



## *Service Manual*

*Lexmark™ C77x, Lexmark C78x printer*

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**5061**

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## Notices and safety information

The following laser notice labels may be affixed to this printer.

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### Laser notice

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

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) laser that is nominally a 5 milliwatt gallium arsenide laser operating in the wavelength region of 770-795 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.

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### Laser

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

Laserprodukte der Klasse I gelten als unschädlich. Im Inneren des Druckers befindet sich ein Laser der Klasse IIIb (3b), bei dem es sich um einen Galliumarsenlaser mit 5 Milliwatt handelt, der Wellen der Länge 770-795 Nanometer ausstrahlt. Das Lasersystem und der Drucker sind so konzipiert, daß im Normalbetrieb, bei der Wartung durch den Benutzer oder bei ordnungsgemäßer Wartung durch den Kundendienst Laserbestrahlung, die Klasse I übersteigen würde, Menschen keinesfalls erreicht.

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### Avis relatif à l'utilisation de laser

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

Les produits laser de Classe I sont considérés comme des produits non dangereux. Cette imprimante est équipée d'un laser de Classe IIIb (3b) (arséniure de gallium d'une puissance nominale de 5 milliwatts) émettant sur des longueurs d'onde comprises entre 770 et 795 nanomètres. L'imprimante et son système laser sont conçus pour impossible, dans des conditions normales d'utilisation, d'entretien par l'utilisateur ou de révision, l'exposition à des rayonnements laser supérieurs à des rayonnements de Classe I.

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### Avvertenze sui prodotti laser

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

I prodotti laser di classe non sono considerati pericolosi. La stampante contiene al suo interno un laser di classe IIIb (3b) all'arseniuro di gallio della potenza di 5mW che opera sulla lunghezza d'onda compresa tra 770 e 795 nanometri. Il sistema laser e la stampante sono stati progettati in modo tale che le persone a contatto con la stampante, durante il normale funzionamento, le operazioni di servizio o quelle di assistenza tecnica, non ricevano radiazioni laser superiori al livello della classe 1.

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## Avisos sobre el láser

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

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene en su interior un láser de Clase IIIb (3b) de arseniuro de galio de funcionamiento nominal a 5 milivatios en una longitud de onda de 770 a 795 nanómetros. El sistema láser y la impresora están diseñados de forma que ninguna persona pueda verse afectada por ningún tipo de radiación láser superior al nivel de la Clase I durante su uso normal, el mantenimiento realizado por el usuario o cualquier otra situación de servicio técnico.

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## Declaração sobre Laser

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

Os produtos laser da Classe I não são considerados perigosos. Internamente, a impressora contém um produto laser da Classe IIIb (3b), designado laser de arseneto de potássio, de 5 milliwatts, operando numa faixa de comprimento de onda entre 770 e 795 nanómetros. O sistema e a impressora laser foram concebidos de forma a nunca existir qualquer possibilidade de acesso humano a radiação laser superior a um nível de Classe I durante a operação normal, a manutenção feita pelo utilizador ou condições de assistência prescritas.

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## Laserinformatie

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

Laserprodukten van klasse I worden niet als ongevaarlijk aangemerkt. De printer is voorzien van een laser van klasse IIIb (3b), dat wil zeggen een gallium arsenide-laser van 5 milliwatt met een golflengte van 770-795 nanometer. Het lasergedeelte en de printer zijn zo ontworpen dat bij normaal gebruik, bij onderhoud of reparatie conform de voorschriften, nooit blootstelling mogelijk is aan laserstraling boven een niveau zoals voorgeschreven is voor klasse 1.

---

## Lasermeddelelse

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

Klasse I-laserprodukter betragtes ikke som farlige. Printeren indeholder internt en Klasse IIIB (3b)-laser, der nominelt er en 5 milliwatt galliumarsenid laser, som arbejder på bølgelængdeområdet 770-795 nanometer. Lasersystemet og printeren er udformet således, at mennesker aldrig udsættes for en laserstråling over Klasse I-niveau ved normal drift, brugervedligeholdelse eller obligatoriske servicebetingelser.

---

## Laserilmoitus

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

Luokan I lasertuotteita ei pidetä haitallisina. Tulostimen sisällä on luokan IIIb (3b) laser, joka on nimellisteholtaan 5 mW:n galliumarsenidilaser ja toimii 770 - 795 nanometrin aallonpituuksilla. Laserjärjestelmä ja tulostin ovat rakenteeltaan sellaisia, että käyttäjä ei joudu alttiiksi luokkaa 1 suuremmalle säteilylle normaalin käytön, ylläpidon tai huollon aikana.

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## Huomautus laserlaitteesta

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

Luokan I laserlaitteiden ei katsota olevan vaarallisia käyttäjälle. Kirjoittimessa on sisäinen luokan IIIb (3b) 5 milliwatin galliumarsenidilaser, joka toimii aaltoalueella 770 - 795 nanometriä. Laserjärjestelmä ja kirjoitin on suunniteltu siten, että käyttäjä ei altistu luokan I määräytyksiä voimakkaammalle säteilylle kirjoittimen normaalin toiminnan, käyttäjän tekemien huoltotoimien tai muiden huoltotoimien yhteydessä.

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

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

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## Laser-notis

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

Laserprodukter i Klass I anses ej hälsovådliga. Skrivaren har en inbyggd laser av Klass IIIb (3b) som består av en laserenhet av gallium-arsenid på 5 milliwatt som arbetar i våglängdsområdet 770-795 nanometer. Lasersystemet och skrivaren är utformade så att det aldrig finns risk för att någon person utsätts för laserstrålning över Klass I-nivå vid normal användning, underhåll som utförs av användaren eller annan föreskriven serviceåtgärd.

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## Laser-melding

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

Klasse I-laserprodukter er ikke å betrakte som farlige. Skriveren inneholder internt en klasse IIIb (3b)-laser, som består av en gallium-arsenlaserenhet som avgir stråling i bølgelengdeområdet 770-795 nanometer. Lasersystemet og skriveren er utformet slik at personer aldri utsettes for laserstråling ut over klasse I-nivå under vanlig bruk, vedlikehold som utføres av brukeren, eller foreskrevne serviceoperasjoner.

---

## Avís sobre el Làser

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

Els productes làser de classe I no es consideren perillosos. Aquesta impressora conté un làser de classe IIIb (3b) d'arseniür de gal.li, nominalment de 5 mil.liwats, i funciona a la regió de longitud d'ona de 770-795 nanòmetres. El sistema làser i la impressora han sigut concebuts de manera que mai hi hagi exposició a la radiació làser per sobre d'un nivell de classe I durant una operació normal, durant les tasques de manteniment d'usuari ni durant els serveis que satisfacin les condicions prescrites.

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### レーザーに関するお知らせ

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

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

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### 注意：

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

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

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


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






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## Safety information

- The safety of this product is based on testing and approvals of the original design and specific components. The manufacturer is not responsible for safety in the event of use of unauthorized replacement parts.
- The maintenance information for this product has been prepared for use by a professional service person and is not intended to be used by others.
- There may be an increased risk of electric shock and personal injury during disassembly and servicing of this product. Professional service personnel should understand this and take necessary precautions.
-  **CAUTION:** When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.


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## Consignes de sécurité

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


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## Norme di sicurezza

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


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## Sicherheitshinweise

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


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## Pautas de Seguridad


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

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## Informações de Segurança

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


## Informació de Seguretat

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

## 안전 사항

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

## 安全信息

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

## Preface

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

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


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## Conventions


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


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

There are several types of caution statements:

	<p><b>CAUTION</b></p> <p>A caution identifies something that might cause a servicer harm.</p>
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	<p><b>CAUTION</b></p> <p>This type of caution indicates there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.</p>
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	<p><b>CAUTION</b></p> <p>This type of caution indicates a hot surface.</p>
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	<p><b>CAUTION</b></p> <p>This type of caution indicates a tipping hazard.</p>
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## 1. General information

The Lexmark™ C77x, C78x (5061-xxx) is a network-capable color printer that uses electrophotographic technology to deliver high-quality images, presentation graphics, line art, and text. It prints both four-color and monochrome print jobs.

The flexible design supports a variety of printing needs. For example, if you need the printer to match the color process used in a particular application, you can select RGB or CMYK color corrections. You can also adjust the printed colors to more closely represent the colors on your computer display.

A variety of connectivity options enable the printer to be used in all types of system environments. You can attach one internal adapter to support network configurations requiring Ethernet, Token-Ring, LocalTalk, serial, infrared, or additional parallel ports.

The printer has flexible paper handling. It supports a wide variety of paper sizes, and has a standard multipurpose feeder that makes it easy to print on envelopes, transparencies, labels, card stock, and non-standard size paper. You can add optional inputs to the base printer, which can increase the printer paper capacity to 3100 sheets.

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## Models

The Lexmark C77x and C78x (5061-xxx) laser printers are available in four models:

Lexmark C770n	5061-110	Network
Lexmark C772n	5061-310	Network
Lexmark C780n	5061-210	Network
Lexmark C782n	5061-410	Network

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## Tools required for service

- Flat-blade screwdriver
- #1 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic
- #2 Phillips screwdriver, magnetic short-blade
- Needlenose pliers
- Diagonal side cutters
- Spring hook
- Feeler gauges
- Analog or digital multimeter
- Parallel wrap plug 1319128
- Twinax/serial debug cable 1381963
- Coax/serial debug cable 1381964

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## Options and features

Lexmark C77x and C78x printers support only Lexmark C77x and C78x paper-handling options. These options are not compatible with any other Lexmark printer.

**Note:** The Envelope Feeder for the C772 (model 310) works only on the C772 models. The C782 (model 410) Envelope Feeder works on the C772 and the C782 (models 310 and 410).

### Options for all models

- 500-Sheet drawer—(includes 500-sheet tray and support unit) installs beneath the printer and holds approximately 500 sheets of 20 lb, 75 g/m<sup>2</sup> paper. Up to three drawers are supported simultaneously, or an option drawer and high-capacity input tray. All models.
- 500-Sheet tray—for environments with space or budget constraints this can be ordered for special media. This temporarily replaces the standard tray in a 500-sheet drawer and holds approximately 500 sheets of 20 lb, 75 g/m<sup>2</sup> paper. All models.
- Duplex option—offers two-side printing. The first option under a duplex option must be a 500-sheet drawer. All models.

### Options for C772 and C782 (310 and 410)

- 2,000-Sheet drawer (High-capacity Input Tray)—installs beneath the printer and below any other optional input sources and holds approximately 2,000 sheets of 20 lb, 75 g/m<sup>2</sup> paper.
- Output expander—installs above the printer primary output bin to offer an additional output destination. This holds approximately 650 sheets of 20 lb, 75 g/m<sup>2</sup> paper. Only one output option above the printer is supported.
- 5-Bin mailbox—installs above the printer primary output bin to offer five output destinations in one option. Each of the five bins supports approximately 100 pages of 20 lb, 75 g/m<sup>2</sup> paper. Only one output option above the printer is supported.
- StapleSmart™ Finisher—offers stapling, and an additional output bin. The finisher supports up to 500 sheets of non-stapled. For stapled media, the output bin supports up to 15 stapled sets or about 375 sheets. The stapler staples a maximum of 25 sheets per set. Each printer supports one finisher.
- Envelope drawer—installs beneath the printer, and holds approximately 60 envelopes (20 lb, 75 g/m<sup>2</sup>). Up to three envelope drawers are supported or one envelope drawer and a high-capacity input tray. The Envelope Drawer for the C772 works only on the models C772 (310). The C782 Envelope Drawer works on the models C772 and C782 (310 and 410).
- Outdoor media drawer—installs beneath the printer is specially designed for use in printing on a polyester media used for outdoor signs. This heavy duty outdoor media is available in Letter or A4 sizes. The Outdoor media drawer only work
- Banner tray—extension of the Multipurpose Feeder allows printing of up to 50 sheets of 24 lb (90 (g/m<sup>2</sup>) banner paper (up to 8.27 in. wide x 48 in. long (210mm x 1,219mm). It also serves as an extension of the output tray, to hold the printed banner paper as it exits from the printer. The banner media tray is easily installed and features a fold-down tray for space savings when not in use. All media which can be fed from the MPF can be used when the Banner Tray is attached.

### High performance

- Up to 25 ppm black or color
- 500 MHz RISC processor (non-network) or 600 MHz (network)
- 128MB RAM
- Time to first page
  - Black: less than 13 seconds
  - Color: less than 15 seconds

## Automatic calibration

The printer performs an automatic calibration under the following conditions.

- At power-on
- After exit from power saver mode with a significant change of ITU temperature compared to the last calibration.
- Approximately every 500 pages, at the end of a job
- After changing a print cartridge
- After changing an image transfer unit (ITU)

A manual calibration can be initiated by selecting **Color Adjust** from the Color Menu.

## Resolution

- 1200 x 1200 dpi (one half printer speed)
- 4800 CQ (default) (full printer speed)

## Toner darkness

Toner darkness settings offer five user-selectable settings to balance print darkness and toner savings. The higher the setting, the darker the print. The toner darkness default setting is 4. Color level 4 and level 5 are the same.

The toner darkness setting is available through the operator panel under the Print Quality menu or through the Lexmark PostScript driver.

Setting	1	2	3	4	5
Delta toner from default (mono)	-50%	-30%	-15%	Default	+10%
Delta toner from default (color)	-50%	-30%	-15%	Default	N/A

## Color correction settings

The following correction settings are available:

- Auto (default): Applies different color correction to each object on the printed page depending upon the type of object and how the color for each object is specified.
- Off: No color correction is implemented.
- Manual: Allows users to customize color correction output from the driver or operator panel.

## Printer specifications

Description	Height	Width	Depth	Weight
<b>Printer</b>				
Lexmark C77x(n)/C78x(n)	20.8 in. (528.3 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	105 lb (47.7 kg)
Lexmark C77xdn/C78xdn (including duplex option)	24.3 in. (617.2 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	118 lb (53.8 kg)
Lexmark C77xdtn/C78xdtn (including duplex unit and optional 500-sheet drawer)	28.9 in. (734.1 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	132 lb (60 kg)
Lexmark C772, C782 maximum input trays (including duplex unit, three optional 500-sheet drawers and printer stand)	41.4 in. (1051.6 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm) <sup>1</sup>	179.0 lb (81.4 kg)
Lexmark C772, C782 with maximum input sheets (including duplex unit, optional 500-sheet drawer, and 2000-sheet drawer)	43.5 in. (1104.9 mm)	23.8 in. (604.5 mm)	23.8 in. (604.5 mm) <sup>2</sup>	181 lb (82.3 kg)
<b>Options</b>				
500-sheet drawer	5 in. (127 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	13.5 lb (6.1 kg)
500-sheet tray	3.8 in. (96.5 mm)	15.6 in. (396.2 mm)	15.5 in. (386.1 mm)	2.6 lb (1.2 kg)
Duplex option	3.5 in. (88.9 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	13.5 lb (6.1 kg)
2,000-sheet tray (including stabilizer bars)	15.4 in. (391.2 mm)	26 in. (660.4 mm)	23.8 in. (604.5 mm)	49 lb (22.3 kg)
Outdoor media drawer	5 in. (127 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	13.5 lb (6.1 kg)
Banner Tray (including output bail)	9 in. (228.6 mm)	12 in. (304.8 mm)	30.5 in. (774.7 mm)	7.2 lb (3.3 kg)
Envelope drawer	5 in. (127 mm)	23.8 in. (604.5 mm)	18.5 in. (469.9 mm)	13.5 lb (6.1 kg)
Output expander	7 in. (177.8 mm)	14.5 in. (368.3 mm)	18.5 in. (469.9 mm)	5.4 lb (2.5 kg)
5-bin mailbox	11.5 in. (292.1 mm)	14.5 in. (368.3 mm)	18.5 in. (469.9 mm)	8.7 lb (4.0 kg)
StapleSmart Finisher	9 in. (228.6 mm)	17.6 in. (447.7 mm)	19.5 in. (495.3 mm)	13 lb (5.6 kg)
Printer stand (including stabilizer bars)	4 in. (101.6 mm)	26.5 in. (673.1 mm)	24 in. (609.0 mm)	20 lb (9.1 kg)



## Power and electrical specifications

Average nominal power requirements for the base printer configuration (110 volt). (Power levels are shown in watts.) Maximum current shown in amp ergs.

Printing states	Lexmark C77x(n)	Lexmark C77xdn	Lexmark C78x(n)	Lexmark C78xdn
Printing—average power (W)				
Base model	500	500	675	675
<b>All options</b>	540	540	675	675
Idle—average power				
Power Saver On	30	31	25	27
Power Saver Off	180	180	150	150
Printing—maximum current (110 V)	10.2	10.2	11.9	11.9

### Notes:

- Using a 220V ac to 110 V ac power converter with the 110 volt printer is not recommended.
- Using an inverter (12 V dc to 120 V ac, for example) to power the printer is not recommended.
- The C77xn, C77xdn, and C77xdtn and C78xn, C78xdn, and C78xdtn are Energy Star-compliant. These models include:

## Electrical specifications

### 110 Volt model

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

## Operating clearances

Printer Side	Model	Measurement
Left side <sup>1</sup>	All	24 in. (609.6 mm)
Right side	All	15 in. (381 mm) <sup>1</sup>
Front	All	20 in. (508 mm)
Rear	All	12 in. (304.8 mm)
Top <sup>2</sup>	C77x(dn)/C78x(dn)	42 in. (1,066.8 mm) <sup>2</sup>
	C77xdtn/C78xdtn	34 in. (863.6 mm) <sup>2</sup>
<sup>1</sup> Allow 48 in. (1,219.2 mm) clearance to the left if you are adding a banner option to the C772 or C782. <sup>2</sup> Allow clearance above the printer for front door clearance, and for adding options, such as additional input drawers, output expander, StapleSmart finisher, or 5-bin mailbox.		

## Acoustics

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

Status (at 1 Meter average sound pressure)	Lexmark C770n	Lexmark C772n	Lexmark C780n	Lexmark C782n
Printing at 4800 CQ	52 dBA	52 dBA	52 dBA	53 dBA
Idle (standby)	34 dBA	34 dBA	30 dBA	30 DBA
Duplex models—printing simplex	52 dBA	52 dBA	52 dBA	53 dBA
Duplex models—printing duplex	52 dBA	52 dBA	60 dBA	60 dBA
Duplex models—idle	34 dBA	34 dBA	30 dBA	30 DBA

## Environment

### Printer Temperature and Humidity

- Operating
  - Temperature: 60 to 90° F (15.6 to 32.3° C)
  - Relative humidity: 8 to 80%
  - Maximum wet bulb temperature: 73° F (22.8° C)
  - Altitude: 10,000 ft. (0 to 3,048 meters)
  - Atmospheric pressure: 74.6 kPa
- Power off
  - Temperature: 50 to 110° F (10 to 43.3° C)
  - Relative humidity: 8 to 80%
  - Maximum wet bulb temperature: 80.1° F (26.7° C)
  - Altitude: 10,000 ft. (0 to 3,048 meters)
  - Atmospheric pressure: 74.6 kPa
- Ambient operating environment\*
  - Temperature: 60 to 90° F (15.6 to 32.2° C)
  - Relative humidity: 8 to 80%
- Storage and shipping (packaged printer) with or without print cartridge
  - Temperature: -40 to 110° F (-40 to 43.3° C)
- Print cartridge
  - Temperature: -40 to 110° F (-40 to 43.3° C)

\*In some cases, performance specifications (such as paper OCF, EP cartridge usage) are measured at an ambient condition.

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## Power and performance

### Performance

Performance speed depends on:

- Interface to the host (USB, serial, parallel, network)
- Host system and application
- Page complexity and content
- Printer options installed or selected
- Available printer memory
- Media size and type
- Resolution
- Printer usage setting

### Processor

	Lexmark C77x	Lexmark C77x(n), Lexmark C77xdn	Lexmark C78x	Lexmark C78x(n) Lexmark C78xdn
Processor frequency (Mhz)	500	600	800	800
Bus frequency (Mhz)	100	100	133	133

### Time to first print

All first copy times are measured for 600 image quality, simplex printing on letter-size paper. The test job consists of the character "A" followed by a form feed (single-page job). The first copy time is defined as the elapsed time from pressing **Enter** on the keyboard to the page exiting to the output bin. All tests pick paper from the primary input tray and the page exits into the primary output bin.

Standby times may be longer if the toner control senses that toner flow needs to be checked or adjusted.

Time to first print from standby mode

- Black: <13 seconds
- Color: <15 seconds

Time to first print from power saver mode

- Black: <120 seconds
- Color: <120 seconds

### Duty cycle

- Up to 60,000 pages maximum one-time usage
- Up to 4,000 pages per month average usage

## Memory configuration

Optional memory is available in 128MB, 256MB, and 512MB DIMM. There is only one DIMM slot available for optional memory.

DRAM memory	Lexmark C77xndn	Lexmark C77xdtn Lexmark C77, fn	Lexmark C78n Lexmark C78xdn	Lexmark C78xdtn
Standard	256MB	256MB	256	256
Maximum	640MB	768MB	768	768

## Available memory options

Optional 128MB, 256MB and 512MB SDRAM DIMMs are available from Lexmark. The memory options are 168-pin synchronous DRAM DIMMs (dual in-line memory modules) meeting or exceeding the following specifications:

- 100MHz or greater
- 4KB refresh rate
- Unbuffered, non ECC
- x32
- 3.3 V

Unpredictable results may occur if an attempt is made to operate the printer with memory other than SDRAM DIMM memory with the stated specifications.

Flash Memory Options available are 32MB and 64MB.

### Expansion

- Memory slot for extra flash or DRAM
- Expansion slot for optional interface cards
- Code expansion slot (application solution firmware cards)
- On-board hard disk interface (for optional hard disk)

Additional memory may be required for printing complex pages or full-page, high-resolution images in 1200 image quality at rated speeds.

## Media specifications

### Media input and output capacities

The capacities listed below are based on plain paper at 75g/m<sup>2</sup>.

Media source or output description	Capacity (sheets)							
	Lexmark C770n, C770dn,	Lexmark C770dtn	Lexmark C772n, C772dn	Lexmark C772dtn	Lexmark C780n, C780dn	Lexmark C780dtn	Lexmark C782n, C782dn	Lexmark C782dtn
<b>Input</b>								
Standard input sources								
Tray 1	500	500	500	500	500	500	500	500
Tray 2	N/A	500	N/A	500	N/A	500	N/A	500
Multipurpose tray	100	100	100	100	100	100	100	100
Maximum total standard capacity (sheets)	600	1100	600	1100	600	1100	600	1100
Optional available input sources								
500-Sheet drawer (maximum of 3 or only one with a 2000-sheet drawer) <sup>1</sup>	500	N/A	500-1500	500-1500	500	N/A	500-1500	500-1500
2000-Sheet drawer <sup>1</sup> (maximum of one)	N/A	N/A	2000	2000	N/A	N/A	2000	2000
Envelope drawer (maximum of 3 or only one with a 2000-sheet drawer)	N/A	N/A	60	60	N/A	N/A	60	60
Outdoor media drawer	N/A	N/A	100	100	N/A	N/A	100	100
Banner tray	N/A	N/A			N/A	N/A		
Maximum additional drawers	1	0	3	2	1	0	3	2
Maximum input capacity <sup>2</sup>								
With added drawers (no high-capacity input tray)	1100	1100	2100	2100	1100	1100	2100	2100
With added drawer and high-capacity input tray	N/A	N/A	3100	3100	N/A	N/A	3100	3100
<sup>1</sup> A maximum of one High-capacity Input Drawer is supported on any C772 or C782 model. <sup>2</sup> A maximum combination of three optional 500-sheet drawers or a maximum combination of one optional 500-sheet drawer plus one 2000-sheet drawer is supported on any C772 or C782 model.								

