR the machine.<br><br>Did the control panel , fuser, fan and drive motor function at startup? | Go to step 2.          | Go to step 3.          |
| <b>Step 2</b><br>Run some print jobs.<br><br>Does the error remain?  | Go to step 3.          | The problem is solved. |
| <b>Step 3</b><br>Check all cables on the controller board.<br><br>Are they connected properly?                   | Go to step 5.          | Go to step 4.          |
| <b>Step 4</b><br>Properly connect all the cables on the controller board.<br><br>Does the error remain?          | The problem is solved. | Go to step 5.          |

| Action  | Yes                                | No  |
|---|------------------------------------|---|
| <p><b>Step 5</b></p> <p>Unplug the cable JPS1 from the controller board, and verify the following voltages from the cable:</p> <ul style="list-style-type: none"> <li>• +5 V at pins 11, 12, 13, 14, 15, 16</li> <li>• GND at pins 18, 20</li> </ul> <p>Are the voltages correct?</p> | Go to step 7.                      | Go to step 6.   |
| <p><b>Step 6</b></p> <p>Replace the power supply.</p> <p>Does the error remain?</p>   | The problem is solved.             | Go to step 7.   |
| <p><b>Step 7</b></p> <p>Is the control panel functioning properly?</p>  | Go to step 9.                      | Go to control panel service check. Go to <b>“Control panel service check” on page 112</b> |
| <p><b>Step 8</b></p> <p>Perform the control panel service check. Go to <b>“Control panel service check” on page 112.</b></p> <p>Does the error remain?</p>  | Go to step 9.                      | The problem is solved.  |
| <p><b>Step 9</b></p> <p>Is the LED on the bottom of the controller board illuminating?</p>  | Go to step 10.                     | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>        |
| <p><b>Step 10</b></p> <p>Verify the controller board power outputs. See <b>“Connectors” on page 221.</b></p> <p>Are the voltages correct?</p>   | Contact the next level of support. | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b>        |

## Control panel service check

**Warning—Potential Damage:** Do not replace the operator panel and controller board at the same time. Each card contains the printer settings. When either of these cards is new, it obtains some of the settings from the other card. Settings are lost when both are new and replaced at the same time.

| Action  | Yes                    | No   |
|---|------------------------|--|
| <p><b>Step 1</b><br/>Check the UICC cable for proper connection to the UICC and to the controller board.</p> <p>Is it properly connected?</p> | Go to step 2.          | Reseat the cable.  |
| <p><b>Step 2</b><br/>Replace the UICC. Go to <b>“UICC removal” on page 175.</b></p> <p>Did this fix the problem?</p>                          | The problem is solved. | Replace the controller board. Go to <b>“Controller board removal” on page 162.</b> |

## USB print service check

| Action   | Yes                          | No            |
|--|------------------------------|---------------|
| <p><b>Step 1</b><br/>Enter Diagnostic mode and perform a print test to make sure the printer prints correctly. Verify that the indicator light is on, then print the Diagnostics menu instruction sheet:<br/><b>Diagnostics Menu &gt; Print Diagnostics Menu Instruction Sheet</b></p> <p>Are the internal pages printing?</p> | Go to step 2.                | Go to step 7. |
| <p><b>Step 2</b><br/>Verify if the user's applications are setup correctly.</p> <p>Are they setup correctly?</p>   | Go to step 4.                | Go to step 3. |
| <p><b>Step 3</b><br/>Try a different application to run a print job.</p> <p>Did the output print?</p>  | This is not a printer issue. | Go to step 4. |
| <p><b>Step 4</b><br/>Check the print driver.</p> <p>Is the correct driver being used and properly setup?</p>   | Go to step 6.                | Go to step 5. |
| <p><b>Step 5</b><br/>Use a different driver.</p> <p>Did this fix the issue?</p>  | The problem is solved.       | Go to step 6. |

| Action   | Yes                    | No                             |
|--|------------------------|--------------------------------|
| <b>Step 6</b><br>Try a different USB cable.<br><br>Did this fix the issue?   | The problem is solved. | Go to step 7.                  |
| <b>Step 7</b><br>Replace the controller board. Go to <b>“Controller board removal” on page 162.</b><br><br>Did this fix the issue? | The problem is solved. | Contact the next level support |

## Network service check

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

| Actions  | Yes  | No            |
|--|--|---------------|
| <b>Step 1</b><br>If the device is physically connected to the network, verify that the Ethernet cable is properly connected on both ends.<br><br>Is the cable properly connected?              | Go to step 3. If the network is wireless, then go to step 3. | Go to step 2. |
| <b>Step 2</b><br>Connect the Ethernet cable.<br><br>Does this fix the problem.   | The problem is solved.                                       | Go to step 3. |
| <b>Step 3</b><br>Check the printer’s online status under Printers and Faxes on the host computer. Delete all print jobs in the print queue.<br><br>Is the printer online and in a Ready state? | Go to step 5.  | Go to step 4. |
| <b>Step 4</b><br>Change the printer status to online.<br><br>Did this fix the issue?   | The problem is solved.                                       | Go to step 5. |
| <b>Step 5</b><br>Does the IP address displayed on the network settings page match the IP address in the port of the drivers using the printer?   | Go to step 10.   | Go to step 6. |
| <b>Step 6</b><br>Does the LAN use DHCP?<br><br><b>Note:</b> A printer should use a static IP address on a network.   | Go to step 7.  | Go to step 9. |

| Actions   | Yes  | No                                 |
|---|--|------------------------------------|
| <b>Step 7</b><br>Are the first two segments of the IP address 169.254   | Go to step 8.  | Go to step 9.                      |
| <b>Step 8</b><br>POR the printer.<br><br>Did this resolve the issue?  | The problem is solved.   | Go to step 10.                     |
| <b>Step 9</b><br>Reset the address on the printer to match the IP address on the driver.<br><br>Did this resolve the issue?   | The problem is solved.   | Go to step 10.                     |
| <b>Step 10</b><br>Have the network admin verify that the printer and PC's IP address have identical subnet addresses.<br><br>Are the subnet addresses the same?   | Go to step 12.   | Go to step 11.                     |
| <b>Step 11</b><br>Using the subnet address supplied by the network administrator, assign a unique IP address to the printer.<br><b>Note:</b> The printer IP address should match the IP address on the printer driver.<br><br>Did this fix the problem? | The problem is solved.   | Go to step 12.                     |
| <b>Step 12</b><br>Is the device physically connected (Ethernet cable) to the network?   | Go to step 13.   | Go to step 15.                     |
| <b>Step 13</b><br>Try using a different Ethernet cable.<br><br>Did this fix the problem?  | The problem is solved.   | Go to step 14.                     |
| <b>Step 14</b><br>Have the network administrator check the network drop for activity.<br><br>Is the network drop functioning properly?  | Replace the controller board. See " <b>Controller board removal</b> " on page 162. | Contact the network administrator. |
| <b>Step 15</b><br>Is the printer on the same wireless network as the other devices?   | Go to step 17.   | Go to step 16.                     |
| <b>Step 16</b><br>Assign the correct wireless network to the printer.<br><br>Did this fix the problem?  | The problem is solved.   | Go to step 17.                     |
| <b>Step 17</b><br>Are the other devices on the wireless network communicating properly?   | Go to step 18.   | Contact the network administrator. |

| Actions   | Yes                    | No                                 |
|---|------------------------|------------------------------------|
| <p><b>Step 18</b><br/>Verify that the wireless card is properly seated on the controller board.</p> <p>Is the wireless card seated correctly?</p> | Go to step 20.         | Go to step 19.                     |
| <p><b>Step 19</b><br/>Properly reseal the wireless card.</p> <p>Did this fix the problem?</p>   | The problem is solved. | Go to step 20.                     |
| <p><b>Step 20</b><br/>If there is an attached antenna, is the antenna damaged?</p>  | Go to step 22.         | Go to step 21.                     |
| <p><b>Step 21</b><br/>Replace the antenna.</p> <p>Did this fix the problem?</p>   | The problem is solved. | Go to step 22.                     |
| <p><b>Step 22</b><br/>Verify that the antenna is properly connected to the wireless card.</p> <p>Is it connected correctly?</p>                   | Go to step 24.         | Go to step 23.                     |
| <p><b>Step 23</b><br/>Properly connect the antenna.</p> <p>Did this fix the problem?</p>  | The problem is solved. | Go to step 24.                     |
| <p><b>Step 24</b><br/>Replace the wireless card.</p> <p>Did this fix the problem?</p>   | The problem is solved. | Go to step 25.                     |
| <p><b>Step 25</b><br/>Replace the controller board. See <b>“Controller board removal” on page 162.</b></p> <p>Did this fix the problem?</p>       | The problem is solved. | Contact the next level of support. |















# Service menus

## Understanding the control panel and menus

### Navigating through the Service menus

Menus are represented by the     light sequences. Menu options and their values are represented by the   light sequences.


To navigate through the Service menus:

- 1 Press  to advance to the desired menu.
- 2 Press  to advance to the desired menu option value.
- 3 Press and hold  until all of the lights cycle to perform the function or save the menu option value.
- 4 Press and hold  to return to the home menu.
- 5 POR the printer to exit the Service menus.

## Diagnostics menu

The Diagnostics menu group consists of menus, settings, and operations that are used to diagnose printer problems.

### Entering the Diagnostics menu

- 1 Turn off the printer.
- 2 Open the front door.
- 3 Press and hold .
- 4 Turn on the printer.
- 5 Release the button after 10 seconds.

### Print Diagnostics Menu Instruction Sheet

This prints a page that contains:

- Instructions on how to navigate through the Diagnostics menu settings
- The order of the Diagnostics menu settings, the LED pattern that represents each setting, the current value of each setting, and each setting's possible values

## Prt Quality Pgs

This enables the user to view the values of the printer settings and to test its ability to generate acceptable printed output.

### Defaults

**Warning—Potential Damage:** Modification of the printer setting defaults causes the NVRAM space to be restored to the printer factory settings.

This setting is used by the printer to determine whether US or non-US factory default values should be used. The following printer settings have different US and non-US values:

| Printer default values  | US value    | Non-US value |
|---|-------------|--------------|
| Paper sizes setting in the General settings menu  | U.S.        | Metric       |
| Default paper size (paper feeding sources which do not have hardware size-sensing capability)       | Letter      | A4           |
| Default envelope size (envelope feeding sources which do not have hardware size-sensing capability) | 10 Envelope | DL Envelope  |
| Fax media size  | Letter      | A4           |
| PCL symbol set  | PC-8        | PC-850       |
| PPDS code page  | 437         | 850          |
| Universal units of measure  | Inches      | Millimeters  |

Available options:

- U. S.
- Non-U.S.

### Edge to Edge

When set to On, this shifts all four margins (top, bottom, left, and right) to the physical edge of the page (printable area of a supported paper size).

### Cont Prt Simplex Tray 1

This initiates a continuous tray 1 simplex print test. To stop the test, press **X**.

### Cont Prt Duplex Tray 1

This initiates a continuous tray 1 duplex print test. To stop the test, press **X**.

### Cont Prt Simplex Tray 2

**Note:** This appears only when Tray 2 is installed.

This initiates a continuous Tray 2 simplex print test. To stop the test, press **X**.

## Cont Prt Duplex Tray 2

**Note:** This appears only when Tray 2 is installed.

This initiates a continuous Tray 2 duplex print test. To stop the test, press **X**.

## Par 1 Strobe Adj

This enables the user to adjust the amount of time the strobe is sampled to determine if valid data is available on the parallel port.

Each time this value is increased by 1, the strobe is sampled 50 ns longer. Each time this value is decreased by 1, the strobe is sampled 50 ns less. When the value of this setting is 0, the factory default value is used to determine the amount of time the strobe is sampled.

Available options: -4 to 1

## Print Event Log

This prints the Event Log. The Event Log tracks the occurrence of various critical events in the functional history of the printer, such as paper jams and firmware updates.

## Auto Dark Adj

This attempts to optimize the amount of toner used when printing with a specific operating point.


Available options:

- Disable
- Enable

## Configuration menu

The Configuration menu group consists of menus, settings, and operations that are used to configure a printer for operation.

### Entering the Configuration menu

- 1 Turn off the printer.
- 2 Open the front access cover.
- 3 Press and hold .
- 4 Turn on the printer.
- 5 Release the button after 10 seconds.

## Print Configuration Menu Instruction Sheet

This prints a page that contains:

- 1 Instructions on how to navigate through the Configuration menu settings.
- 2 The order of the Configuration menu settings, the LED pattern that represents each setting, the current value of each setting, and the possible values of each setting.

## Restore Base

**Warning—Potential Damage:** This operation cannot be undone.

This restores all non-critical base device NVRAM settings to their factory default settings.

## Restore STD NET

**Warning—Potential Damage:** This operation cannot be undone.

This restores all network NVRAM settings. The printer immediately performs a POR and restores the appropriate settings to their factory default values. This option is available only on models with an integrated network adapter.

## Hex Trace

Hex Trace helps in isolating printing problems when unexpected characters print or characters are missing. This helps determine if there is a problem with the language interpreter or the cable by providing information about what the printer is receiving.

Available options:

- Off
- On

To enter Hex Trace mode, select On and then POR the printer.

To exit this mode, POR the printer.

## Prt Quality Pgs

This prints a report that contains a limited set of the information that appears in the Diagnostics menu version of the Print quality pages report.

## A5 Loading

This determines the orientation used when printing on A5 paper.

Available options:

- Long Edge—The printer will print A5-size paper in the long-edge feed orientation from all trays.
- Short Edge—The printer will print A5-size paper in the short-edge feed orientation from all trays.

## Reduced Curl

When on, this setting significantly reduces throughput and should be activated only as a last resort to solve paper curl problems. The printer uses this mode only when the media type is set to Paper.

Available options:

- Off
- On

## PPDS Emulation

The value of this option determines if a printer can recognize and use the PPDS data stream.

Available options:

- Deactivate
- Activate

## Demo Mode



Demo mode is often used in retail environments to highlight printer capabilities. The printer stores demonstration files in the resident demo file of the base RIP firmware and in any supported optional memory devices.

When this mode is activated, the printer ignores all print jobs sent to it other than the demo file selected by the user. Each demo file consists of one or more printed pages.

Available options:

- Activate—The printer boots into Demo mode after each power cycle.
- Deactivate—The printer boots into normal mode.

To print a demo file:

- 1 Activate Demo mode and then POR the printer.
- 2 Press  to print the first demo job.
- 3 After the last page of the previous demo job has been printed, press  to print the next demo job.

## Auto CR after LF

This is used to select whether or not the printer automatically performs a carriage return after a line feed control command. The Auto CR after LF is common to both the PPDS and PCL emulations. When the setting is changed, it is changed for both emulations.

Available options:

- Off
- On

## Auto LF after CR

This is used to select whether or not the printer automatically performs a line feed after a carriage return control command. The Auto LF after CR is common to both the PPDS and PCL emulations. When the setting is changed, it is changed for both emulations.

Available options:

- Off
- On

## Energy Conserve

This affects the values that appear in the Power saver setting in General settings menu.

Available options:

- Off—The Power saver menu displays a Disabled setting. When selected, it disables the Power saver feature.
- On—Disabled does not appear in the Power saver menu. The user cannot disable the Power saver feature.

## Wipe All Settings

This makes any sensitive information that may exist on the volatile or non-volatile storage of the device completely indecipherable. When selected, the printer performs a non-critical NVRAM reset and then reboots.

## Font Density

This creates microscopic holes in all black text. The holes save toner by reducing overlapping toner.

Available options: 1 to 5

## Font Sharpening

This allows a user to set a text point-size value below which the high-frequency screens will be used when printing font data.

Available options:

- Off
- On

## Parallel Protocol

This printer supports both the standard and the fastbytes parallel handshaking protocols.

Available options:

- Standard—The printer can receive information at a normal transmission rate.
- Fastbytes—The printer can receive information at a much faster transmission rate, provided that the host computer also supports the fastbytes protocol.

## Parallel Mode 2

This determines whether the parallel port data is sampled on the leading or trailing edge of strobe.

Available options:

- On—Data is sampled on the leading edge of strobe.
- Off

## MAC Binary PS

This configures the printer to process Macintosh binary PostScript print jobs.

Available options:

- Off—The printer filters PostScript print jobs using standard protocol.
- On—The printer processes raw binary PostScript print jobs from computers using the Macintosh operating system. This setting often causes Windows print jobs to fail.
- Auto—The printer processes print jobs from computers using either Windows or Macintosh operating systems.

## USB Speed

This setting is used to set the throughput of the USB port on the printer.

Available options:

- Auto
- Full—Forces the USB port to run at full speed and also disables its high-speed capabilities.

## USB PnP

In some cases, the USB port at the back of the printer may be incompatible with the chipset in a user's PC. This setting lets the user change the USB driver mode to improve its compatibility with these PCs.

Available options:

- 1
- 2

## Set Network Card Speed

**Note:** This setting appears only on models that support a network connection.

This determines whether the printer automatically detects or manually detects the network speed.

Available options:

- Auto—The network card attempts to detect the speed and duplex mode value of the network.



**Note:** A user may have to assign specific values to these settings since Auto may not function correctly in some network environments.

- 10Mbps, half duplex—Forces the printer to try to connect to the network only at 10 Mbps, half duplex
- 10Mbps, full duplex—Forces the printer to try to connect to the network only at 10 Mbps, full duplex

- 100Mbps, half duplex—Forces the printer to try to connect to the network only at 100 Mbps, half duplex
- 100Mbps, full duplex—Forces the printer to try to connect to the network only at 100 Mbps, full duplex


## Entering Invalid engine mode

This mode is used if the printer has an invalid code and needs the correct code loaded. After entering this mode, the firmware code can be updated.

- 1 Turn off the printer.
- 2 Press and hold  and .
- 3 Turn on the printer.
- 4 Release the buttons after 10 seconds.

## Entering Recovery mode

This mode will allow the printer to boot from a secondary set of instructions to allow a code flash to the printer. Code can be flashed from a PC using a USB connection.

- 1 Turn off the printer.
- 2 Press and hold .
- 3 Turn on the printer.
- 4 Release the button after 10 seconds.

## Service engineer menu

### Accessing the service engineer (SE) menu

From a Web browser on a host PC, add `/se` to the printer IP address.

### Service engineer (SE) menu

This menu should be used as directed by the next level of support.

| Top level menu     | Intermediate menu  |
|--------------------|--|
| Print SE Menus     |  |
| General            | Copyright — Displays copyright information   |
| Code Revision Info | <ul style="list-style-type: none"> <li>• Network code level — Displays network code level</li> <li>• Network Compile Info — Displays network compile information</li> <li>• Printer Code Level — Displays printer code information</li> <li>• Printer Compile Info — Displays compile information</li> </ul> |




| Top level menu | Intermediate menu   |
|----------------|---|
| History        | <ul style="list-style-type: none"><li>• Print History</li><li>• Mark History</li><li>• History Mode</li></ul>   |
| MAC            | <ul style="list-style-type: none"><li>• Set Card Speed</li><li>• LAA</li><li>• Keep Alive</li></ul>   |
| NVRAM          | <ul style="list-style-type: none"><li>• Dump NVRAM</li><li>• Reinit NVRAM</li></ul>   |
| TCP/IP         | <ul style="list-style-type: none"><li>• netstat-r</li><li>• arp-a</li><li>• Allow SNMP Set</li><li>• MTU</li><li>• Meditech Mode</li><li>• RAW LPR Mode</li><li>• Gather Debug</li><li>• Enable Debug</li></ul> |



# Repair information

## Removal precautions

 **CAUTION—SHOCK HAZARD:** For personal safety and to prevent damage to the printer, remove the power cord from the electrical outlet before you connect or disconnect any cable, electronic board, or assembly. Disconnect any connections between the printer and the PCs/peripherals.

## Data security notice

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

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

To erase volatile memory, turn off the printer.

To erase non-volatile memory, see the menu item under **“Configuration menu” on page 119** pertaining to this.

To erase the printer hard disk, see the menu item under **“Configuration menu” on page 119** pertaining to this.

The printer control panel and RIP/controller board contain NVRAM. After removing the old part, it must be returned to your next level of support.

## 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 while working with ESD-sensitive parts when cold-weather heating is used, because low humidity increases static electricity.

## RIP board/operator panel replacement

This procedure should be followed only if both the RIP board and the operator panel fail. If you need to replace only one of the FRUs, follow the startup procedure described in the FRU's removal procedure.



### CAUTION—POTENTIAL INJURY

The lithium battery in this product is not intended to be replaced. There is a danger of explosion if a lithium battery is incorrectly replaced. Do not recharge, disassemble, or incinerate a lithium battery. Discard used lithium batteries according to the manufacturer's instructions and local regulations.

**Warning—Potential Damage:** If the operator panel and the RIP board are being replaced at the same time, replace the parts in this order to avoid damage to the machine.

- 1 Replace the RIP card.

**Note:** Do not replace the new operator panel and RIP card in the machine at the same time.

- 2 After installing the new RIP card, and before installing the new operator panel, start the printer into diagnostics mode.
- 3 After the printer has completed startup, turn off the printer and replace the operator panel.  
**Note:** If the operator panel display has failed, the printer's startup cycle is complete when the driver motor and fans shut down, and the machine is quiet.
- 4 After installing the new operator panel, start the printer into diagnostics mode, and allow the printer to go through a complete startup cycle and the display to go to Ready.
- 5 If the problems persist, leave the new operator panel in the machine, place the old RIP card back in the machine, and start it up. After the machine startup, shut down the machine, and install the new RIP card. After installing the new RIP card, restart the machine, and let it go through the startup cycle.

After this procedure is completed successfully, there is no need to adjust any settings.

If the above procedure fails, you must contact the technical support center for further instructions.

## Ribbon cable connectors

### Zero Insertion Force (ZIF) connectors

Zero Insertion Force (ZIF) connectors are used on the boards and cards used in this printer. Before inserting or removing a cable from these connectors, read this entire section. Great care must be taken to avoid damaging the connector or cable when inserting or removing the cable.

**Warning—Potential Damage:** Do not insert the cable so that the contacts are facing the locking actuator. The contacts always face away from the actuator.

**Warning—Potential Damage:** Do not insert the cable diagonally into the ZIF socket. This can cause damage to the contacts on the cable.

**Warning—Potential Damage:** Avoid using a fingernail, or sharp object to open the locking mechanism. This could damage the cable.

**Warning—Potential Damage:** Avoid pressing against the cable when opening the locking mechanism. This can also damage the cable.

These are the types of ZIF connectors used in this printer:

- Horizontal top contact connector
- Horizontal bottom contact connector
- Vertical mount contact connector
- Horizontal sliding connector

## Horizontal top contact connector

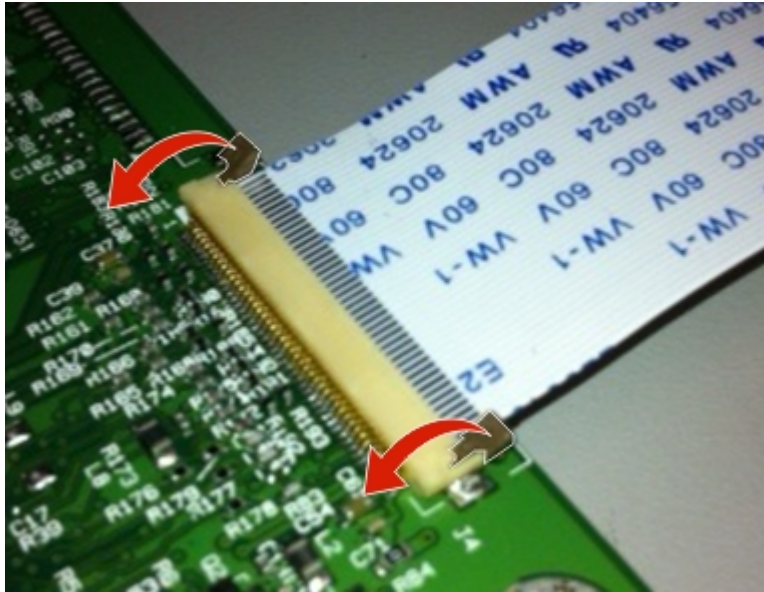
This FRU contains a horizontal top contact cable connector. Read the instructions before proceeding.

The horizontal top contact connector uses a back flip locking actuator to lock the ribbon cable into the Zero Insertion Force (ZIF) connector. The cable is inserted horizontally into the connector.

**Warning—Potential Damage:** When opening or closing this type of actuator, gently lift or close the two tabs located on each end of the actuator. The two tabs should be moved simultaneously. Do not close the actuator from the center of the actuator.

### Removing a cable from the horizontal top contact connector

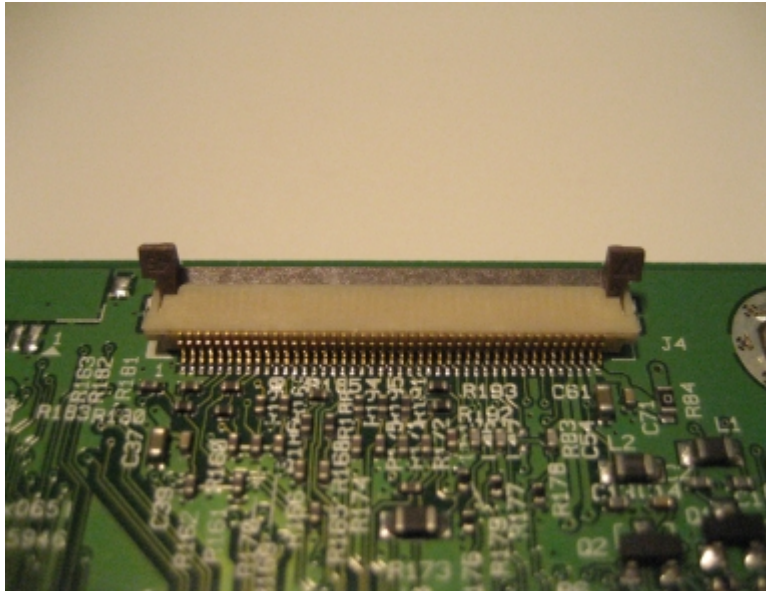
- 1 Place a finger at each end of the locking actuator, and then gently lift the actuator to the unlocked position.



- 2 Slide the cable out of the connector.

## Inserting a cable into the horizontal top contact connector

- 1 When installing the cable, check the locking actuator to ensure it is in the unlocked position. The tabs on the ends of the actuator are vertical when the actuator is unlocked.

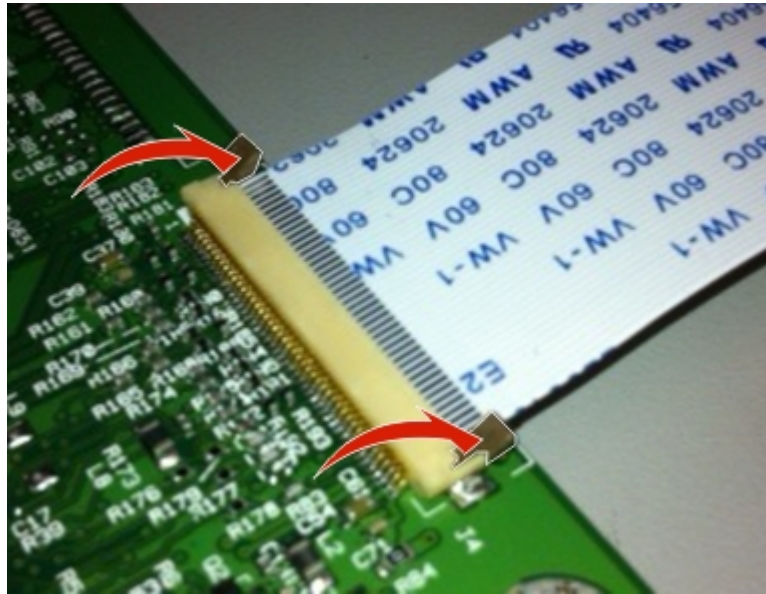


- 2 Insert the cable with the contacts on the cable facing up. Insert the cable on top of the actuator.

**Note:** Verify that the cable is installed squarely into the connector. If the cable is not squarely installed, then intermittent failures could occur.



- 3 Rotate the locking actuator to the locked position. The cable should not move while this step is performed. If the cable moves, open the actuator, reposition the cable, and then close the actuator to the down position.





## Horizontal bottom contact connector

This FRU contains a horizontal bottom contact cable connector. Read the instructions before proceeding.

The horizontal bottom contact connector uses a flip locking actuator to lock the ribbon cable into the Zero Insertion Force (ZIF) connector. The cable is inserted horizontally into the connector.

**Warning—Potential Damage:** When opening or closing this type of actuator, gently lift the center of the actuator using your finger. Do not use a fingernail or screwdriver to open the actuator. This could damage the ribbon cable. Do not close the actuator from the ends of the actuator.

## Removing a cable from the horizontal bottom contact connector

- 1 Place two fingers towards each end of the locking actuator, and then gently lift the actuator to the unlocked position.



- 2 Slide the cable out of the connector.

## Inserting a cable into the horizontal bottom contact connector

- 1 Check the actuator to verify it is in the open position.



- 2 Insert the cable into the ZIF connector with the contacts facing downward and away from the locking actuator. The cable needs to be inserted below the actuator.

**Note:** Verify that the cable is installed squarely into the connector. If the cable is not squarely installed, then intermittent failures could occur.



- 3 Place your finger in the middle of the actuator, and then rotate the locking actuator to the locked position.



## Vertical mount contact connector

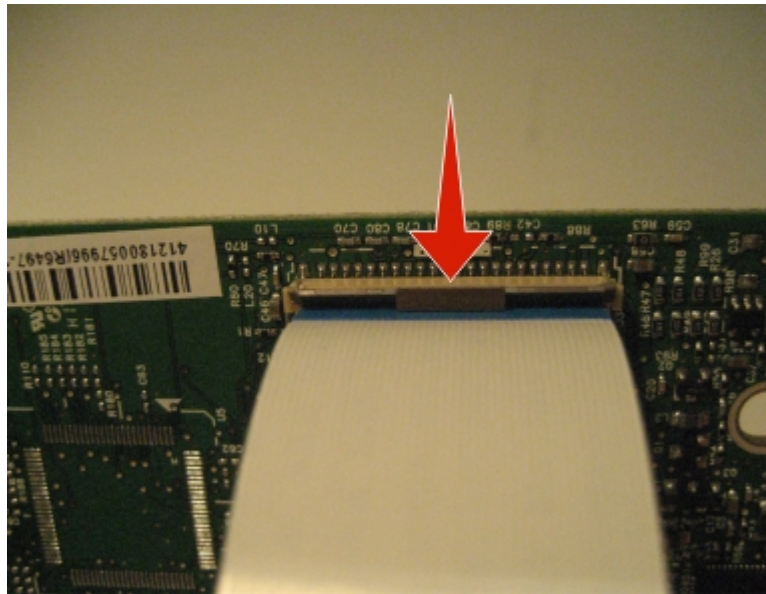
This FRU contains a vertical mount contact connector. Read the instructions before proceeding.

The vertical mount contact connector uses a back flip locking actuator to lock the ribbon cable into the Zero Insertion Force (ZIF) connector. The cable is inserted vertically into the connector.

**Warning—Potential Damage:** When opening or closing this type of actuator, gently lift the center of the actuator using your finger. Do not use a fingernail or screwdriver to open the actuator. This could damage the ribbon cable. Do not close the actuator from the ends of the actuator.

## Removing a cable from the vertical mount contact connector

- 1 Gently rotate the locking actuator from the center of the actuator to the unlocked position.



- 2 Slide the cable out of the connector.

## Inserting a cable into the vertical mount contact connector

- 1 When installing the cable, check the locking actuator to verify it is in the open position.



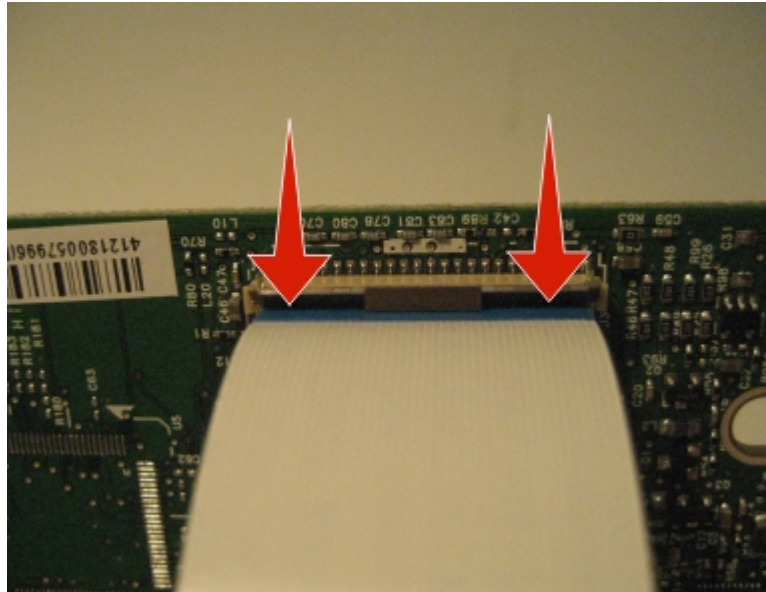
- 2 Insert the cable with the contacts on the cable away from the locking actuator. Insert the cable on top of the actuator.

**Note:** Verify that the cable is installed squarely into the connector. If the cable is not squarely installed, then intermittent failures could occur.





- 3 Rotate the locking actuator to the locked position by pressing down on both ends of the actuator. The cable should not move when this step is performed. If the cable moves, open the actuator, reposition the cable, and then close the actuator to the down position.



## Horizontal sliding contact connector

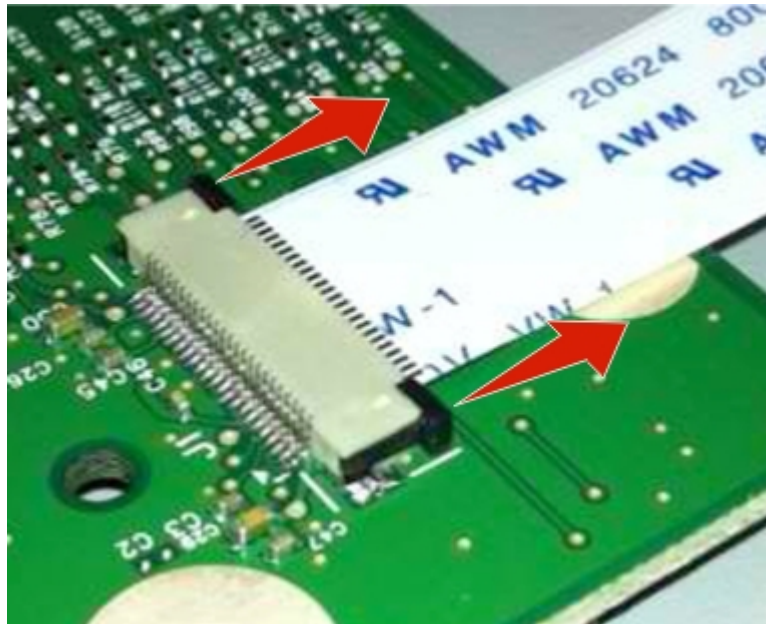
This FRU contains a horizontal sliding contact connector. Read the instructions before proceeding.

The horizontal sliding contact connector uses a slide locking actuator to lock the ribbon cable into the Zero Insertion Force (ZIF) connector. The cable is inserted horizontally into the connector.

**Warning—Potential Damage:** When opening or closing this type of actuator, gently push or pull the two tabs located on each end of the actuator. Do not close the actuator from the center of the actuator. Do not use a screwdriver to open or close the actuator. Damage to the cable or connector could occur.

### Removing a cable from the horizontal sliding contact connector

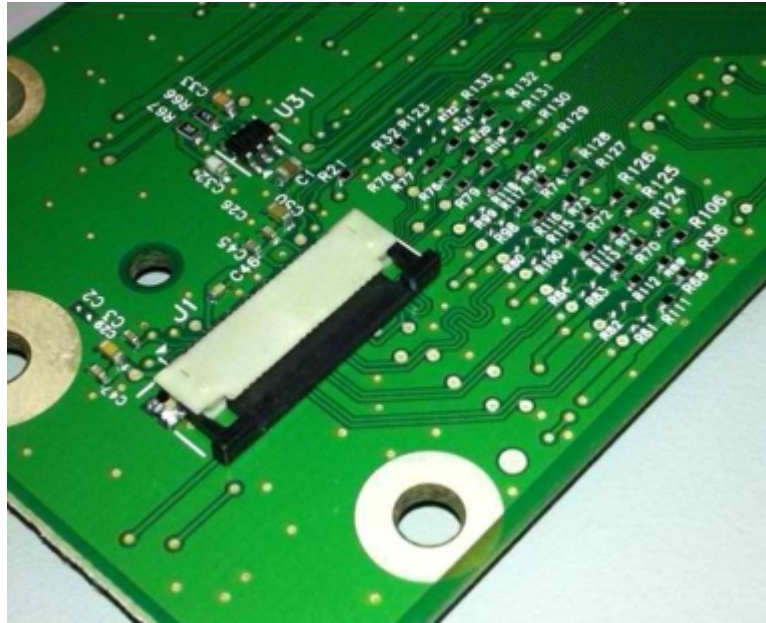
- 1 Simultaneously slide the two tabs located on the ends of the locking actuator away from the connector.



- 2 Slide the cable out of the connector.

## Inserting a cable into the horizontal sliding contact connector

- 1 When installing the cable, check the locking actuator to verify it is in the open position. If you are opening the connector, pull back on both end tabs using equal force to avoid breaking the connector.

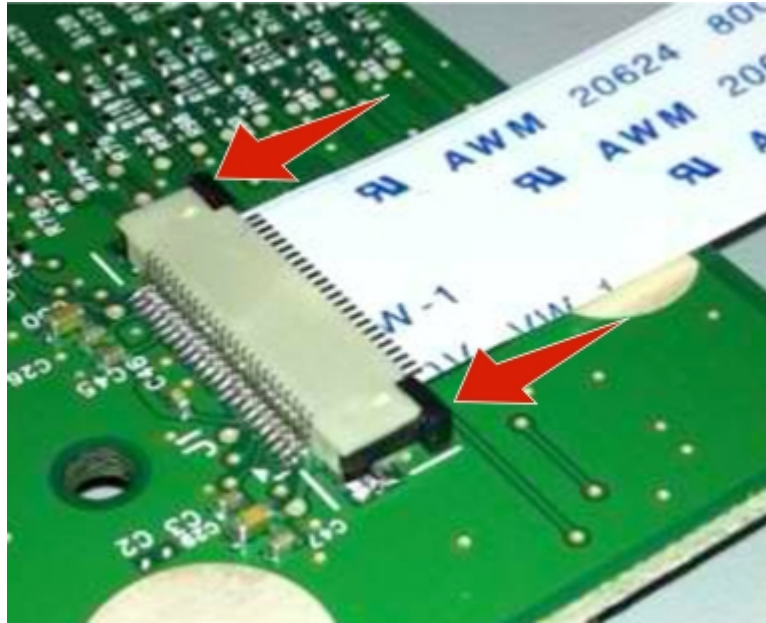


- 2 Insert the cable with the contacts on the cable facing away from the locking actuator. Insert the cable on top of the actuator.





- 3 Slide the locking actuator towards the connector, locking the cable into place. The cable should not move when this step is performed. If the cable moves, open the actuator, reposition the cable, and then close the actuator to the down position.