Media source or output description	Capacity (sheets)							
	Lexmark C770n, C770dn,	Lexmark C770dtn	Lexmark C772n, C772dn	Lexmark C772dtn	Lexmark C780n, C780dn	Lexmark C780dtn	Lexmark C782n, C782dn	Lexmark C782dtn
<b>Output</b>								
Standard output bin capacity	250	250	250	250	250	250	250	250
Optional outputs								
5-Bin mailbox (maximum of one) <sup>1</sup>	N/A	N/A	500	500	N/A	N/A	500	500
Output Expander <sup>1</sup>	N/A	N/A	650	650	N/A	N/A	650	650
StapleSmart Finisher <sup>1</sup> unstapled	N/A	N/A	500	500	N/A	N/A	500	500
StapleSmart Finisher <sup>1</sup> stapled	N/A	N/A	15 sets or 350	15 sets or 350	N/A	N/A	15 sets or 350	15 sets or 350
Maximum output paper capacity	250	250	900	900	250	250	900	900
Other: Duplex Unit <sup>2</sup>	Optional/Standard	Standard	Standard	Standard	Optional/Standard	Standard	Standard	Standard

<sup>1</sup> A maximum combination of one 5-Bin Mailbox, Output Expander, or StapleSmart Finisher is supported on any model.

<sup>2</sup> An optional 500-sheet drawer is required for a 2000-sheet High-capacity Drawer and a Duplex Unit. The first option under a duplex unit must be a 500-sheet drawer.

**Media sizes**

**Media sizes and support**

Media size Dimensions	500-sheet trays	Multi-purpose feeder	Optional high capacity feeder	Optional duplex unit	Optional envelope drawer	Optional banner tray	Optional 5-bin mailbox	Optional finisher		
								Standard	Offset	Staple
<b>A3</b> 297 x 420 mm (11.7 x 16.5 in.)	8	8	8	8	8	8	8	8	8	8
<b>A4</b> 210 x 297 mm (8.27 x 11.7 in.)	3	†	3	3	8	8	3	3	3	3
<b>A5</b> 148 x 210 mm (5.83 x 8.27 in.)	3	†	3	3	8	8	3	3	3	3
<b>JIS B4</b> 257 x 364 mm (10.1 x 14.3 in.)	8	8	8	8	8	8	8	8	8	8
<b>JIS B5</b> 182 x 257 mm (7.17 x 10.1 in.)	3	†	3	3	8	8	3	3	3	3

\* Supported as selected paper with tray size sensing turned off in the appropriate trays.

\*\* When selected, the page is formatted for 215.9 x 355.6 mm (8.5 x 14 in.) unless otherwise specified.

## Media sizes and support (continued)

<b>Legend</b> 3 — supported with size sensing † — supported without size sensing* 8 — unsupported  <b>Media size</b> <b>Dimensions</b>		500-sheet trays	Multi-purpose feeder	Optional high capacity feeder	Optional duplex unit	Optional envelope drawer	Optional banner tray	Optional 5-bin mailbox	Optional finisher		
									Standard	Offset	Staple
<b>Letter</b>	215.9 x 279.4 mm (8.5 x 11 in.)	3	†	3	3	8	8	3	3	3	3
<b>Legal</b>	215.9 x 355.6 mm (8.5 x 14 in.)	3	†	3	3	8	8	3	3	3	3
<b>Executive</b>	184.2 x 266.7 mm (7.25 x 10.5 in.)	3	†	3	3	8	8	3	3	3	3
<b>Folio</b>	216 x 330 mm (8.5 x 13 in.)	†	†	8	3	8	8	3	3	3	3
<b>Statement</b>	139.7 x 215.9 mm (5.5 x 8.5 in.)	†	†	8	3	8	8	8	3	3	8
<b>Tabloid</b>	279 x 432 mm (11 x 17 in.)	8	8	8	8	8	8	8	8	8	8
<b>Universal**</b>	69.85 x 127 mm to 215.9 x 1219.2 mm (2.75 x 3.5 in. to 11.69 x 48 in.)	†	†	8	†	†	8	8	3	3	3
<b>Banner</b>	210 to 215.9 mm wide by up to 1219.2 mm long (8.27 to 8.5 inches wide by up to 48 inches long)	8	†	8	8	8	3	8	8	8	8
<b>7 3/4 Envelope (Monarch)</b>	98.4 x 190.5 mm (3.875 x 7.5 in.)	8	†	8	8	3	8	8	8	8	8
<b>9 Envelope</b>	98.4 x 225.4 mm (3.875 x 8.9 in.)	8	†	8	8	3	8	8	8	8	8
<b>10 Envelope</b>	104.8 x 241.3 mm (4.12 x 9.5 in.)	8	†	8	8	3	8	8	8	8	8
<b>DL Envelope</b>	110 x 220 mm (4.33 x 8.66 in.)	8	†	8	8	3	8	8	8	8	8
<b>C5 Envelope</b>	162 x 229 mm (6.38 x 9.01 in.)	8	†	8	8	3	8	8	8	8	8
<b>B5 Envelope</b>	176 x 250 mm (6.93 x 9.84 in.)	8	†	8	8	3	8	8	8	8	8
<b>Other Envelope</b>	104.8 mm x 210 mm to 215.9 mm x 355.6 mm 4.125 in. x 8.27 in. to 8.5 in. x 14 in.)	8	†	8	8	†	8	8	8	8	8

\* Supported as selected paper with tray size sensing turned off in the appropriate trays.

\*\* When selected, the page is formatted for 215.9 x 355.6 mm (8.5 x 14 in.) unless otherwise specified.

## Media support by type for optional features

Legend 3 — supported 8 — unsupported  Media	500-sheet trays	Multi-purpose feeder	Optional high capacity feeder	Optional duplex	Optional envelope drawer	Optional banner tray	Optional 5-bin mailbox	Optional Finisher		
								Standard	Offset	Staple
Paper	3	3	3	3	8	8	3	3	3	3
Card stock	3	3	8	3	8	8	8	3	8	8
Transparencies	3	3	8	8	8	8	8	3	3	8
Paper and Vinyl labels	3	3	8	3	8	8	8	8	8	8
Envelopes	8	3	8	8	3	8	8	8	8	8
Glossy paper	3	3	3	3	8	8	8	8	8	8



## Media types and weights (input options)

Media	Type	Media weight			Envelope drawer
		500-sheet trays	Multipurpose feeder	2000-sheet drawer	
Paper <sup>2, 6, 9</sup>	Xerographic or business paper	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	Not supported
	Xerographic or business paper	75 to 119.9 g/m <sup>2</sup> grain long (20 to 31.9 lb bond)	75 to 119.9 g/m <sup>2</sup> grain long (20 to 31.9 lb bond)	75 to 176 g/m <sup>2</sup> grain long (20 to 47 lb bond)	Not supported
	Xerographic or business paper	120 to 176 g/m <sup>2</sup> grain long (32 to 47 lb bond) <sup>9</sup>	120 to 176 g/m <sup>2</sup> grain long (32 to 47 lb bond)	120 to 176 g/m <sup>2</sup> grain long (32 to 47 lb bond)	Not supported
Specialty papers	Gloss Book	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	Not supported
	Gloss Cover	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	Not supported
Card stock—maximum (grain long) <sup>1</sup>	Index Bristol	163 g/m <sup>2</sup> (90 lb)	163 g/m <sup>2</sup> (90 lb)	Not recommended	Not supported
	Tag	163 g/m <sup>2</sup> (100 lb)	163 g/m <sup>2</sup> (100 lb)	Not recommended	Not supported
	Cover	176 g/m <sup>2</sup> (65 lb)	176 g/m <sup>2</sup> (65 lb)	Not recommended	Not supported
Card stock—maximum (grain short) <sup>1</sup>	Index Bristol	199 g/m <sup>2</sup> (110 lb)	199 g/m <sup>2</sup> (110 lb)	Not recommended	Not supported
	Tag	203 g/m <sup>2</sup> (125 lb)	203 g/m <sup>2</sup> (125 lb)	Not supported	Not supported
	Cover	216 g/m <sup>2</sup> (80 lb)	216 g/m <sup>2</sup> (80 lb)	Not supported	Not supported
Transparencies <sup>8</sup>	Laser printer	161 to 169 g/m <sup>2</sup> (43 to 45 lb bond)	161 to 169 g/m <sup>2</sup> (43 to 45 lb bond)	Not supported	Not supported
Labels—maximum	Paper	180 g/m <sup>2</sup> (48 lb bond)	199 g/m <sup>2</sup> (53 lb bond)	Not supported	Not supported
	Dual-web paper	180 g/m <sup>2</sup> (48 lb bond)	199 g/m <sup>2</sup> (53 lb bond)	Not supported	Not supported
	Polyester	220 g/m <sup>2</sup> (59 lb bond)	220 g/m <sup>2</sup> (59 lb bond)	Not supported	Not supported
	Vinyl <sup>7</sup>	300 g/m <sup>2</sup> (92 lb liner)	260 g/m <sup>2</sup> (78 lb liner)	Not supported	Not supported

<sup>1</sup> For 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) paper, grain long fibers are recommended. For papers heavier than 176 g/m<sup>2</sup> (47 lb bond), grain short is recommended.

<sup>2</sup> Paper weighing less than 75 g/m<sup>2</sup> (20 lb bond) is limited to simplex printing only at less than 60% relative humidity.

<sup>3</sup> Pressure-sensitive area must enter the printer first.

<sup>4</sup> 100% cotton content maximum weight is 90.2g/m<sup>2</sup> (24 lb) bond.

<sup>5</sup> 105 g/m<sup>2</sup> (28 lb bond) envelopes are limited to 25% cotton content.

<sup>6</sup> The duplex option supports the same weights and types as the printer, except for paper 16–19.9 lb (60–74.9 grain long bond, A5 card stock, transparencies, envelopes, vinyl labels, and polyester labels.

<sup>7</sup> Vinyl labels are supported only when the printing environment and the media are at 20–32.2° C (68–90° F).

<sup>8</sup> Lexmark transparency P/N12A8240 and 12A8241 are supported from the standard tray, optional 500-sheet trays, and the multipurpose feeder.

<sup>9</sup> Paper 105 to 176 g/m<sup>2</sup> (28 to 47 lb) must be printed with Paper Weight set to Heavy.

**Media types and weights (input options) (continued)**

Media	Type	Media weight			Envelope drawer
		500-sheet trays	Multipurpose feeder	2000-sheet drawer	
<b>Integrated forms (labels)</b>	Pressure sensitive area <sup>3</sup>	140 to 175 g/m <sup>2</sup>	140 to 175 g/m <sup>2</sup>	Not Recommended	Not supported
	Paper base (grain long)	75 to 135 g/m <sup>2</sup> (20 to 36 lb bond)	75 to 135 g/m <sup>2</sup> (20 to 36 lb bond)	Not Recommended	Not supported
<b>Envelopes<sup>2</sup></b>	Sulfite, wood-free or up to 100% cotton bonds	Not supported	60 to 105 g/m <sup>2</sup> (16 to 28 lb bond) <sup>4, 5</sup>	Not supported	60 to 105 g/m <sup>2</sup> (16 to 28 lb bond) <sup>4, 5</sup>

<sup>1</sup> For 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) paper, grain long fibers are recommended. For papers heavier than 176 g/m<sup>2</sup> (47 lb bond), grain short is recommended.

<sup>2</sup> Paper weighing less than 75 g/m<sup>2</sup> (20 lb bond) is limited to simplex printing only at less than 60% relative humidity.

<sup>3</sup> Pressure-sensitive area must enter the printer first.

<sup>4</sup> 100% cotton content maximum weight is 90.2g/m<sup>2</sup> (24 lb) bond.

<sup>5</sup> 105 g/m<sup>2</sup> (28 lb bond) envelopes are limited to 25% cotton content.

<sup>6</sup> The duplex option supports the same weights and types as the printer, except for paper 16–19.9 lb (60–74.9 grain long bond, A5 card stock, transparencies, envelopes, vinyl labels, and polyester labels.

<sup>7</sup> Vinyl labels are supported only when the printing environment and the media are at 20–32.2° C (68–90° F).

<sup>8</sup> Lexmark transparency P/N12A8240 and 12A8241 are supported from the standard tray, optional 500-sheet trays, and the multipurpose feeder.

<sup>9</sup> Paper 105 to 176 g/m<sup>2</sup> (28 to 47 lb) must be printed with Paper Weight set to Heavy.

## Media types and weights (output options)

Media	Type	Media weight				
		Standard output bin and optional output expander	5-bin mailbox	StapleSmart finisher		
				Output bin	Offset	Staple
Paper	Xerographic or business paper	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>	60 to 74.9 g/m <sup>2</sup> grain long (16 to 19.9 lb bond) <sup>2, 6</sup>
	Xerographic or business paper	75 to 176 g/m <sup>2</sup> grain long (20 to 47 lb bond)	75 to 90 g/m <sup>2</sup> grain long (20 to 24 lb bond)	75 to 90 g/m <sup>2</sup> grain long (20 to 24 lb bond)	75 to 90 g/m <sup>2</sup> grain long (20 to 24 lb bond)	75 to 90 g/m <sup>2</sup> grain long (20 to 24 lb bond)
Specialty papers	Gloss Book	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	Not supported	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	88 to 176 g/m <sup>2</sup> grain long (60 to 120 lb book)	Not supported
	Gloss Cover	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	Not supported	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	162 to 176 g/m <sup>2</sup> grain long (60 to 65 lb cover)	Not supported
Card stock—maximum (grain long) <sup>1</sup>	Index Bristol	163 g/m <sup>2</sup> (90 lb)	Not supported	163 g/m <sup>2</sup> (90 lb)	163 g/m <sup>2</sup> (90 lb)	Not supported
	Tag	163 g/m <sup>2</sup> (100 lb)	Not supported	163 g/m <sup>2</sup> (100 lb)	163 g/m <sup>2</sup> (100 lb)	Not supported
	Cover	176 g/m <sup>2</sup> (65 lb)	Not supported	176 g/m <sup>2</sup> (65 lb)	176 g/m <sup>2</sup> (65 lb)	Not supported
Card stock—maximum (grain short) <sup>1</sup>	Index Bristol	199 g/m <sup>2</sup> (110 lb)	Not supported	199 g/m <sup>2</sup> (110 lb)	199 g/m <sup>2</sup> (110 lb)	Not supported
	Tag	203 g/m <sup>2</sup> (125 lb)	Not supported	203 g/m <sup>2</sup> (125 lb)	203 g/m <sup>2</sup> (125 lb)	Not supported
	Cover	216 g/m <sup>2</sup> (80 lb)	Not supported	216 g/m <sup>2</sup> (80 lb)	216 g/m <sup>2</sup> (80 lb)	Not supported
Transparencies	Laser printer	161 to 169 g/m <sup>2</sup> (43 to 45 lb bond)	Not supported	161 to 169 g/m <sup>2</sup> (43 to 45 lb bond)	161 to 169 g/m <sup>2</sup> (43 to 45 lb bond)	Not supported

<sup>1</sup> For 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) paper, grain long fibers are recommended. For papers heavier than 176 g/m<sup>2</sup> (47 lb bond), grain short is recommended.

<sup>2</sup> Paper weighing less than 75 g/m<sup>2</sup> (20 lb bond) is limited to simplex printing only at less than 60% relative humidity, and is not supported in duplex. Paper less than 76 g/m<sup>2</sup> must be printed with Paper Weight set to Light.

<sup>3</sup> Pressure-sensitive area must enter the printer first.

<sup>4</sup> 100% cotton content maximum weight is 90.2 g/m<sup>2</sup> (24 lb) bond.

<sup>5</sup> 28 lb bond envelopes are limited to 25% cotton content.

<sup>6</sup> The duplex option supports the same weights and types as the printer except for paper 16–19.9 lb (60–74.9 g/m<sup>2</sup>) bond, transparencies, envelopes, vinyl labels, and polyester labels.

<sup>7</sup> Vinyl labels are supported only when the printing environment and the media are at 20–32.2° C (68–90° F).

<sup>8</sup> Refer to the Converter Listing on the Lexmark Home Page and Automated FAX system (LEXFAX™) for information on whether your vinyl label converter has passed the Lexmark criteria. Refer, also, to the *Card Stock and Label Guide* for more details.

<sup>9</sup> Paper 105–176 g/m<sup>2</sup> (28–47 lb bond) must be printed with Paper Weight set to Heavy.

## Media types and weights (output options) (continued)

Media	Type	Media weight				
		Standard output bin and optional output expander	5-bin mailbox	StapleSmart finisher		
				Output bin	Offset	Staple
Labels— maximum	Paper	180 g/m <sup>2</sup> (48 lb bond)	Not supported	Not supported	Not supported	Not supported
	Dual-Web paper	180 g/m <sup>2</sup> (48 lb bond)	Not supported	Not supported	Not supported	Not supported
	Polyester	220 g/m <sup>2</sup> (59 lb bond)	Not supported	Not supported	Not supported	Not supported
	Vinyl <sup>7, 8</sup>	300 g/m <sup>2</sup> (92 lb bond)	Not supported	Not supported	Not supported	Not supported
Integrated forms	Pressure sensitive area <sup>3</sup>	140 to 175 g/m <sup>2</sup> (up to 48 lb bond)	Not supported	Not supported	Not supported	Not supported
	Paper base (grain long)	75 to 135 g/m <sup>2</sup> (20 to 36 lb bond)	Not supported	Not supported	Not supported	Not supported
Envelopes	Sulfite, wood-free, or up to 100% cotton bond <sup>5</sup>	60 to 105 g/m <sup>2</sup> (16 to 28 lb bond) <sup>3, 4</sup>	Not supported	Not supported	Not supported	Not supported

<sup>1</sup> For 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) paper, grain long fibers are recommended. For papers heavier than 176 g/m<sup>2</sup> (47 lb bond), grain short is recommended.

<sup>2</sup> Paper weighing less than 75 g/m<sup>2</sup> (20 lb bond) is limited to simplex printing only at less than 60% relative humidity, and is not supported in duplex. Paper less than 76 g/m<sup>2</sup> must be printed with Paper Weight set to Light.

<sup>3</sup> Pressure-sensitive area must enter the printer first.

<sup>4</sup> 100% cotton content maximum weight is 90.2 g/m<sup>2</sup> (24 lb) bond.

<sup>5</sup> 28 lb bond envelopes are limited to 25% cotton content.

<sup>6</sup> The duplex option supports the same weights and types as the printer except for paper 16–19.9 lb (60–74.9 g/m<sup>2</sup>) bond, transparencies, envelopes, vinyl labels, and polyester labels.

<sup>7</sup> Vinyl labels are supported only when the printing environment and the media are at 20–32.2° C (68–90° F).

<sup>8</sup> Refer to the Converter Listing on the Lexmark Home Page and Automated FAX system (LEXFAX™) for information on whether your vinyl label converter has passed the Lexmark criteria. Refer, also, to the *Card Stock and Label Guide* for more details.

<sup>9</sup> Paper 105–176 g/m<sup>2</sup> (28–47 lb bond) must be printed with Paper Weight set to Heavy.

**Media types and weights (output options) (continued)**

Media	Type	Media weight				
		Standard output bin and optional output expander	5-bin mailbox	StapleSmart finisher		
				Output bin	Offset	Staple
<b>Labels—maximum<sup>2,4</sup></b>	Paper	180 g/m <sup>2</sup> (48 lb bond)	Not supported	180 g/m <sup>2</sup> (48 lb bond)	180 g/m <sup>2</sup> (48 lb bond)	Not supported
	Dual-web paper	180 g/m <sup>2</sup> (48 lb bond)	Not supported	180 g/m <sup>2</sup> (48 lb bond)	180 g/m <sup>2</sup> (48 lb bond)	Not supported
	Polyester	220 g/m <sup>2</sup> (59 lb bond)	Not supported	220 g/m <sup>2</sup> (59 lb bond)	220 g/m <sup>2</sup> (59 lb bond)	Not supported
	Vinyl	300 g/m <sup>2</sup> (92 lb liner)	Not supported	300 g/m <sup>2</sup> (92 lb liner)	300 g/m <sup>2</sup> (92 lb liner)	Not supported
<b>Envelopes<sup>2</sup></b>	Sulfite, wood-free or up to 100% cotton bonds	60 to 105 g/m <sup>2</sup> (16 to 28 lb. bond)	Not supported	Not supported	Not supported	Not supported

<sup>1</sup> For 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) paper, grain long fibers are recommended. For papers heavier than 176 g/m<sup>2</sup> (47 lb bond), grain short is recommended.

<sup>2</sup> Paper weighing less than 75 g/m<sup>2</sup> (20 lb bond) is limited to simplex printing only at less than 60% relative humidity, and is not supported in duplex. Paper less than 76 g/m<sup>2</sup> must be printed with Paper Weight set to Light.

<sup>3</sup> Pressure-sensitive area must enter the printer first.

<sup>4</sup> 100% cotton content maximum weight is 90.2 g/m<sup>2</sup> (24 lb) bond.

<sup>5</sup> 28 lb bond envelopes are limited to 25% cotton content.

<sup>6</sup> The duplex option supports the same weights and types as the printer except for paper 16–19.9 lb (60–74.9 g/m<sup>2</sup>) bond, transparencies, envelopes, vinyl labels, and polyester labels.

<sup>7</sup> Vinyl labels are supported only when the printing environment and the media are at 20–32.2° C (68–90° F).

<sup>8</sup> Refer to the Converter Listing on the Lexmark Home Page and Automated FAX system (LEXFAX™) for information on whether your vinyl label converter has passed the Lexmark criteria. Refer, also, to the *Card Stock and Label Guide* for more details.

<sup>9</sup> Paper 105–176 g/m<sup>2</sup> (28–47 lb bond) must be printed with Paper Weight set to Heavy.

**Media guidelines**

Selecting the appropriate media for the printer helps avoid printing problems.

The following sections contain guidelines for choosing the correct media for the printer.

For detailed information about media characteristics, see the *Card Stock & Label Guide* available on the Lexmark Web site at [www.lexmark.com/publications](http://www.lexmark.com/publications).

**Paper**

To ensure the best print quality and feed reliability, use 90 g/m<sup>2</sup> (24 lb) xerographic, grain long paper. Business papers designed for general business use may also provide acceptable print quality.

We recommend Lexmark part number 12A5950 letter size glossy paper and Lexmark part number 12A5951 A4 size glossy paper.

Always print several samples before buying large quantities of any type of media. When choosing any media, consider the weight, fiber content, and color.

The Laser printing process heats paper to high temperatures of 180°C (356°F) for non-MICR applications. Use only paper able to withstand these temperatures without discoloring, bleeding, or releasing hazardous emissions. Check with the manufacturer or vendor to determine whether the paper chosen is acceptable for laser printers.

When loading paper, note the recommended print side on the paper package, and load paper accordingly.

## Paper characteristics

The following paper characteristics affect print quality and reliability. It is recommended that these guidelines are followed when evaluating new paper stock.