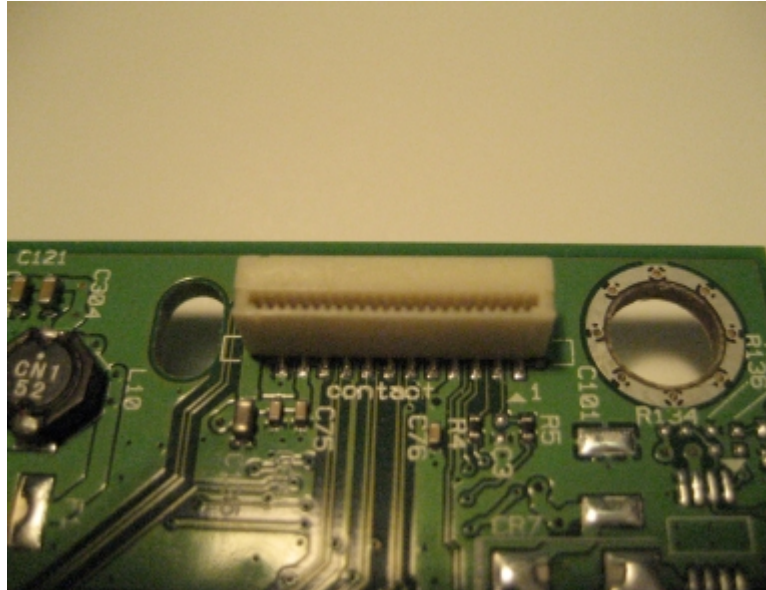
## Low Insertion Force (LIF) connector

This FRU contains a Low Insertion Force (LIF) connector. Read the instructions before proceeding.

**Warning—Potential Damage:** When installing a cable into an LIF connector, care must be taken to avoid bending the edges of the cables and damaging the contacts on the cables.

### Inserting a cable into the LIF connector

- 1 Looking at the connector, take note on which side the contacts are located. Many boards will have the word “contacts” stamped on them to indicate which side of the LIF has the contacts. When looking at the board, take note that the contacts from the board to the connector are located on the side of the connector with the contacts.



- 2 Insert the cable squarely into the connector.

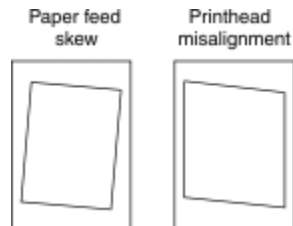
**Note:** Verify that the cable is installed straight into the connector. If the cable is not installed properly, then intermittent failures could occur.



## Printhead assembly mechanical adjustment

A printhead needs to be correctly positioned after it has been removed. Use a pencil to mark the screw locations of the old printhead on the metal frame. Align the new printhead relative to the location of the old printhead.


**Note:** Skew is caused by a sheet being fed through the printer while misaligned. The entire image is rotated relative to the sheet edges. However, a mechanically misaligned printhead causes the horizontal lines to appear skewed, while the vertical lines remain parallel to the vertical edges. There are no adjustments for skew. Check the pick tires for wear, the paper path for obstructions, the fuser for proper setting, and the tray paper guides for fit to the media.



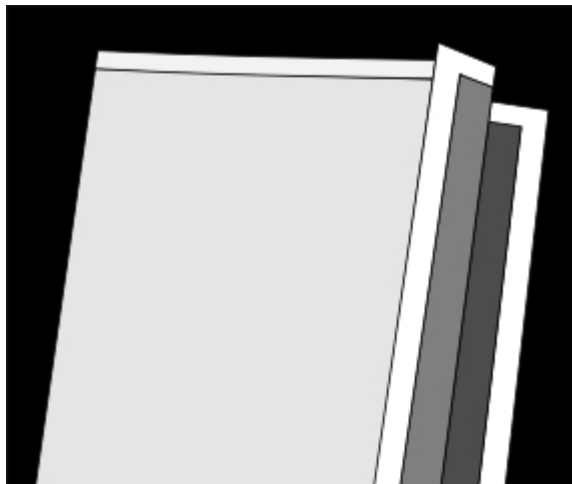
To adjust the printhead:

- 1 POR into the Diagnostics menu, and print a Quick test page:

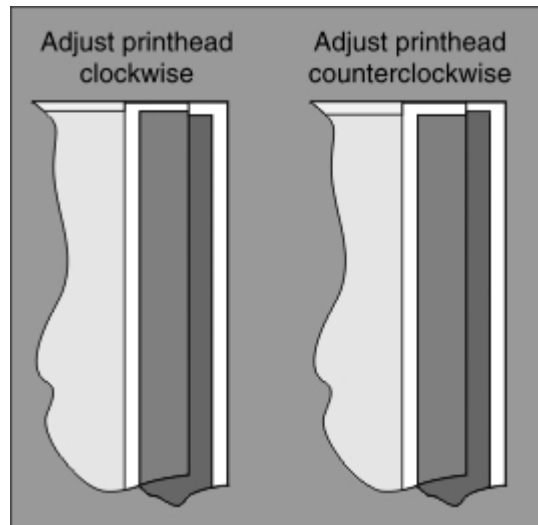
**Diagnostics Menu > Cont Prt Simplex Tray 1**

**Note:** Press  immediately after the paper picks to avoid printing more pages.

- 2 Fold the printed test page on the left side so that a few millimeters of grid lines wrap around the outside of the fold.
- 3 Fold a second vertical fold near the center so that the left side top edge aligns with the right side top edge.



- 4 If the grid lines of the right flap align below the corresponding lines on the left flap, then adjust the printhead clockwise relative to the printer, and recheck. If the grid lines of the left flap align below the corresponding lines of the right side, then adjust the printhead counterclockwise.



- 5 Print again a Quick test page, and check if adjustments are still needed.
- 6 After obtaining a properly adjusted image on the paper, tighten all the screws.

## Removal procedures

Keep the following tips in mind as you replace parts:

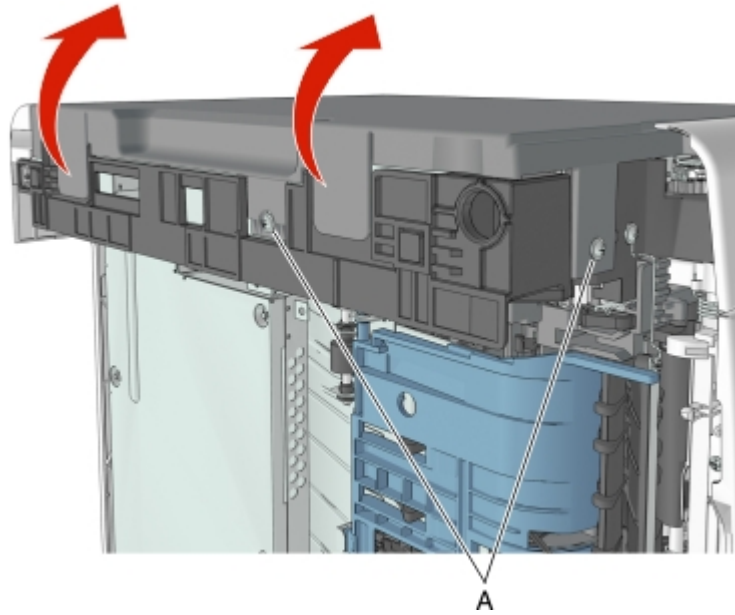
- Some removal procedures require removing cable ties. You must replace cable ties during reassembly to avoid pinching wires, obstructing the paper path, or restricting mechanical movement.
- Remove the toner cartridges, imaging unit, and media tray before removing other printer parts. The imaging unit should be carefully set on a clean, smooth, and flat surface. It should also be protected from light while out of the device.
- Disconnect all external cables from the printer to prevent possible damage during service.
- Unless otherwise stated, reinstall the parts in reverse order of removal.
- When reinstalling a part held with several screws, start all screws before the final tightening.

## Left side removals

### Left cover removal

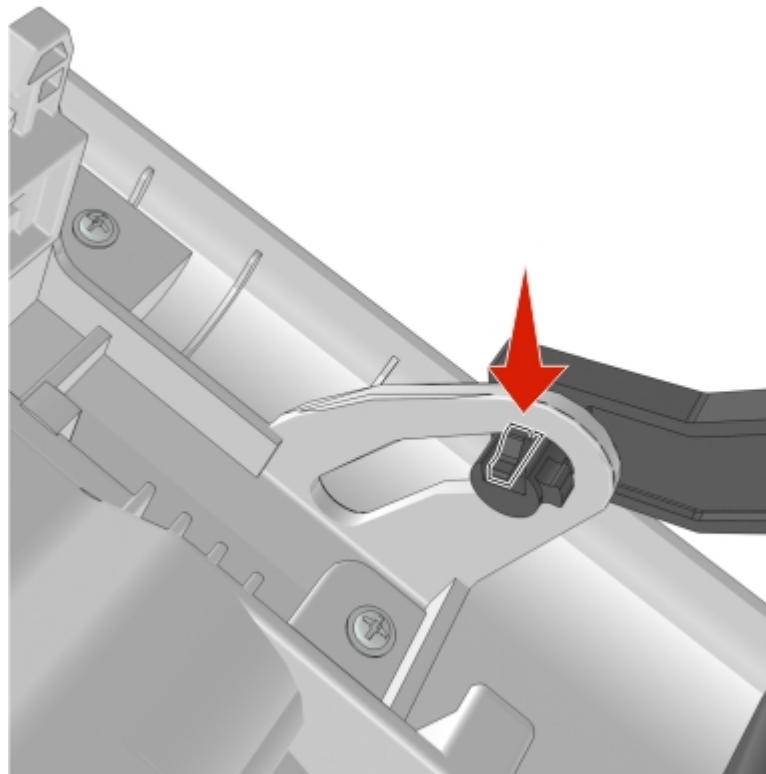
- 1 Position the printer so that it sits on its right side.
- 2 Open the front door.
- 3 Remove the two screws (A) securing the left cover.

- 4 Release the latches, and swing the left cover upward to remove.

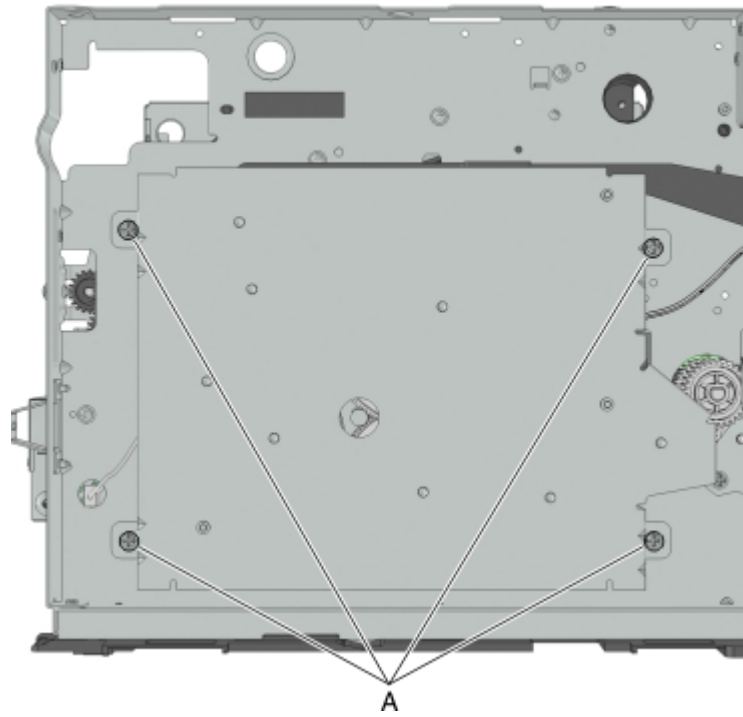


### Main drive gearbox removal

- 1 Remove the left cover. See **“Left cover removal”** on page 144.
- 2 Squeeze the latch, and then detach the link from the front door.

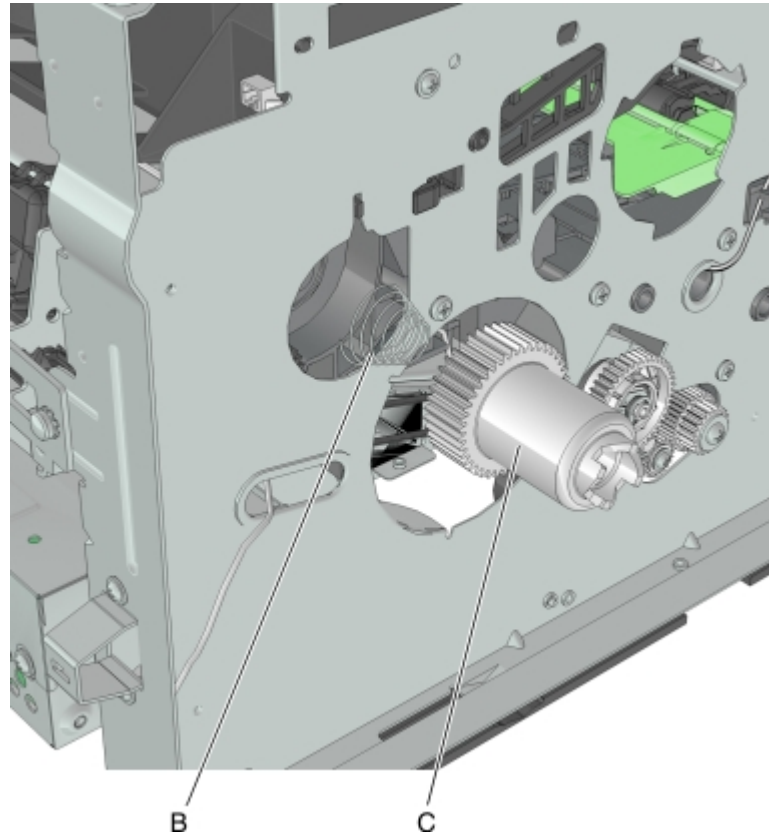


- 3 Remove the 4 screws (A), and then remove the main drive gearbox.



- 4 Disconnect the cable from the main drive gearbox.

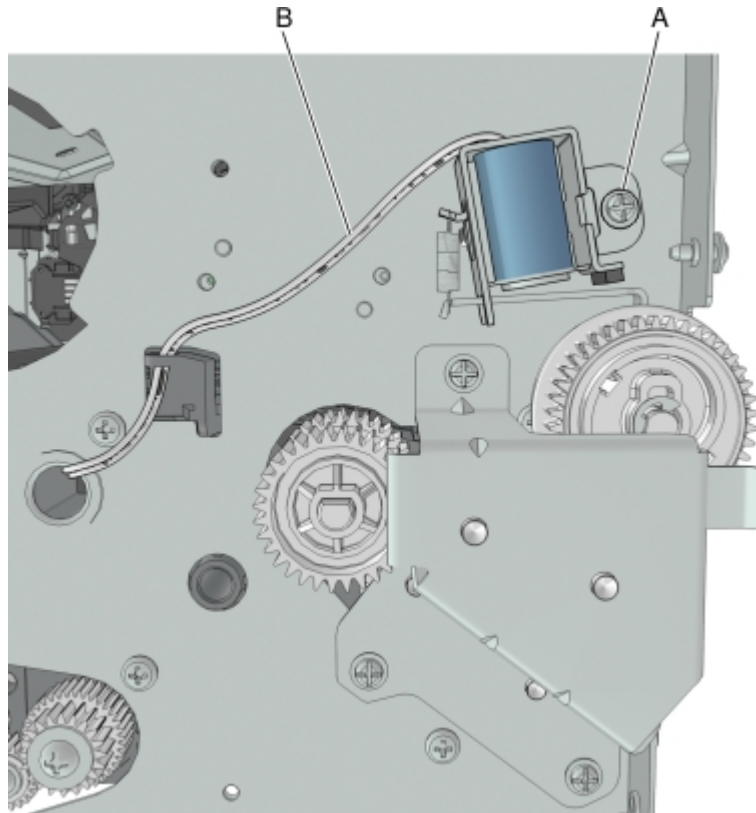
- 5 Remove the spring (B) and the fuser gear (C).



## MPF solenoid removal

- 1 Remove the left cover. See **“Left cover removal”** on page 144.
- 2 Remove the main drive gearbox. See **“Main drive gearbox removal”** on page 145.
- 3 Remove the screw (A).

- 4 Cut the cable (B) not less than 1 inch from the solenoid.

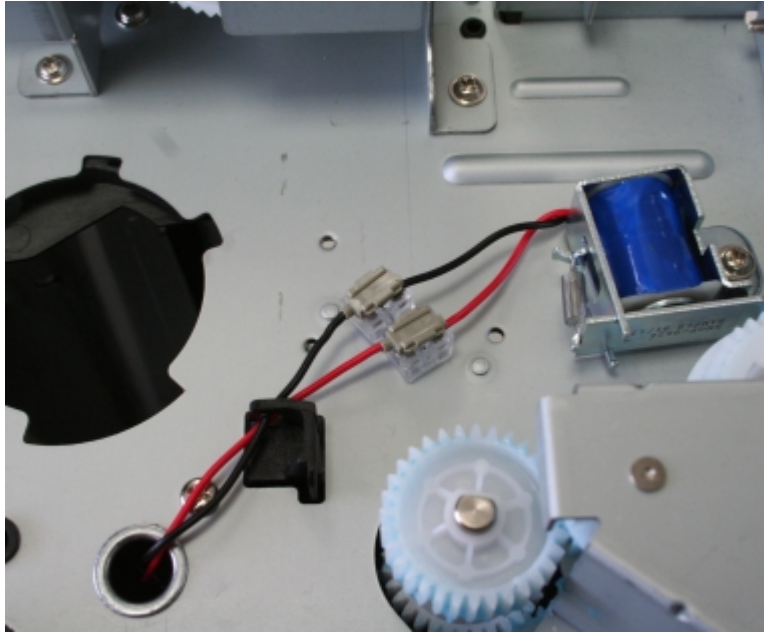


**Installation notes:**

- a Cut the replacement solenoid cable not less than 1 inch from the solenoid.
- b Strip a 1/8-in. length of insulation from the ends of all cables.
- c Insert a wire from the printer into one end of the insulated displacement connector (IDC).  
**Note:** Make sure the stripped end of the wire is positioned under the contact element.
- d Insert a wire of the same color from the solenoid into the other end of the IDC.  
**Note:** Make sure the stripped end of the wire is positioned under the contact element.
- e Squeeze the IDC to partially lock the wires in place, and then use a pair of pliers to crimp the IDC.
- f Repeat steps c–e for the other wire.
- g Reinstall the MPF solenoid.

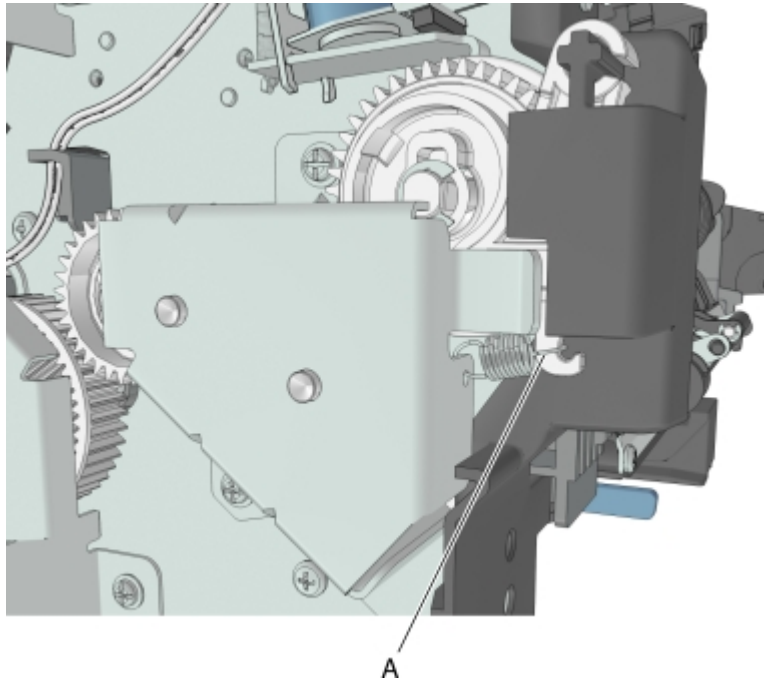


- h** Secure the cable to the holder.

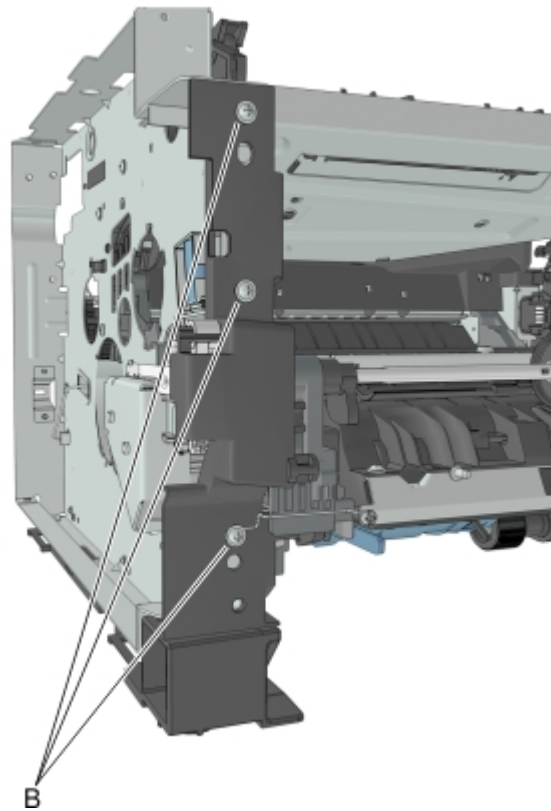


## MPF gearbox removal

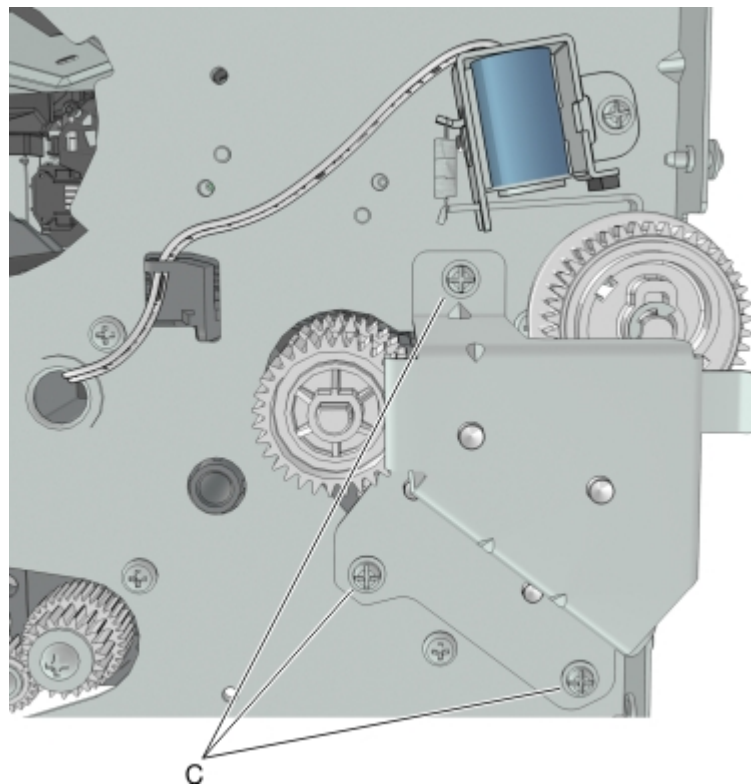
- 1 Remove the left cover. See **“Left cover removal”** on page 144.
- 2 Remove the main drive gearbox. See **“Main drive gearbox removal”** on page 145.
- 3 Remove the front door. See **“Front door removal”** on page 181.
- 4 Disconnect the spring from the printer (A).



- 5 Remove the three screws (B), and then remove the left front mount.

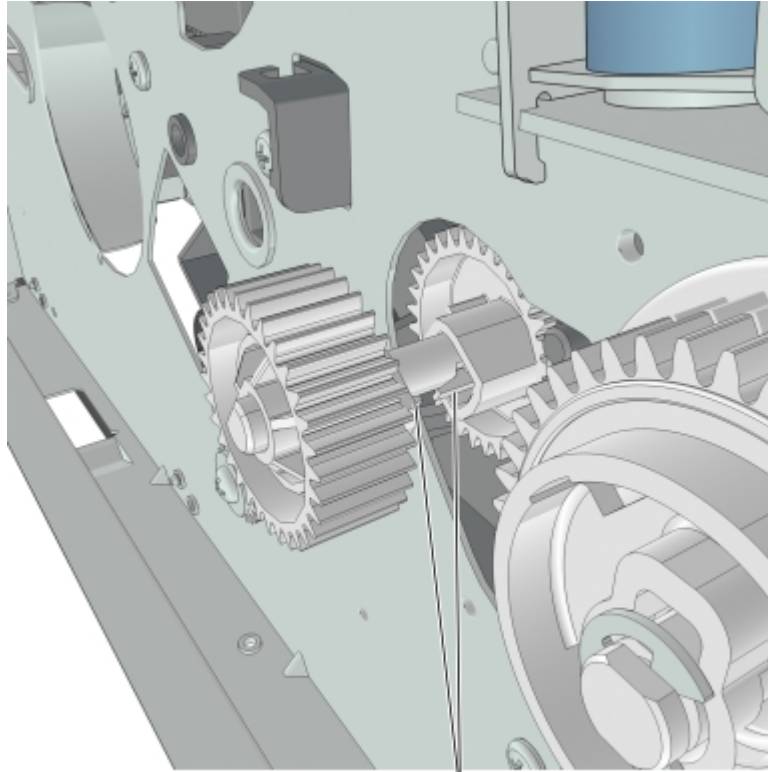


- 6 Remove the three screws (C), and then remove the MPF gearbox.



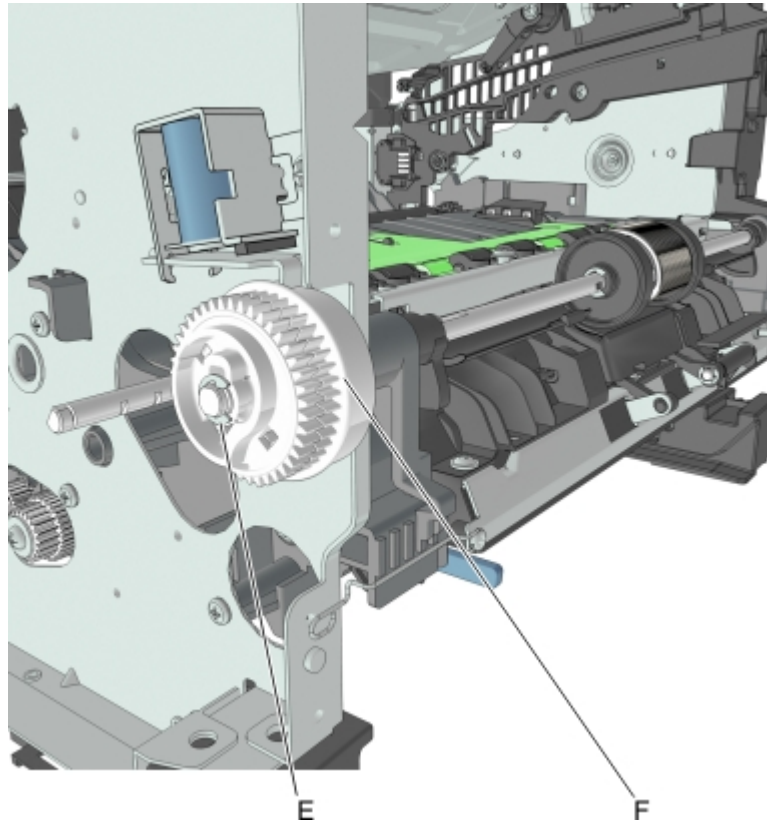
Repair information

- 7 Release the two latches (D), and then remove the main input drive gears.



D

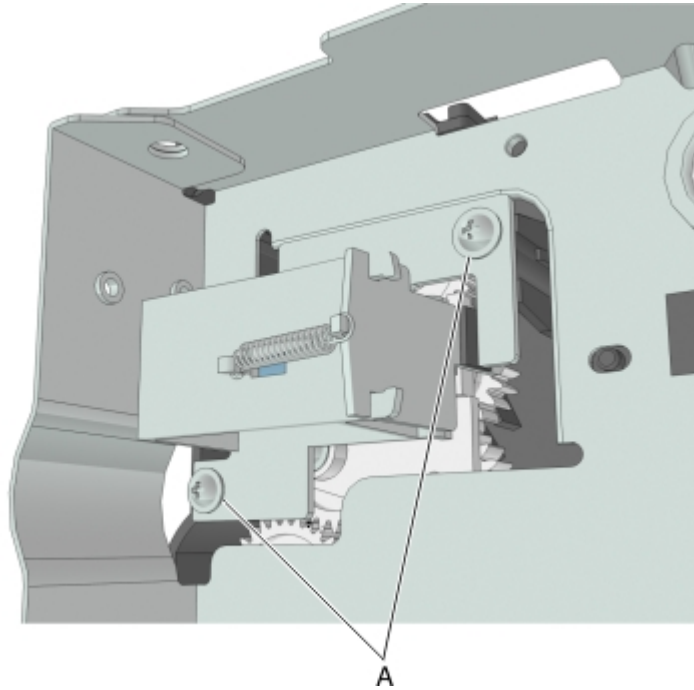
- 8 Remove the E-clip (E), and then remove the MPF sector gear (F).



## Reverse solenoid removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the left cover. See **“Left cover removal” on page 144.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Remove the top cover. See **“Top cover removal” on page 210.**
- 5 Remove the cooling fan. See **“Cooling fan removal” on page 161.**
- 6 Disconnect cable JDRSOL1 from the controller board.

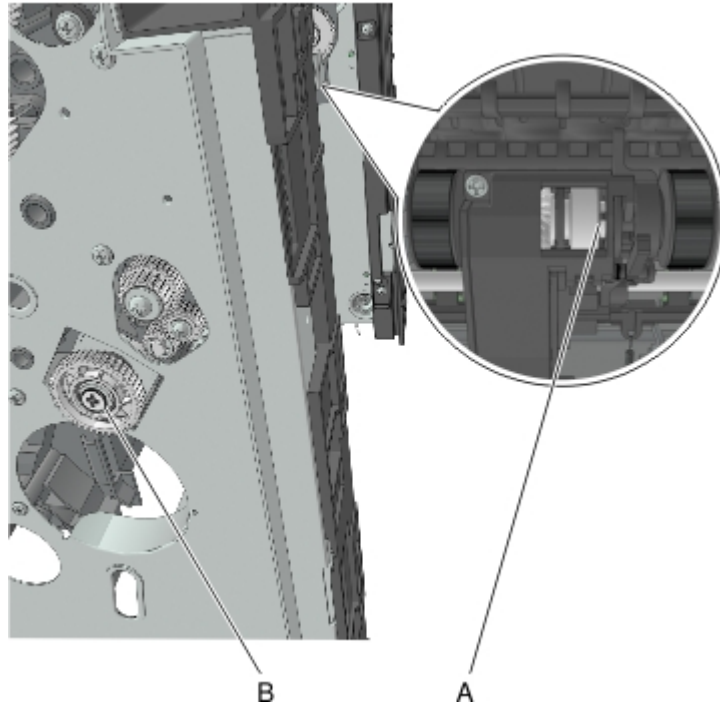
- 7 Remove the two screws (A) securing the reverse solenoid.



## ACM clutch removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the main drive gearbox. See **“Main drive gearbox removal” on page 145.**
- 3 Position the printer on its rear.
- 4 Use a small flat-head screwdriver to block the roller (A) and prevent the shaft from rotating.

5 While blocking the roller, remove the screw (B).



6 Pull out the ACM clutch, and cut cable close to the clutch to detach it.

**Installation notes:**

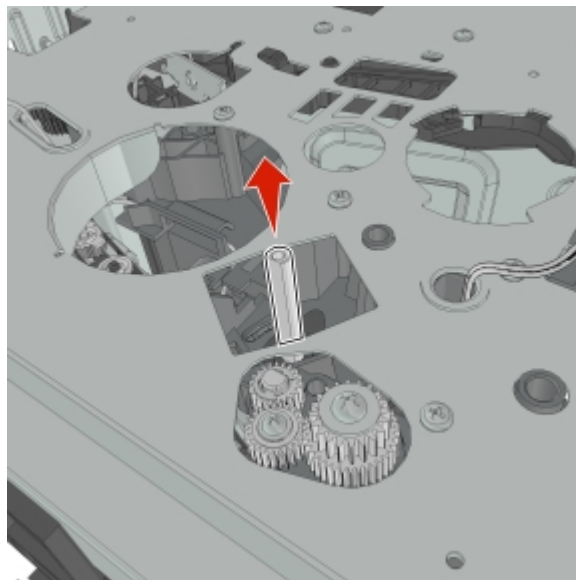
- a Pull the cable to remove any slack, and remove any shrink tubing holding the wires together.



- b** On the replacement clutch, measure 4 inches from the clutch, and then cut the cable.

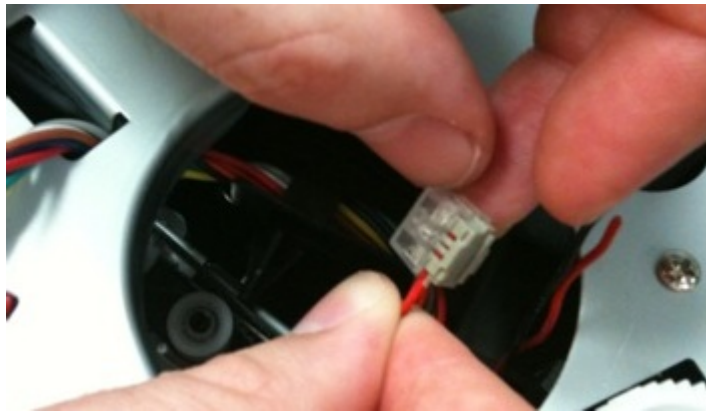


- c** Pull out the shaft.



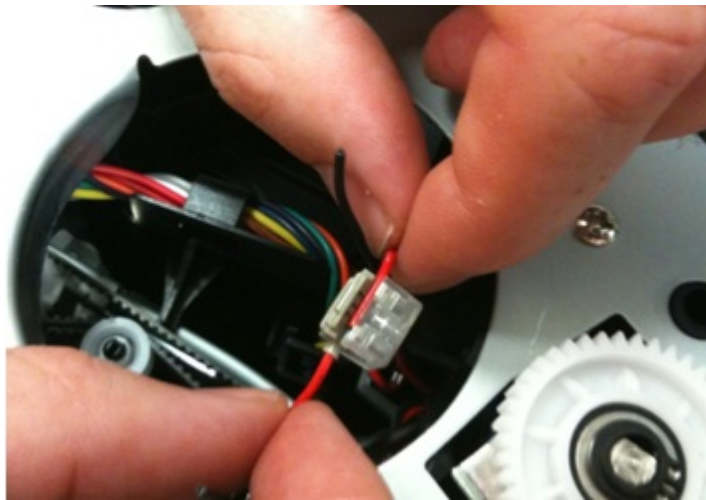
- d** Install the replacement clutch on the shaft.
- e** Insert the red wire from the printer into the insulated displacement connector (IDC).  
**Note:** Make sure that the wire is positioned under the contact element.





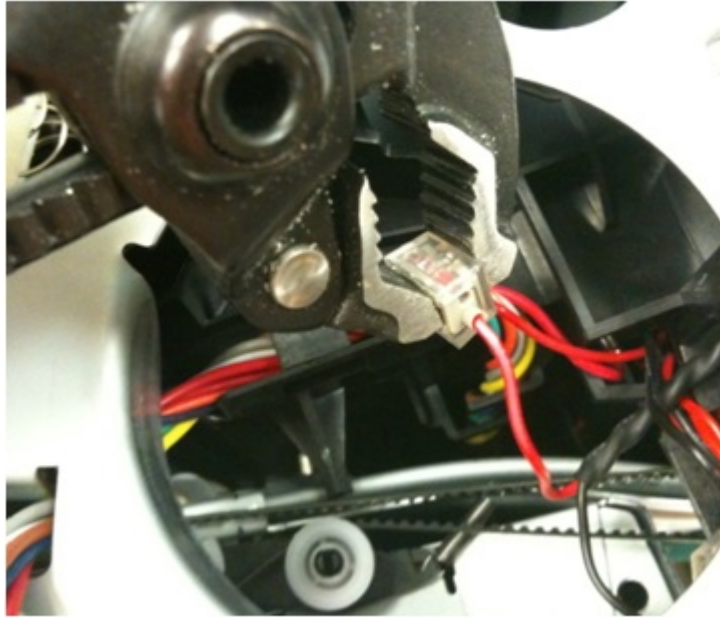
**f** Insert the red wire from the clutch into the IDC.

**Note:** Make sure that the wire is positioned under the contact element.



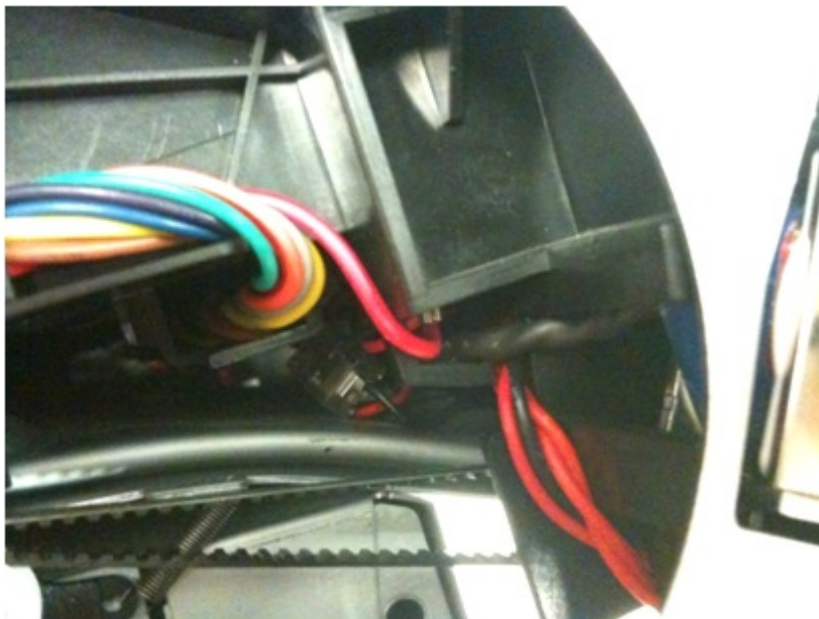


- g** Squeeze the IDC to partially lock the wires in place, and then use a pair of pliers to crimp the IDC.



- h** Repeat steps e–g for the black wire.
- i** Tuck the IDCs securely above the duplex.

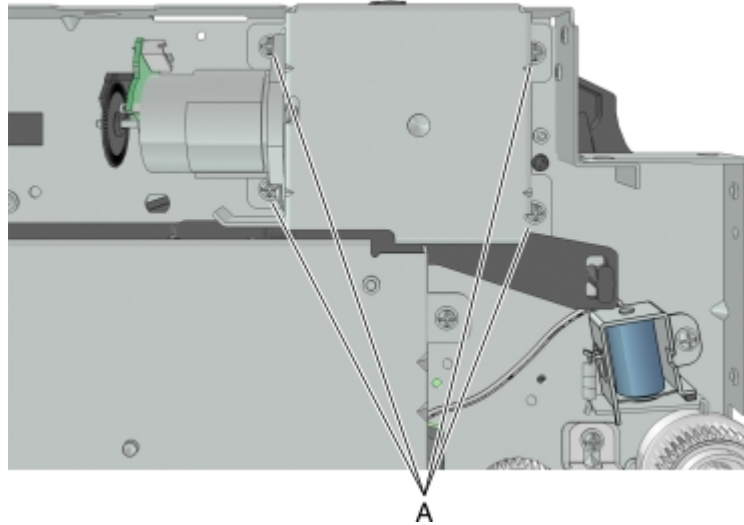
**Note:** If needed, use a cable tie to secure the cable in place. Make sure cable tie does not obstruct the paper path.



- j** Print the menu pages to test the printer.

## Cartridge gearbox removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the four screws (A) securing the cartridge gearbox.

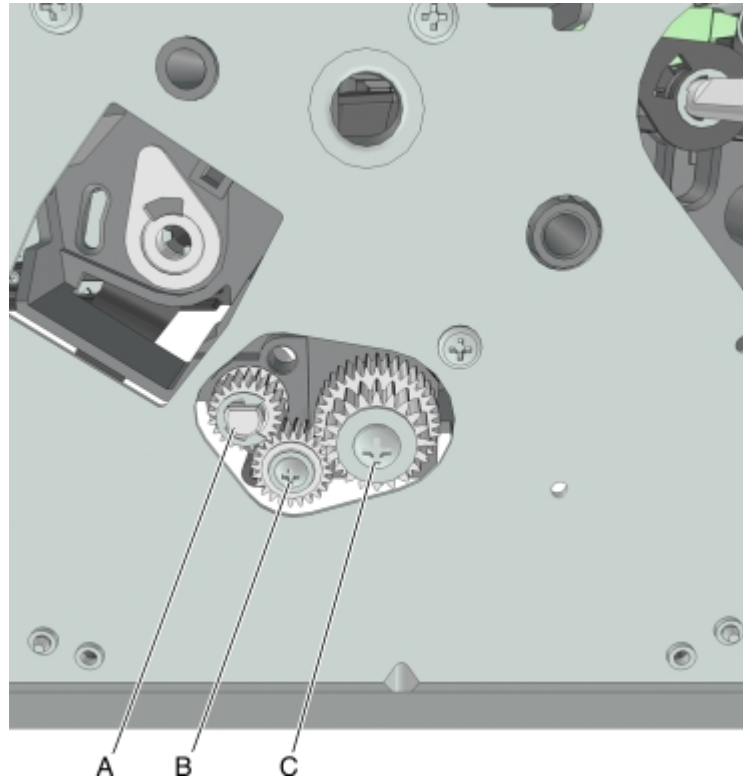


- 3 Disconnect the cable from the cartridge gearbox.

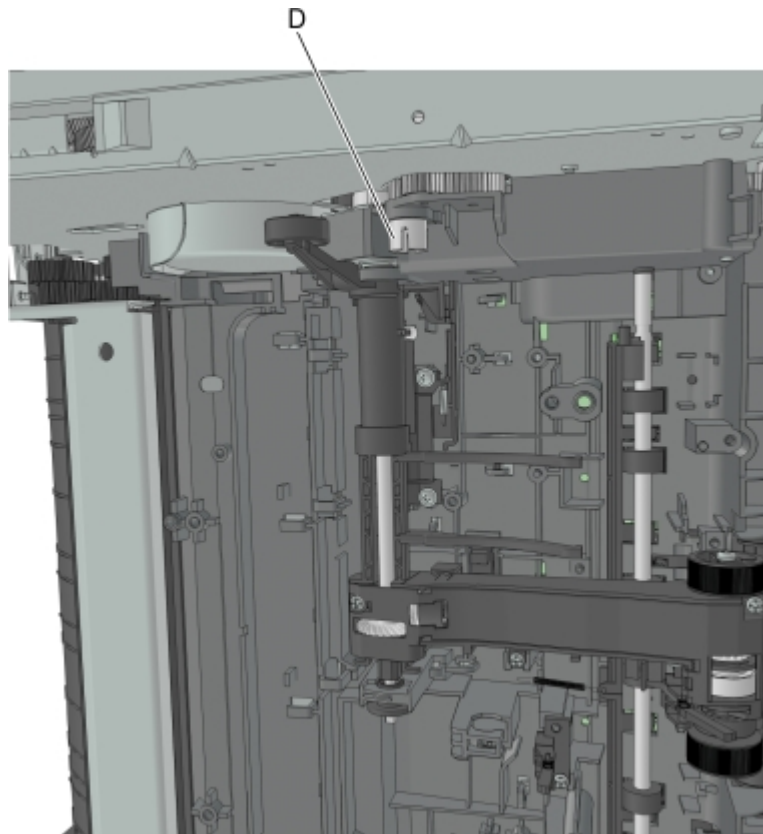
## Duplex gear assembly removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 3 Remove the power supply. See **“Power supply removal” on page 189.**
- 4 Remove the power supply shield. See **“Power supply shield removal” on page 190.**
- 5 Remove the duplex. See **“Duplex removal” on page 191.**
- 6 Position the printer so that it sits on its right side.
- 7 Remove the E-clip (A).
- 8 Remove the screw (B).
- 9 Remove the screw (C).

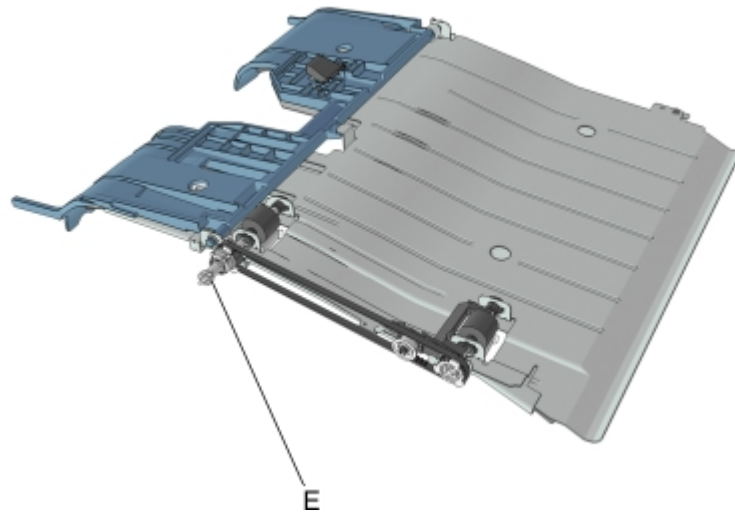
**10** Remove the three gears.



**11** From behind the three gears, remove the duplex coupling (D).



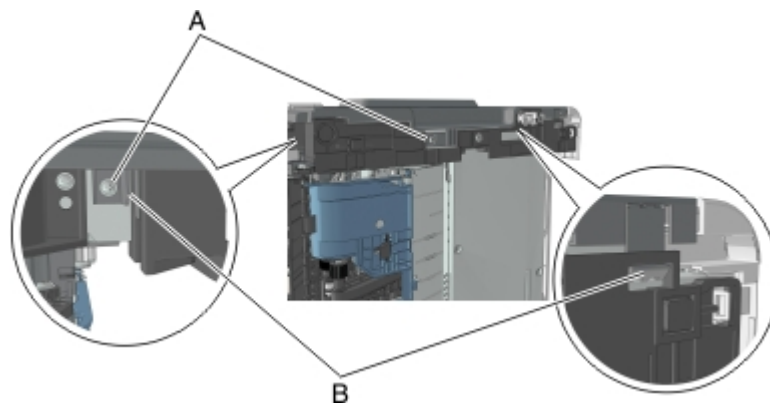
- 12 Remove the duplex link (E) from the duplex.



## Right side removals

### Right cover removal

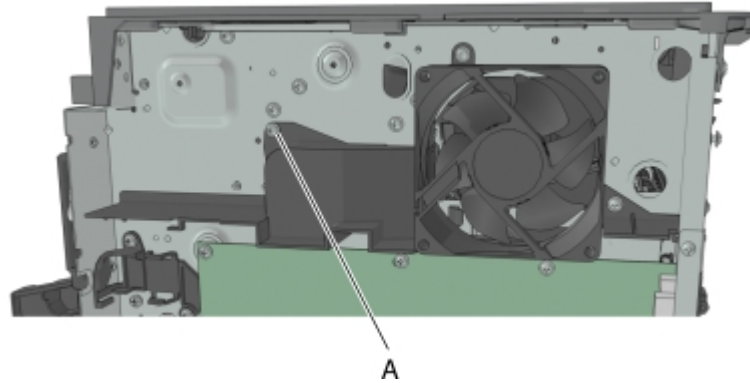
- 1 Open the front door.
- 2 Position the printer so that it sits on its left side.
- 3 Remove the two screws (A) securing the right cover.
- 4 Release the latches (B) to remove the right cover.



## Cooling fan duct removal

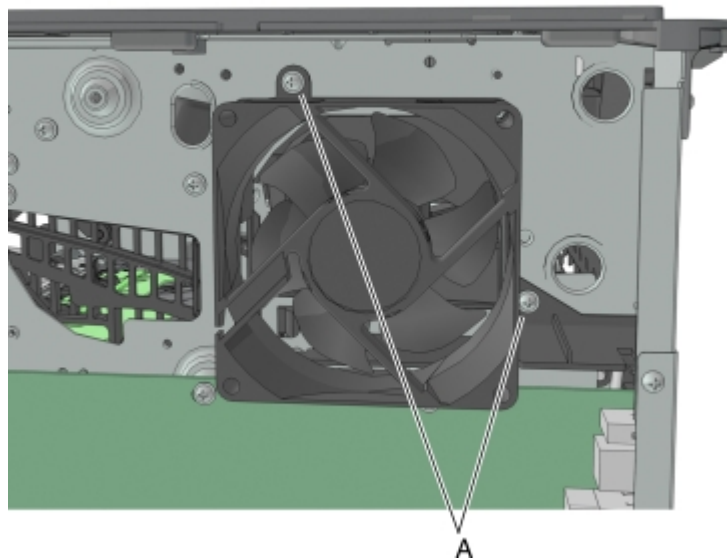
**Note:** This is not a FRU.

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the screw (A), and then remove the cooling fan duct.

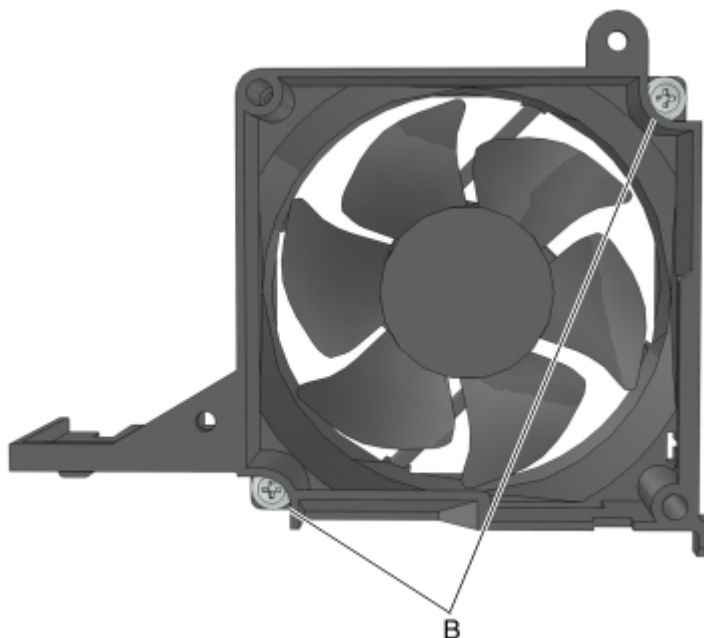


## Cooling fan removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the cooling fan duct. See **“Cooling fan duct removal” on page 161.**
- 3 Disconnect the cable JFAN1 or JFAN2 from the controller board.
- 4 Remove the two screws (A) securing the fan mount to the printer.



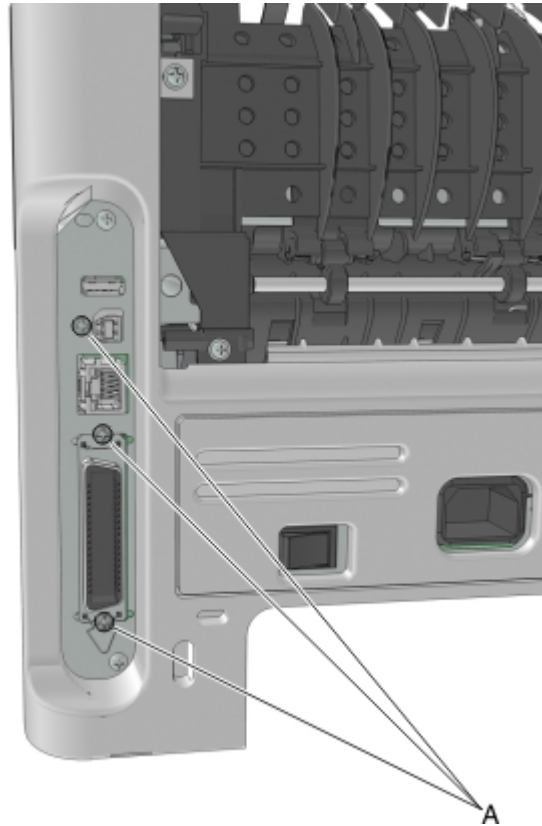
- 5 Remove the two screws (B) securing the fan to the fan mount.



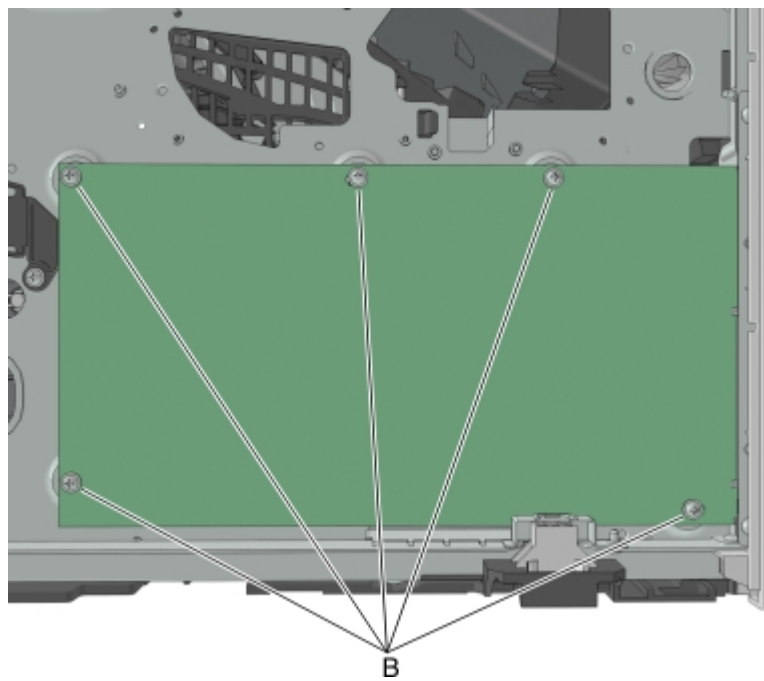
## Controller board removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Disconnect all cables from the controller board.

- 3 Remove the three screws (A) from the rear side of the printer.

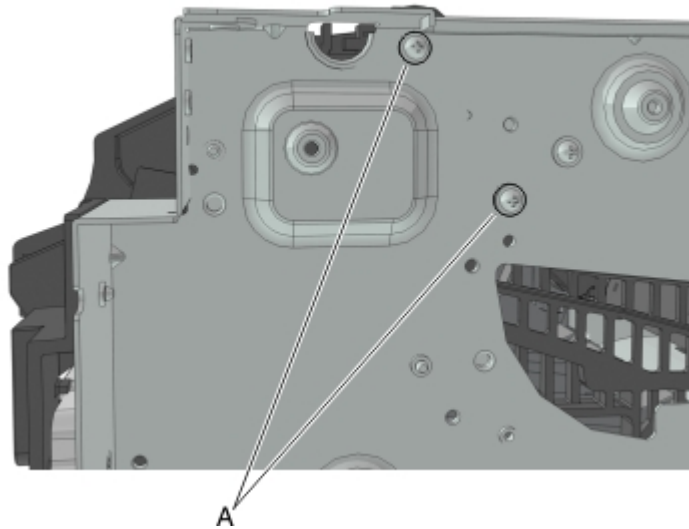


- 4 Remove the five screws (B) securing the controller board.

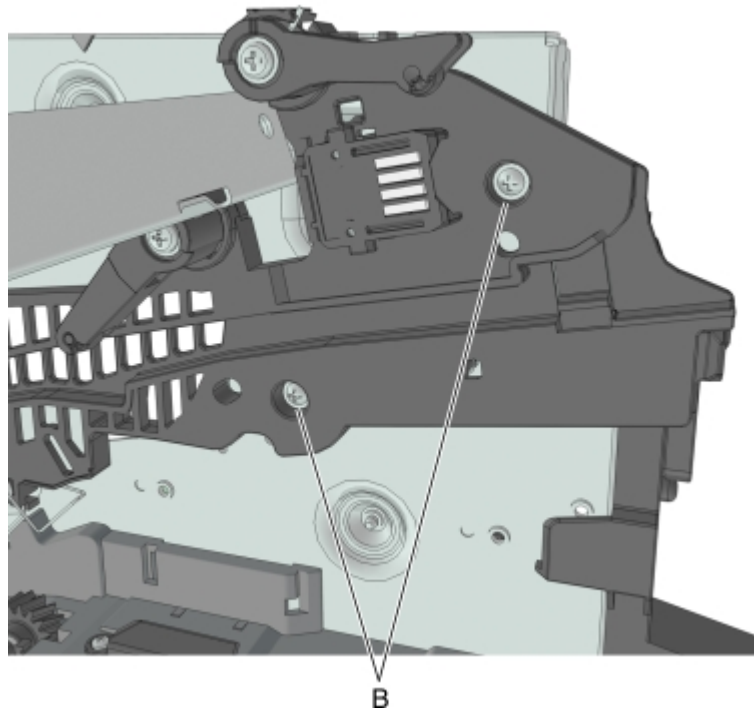


## Toner cartridge smart chip contact removal

- 1 Remove the right cover. See **“Right cover removal”** on page 160.
- 2 Disconnect the cable JARW1 from the controller board.
- 3 Remove the two screws (A).



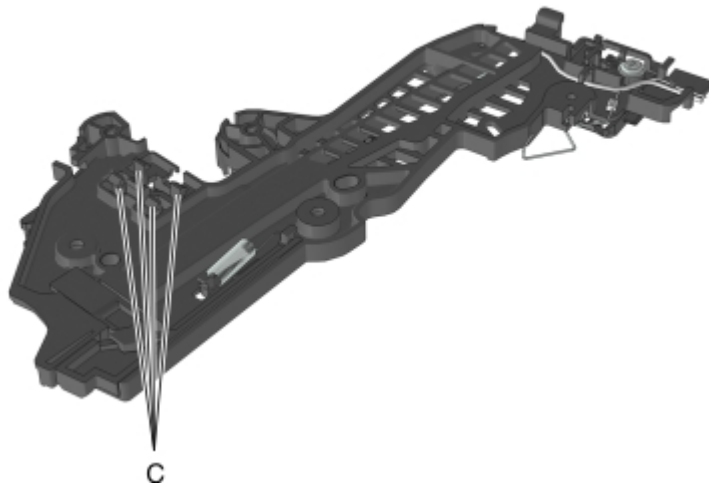
- 4 Remove the two screws (B), and then detach the right cartridge guide.





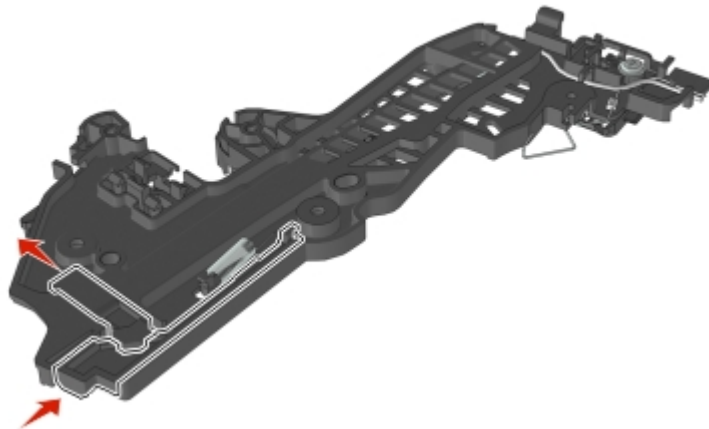
- 5 From behind the right cartridge guide, release the 4 latches (C) to detach the toner cartridge smart chip contact.

**Note:** Pay attention to the original position of the spring and the actuators.



**Installation notes:**

- a Test for proper installation of the spring and the actuators.
- b Press the cartridge actuator. The cartridge lock should move up.



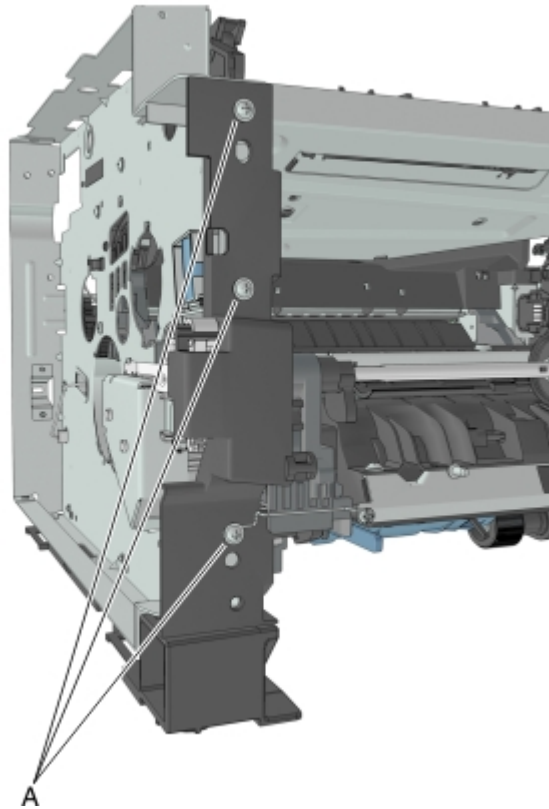
- c Release the cartridge actuator. The cartridge lock should move back to its original position.

## Front removals

### Left front mount removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the front door. See **“Front door removal” on page 181.**

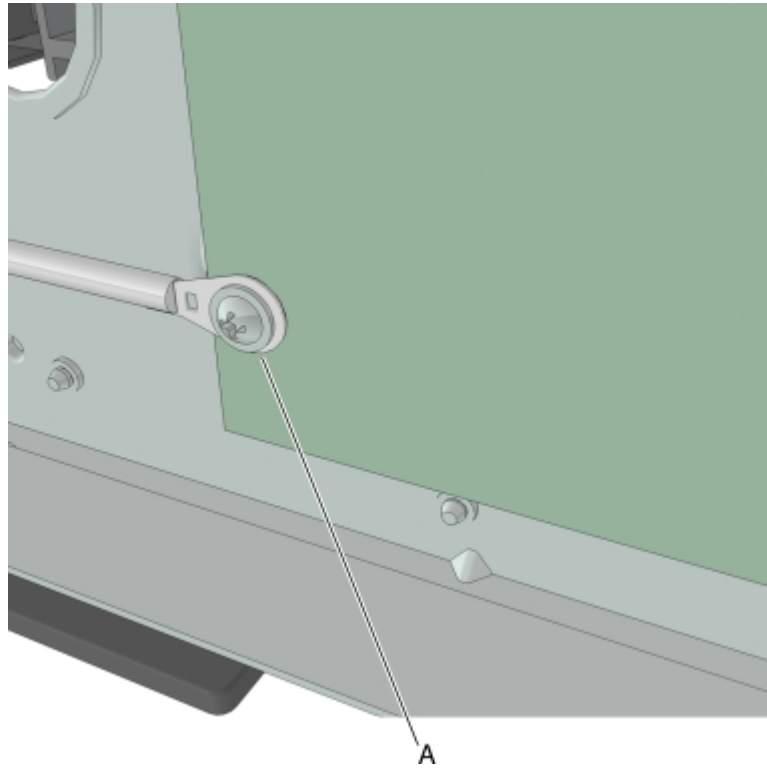
- 3 Remove the three screws (A), and then remove the left front mount.



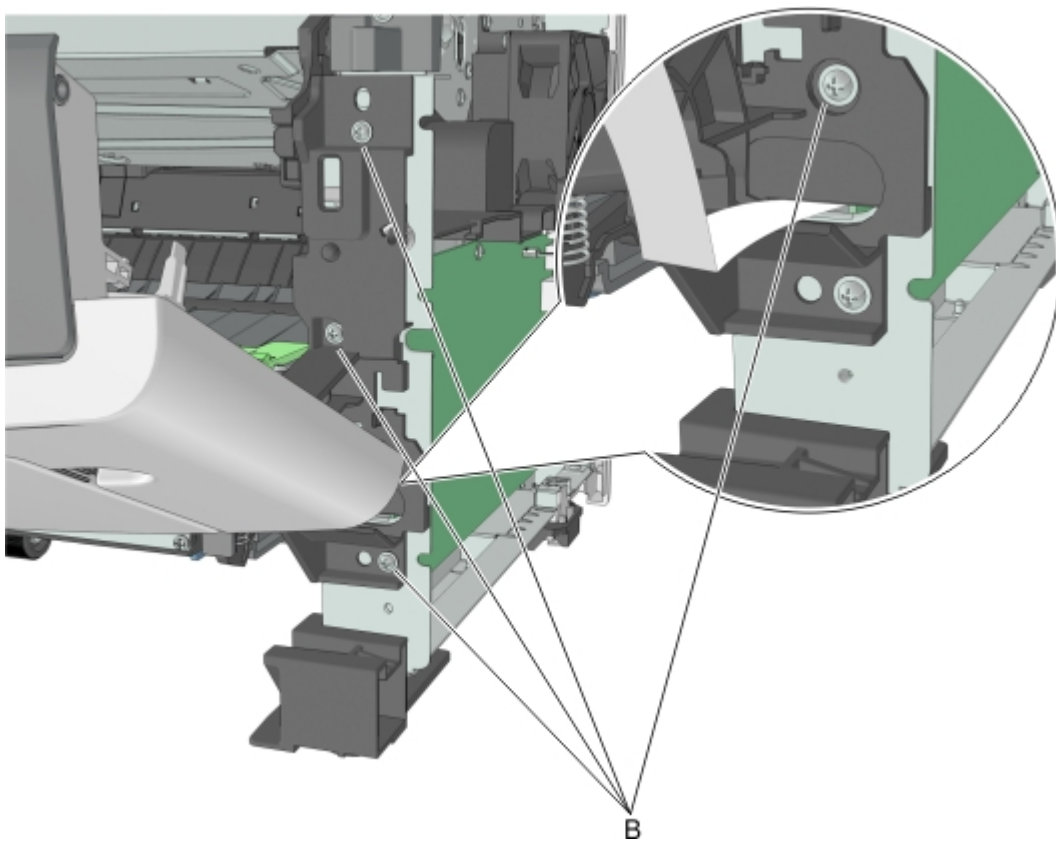
### Right front mount removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Disconnect all control panel cables from the controller board.
- 3 Disconnect the cable JCVR1 from the controller board.

- 4 Remove the screw (A) to disconnect the ground wire.



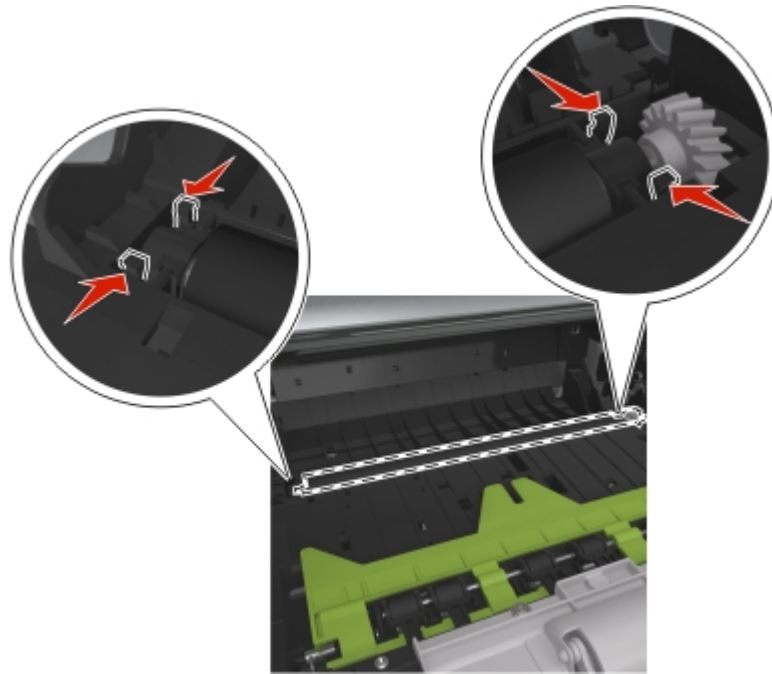
- 5 Remove the four screws (B), and then remove the right front mount.



## Transfer roll removal

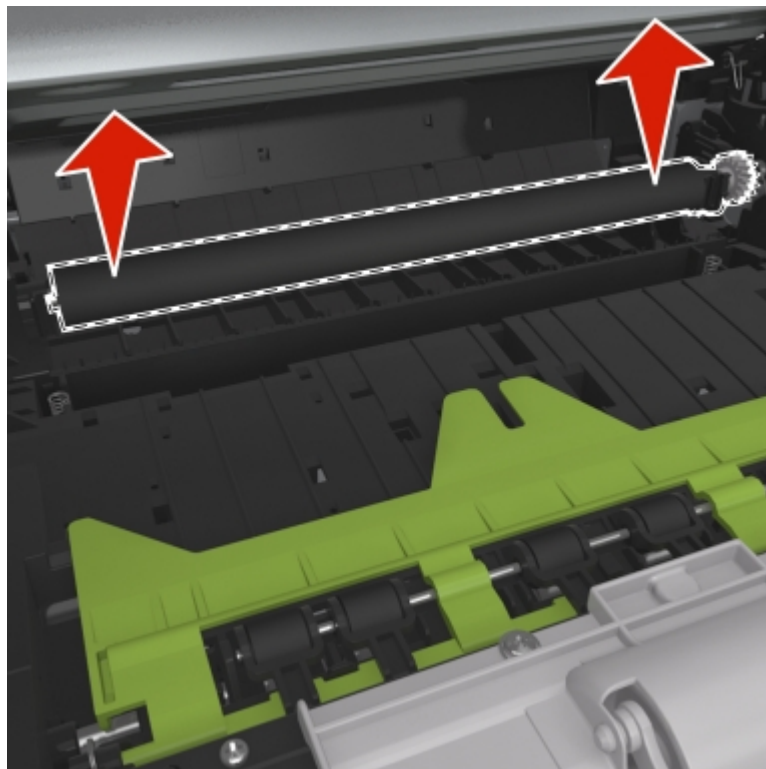
**Warning—Potential Damage:** Do not touch the transfer roll with bare hands. Oil from the skin can damage it.

- 1 Squeeze the latches at each end of the transfer roll.



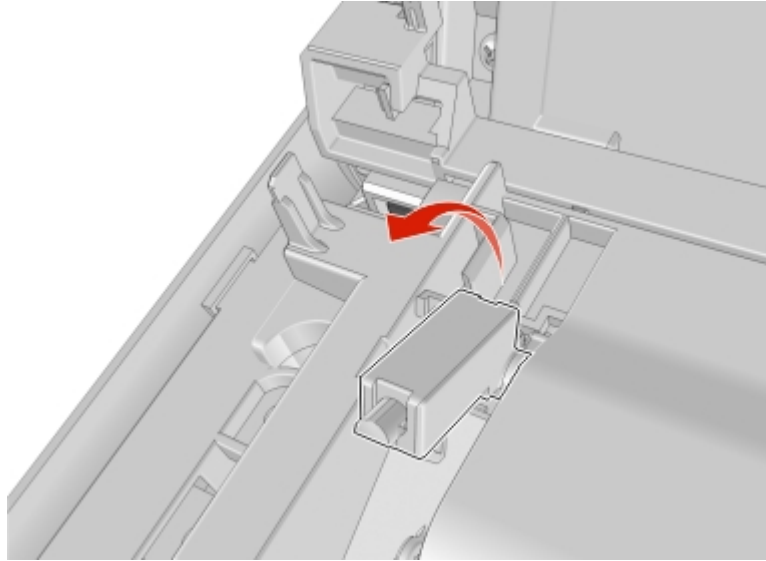
- 2 Lift to remove the transfer roll.

**Warning—Potential Damage:** Do not remove the spring under the left latch. Doing so will damage the printer.

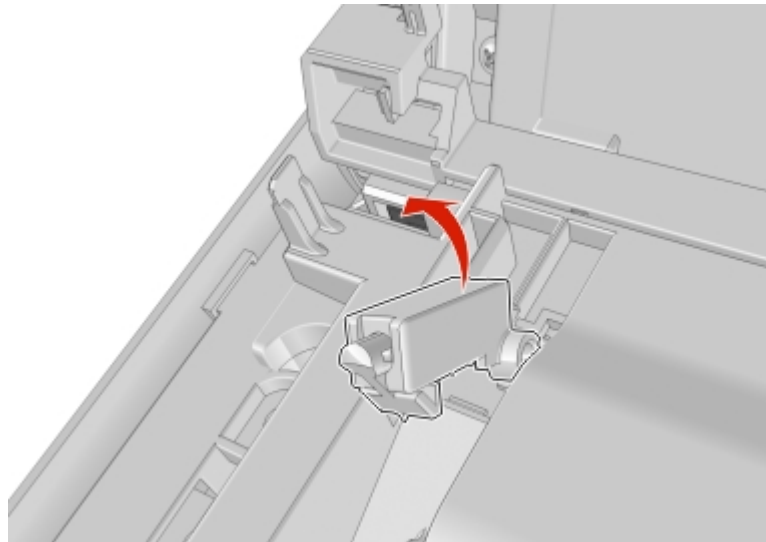


## Cartridge plunger removal

- 1 Open the front door.
- 2 Tilt the cartridge plunger.

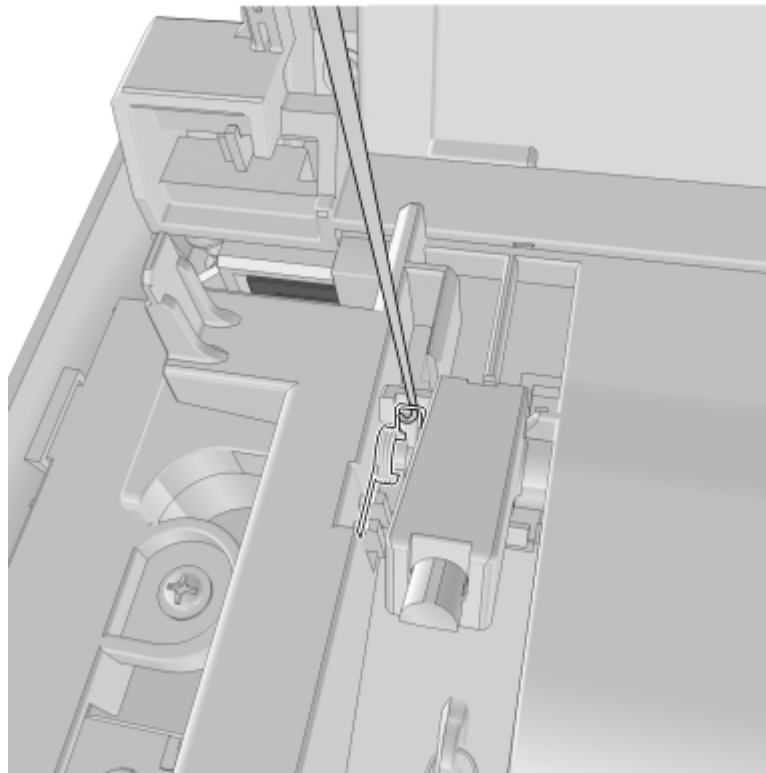


- 3 Twist and then remove the cartridge plunger.

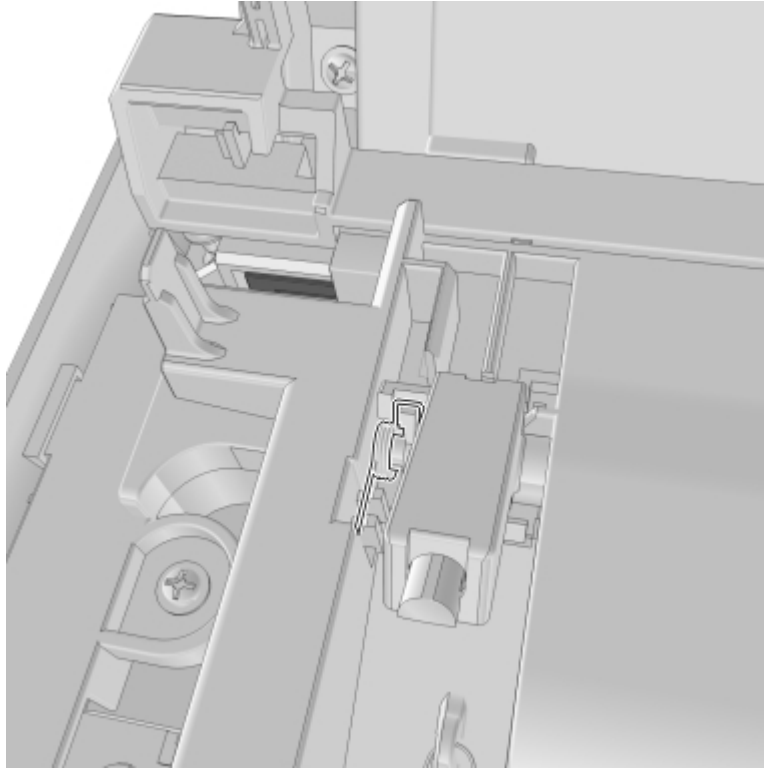


**Installation notes:**

- a** Use a spring hook to hold the spring, and then reinstall the cartridge plunger.

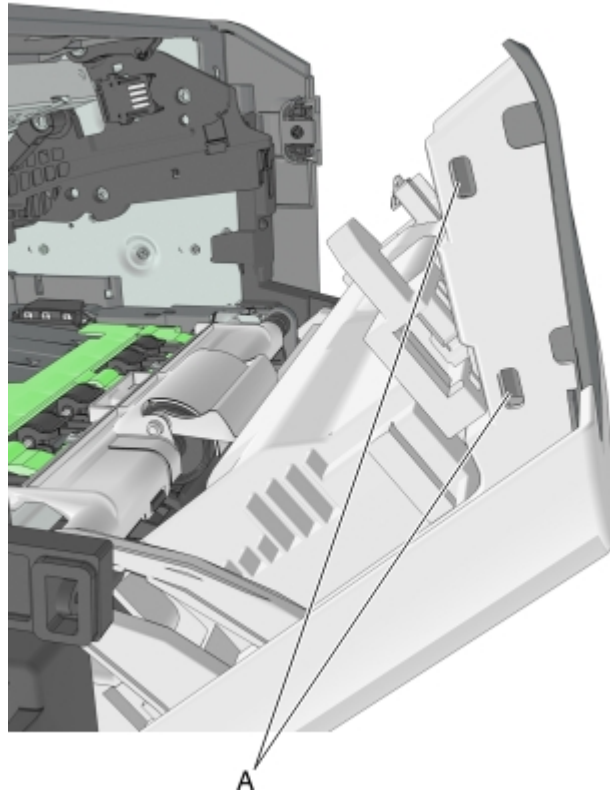


- b** Set the spring over the plunger.



## Bezel removal

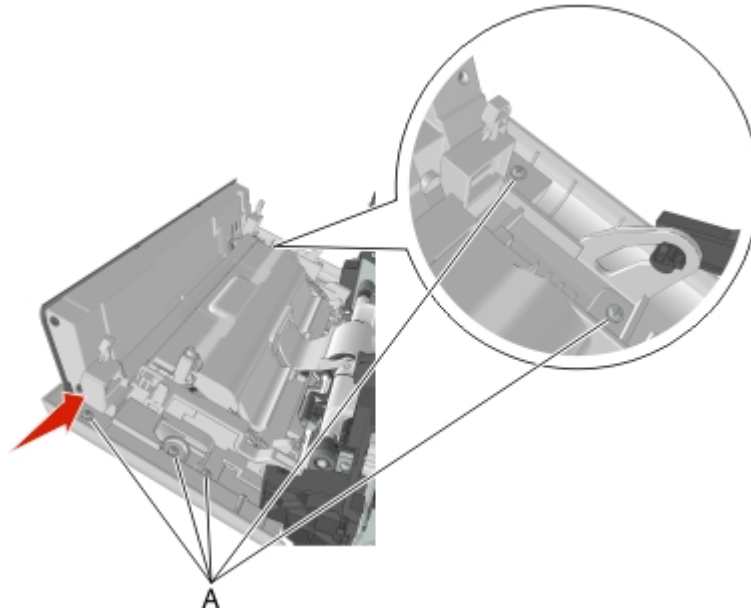
- 1 Open the front door.
- 2 Push the latches (A) at the left side to remove the bezel.