For detailed information, see the *Card Stock & Label Guide* available on the Lexmark Web site at [www.lexmark.com/publications](http://www.lexmark.com/publications).

### Weight

The printer can automatically feed paper weights from 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) grain long. 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 90 g/m<sup>2</sup> (24 lb bond) grain long paper. To use paper narrower than 182 x 257 mm (7.2 x 10.1 in.), it is recommended that the weight be greater than or equal to 90 g/m<sup>2</sup> (24 lb bond).

### Curl

Curl is the tendency of media to curve 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 and dry conditions, even in the trays, can contribute to paper curling prior to printing and can cause feeding problems.

### Smoothness

The degree of smoothness of paper directly affects print quality. If the paper is too rough, the toner does not fuse to the paper properly, resulting in poor print quality. If the paper is too smooth, it can cause paper feeding or print quality issues. Smoothness needs to be between 100 and 300 Sheffield points; however, smoothness between 150 and 250 Sheffield points produces the best print quality.

### Moisture content

The amount of moisture in the paper affects both print quality and the ability of the printer to feed the paper properly. Leave the paper in its original wrapper until it is time to use it. This limits the exposure of the paper to moisture changes that can degrade its performance.

Condition paper while it is still in the original wrapper. To condition it, store it in the same environment as the printer for 24 to 48 hours before printing to let the paper stabilize in the new conditions. Extend the time several days if the storage or transportation environment is very different from the printer environment. Thick paper may also require a longer conditioning period because of the mass of material.

### Grain direction

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

For 60 to 90 g/m<sup>2</sup> (16 to 24 lb bond) paper, grain long fibers are recommended.

### Fiber content

Most high-quality xerographic paper is made from 100% chemically pulped wood. This content provides the paper with a high degree of stability resulting in fewer paper feeding problems and better print quality. Paper containing fibers such as cotton possesses characteristics that can result in degraded paper handling.

## Unacceptable paper

The following papers are not recommended for use with the printer:

- Chemically treated papers used to make copies without carbon paper, also known as carbonless papers, carbonless copy paper (CCP), or no carbon required (NCR) paper
- Preprinted papers with chemicals that may contaminate the printer
- Preprinted papers that can be affected by the temperature in the printer fuser
- Preprinted papers that require a *registration* (the precise print location on the page) greater than  $\pm 0.09$  in., such as optical character recognition (OCR) forms
- In some cases, registration can be adjusted with the software application to successfully print on these forms.
- Coated papers (erasable bond), synthetic papers, or thermal papers
- Rough-edged, rough or heavily textured surface papers or curled papers
- Recycled papers containing more than 25% post-consumer waste that do not meet DIN 19 309
- Paper having a weight less than 60 g/m<sup>2</sup> (16 lb)
- Multiple-part forms or documents

## Selecting paper

Proper paper loading helps prevent jams and ensures trouble-free printing.

To help avoid jams or poor print quality:

- *Always* use new, undamaged paper.
- Before loading paper, know the recommended print side of the paper. This information is usually indicated on the paper package.
- *Do not* use paper that has been cut or trimmed by hand.
- *Do not* mix media sizes, weights, or types in the same source; mixing results in jams.
- *Do not* use coated papers unless they are specifically designed for electrophotographic printing.
- *Do not* forget to change the Paper Size setting when using a source that does not support auto size sensing.
- *Do not* remove trays while a job is printing or Busy appears on the operator panel.
- Make sure the Paper Type and Paper Weight settings are correct. (See "Paper Menu" in the *Menus and Messages Guide* on the publications CD for detailed information about these settings.)
- Make sure the paper is properly loaded in the source.
- Flex paper back and forth. Do not fold or crease the paper. Straighten the edges on a level surface.

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## Web oiler upgrade kit and replacements

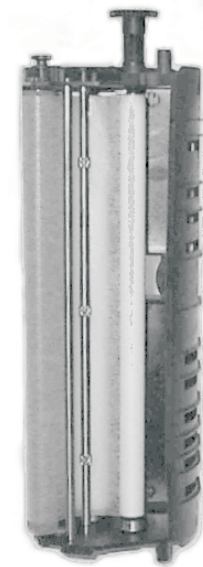
The web oiler removes fuser roll contamination in machines which run a large number of vinyl or dual web labels. The web oiler works with all media types and enables the prolonged use of labels without sacrificing fuser life.

- **Web oiler fuser life:** 120,000 (C78x models), 200,000 (C77x models),
- **Web oiler life:** 100,000 pages
- **Availability:** Order the web oiler upgrade kit.

### *Upgrade kit*

This kit allows you to upgrade your current printer.

Description	Part number
Web oiler upgrade kit	40X1856
The installation of the web oiler upgrade kit converts a standard Lexmark C77x printer to an oil web-capable printer. The web oiler upgrade kit includes an oiler fuser and web oiler.	





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## Acronyms


BLDC	Brushless DC Motor
BOR	Black Only Retract
C	Cyan
CSU	Customer Setup
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
HCIT	High-Capacity Input Tray
HCOF	High-Capacity Output Finisher
HVPS	High Voltage Power Supply
ITU	Image Transfer Unit
K	Black
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
M	Magenta
MROM	Masked Read Only Memory
MS	Microswitch
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



## 2. Diagnostic information

### Start

	<p><b>CAUTION</b></p> <p>Unplug the power cord from the electrical outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer. Disconnect any connections between the printer and PCs/peripherals.</p>
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	<p><b>CAUTION</b></p> <p>The printer weighs 48–82 kg (105–181 lb) and requires at least three people to lift it safely. Remove the options before lifting the printer. Make sure your fingers are not under the printer when you lift or set the printer down.</p>
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To determine the corrective action necessary to repair a printer, look for the following information:

- Does the POR stop? Check the **“POR (Power-On Reset) sequence” on page 2-2**
- Do you have a symptom, rather than an error message?
  - **“Symptom table—base printer” on page 2-3**
  - **“Symptom table—500-sheet drawer option” on page 2-4**
  - **“Symptom table—HCIT 2000-sheet option” on page 2-5**
  - **“Symptom table—output expander option” on page 2-5**
  - **“Symptom table—5-bin mailbox option” on page 2-5**
  - **“Symptom table—StapleSmart finisher” on page 2-6**
- If you have an error message or user message, check the following:
  - **“1xx service errors” on page 2-7**
  - **“2xx paper jams” on page 2-9**
  - **“9xx service errors” on page 2-11**
  - **“User attendance messages” on page 2-126**
  - **“Service checks” on page 2-14** for individual error messages
- Additional information can be found at the following locations:
  - **“Understanding the printer operator panel” on page 2-119**
  - **“Service checks” on page 2-14**

**Note:** There may be printer error messages that are not contained in this service manual. Contact your next level of support for assistance.

## POR (Power-On Reset) sequence

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

1. Power the machine on.
2. +5 V LED (Power ON) on the system board comes on.
3. Fans turn on.
4. The operator panel LED comes on solid.
5. While loading code, dots scroll across the display.
6. The following is an example of the screen that displays after the code is loaded.

256MB	800Mhz
-------	--------

Where xxxMB displays the installed memory and xxxMhz indicates the processor speed.

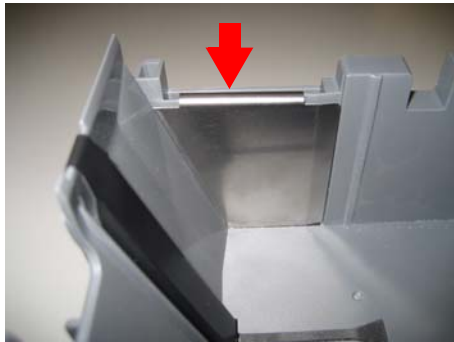
7. The image of a clock face appears on the display.
8. The heartbeat LED on system boards turns on.
9. Color calibration may be initiated. This is displayed if one of the following occurs:
  - The printer detects at power on, or the front cover assembly is closed, that a new or different toner cartridge has been installed.
  - The printer detects at power on when the cover is closed that a new or different ITU has been installed.
  - The printer detects at power on that the fuser temperature is below 60° C.
  - When coming out of power saver if power saver has been active for eight hours or longer.
  - If the printer is turned on when a calibration cycle was in progress since the printer was last powered off.
10. The redrive exit roller turns.
11. Ready is displayed.





Various messages may appear during this sequence or immediately after. For example:

- ITU Missing is posted if the ITU is missing.
- Fuser Missing is posted if the fuser is missing.
- Close Door is posted if the front cover assembly is open.
- Any cartridge errors are posted such as a defective cartridge, Return Program information, or missing cartridge.
- Any applicable maintenance messages display such as 80 Fuser Maintenance or 83 ITU Maintenance.
- One of the toner low messages appears when applicable: 88 Yellow Toner Low, 88 Magenta Toner Low, 88 Cyan Toner Low, or 88 Black Toner Low.

## Symptom tables

### Symptom table—base printer

Symptom	Action
Fuser fan fails to run or is noisy	Go to <b>“925.02 error code service check” on page 2-56.</b>
RIP fan fails to run or is noisy	Go to <b>“927.03 error code service check” on page 2-57.</b>
VTB fan fails to run or is noisy	Go to <b>“926.01 error code service check” on page 2-56.</b>
Excessive fuser drive motor assembly noise	Go to <b>“Excessive fuser drive motor assembly noise” on page 2-89.</b>
Machine inoperative: Fans don't turn, engine not on, lights not on, and none of the printer functions work.	Go to <b>“AC and DC power service check” on page 2-76.</b>
Close Door displays constantly, unable to clear the message, POR incomplete	Go to <b>“Close door/HVPS/printhead interlock switch service check” on page 2-81.</b>
Printer does not complete POST and stapler cycles several times.	Go to <b>“POST incomplete—stapler cycles several times” on page 2-116</b>
Operator panel: One or more buttons do not work	Go to <b>“Operator panel LCD/status LED/buttons service check” on page 2-90.</b>
Operator panel: Display is blank, printer does not sound 5 beeps, but printer is not inoperative	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68.</b>
Operator Panel: Operator panel displays dots continuously, sounds 3 beeps, and POST is 18incomplete.	Go to <b>“Operator panel LCD/status LED/buttons service check” on page 2-90.</b>
Operator panel: One pixel or random pixels are missing	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68.</b>
Paper feed problems, base printer	Go to <b>“2xx paper jams” on page 2-9.</b>
Paper feed problems, integrated tray	Go to <b>“Tray 1 service check” on page 2-117.</b>
Paper feed problems, integrated tray catching autocompensator while removing the tray.	<p>The wear clip in the back left of the tray may not be fully seated. Be sure to seat it fully so there is no gap below it.</p>  <p>It could damage the autocompensator. If the problem persists, go to <b>“Tray 1 service check” on page 2-117.</b></p>

Symptom	Action
Printer prints black only, no colors	Make sure that the printer is not set up to print black only. If the printer is set up correctly, check the Black Retract (BOR) Motor and gears for correct operation. If the gears are operating correctly, replace the Retract Motor Assembly. See <b>“BOR drive assembly removal” on page 4-34</b> . If this does not correct the problem, go to <b>“Black only retract (BOR) service check” on page 2-80</b> .
Print quality: 100% single color printed <ul style="list-style-type: none"> <li>All black print</li> <li>All cyan print</li> <li>All magenta print</li> <li>All yellow print</li> </ul>	Go to <b>“Entire page is mostly one color—Full bleed planes in one color” on page 2-96</b> .
Print quality: Blank page (no image)	Go to <b>“Blank page (no image)” on page 2-95</b> .
Print quality: Evenly spaced horizontal marks or lines on the printed page	Go to <b>“Vertical lines or streaks” on page 2-100</b> .
Print quality: Black line	Black horizontal lines are most likely caused by a shorted charge roll in the print cartridge. Replace the black print cartridge.
Print quality: Magenta, cyan, or yellow lines.	<b>“Vertical lines or streaks” on page 2-100</b> or <b>“Horizontal lines or streaks” on page 2-100</b> .
Print quality: Colored lines, streaks, or smudges	Go to <b>“Vertical lines or streaks” on page 2-100</b> or <b>“Horizontal lines or streaks” on page 2-100</b> .
Print quality: Light lines or streaks appear on the printed page	Go to <b>“Light lines or streaks appear on the page” on page 2-105</b> .
Print quality: Light print	Go to <b>“Light print over the entire page” on page 2-98</b> .
Print quality: Faded or light print and/or 34 Incorrect Media error.	Check the Paper Type setting. If Transparency is set when the print media should be paper or card stock, image development may stop. Do the following: <ol style="list-style-type: none"> <li>Turn the printer off and leave it off for 30 seconds.</li> <li>Turn the printer on.</li> <li>On the operator panel, press <b>Menu</b> (  ).</li> <li>Select <b>Paper Menu</b>, and press <b>Select</b> (  ).</li> <li>Select <b>Paper Type</b>, and press <b>Select</b> (  ).</li> <li>Select the tray you need to change, select the proper setting, and press <b>Select</b> (  ).</li> </ol> To verify that the problem is solved, print a test page.
Print quality: Missing colors	Go to <b>“Missing colors—Complete or partially missing color planes” on page 2-97</b> .
Print quality: Uneven printing	Go to <b>“Uneven printing” on page 2-103</b> .
Print quality: Poor color alignment	Go to <b>“Poor color alignment” on page 2-101</b> .
Print quality: Toner on the back of the page	Go to <b>“Toner is on the back of the printed page” on page 2-105</b> .
Print quality: Toner smears or rubs off the page	Go to <b>“Toner smears or rubs off the page with no error code displayed” on page 2-104</b> .
Print quality: Multiple horizontal lines	Go to <b>“Vertical lines or streaks” on page 2-100</b> .

### Symptom table—500-sheet drawer option

Symptom	Action
Printer fails to recognize the option is installed	Go to <b>“The base printer does not recognize that tray x is installed.” on page 2-73</b> .

Symptom	Action
The tray x autocompensator fails to retract, stays in down position	Go to <b>“Tray x autocompensator fails to retract, stays in down position.”</b> on page 2-74.
Paper Low message appears when adequate paper is installed (tray x)	Go to <b>“The printer detects paper low in tray x when adequate paper is installed in the tray.”</b> on page 2-74.
Paper Out message appears when adequate paper is installed (tray x)	Go to <b>“The printer detects paper out in tray x when adequate paper is installed in the tray.”</b> on page 2-75.
Tray x does not detect size media is installed	Go to <b>“Tray x does not detect size media installed”</b> on page 2-75.
Paper jams in the option tray (242.xx, 243.xx, 244.xx)	Go to <b>“241.xx paper jam service check”</b> on page 2-38, or <b>“243.xx paper jam service check”</b> on page 2-43.

### **Symptom table—HCIT 2000-sheet option**

Symptom	Action
Printer fails to recognize the option is installed	Go to <b>“Printer does not recognize that the HCIT 2000-sheet option is installed.”</b> on page 2-87.
HCIT does not function. There is no response. The HCIT is inoperative.	Go to <b>“HCIT inoperative”</b> on page 2-88.
HCIT does not recognize the correct media size	Go to <b>“HCIT 2000-sheet option does not recognize the size paper selected.”</b> on page 2-89.
Paper jams in the HCIT	Go to <b>“2xx paper jams”</b> on page 2-9.
Paper jams in the HCIT (242.xx, 243.xx, 244.xx)	Go to <b>“242.xx paper jam service check”</b> on page 2-39, <b>“243.xx paper jam service check”</b> on page 2-43, or <b>“244.xx paper jam service check”</b> on page 2-48.

### **Symptom table—output expander option**

Symptom	Action
Printer fails to recognize the option is installed. The paper feeds into the standard bin.	Go to <b>“Output expander option service check”</b> on page 2-92.
Remove Paper—Output Bin x is displayed and cannot be cleared	Go to <b>“Remove Paper—Output Bin x is displayed, POST is incomplete unable to clear the message.”</b> on page 2-93
Printer does not display Output Bin Full	Go to <b>“No indication that bin x is full or no indication that bin x is near full.”</b> on page 2-94.
Excessive static electricity buildup	Go to <b>“Problems with excessive static electricity buildup.”</b> on page 2-94.
271.xx paper jams appears	<b>“271.xx paper jam service check”</b> on page 2-51.

### **Symptom table—5-bin mailbox option**

Symptom	Action
Printer fails to recognize the option is installed. Paper feeds into the standard bin.	Go to <b>“The printer does not recognize one or more output options as installed.”</b> on page 2-70.
Ready Bin x Full displays and won't clear	Go to <b>“Ready bin x full message—may be able to clear message and will feed paper into bin selected.”</b> on page 2-71

Symptom	Action
Bin x is full but no message displays that Bin x is full	Go to <b>“Bin x full—no message that bin x is full message” on page 2-71</b>
Bin full message displays but paper feeds into bin.	Go to <b>“Ready—bin x full displays and paper feeds into bin x” on page 2-72</b>
272 Paper Jam appears, paper does not feed into the bin selected.	Go to <b>“Paper does not feed into the bin selected. 272.xx Paper Jam—check bin 1 message” on page 2-72</b>

### **Symptom table—StapleSmart finisher**

Symptom	Action
Printer does not complete POST, and stapler cycles several times.	Go to <b>“POST incomplete—stapler cycles several times” on page 2-116</b>
Problems with static electricity buildup.	Go to <b>“Problems with static electricity buildup” on page 2-113</b>
Printer does not recognize StapleSmart Finisher Option as being installed.	Go to <b>“Printer does not recognize StapleSmart finisher option as being installed” on page 2-113</b>
Close Top Cover displayed. Unable to clear or reset message (POST incomplete).	Go to <b>“Close Finisher Top Cover displayed—unable to clear or reset message (POST incomplete)” on page 2-113.</b>
Close Finisher Side Cover displayed. Unable to clear or reset message (POST incomplete).	Go to <b>“Close Finisher Side Door displayed—unable to clear or reset message (POST incomplete)” on page 2-114.</b>
Paper feeds into finisher option output tray. Paper is not stapled and paper does not align with the right side.	Go to <b>“Paper feeds into finisher option output tray—Paper is not stapled—Paper does not align with the right side” on page 2-114.</b>
Paper feeds into finisher option. Paper aligns with the right side. The stapler does not staple.	Go to <b>“StapleSmart finisher service check” on page 2-113.</b>
Paper is transported into the output tray but is not stapled.	Go to <b>“Sheets are transported into output tray but not stapled” on page 2-114.</b>
Stapled sheets are not transported to the output tray.	Go to <b>“Stapled sheets are not transported to the output tray” on page 2-115.</b>
Finisher does not staple.	Go to <b>“StapleSmart finisher service check” on page 2-113</b>



## Service error code and paper jam message table

### Error codes and paper jam messages

Error code	Action
<b>User attendance messages</b>	
1xx service errors	
100.01 ITU Error	ITU belt track direction problem—go to <b>“100.01 ITU error service check” on page 2-14.</b>
100.02 ITU Error	ITU belt tracking problem—go to <b>“100.02 ITU error service check” on page 2-17.</b>
100.xx (.03 through.99)	Replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b>
106.xx Printhead Error	<p>Cyan printhead error.</p> <p>Check for the correct installation of all the cables to the system board assembly and to the printhead assembly: JCY1, and JMMC1 on the system board. See <b>“System board” on page 5-7.</b> If the cables are connected correctly to the system board and to the printhead assembly, go to <b>“Printhead diagnostics” on page 3-1.</b></p> <p><b>Note:</b> Do not adjust or replace any printhead before performing checks in <b>“Printhead diagnostics” on page 3-1.</b></p>
107.xx Printhead Error	<p>Magenta printhead error</p> <p>Check for the correct installation of all the cables to the system board assembly and to the printhead assembly: JMMM1 and JMK1 on the system board. See <b>“System board” on page 5-7.</b> If the cables are connected correctly to the system board and to the printhead assembly, go to <b>“Printhead diagnostics” on page 3-1.</b></p> <p><b>Note:</b> Do not adjust or replace any printhead before performing checks in <b>“Printhead diagnostics” on page 3-1.</b></p>
108.xx Printhead Error	<p>Yellow printhead error</p> <p>Check for the correct installation of all the cables to the system board assembly and to the printhead assembly: JMMY1 and JMMC1 on the system board. See <b>“System board” on page 5-7.</b> If the cables are connected correctly to the system board and to the printhead assembly, go to <b>“Printhead diagnostics” on page 3-1.</b></p> <p><b>Note:</b> Do not adjust or replace any printhead before performing checks in <b>“Printhead diagnostics” on page 3-1.</b></p>
109.xx Printhead Error	<p>Black printhead error</p> <p>Check for the correct installation of all the cables to the system board assembly and to the printhead assembly: JMK1 and JMMK1 on the system board. See <b>“System board” on page 5-7.</b> If the cables are connected correctly to the system board and to the printhead assembly, go to <b>“Printhead diagnostics” on page 3-1.</b></p> <p><b>Note:</b> Do not adjust or replace any printhead before performing checks in <b>“Printhead diagnostics” on page 3-1.</b></p>
122.01 Fuser Error	Fuser error—go to <b>“122.01 error code service check” on page 2-18.</b>
122.02 Fuser Error	Fuser over temperature—go to <b>“122.02 error code service check” on page 2-19.</b>
122.03 Fuser Error	Fuser open thermistor—go to <b>“122.03 error code service check” on page 2-19.</b>
122.04 Fuser Error	Fuser cold—go to <b>“122.04 error code service check” on page 2-20.</b>
122.05 Fuser Error	Fuser does not raise temperature quickly enough or raises temperature too quickly—go to <b>“122.05 and 122.06 error code service check” on page 2-21.</b>

**Error codes and paper jam messages (continued)**

<b>Error code</b>	<b>Action</b>
122.06 Fuser Error	Fuser failed to raise temperature quickly enough or raises temperature too quickly—go to <b>“122.05 and 122.06 error code service check” on page 2-21.</b>
122.07 Fuser Error	Fuser timeout waiting for home sensor—go to <b>“122.07, 122.14, and 122.15 error code service check” on page 2-22.</b>
122.08 Fuser Error	Go to <b>“122.08 error code service check” on page 2-23.</b>
122.09 Fuser Error	Replace LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>
122.10 Fuser Error	Fuser failed to warm up— <b>“122.10 error code service check” on page 2-23.</b>
122.11 Fuser Error	Fuser under temperature while in standby—go to <b>“122.11 error code service check” on page 2-24.</b>
122.12 Fuser Error	Fuser under temperature while printing—go to <b>“122.12 error code service check” on page 2-24.</b>
122.13 Fuser Error	Fuser open second thermistor—go to <b>“122.13 error code service check” on page 2-24.</b>
122.14 Fuser Error	Fuser timeout waiting for motor to stop—go to <b>“122.07, 122.14, and 122.15 error code service check” on page 2-22.</b>
122.15 Fuser Error	Fuser timeout waiting for motor to stop—go to <b>“122.07, 122.14, and 122.15 error code service check” on page 2-22.</b>
140.xx Motor	Autocompensator motor error—replace the autocompensator motor. See <b>“Autocompensator pick assembly removal” on page 4-27.</b> If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
144.xx Motor	Registration (staging) motor error—replace the registration motors. See <b>“Registration motor removal” on page 4-83.</b> If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
148.xx Motor	ITU belt motor error—go to <b>“148.xx error code service check” on page 2-25.</b>
149.xx Motor	Fuser motor error—replace the fuser drive assembly. See <b>“Fuser drive assembly removal” on page 4-46.</b> If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
150.xx Motor	Black cartridge motor error—go to <b>“150.xx error code service check” on page 2-26.</b>
151.xx Motor	Magenta cartridge motor error—go to <b>“151.xx error code service check” on page 2-26.</b>
152.xx Motor	Cyan cartridge motor error—go to <b>“152.xx error code service check” on page 2-27.</b>
153.xx Motor	Yellow Cartridge motor error—go to <b>“153.xx error code service check” on page 2-27.</b>
177.xx MFP Motor Error	MPF motor error—go to <b>“177.xx error code service check” on page 2-28.</b>