## Nameplate removal

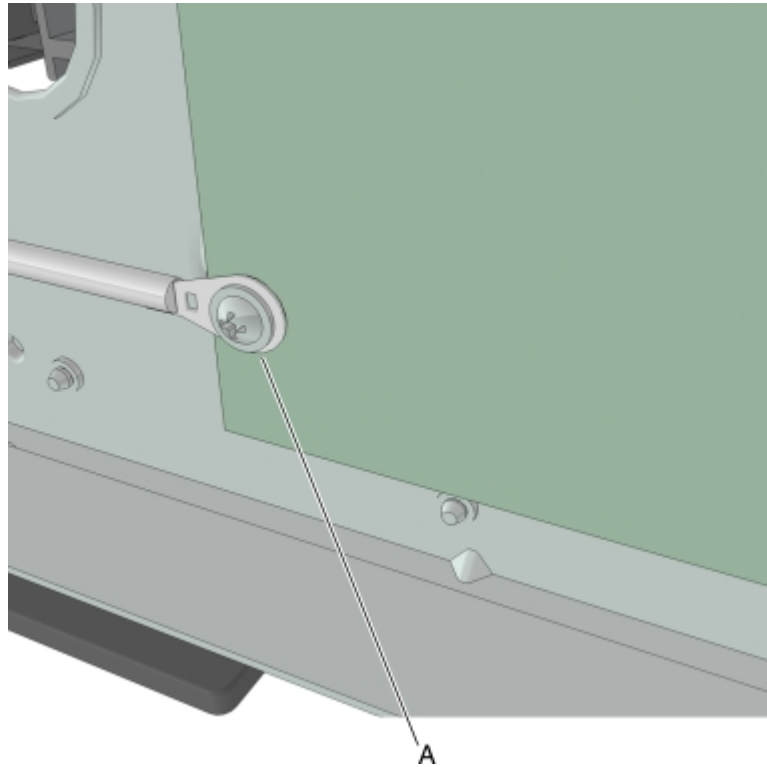
- 1 Open the front door.
- 2 Remove five screws (A) securing the nameplate.



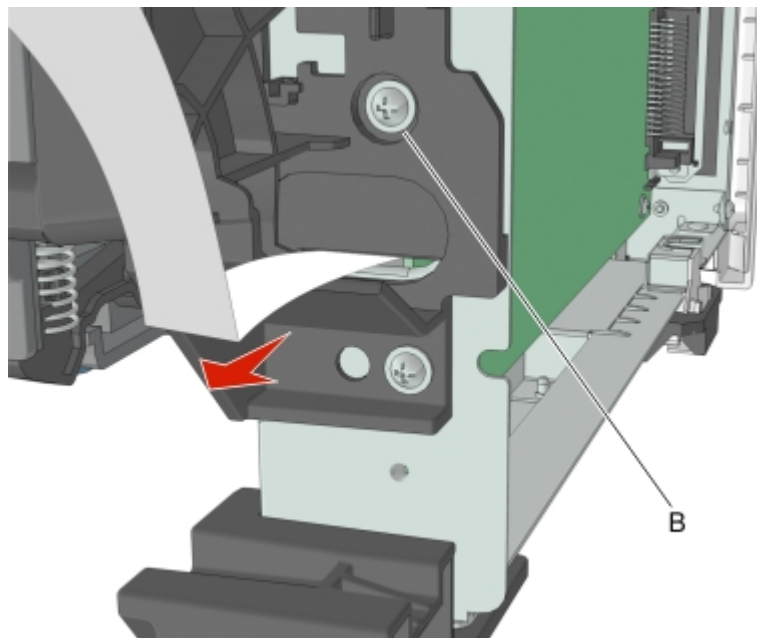
## Control panel assembly removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the nameplate. See **“Nameplate removal” on page 173.**
- 3 Remove the bezel. See **“Bezel removal” on page 172.**

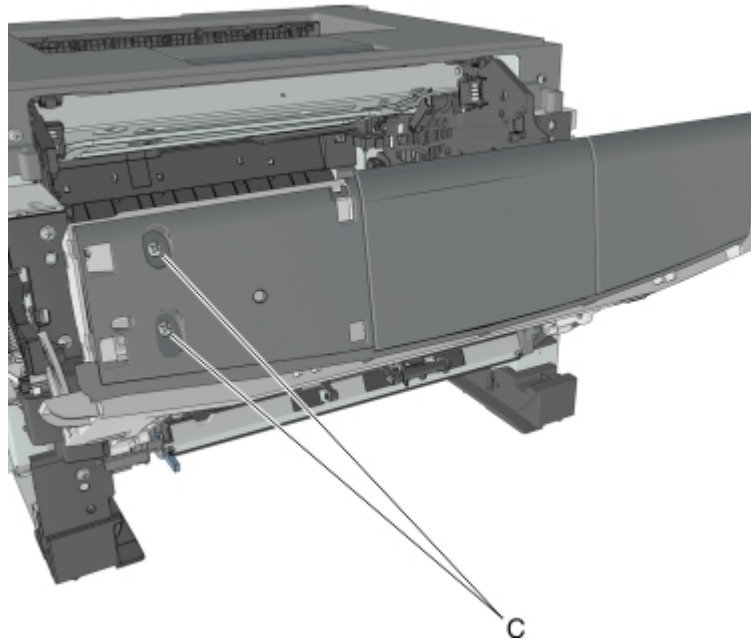
- 4 Remove the screw (A) securing the ground connector to the controller board.



- 5 Disconnect the cable JOPP1 or JOPP2 from the controller board.
- 6 Remove the screw (B) from the right front mount, and route the cable through the slot.



- 7 Remove the two screws (C) securing the control panel assembly.

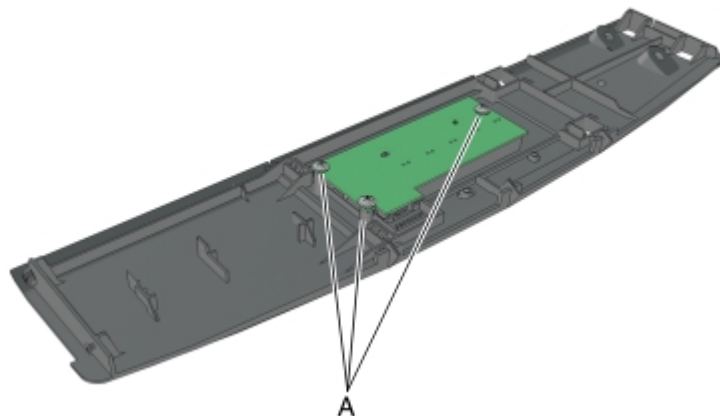


- 8 Route all cables off the printer to completely remove the control panel assembly.

## UICC removal

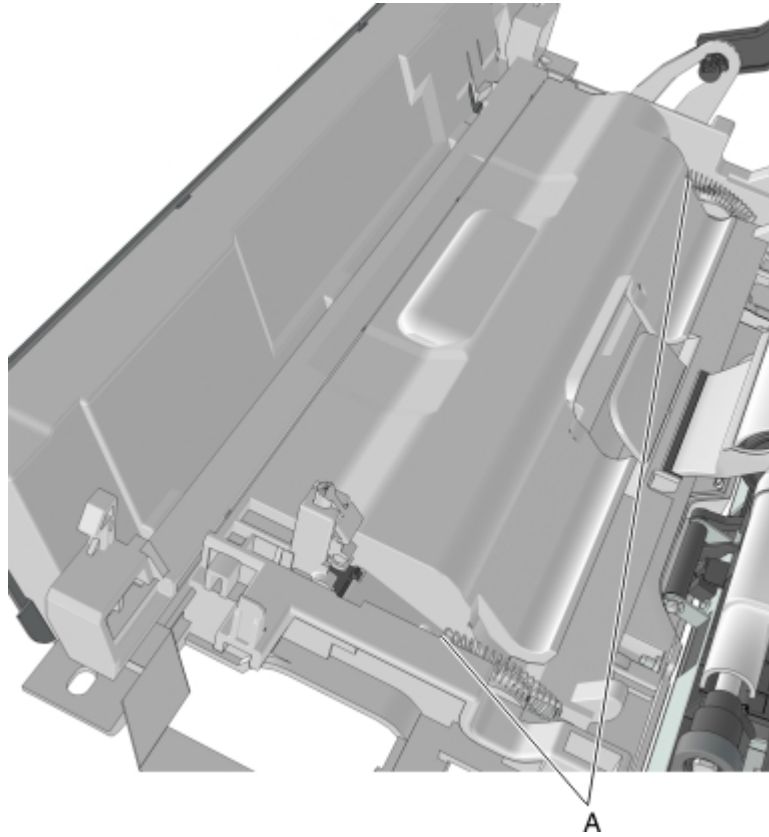
- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the nameplate. See **“Nameplate removal” on page 173.**
- 3 Remove the bezel. See **“Bezel removal” on page 172.**
- 4 Remove the control panel assembly. See **“Control panel assembly removal” on page 173.**
- 5 Remove the three screws (A), and then remove the UICC.

**Note:** The control panel buttons must remain with the control panel assembly.

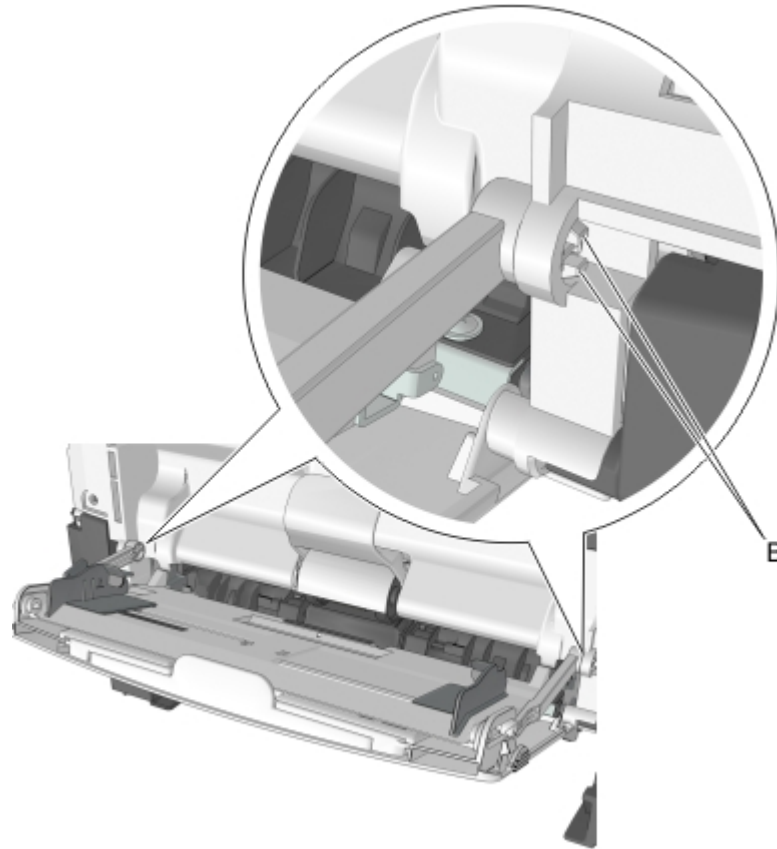


## MPF assembly removal

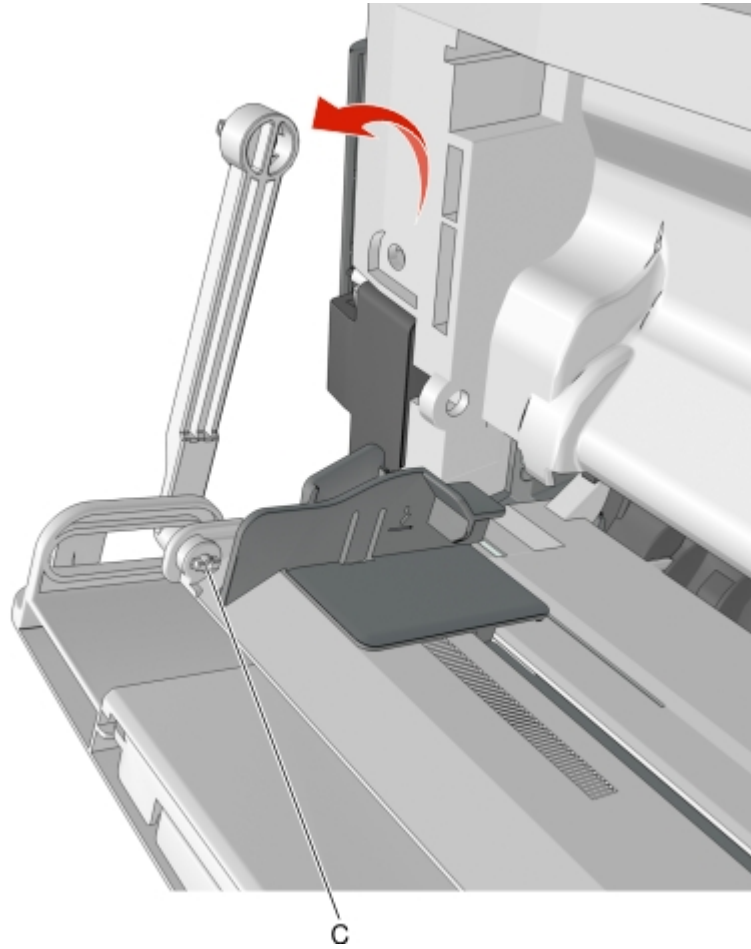
- 1 Remove the nameplate. See **"Nameplate removal"** on page 173.
- 2 Remove the two springs (A).



**3** Squeeze the latches (B) to release the left and right links.

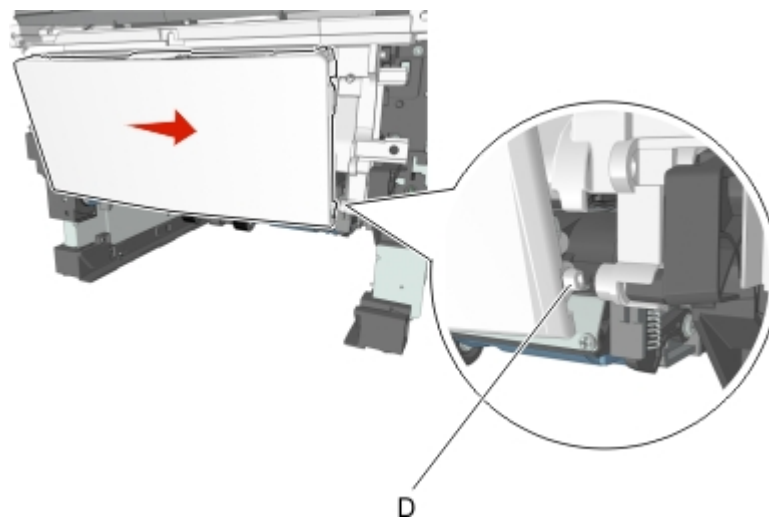


- 4 Release the lock (C) remove the MPF link. Do the same on the other MPF link.



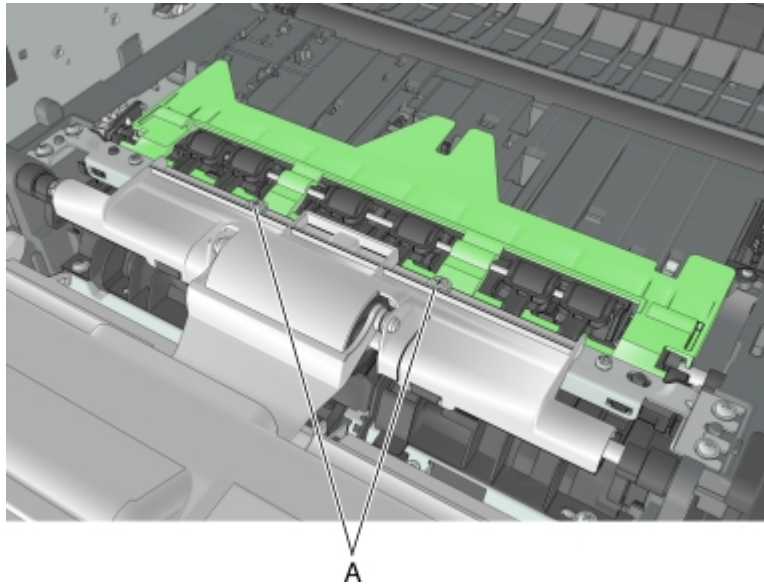
- 5 Release the right tab (D) of the MPF.

- 6 Slide the MPF assembly to remove.



## MPF pick roller cover removal

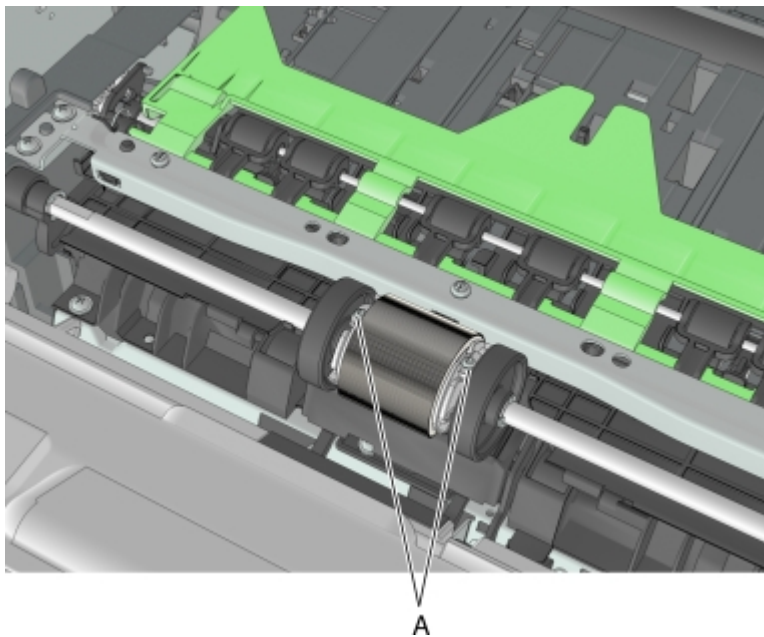
- 1 Open the front door.
- 2 Remove the two screws (A), and then remove the MPF pick roller cover.



## MPF pick roller removal

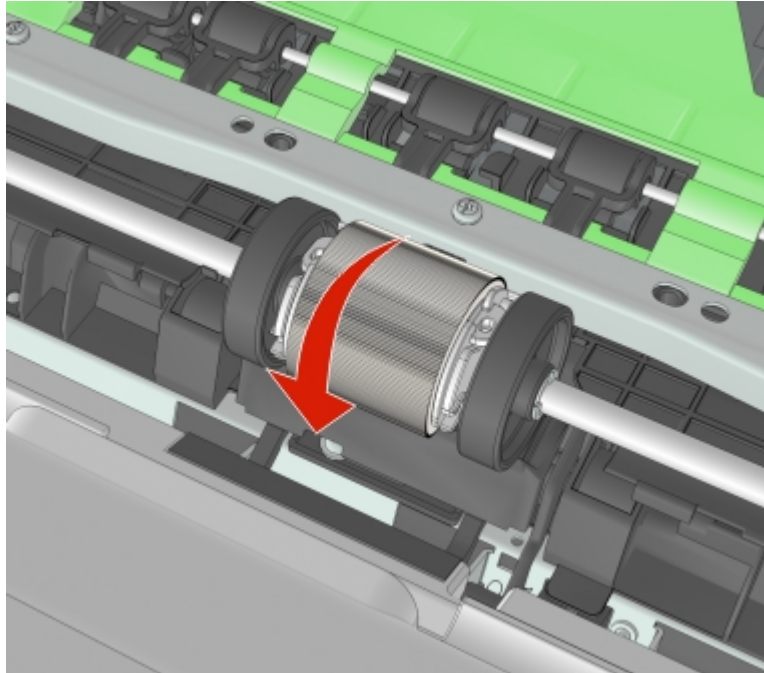
- 1 Remove the MPF pick roller cover. See **“MPF pick roller cover removal”** on page 179.
- 2 Remove the two screws (A).

**Note:** Use a #1 Phillips screwdriver.



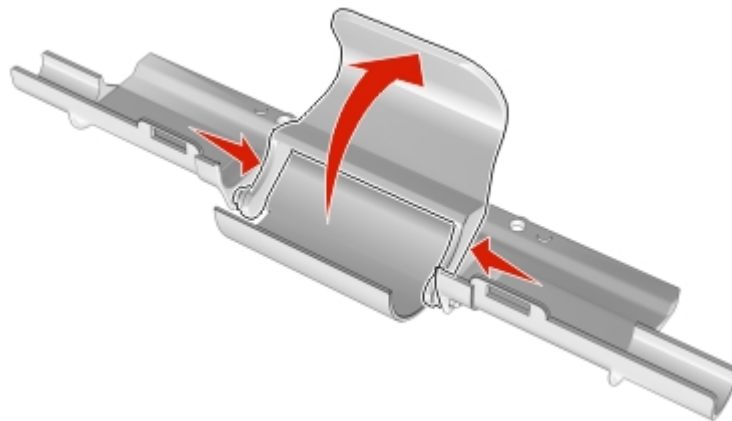
- 3 Pull the MPF pick roller outward to remove.

**Warning—Potential Damage:** Do not touch the pick tire with bare hands, as this can damage the pick roller.



## Bail removal

- 1 Remove the MPF pick roller cover. See **"MPF pick roller cover removal"** on page 179.
- 2 Rotate the bail.
- 3 Squeeze the latches, and then remove the bail.

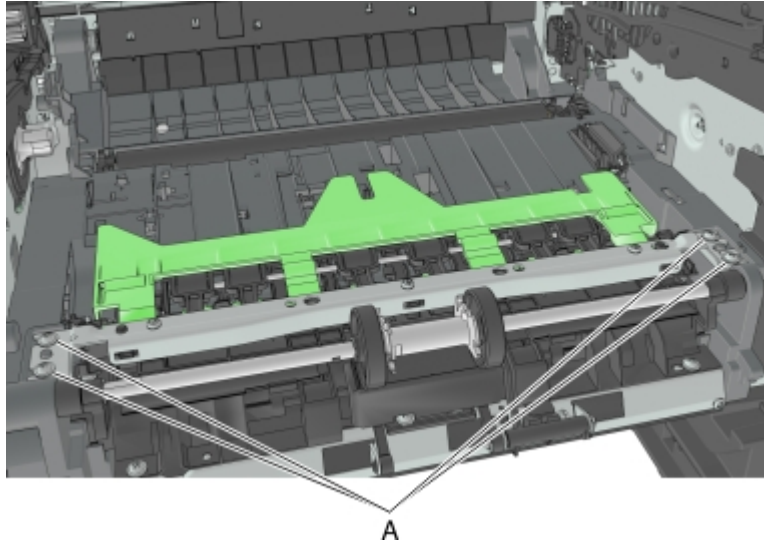


## Jam access cover removal

- 1 Remove the MPF pick roller cover. See **"MPF pick roller cover removal"** on page 179.
- 2 Remove the MPF pick roller. See **"MPF pick roller removal"** on page 179.



- 3 Remove the four screws (A), and then remove the jam access cover.

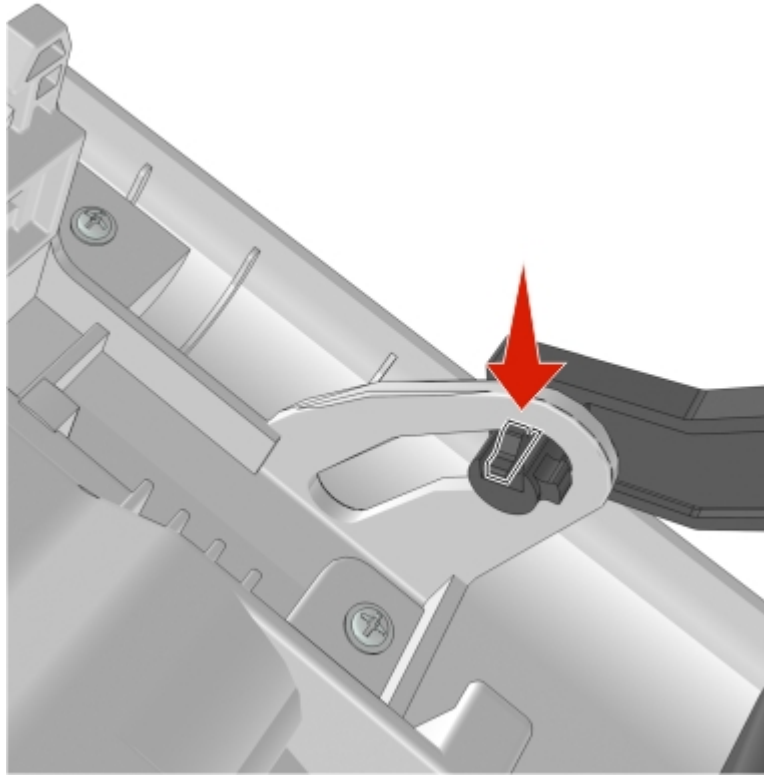


## Front door removal

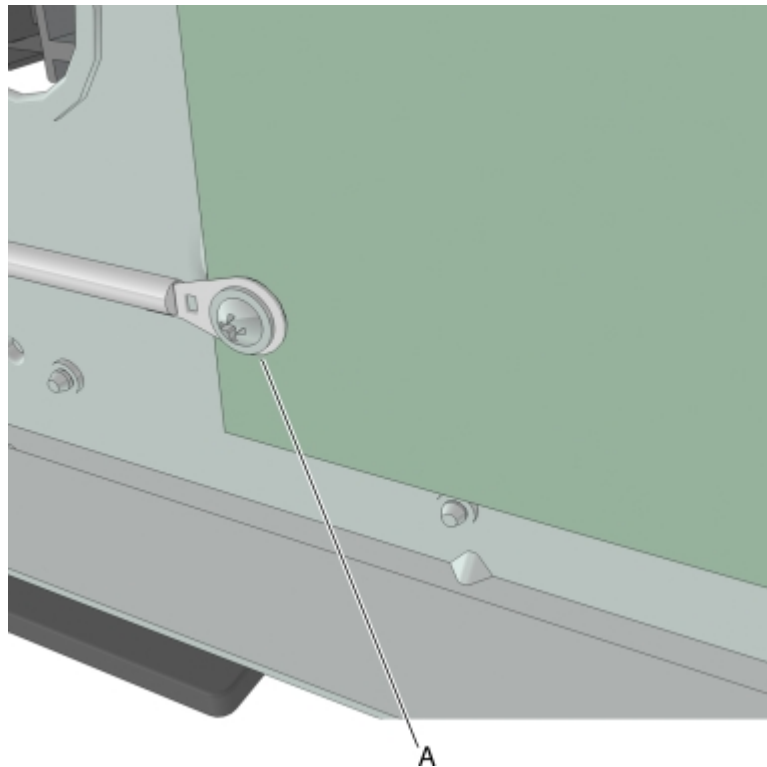
**Note:** This is not a FRU.

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Disconnect the cable JOPP1 or JOPP2 from the controller board.
- 3 Disconnect the cable JCVR1 from the controller board.

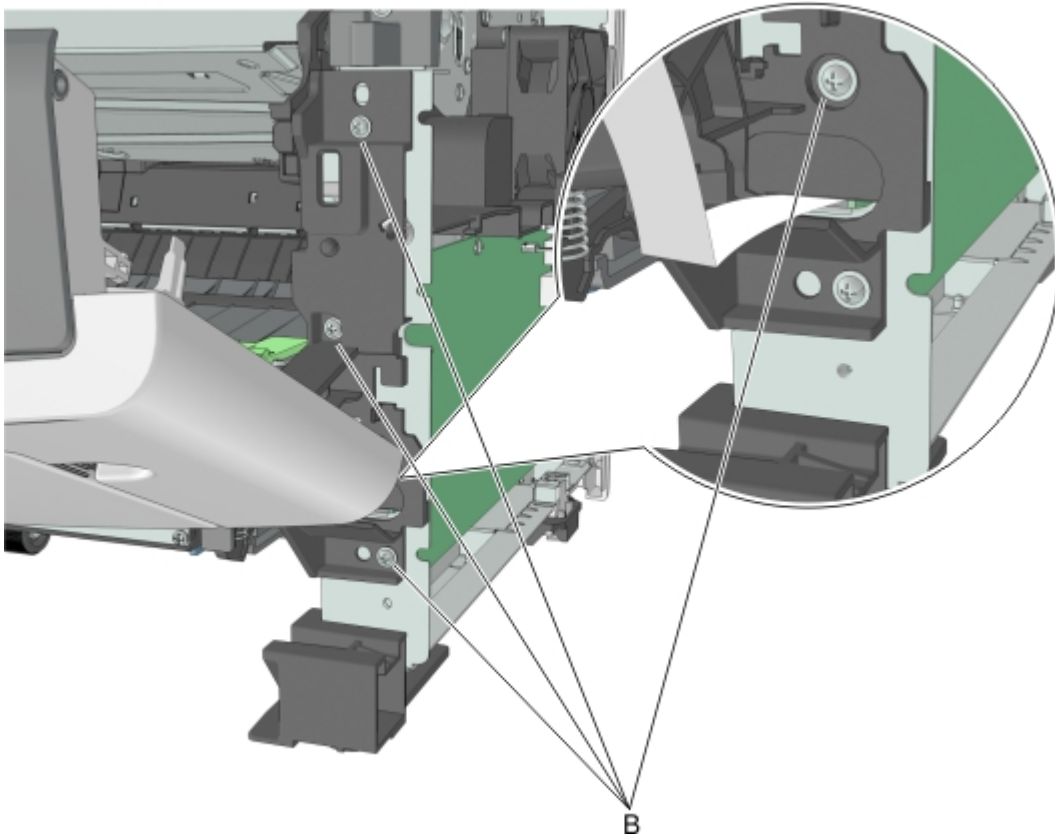
- 4 Squeeze the latch, and then detach the link from the front door.



- 5 Remove the screw (A) to disconnect the ground wire.



- 6** Remove the four screws (B).



- 7** Remove the right front mount, and then remove the front door.  
Below are the front door and the right front mount.



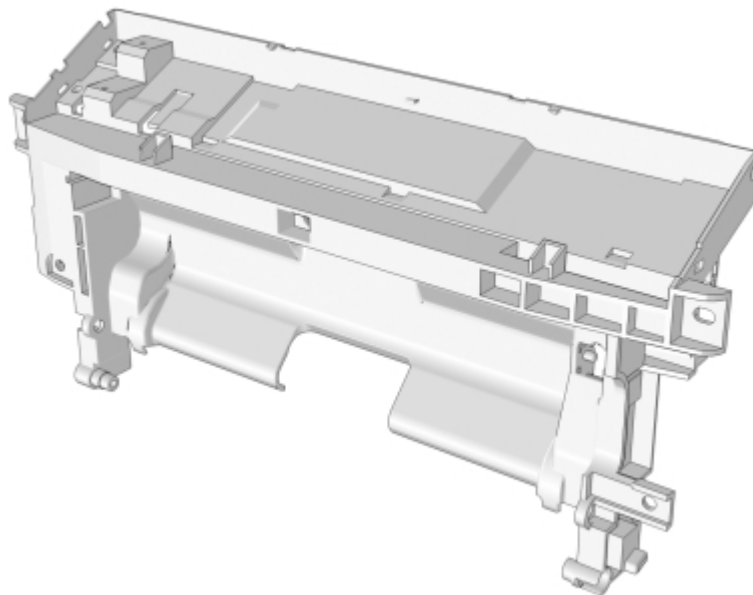
**Installation notes:**

- a** Mount the left side of the front door to the printer.
- b** Attach the right front mount to the front door.

- c Install the right front mount to the printer.

## Front access cover removal

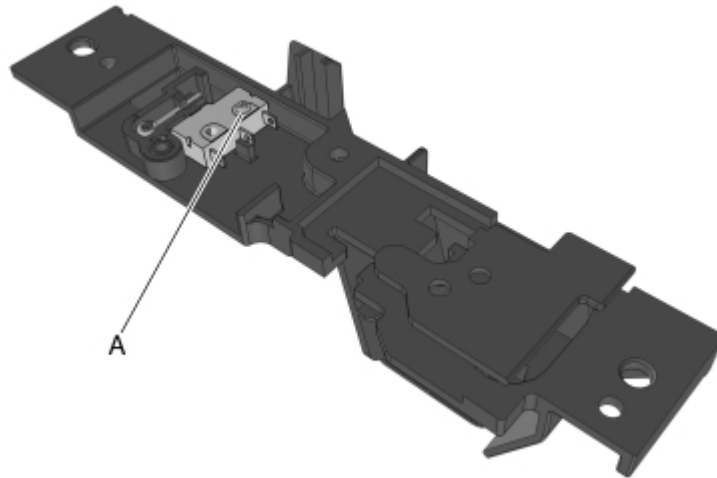
- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the front door. See **“Front door removal” on page 181.**
- 3 Remove the nameplate. See **“Nameplate removal” on page 173.**
- 4 Remove the MPF assembly. See **“MPF assembly removal” on page 176.**
- 5 Remove the bezel. See **“Bezel removal” on page 172.**
- 6 Remove the control panel assembly. See **“Control panel assembly removal” on page 173.**
- 7 The front access cover remains.



## Front door sensor removal

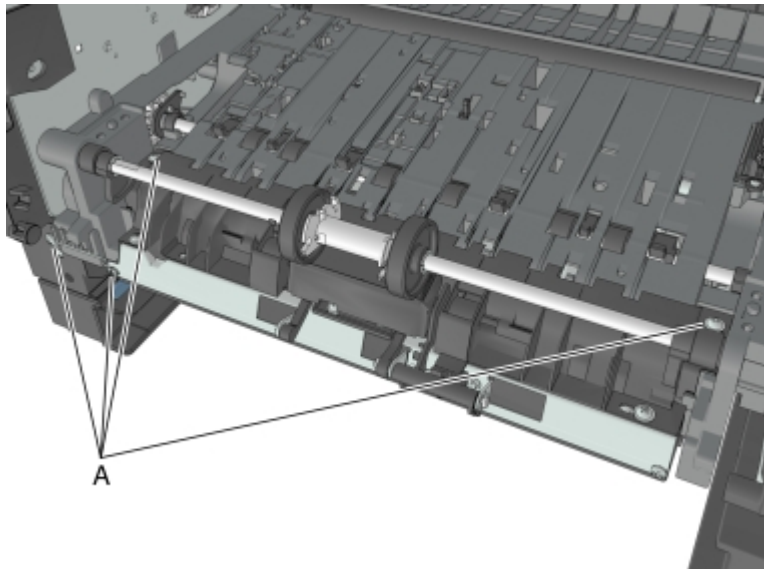
- 1 Remove the front door. See **“Front door removal” on page 181.**
- 2 From under the right front mount, remove the screw (A).

**Note:** Use a #1 Phillips screwdriver.



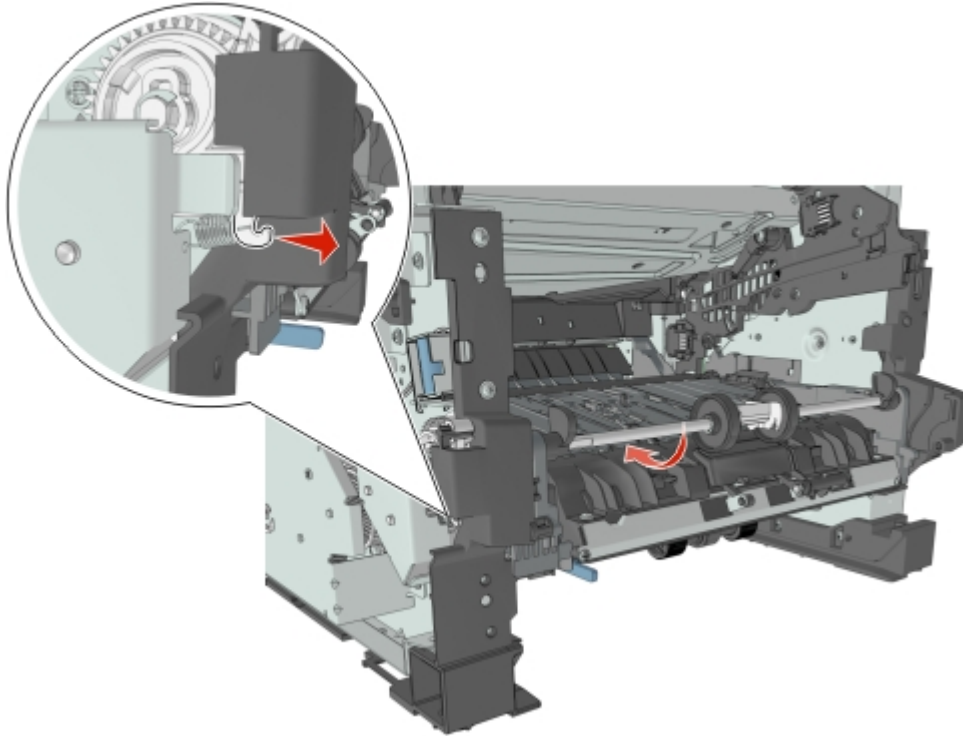
## Front input guide removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the front door. See **“Front door removal” on page 181.**
- 3 Remove the MPF pick roller cover. See **“MPF pick roller cover removal” on page 179.**
- 4 Remove the MPF pick roller. See **“MPF pick roller removal” on page 179.**
- 5 Remove the jam access cover. See **“Jam access cover removal” on page 180.**
- 6 Disconnect cable JMPF1 from the controller board.
- 7 Remove the four screws (A).



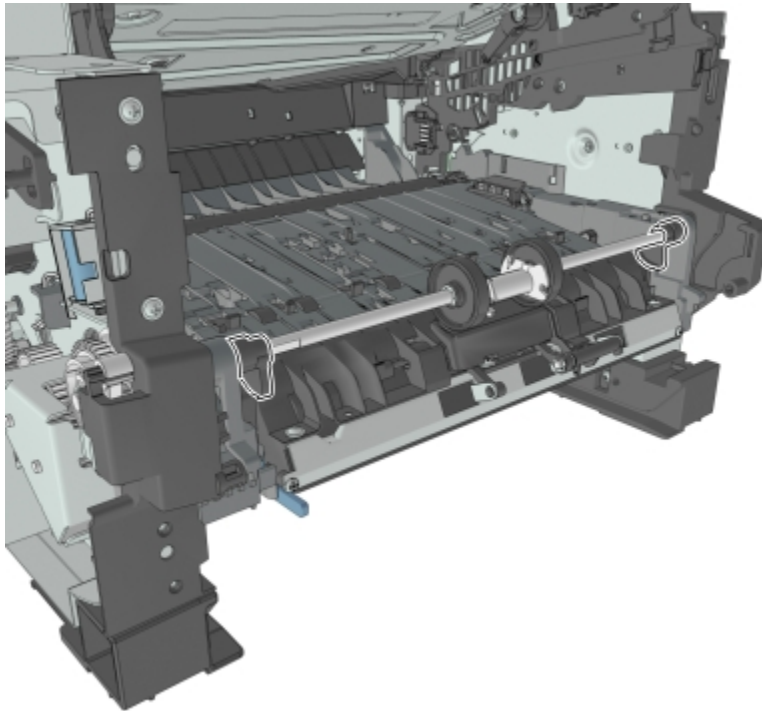
- 8 Push and hold the cam restraint to release the MPF shaft.

9 Rotate the MPF shaft inward so that the cams at each end point up.



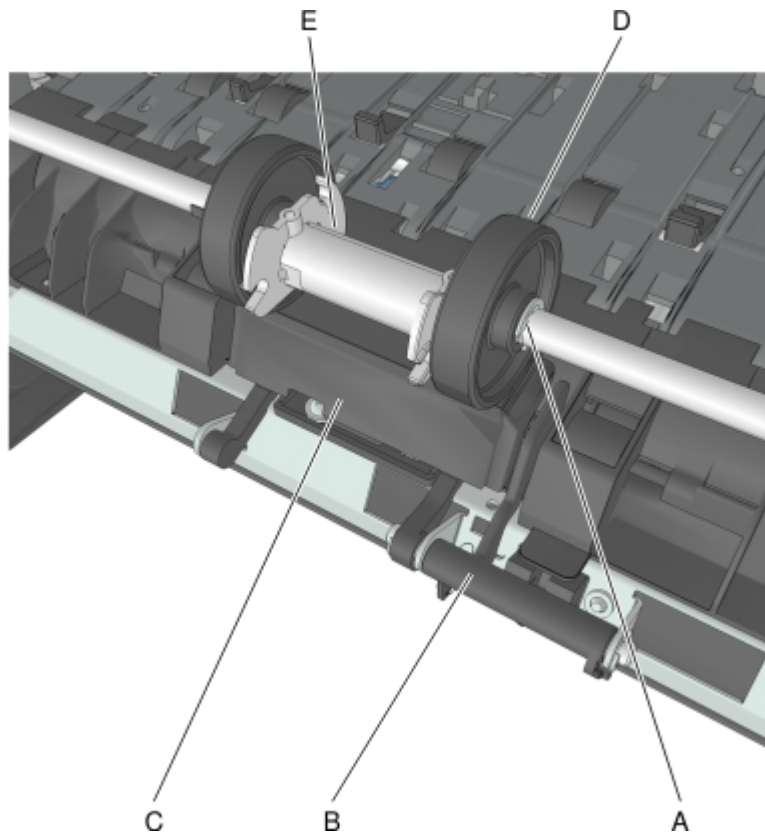
10 Release the front guide from the guides at each end.

**Installation note:** The cams at each end of the MPF shaft must point down.



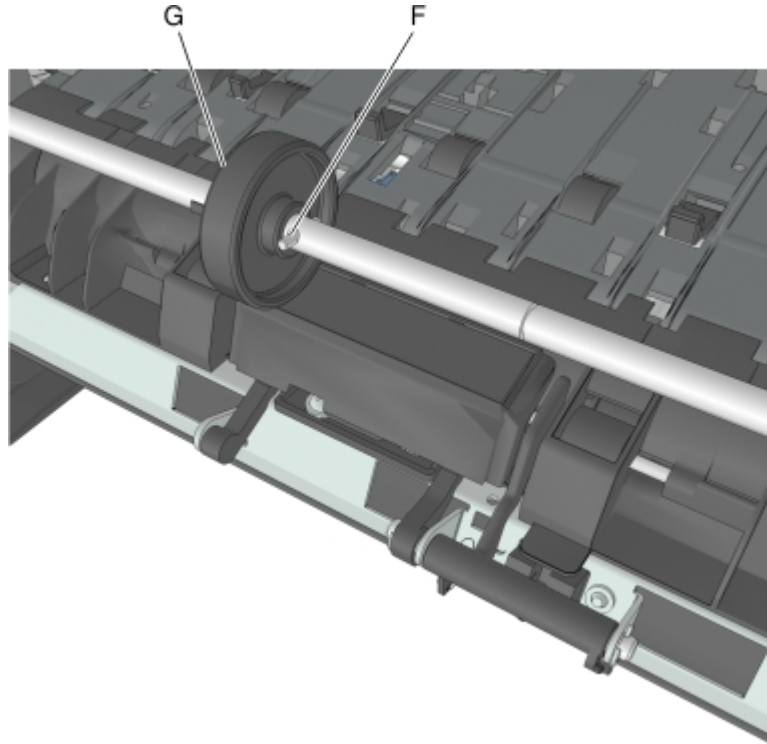
## Separator pad removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the front door. See **“Front door removal” on page 181.**
- 3 Remove the MPF pick roller cover. See **“MPF pick roller cover removal” on page 179.**
- 4 Remove the MPF pick roller. See **“MPF pick roller removal” on page 179.**
- 5 Remove the jam access cover. See **“Jam access cover removal” on page 180.**
- 6 Remove the E-clip (A).
- 7 While pressing down the MPF sensor flag (B) and separator pad (C), move the restraint roller (D) and MPF pick roller hub (E) to the right.

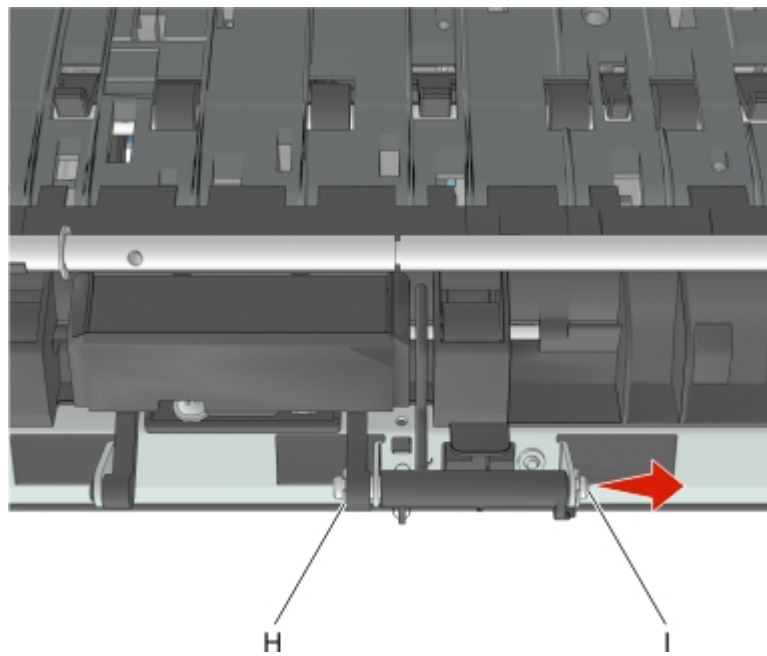


- 8 Remove the pin (F).

**9** While pressing down the MPF sensor flag and separator pad, move the restraint roller (G) to the right.



**10** Remove the E-clip (H), and then move the shaft (I) to the right.



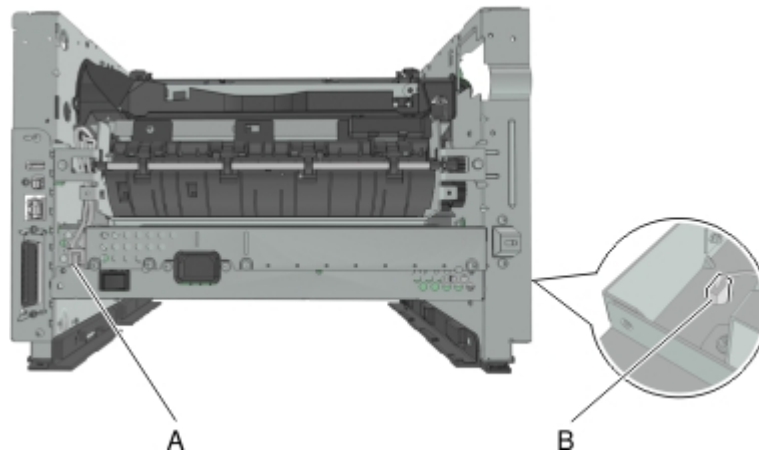
**11** Remove the separator pad and the spring underneath.



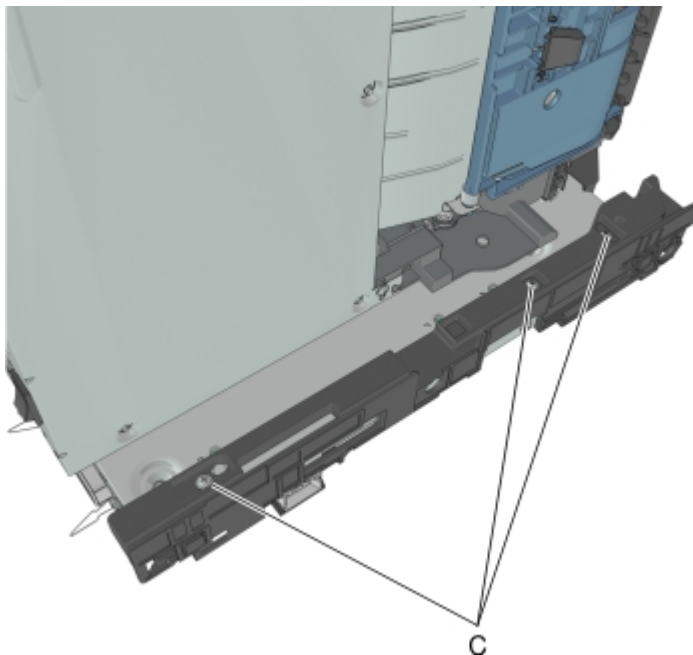
## Bottom removals

### Power supply removal

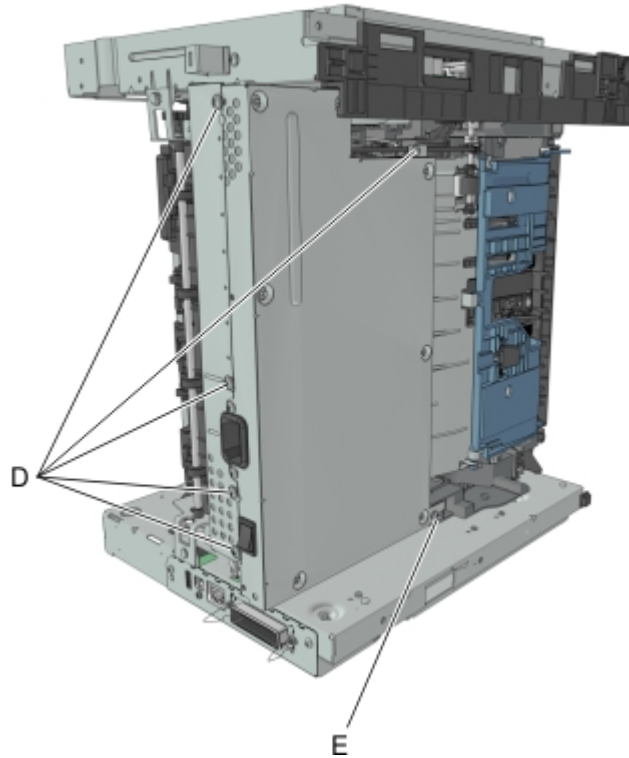
- 1 Remove the left cover. See **“Left cover removal”** on page 144.
- 2 Remove the rear door and cover. See **“Rear door and cover removal”** on page 205.
- 3 Disconnect the cable (A) from the rear, and disconnect the cable (B) from the left side.



- 4 Position the printer so that it sits on its right side.
- 5 Remove the three screws (C), and then remove the right tray guide.



- 6 Remove the five metal screws (D) and the plastic screw (E) securing the power supply.

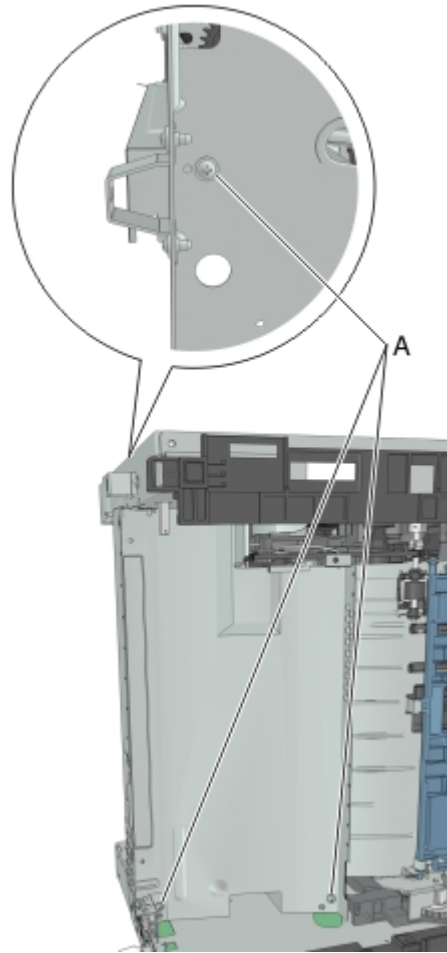


- 7 Remove the power supply, and then disconnect all cables from the power supply.

## Power supply shield removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 3 Remove the power supply. See **“Power supply removal” on page 189.**
- 4 Position the printer so that it sits on its right side.

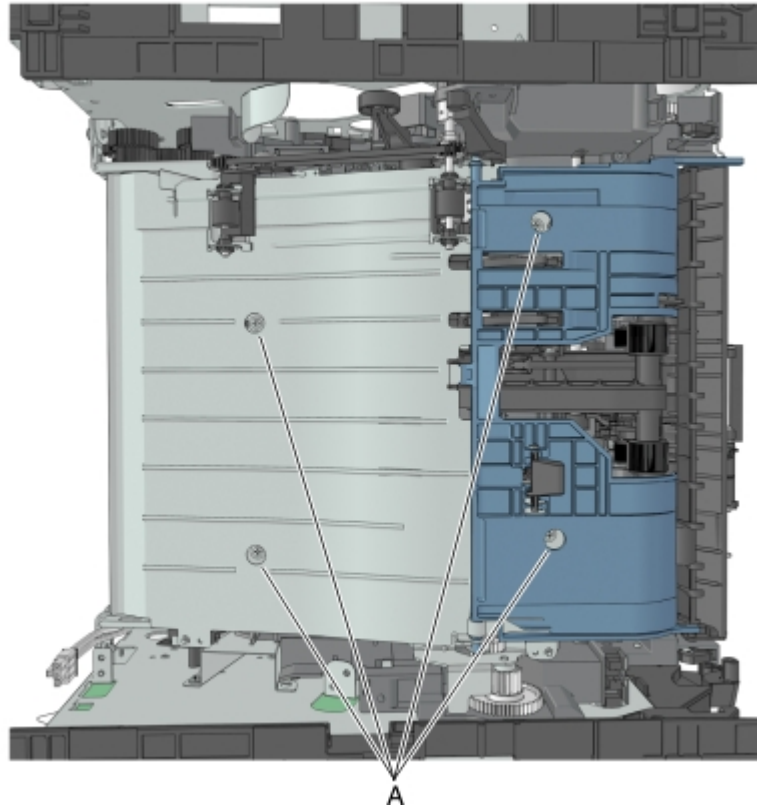
- 5 Remove the three screws (A), and then remove the power supply shield.



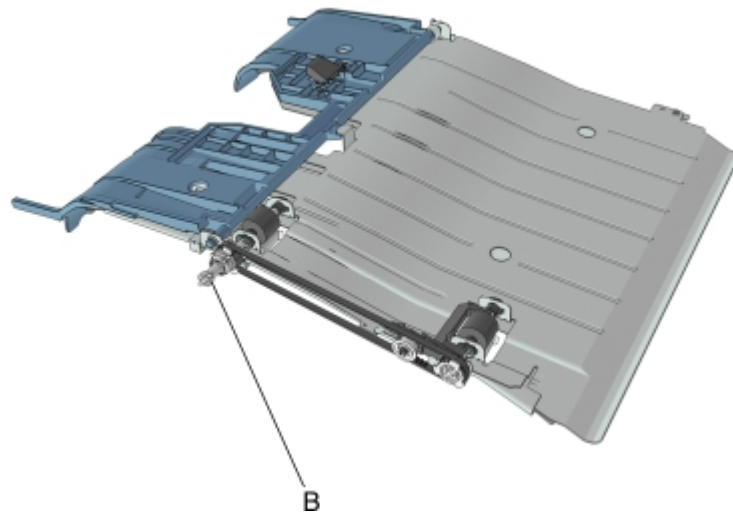
## Duplex removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 3 Remove the power supply. See **“Power supply removal” on page 189.**
- 4 Remove the power supply shield. See **“Power supply shield removal” on page 190.**
- 5 Position the printer so that it sits on its right side.

- 6 Remove the four screws (A) securing the duplex.



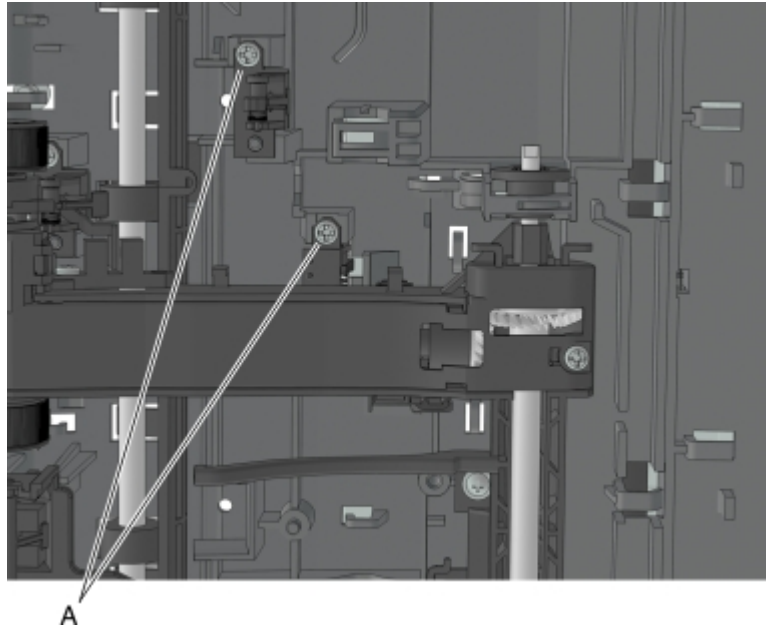
**Note:** The duplex link (B) is part of the FRU.



## Duplex sensor and input sensor removal

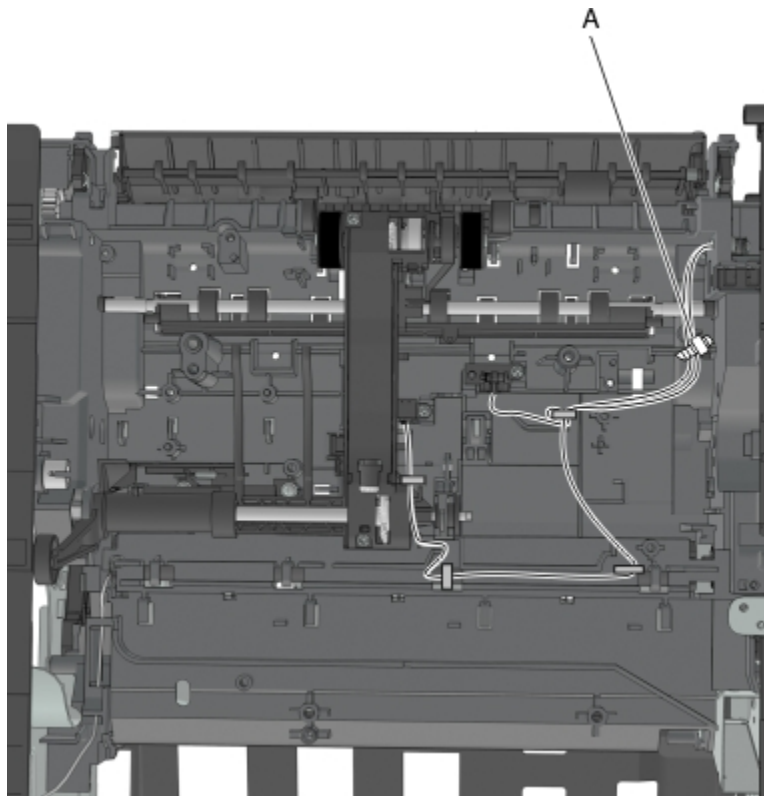
- 1 Remove the left cover. See [“Left cover removal” on page 144](#).
- 2 Remove the right cover. See [“Right cover removal” on page 160](#).
- 3 Remove the rear door and cover. See [“Rear door and cover removal” on page 205](#).

- 4 Remove the power supply. See **“Power supply removal”** on page 189.
- 5 Remove the power supply shield. See **“Power supply shield removal”** on page 190.
- 6 Remove the duplex. See **“Duplex removal”** on page 191.
- 7 Disconnect the cable JDUPPI 1 from the controller board.
- 8 Remove the two screws (A), and cut the cable near the frame to detach the sensors.



- 9 Remove the other half of the cable from the printer.

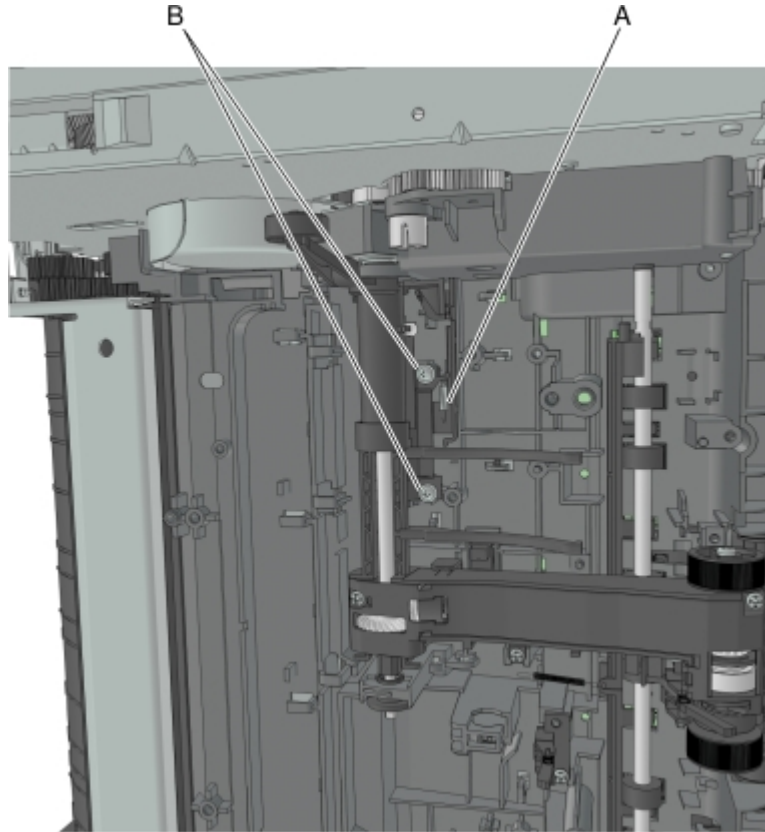
**Installation note:** Route the cable using the new path, and secure it with a cable tie (A).



## Toner density sensor removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the main drive gearbox. See **“Main drive gearbox removal” on page 145.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Remove the power supply. See **“Power supply removal” on page 189.**
- 5 Remove the power supply shield. See **“Power supply shield removal” on page 190.**
- 6 Remove the duplex. See **“Duplex removal” on page 191.**
- 7 Disconnect the spring (A) from the printer.

- 8 Remove the two screws (B), and then remove the sensor.

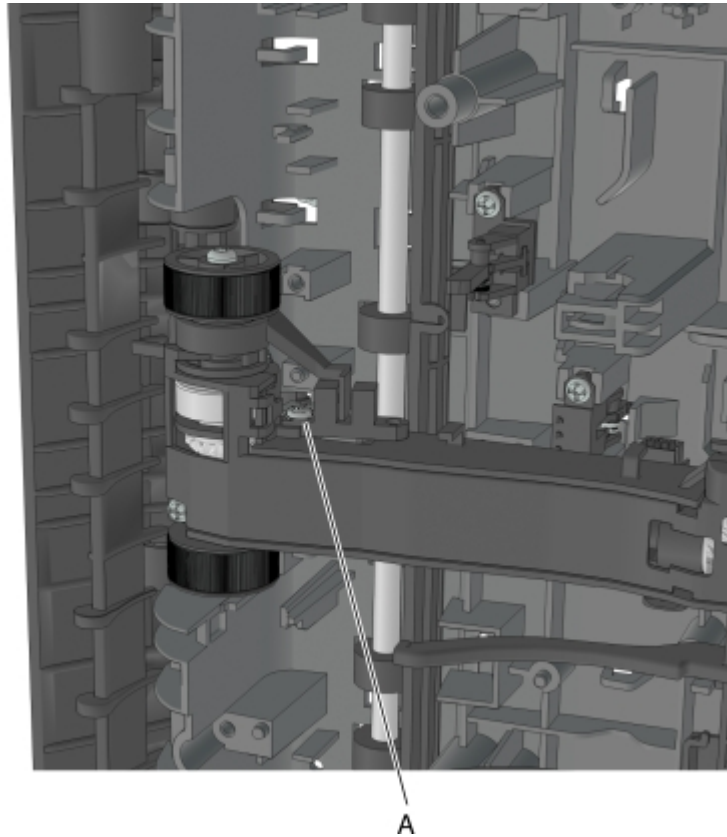


- 9 Disconnect the cable from the sensor.

## Trailing edge sensor removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the right cover. See **“Right cover removal” on page 160.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Remove the power supply. See **“Power supply removal” on page 189.**
- 5 Remove the power supply shield. See **“Power supply shield removal” on page 190.**
- 6 Remove the duplex. See **“Duplex removal” on page 191.**
- 7 Disconnect the cable JACM1 from the controller board, and cut it near the frame.

- 8 Remove the screw (A), and then remove the sensor.



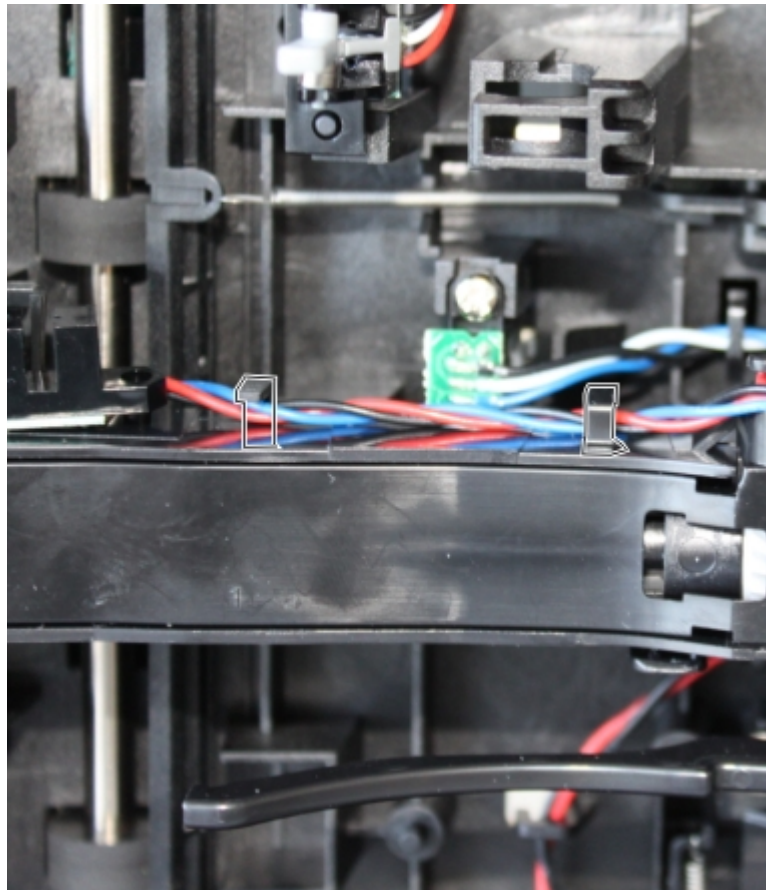
- 9 Remove the other half of the cable from the printer.

**Installation notes:**

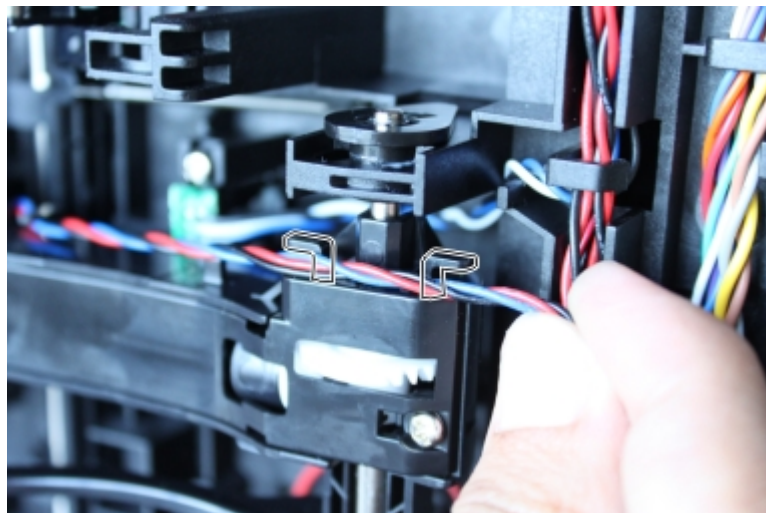
- a Install the sensor to the ACM.
- b Route the cable along the two cable holders on the side of the ACM.

**Note:** Make sure that the cable is not loose.

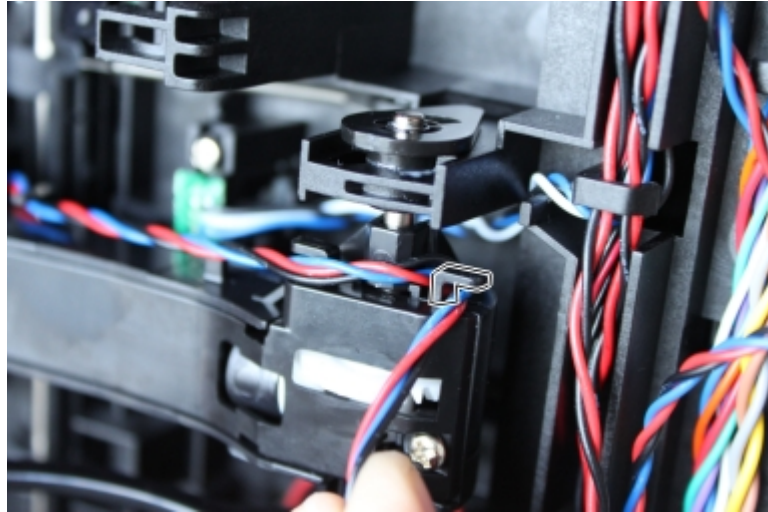




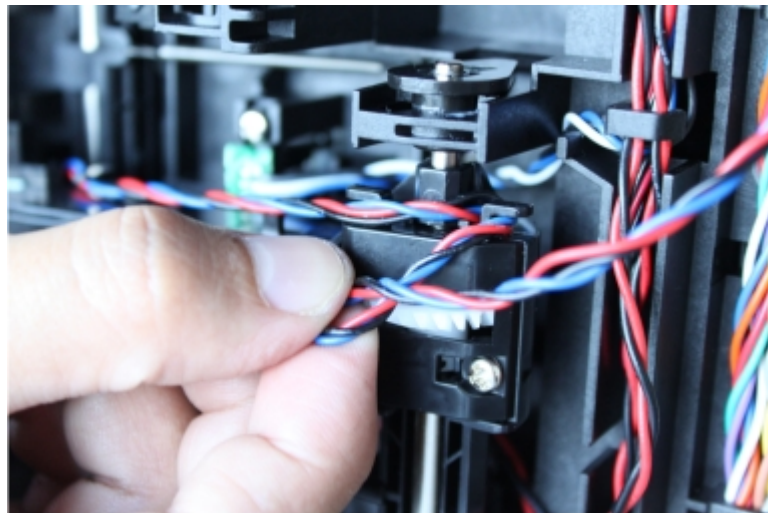
c Bring the cable in front of the two cable holders near the ACM shaft.



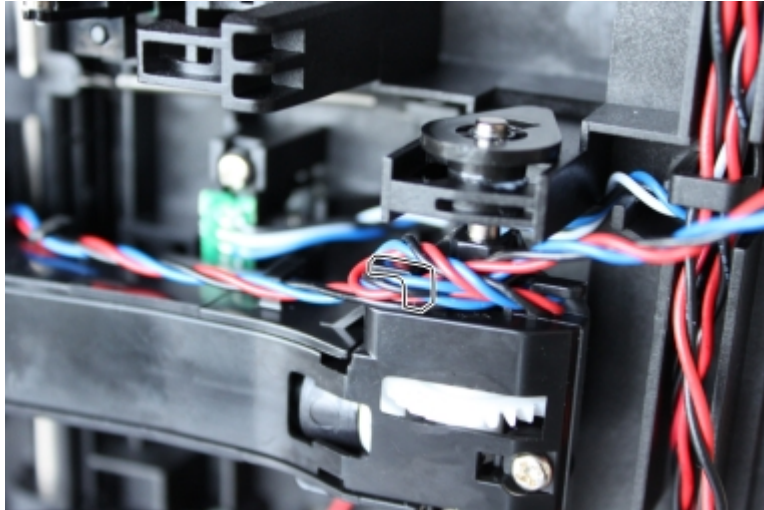
- d Loop the cable behind the right cable holder.



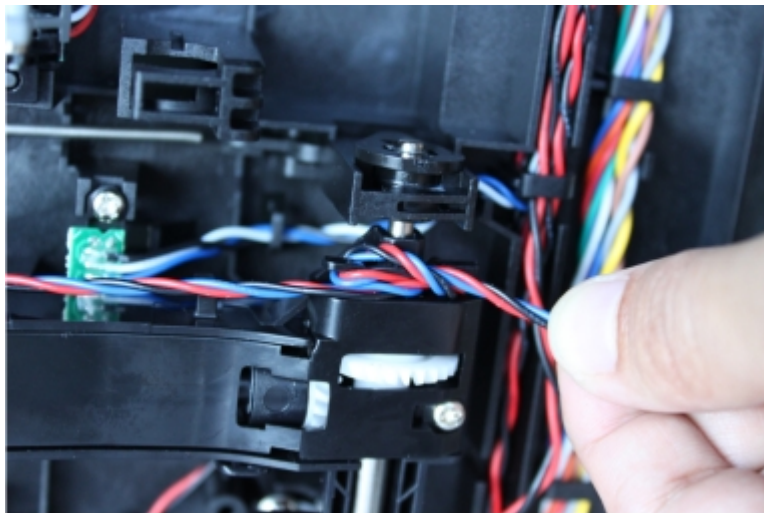
- e Twist the cable so that it forms a loop.



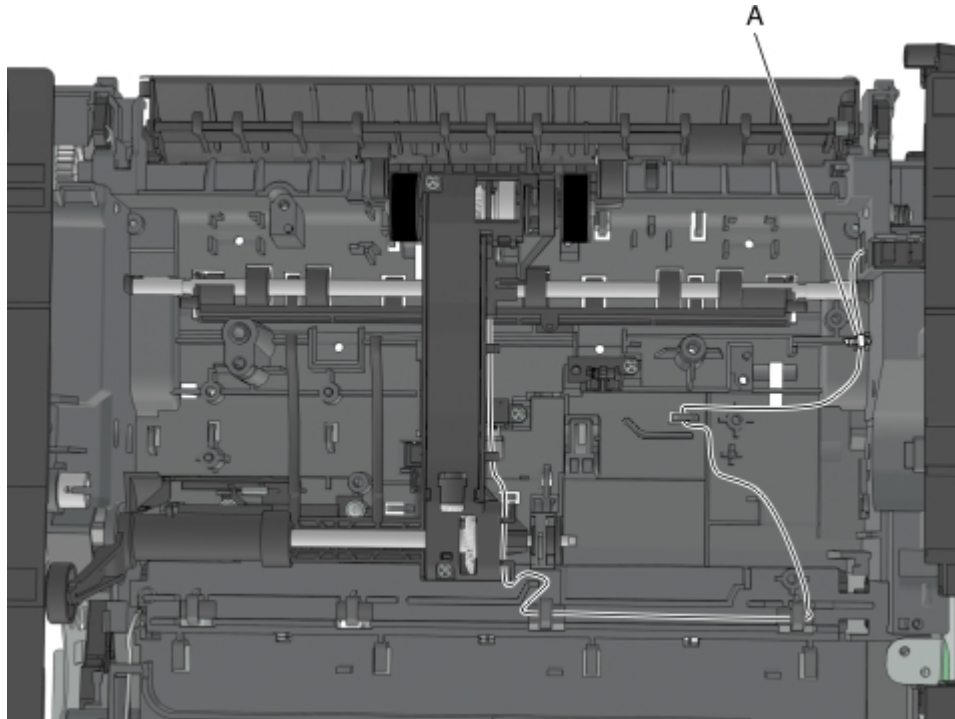
- f Place the loop over the left cable holder.



- g Pull the free end to make sure that the cable is tightly looped around the cable holders.



- h** Route the cable using the new path, and secure it with a cable tie (A).

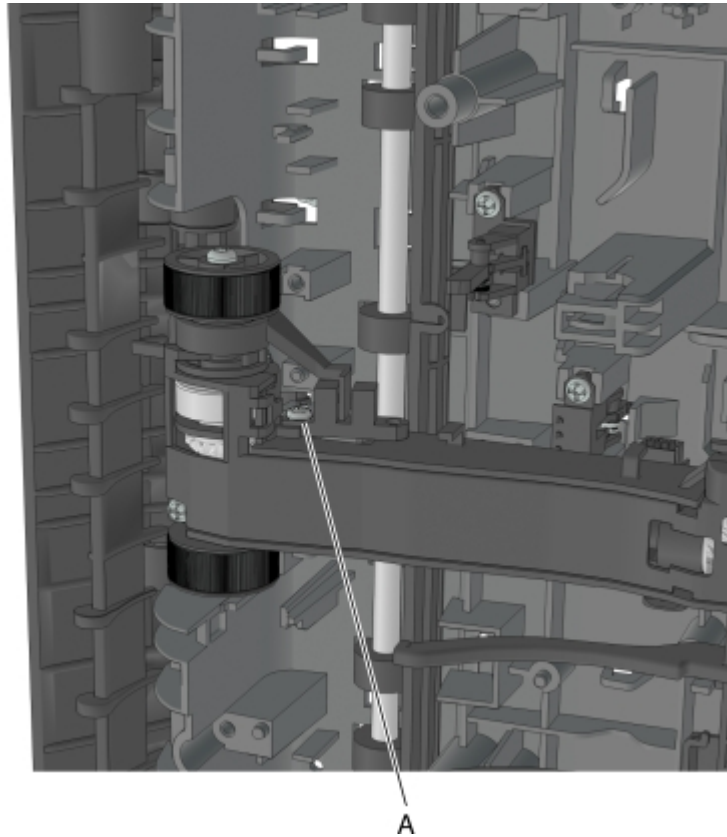


## ACM assembly removal

- 1 Remove the left cover. See **“Left cover removal” on page 144.**
- 2 Remove the main drive gearbox. See **“Main drive gearbox removal” on page 145.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Remove the power supply. See **“Power supply removal” on page 189.**
- 5 Remove the power supply shield. See **“Power supply shield removal” on page 190.**
- 6 Remove the duplex. See **“Duplex removal” on page 191.**
- 7 Remove the ACM clutch. See **“ACM clutch removal” on page 153.**

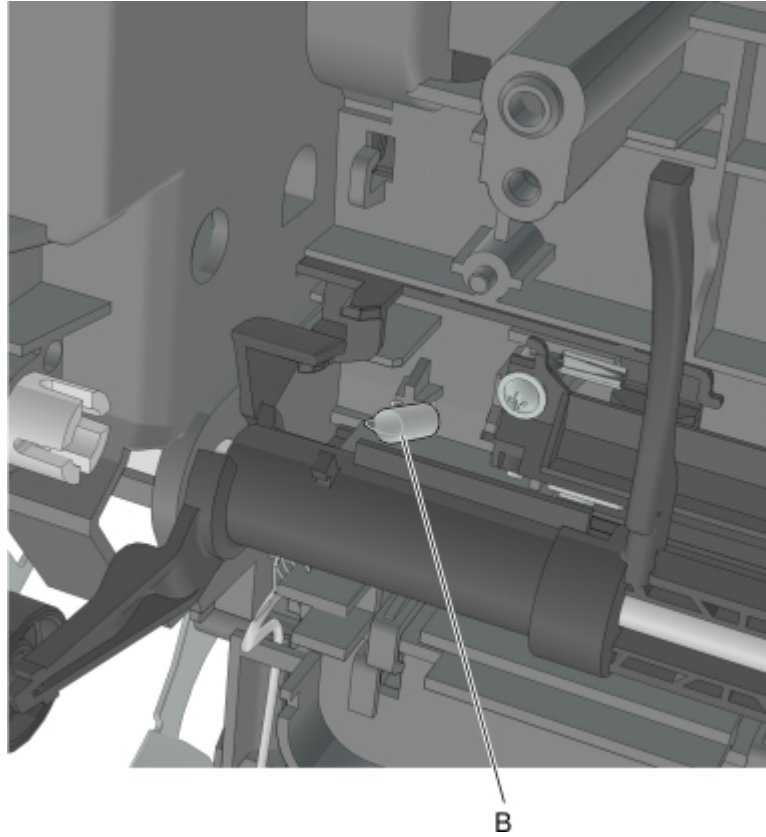
**Warning—Potential Damage:** Do not cut the cable (leave the ACM clutch hanging).