**Error codes and paper jam messages (continued)**

Error code	Action
<b>2xx paper jams</b>	
200.03 Paper Jam Clear Paper Path	S2 sensor was made at an unexpected time. This message indicates that a paper jam has occurred at or near the printer Input Sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.03 paper jam service check” on page 2-28.</b>
200.04 Paper Jam Clear Paper Path	S2 sensor wasn't made within timeout period. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.04 paper jam service check” on page 2-29.</b>
200.05 Paper Jam Clear Paper Path	S2 sensor did not break within timeout period. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.05 paper jam service check” on page 2-30.</b>
200.06 Paper Jam Clear Paper Path	Narrow media sensor was made at an unexpected time. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.06 paper jam service check” on page 2-30.</b>
200.07 Paper Jam Clear Paper Path	Narrow media sensor did not break within the timeout period. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.07 paper jam service check” on page 2-31.</b>
200.16 Paper Jam Clear Paper Path	S2 sensor was made excessively early. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.16 paper jam service check” on page 2-31.</b>
200.21 Paper Jam Clear Paper Path	Laser paper path sensor (transparency sensor) is obstructed. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.21, 200.28, and 200.29 paper jam service check” on page 2-32.</b>
200.28 Paper Jam Clear Paper Path	S2 paper path sensor obstructed. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.21, 200.28, and 200.29 paper jam service check” on page 2-32.</b>
200.29 Paper Jam Clear Paper Path	Narrow media sensor obstructed. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media.  If removing the jammed media does not fix the problem, go to <b>“200.21, 200.28, and 200.29 paper jam service check” on page 2-32.</b>
200.69 Paper Jam Clear Paper Path	Registration— replace the registration motor. See <b>“Registration motor removal” on page 4-83.</b>  If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>

**Error codes and paper jam messages (continued)**

<b>Error code</b>	<b>Action</b>
200.72 Paper Jam Clear Paper Path	Registration motor error— replace the registration motor. See <b>“Registration motor removal” on page 4-83.</b> If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
200.75 Paper Jam Clear Paper Path	Registration motor error— replace the registration motor. See <b>“Registration motor removal” on page 4-83.</b> If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
200.92 Paper Jam Clear Paper Path	Narrow media detected when banner length media is specified. Narrow banner media is not supported.
200.93 Paper Jam Clear Paper Path	Media has jammed at or before the fuser sensor. Open the printer lower right or center door to access the jammed media. If removing the jammed media does not fix the problem, go to <b>“200.93 paper jam service check” on page 2-33.</b>
200.96 Paper Jam Clear Paper Path	Neither S2 nor narrow media sensor broke within the timeout period. This message indicates that a paper jam has occurred at or near the printer input sensor. Open the printers left door (Paper Jam Removal Door) to access the jammed media. If removing the jammed media does not fix the problem, go to <b>“200.96 paper jam service check” on page 2-35.</b>
201.xx Paper Jam Clear Paper Path	Media has jammed at the fuser. Open the printer right door to access the jam area. If removing the jammed media does not fix the problem, go to <b>“201.xx and 202.xx paper jam service check” on page 2-35.</b>
202.xx Paper Jam Clear Paper Path	Media has jammed at the fuser. Open the printer right door to access the jam area. If removing the jammed media does not fix the problem, go to <b>“201.xx and 202.xx paper jam service check” on page 2-35.</b>
230.xx Paper Jam Clear Paper Path	Paper has most likely jammed in the duplex option. Remove the duplex tray to access the jam. If removing the jammed media does not fix the problem, go to <b>“230.xx paper jam service check” on page 2-37.</b>
241.xx Paper Jam Clear Paper Path	Paper is jammed in the primary paper tray (tray 1). Remove the paper tray to access the jam. If removing the jammed media does not fix the problem, go to <b>“241.xx paper jam service check” on page 2-38.</b>
242.xx Paper Jam Clear Paper Path	Tray 2—this paper jam message can apply to the 500-sheet Option Tray, envelope option, special media option, or HCIT option, depending on the configuration of the printer. If removing the jammed media does not fix the problem, go to <b>“242.xx paper jam service check” on page 2-39.</b>
243.xx Paper Jam Clear Paper Path	Tray 3—this paper jam message can apply to the 500-sheet Option Tray, envelope option, special media option, or HCIT option, depending on the configuration of the printer. If removing the jammed media does not fix the problem, go to <b>“243.xx paper jam service check” on page 2-43.</b>
244.xx Paper Jam Clear Paper Path	Tray 4—this paper jam message can apply to the 500-sheet Option Tray, envelope option, special media option, and HCIT option, depending on the configuration of the printer. If removing the jammed media does not fix the problem, go to <b>“244.xx paper jam service check” on page 2-48.</b>

**Error codes and paper jam messages (continued)**

<b>Error code</b>	<b>Action</b>
250.xx Paper Jam Clear Paper Path	Paper is jammed in the MPF. If removing the jammed media does not fix the problem, go to <b>“250.xx paper jam service check” on page 2-49.</b>
271.xx Paper Jam Clear Paper Path	Paper has jammed at the output bin. Open the door of the bin to access the jammed media. If removing the jammed media does not fix the problem, go to <b>“271.xx paper jam service check” on page 2-51.</b>
272.xx Paper Jam Clear Paper Path	Media is jammed in the 5-Bin Mailbox Option. Open the rear door of option to access the jammed media. If removing the jammed media does not fix the problem, go to <b>“272.xx paper jam service check” on page 2-52.</b>
280.xx Paper Jam Clear Paper Path	This includes 280.36-40 and 280.80. Media has jammed in the StapleSmart finisher option. Open the finisher option front door to access the jammed pages. <b>Note:</b> If the accumulated sheets are removed, the printer will not reprint these sheets. Also if the print job is completed, the portion of the job printed after the jam will not be stapled. If removing the jammed media does not fix the problem, replace the StapleSmart finisher option.
282.98 Staple Jam Check Stapler	The stapler device detects a paper jam during normal stapler operation such as when printing and stapling jobs. Check stapler are for jam in accumulator or stapler. Remove stapler cartridge to check for staple jam. Press  to initiate priming and resume printing. If this does not fix the problem, go to <b>“282.98 paper jam service check” on page 2-53.</b>
<b>9xx service errors</b>	
900.xx RIP Software Error	Go to <b>“900.xx RIP Software Error service check” on page 2-53.</b>
902.xx Engine Software	General Engine Software Errors 902 through 907 indicate an unrecoverable engine software error. The system board may cause this type of error. Turn the printer off and on to try and clear the error code. If this does not fix the problem after several attempts, contact your next level of support before replacing the system board.
903.xx Engine Software	
904.xx Engine Software	
905.xx Engine Software	
906.xx Engine Software	
907.xx Engine Software	
908.xx Engine Hardware Failure	General Engine Hardware Error 908 indicates an unrecoverable engine electronic hardware error. The system board may cause this type of error. Turn the printer off and on to try and clear the error code. If this does not fix the problem after several attempts, contact your next level of support before replacing the system board.
920.xx TPS Sensor	Unrecoverable TPS Sensor Error—Replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b>

### Error codes and paper jam messages (continued)

Error code	Action
921.xx Registration	Unrecoverable Registration Sensor Error—Replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b>
925.02 Fan Stalled	Fuser fan—Go to <b>“925.02 error code service check” on page 2-56.</b>
926.01 Fan Stalled	VTB fan—Go to <b>“926.01 error code service check” on page 2-56.</b>
927.03 Fan Stalled	RIP Fan—Go to <b>“927.03 error code service check” on page 2-57.</b>
930.09 LV Power Supply	Unable to find zero crossover point—Replace the LVPS. See <b>“LVPS assembly removal” on page 4-53.</b>
940.xx TMC Error—Cyan	Cyan TMC switch failure—Go to <b>“940.xx error code service check” on page 2-58.</b>
941.xx TMC Error—Magenta	Magenta TMC switch failure—Go to <b>“941.xx error code service check” on page 2-60.</b>
942.xx TMC Error—Yellow	Yellow TMC switch failure—Go to <b>“942.xx error code service check” on page 2-62.</b>
943.xx TMC Error—Black	Black TMC switch failure—Go to <b>“943.xx error code service check” on page 2-64.</b>
950.00 to 950.29 NVRAM Failure	Either the system board or the operator panel assembly you just replaced was not a blank FRU. Replace that part with a new FRU.
950.30 to 950.60 NVRAM Failure	Either the system board or the media size sensing board you replaced was not a blank FRU. Replace that part with a new FRU.
951.xx NVRAM Failure	NVRAM chip failure—replace the media size sensing board. See <b>“Media size sensing board removal” on page 4-58.</b>
952.xx NVRAM Failure	NVRAM chip failure—POR the printer.
953.xx NVRAM Failure	NVRAM chip failure operator panel assembly—replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68.</b>
954.xx NVRAM Failure	NVRAM chip failure—Replace the system board. See <b>“System board removal” on page 4-89.</b>
955.xx Code CRC <loc>	System board—This error indicates that the Code ROM or NAND failed the CRC check. The location of the failure is indicated by <loc>. Replace the system board. See <b>“System board removal” on page 4-89.</b>
956.xx Service <xxxx> System Board	Go to <b>“956.xx service error service check” on page 2-66.</b>
957.xx System Board ASIC Failure	Replace the system board. See <b>“System board removal” on page 4-89.</b>
958.xx NAND Failure	Replace the system board. See <b>“System board removal” on page 4-89.</b>
960.xx RAM Memory Error	RAM soldered on board is bad. Replace the system board. See <b>“System board removal” on page 4-89.</b>
961.xx RAM Memory Error	There is an error in the memory installed in the memory option slot 1 on the system board. If another memory option is available, switch the memory options to isolate the problem. If you do not have a spare memory option to switch, then replace the memory installed. If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>

### Error codes and paper jam messages (continued)

Error code	Action
962.xx RAM Memory Error	There is an error in the memory installed in the memory option slot 2 on the system board. If another memory option is available, switch the memory options to isolate the problem. If you do not have a spare memory option to switch, then replace the memory installed. If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
963.xx RAM Memory Error	There is an error in the memory installed in the memory option slot 3 on the system board. If another memory option is available, switch the memory options to isolate the problem. If you do not have a spare memory option to switch, then replace the memory installed. If this does not fix the problem, replace the system board. See <b>“System board removal” on page 4-89.</b>
964.xx Emulation Error	Download emulation CRC failure has occurred. The following actions may be taken: <ol style="list-style-type: none"> <li>1. Disable the Download Emulation.</li> <li>2. Program the download emulation into the code overlay SIMM again.</li> <li>3. If the problem is not resolved, replace the code overlay SIMM and download emulation again.</li> </ol>
975.xx Standard Network or Network Card x	Unrecognizable network Errors 975 through 979 indicate a failure with the standard network port located on the system board or a network card in the specified slot x, x=1, 2 or 3. Replace the card in the specified slot.
976.xx Standard Network	Unrecoverable software or error in network for network card x. If unable to clear the error message, check the following: <ul style="list-style-type: none"> <li>• If installed, check network card for correct installation.</li> <li>• If correctly installed, replace the network card.</li> <li>• If a network card is not installed, replace the system board.</li> </ul>
978.xx Standard Network or Network Card x	Bad checksum while programming Standard Network or Network Card x port. Check the following: <ul style="list-style-type: none"> <li>• Make sure you have downloaded the code in binary mode, not ASCII.</li> <li>• Reprogram the Network card.</li> <li>• If the problem persists, and if installed, check the network card for correct installation.</li> <li>• If correctly installed, replace the network card.</li> <li>• If a network card is not installed, replace the system board. See <b>“System board removal” on page 4-89.</b></li> </ul>
979.xx Standard Network or Network Card X	Flash parts failed while programming the Standard Network or Network Card x port. Check the following: <ul style="list-style-type: none"> <li>• If installed, check the network card for correct installation.</li> <li>• If correctly installed, replace the network card.</li> <li>• If a network card is not installed, replace the system board. See <b>“System board removal” on page 4-89.</b></li> </ul>
982.xx <device> comm	Communications error detected by the specified device. <p><b>Note:</b> &lt;device&gt; can be one of the following:</p> <ul style="list-style-type: none"> <li>• Duplex option.</li> <li>• Tray x (where x=2, 3, or 4).</li> <li>• Output Expander or StapleSmart finisher—Output bin x (where x=1).</li> <li>• 5-Bin Mailbox—Output bin x (where x=1 through 5).</li> </ul> Go to <b>“982.xx error service check” on page 2-66</b>

## Error codes and paper jam messages (continued)

Error code	Action
990.01 <device>	<p>This error message indicates that an equipment check condition has occurred in the specified device, but the error is unable to identify the exact component failure. Go to <b>“990.01 error service check” on page 2-67.</b></p> <p><b>Note:</b> &lt;device&gt; can be one of the following:</p> <ul style="list-style-type: none"> <li>• Duplex option. See <b>“Duplex option service check” on page 2-83.</b></li> <li>• Tray x (where x=2, 3, or 4). See <b>“500-sheet drawer option service check” on page 2-73.</b></li> <li>• Output Expander or StapleSmart finisher—Output bin x (where x=1). See <b>“Output expander option service check” on page 2-92</b> or <b>“StapleSmart finisher service check” on page 2-113.</b></li> <li>• 5-Bin Mailbox—Output bin x (where x=1 through 5). See <b>“5-bin mailbox option service check” on page 2-69.</b></li> </ul> <p>Go to the service check for the device indicated.</p>

## Service checks

### 100.01 ITU error service check

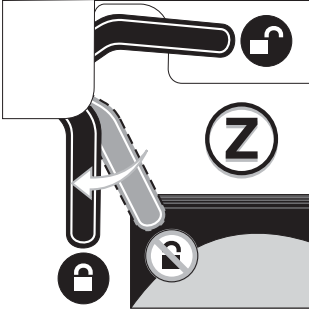
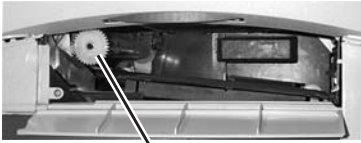
A 100.01 ITU error indicates that the printer did not detect the ITU belt home sensor. Before proceeding with this service check, make sure that the Second Transfer Roll is correctly installed. After you reinstall the Second Transfer Roll, check to see if a 100.01 ITU error is still displayed. If a 100.01 ITU error is still being displayed, continue with this check.

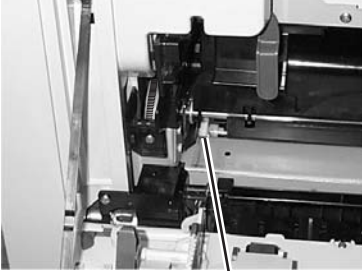
The ITU has an optical sensor that watches for a piece of reflective tape on the inside of the image belt. This tape is read every revolution of the belt. If a signal is not received from the belt sensor within a certain time period, the printer posts an error due to the loss of signal. There are several causes for the loss of signal. First, the belt has tracked too far to the front or rear of the printer. In this case, the belt is still turning, but the reflective tape is no longer passing within view of the belt sensor. This is considered a belt tracking error and is initially posted as a 100.02 ITU Error. The other causes of a signal loss could be a belt stall, meaning the belt is not turning, or a true signal loss, which would be due to a bad sensor, broken cable, loose connection, or bad system board. These other causes post as a 100.01 ITU Error.

To assist the printer in determining the cause of a signal loss, there is a buffer that records the belt position for the last 50 revolutions. If the printer loses the belt signal, it refers to the buffer. If the buffer shows significant mistracking before signal loss, it will post a 100.02 ITU Error. If the buffer shows that the belt has been tracking in the center before signal loss, it posts a 100.01 ITU Error. Due to memory restrictions, the buffer is not saved during POR. This means if a printer posts a 100.02 ITU Error, so the belt is tracked off, and the customer or servicer turns off the printer to clear the error, when the printer starts up, it will still not see the belt signal and will now post a 100.01 ITU Error because the buffer is empty. When servicing a printer for a 100.01 ITU Error, it is important to view the error log. See **“Display Log” on page 3-29.** The error log can only be displayed at this point. Do not try to print the log. Look for past occurrences of 100.01 ITU Errors preceded by a 100.02 ITU Error.

Step	Actions and questions	Yes	No
1	<p>Make sure all packing material is removed from the printer. The detensioner is located underneath the toner cartridges. Make sure the ITU detensioner is removed. Remove the detensioner by pulling up on the red handle on the right side of the ITU.</p> <p><b>Note:</b> All the print cartridges must be removed to gain access to the detensioner packing material.</p> <p>Has all packing material been removed from the printer?</p>	Go to step 2	Remove any remaining packing material from the printer.



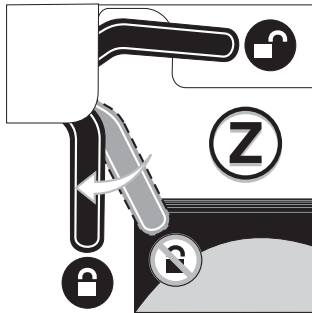
Step	Actions and questions	Yes	No
2	<p>Check the ITU release lever for correct operation. The ITU release lever is the black lever located on the left upper side frame above the ITU opening and can be seen by opening and lowering the MPF assembly. When locked, the lever should be at the 6 o'clock position. When unlocked, it should be in a 3 o'clock position. Undue pressure is not required to operate the lever.</p>  <p>Does the ITU release lever operate correctly?</p>	Go to step 3	Repair as necessary.
3	<p>Check the second transfer roll installation. Is it installed correctly?</p>	Go to step 4	Reinstall the second transfer roll.
4	<p>Check the display error log in the Diagnostic Menu. Is 100.01 ITU preceded in the log by a 100.02 ITU Error?</p>	Go to <b>“100.02 ITU error service check” on page 2-17.</b>	Go to step 5
5	<p>Remove the ITU assembly and check that the sensor cable is seated in the handle of the ITU assembly correctly.</p> <p><b>Note:</b> The sensor connector is located on the side of the ITU handle assembly.</p> <p>Is the cable seated correctly?</p>	Go to step 6	Reinstall the cable correctly. Check again for a 100.01 ITU Error. If 100.01 ITU Error is displayed, go to step 6.
6	<p>The front contamination shield is attached to the front plate of the ITU frame and lies on the top of the ITU belt.</p> <p>Is the front contamination shield lying on the belt?</p>	Go to step 7	Position the shield on top of the belt.
7	<p>Make sure the ITU cleaner gear (A) is turning. Observe the gear by opening the front paper jam door above the integrated paper tray 1. Observe the white cleaner gear during POR. The gear should turn slowly and smoothly for approximately 8 seconds before the printer displays a 100.01 ITU error.</p>  <p>Is the ITU Cleaner Gear turning?</p>	Go to step 11	Go to step 8

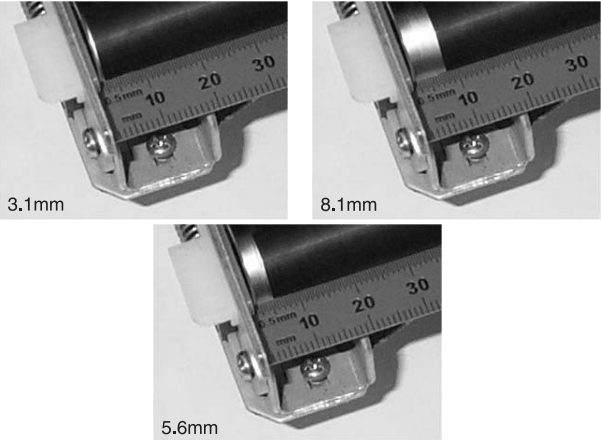
Step	Actions and questions	Yes	No
8	<p>Check to see if the ITU drive roll gear (A) is turning during POR. Observe the gear by opening the MFP door to its horizontal position. Observe the gear on the left end of the ITU drive roll. The ITU drive roll gear should turn for a few seconds slowly and smoothly before the printer posts a 100.01 ITU error.</p>  <p style="text-align: center;">A</p> <p>Does the Gear turn?</p>	Go to step 10	Go to step 9
9	<p>Check to see if the ITU drive motor is turning during POR. Observe the ITU motor during POR by removing the rear cover.</p> <p>Is the ITU drive motor turning?</p>	Replace the ITU drive assembly. see <b>“ITU drive assembly removal” on page 4-52.</b>	Go to step 10
10	<p>Check to see if the printer is setting on a solid, flat surface.</p> <p>Is the printer setting on a solid, flat surface?</p>	Go to step 11	Place the printer on a solid, flat surface.
11	<p>Make sure the ITU drive motor assembly cable is correctly installed to the ITU drive motor and at connector location J16 on the system board.</p> <p>Is the cable correctly installed?</p>	Go to step 12	Install the cable correctly.
12	<p>Make sure the ITU autoconnect cable is installed correctly at connector location J7 on the system board.</p> <p>Is the cable correctly installed?</p>	Go to step 13	Install the connector/cable correctly.
13	<p>Make sure the ITU autoconnect connector in the printer is seated correctly in the connector plate.</p> <p>Is the connector seated correctly?</p>	<p>Replace the following FRUs in the following order:</p> <ol style="list-style-type: none"> <li>1. ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b></li> <li>2. System board. See <b>“System board removal” on page 4-89.</b></li> </ol>	Replace the ITU autoconnect cable.

## 100.02 ITU error service check

The ITU has an optical sensor that watches for a piece of reflective tape on the inside of the image belt. This tape is read every revolution of the belt. If a signal is not received from the belt sensor within a certain time period, the printer posts an error due to the loss of signal. There are several causes for the loss of signal. First, the belt has tracked too far to the front or rear of the printer. In this case, the belt is still turning, but the reflective tape is no longer passing within view of the belt sensor. This is considered a belt tracking error and is posted as a 100.02 ITU Error. The other causes of a signal loss could be a belt stall, meaning the belt is not turning, or a true signal loss, which would be due to a bad sensor, broken cable, loose connection, or bad system board. These other causes post as a 100.01 ITU Error.

To assist the printer in determining what is the cause of a signal loss, there is a buffer that records the belt position for the last 50 revolutions. If the printer loses the belt signal, it refers to the buffer. If the buffer shows significant mistracking before signal loss, it will post a 100.02 ITU Error. If the buffer shows that the belt has been tracking in the center before signal loss, it posts a 100.01 ITU Error. Due to memory restrictions, the buffer is not saved during POR. This means if a printer posts a 100.02 ITU Error, so the belt is tracked off, and the customer or servicer turns off the printer to clear the error, when the printer starts up, it will still not see the belt signal and will now post a 100.01 ITU Error because the buffer is empty. When servicing a printer for a 100.01 ITU Error, it is important to view the error log. See **“Display Log” on page 3-29**. The error log can only be displayed at this point. Do not try to print the log. Look for past occurrences of 100.01 ITU Errors preceded by a 100.02 ITU Error.

Step	Actions and questions	Yes	No
1	<p>Make sure all packing material is removed from the printer. The Detensioner is located underneath the toner cartridges. Make sure the ITU Detensioner is removed. Remove the Detensioner by pulling up on the red handle on the right side of the ITU.</p> <p><b>Note:</b> All the print cartridges must be removed to gain access to the Detensioner packing material.</p> <p>Has all packing material been removed from the printer?</p>	Go to step 2	Remove any remaining packing material from the printer.
2	<p>Check the ITU release lever for correct operation. The ITU release lever is the black lever located on the left upper side frame above the ITU opening and can be seen by opening and lowering the MPF assembly. When locked, the lever should be at the 6 o'clock position. When unlocked, it should be in a 3 o'clock position. Undue pressure is not required to operate the lever.</p>  <p>Does the ITU release lever operate correctly?</p>	Go to step 3	Repair as necessary.
3	<p>Check the second transfer roll installation.</p> <p>Is it installed correctly?</p>	Go to step 4	Reinstall the second transfer roll.

Step	Actions and questions	Yes	No
4	Check the printer is setting on a solid, flat surface. Is the printer setting on a solid, flat surface?	Go to step 5	Inform the customer that the printer must be setting on a solid, flat surface.
5	The front contamination shield is attached to the front plate of the ITU frame and lies on the top of the ITU belt. Is the front contamination shield lying on the ITU belt.	Go to step 6	Position the shield on top of the belt.
6	Remove the ITU and check the ITU belt position. If the belt has shifted to the front or to the rear it should be replaced. The belt must not shift more than 4 mm in either direction. Check by making the measurements as shown. The lower limit is 3.1 mm, the high limit is 8.1 mm, and the optimum position is 5.6 mm.  Has the ITU Belt shifted to the front or to the rear?	Replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49</b> and run the belt tracking. See <b>“Belt Tracking (ITU 4th point adjustment)” on page 3-13.</b>	Treat as a belt stall or signal communications problem. See <b>“100.01 ITU error service check” on page 2-14.</b>

## 122.01 error code service check

### Hot fuser

Error code 122.01 indicates that the fuser heated up too quickly or not quickly enough. Error code 122.01 may also indicate a problem in the fuser assembly with the hot roll bearings, hot roll thermistor, LVPS, or the system board.

Step	Actions and questions	Yes	No
1	Turn the printer on. Open the right side fuser access door. Observe the hot roll lamp to see if it turns on and off. You may have to observe the lamp for a few minutes to see if it turns on and off. Does the lamp turn on and off?	Go to step 2	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>
2	Turn the printer on. Measure the voltage on connector J17-11 on the system board. The voltage should measure approximately +0.13 V dc and +0.64 V dc as the hot roll lamp turns on and off. Is the voltage correct?	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>

## 122.02 error code service check

### Hot fuser

Error code 122.02 displays whenever the printer detects a problem with the fuser running over temperature or the fuser lamps have been on too long. A problem could exist in the fuser assembly with the hot roll bearings, hot roll thermistor, or other hot roll parts. The LVPS or system board assembly can also be failing.

Step	Actions and questions	Yes	No
1	Open the right fuser access door. Observe the fuser, and see if the hot roll fuser lamp turns on and off. You may have to observe for a few minutes. Do the lamps turn off and on?	Go to step 2	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>
2	Turn the printer on, and measure the voltage on connector J17-11 on the system board. The voltage should measure approximately +0.13 V dc to +0.64 V dc as the hot roll lamp turns on and off. Is the voltage correct?	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>

## 122.03 error code service check

### Hot roll thermistor circuit is open

If error code 122.03 displays, the printer detects a problem in the fuser hot roll, fuser hot roll thermistor, system board, or LVPS fuser control circuits.

Step	Actions and questions	Yes	No
1	Turn the printer on, and allow it to reach the Ready prompt. <b>Note:</b> The printer may not complete POR and post a 122.03 Error message. Measure the voltage on connector J17-6 on the system board. The voltage should measure approximately +3.3 V dc. Is the voltage correct?	Go to step 2	Replace the system board. See <b>“System board removal” on page 4-89.</b>
2	Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 6 of the connector. Does the voltage measure approximately +3.3 V dc?	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>

**122.04 error code service check****Cold hot roll**

Step	Actions and questions	Yes	No
1	Measure the voltage on connector J17-11 on the system board. The voltage should measure approximately +0.13 V dc to +0.64 V dc as the hot roll lamp turns off and on. Is the voltage correct?	Go to step 2	Replace the system board. See <b>"System board removal"</b> on page 4-89.
2	Remove the fuser from the printer. Check continuity of the hot roll lamp by measuring between pins 1 and 2 on the AC fuser connector on the fuser assembly. Is there continuity?	Go to step 4	Go to step 3
3	Check to make sure the hot roll lamp is installed correctly. Is the hot roll lamp installed correctly?	Go to step 4	Install the lamp correctly. If this does not fix the problem, replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.
4	Reinstall the fuser assembly. Watch to see if the lamps turn on and off as the lamp heats up. Do the lamps turn on?	Go to step 5	Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.
5	Turn the printer on, and allow it to reach a Ready prompt. <b>Note:</b> The printer may not complete POR and may continue to display the error code. Remove the fuser from the printer. Measure the voltage on connector J17-6 on the system board. The voltage should measure approximately 3.3 V dc. Is the voltage correct?	Go to step 6	Replace the system board. See <b>"System board removal"</b> on page 4-89.
6	Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 6 of the connect. Does the voltage measure approximately +3.3 V dc?	Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.	Replace the LVPS assembly. See <b>"LVPS assembly removal"</b> on page 4-53.

## 122.05 and 122.06 error code service check

Error codes 122.05 and 122.-6 indicate that the fuser didn't increase in temperature enough. Error code 122.05 may also indicate a problem in the fuser assembly with the hot roll bearings, hot roll thermistor, LVPS, or the system board.

Step	Actions and questions	Yes	No
1	<p>Measure the voltage on connector J17-11 on the system board.</p> <p>The voltage measures approximately 0.13 V dc to 0.64 V dc as the hot roll lamp turns off and on.</p> <p>Is the voltage correct?</p>	<p>Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.</p>	Go to step 2
2	<p>Remove the fuser from the printer. Check continuity of the hot roll lamp by measuring between pins 1 and 2 on the AC fuser connector on the fuser assembly.</p> <p>Is there continuity?</p>	Go to step 4	Go to step 3
3	<p>Check to make sure that the hot roll lamp is installed correctly.</p> <p>Is the hot roll lamp installed correctly?</p>	Go to step 4	<p>Install the lamp correctly. If this does not fix the problem, replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.</p>
4	<p>Reinstall the fuser assembly. Watch to see if the lamps turn on and off as they heat up.</p> <p>Do the lamps turn on?</p>	Go to step 5	<p>Replace the LVPS assembly. See <b>"LVPS assembly removal"</b> on page 4-53.</p>
5	<p>Turn the printer on, and allow it to reach a Ready prompt.</p> <p><b>Note:</b> The printer may not complete POR and continues to display the error code.</p> <p>Remove the fuser assembly from the printer. Measure the voltage on connector J17-6 on the system board. The voltage should measure approximately +3.3 V dc.</p> <p>Is the voltage correct?</p>	Go to step 6	<p>Replace the system board. See <b>"System board removal"</b> on page 4-89.</p>
6	<p>Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 6 of the connector.</p> <p>Does the voltage measure approximately +3.3 V dc?</p>	<p>Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.</p>	<p>Replace the LVPS assembly. See <b>"LVPS assembly removal"</b> on page 4-53.</p>

**122.07, 122.14, and 122.15 error code service check**

Fuser assembly cam position is not found.

Step	Actions and questions	Yes	No
1	Observe the fuser drive assembly gears rotate during POR. Do the gears rotate?	Go to step 2	Go to step 5
2	Do the gears stop and the fuser drive assembly gears make a loud buzzing sound?	Replace the FRUs in the order shown:  1. Fuser drive assembly. See <b>"Fuser drive assembly removal"</b> on page 4-46.  2. <b>"Fuser assembly removal"</b> on page 4-44.	Go to step 3
3	Check for correct installation of the fuser control cable to J17 on the system board. Make sure the cable is properly connected. Is the cable installed correctly?	Go to step 4	Install the cable correctly.
4	Remove the fuser from the printer. Measure the voltage at the DC fuser control connector on the LVPS on pin 2 and 9 on the connector. The voltage should measure approximately +5 V dc. Is the voltage correct?	Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.	Replace the LVPS assembly. See <b>"LVPS assembly removal"</b> on page 4-53.
5	Check for correct installation of the fuser drive motor cable to connector J15 on the system board. Is the cable installed correctly?	Go to step 6	Install the cable correctly.
6	Remove the fuser fan to gain access to the motor cable. Check the correct installation of the fuser drive motor cable to connector J1 on the fuser drive motor board. Is the cable installed correctly?	Replace the following FRUs in the order shown:  1. Fuser drive assembly. See <b>"Fuser drive assembly removal"</b> on page 4-46.  2. System board. See <b>"System board removal"</b> on page 4-89.	Install the cable correctly.



**122.08 error code service check**

Step	Actions and questions	Yes	No
1	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b> Does the error remain?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Problem resolved

**122.10 error code service check****Cold hot roll**

Step	Actions and questions	Yes	No
1	Measure the voltage on connector J17-11 on the system board. The voltage should measure approximately +0.13 V dc to +0.64 V dc as the hot roll lamp turns off and on. Is the voltage correct?	Go to step 2	Replace the system board. See <b>“System board removal” on page 4-89.</b>
2	Remove the fuser from the printer. Check continuity of the hot roll lamp by measuring between pins 1 and 2 on the AC fuser connector on the fuser assembly. Is there continuity?	Go to step 4	Go to step 3
3	Check to make sure the hot roll lamp is installed correctly. Is the hot roll lamp installed correctly?	Go to step 4	Install the lamp correctly. If this does not fix the problem, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>
4	Reinstall the fuser assembly. Watch to see if the lamps turn on and off as the lamp heats up. Do the lamps turn on?	Go to step 5	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>
5	Turn the printer on, and allow it to reach a Ready prompt. <b>Note:</b> The printer may not complete POR and may continue to display the error code. Remove the fuser from the printer. Measure the voltage on connector J17-6 on the system board. The voltage should measure approximately 3.3 V dc. Is the voltage correct?	Go to step 6	Replace the system board. See <b>“System board removal” on page 4-89.</b>
6	Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 6 of the connect. Does the voltage measure approximately +3.3 V dc?	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>

### 122.11 error code service check

#### Fuser hot roll is under temperature during standby

Step	Actions and questions	Yes	No
1	Turn the printer on, and allow it to reach a Ready prompt. <b>Note:</b> The printer may not complete POR and continue to display the 122.11 Error message. Remove the fuser assembly from the printer. Measure the voltage on connector J17-6 on the system board. The voltage should measure approximately 3.3 V dc. Is the voltage correct?	Go to step 2	Replace the system board. See <b>“System board removal” on page 4-89.</b>
2	Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 6 of the connector. Does the voltage measure approximately +3.3 V dc.	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>

### 122.12 error code service check

#### Cold fuser

If error code 122.08 displays, the printer has detected a problem in the fuser hot roll lamp circuitry, fuser hot roll thermistor, system board, or LVPS fuser control circuits.

Replace the following FRUs in the order shown:

1. Fuser assembly. See **“Fuser assembly removal” on page 4-44.**
2. LVPS assembly. See **“LVPS assembly removal” on page 4-53.**
3. System board. See **“System board removal” on page 4-89.**

### 122.13 error code service check

#### Secondary hot roll thermistor circuit is open

If error code 122.13 displays the printer detects a problem in the fuser secondary hot roll, fuser hot roll thermistor, system board, or LVPS fuser control circuits.

Step	Actions and questions	Yes	No
1	Turn the printer on, and allow it to reach Ready. <b>Note:</b> The printer may not complete POR and post a 122.13 Error message. Measure the voltage on connector J17-7 on the system board. The voltage should measure approximately +3.3 V dc. Is the voltage correct?	Go to step 2	Replace the system board. See <b>“System board removal” on page 4-89.</b>
2	Measure the voltage on the fuser DC control connector on the LVPS. Measure the voltage on pin 7 of the connector. Is the voltage measure approximately +3.3 V dc.	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>

**148.xx error code service check**

Step	Actions and questions	Yes	No																
1	Connector J16 on the system board—Check for correct installation of the ITU drive motor cable from the ITU drive motor to the system board connector J16. Is the cable connected correctly?	Go to step 2	Install the cable correctly.																
2	ITU drive motor—Check for continuity between pin 4 of CON1 on the motor drive card and the remaining pins in the connector. Do you measure continuity? <b>Note:</b> The ITU drive motor can be removed from the printer without removing the complete ITU drive motor assembly. If the ITU drive motor assembly is removed be careful not to spill toner that may be contained in the auger system.	Replace the drive motor.	Go to step 3																
3	ITU drive motor cable—Check the continuity of the ITU drive motor cable. Do you measure continuity?	Go to step 4	Replace the ITU drive motor cable.																
4	ITU drive motor voltage check—Measure the voltage on connector J16 on the system board. The voltages are approximately values. Voltages with motor not running <table border="1" data-bbox="430 961 881 1241"> <thead> <tr> <th>Connector pin</th> <th>Voltages (motor not running)</th> </tr> </thead> <tbody> <tr> <td>J16-2</td> <td>+4.2 V dc</td> </tr> <tr> <td>J16-4</td> <td>+5.0 V dc</td> </tr> <tr> <td>J16-6</td> <td>+3.3 V dc</td> </tr> <tr> <td>J16-8</td> <td>+24 V dc</td> </tr> <tr> <td>J16-10</td> <td>Ground</td> </tr> <tr> <td>J16-12</td> <td>0 V dc</td> </tr> <tr> <td>J16-14</td> <td>+3.3 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pin	Voltages (motor not running)	J16-2	+4.2 V dc	J16-4	+5.0 V dc	J16-6	+3.3 V dc	J16-8	+24 V dc	J16-10	Ground	J16-12	0 V dc	J16-14	+3.3 V dc	Replace the drive motor.	Go to step 5
Connector pin	Voltages (motor not running)																		
J16-2	+4.2 V dc																		
J16-4	+5.0 V dc																		
J16-6	+3.3 V dc																		
J16-8	+24 V dc																		
J16-10	Ground																		
J16-12	0 V dc																		
J16-14	+3.3 V dc																		
5	ITU motor drive assembly—Remove the ITU assembly. Manually turn the motor. The gears in the ITU motor assembly, the second transfer roll gears, and the cleaner gear should turn freely. Do the gears turn freely?	Replace the system board. See <b>“System board removal” on page 4-89</b> . If this does not fix the problem, replace the ITU drive motor.	Go to step 6																
6	ITU motor drive assembly—Remove the ITU drive motor assembly. Manually turn the motor. Do the gears on the ITU drive motor assembly turn freely?	Contact your next level of support.	Replace the ITU motor drive assembly.																

## 150.xx error code service check

### Black cartridge drive assembly

This error indicates the black cartridge drive motor has failed to lock, has lost lock, or signature button could not be read.

Step	Actions and questions	Yes	No
1	Check the black cartridge drive motor cable connection to J16 on the system board. Is the cable installed correctly?	Go to step 2	Install the cable correctly.
2	Check the black cartridge drive motor cable connection to the black cartridge drive motor card. Is the cable installed correctly?	Go to step 3	Install the cable correctly.
3	Check continuity of the black cartridge drive motor cable. Is there continuity?	Go to step 4	Replace the black cartridge assembly cable.
4	Replace the black cartridge drive assembly. Does this fix the problem?	Problem resolved	Go to step 5
5	Replace the system board. See <b>“System board removal” on page 4-89.</b> Does this fix the problem?	Problem resolved	Contact your next level of support.

## 151.xx error code service check

### Magenta cartridge drive assembly

This error indicates that the magenta cartridge drive motor has failed to lock, has lost lock, or the signature button could not be read.

Step	Actions and questions	Yes	No
1	Check the magenta cartridge drive motor cable connection to J19 on the system board. Is the cable installed correctly?	Go to step 2	Install the cable correctly
2	Check the magenta cartridge drive motor cable connection to the magenta cartridge drive motor card. Is the cable installed correctly?	Go to step 3	Install the cable correctly
3	Check continuity of the magenta cartridge drive motor cable. Is there continuity?	Go to step 4	Replace the magenta cartridge assembly cable.
4	Replace the magenta cartridge drive assembly. Does this fix the problem?	Problem resolved	Go to step 5
5	Replace the system board. See <b>“System board removal” on page 4-89.</b> Does this fix the problem?	Problem resolved	Contact your next level of support.

## 152.xx error code service check

### Cyan cartridge drive assembly

This error indicates that the cyan cartridge drive motor has failed to lock, has lost lock, or the signature button could not be read.

Step	Actions and questions	Yes	No
1	Check the cyan cartridge drive motor cable connection to J19 on the system board. Is the cable installed correctly?	Go to step 2	Install the cable correctly.
2	Check the cyan cartridge drive motor cable connection to the cyan cartridge drive motor card. Is the cable installed correctly?	Go to step 3	Install the cable correctly.
3	Check continuity of the cyan cartridge drive motor cable. Is there continuity?	Go to step 4	Replace the cyan cartridge assembly cable.
4	Replace the cyan cartridge drive assembly. Does this fix the problem?	Problem resolved	Go to step 5
5	Replace the system board. See <b>“System board removal” on page 4-89</b> Does this fix the problem?	Problem resolved	Contact your next level of support.

## 153.xx error code service check

### Yellow cartridge drive assembly

This error indicates that the yellow cartridge drive motor has failed to lock, has lost lock, or the signature button could not be read.

Step	Actions and questions	Yes	No
1	Check the yellow cartridge drive motor cable connection to J15 on the system board. Is the cable installed correctly?	Go to step 2	Install the cable correctly.
2	Check the yellow cartridge drive motor cable connection to the yellow cartridge drive motor card. Is the cable installed correctly?	Go to step 3	Install the cable correctly.
3	Check continuity of the yellow cartridge drive motor cable. Is there continuity?	Go to step 4	Replace the yellow cartridge assembly cable.
4	Replace the yellow cartridge drive assembly. Does this fix the problem?	Problem resolved	Go to step 5
5	Replace the system board. See <b>“System board removal” on page 4-89.</b> Does this fix the problem?	Problem resolved	Contact your next level of support.

## 177.xx error code service check

This error indicates a MPF motor error.

Step	Actions and questions	Yes	No
1	MFP motor/sensor cable—check the MPF motor/sensor cable to JMPF1 on the system board to make sure it is seated correctly. See <b>“System board” on page 5-7</b> for connector information. Is the cable seated correctly?	Go to step 2	Install the cable correctly.
2	Voltage checks—disconnect JMPF1 from the system board. See <b>“System board” on page 5-7</b> for connector information. Is the cable seated correctly?	Replace the FRU in the following order: <ul style="list-style-type: none"> <li>• MPF drive assembly. See <b>“Multi-purpose feeder (MPF) motor removal” on page 4-64.</b></li> <li>• MPF motor/sensor cable.</li> </ul>	Replace the system board. See <b>“System board removal” on page 4-89.</b>

## 200.03 paper jam service check

S2 sensor was made at an unexpected time.


See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Is sensor flag obstructed by paper debris, out of position, or broken?	Clear the obstruction and reinstall or replace flag.	Go to step 2
2	Perform the <b>“BASE SENSOR TEST” on page 3-24.</b> Do both sensor pass the test?	Problem resolved	Go to step 3
3	Is the inner deflector out of place, causing sensor flag to bind?	Install inner deflector properly.	Go to step 4
4	Are the sensors connectors fully seated?	Go to step 5	Reseat the sensor connector.
5	Are connectors at J21 fully seated on the system board?	Go to step 6	Reseat the connector on the system board.
6	Check sensor cables. Are the cables cut or broken?	Replace the cables.	Go to step 7
7	Replace the sensor that did not pass the test. Is the problem resolved?		Replace the system board. See <b>“System board removal” on page 4-89.</b>

## 200.04 paper jam service check

S2 sensor late

**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Check the tray for proper edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 2	Properly load media.
2	Check the pick tires for contamination or wear. Are pick tires worn or contaminated?	Replace the pick rolls. See <b>“Pick rolls removal” on page 4-70.</b>	Go to step 3
3	Check for obstructions in the paper path. Is the paper path obstructed?	Clear the obstruction.	Go to step 4
4	Is the inner deflector out of position?	Correct the inner deflector position.	Go to step 5
5	If the pick arm clutch and shaft are not completely <i>snapped</i> together, the pick arm tires will not rotate freely in the direction shown.  Is pick arm clutch and shaft completely <i>snapped</i> together?	Go to step 6	Slide the clutch, and <i>snap</i> it onto the shaft.
6	Is the autocompensator damaged or defective?	Go to <b>“Autocompensator service check” on page 2-78.</b>	Go to step 7
7	Perform the <b>“BASE SENSOR TEST” on page 3-24</b> on the S2 sensor. Does the S2 sensor pass the test?	Contact your next level of support.	See <b>“200.21, 200.28, and 200.29 paper jam service check” on page 2-32.</b>

**200.05 paper jam service check**

S2 or narrow media sensor did not break in time

**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 2	Inform the customer that media loaded in Tray x does not meet specification
2	Check tray for the edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 3	Properly load media.
3	Remove the ITU, and check for the jam at the second transfer roll. Is paper jammed at the second transfer roll?	Clear the jam.	Contact your next level of support.

**200.06 paper jam service check**

The narrow media sensor made at an unexpected time.

**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Check tray for the edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 2	Properly load media.
2	Media may not have been cleared from a previous jam. Is media in paper path?	Clear the paper path.	Contact your next level of support.



### 200.07 paper jam service check

S2 or narrow media sensor did not break in time.

**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 2	Inform the customer that media loaded in Tray x does not meet specification.
2	Check tray for the edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 3	Properly load media.
3	Remove the ITU and check for the jam at the second transfer roll. Is paper jammed at the second transfer roll?	Clear the jam.	Contact your next level of support.

### 200.16 paper jam service check

S2 or narrow media sensor made early.

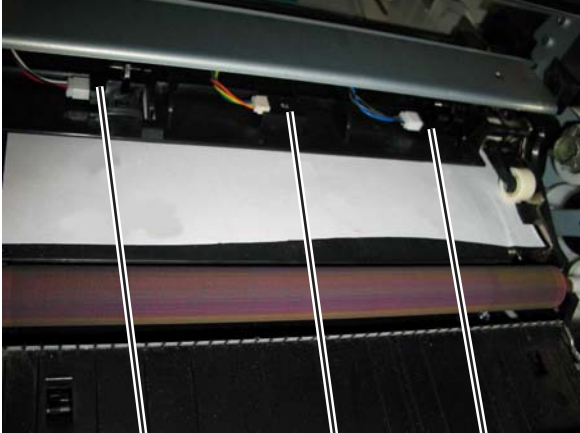
**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Check tray for the edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 2	Properly load media.
2	Media may not have been cleared from a previous jam. Is media in paper path?	Clear the paper path.	Contact your next level of support.

## 200.21, 200.28, and 200.29 paper jam service check

Either the transparency sensor (200.21), the S2 sensor (200.28), or the narrow media sensor (200.29) is dislodged or damaged.