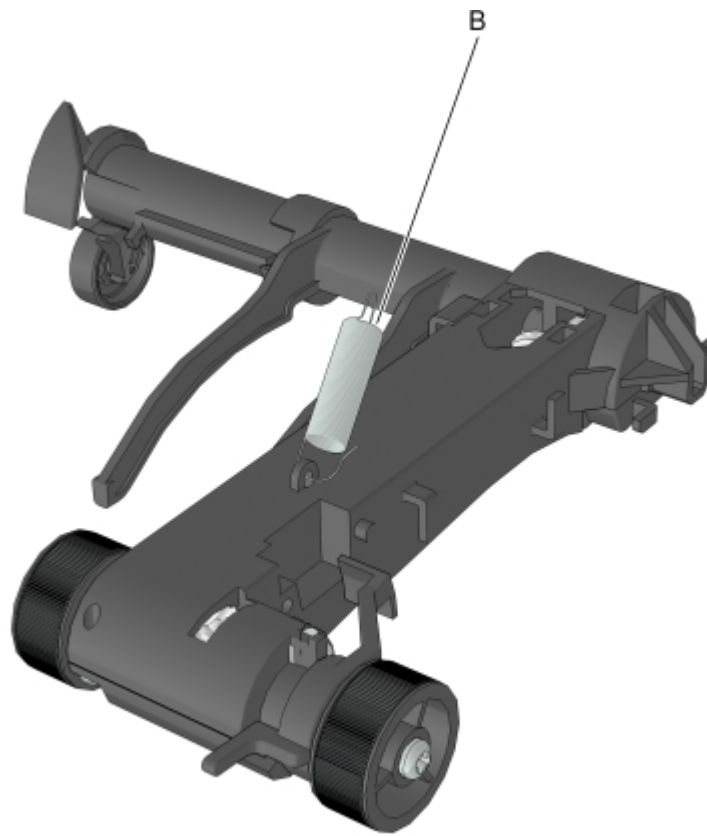
- 8 Remove the screw (A) and then detach the trailing edge sensor.





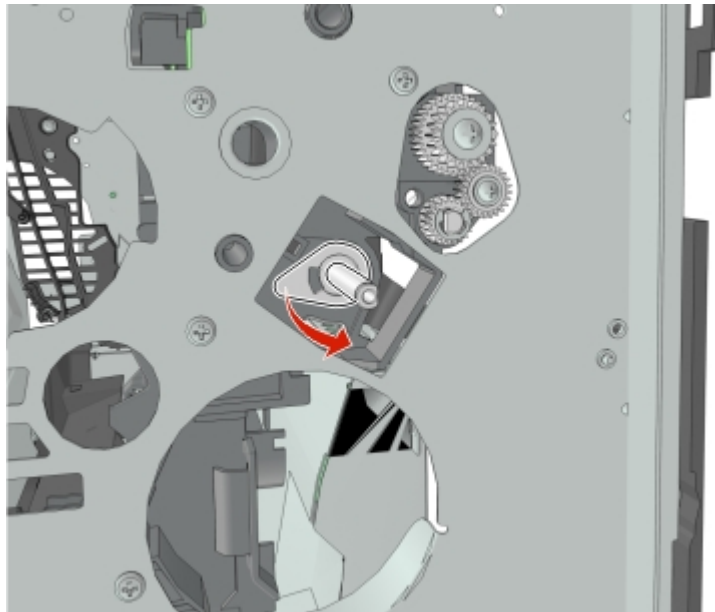
9 Disconnect the two springs (B).





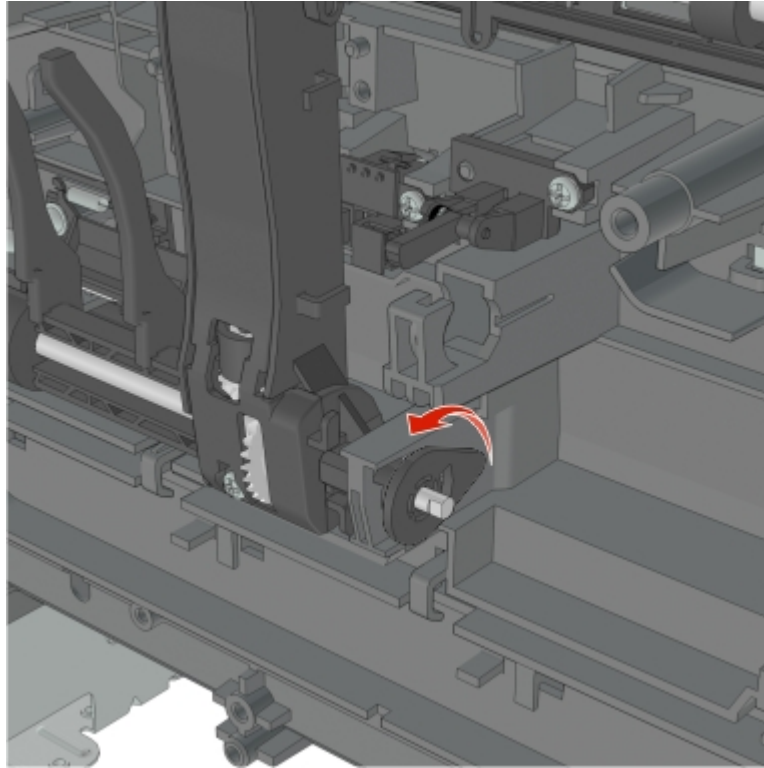
**10** Pry the pointed end of the ACM bushing to release the locking pin underneath.

**11** Rotate, and then remove the ACM bushing.



**12** Pry the pointed end of the 2nd pickup pushing to release the locking pin underneath.

- 13** Rotate, and then remove the 2nd pickup bushing.



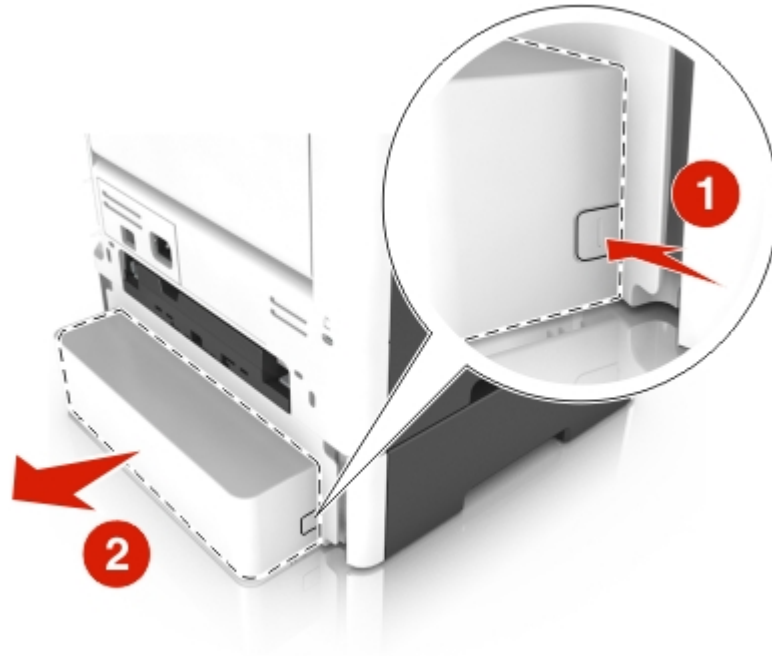
- 14** Pull out the shaft, and remove the ACM.



## Rear side removals

### Dust cover removal

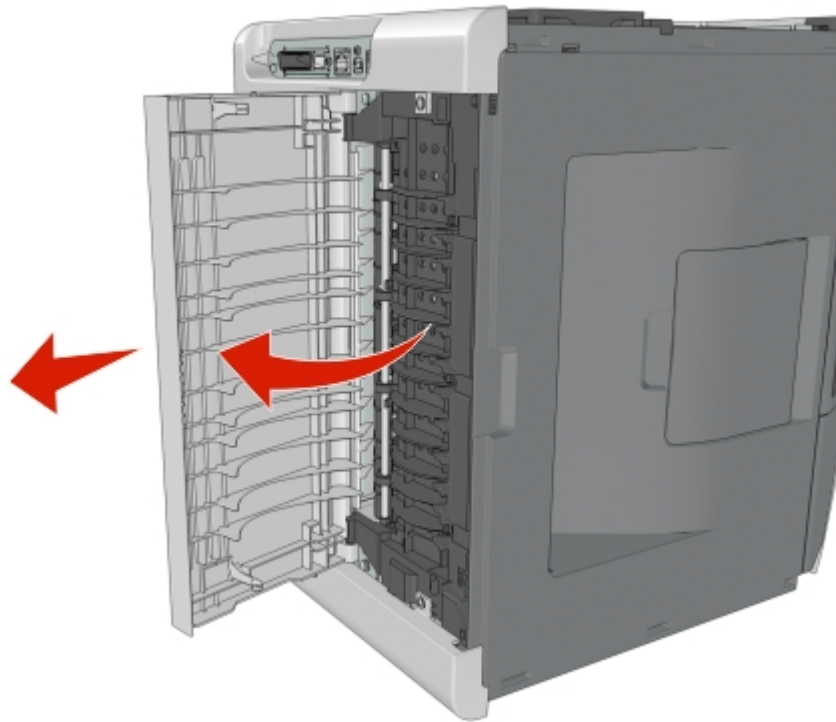
- 1 Press the latches on each side of the dust cover.
- 2 Remove the dust cover.



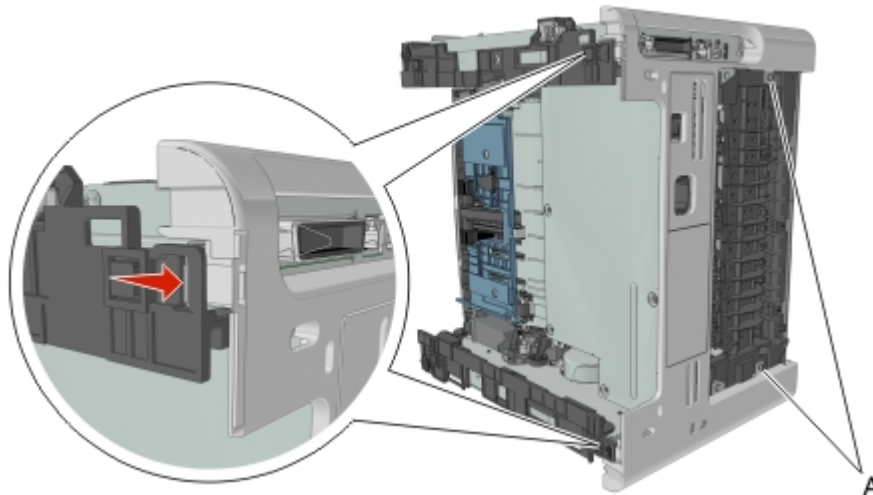
### Rear door and cover removal

- 1 Position the printer so that it sits on either its left or right side.
- 2 Open the rear door at an angle of 45 degrees.

- 3 Pull the rear door to remove.



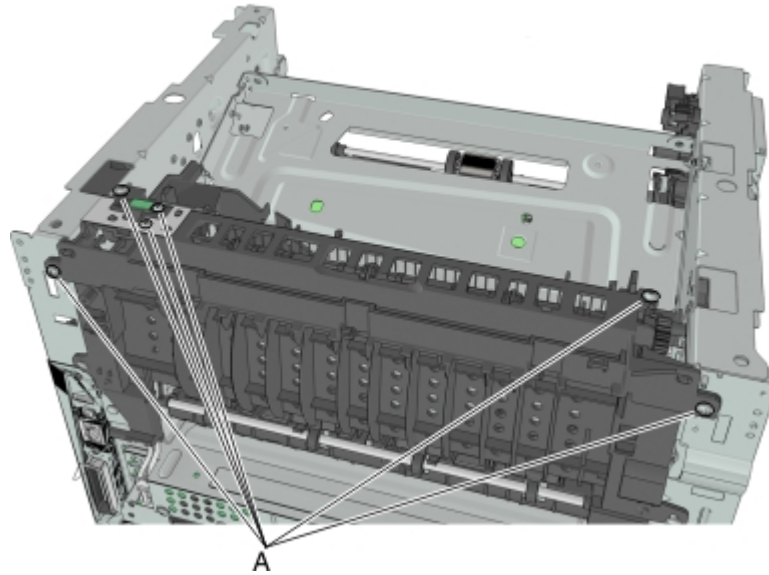
- 4 Remove the two screws (A) securing the rear cover.
- 5 Press the two latches to release the rear cover.



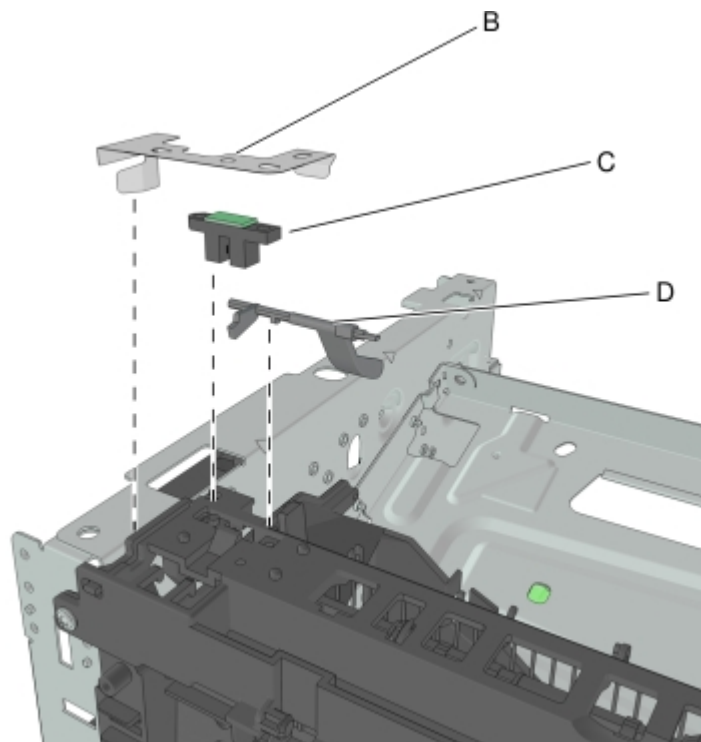
### Narrow media/bin full sensor removal

- 1 Remove the right cover. See **“Right cover removal”** on page 160.
- 2 Remove the left cover. See **“Left cover removal”** on page 144.
- 3 Remove the rear door and cover. See **“Rear door and cover removal”** on page 205.

- 4 Remove the top cover. See **“Top cover removal”** on page 210.
- 5 Disconnect the cable JNRW1 from the controller board.
- 6 Remove the six screws (A) securing the sensor and upper exit guide to the redrive assembly.



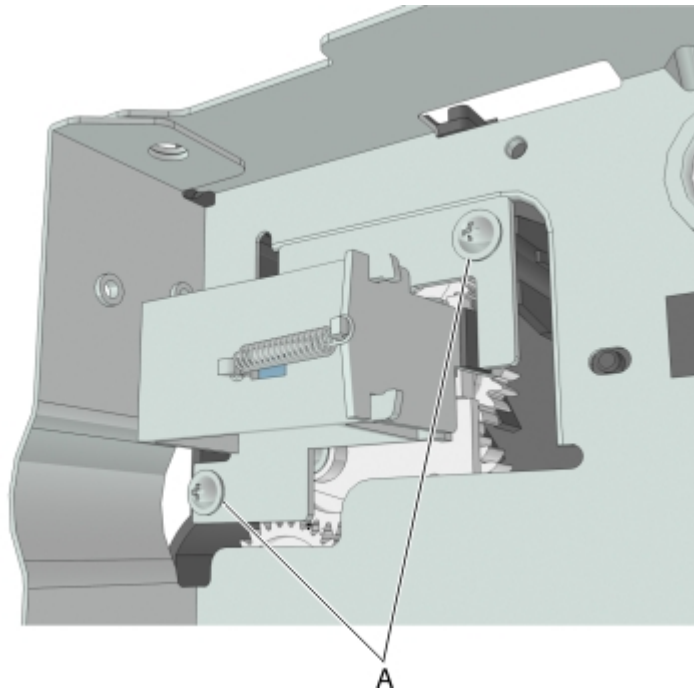
- 7 Remove the ground (B), sensor (C), and sensor flag (D).



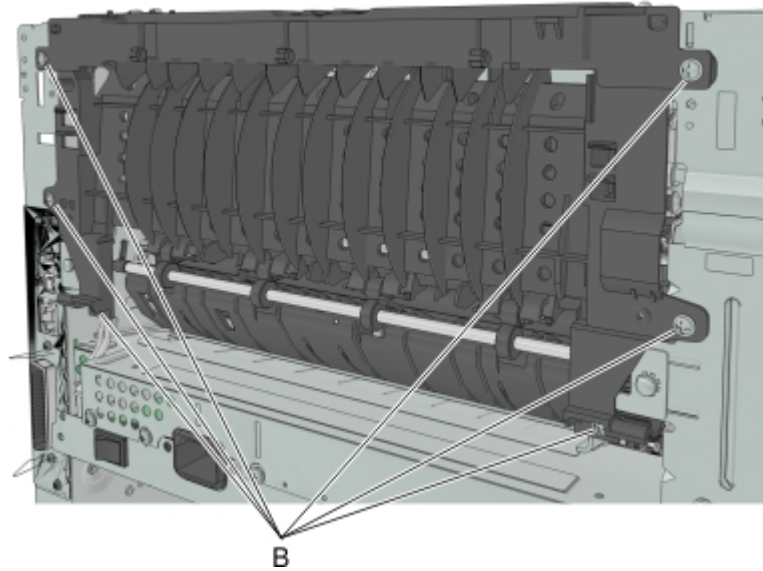
## Redrive assembly removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the left cover. See **“Left cover removal” on page 144.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Remove the top cover. See **“Top cover removal” on page 210.**
- 5 Disconnect the cable JNRW1 from the controller board.
- 6 Remove the two screws (A), and then detach the reverse solenoid.

**Note:** Do not disconnect the reverse solenoid cable from the controller board.



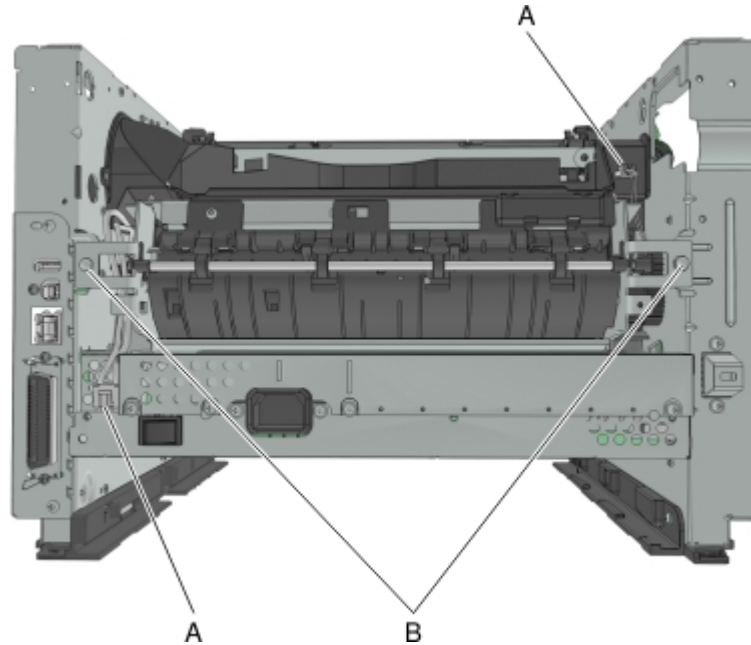
- 7 Remove the six screws (B) securing the redrive assembly.



## Fuser removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 3 Remove the redrive assembly. See **“Redrive assembly removal” on page 208**
- 4 Disconnect the cable JEXIT1 from the controller board.
- 5 Disconnect the two cables (A).

- 6 Remove the two screws (B) securing the fuser.

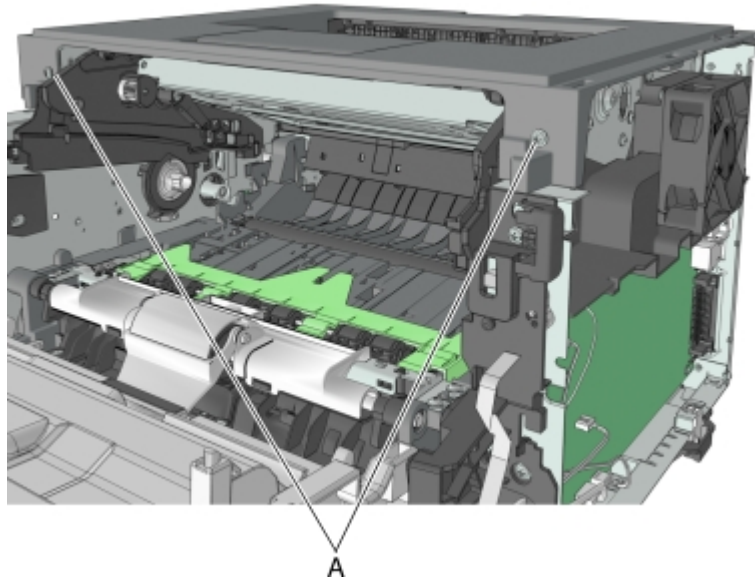


## Top side removals

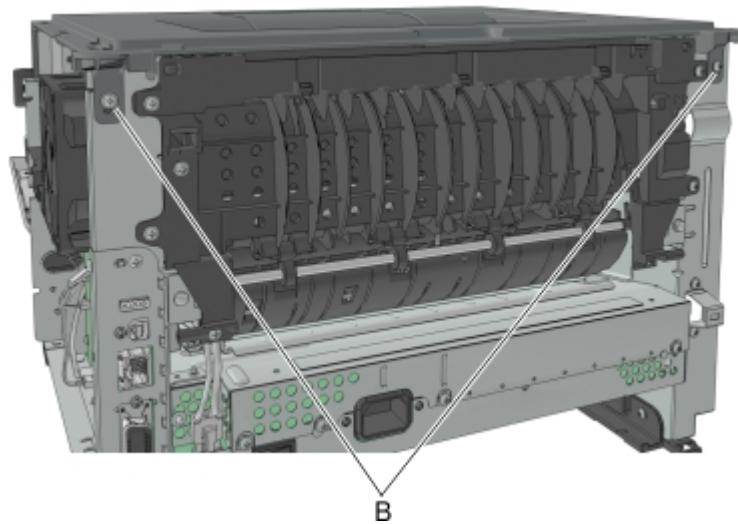
### Top cover removal

- 1 Remove the right cover. See **“Right cover removal” on page 160.**
- 2 Remove the left cover. See **“Left cover removal” on page 144.**
- 3 Remove the rear door and cover. See **“Rear door and cover removal” on page 205.**
- 4 Open the front door.

- 5 Remove the two screws (A) in front.



- 6 Remove the two screws (B) at the rear.

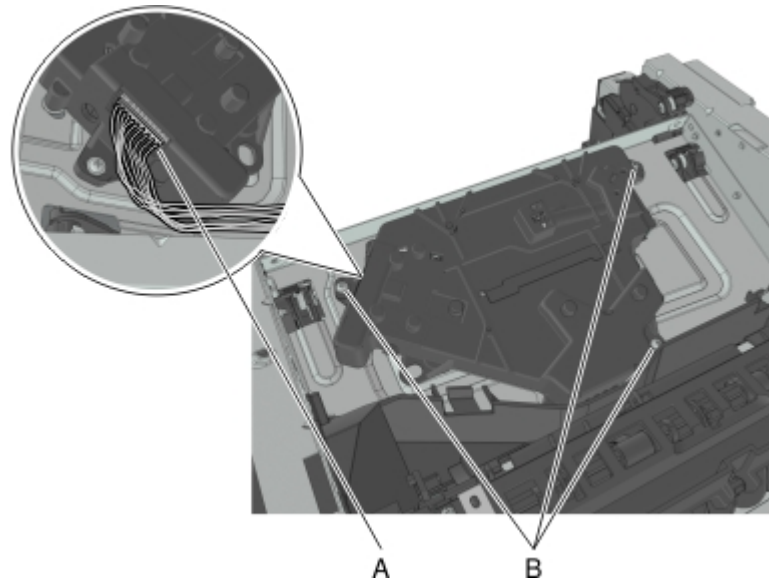


- 7 Lift the top cover to remove.

## Laser scanning unit (LSU) removal

- 1 Remove the right cover. See **“Right cover removal”** on page 160.
- 2 Remove the left cover. See **“Left cover removal”** on page 144.
- 3 Remove the rear door and cover. See **“Rear door and cover removal”** on page 205.
- 4 Remove the top cover. See **“Top cover removal”** on page 210.
- 5 Remove the cooling fan. See **“Cooling fan removal”** on page 161.
- 6 Disconnect the cable (A) from the LSU.

- 7 Disconnect the cable JGLV1 or J6 from the controller board.
- 8 Remove the three screws (B) securing the LSU.

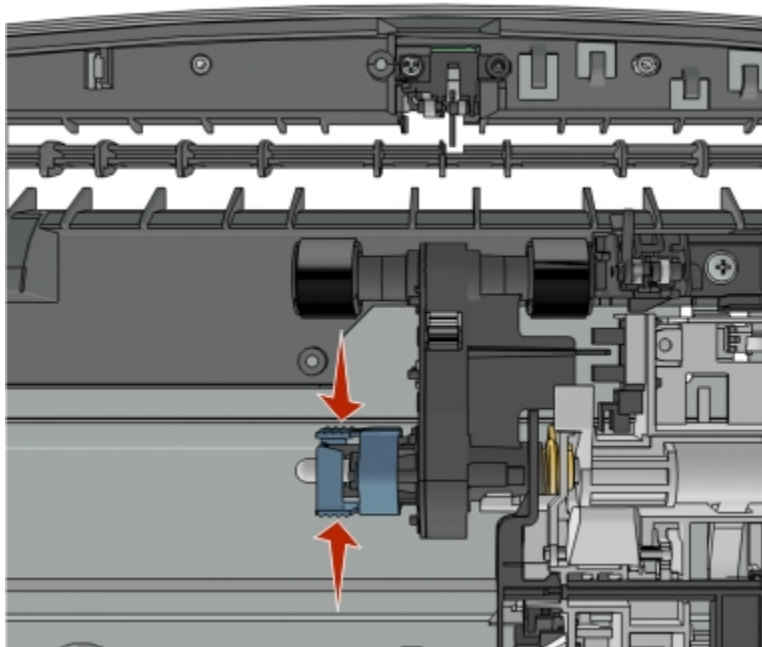


- 9 Align the printhead. See **“Printhead assembly mechanical adjustment”** on page 143.

## 250/550-sheet tray removals

### Pick roller removal

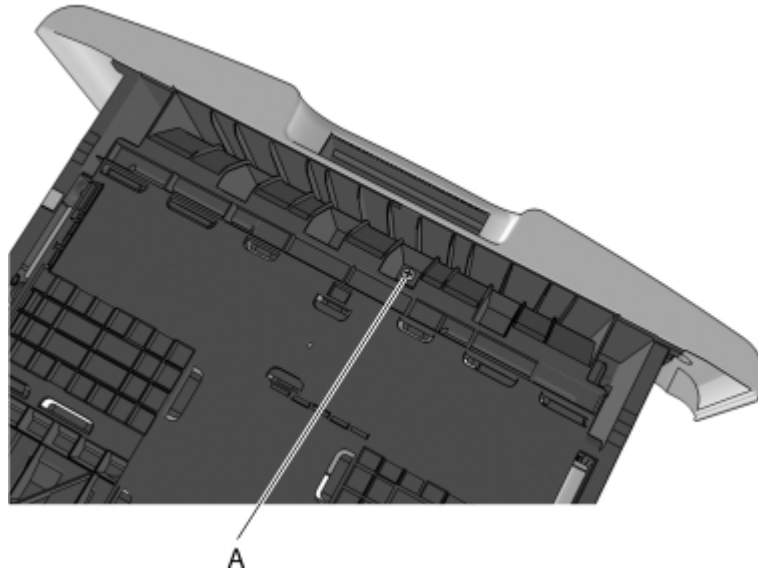
Press the latches, and then remove the pick roller.



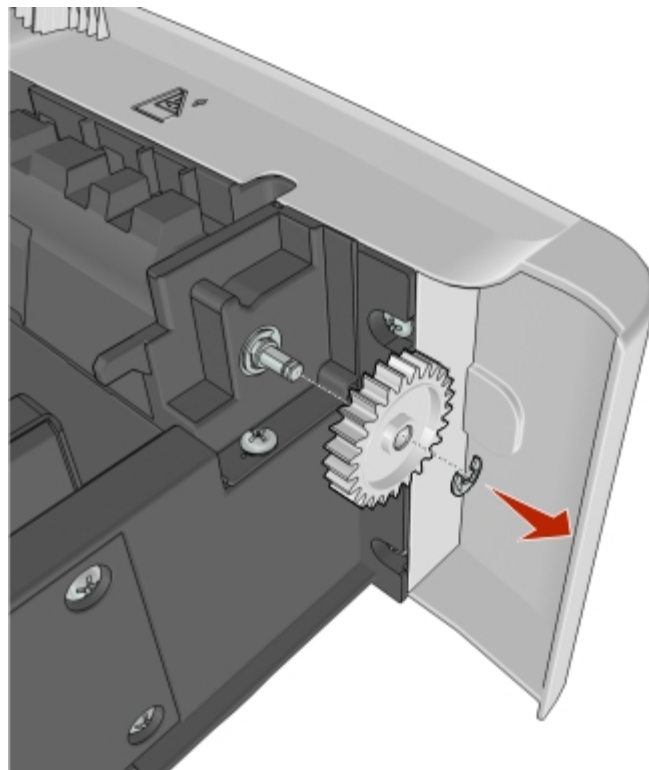


## Separator roll assembly removal

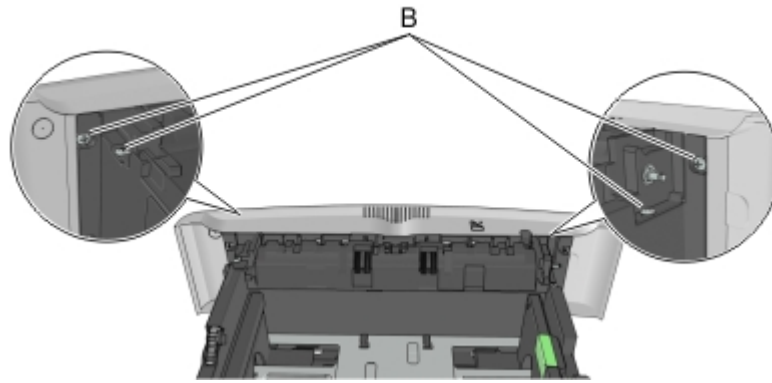
- 1 Remove the screw (A) from under the tray insert.



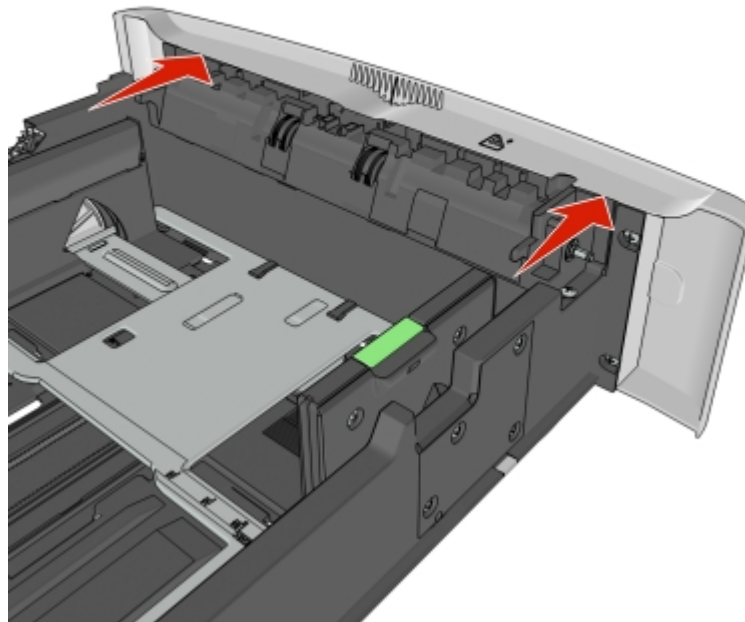
- 2 Remove the E-clip, and then remove the gear.



**3** Remove the four screws (B).

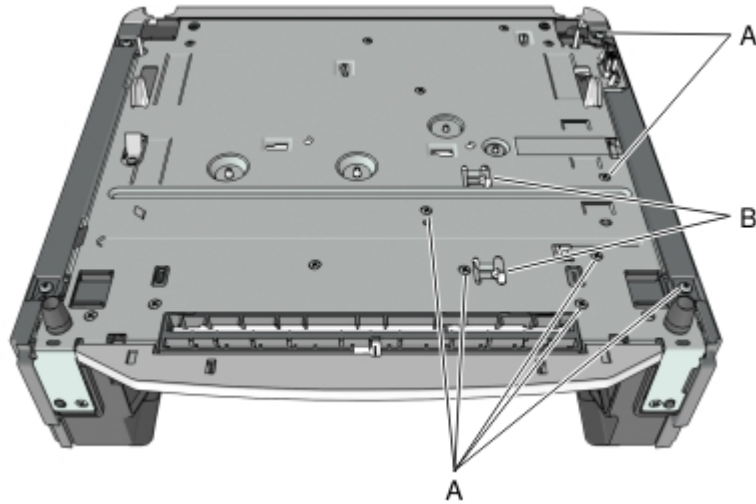


**4** Push out the top part of the drawer cover, and then remove the separator roll assembly.

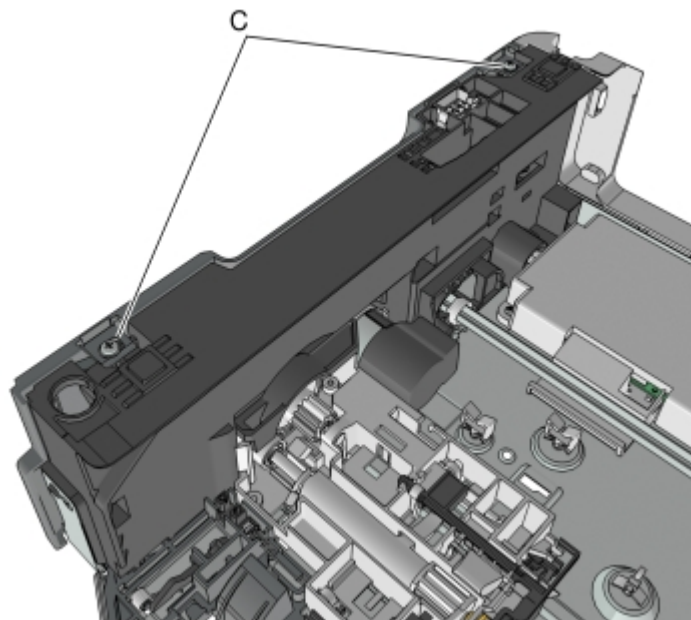


## ACM assembly removal

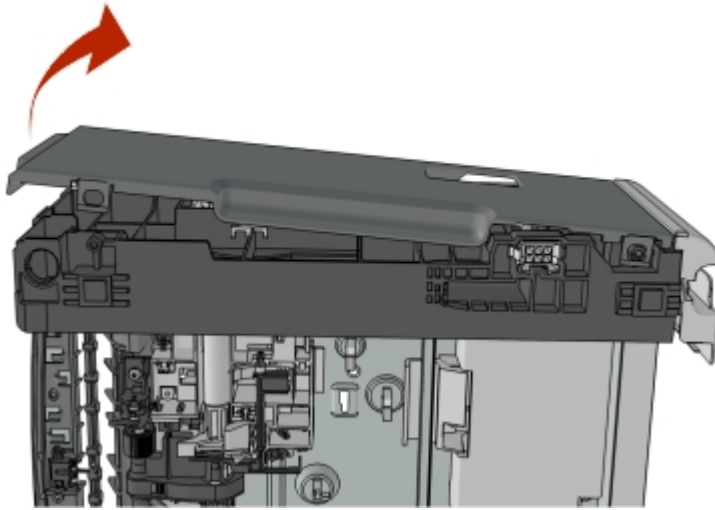
- 1 Remove the seven screws (A), and release the two latches (B) from the top of the drawer.



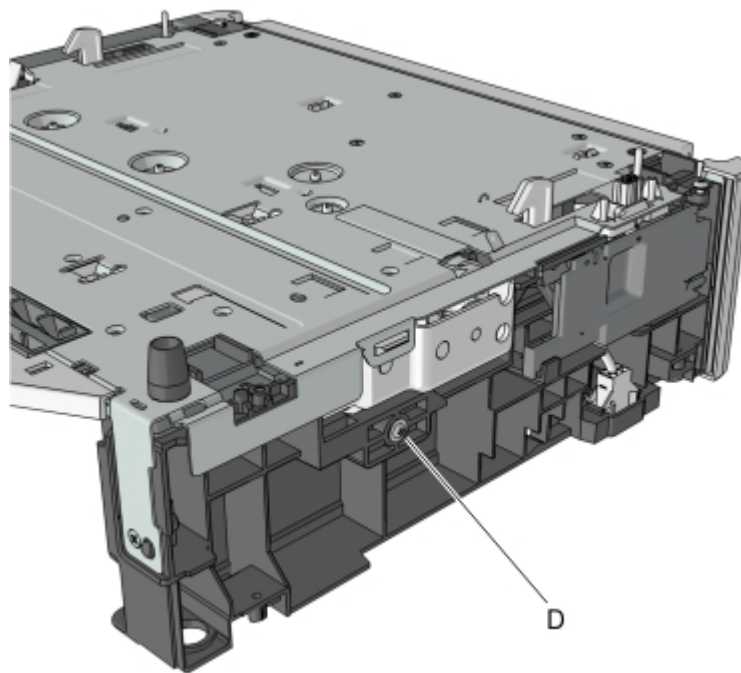
- 2 Remove the two screws (C), and then release the two latches under the screws.



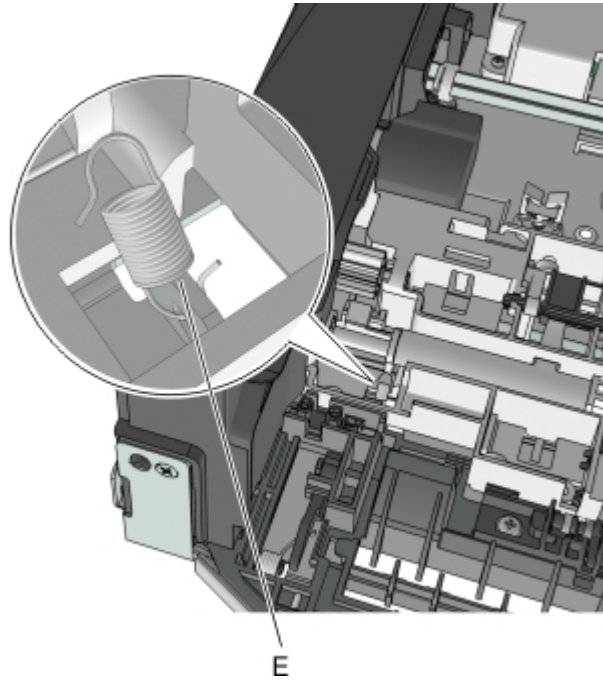
3 Swing the right cover backward to remove.



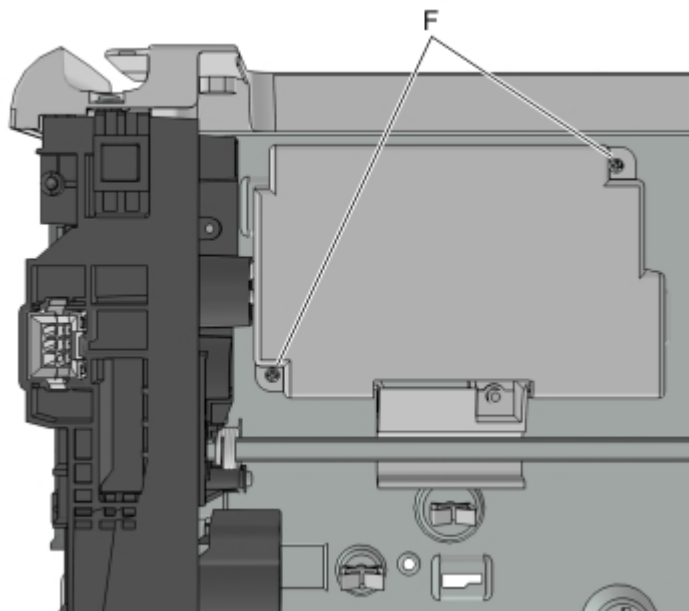
4 Remove the screw (D).