**Note:** See **“Printer sensors”** on page 5-3.

Step	Actions and questions	Yes	No
1	<p>Check the sensor and flag.</p> <ol style="list-style-type: none"> <li>1. Turn the printer off.</li> <li>2. Remove all four toner cartridges.</li> <li>3. Remove the image transfer unit. See <b>“ITU assembly removal”</b> on page 4-49.</li> </ol>  <ul style="list-style-type: none"> <li>• A—Narrow media sensor (200.29 paper jam)</li> <li>• B—Transparency sensor (200.21 paper jam)</li> <li>• C—S2 sensor (200.28 paper jam)</li> </ul> <p>Is the sensor flag or sensor obstructed by paper debris?</p>	Remove the paper or debris, and go to step 2.	Go to step 3
2	<p>Replace the image transfer unit, the cartridges, and turn the printer on.</p> <p>Does the Ready status appear and does paper print?</p>	Go to step 3	Go to step 4
3	<p>Perform the <b>“BASE SENSOR TEST”</b> on page 3-24.</p> <p>Do all the sensors pass the test?</p>	Problem resolved	<p>Replace the faulty sensor. See <b>“S2/narrow media/transparency/multipurpose feeder sensors removal”</b> on page 4-88.</p> <p>Go to step 4.</p>
4	<p>Is the inner deflector out of place, causing sensor flag to bind?</p>	Install inner deflector properly.	Go to step 5
5	<p>Are the sensors connectors fully seated?</p>	Go to step 6	Reseat the sensor connector.

Step	Actions and questions	Yes	No
6	Are connectors at J21 fully seated on the system board?	Go to step 7	Reseat the connector on the system board.
7	Check sensor cables. Are the cables cut or broken?	Replace the cables.	Go to step 8
8	Replace the sensor that did not pass the test. Is the problem resolved?		Replace the system board. See <b>“System board removal” on page 4-89.</b>

### 200.93 paper jam service check

The laser was made unexpectedly.

Step	Actions and questions	Yes	No
1	Remove fuser from printer, remove oiler housing from fuser, and pivot the paper guide up. Is paper jammed inside the fuser?	Clear the jam.	Go to step 2
2	Check fuser entry guide for toner buildup. Is toner built up on the fuser entry guide?	Replace the fuser assembly. See <b>“Fuser assembly removal” on page A-44.</b>	Go to step 3
3	Check fuser exit sensor flag. Does the flag rotate freely and return to normal position when released?	Go to step 4	Replace the fuser assembly. See <b>“Fuser assembly removal” on page A-44.</b>

Step	Actions and questions	Yes	No
4	Reinstall fuser and perform the <b>“BASE SENSOR TEST” on page 3-24.</b> <b>Note:</b> Use a spring hook to actuate the flag. Does fuser exit sensor pass test?	Go to step 5	Perform the following in order: <ol style="list-style-type: none"> <li>1. Reseat the connector J17 on the system board.</li> <li>2. Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b></li> <li>3. Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b></li> <li>4. Replace the System board. See <b>“System board removal” on page 4-89.</b></li> </ol>
5	Check the vacuum transport belts (VTB) for motion. Observe the belt through the front door. Are the belts on the VTB assembly turning?	Go to step 6	Go to <b>“Vacuum transport belt (VTB) removal” on page 4-95</b> to verify correct installation.
6	Check the VTBs for wear or damage. Are the belts worn or damaged?	Replace the vacuum transport belt. See <b>“Vacuum transport belt (VTB) removal” on page 4-95.</b>	Go to step 7.
7	Check the VTB plate for a buildup of debris. Is there a debris buildup?	Clean off the VTB plate.	Go to step 8
8	Does media move smoothly into the fuser from the VTB?	Call the next level of support.	Replace the vacuum transport belt. See <b>“Vacuum transport belt (VTB) fan removal” on page 4-97.</b>

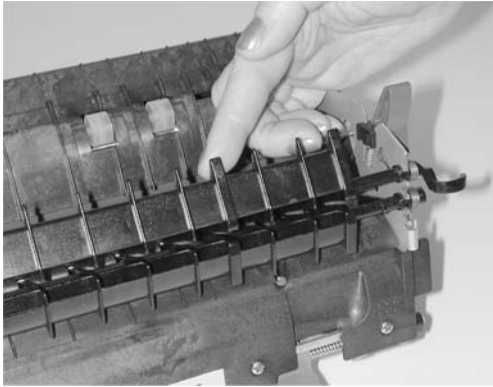
## 200.96 paper jam service check

Neither the S2 nor narrow media sensor broke in time.

**Note:** See **“Printer sensors” on page 5-3.**

Step	Actions and questions	Yes	No
1	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 2	Inform the customer that media loaded in Tray x does not meet specification.
2	Check tray for the edge guide setting and media loading. Edge guides should be adjusted against edge of media. Media should be fanned and lay flat in the tray. Is the media properly loaded in the tray?	Go to step 3	Properly load media.
3	Remove the ITU and check for the jam at the second transfer roll. Is paper jammed at the second transfer roll?	Clear the jam.	Contact your next level of support.

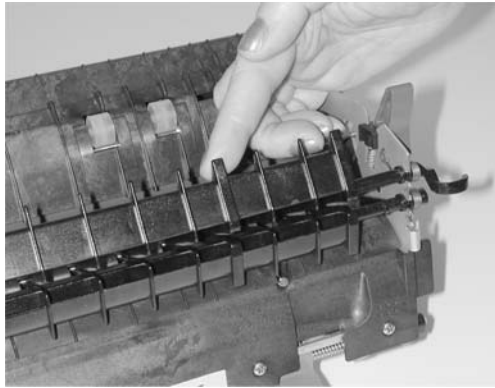
## 201.xx and 202.xx paper jam service check

Step	Actions and questions	Yes	No
1	Remove the fuser from the printer. Remove the oiler housing from the fuser, and pivot the paper guide up. Is media jammed inside the fuser?	Clear the jam from the fuser.	Go to step 2
2	Check fuser exit sensor flag. Does flag rotate freely and return to normal position when released?	Go to step 4	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>
3	Check that the deflector gates in the fuser rotate freely.  Do the deflector gates rotate freely?	Go to step 4	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>

Step	Actions and questions	Yes	No
4	Reinstall the fuser and perform the <b>“BASE SENSOR TEST” on page 3-24</b> for the fuser exit sensor. <b>Note:</b> Use a spring hook to actuate the flag. Does the fuser exit sensor pass?	Go to step 5	Perform the following in order: <ol style="list-style-type: none"> <li>1. Reseat the connector J17 on the system board.</li> <li>2. Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b></li> <li>3. Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b></li> <li>4. Replace the system board. See <b>“System board removal” on page 4-89.</b></li> </ol>
5	Check that the duplex diverter rotates freely with the redrive door closed. Does the duplex diverter rotate freely?	Go to step 6	Replace the redrive door. See <b>“Redrive door removal” on page 4-26.</b>
6	Check for the proper operation of the redrive. Are both belts in good condition and properly installed?	Go to step 7	Install or replace the redrive door. See <b>“Redrive assembly removal” on page 4-82.</b>
7	If the duplex option is in use, check the lower right door paper path. Does media pass freely between the door and the metal plate?	Go to step 8	Replace the lower right door assembly. See <b>“Lower right door assembly removal” on page 4-24.</b>
8	If the duplex option is in use, remove the duplex R.H. access panel to check if the jam occurred at duplex entry edge guide. Did the jam occur at the duplex entry edge guide?	Replace the duplex option.	Go to step 9
9	If the duplex option is in use, check the actuator button. See <b>“Duplex option deflector button replacement” on page A-3.</b> Should the actuator button be replaced?	Replace the button.	Go to step 10

Step	Actions and questions	Yes	No
10	Is a 5-bin mailbox option, StapleSmart finisher, or an output expander option in use?	Check the following: <ul style="list-style-type: none"> <li>• Reseat the option on the printer.</li> <li>• Verify the top cover is properly seated on developer HVPS.</li> </ul>	Contact your next level of support.

### 230.xx paper jam service check

Step	Actions and questions	Yes	No
1	Thoroughly examine the duplex paper path for torn paper that may be blocking the sensors or paper path. Is the duplex paper path clear?	Go to step 2	Clear the paper path.
2	Check the lower right door paper path. Does media pass freely between the door and the metal plate?	Go to step 3	Replace the lower right door assembly. See <b>"Lower right door assembly removal"</b> on page 4-24.
3	Are any of the following conditions true? <ul style="list-style-type: none"> <li>• Only the back of the page of a duplex job prints and exits into the standard bin.</li> <li>• Media exits the right side of the printer.</li> <li>• Media jams in the duplex at the diverter.</li> </ul>	Go to step 4	Go to step 8
4	Open the redrive door, and check that the diverter operates freely.  Does the diverter operate freely?	Go to step 5	Replace the fuser assembly. See <b>"Fuser assembly removal"</b> on page 4-44.
5	Close the redrive door, and check that the diverter operates freely. Does the diverter operate freely?	Go to step 6	Replace the redrive door. See <b>"Redrive door removal"</b> on page 4-26.

Step	Actions and questions	Yes	No
6	Check that the diverter actuator link is not binding or damaged. Examine the link for damage under the duplex option. Is link binding or damaged?	Repair the actuator link.	Go to step 7
7	Check the duplex actuator button. See <b>“Duplex option deflector button replacement”</b> on page A-3. Should the button be replaced?	Replace the actuator button.	Go to step 8
8	Check for the correct sensor operation by performing the Duplex Sensor test. See <b>“Duplex Sensor Test”</b> on page 3-19.	Replace the duplex option.	Go to step 9
9	Make sure the sensors are correctly connected to the duplex system board. Are the cables correctly connected?	Replace the duplex option.	Correctly connect the cables.

## 241.xx paper jam service check

### 500-sheet drawer

Media does not reach the pass thru sensor.

Step	Actions and questions	Yes	No
1	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 2	Inform the customer that media loaded in Tray x does not meet media specifications.
2	Make sure the media is loaded correctly. Make sure the side and back restraints are located and seated properly. Is the media loaded correctly?	Go to step 3	Load the media correctly.
3	See if the paper is trying to feed from the tray. <b>Note:</b> You can observe the autocompensator feed rolls and the paper through the tray access door. Run the Tray x feed test from the Diagnostics menu to help diagnose a feed problem. See <b>“Feed Test”</b> on page 3-20. Is the media leaving the tray?	Go to step 7	Go to step 4
4	Are both of the autocompensator pick rolls installed and turning?	Go to step 5	Go to step 8
5	Check the autocompensator pick rolls for wear or contamination. Are the autocompensator pick rolls worn or contaminated?	Replace the pick arm rolls. Replace both rolls at the same time.	Go to step 6
6	Check the pass thru sensor for correct operation by running the Tray x sensor test from the Diagnostics Menu. See <b>“Sensor Test”</b> on page 3-20. Does the pass thru sensor operate correctly?	Check for any obstructions that might catch the media and create a paper jam.	Go to step 7



Step	Actions and questions	Yes	No
7	Make sure the pass thru sensor is correctly connected to the Tray x system board. Is the sensor cable connected correctly?	Replace the FRUs in the following order:  1. Pass thru sensor assembly. 2. Electronics/size sensing assembly with system board.	Install the cable correctly.
8	Check the autocompensator cable for correct installation to Tray x system board. Is the cable connected correctly?	Replace the option, or replace the following parts in the order until the error is cleared:  <ul style="list-style-type: none"> <li>Autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b></li> <li>Tray x system board.</li> </ul>	Install the cable correctly.

### 242.xx paper jam service check

For second installed tray/option.

#### 500-sheet drawer option

Media does not reach the pass thru sensor.

Step	Actions and questions	Yes	No
1	Is Tray 2 a HCIT 2000-sheet option?	Go to <b>“HCIT” on page 2-41</b>	Go to step 2
2	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 3	Inform the customer that media loaded in Tray x does not meet media specifications.
3	Make sure the media is loaded correctly. Make sure the side and back restraints are located and seated properly. Is the media loaded correctly?	Go to step 4	Load the media correctly.

Step	Actions and questions	Yes	No
4	See if the paper is trying to feed from the tray. <b>Note:</b> You can observe the autocompensator feed rolls and the paper through the tray access door. Run the Tray x feed test from the Diagnostics menu to help diagnose a feed problem. See <b>“Feed Test” on page 3-20.</b> Is the media leaving the tray?	Go to step 8	Go to step 5
5	Are both of the autocompensator pick rolls installed and turning?	Go to step 6	Go to step 9
6	Check the autocompensator pick rolls for wear or contamination. Are the autocompensator pick rolls worn or contaminated?	Replace the pick arm rolls. Replace both rolls at the same time.	Go to step 7
7	Check the pass thru sensor for correct operation by running the Tray x sensor test from the Diagnostics Menu. See <b>“Sensor Test” on page 3-20.</b> Does the pass thru sensor operate correctly?	Check for any obstructions that might catch the media and create a paper jam.	Go to step 8
8	Make sure the pass thru sensor is correctly connected to the Tray x system board. Is the sensor cable connected correctly?	Replace the FRUs in the following order: 1. Pass thru sensor assembly. 2. Electronics/size sensing assembly with system board.	Install the cable correctly.
9	Check the autocompensator cable for correct installation to Tray x system board. Is the cable connected correctly?	Replace the option or replace the following parts in the order until the error is cleared: <ul style="list-style-type: none"><li>Autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b></li><li>Tray x system board.</li></ul>	Install the cable correctly.

## HCIT

Use the **“HCIT standalone test mode” on page 3-5** inside the HCIT to help isolate paper jams. Run the Standalone Feeding Operation Test to observe paper feeding from the tray and through the feed assembly. Use the **“HCIT system board LED error code table” on page 2-86** to further isolate paper jam or sensor problems.

Before proceeding with this service check, make sure the HCIT is installed correctly.

Step	Actions and questions	Yes	No
1	Check for pieces of paper or other obstructions in the feed assembly. Are any pieces of paper or obstructions in the feed assembly?	Remove any paper or obstructions.	Go to step 2
2	Make sure the media loaded in the paper tray meets printer supplies specifications and the media is loaded correctly. Make sure the side and back restraints are located and seated properly. Does the media meet specifications?	Go to step 3	Inform the customer that media in the paper tray does not meet specifications.
3	Use the Standalone Feeding Operation Test to observe paper feeding from the tray. Does the paper feed from the paper tray?	Go to step 14	Go to step 4
4	Using the Standalone Feeding Operation Test, observe the registration motor (the registration motor is the motor at the top of the feed assembly). Does the motor turn?	Go to step 5	Go to step 6
5	Does the pick motor, the lower motor in the feed unit assembly, turn?	Go to step 8	Go to step 7
6	Check the registration motor cable to HCIT system board cable connected to CN3 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Install the cable correctly.
7	Check the pick motor cable to HCIT system board cable connected to CN4 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Install the cable correctly.
8	Use the <b>“HCIT system board LED error code table” on page 2-86.</b> Does the LED flash 7 times?	Go to step 9	Go to step 11
9	Make sure the registration home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 10	Install the cable correctly.

Step	Actions and questions	Yes	No
10	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor. 2. HCIT system board.
11	Use the <b>“HCIT system board LED error code table” on page 2-86.</b> Does the LED flash 8 times?	Go to step 12	Go to step 14
12	Make sure the pick home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 13	Install the cable correctly.
13	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor 2. HCIT system board.
14	Use the Standalone Feeding Operation Test to determine where the paper jams. Use the <b>“HCIT system board LED error code table” on page 2-86</b> to help isolate problems in the feed unit assembly. Are you able to determine where the failure is occurring?	Repair or replace parts as necessary.	Replace the feed unit assembly.

### Envelope feeder

Before proceeding with this service check, make sure the envelope option is installed correctly.

Step	Actions and questions	Yes	No
1	Make sure the envelopes installed in the tray meet specifications. Some guidelines that can be used in selection of envelopes that will minimize the jam rate are: <ul style="list-style-type: none"> <li>• Flat envelopes that are not warped or twisted.</li> <li>• Flexible envelopes that can conform to the paper path.</li> <li>• Smooth surface on the envelopes. Rough or ridged surfaces may cause the envelopes to stick together in the tray.</li> <li>• No cotton content, or as little as possible to meet the user's needs.</li> <li>• If the envelopes have a pressure-sensitive adhesive flap, performance might be improved by reversing the orientation of the envelope in the tray and reversing the image in the drive or application.</li> </ul> Are any problems found with the envelopes?	Inform the customer of the problems with the envelopes that do not meet specifications.	Go to step 2

Step	Actions and questions	Yes	No
2	Make sure the envelopes are loaded correctly. Make sure the side and back restraints are located and seated properly. Are the envelopes loaded correctly?	Go to step 3	Load the envelopes correctly.
3	Observe if the envelopes feed from the tray. <b>Note:</b> You can observe the autocompensator pick rolls and the envelopes through the tray access door. Are the envelopes leaving the tray?	Go to step 8	Go to step 4
4	Check the pick rolls to verify both pick rolls are installed. Are any of the pick rolls missing?	Go to step 5	Install a new pair of pick rolls. Both pick rolls should be installed at the same time. See <b>"Pick rolls removal" on page 4-70.</b>
5	Check to make sure the autocompensator pick rolls are correctly installed. Are the autocompensator pick rolls correctly installed?	Go to step 6	Install the pick rolls correctly. See <b>"Pick rolls removal" on page 4-70.</b>
6	Observe the pick rolls as they try to pick and feed envelopes from the tray. Do the pick rolls turn?	Go to step 7	Replace the envelope option.
7	Check the autocompensator pick rolls for signs of wear or contamination. Are the pick rolls worn or contaminated?	Replace the pick rolls. Both pick rolls should be replaced at the same time. See <b>"Pick rolls removal" on page 4-70.</b>	Go to step 8
8	If you continue to have problems, replace the complete envelope option.		

### 243.xx paper jam service check

For third installed tray/option.

#### 500-sheet drawer option

Media does not reach the pass thru sensor.

Step	Actions and questions	Yes	No
1	Is Tray 3 a HCIT 2000-sheet option?	Go to <b>"HCIT" on page 2-45.</b>	Go to step 2
2	Make sure the media installed in the tray meets specifications. Does the media meet specifications?	Go to step 3	Inform the customer that media loaded in Tray x does not meet specifications.

Step	Actions and questions	Yes	No
3	<p>Make sure the media is loaded correctly. Make sure the side and back restraints are located and seated properly.</p> <p>Is the media loaded correctly?</p>	Go to step 4	Load the media correctly.
4	<p>See if the paper is trying to feed from the tray.</p> <p><b>Note:</b> You can observe the autocompensator feed rolls and the paper through the tray access door.</p> <p>Run the Tray x feed test from the Diagnostics menu to help diagnose a feed problem. See <b>“Feed Test” on page 3-20.</b></p> <p>Is the media leaving the tray?</p>	Go to step 8	Go to step 5
5	<p>Are both of the autocompensator pick rolls installed and turning?</p>	Go to step 6	Go to step 9
6	<p>Check the autocompensator pick rolls for wear or contamination.</p> <p>Are the autocompensator pick rolls worn or contaminated?</p>	<p>Replace the pick arm rolls.</p> <p>Replace both rolls at the same time.</p>	Go to step 7
7	<p>Check the pass thru sensor for correct operation by running the Tray x sensor test from the Diagnostics Menu. See <b>“Sensor Test” on page 3-20.</b></p> <p>Does the pass thru sensor operate correctly?</p>	<p>Check for any obstructions that might catch the media and create a paper jam.</p>	Go to step 8
8	<p>Make sure the pass thru sensor is correctly connected to the Tray x system board.</p> <p>Is the sensor cable connected correctly?</p>	<p>Replace the FRUs in the following order:</p> <ol style="list-style-type: none"> <li>1. Pass thru sensor assembly.</li> <li>2. Electronics/size sensing assembly with system board.</li> </ol>	Install the cable correctly
9	<p>Check the autocompensator cable for correct installation to Tray x system board.</p> <p>Is the cable connected correctly?</p>	<p>Replace the option, or replace the following parts in the order until the error is cleared:</p> <ul style="list-style-type: none"> <li>• Autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b></li> <li>• Tray x system board.</li> </ul>	Install the cable correctly.

## HCIT

Use the **“HCIT standalone test mode” on page 3-5** inside the HCIT to help isolate paper jams. Run the Standalone Feeding Operation Test to observe paper feeding from the tray and through the feed assembly. Use the **“HCIT system board LED error code table” on page 2-86** to further isolate paper jam or sensor problems.

Before proceeding with this service check, make sure the HCIT is installed correctly.

Step	Actions and questions	Yes	No
1	Check for pieces of paper or other obstructions in the feed assembly. Are any pieces of paper or obstructions in the feed assembly?	Remove any paper or obstructions.	Go to step 2
2	Make sure the media loaded in the paper tray meets printer supplies specifications and the media is loaded correctly. Make sure the side and back restraints are located and seated properly. Does the media meet specifications?	Go to step 3	Inform the customer that media in the paper tray does not meet specifications.
3	Use the Standalone Feeding Operation Test to observe paper feeding from the tray. Does the paper feed from the paper tray?	Go to step 14	Go to step 4
4	Using the Standalone Feeding Operation Test, observe the registration motor (the registration motor is the motor at the top of the feed assembly). Does the motor turn?	Go to step 5	Go to step 6
5	Does the pick motor, the lower motor in the feed unit assembly, turn?	Go to step 8	Go to step 7
6	Check the registration motor cable to HCIT system board cable connected to CN3 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board 2. Feed unit assembly.	Install the cable correctly.
7	Check the pick motor cable to HCIT system board cable connected to CN4 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Install the cable correctly.
8	Use the <b>“HCIT system board LED error code table” on page 2-86.</b> Does the LED flash 7 times?	Go to step 9	Go to step 11
9	Make sure the registration home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 10	Install the cable correctly.

Step	Actions and questions	Yes	No
10	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor. 2. HCIT system board.
11	Use the <b>“HCIT system board LED error code table” on page 2-86.</b> Does the LED flash 8 times?	Go to step 12	Go to step 14
12	Make sure the pick home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 13	Install the cable correctly
13	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board. 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor 2. HCIT system board.
14	Use the Standalone Feeding Operation Test to determine where the paper jams. Use the <b>“HCIT system board LED error code table” on page 2-86</b> to help isolate problems in the feed unit assembly. Are you able to determine where the failure is occurring?	Repair or replace parts as necessary.	Replace the feed unit assembly.



## Envelope feeder

Before proceeding with this service check, make sure the envelope option is installed correctly.

Step	Actions and questions	Yes	No
1	<p>Make sure the envelopes installed in the tray meet specifications.</p> <p>Some guidelines that can be used in selection of envelopes that will minimize the jam rate are:</p> <ul style="list-style-type: none"> <li>• Flat envelopes that are not warped or twisted.</li> <li>• Flexible envelopes that can conform to the paper path.</li> <li>• Smooth surface on the envelopes. Rough or ridged surfaces may cause the envelopes to stick together in the tray.</li> <li>• No cotton content, or as little as possible to meet the user's needs.</li> <li>• If the envelopes have a pressure-sensitive adhesive flap, performance might be improved by reversing the orientation of the envelope in the tray and reversing the image in the drive or application.</li> </ul> <p>Are any problems found with the envelopes?</p>	Inform the customer of the problems with the envelopes that do not meet specifications.	Go to step 2
2	<p>Make sure the envelopes are loaded correctly. Make sure the side and back restraints are located and seated properly.</p> <p>Are the envelopes loaded correctly?</p>	Go to step 3	Load the envelopes correctly.
3	<p>Observe if the envelopes feed from the tray.</p> <p><b>Note:</b> You can observe the autocompensator pick rolls and the envelopes through the tray access door.</p> <p>Are the envelopes leaving the tray?</p>	Go to step 8	Go to step 4
4	<p>Check the pick rolls to verify both pick rolls are installed.</p> <p>Are any of the pick rolls missing?</p>	Go to step 5	Install a new pair of pick rolls. Both pick rolls should be installed at the same time. See <b>"Pick rolls removal" on page 4-70.</b>
5	<p>Check to make sure the autocompensator pick rolls are correctly installed.</p> <p>Are the autocompensator pick rolls correctly installed?</p>	Go to step 6	Install the pick rolls correctly. See <b>"Pick rolls removal" on page 4-70.</b>
6	<p>Observe the pick rolls as they try to pick and feed envelopes from the tray.</p> <p>Do the pick rolls turn?</p>	Go to step 7	Replace the envelope option.
7	<p>Check the autocompensator pick rolls for signs of wear or contamination.</p> <p>Are the pick rolls worn or contaminated?</p>	Replace the pick rolls. Both pick rolls should be replaced at the same time. See <b>"Pick rolls removal" on page 4-70.</b>	Go to step 8
8	<p>If you continue to have problems, replace the complete envelope option.</p>		

## 244.xx paper jam service check

HCIT—For the fourth installed option.

Use the **“HCIT standalone test mode” on page 3-5** inside the HCIT to help isolate paper jams. Run the Standalone Feeding Operation Test to observe paper feeding from the tray and through the feed assembly. Use the **“HCIT system board LED error code table” on page 2-86** to further isolate paper jam or sensor problems.

Before proceeding with this service check, make sure the HCIT is installed correctly.

Step	Actions and questions	Yes	No
1	Check for pieces of paper or other obstructions in the feed assembly. Are any pieces of paper or obstructions in the feed assembly?	Remove any paper or obstructions.	Go to step 2
2	Make sure the media loaded in the paper tray meets printer supplies specifications and the media is loaded correctly. Make sure the side and back restraints are located and seated properly. Does the media meet specifications?	Go to step 3	Inform the customer that media in the paper tray does not meet specifications.
3	Use the Standalone Feeding Operation Test to observe paper feeding from the tray. Does the paper feed from the paper tray?	Go to step 14	Go to step 4
4	Using the Standalone Feeding Operation Test, observe the registration motor (the registration motor is the motor at the top of the feed assembly). Does the motor turn?	Go to step 5	Go to step 6
5	Does the pick motor, the lower motor in the feed unit assembly, turn?	Go to step 8	Go to step 7
6	Check the registration motor cable to HCIT system board cable connected to CN3 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board 2. Feed unit assembly.	Install the cable correctly.
7	Check the pick motor cable to HCIT system board cable connected to CN4 for correct installation. Is the cable connected correctly?	Replace the following FRUs in the order shown: 1. HCIT system board 2. Feed unit assembly.	Install the cable correctly.
8	Use the <b>“HCIT system board LED error code table” on page 2-86</b> . Does the LED flash 7 times?	Go to step 9	Go to step 11
9	Make sure the registration home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 10	Install the cable correctly

Step	Actions and questions	Yes	No
10	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor 2. HCIT system board.
11	Use the <b>“HCIT system board LED error code table” on page 2-86.</b> Does the LED flash 8 times?	Go to step 12	Go to step 14
12	Make sure the pick home sensor cable is installed correctly to the sensor and to CN6 on the system board. Is the cable connected correctly?	Go to step 13	Install the cable correctly.
13	Is the registration home sensor operating correctly?	Replace the following FRUs in the order shown: 1. HCIT system board 2. Feed unit assembly.	Replace the following FRUs in the order shown: 1. Registration sensor 2. HCIT system board.
14	Use the Standalone Feeding Operation Test to determine where the paper jams. Use the <b>“HCIT system board LED error code table” on page 2-86</b> to help isolate problems in the feed unit assembly. Are you able to determine where the failure is occurring?	Repair or replace parts as necessary.	Replace the feed unit assembly.

### 250.xx paper jam service check

#### Unable to clear the message—multipurpose feeder loaded

**Note:** A 250 Paper Jam displays when using a multipurpose feeder.

Step	Actions and questions	Yes	No
1	Make sure the media in the MPF meets specifications. Does media meet specifications?	Go to step 2	Inform user that the media in the MPF does not meet specifications.
2	Does the media feed correctly from tray 1?	Go to step 3	Go to <b>“Tray 1 service check” on page 2-117.</b>
3	Is the Paper Type setting correct for media in the MPF?	Go to step 4	Correct the Paper Type setting.
4	Check the media is loaded properly. The side restraint should not be too tight. The leading edge of the media should be sitting on the friction buckler. Is the media correctly loaded?	Go to step 5	Properly load the media.

Step	Actions and questions	Yes	No										
5	Open the MPF to the horizontal position, and check the paper path for obstructions. Is the paper path obstructed?	Clear the obstruction.	Go to step 6										
6	Raise the pick tire off the media, and test the MPF. Does the pick tire turn?	Go to step 8	Go to step 7										
7	Open the lower jam access door, move the MPF bracket assembly gear to the lowest position and test the MPF. Does the MPF bracket assembly rise and engage the gear?	Go to step 8	Replace the MPF bracket assembly.										
8	Does media jam on the friction buckler?	Replace the friction buckler. See <b>“Friction buckler and buckler housing removal” on page 4-40.</b>	Go to step 9										
9	Enter the Diagnostics Menu. Select <b>INPUT TRAY TESTS, Sensor Test, and MP Feeder</b> . Manually actuate the MPF sensor by moving the paper flag in the MPF. Does the test pass?	Replace the MPF assembly.	Go to step 2										
10	Make sure that the MPF sensor cable from the system board is correctly installed at J10 on the system board. Is the cable correctly installed?	Go to step 11	Install the cable correctly.										
11	Check the cable connection between the MPF sensor cable and the sensor. Check that the sensor is <i>snapped</i> into the bracket. Is the connection good between the two cables?	Go to step 12	Install the cable correctly.										
12	Disconnect the sensor cable from J10 on the system board. Measure the following voltages on J10, being careful not to short any adjacent pins in the connector. All voltages are approximate values. <table border="1" data-bbox="376 1360 651 1537"> <thead> <tr> <th>Connector pin</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J10-11</td> <td>0 V dc</td> </tr> <tr> <td>J10-12</td> <td>+5 V dc</td> </tr> <tr> <td>J10-13</td> <td>+5 V dc</td> </tr> <tr> <td>J10-14</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pin	Voltage	J10-11	0 V dc	J10-12	+5 V dc	J10-13	+5 V dc	J10-14	+5 V dc	Go to step 13	Replace the system board. See <b>“System board removal” on page 4-89.</b>
Connector pin	Voltage												
J10-11	0 V dc												
J10-12	+5 V dc												
J10-13	+5 V dc												
J10-14	+5 V dc												
13	Check continuity of the sensor cable that is between the system board and MPF assembly. Is there continuity?	Replace the sensor assembly.	Replace the sensor cable assembly.										

## 271.xx paper jam service check

### Output bin

**Note:** Before proceeding with this service check, run the Output Bin x Sensor Test and check for the failing sensor.

Sensor Tests:

XNF Near Full (Upper part of sensor assembly)  
 F Full (Lower part of sensor assembly)  
 P Pass Thru Sensor

Step	Actions and questions	Yes	No										
1	DC motor cable connection—Make sure the DC motor connector is correctly installed at J4 on the output expander option board. Is the cable installed correctly?	Go to step 2	Install the cable correctly.										
2	DC motor mechanical linkage assembly—Check the resistance of the motor on the cable connector. Check the resistance between J4-1 and J4-2. The resistance measures between 115 ohms and 135 ohms. Is the resistance correct?	Go to step 3	Replace the DC motor mechanical linkage assembly.										
3	DC motor mechanical linkage assembly—Check for continuity between J4-1 and J4-2 and the case of the motor. It measures infinity. Is there continuity between J4-1 or J4-2 and the case of the motor? <b>Note:</b> If the motor is shorted from either J4-1 or J4-2 and the case of the motor, it may be necessary to replace the output expander control board.	Replace the DC motor mechanical linkage assembly.	Go to step 4										
4	Output expander board—Disconnect the motor cable from J4, and check the voltages at J4 on the board. <b>Note:</b> All voltages are approximate values: <table border="1" data-bbox="418 1266 758 1442"> <thead> <tr> <th colspan="2">J4—Motor cable (motor idle)</th> </tr> </thead> <tbody> <tr> <td>J4-1</td> <td>+24 V dc</td> </tr> <tr> <td>J4-2</td> <td>+24 V dc</td> </tr> <tr> <td>J4-5</td> <td>+5 V dc</td> </tr> <tr> <td>J4-6</td> <td>+5 V dc</td> </tr> </tbody> </table> <b>Warning:</b> Be careful not to short to adjacent pins on the connector. Are the voltages correct?	J4—Motor cable (motor idle)		J4-1	+24 V dc	J4-2	+24 V dc	J4-5	+5 V dc	J4-6	+5 V dc	Replace the DC motor mechanical linkage assembly.	Replace the output expander control board.
J4—Motor cable (motor idle)													
J4-1	+24 V dc												
J4-2	+24 V dc												
J4-5	+5 V dc												
J4-6	+5 V dc												

**272.xx paper jam service check****5-bin mailbox**

Step	Actions and questions	Yes	No
1	Bottom pass thru sensor flag—Make sure the flag is operating correctly and is not binding, broken, and there is no interference from the sensor cable. Is there any problem found with the sensor flag?	Fix or replace the flag.	Go to step 2
2	Bottom pass thru sensor—Make sure the sensor is correctly connected to J5 on the control board. Is the sensor connected correctly?	Go to step 3	Reseat the cable.
3	Bottom pass thru sensor voltage check 1—Disconnect the pass thru sensor cable and check the voltage at J5-3 on the board. The voltage measures approximately +5 V dc. Is the voltage correct?	Go to step 4	Replace the control board.
4	Bottom pass thru sensor voltage check 2—Check the voltage at J5-2 on the board; the voltage measures approximately 0 V dc. Is the voltage correct?	Replace the sensor assembly.	Replace the control board.

**5-bin mailbox****POST incomplete**

Step	Actions and questions	Yes	No
1	Pass thru sensor flag—Check the sensor flag for correct operation. Is the flag operating correctly?	Go to step 2	Repair or replace as necessary.
2	Pass thru sensor cable—Make sure the pass thru sensor cable is correctly connected to J3 on the control board. Is the cable connected correctly?	Go to step 3	Reseat the cable.
3	Voltage check—Disconnect the pass thru sensor cable from the control board and check the voltage on J3-3. The voltage measures approximately +5 V dc. Is the voltage correct?	Go to step 4	Replace the control board.
4	Voltage check—Measure the voltage at J3-2. The voltage measures approximately 0 V dc. Is the voltage correct?	Replace the control board.	Replace the sensor assembly.

## 282.98 paper jam service check

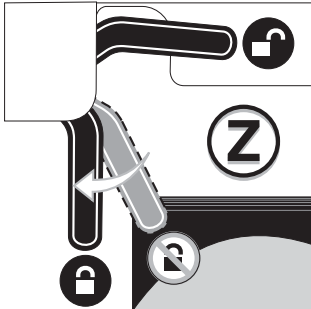
### 282.98 Staple Jam—Check Stapler displays

Step	Actions and questions	Yes	No
1	Staple cartridge holder—Check for jammed staples in the staple cartridge holder. Are there any jammed staples?	Replace the old strip of staples with a new strip. Perform the Finisher Feed Test from the Diagnostics Menu. See <b>“Finisher Feed Test” on page 3-23.</b>	Go to step 2
2	Staple cartridge holder—Check the staple cartridge holder for any signs of damage. Did you find any damage to the staple cartridge holder?	Replace the staple cartridge holder.	Replace the stapler option.

## 900.xx RIP Software Error service check

The 900 error may indicate a communication problem (bad cable, network connection, and so on), software issue, or a hardware problem with the controller board/INA. The communication and software aspects should be checked first. Determine if the problem is constant or intermittent.

### Constant 900.xx errors

Step	Actions and questions	Yes	No
1	<p>Reset the ITU electrical disconnect. Turn the printer off.</p> <p>Check the ITU release lever for correct operation. The ITU release lever is the black lever located on the left upper side frame above the ITU opening and can be seen by opening and lowering the MPF assembly. When locked, the lever should be at the 6 o'clock position. When unlocked, it should be in a 3 o'clock position. Undue pressure is not required to operate the lever.</p> <p>Turn the printer off, insert the ITU, move the lever to the 6 o'clock position, and turn the printer back on.</p>  <p>Does the 900 error display?</p>	Go to step 2	Problem resolved

Step	Actions and questions	Yes	No
2	Disconnect the printer from any external connections. Turn the power off and remove any parallel, USB, or network connections. Turn the printer on. Does the 900 error display?	Go to step 4	Go to step 3
3	Run the internal test pages. Print one of the internal test pages from the Utilities Menu. If the printer works correctly while disconnected, have the user or their network administrator verify that there are no jobs in the queue which may be causing the error. Does the error remain?	Inform the user or network administrator of the issue.	Go to step 4
4	Turn the printer off. Remove any options from the system board, such as additional memory, hard disk drives, or option cards. Does the 900 error persist when the printer is turned on?	Go to step 5	Determine which option is causing the 900 error.
5	Restore factory defaults from the Configuration Menu. <b>Warning:</b> When factory defaults are restored, all menu items are returned to the factory default values except: <ul style="list-style-type: none"> <li>• Display Language.</li> <li>• All settings in the Parallel Menu, Serial Menu, Network Menu, and USB Menu.</li> </ul> All downloaded resources (fonts, macros, and symbol sets) in printer memory (RAM) are deleted. (Resources residing in flash memory or on the hard disk are unaffected.)	Record the secondary error codes. With the 900 Service RIP Error displayed, press <b>Menu</b> (Ⓜ) and <b>◀</b> together. Record the complete list by scrolling with the arrows (▲ or ▼). The code may be a very long string of characters and numbers, but is needed for analysis.  Contact your next level of support.	Problem resolved



## Intermittent 900.xx Service RIP Error codes

It is important to determine under what circumstances the error occurs. Capturing the following information aids in categorizing the nature of the intermittent error.

1. Crash codes—With the 900 Service RIP Error displayed, press **Menu** (⌂) and ◀ together. Record the complete secondary codes by scrolling with the arrows (▲ or ▼). The code may be a very long string of characters and numbers, but it is needed to analyze the problem.
2. Print history—Print the printer history by entering Diagnostics Mode and selecting **Print History** in the **Development** menu.
3. Code level—Obtain the code level for the RIP, network, and engine. All of these can be found on **Print Menus** page from the **Utilities** menu.
4. Type of connection being used to print—Record the type of connection. For example, direct USB or parallel, or network peer to peer, Ethernet, Token-Ring, or so on.
5. Software application—Does one particular application or print job sent to the printer produce this error?
6. Driver—What driver or driver level.

With this information in hand, contact you next level of support.

### 900.xx Error Code displayed when the machine is connected to a network while still in Setup Required mode

Step	Actions and questions	Yes	No
1	Perform the following steps: <ol style="list-style-type: none"> <li>1. Power the printer off.</li> <li>2. Disconnect the printer from the network.</li> <li>3. Power the printer on, and complete the setup process.</li> <li>4. When setup is complete, power off the printer and reconnect to the network.</li> </ol> Is the same 900 Service Error displayed?	Contact your next level of support.	Problem resolved

**925.02 error code service check****Fuser fan (main fan)**

Step	Actions and questions	Yes	No																														
1	Turn the power off, manually spin the fan, and check that it rotates freely. Does the fan rotate freely?	Go to step 2	Replace the fuser fan. See <b>“Fuser fan removal” on page 4-47.</b>																														
2	Check the fuser fan cable connection to the system board JM1 for correct installation. Is the cable installed correctly?	Go to step 3	Install the cable correctly.																														
3	Disconnect the fuser fan from JM1 on the system board, and check the voltages on JM1. <table border="1" data-bbox="363 688 964 961"> <thead> <tr> <th>Pin</th> <th>Fan on</th> <th>Fan off</th> <th>Fan disconnected Fan switch on</th> <th>Fan disconnected Fan switch off</th> </tr> </thead> <tbody> <tr> <td>JM1-1</td> <td>+1.6 V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> </tr> <tr> <td>JM1-2</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> </tr> <tr> <td>JM1-3</td> <td>+1.9 V dc</td> <td>0 V dc</td> <td>0 V</td> <td>+2 V dc</td> </tr> <tr> <td>JM1-4</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>JM1-5</td> <td>Ground</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> Are the voltages correct?	Pin	Fan on	Fan off	Fan disconnected Fan switch on	Fan disconnected Fan switch off	JM1-1	+1.6 V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc	JM1-2	0 V	0 V	0 V	0 V	JM1-3	+1.9 V dc	0 V dc	0 V	+2 V dc	JM1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc	JM1-5	Ground				Replace the fuser fan. See <b>“Fuser fan removal” on page 4-47.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>
Pin	Fan on	Fan off	Fan disconnected Fan switch on	Fan disconnected Fan switch off																													
JM1-1	+1.6 V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc																													
JM1-2	0 V	0 V	0 V	0 V																													
JM1-3	+1.9 V dc	0 V dc	0 V	+2 V dc																													
JM1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc																													
JM1-5	Ground																																

**926.01 error code service check****VTB fan**

Step	Actions and questions	Yes	No																									
1	Turn the power off, manually spin the fan, and check that it rotates freely. Does the fan rotate freely?	Go to step 2	Replace the VTB fan. See <b>“Vacuum transport belt (VTB) fan removal” on page 4-97.</b>																									
2	Check the VTB fan cable connection to the system board JY1 for correct installation. Is the cable installed correctly?	Go to step 3	Install the cable correctly.																									
3	Disconnect the VTB fan from JY1 on the system board, and check the voltages on JY1. <table border="1" data-bbox="363 1640 964 1854"> <thead> <tr> <th>Pin</th> <th>Fan on</th> <th>Fan off</th> <th>Fan disconnected fan switch on</th> <th>Fan disconnected fan switch off</th> </tr> </thead> <tbody> <tr> <td>JY1-1</td> <td>+1.6V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> </tr> <tr> <td>JY1-2</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> </tr> <tr> <td>JY1-3</td> <td>+3.1 V dc</td> <td>0 V dc</td> <td>0 V</td> <td>+2 V dc</td> </tr> <tr> <td>JY1-4</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Pin	Fan on	Fan off	Fan disconnected fan switch on	Fan disconnected fan switch off	JY1-1	+1.6V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc	JY1-2	0 V	0 V	0 V	0 V	JY1-3	+3.1 V dc	0 V dc	0 V	+2 V dc	JY1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc	Replace the VTB fan. See <b>“Vacuum transport belt (VTB) fan removal” on page 4-97.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>
Pin	Fan on	Fan off	Fan disconnected fan switch on	Fan disconnected fan switch off																								
JY1-1	+1.6V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc																								
JY1-2	0 V	0 V	0 V	0 V																								
JY1-3	+3.1 V dc	0 V dc	0 V	+2 V dc																								
JY1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc																								

### 927.03 error code service check

#### RIP fan

Step	Actions and questions	Yes	No																									
1	Turn the power off, manually spin the fan, and check that it rotates freely. Does the fan rotate freely?	Go to step 2	Replace the RIP fan. See <b>“RIP fan removal” on page 4-86.</b>																									
2	Check the RIP fan cable connection to the system board JR1 for correct installation. Is the cable installed correctly?	Go to step 3	Install the cable correctly.																									
3	Disconnect the RIP fan from JR1 on the system board, and check the voltages on JR1. <table border="1" data-bbox="402 682 1015 898"> <thead> <tr> <th>Pin</th> <th>Fan on</th> <th>Fan off</th> <th>Fan disconnected Fan switch on</th> <th>Fan disconnected Fan switch off</th> </tr> </thead> <tbody> <tr> <td>JR1-1</td> <td>+1.6 V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> <td>+3.3 V dc</td> </tr> <tr> <td>JR1-2</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> <td>0 V</td> </tr> <tr> <td>JR1-3</td> <td>+1.9 V dc</td> <td>0 V dc</td> <td>0 V</td> <td>+2 V dc</td> </tr> <tr> <td>JR1-4</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Pin	Fan on	Fan off	Fan disconnected Fan switch on	Fan disconnected Fan switch off	JR1-1	+1.6 V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc	JR1-2	0 V	0 V	0 V	0 V	JR1-3	+1.9 V dc	0 V dc	0 V	+2 V dc	JR1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc	Replace the RIP fan. See <b>“RIP fan removal” on page 4-86.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>
Pin	Fan on	Fan off	Fan disconnected Fan switch on	Fan disconnected Fan switch off																								
JR1-1	+1.6 V dc	+3.3 V dc	+3.3 V dc	+3.3 V dc																								
JR1-2	0 V	0 V	0 V	0 V																								
JR1-3	+1.9 V dc	0 V dc	0 V	+2 V dc																								
JR1-4	+24 V dc	+24 V dc	+24 V dc	+24 V dc																								

### 930.09 error code service check

#### LVPS

This problem with the fuser circuits is usually the zero crossover signal from the LVPS not working correctly.

Step	Actions and questions	Yes	No
1	LVPS cable—check the LVPS cable to J17 on the system board to make sure it is seated correctly. Go to <b>“System board” on page 5-8.</b> Is the cable seated correctly?	Go to step 2	Install the cable correctly.
2	Voltage checks—Disconnect JCVR1 from the system board assembly. Go to <b>“System board” on page 5-8.</b> Check the voltage at J17, on the cable. It measures approximately +3.7 V dc. Is the voltage correct?	Go to step 3	Replace the following FRUs in order: <ol style="list-style-type: none"> <li>1. LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b></li> <li>2. System board. See <b>“System board removal” on page 4-89.</b></li> </ol>

Step	Actions and questions	Yes	No
3	Is 930 error still displayed?	Replace the LVPS assembly. See <b>“LVPS assembly removal”</b> on page 4-53.	Problem resolved

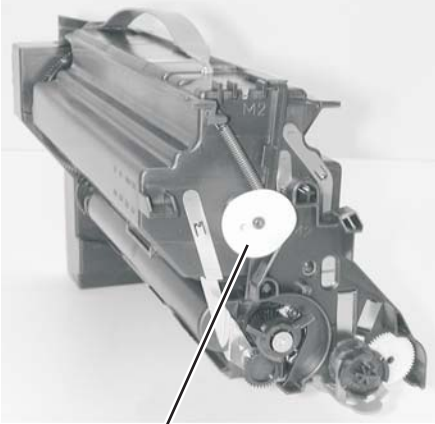
**940.xx error code service check**

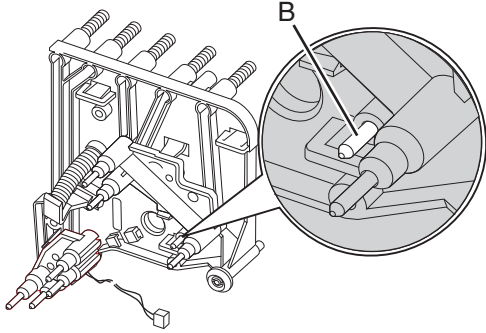
- 940.02—cyan toner metering cycle (TMC) problem
- 940.05—cyan toner metering timeout problem

The TMC is where the code and electronics in the printer sense an addition of toner in the cartridge developing area. If the printer is expecting a toner addition cycle but one is not detected, a 94x.xx TMC Error is displayed.