- 5 Disconnect the spring (E).



- 6 Remove the two screws (F), and then remove the controller card cover.



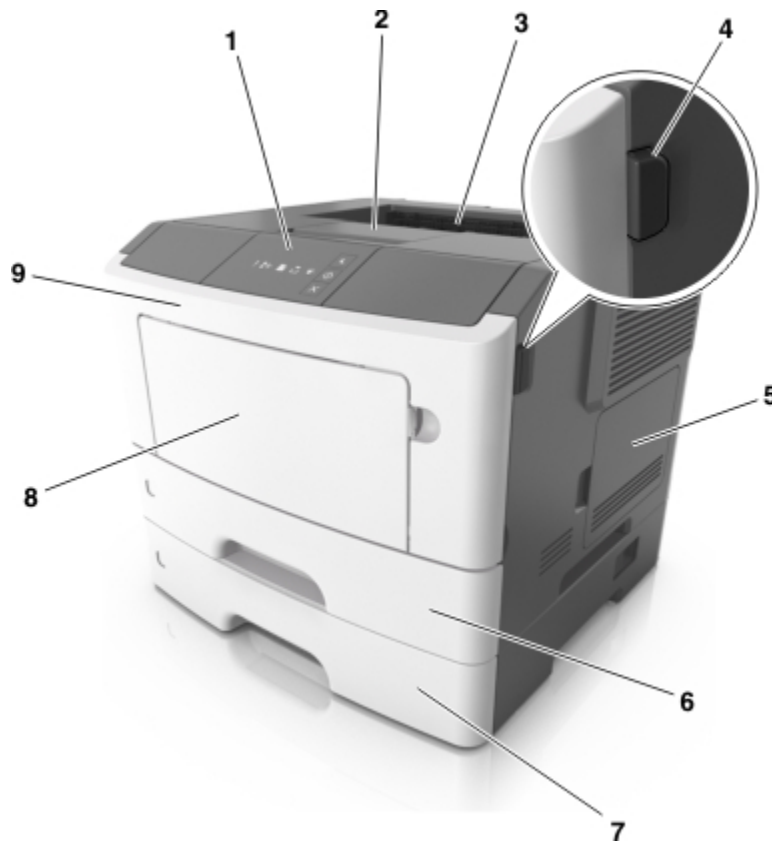
- 7 Disconnect the cable J11 from the controller card.
- 8 Unroute the cable, and then remove the ACM assembly.



# Component locations

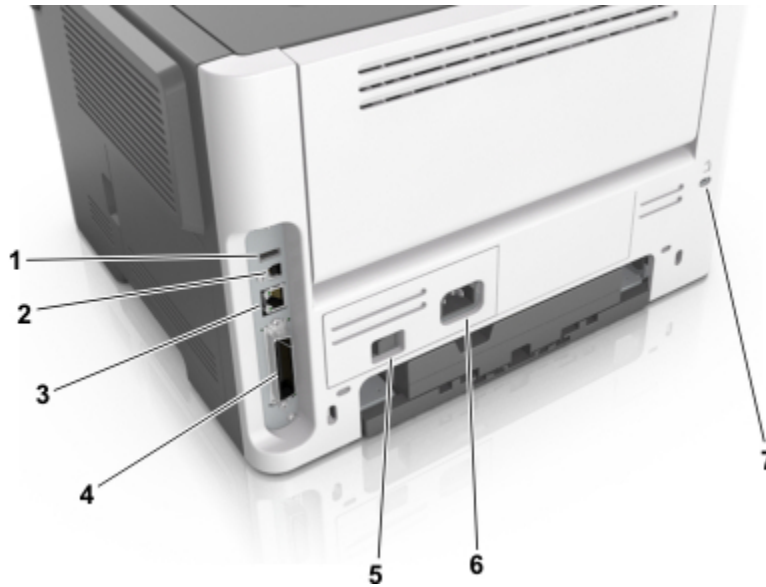
## Exterior locations

### Front view



|          | Part name                       |
|----------|---------------------------------|
| <b>1</b> | Control panel                   |
| <b>2</b> | Paper stop                      |
| <b>3</b> | Standard bin                    |
| <b>4</b> | Front door release button       |
| <b>5</b> | Controller board access door    |
| <b>6</b> | Standard 250-sheet tray         |
| <b>7</b> | Optional 250- or 550-sheet tray |
| <b>8</b> | 50-sheet multipurpose feeder    |
| <b>9</b> | Front door                      |

## Rear view

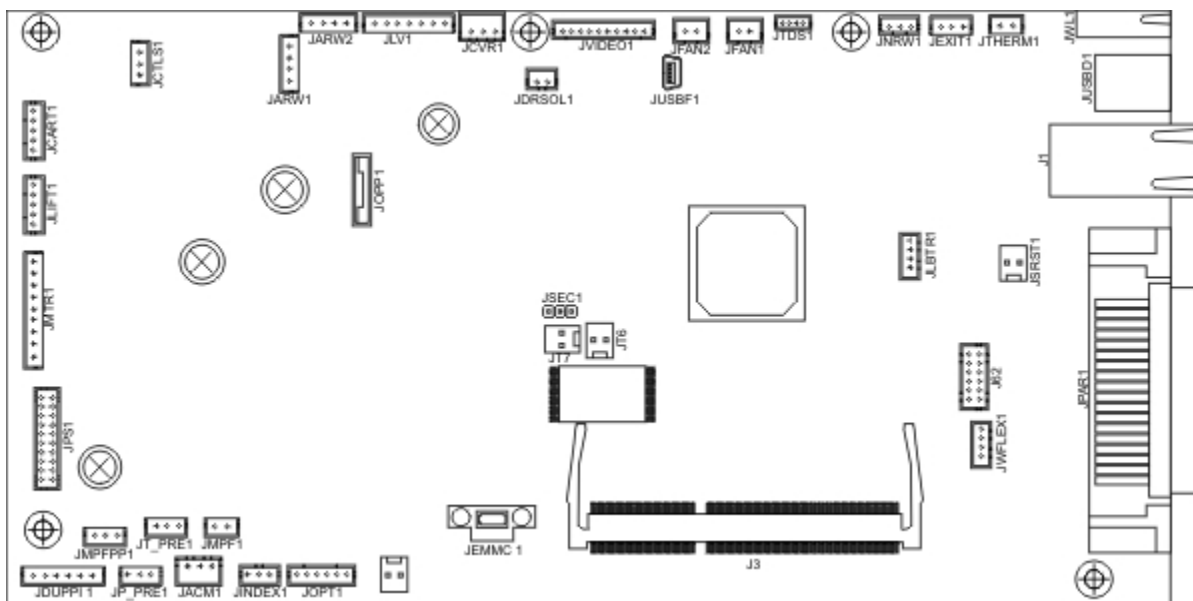


|  | Part name         |
|--|-------------------|
| 1  | USB port*         |
| 2  | USB printer port  |
| 3  | Ethernet port*    |
| 4  | Parallel port*    |
| 5  | Power switch      |
| 6  | Power cord socket |
| 7  | Security slot     |
| * These ports are available only in select printer models. |                   |



# Connectors

## Controller board

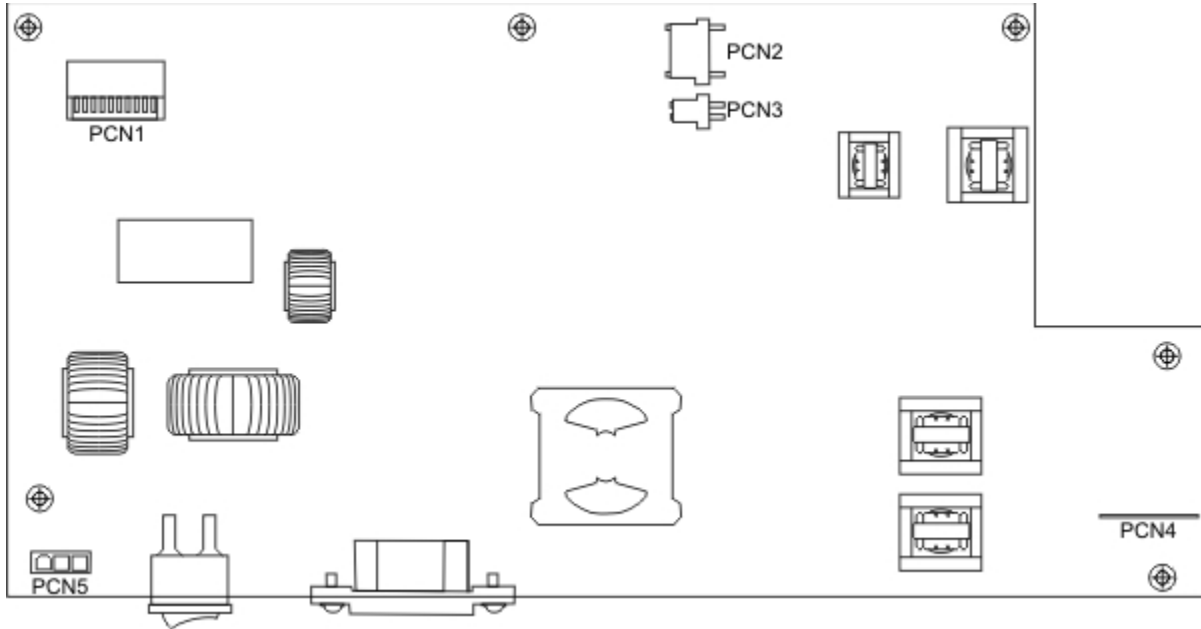


| Connector name | Description                        |
|----------------|------------------------------------|
| J1             |                                    |
| J3             |                                    |
| J62            |                                    |
| JACM1          | Trailing edge sensor               |
| JARW1          | Toner cartridge smart chip contact |
| JARW2          |                                    |
| JCART1         | Cartridge gearbox                  |
| JCTLS1         | CTLS                               |
| JCVR1          | Front door sensor                  |
| JDRSOL1        | Reverse solenoid                   |
| JDUPPI 1       | Duplex sensor and input sensor     |
| JEMMC 1        |                                    |
| JEXIT1         | Fuser exit sensor                  |
| JFAN1          | Cooling fan                        |
| JFAN2          |                                    |
| JINDEX1        | Index sensor                       |
| JLBTR1         |                                    |
| JLIFT1         |                                    |

Component locations

| Connector name | Description                  |
|----------------|------------------------------|
| JLV1           |                              |
| JMPF1          | MPF sensor                   |
| JMPFPP1        |                              |
| JMTR1          |                              |
| JNRW1          | Narrow media/bin full sensor |
| JOPP1          | UICC                         |
| JOPT1          | Second tray cable            |
| JP_PRE1        |                              |
| JPAR1          | Parallel port                |
| JPS1           |                              |
| JSEC1          |                              |
| JSRST1         |                              |
| JT_PRE1        |                              |
| JT6            |                              |
| JT7            |                              |
| JTDS1          |                              |
| JTHERM1        |                              |
| JUSBD1         |                              |
| JUSBF1         | Control panel USB port       |
| JVIDEO1        | LSU                          |
| JWFLEX1        |                              |
| JWL1           |                              |

## Power supply





# Maintenance

## Inspection guide

The purpose of this inspection guide is to aid you in identifying the intervals, based on page count, at which parts must be inspected (for visible physical damage), cleaned, or replaced.

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

As you service the machine, check for the following:

- 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

Use the following table to determine when specified parts should be inspected:

|                          | EVERY SERVICE CALL | EVERY 100K | EVERY 200K | NOTES                               |
|--------------------------|--------------------|------------|------------|-------------------------------------|
| <b>MEDIA TRAY—ALL</b>    |                    |            |            |                                     |
| Tray insert              | Inspect            | Inspect    | Replace    |                                     |
| Media side guides        | Inspect            | Inspect    |            | Check for correct positioning.      |
| Media end guide          | Inspect            | Inspect    |            | Check for correct positioning.      |
| Separation pad           | Inspect            | Clean      |            | Damp cloth                          |
| <b>MEDIA FEEDERS—ALL</b> |                    |            |            |                                     |
| Pick roller              | Inspect            | Inspect    | Replace    | Verify page count before replacing. |
| MPF feed rollers         | Inspect            | Inspect    | Replace    |                                     |
| Sensor                   |                    | Clean      | Clean      | Brush or blower brush               |
| <b>TRANSFER ROLL</b>     |                    |            |            |                                     |
| Transfer roll            | Inspect            | Inspect    | Replace    |                                     |
| <b>FUSER</b>             |                    |            |            |                                     |
| Fuser                    | Inspect            | Inspect    | Replace    |                                     |
| Sensor (fuser exit)      |                    | Clean      | Clean      | Blower brush                        |
| <b>REDRIVE ASSEMBLY</b>  |                    |            |            |                                     |
| Redrive assembly         |                    | Inspect    | Replace    |                                     |

## Lubrication specification

Lubricate only when parts are replaced or as needed, not on a scheduled basis. Use of lubricants other than those specified in this service manual can cause premature failure. Some unauthorized lubricants might chemically attack polycarbonate parts. Use Grease P/N 99A0394 Nyogel 744.

## Cleaning the printer

**Note:** You may need to perform this task after every few months.

**Warning—Potential Damage:** Damage to the printer caused by improper handling is not covered by the printer warranty.

- 1 Make sure that the printer is turned off and unplugged from the electrical outlet.



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

- 2 Remove paper from the standard bin and multipurpose feeder.
- 3 Remove any dust, lint, and pieces of paper around the printer using a soft brush or vacuum.
- 4 Dampen a clean, lint-free cloth with water, and use it to wipe the outside of the printer.

**Warning—Potential Damage:** Do not use household cleaners or detergents to prevent damage to the exterior of the printer.

- 5 Make sure all areas of the printer are dry before sending a new print job.



# Parts catalog

## Legend

The following column headings are used in the parts catalog:

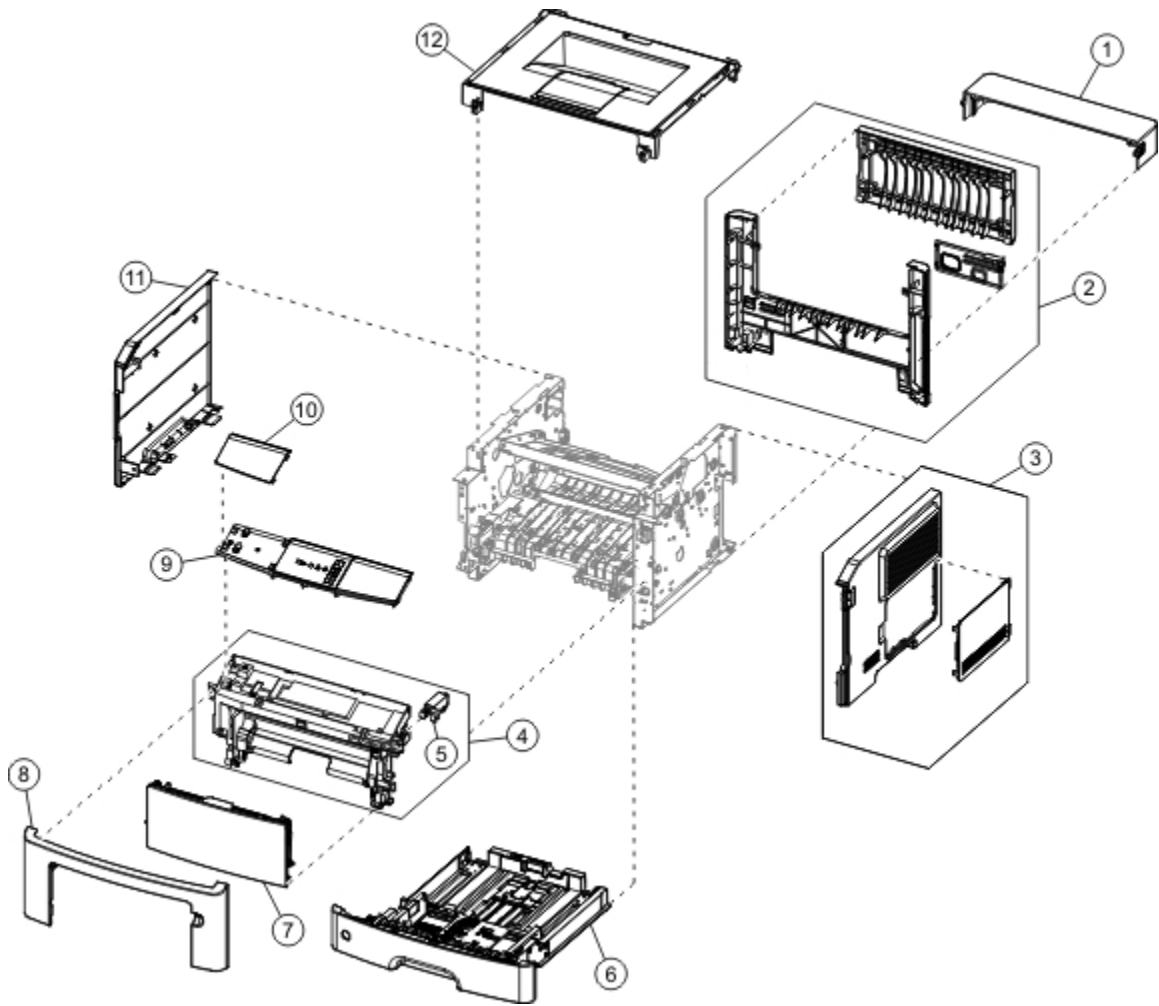
- **Asm-index**—Identifies the item in the illustration.
- **Part number**—Identifies the unique number that correlates with the part.
- **Units/mach**—Refers to the number of units actually used in the base machine or product.
- **Units/FRU**—Refers to the number of units in a particular FRU.
- **Description**—A brief description of the part.

The following abbreviations are used in the parts catalog:

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



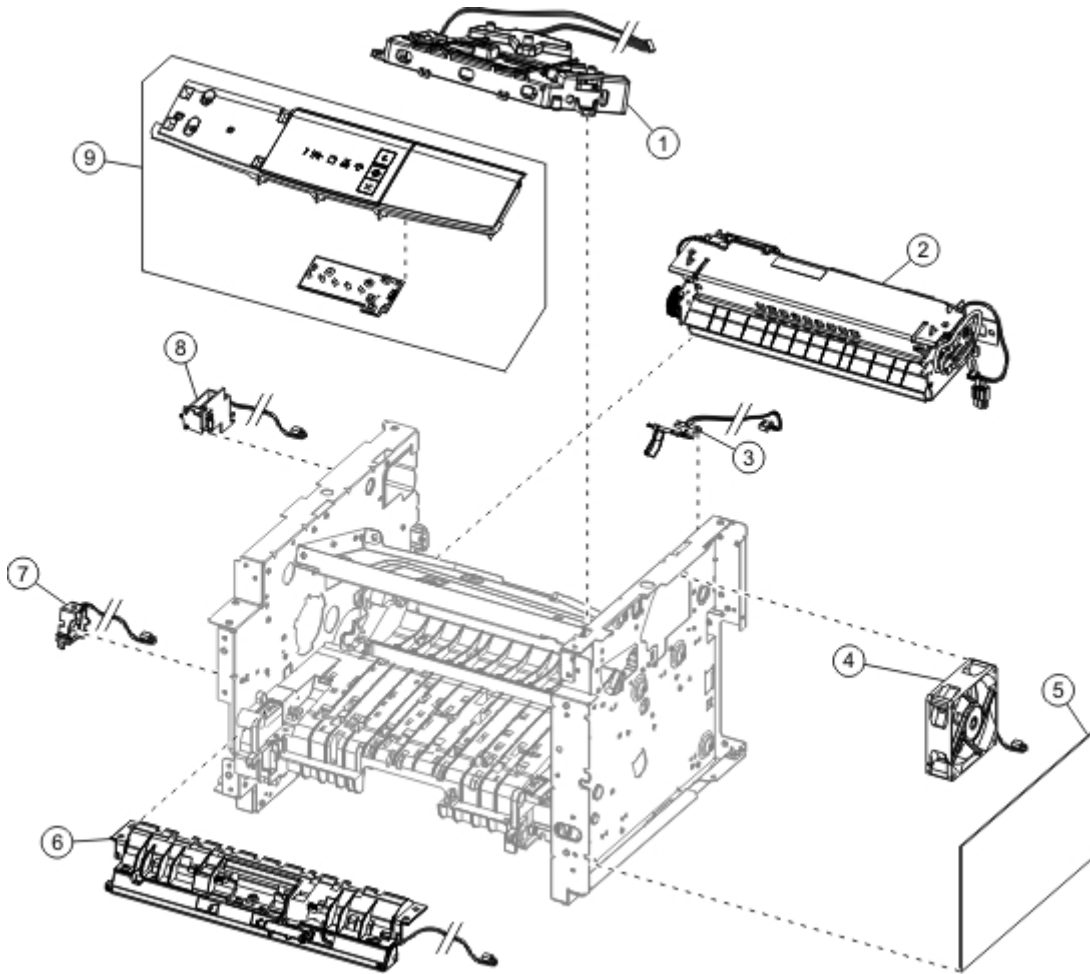
# Assembly 1: Covers



## Assembly 1: Covers

| Asm-index | P/N     | Units/mach | Units/FRU | Description  | Removal procedure  |
|-----------|---------|------------|-----------|--|--|
| 1         | 40X8520 | 1          | 1         | Dust cover (250-sheet tray)  | <b>"Dust cover removal" on page 205</b>  |
| 2         | 40X8054 | 1          | 1         | Rear door and cover  | <b>"Rear door and cover removal" on page 205</b>   |
| 3         | 40X8052 | 1          | 1         | Right cover  | <b>"Right cover removal" on page 160</b>   |
| 4         | 40X8056 | 1          | 1         | Front access cover   | <b>"Front access cover removal" on page 184</b>  |
| 5         | 40X9148 | 1          | 1         | Cartridge plunger  | <b>"Cartridge plunger removal" on page 169</b>   |
| 6         | 40X8303 | 1          | 1         | 250-sheet tray   | N/A  |
| 7         | 40X8302 | 1          | 1         | MPF assembly (50 sheets)   | <b>"MPF assembly removal" on page 176</b>  |
| 8         | 40X8051 | 1          | 1         | Nameplate  | <b>"Nameplate removal" on page 173</b>   |
| 9         | 40X8058 | 1          | 1         | Control panel cover and buttons<br><b>Note:</b> Does not include the UICC. | <b>"Control panel assembly removal" on page 173</b><br><b>"UICC removal" on page 175</b> |
| 10        | 40X8062 | 1          | 1         | Bezel (MS310d)   | <b>"Bezel removal" on page 172</b>   |
| 10        | 40X8063 | 1          | 1         | Bezel (MS310dn)  | <b>"Bezel removal" on page 172</b>   |
| 11        | 40X8053 | 1          | 1         | Left cover   | <b>"Left cover removal" on page 144</b>  |
| 12        | 40X8055 | 1          | 1         | Top cover  | <b>"Top cover removal" on page 210</b>   |

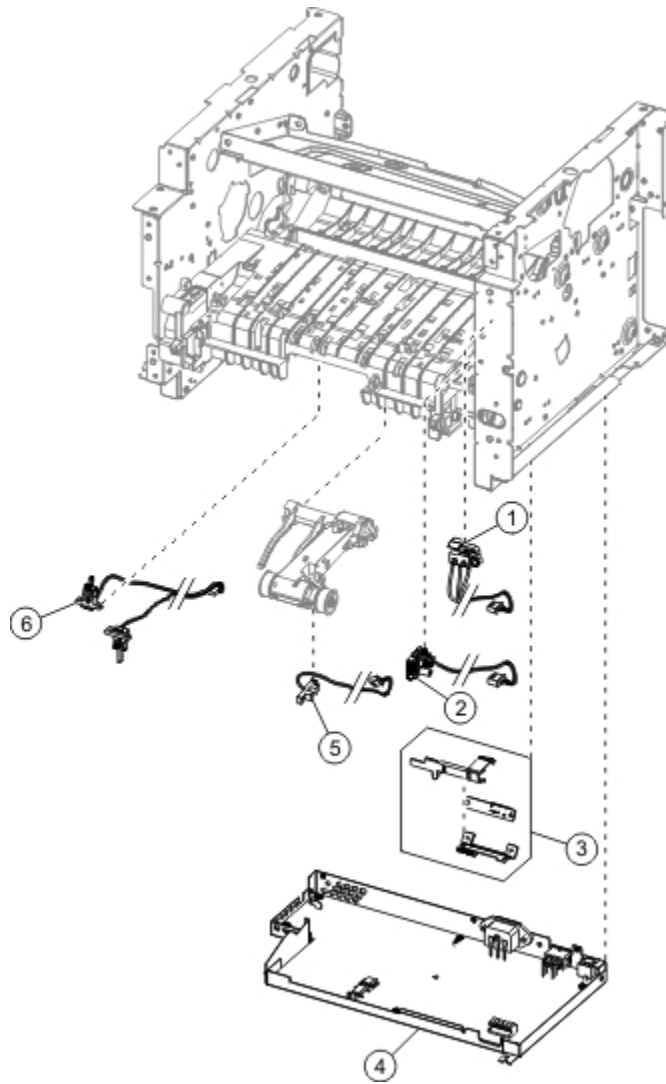
## Assembly 2: Electronics 1



## Assembly 2: Electronics 1

| Asm-index | P/N     | Units/mach | Units/FRU | Description                  | Removal procedure   |
|-----------|---------|------------|-----------|------------------------------|---|
| 1         | 40X8082 | 1          | 1         | Laser scanning unit          | <b>"Laser scanning unit (LSU) removal" on page 211</b>    |
| 2         | 40X8343 | 1          | 1         | Fuser, 100 V                 | <b>"Fuser removal" on page 209</b>                        |
| 2         | 40X8023 | 1          | 1         | Fuser, 110 V                 | <b>"Fuser removal" on page 209</b>                        |
| 2         | 40X8024 | 1          | 1         | Fuser, 220 V                 | <b>"Fuser removal" on page 209</b>                        |
| 3         | 40X8050 | 1          | 1         | Narrow media/bin full sensor | <b>"Narrow media/bin full sensor removal" on page 206</b> |
| 4         | 40X8276 | 1          | 1         | Cooling fan                  | <b>"Cooling fan removal" on page 161</b>                  |
| 5         | 40X8025 | 1          | 1         | Controller board (MS310d)    | <b>"Controller board removal" on page 162</b>             |
| 5         | 40X8026 | 1          | 1         | Controller board (MS310dn)   | <b>"Controller board removal" on page 162</b>             |
| 6         | 40X8280 | 1          | 1         | Front input guide            | <b>"Front input guide removal" on page 185</b>            |
| 7         | 40X8300 | 1          | 1         | MPF solenoid                 | <b>"MPF solenoid removal" on page 147</b>                 |
| 8         | 40X8301 | 1          | 1         | Reverse solenoid             | <b>"Reverse solenoid removal" on page 152</b>             |
| 9         | 40X8290 | 1          | 1         | Control panel assembly       | <b>"Control panel assembly removal" on page 173</b>       |

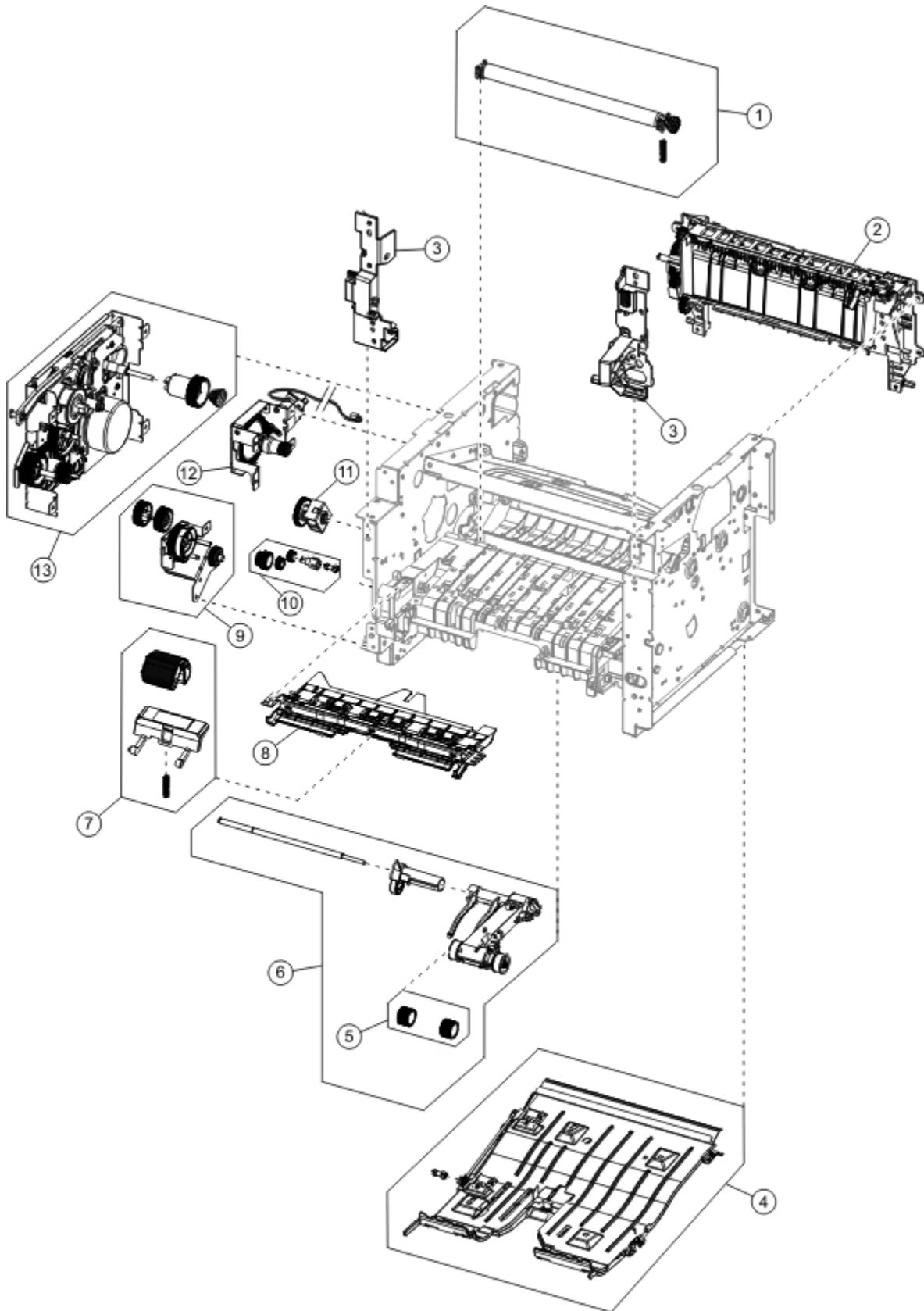
## Assembly 3: Electronics 2



## Assembly 3: Electronics 2

| Asm-index | P/N     | Units/mach | Units/FRU | Description                        | Removal procedure   |
|-----------|---------|------------|-----------|------------------------------------|---|
| 1         | 40X8048 | 1          | 1         | Front door sensor                  | <b>"Front door sensor removal" on page 184</b>                  |
| 2         | 40X8266 | 1          | 1         | Toner cartridge smart chip contact | <b>"Toner cartridge smart chip contact removal" on page 164</b> |
| 3         | 40X8046 | 1          | 1         | Toner density sensor               | <b>"Toner density sensor removal" on page 194</b>               |
| 4         | 40X7795 | 1          | 1         | Power supply, 100 V/110 V          | <b>"Power supply removal" on page 189</b>                       |
| 4         | 40X7796 | 1          | 1         | Power supply, 220 V                | <b>"Power supply removal" on page 189</b>                       |
| 5         | 40X8047 | 1          | 1         | Trailing edge sensor               | <b>"Trailing edge sensor removal" on page 195</b>               |
| 6         | 40X8043 | 1          | 1         | Duplex sensor and input sensor     | <b>"Duplex sensor and input sensor removal" on page 192</b>     |

# Assembly 4: Frame

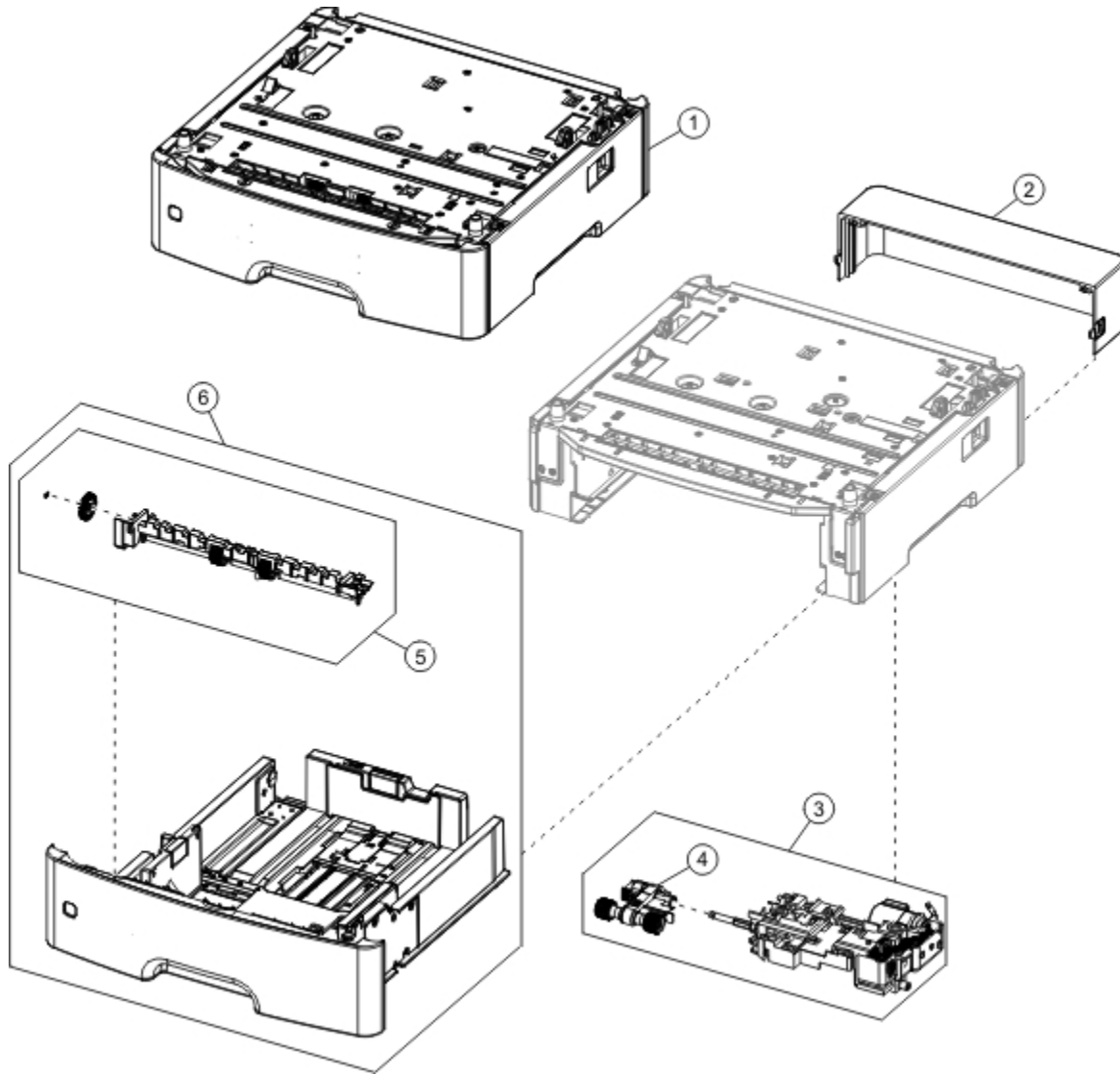


## Assembly 4: Frame

| Asm-index | P/N     | Units/mach | Units/FRU | Description                       | Removal procedure   |
|-----------|---------|------------|-----------|-----------------------------------|---|
| 1         | 40X8393 | 1          | 1         | Transfer roll                     | <b>"Transfer roll removal" on page 168</b>  |
| 2         | 40X8298 | 1          | 1         | Redrive assembly                  | <b>"Redrive assembly removal" on page 208</b>   |
| 3         | 40X8299 | 1          | 1         | Front mounts                      | <b>"Left front mount removal" on page 165</b><br><b>"Right front mount removal" on page 166</b> |
| 4         | 40X8275 | 1          | 1         | Duplex assembly                   | <b>"Duplex removal" on page 191</b>   |
| 5         | 40X8296 | 2          | 1         | Pick tire                         | N/A   |
| 6         | 40X8260 | 1          | 1         | ACM assembly                      | <b>"ACM assembly removal" on page 200</b>   |
| 7         | 40X8295 | 1          | 1         | MPF pick roller and Separator pad | <b>"MPF pick roller removal" on page 179</b><br><b>"Separator pad removal" on page 187</b>      |
| 8         | 40X8279 | 1          | 1         | Jam access cover                  | <b>"Jam access cover removal" on page 180</b>   |
| 9         | 40X8278 | 1          | 1         | MPF gearbox                       | <b>"MPF gearbox removal" on page 149</b>  |
| 10        | 40X8277 | 1          | 1         | Duplex gear assembly              | <b>"Duplex gear assembly removal" on page 158</b>   |
| 11        | 40X8265 | 1          | 1         | ACM clutch                        | <b>"ACM clutch removal" on page 153</b>   |
| 12        | 40X8083 | 1          | 1         | Cartridge gearbox                 | <b>"Cartridge gearbox removal" on page 158</b>  |
| 13        | 40X8085 | 1          | 1         | Main drive gearbox                | <b>"Main drive gearbox removal" on page 145</b>   |
| NS        | 40X8394 | 1          | 1         | Screw kit                         | N/A   |



## Assembly 5: Option trays



## Assembly 5: Option trays

| Asm-index | P/N     | Units/mach | Units/FRU | Description                | Removal procedure                                    |
|-----------|---------|------------|-----------|----------------------------|--|
| 1         | 40X8287 | 1          | 1         | 250-sheet tray             | N/A  |
| 1         | 40X8286 | 1          | 1         | 550-sheet tray             | N/A  |
| 2         | 40X8520 | 1          | 1         | Dust cover, 250-sheet tray | <b>"Dust cover removal" on page 205</b>              |
| 2         | 40X8521 | 1          | 1         | Dust cover, 550-sheet tray | <b>"Dust cover removal" on page 205</b>              |
| 3         | 40X8262 | 1          | 1         | ACM assembly               | <b>"ACM assembly removal" on page 215</b>            |
| 4         | 40x8443 | 1          | 1         | Pick roller assembly       | <b>"Pick roller removal" on page 212</b>             |
| 5         | 40X8444 | 1          | 1         | Separator roll assembly    | <b>"Separator roll assembly removal" on page 213</b> |
| 6         | 40X8305 | 1          | 1         | 250-sheet tray insert      | N/A  |
| 6         | 40X8086 | 1          | 1         | 550-sheet tray insert      | N/A  |

## Assembly 6: Power cords

| Asm-index | P/N     | Units/mach | Units/FRU | Description                                    | Removal procedure |
|-----------|---------|------------|-----------|--|-------------------|
| NS        | 40X0269 | 1          | 1         | Power cord, 2.5 m (straight)—USA, Canada       | N/A               |
| NS        | 40X3141 | 1          | 1         | Power cord, 2.5 m (straight)—Europe and others | N/A               |
| NS        | 40X0288 | 1          | 1         | Power cord, 2.5 m (straight)—Argentina         | N/A               |
| NS        | 40X0271 | 1          | 1         | Power cord, 2.5 m (straight)—United Kingdom    | N/A               |
| NS        | 40X0275 | 1          | 1         | Power cord, 2.5 m (straight)—Israel            | N/A               |
| NS        | 40X1772 | 1          | 1         | Power cord, 2.5 m (straight)—Switzerland       | N/A               |
| NS        | 40X1773 | 1          | 1         | Power cord, 2.5 m (straight)—South Africa      | N/A               |
| NS        | 40X0273 | 1          | 1         | Power cord, 2.5 m (straight)—Traditional Italy | N/A               |
| NS        | 40X1774 | 1          | 1         | Power cord, 2.5 m (straight)—Denmark           | N/A               |
| NS        | 40X4596 | 1          | 1         | Power cord, 2.5 m (straight)—Brazil            | N/A               |
| NS        | 40X0303 | 1          | 1         | Power cord, 2.5 m (straight)—China             | N/A               |
| NS        | 40X0270 | 1          | 1         | Power cord, 2.5 m (straight)—Japan             | N/A               |
| NS        | 40X1792 | 1          | 1         | Power cord, 2.5 m (straight)—Korea             | N/A               |
| NS        | 40X1791 | 1          | 1         | Power cord, 2.5 m (straight)—Taiwan            | N/A               |
| NS        | 40X0301 | 1          | 1         | Power cord, 2.5 m (straight)—Australia         | N/A               |



# Appendix A: Printer specifications

## Product power consumption

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

**Note:** Some modes may not apply to your product.

| Mode       | Description   | Power consumption (Watts) |
|------------|---|---------------------------|
| Printing   | The product is generating hard-copy output from electronic inputs.                    | 520                       |
| Copy       | The product is generating hard-copy output from hard-copy original documents.         | N/A                       |
| Scan       | The product is scanning hard-copy documents.  | N/A                       |
| Ready      | The product is waiting for a print job.   | 8                         |
| Sleep Mode | The product is in a high-level energy-saving mode.                                    | 5                         |
| Hibernate  | The product is in a low-level energy-saving mode.                                     | 1                         |
| Off        | The product is plugged into an electrical outlet, but the power switch is turned off. | 0                         |

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

Values are subject to change. See [www.lexmark.com](http://www.lexmark.com) for current values.

## Electrical specifications

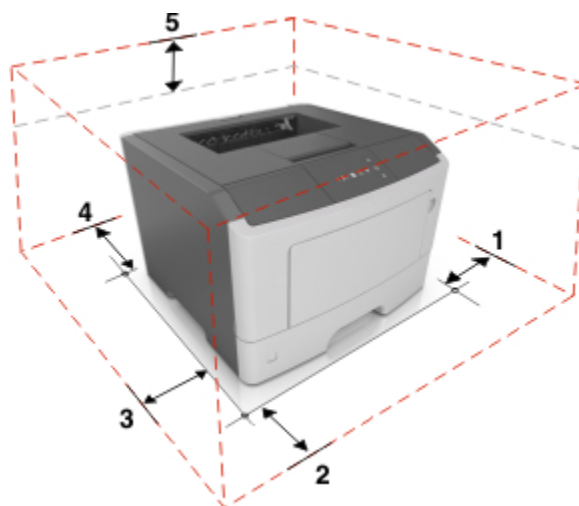
### Low-voltage models

- 100 to 127 V ac at 47 to 63 Hz nominal
- 90 to 137 V ac, steady state operational extremes

### High-voltage models

- 220 to 240 V ac at 47 to 63 Hz nominal (not available in all countries)
- 198 to 254 V ac, steady state operational extremes

## Operating clearances



|  |       |                 |
|--|-------|-----------------|
| 1  | Right | 305 mm (12 in.) |
| 2  | Front | 508 mm (20 in.) |
| 3  | Left  | 203 mm (8 in.)  |
| 4  | Rear  | 203 mm (8 in.)  |
| 5  | Top   | 305 mm (12 in.) |
| Allow additional clearance around the printer for adding the optional input trays. |       |                 |

## Acoustics

All measurements are made in accordance with ISO 7779 and conform with ISO 9296.

| Status  | 1 meter average sound pressure dBA | Declared sound power level (Bels) |
|---|------------------------------------|-----------------------------------|
| Idle (Standby)  | Inaudible                          | Inaudible                         |
| Quiet Mode  | 49 dBA                             | 6.3 Bels                          |
| Simplex Printing  | 52 dBA                             | 6.7 Bels                          |
| Sleep/Hibernate Mode  | Inaudible                          | Inaudible                         |
| Measurements apply to 300 dpi, 600 dpi and 1200 dpi printing. |                                    |                                   |

## Operating environment

| Environment  |                              | Specification                |
|--|------------------------------|------------------------------|
| Printer operating  | Temperature                  | 60 to 90 °F (16 to 32 °C)    |
|  | Relative humidity            | 8 to 80%                     |
|  | Maximum wet bulb temperature | 73 °F (23 °C)                |
| Printer off  | Temperature                  | 50 to 110 °F (10 to 43 °C)   |
|  | Relative humidity            | 8 to 80%                     |
|  | Maximum wet bulb temperature | 80 °F (27 °C)                |
| Ambient operating environment*   | Temperature                  | 60 to 90 °F (16 to 32 °C)    |
|  | Relative humidity            | 8 to 80%                     |
| Storage and shipping (packaged printer) with or without print cartridge  | Temperature                  | -40 to 110 °F (-40 to 43 °C) |
| Altitude   |                              | 10,000 ft (0 to 3,048 m)     |
| Atmospheric pressure   |                              | 74.6 kPa                     |
| Tilt   |                              | 2°                           |
| *In some cases, performance specifications (such as paper OCF, EP cartridge usage) are measured at an ambient condition. |                              |                              |





# Appendix B: Options and features

## Available internal options

### Memory cards

- Printer memory
- Flash memory
- Fonts

## Media handling options

**Note:** Only one optional tray can be installed.

- 250-sheet tray
- 550-sheet tray



## Appendix C: Theory of operation

### POR sequence

At power on, the engine code goes through a series of tests to verify hardware integrity. If a hardware failure is detected, it will be reported to the printer. If the POR sequence cannot be completed successfully, the printer may post an error message identifying service may be needed.

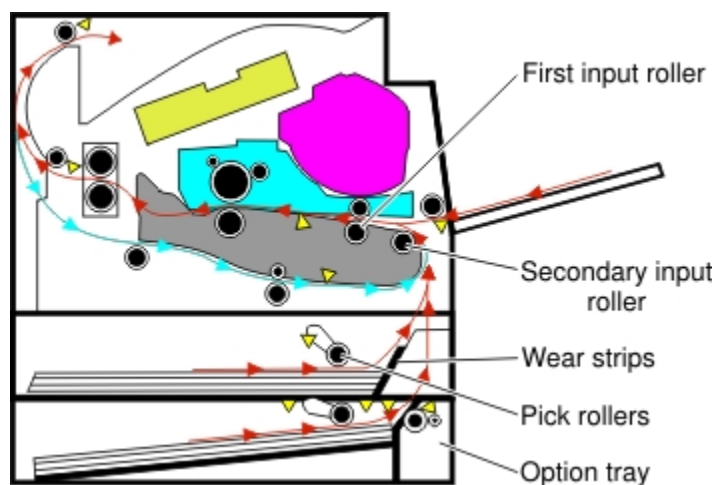
### Printer control

The printer uses a single processor for both RIP and engine functions. The raster image processor (RIP) code performs system responsibilities such as PC connection, LAN, ISP attachments, and bitmap generation. The engine code performs tasks related to the operation of the electrical and mechanical device systems such as motors, lasers, power supplies, and fusers. The NVRAMs are located on the controller board and control panel, replacement of either the controller board or control panel will pull or mirror NVRAM data from each other.

### Paper path information

#### Input tray (MS310, MS410)

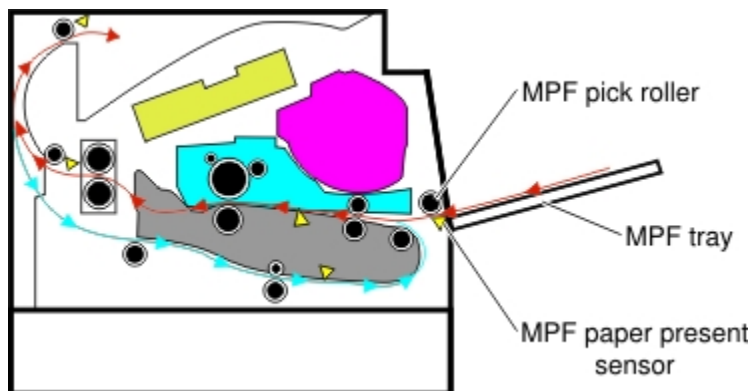
When feeding media, the ACM lowers to come into contact with the media. The pick rollers on the ACM rotate to push the media to the wear strips at the front of the tray. The wear strips provide a fixed resistance to ensure that sheets are fed one at a time. The media is then fed to the secondary input roller and then to the first input roller.



#### Multipurpose feeder (MPF)

The driving force from the main drive motor is transmitted through the MPF gearbox. When the MPF solenoid activates, it allows the MPF sector gear linked to the MPF gearbox to rotate. The MPF pick roll shaft is connected to the MPF sector gear.

The MPF can be accessed by opening the MPF tray on the front door. In an MPF paper feed, the MPF paper present sensor detects the media. The instant the MPF pick roll shaft rotates, the cams on each end of the shaft disengage the MPF tray. Each side of the tray is connected to the front access cover by springs. When disengaged from the shaft, the springs pull the tray causing the media to come into contact with the MPF pick roller. At the same time the pick roller rotates, pushing the media to the separator pad. The media does not pass through the secondary input roller, but directly to the first input roller.

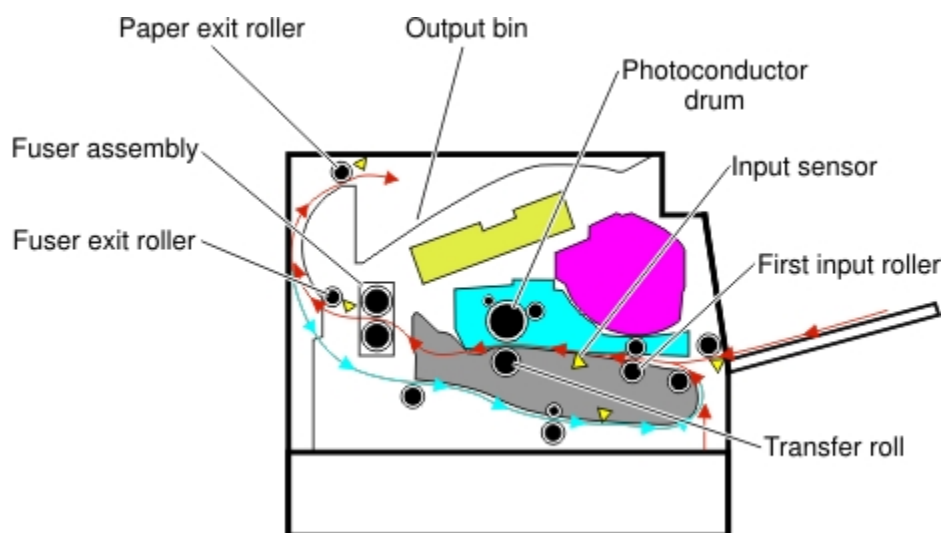


## Simplex printing

Situated along the first input roller, is the deskew shutter. It subjects the media to a deskewing force based on the media width. The direction of the force is transverse to the feed direction. The leading edge of the media then passes through the input sensor.

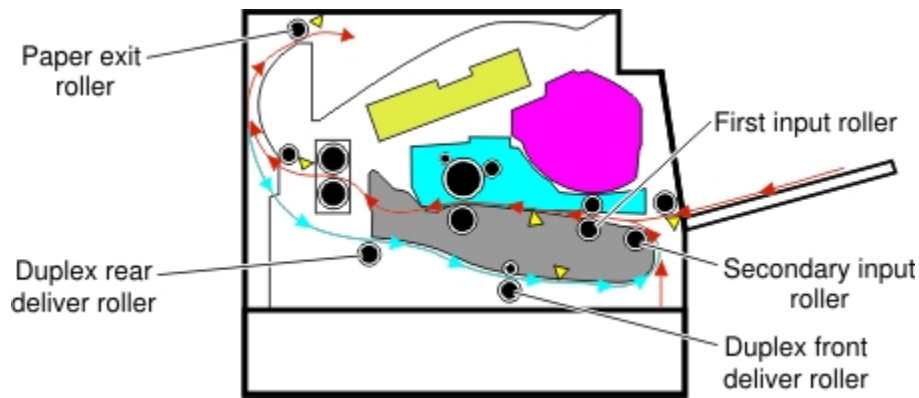
After the edge of the media is aligned, the first input roller feeds the media to the transfer roll for toner transfer. At this point, the toner image is already on the photoconductor drum surface. As the media passes between the photoconductor drum and transfer roll, the toner image is transferred to the media.

The media with the embedded toner image goes through the fuser assembly to permanently bond the toner to the media. When it passes between the heat belt and pressure roll of the fuser assembly, the combination of heat and pressure fuses the toner image to the media. The fuser exit roller feeds the media to the paper exit roller and then to the output bin.



## Duplex printing

After the first side of the media has been printed on and is partially fed out to the output bin, the duplex solenoid activates. This causes the exit roller to reverse its rotation and feed the media, with its trailing edge first, back into the redrive assembly and then to the duplex paper path. The duplex front and rear deliver rollers move the media through the duplex paper path, the diverter, the first input roller, and back to the primary paper path. The same process for printing on the first side of the media repeats, this time for the second side of the media.



## Media handling components

### Main drive gearbox

The gearbox supplies all mechanical power requirements of the printer. Its motor, through several gears, transfers power to following paths: photoconductor drum, transfer roll, fuser, paper exit, input, duplex, and MPF.

Aside from providing rotational motion to rollers and feeders, the gearbox must also ensure that the print image is not distorted during the whole process. It must also provide easy and effective means to cut or break the transfer of motion when taking the cartridge unit out of the machine, or when clearing jammed sheets through its linkage system.

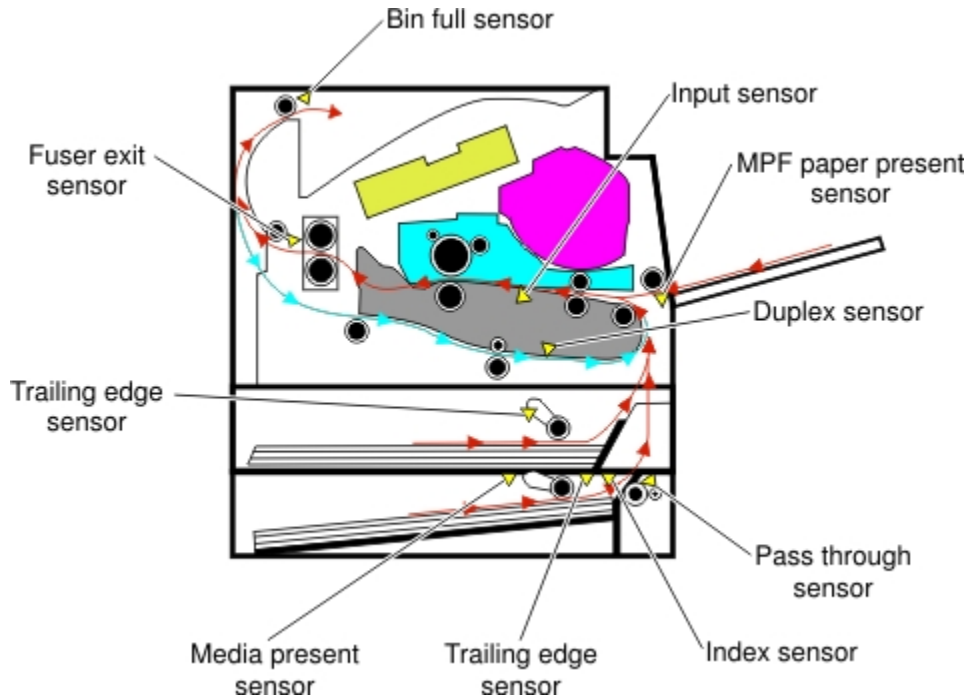
### Autocompensator mechanism (ACM)

The fundamental function of the ACM is to pick and feed a single sheet of media and accurately deliver it to the downstream paper path. The pick arm is counterbalanced to provide a priming force throughout the entire range of paper levels in the tray. When media is picked, a subsequent sheet is not picked until the previous sheet's trailing edge is detected by the trailing edge sensor. Once the trailing edge of the media is detected, and the minimum interpage gap is satisfied, the next sheet will be picked.

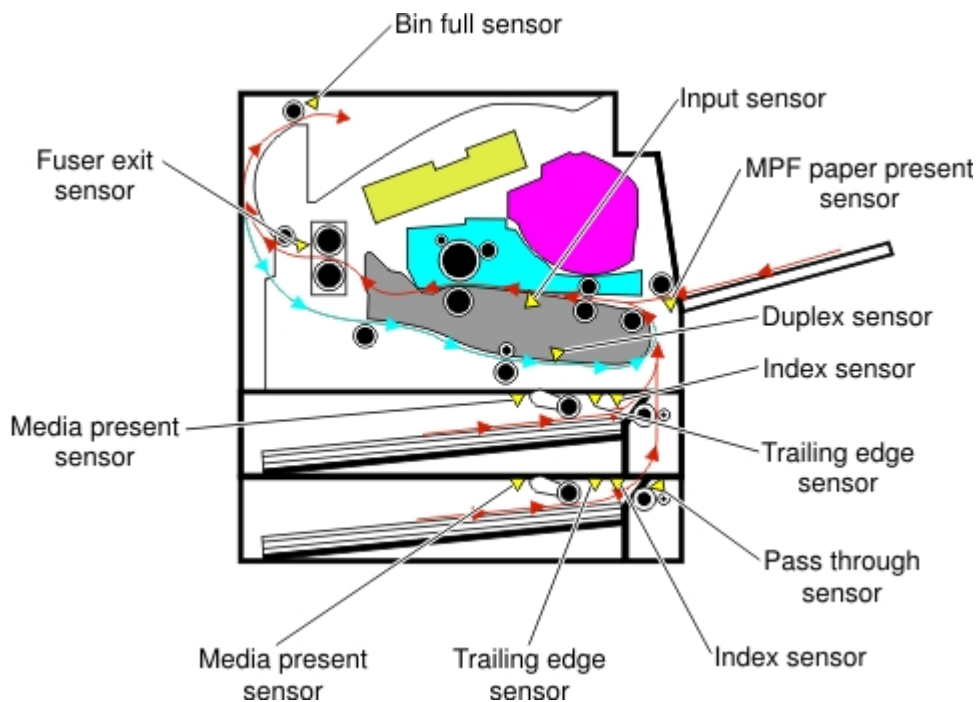
# Key components

## Sensors

### MS310/MS410 sensors



### MS510/MS610 sensors



**Trailing edge sensor**

Detects the media's trailing edge as it passes the pick tires. Among other capabilities, this sensor can be used to determine the paper size sensor and the media stack height.

**MPF sensor**

Detects the presence of media in the MPF tray.

**Media present sensor**

Detects the presence of media in the tray.

**Tray present sensor**

Detects the presence of the tray in the printer.

**Bin full sensor**

Detects whether the standard bin is full by moving the actuator up and down.

**Toner density sensor**

Detects a pre-placed toner patch and image on the photoconductor (drum) and outputs pulses when the central line of the patch image aligns with the central line of the detector. The sensor outputs pulses at the timing the patch image passes the sensor. Therefore, observing changes of intervals at which pulses are output leads to toner density detection.

**Pass through sensor (option tray)**

Detects when the media from the option tray passes. This will trigger the pick roller to pick the next media.

**Capactive Toner Level Sensor (CTLS)**

Detects the amount of toner in the imaging unit. If the toner level is low, the cartridge auger motor is triggered to add toner from the toner cartridge to the imaging unit.

**Front door sensor**

Is a safety switch that cuts off a 5 V DC supply from the controller board to the LSU to prevent the laser from activating when the front door is opened.

**Other key components****Cooling fan**

Discharges air from the printer to prevent excessive temperature increase.

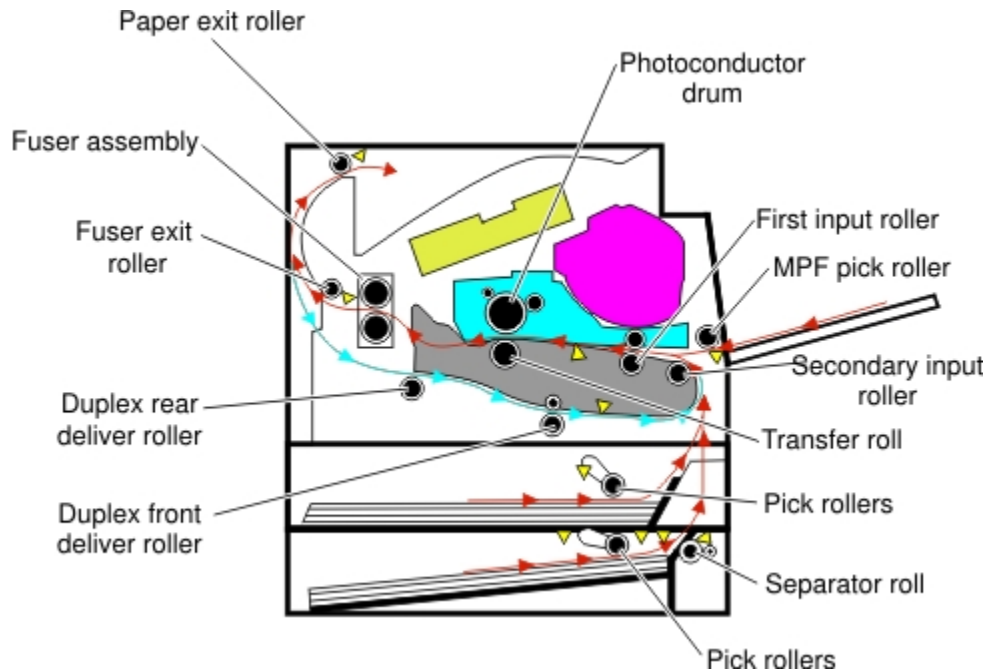
**Power supply**

The power supply has two main sections: the HVPS and LVPS. The HVPS card assembly generates AC power and feeds it to the developer roll, the transfer roll assembly and the charge roll assembly. The LVPS card assembly generates low voltages: 5 V DC for logic circuits, 5 V DC for laser diodes and 24 V DC for cooling fans.

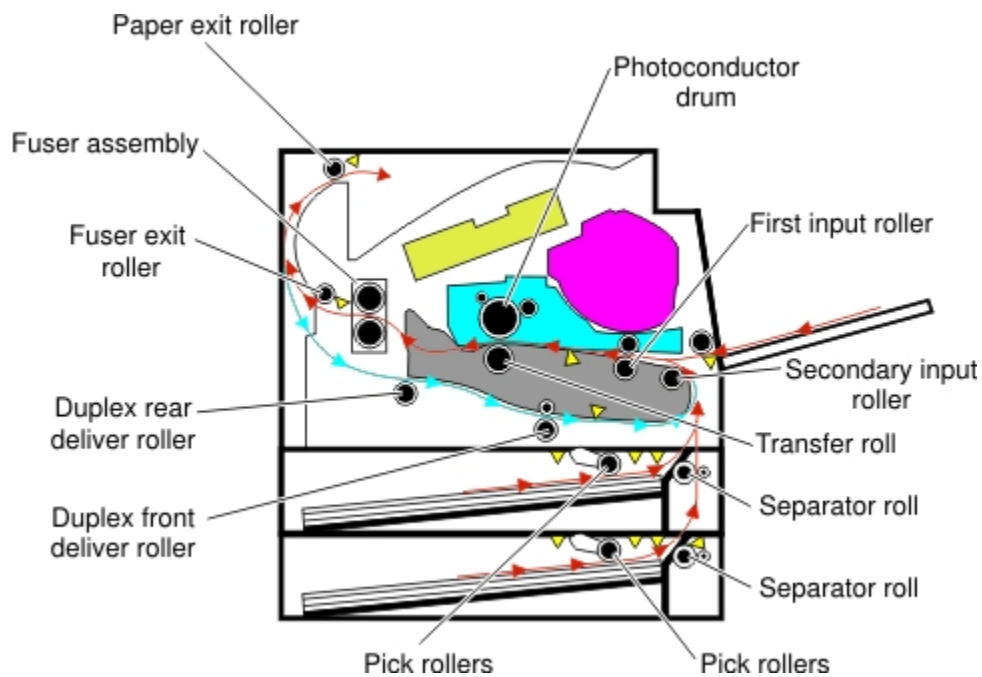
## Controller board

Controls the printing operation based on the communication with the RIP controller and optional peripherals. It also controls the fuser, toner dispensing, sensor switch feedback, drive motors, clutches and solenoids

## MS310/MS410 rollers



## MS510/MS610 rollers





# Electrophotographic process (EP process)

## Printhead

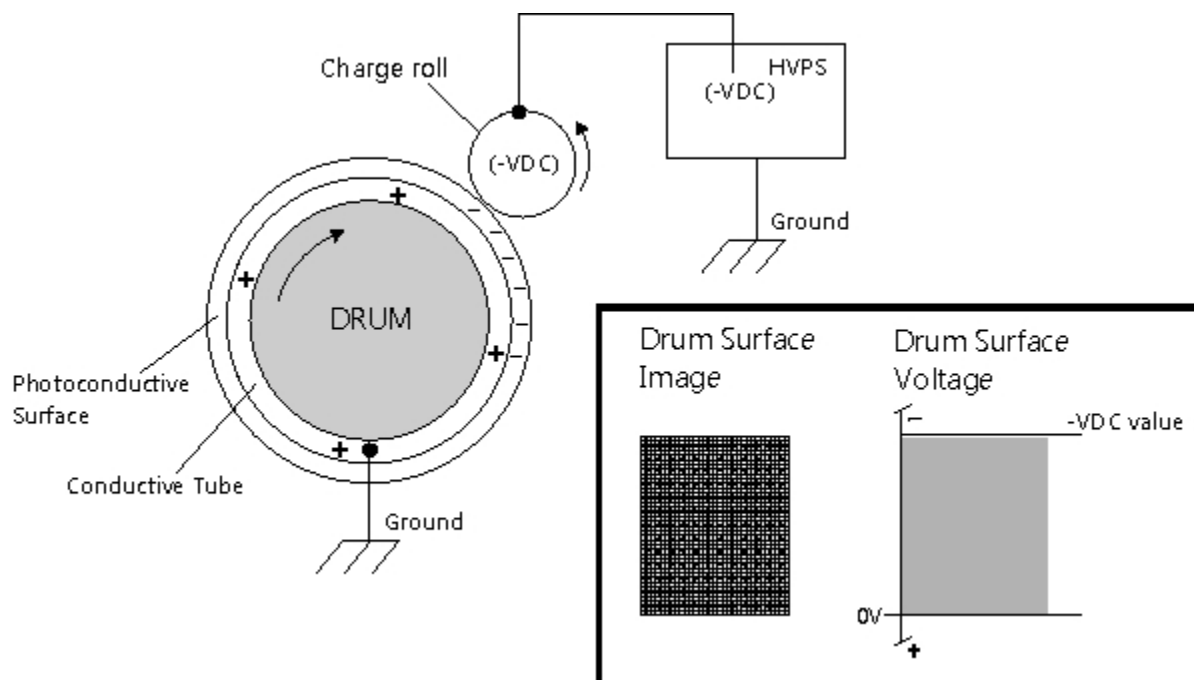
The printhead scans the photo conductor drum surface with a laser beam. It consists of the following components:

- Laser diode (LD) card assembly
- Oscillator
- Start of scan card assembly

When a laser beam is scanned across the photoconductor drum surface from one end to the other while turning on and off the beam, one line of latent image is created. If the scanning by the laser beam is repeated while rotating the drum, a two-dimensional image is created. The resolution in the scanning direction (from right to left) is determined by the rotational speed of the printhead motor, depending on how quickly the laser is adjusted. The resolution in the process direction (from top to bottom) is determined by the rotational speed of the printhead motor. The higher the scanning speed becomes, the sooner the scanning of the next row can be started.

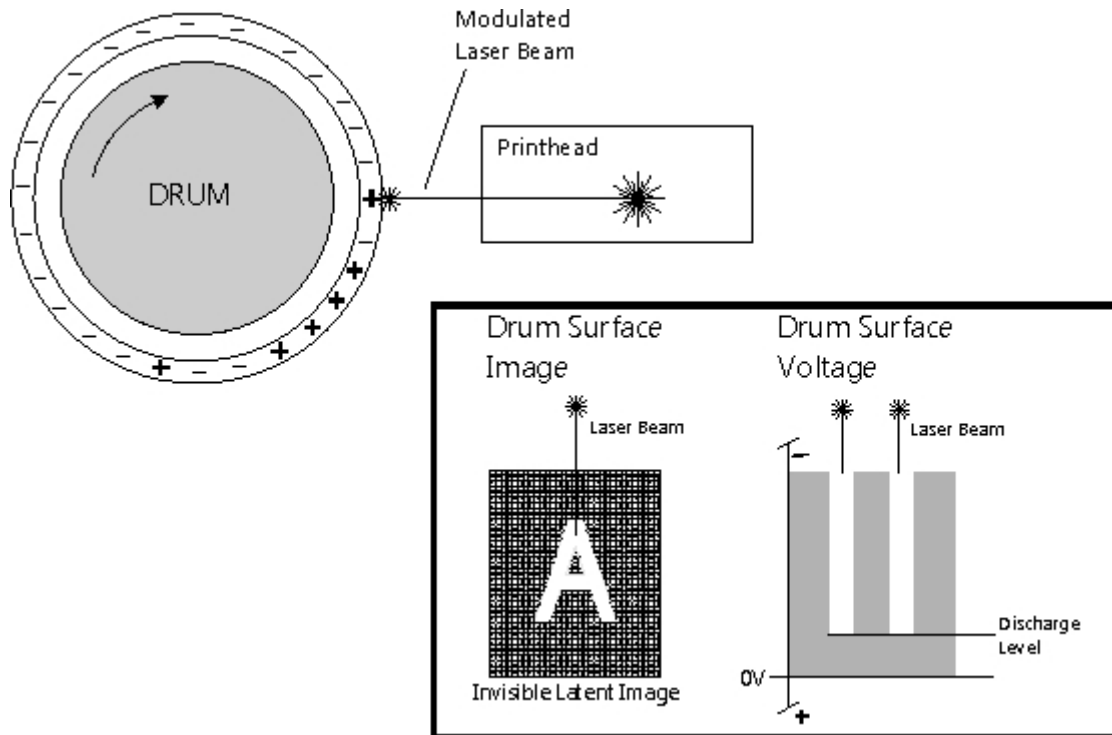
## Step 1: Charge

During the charge step, voltage is sent from the HVPS to the charge roll beside the photoconductor. The charge roll applies a uniform negative charge over the entire surface of the photoconductor to prepare it for the laser beam.



## Step 2: Expose

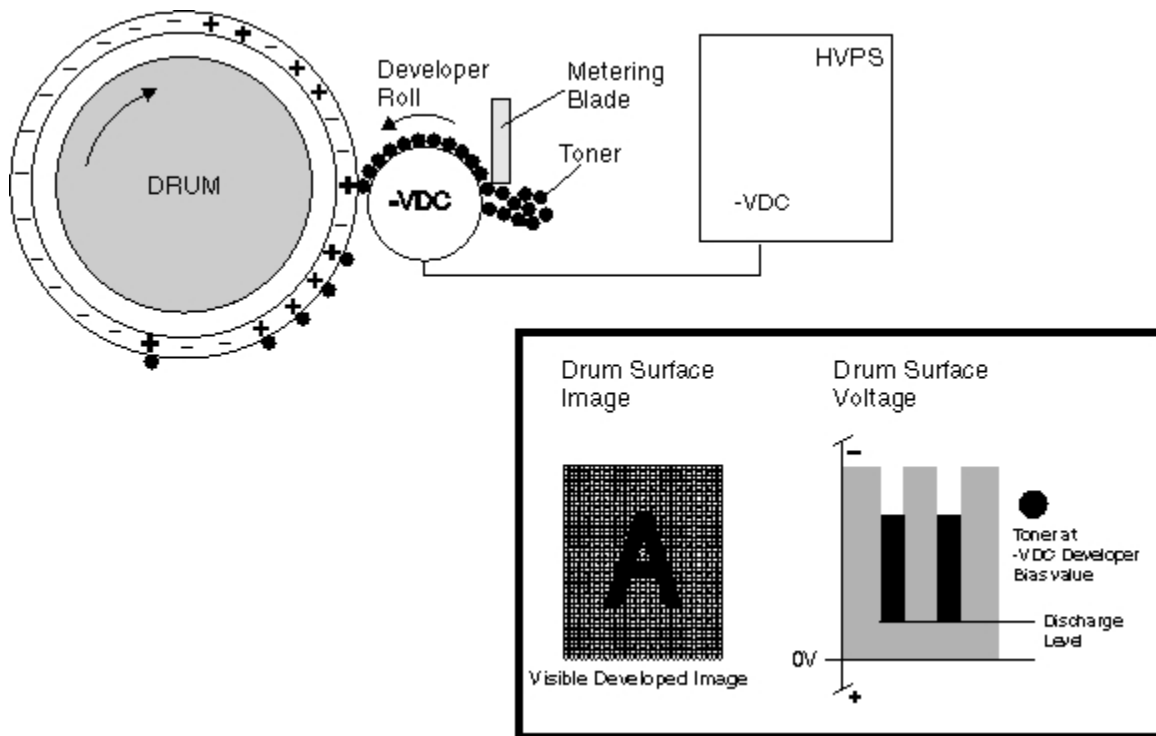
The laser fires a focused beam of light at the surface of the photoconductor and writes an invisible image, called a latent image. The laser beam only discharges the surface where the beam hits the photoconductor. This creates a difference in charge potential between the exposed area and the rest of the photoconductor surface.



## Step 3: Develop

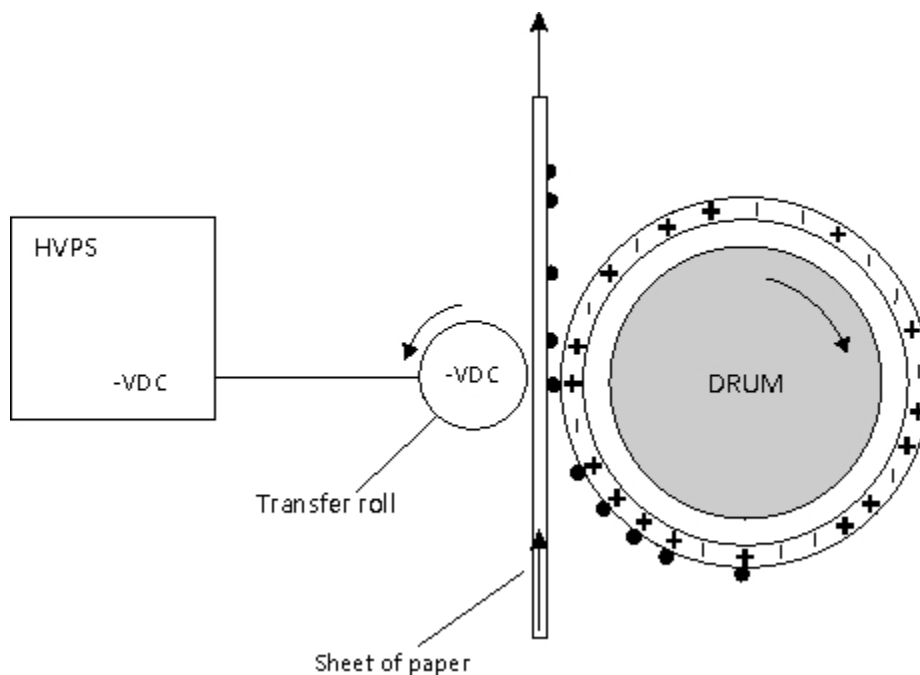
Once the laser exposes the photoconductor, the HVPS sends charge to the developer roll. Because of the charge difference between the toner on the developer roller and the electrostatic image created by the laser, the toner is attracted to areas of the photoconductor surface exposed by the laser.

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 not to the rest of the can.



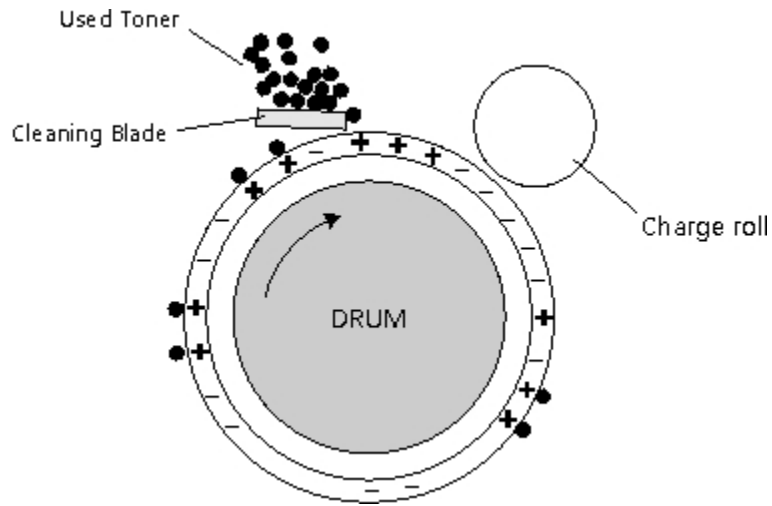
### Step 4: Transfer

As the paper travels between the transfer roll and the photoconductor, the transfer roll applies a positive charge to the back of the media. This positive charge attracts the negatively charged toner image from the photoconductor to the top surface of the media.



## Step 5: Clean

The cleaning blade removes any toner that remains on the photoconductor after the transfer process. The toner removed is collected inside the imaging unit.



# Appendix D: Acronyms

## Acronyms

|       |   |
|-------|---|
| ASIC  | Application-Specific Integrated Circuit |
| BLDC  | Brushless DC Motor                      |
| BOR   | Black Only Retract                      |
| C     | Cyan                                    |
| CCD   | Charge Coupled Device                   |
| CCP   | Carbonless Copy Paper                   |
| CRC   | Cyclic Redundancy Check                 |
| CSU   | Customer Setup                          |
| CTLS  | Capacitance Toner Level Sensing         |
| DIMM  | Dual Inline Memory Module               |
| DRAM  | Dynamic Random Access Memory            |
| EDO   | Enhanced Data Out                       |
| EP    | Electrophotographic Process             |
| EPROM | Erasable Programmable Read-Only Memory  |
| ESD   | Electrostatic Discharge                 |
| FRU   | Field Replaceable Unit                  |
| GB    | Gigabyte                                |
| HCF   | High-Capacity Feeder                    |
| HCIT  | High-Capacity Input Tray                |
| HCOF  | High-Capacity Output Finisher           |
| HVPS  | High Voltage Power Supply               |
| ITU   | Image Transfer Unit                     |
| K     | Black                                   |
| LCD   | Liquid Crystal Display                  |
| LDAP  | Lightweight Directory Access Protocol   |
| LED   | Light-Emitting Diode                    |
| LVPS  | Low Voltage Power Supply                |
| M     | Magenta                                 |
| MB    | Megabyte                                |
| MFP   | Multi-Function Printer                  |
| MPF   | Multipurpose Feeder                     |
| MROM  | Masked Read Only Memory                 |

|            |                                       |
|------------|---------------------------------------|
| MS         | Microswitch                           |
| NVM        | Nonvolatile Memory                    |
| NVRAM      | Nonvolatile Random Access Memory      |
| OEM        | Original Equipment Manufacturer       |
| OPT        | Optical Sensor                        |
| PC         | Photoconductor                        |
| pel, pixel | Picture element                       |
| POR        | Power-On Reset                        |
| POST       | Power-On Self Test                    |
| PSD        | Position Sensing Device               |
| PWM        | Pulse Width Modulation                |
| RIP        | Raster Imaging Processor              |
| ROM        | Read Only Memory                      |
| SDRAM      | Synchronous Dual Random Access Memory |
| SIMM       | Single Inline Memory Module           |
| SRAM       | Static Random Access Memory           |
| TPS        | Toner Patch Sensing                   |
| UPR        | Used Parts Return                     |
| V ac       | Volts alternating current             |
| V dc       | Volts direct current                  |
| VTB        | Vacuum Transport Belt                 |
| Y          | Yellow                                |

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## Symbols

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