Replacement of the cartridge may fix the problem temporarily if the problem is with the printer. Only replace the cartridge if there are no problems with the printer or if the cartridge is known to be defective.

**Note:** Before proceeding with this service check, observe the error log for repetitive occurrences of a 94x.xx service error.

Step	Actions and questions	Yes	No
1	<p>Check the toner metering cam (A) on the rear of the cyan cartridge.</p> <p><b>Note:</b> In some cartridges, the toner metering cam is black.</p>  <p>A</p> <p>Is the cam present on the cartridge?</p>	Go to step 2	<p>If the toner metering cam is not present, check the printer to make sure it is not inside.</p> <p>Replace the damaged cartridge.</p>

Step	Actions and questions	Yes	No
2	<p>Check the TMC pin (B) in the cyan cartridge contact assembly to make sure it moves freely.</p>  <p>Does the pin move freely?</p>	Go to step 3	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal”</b> on page 4-35.
3	<p>Go to the Base Sensor Test. See <b>“BASE SENSOR TEST”</b> on page 3-24, and check the cyan TMC sensor. When you press the TMC pin in the cyan cartridge contact assembly, make sure it actuates the TMC switch on the developer HVPS. When the TMC pin is pressed in, you hear a <i>click</i> when the switch actuates. Check for mechanical interference between the contact block and the developer HVPS.</p> <p><b>Note:</b> You may need to turn the printer off to hear the <i>click</i>.</p> <p>Does the cyan TMC switch on the developer HVPS board actuate properly when the TMC pin is pressed?</p>	Replace the cartridge.	Go to step 4
4	<p>Check the developer HVPS board to make sure it is not cracked or broken.</p> <p>Is the developer HVPS cracked or broken?</p>	Go to step 6	Go to step 5
5	<p>Check the mounting of the developer HVPS. Make sure the screws that mount the power supply are properly tightened down and the board is positioned and mounted correctly.</p> <p>Is the developer HVPS mounted correctly?</p>	Replace the developer HVPS board. See <b>“Developer HVPS board removal”</b> on page 4-39.	If the board is incorrectly installed, install it correctly. Make sure all the mounting screws are tightened down. Recheck the printer to see if a 940 Error is still displayed.
6	<p>Make sure the developer HVPS cable is correctly installed on the developer board assembly.</p> <p>Is the cable correctly installed?</p>	Go to step 7	Correctly connect the cable.
7	<p>Make sure the developer HVPS cable is correctly installed at J6 on the system board.</p> <p>Is the cable properly installed?</p>	Go to step 8	Correctly connect the cable.
8	<p>Check the voltage at connector J6-11 on the system board while pressing the cyan TMC pin in the cartridge contact assembly.</p> <p>Does the voltage change when the pin is pressed?</p>	Replace the system board. See <b>“System board removal”</b> on page 4-89.	Go to step 9

Step	Actions and questions	Yes	No
9	Check the voltage at connector J6-11 when the cyan TMC switch is pressed. Does the voltage measure approximately +3.3 V dc?	Go to step 10	Go to step 11
10	Check the developer HVPS to system board cable for damage, broken connections, or wire and shorts between adjacent pins. Are there any signs of damage to the cable?	Replace the cable.	Replace the Developer HVPS board. See <b>“Developer HVPS board removal” on page 4-39.</b>
11	Disconnect the developer HVPS cable from connector J6 on the system board. Measure the voltage on connector J6-11 on the system board. Does the voltage measure approximately 0 V dc?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS and developer HVPS to system board cable.

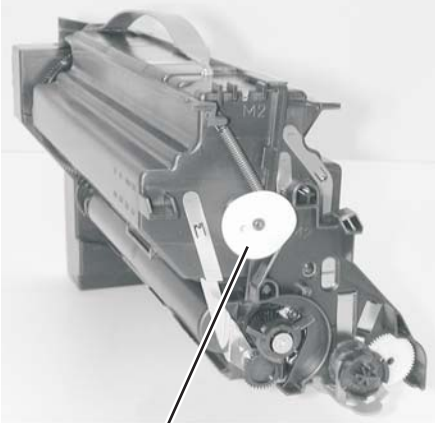
### 941.xx error code service check

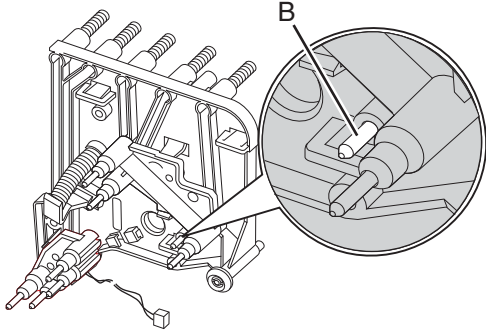
- 941.03—magenta toner metering cycle (TMC) problem
- 941.05—magenta toner metering cycle timeout problem

The TMC is where the code and electronics in the printer sense an addition of toner in the cartridge developing area. If the printer is expecting a toner addition cycle but one is not detected, a 94x TMC Error is displayed.

Replacement of the cartridge may fix the problem temporarily if the problem is with the printer. Only replace the cartridge if there are no problems with the printer or if the cartridge is known to be defective.

**Note:** Before proceeding with this service check, observe the error log for repetitive occurrences of a 94x service error.

Step	Actions and questions	Yes	No
1	<p>Check the toner metering cam (A) on the rear of the magenta cartridge.</p> <p><b>Note:</b> In some cartridges, the toner metering cam is black.</p>  <p>Is the cam present on the cartridge?</p>	Go to step 2	<p>If the toner metering cam is not present, check the printer to make sure it is not inside.</p> <p>Replace the damaged cartridge.</p>

Step	Actions and questions	Yes	No
2	<p>Check the TMC pin (B) in the magenta cartridge contact assembly to make sure it moves freely.</p>  <p>Does the pin move freely?</p>	Go to step 3	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal”</b> on page 4-35.
3	<p>Go to the <b>“BASE SENSOR TEST”</b> on page 3-24, and check the magenta TMC sensor. When you press the TMC pin in the magenta cartridge contact assembly, make sure it actuates the TMC switch on the developer HVPS. When the TMC pin is pressed in, you hear a <i>click</i> when the switch actuates. Check for mechanical interference between the contact block and the developer HVPS.</p> <p><b>Note:</b> You may need to turn the printer off to hear the <i>click</i>.</p> <p>Does the magenta TMC switch on the developer HVPS board actuate properly when the TMC pin is pressed?</p>	Replace the cartridge.	Go to step 4
4	<p>Check the developer HVPS board to make sure it is not cracked or broken.</p> <p>Is the developer HVPS cracked or broken?</p>	Go to step 6	Go to step 5
5	<p>Check the mounting of the developer HVPS. Make sure the screws that mount the power supply are properly tightened down and the board is positioned and mounted correctly.</p> <p>Is the developer HVPS mounted correctly?</p>	Replace the developer HPVS. See <b>“Developer HVPS board removal”</b> on page 4-39.	If the board is incorrectly installed, install it correctly. Make sure all the mounting screws are tightened down. Recheck the printer to see if a 941 Error is still displayed.
6	<p>Make sure the developer HVPS cable is correctly installed on the developer board assembly.</p> <p>Is the cable correctly installed?</p>	Go to step 7	Correctly connect the cable.
7	<p>Make sure the developer HVPS cable is correctly installed at J6 on the system board.</p> <p>Is the cable properly installed?</p>	Go to step 8	Correctly connect the cable.
8	<p>Check the voltage at connector J6-6 on the system board while pressing the magenta TMC pin in the cartridge contact assembly.</p> <p>Does the voltage change when the pin is pressed?</p>	Replace the system board. See <b>“System board removal”</b> on page 4-89.	Go to step 9

Step	Actions and questions	Yes	No
9	Check the voltage at connector J6-6 when the magenta TMC switch is pressed. Does the voltage measure approximately +3.3 V dc?	Go to step 10	Go to step 11
10	Check the developer HVPS to system board cable for damage, broken connections, or wire and shorts between adjacent pins. Are there any signs of damage to the cable?	Replace the cable.	Replace the developer HPVS board. See <b>“Developer HVPS board removal” on page 4-39.</b>
11	Disconnect the developer HVPS cable from connector J6 on the system board. Measure the voltage on connector J6-6 on the system board. Does the voltage measure approximately 0 V dc?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS and developer HVPS to system cable.

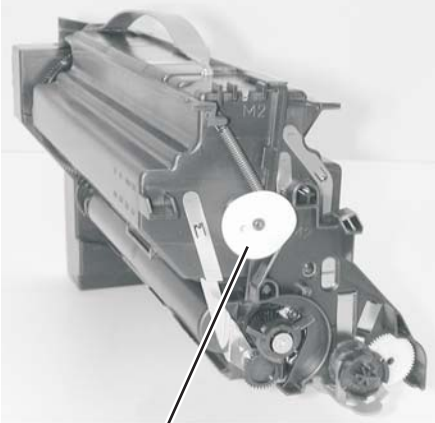
**942.xx error code service check**

- 942.04—yellow toner metering cycle (TMC) problem
- 942.05—yellow TMC timeout problem

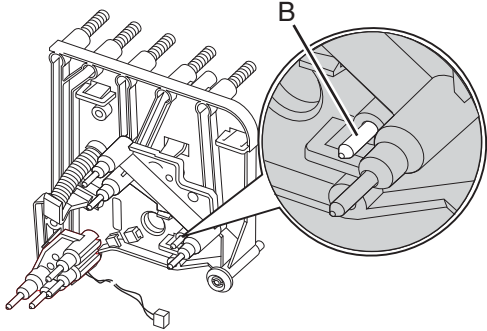
The TMC is where the code and electronics in the printer sense an addition of toner in the cartridge developing area. If the printer is expecting a toner addition cycle but one is not detected, a 94x TMC Error is displayed.

Replacement of the cartridge may fix the problem temporarily if the problem is with the printer. Only replace the cartridge if there are no problems with the printer or if the cartridge is known to be defective.

**Note:** Before proceeding with this service check, observe the error log for repetitive occurrences of a 94x service error.

Step	Actions and questions	Yes	No
1	Check the toner metering cam (A) on the rear of the yellow cartridge. <b>Note:</b> In some cartridges, the toner metering cam is black.  Is the cam present on the cartridge?	Go to step 2	If the toner metering cam is not present, check the printer to make sure it is not inside. Replace the damaged cartridge.



Step	Actions and questions	Yes	No
2	<p>Check the TMC pin (B) in the yellow cartridge contact assembly to make sure it moves freely.</p>  <p>Does the pin move freely?</p>	Go to step 3	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal”</b> on page 4-35.
3	<p>Go to <b>“BASE SENSOR TEST”</b> on page 3-24, and check the yellow TMC sensor. When you press the TMC pin in the yellow cartridge contact assembly, make sure it actuates the TMC switch on the developer HVPS. When the TMC pin is pressed in, you hear a <i>click</i> when the switch actuates. Check for mechanical interference between the contact block and the developer HVPS.</p> <p>Note: You may need to turn the printer off to hear the <i>click</i>.</p> <p>Does the yellow TMC switch on the developer HVPS board actuate properly when the TMC pin is pressed?</p>	Replace the cartridge.	Go to step 4
4	<p>Check the developer HVPS board to make sure it is not cracked or broken.</p> <p>Is the developer HVPS cracked or broken?</p>	Go to step 6	Go to step 5
5	<p>Check the mounting of the developer HVPS. Make sure the screws that mount the power supply are properly tightened down and the board is positioned and mounted correctly.</p> <p>Is the developer HVPS mounted correctly?</p>	Replace the developer HVPS assembly. See <b>“Developer HVPS board removal”</b> on page 4-39.	If the board is incorrectly installed, install it correctly. Make sure all the mounting screws are tightened down. Recheck the printer to see if a 942 Error is still displayed.
6	<p>Make sure the developer HVPS cable is correctly installed on the developer board assembly.</p> <p>Is the cable correctly installed?</p>	Go to step 7	Correctly connect the cable.
7	<p>Make sure the developer HVPS cable is correctly installed at J6 on the system board.</p> <p>Is the cable properly installed?</p>	Go to step 8	Correctly connect the cable.
8	<p>Check the voltage at connector J6-16 on the system board while pressing the yellow TMC pin in the cartridge contact assembly.</p> <p>Does the voltage change when the pin is pressed?</p>	Replace the system board. See <b>“System board removal”</b> on page 4-89.	Go to step 9

Step	Actions and questions	Yes	No
9	Check the voltage at connector J6-16 when the yellow TMC switch is pressed. Does the voltage measure approximately +3.3 V dc?	Go to step 10	Go to step 11
10	Check the developer HVPS to system board cable for damage, broken connections, or wire and shorts between adjacent pins. Are there any signs of damage to the cable?	Replace the cable.	Replace the developer HVPS board. See <b>“Developer HVPS board removal” on page 4-39.</b>
11	Disconnect the developer HVPS cable from connector J6 on the system board. Measure the voltage on connector J6-16 on the system board. Does the voltage measure approximately 0 V dc?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS and developer HVPS to system board cable.

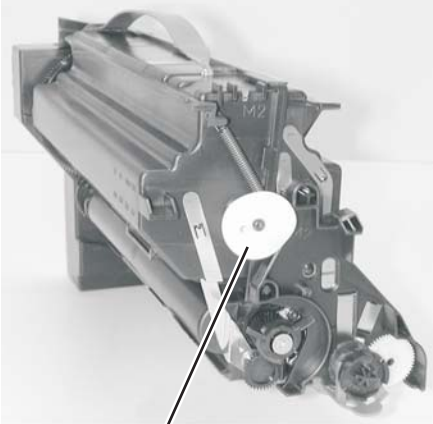
### 943.xx error code service check

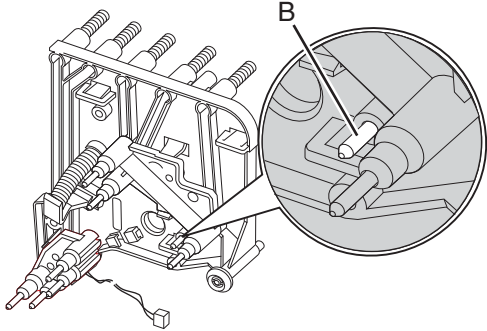
- 943.01—black toner metering cycle (TMC) problem
- 943.05—black TMC timeout problem

Toner metering cycle (TMC) is where the code and electronics in the printer sense an addition of toner in the cartridge developing area. If the printer is expecting a toner addition cycle but one is not detected, a 94x TMC Error is displayed.

Replacement of the cartridge may fix the problem temporarily if the problem is with the printer. Only replace the cartridge if there are no problems with the printer or if the cartridge is known to be defective.

**Note:** Before proceeding with this service check, observe the error log for repetitive occurrences of a 94x service error.

Step	Actions and questions	Yes	No
1	Check the toner metering cam (A) on the rear of the black cartridge. <b>Note:</b> In some cartridges, the toner metering cam is black. Is the cam present on the cartridge? 	Go to step 2	If the toner metering cam is not present, check the printer to make sure it is not inside. Replace the damaged cartridge.

Step	Actions and questions	Yes	No
2	<p>Check the TMC pin (B) in the black cartridge contact assembly to make sure it moves freely.</p>  <p>Does the pin move freely?</p>	Go to step 3	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal”</b> on page 4-35.
3	<p>Go to <b>“BASE SENSOR TEST”</b> on page 3-24, and check the black TMC sensor. When you press the TMC pin in the black cartridge contact assembly, make sure it actuates the TMC switch on the developer HVPS. When the TMC pin is pressed in, you hear a <i>click</i> when the switch actuates. Check for mechanical interference between the contact block and the developer HVPS.</p> <p>Note: You may need to turn the printer off to hear the <i>click</i>.</p> <p>Does the black TMC switch on the developer HVPS board actuate properly when the TMC pin is pressed?</p>	Replace the cartridge.	Go to step 4
4	<p>Check the developer HVPS board to make sure it is not cracked or broken.</p> <p>Is the developer HVPS cracked or broken?</p>	Go to step 6	Go to step 5
5	<p>Check the mounting of the developer HVPS. Make sure the screws that mount the power supply are properly tightened down and the board is positioned and mounted correctly.</p> <p>Is the developer HVPS mounted correctly?</p>	Replace the developer HVPS assembly. See <b>“Developer HVPS board removal”</b> on page 4-39.	If the board is incorrectly installed, install it correctly. Make sure all the mounting screws are tightened down. Recheck the printer to see if a 943 Error is still displayed.
6	<p>Make sure the developer HVPS cable is correctly installed on the developer board assembly.</p> <p>Is the cable correctly installed?</p>	Go to step 7	Correctly connect the cable.
7	<p>Make sure the developer HVPS cable is correctly installed at J6 on the system board.</p> <p>Is the cable properly installed?</p>	Go to step 8	Correctly install the cable.
8	<p>Check the voltage at connector J6-1 on the system board while pressing the black TMC pin in the cartridge contact assembly.</p> <p>Does the voltage change when the pin is pressed?</p>	Replace the system board. See <b>“System board removal”</b> on page 4-89.	Go to step 9

Step	Actions and questions	Yes	No
9	Check the voltage at connector J6-1 when the black TMC switch is pressed. Does the voltage measure approximately +3.3 V dc?	Go to step 10	Go to step 11
10	Check the developer HVPS to system board cable for damage, broken connections, or wire and shorts between adjacent pins. Are there any signs of damage to the cable?	Replace the cable.	Replace the developer HVPS board. See <b>“Developer HVPS board removal” on page 4-39.</b>
11	Disconnect the developer HVPS cable from connector J6 on the system board. Measure the voltage on connector J14-1 on the system board. Does the voltage measure approximately 0 V dc?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS and developer HVPS to system board cable.

### 956.xx service error service check

Service <xxx> System Board

Step	Actions and questions	Yes	No
1	Remove all option boards from the system board. Turn on the printer. Does the error continue?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Go to step 2
2	Replace each option board one at a time, making sure the boards are properly seated. Turn the printer off and then on between each option board to view any error messages. Does the error reappear?	Replace the failing option board.	Problem resolved

### 982.xx error service check

Step	Actions and questions	Yes	No
1	Are the output options not recognized?	Go to step 2	Go to step 4
2	Remove the output option, and reinstall it on the printer. Power on the printer. Does this fix the problem?	Replace the output option.	Replace the top option autoconnect cable.
3	Remove the input option, and reinstall it on the printer. Power on the printer. Does this fix the problem?	Problem resolved	Go to step 4
4	Voltage check, base printer autoconnect connector— Turn the power off, and remove the output option from the printer. Check the voltages on the base printer top autoconnect connector. See <b>“Autoconnect—top” on page 5-18.</b> Are the voltages correct?	Replace the output option.	Replace the bottom option autoconnect cable.

## 990.01 error service check

This error indicates which option is causing the error.

### 5-Bin mailbox

Step	Actions and questions	Yes	No										
1	Mechanical linkage/DC motor assembly—Check the DC motor cable connector to make sure it is installed at J4 on the control board. Is the cable connected correctly?	Go to step 2	Reseat the cable, and recheck for correct operation of the option										
2	Resistance check—Disconnect J4 from the option board, and check the resistance of the motor on the cable connector between J2-1 and J2-2. The resistance measures between 115 and 135 ohms. Is the resistance correct?	Go to step 3	Replace the mechanical linkage/DC motor assembly.										
3	DC motor—Check between J2-1 and between J2-2 and the case of the DC motor for shorts. Is the DC motor shorted? <b>Note:</b> If the DC motor is shorted, damage may result to the control board.	Replace the mechanical linkage/DC motor assembly.	Go to step 4										
4	Output expander control board check—Disconnect the motor cable J2, and check the voltages at J2 on the board. <b>Warning:</b> Be careful not to short to adjacent pins on the connector. The voltages measure: ( <b>Note:</b> All voltages are approximate values.) <table border="1" data-bbox="430 1129 764 1302"> <thead> <tr> <th colspan="2">J2—Motor cable (motor Idle)</th> </tr> </thead> <tbody> <tr> <td>J2-1</td> <td>+24 V dc</td> </tr> <tr> <td>J2-2</td> <td>+24 V dc</td> </tr> <tr> <td>J2-3</td> <td>+5 V dc</td> </tr> <tr> <td>J2-4</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	J2—Motor cable (motor Idle)		J2-1	+24 V dc	J2-2	+24 V dc	J2-3	+5 V dc	J2-4	+5 V dc	Replace the control board.	Replace the mechanical linkage/DC motor assembly.
J2—Motor cable (motor Idle)													
J2-1	+24 V dc												
J2-2	+24 V dc												
J2-3	+5 V dc												
J2-4	+5 V dc												

### 500-sheet drawer option

For 990.01 Service Error—Tray x, x=Tray 2, 3, or 4, this is the tray that has a problem or needs service.

**Note:** Verify the autoconnect housing is correctly *snapped* into the printer and all options and is plugged into the system board correctly.

Step	Actions and questions	Yes	No
1	Make sure the autocompensator cable is correctly installed at the tray system board. Is the cable correctly installed?	Go to step 2	Install the cable correctly.
2	Make sure the drive assembly cable is connected correctly to the tray system board. Is the cable correctly installed?	Go to step 3	Install the cable correctly.
3	Check for worn or broken parts in the autocompensator and drive assemblies. Are any parts worn, broken, or damaged?	Replace the assembly that has the defective parts.	Replace the FRUs in the following order: 1. Electronic/size sensing assembly. 2. Autocompensator assembly. 3. Drive Assembly.

### Output expander

Step	Actions and questions	Yes	No
1	Mechanical linkage/DC motor assembly—Make sure the DC motor cable connector is installed at J4 on the output expander control board. Is the cable connected correctly?	Go to step 2	Reseat the cable, and recheck for correct operation of the option.
2	Resistance check—Disconnect J4 from the option board, and check the resistance of the motor on the cable connector between J4-1 and J4-2. The resistance should measure between 115 and 135 ohms. Is the resistance correct?	Go to step 3	Replace the mechanical linkage/DC motor assembly.
3	DC motor—Check between J4-1 and between J4-2 and the case of the DC motor for shorts. Is the DC motor shorted? <b>Note:</b> If the DC motor is shorted, the system board may be damaged.	Replace the mechanical linkage/DC motor assembly.	Go to step 4

Step	Actions and questions	Yes	No										
4	<p>Output expander control board check—Disconnect the motor cable at J4, and check the voltages at J4 on the board.</p> <p><b>Warning:</b> Be careful not to short to adjacent pins on the connector.</p> <p>The voltages measure approximately:</p> <table border="1"> <thead> <tr> <th colspan="2">J4—Output Expander control board (motor idle)</th> </tr> </thead> <tbody> <tr> <td>J4-1</td> <td>+24 V dc</td> </tr> <tr> <td>J4-2</td> <td>+24 V dc</td> </tr> <tr> <td>J4-3</td> <td>+5 V dc</td> </tr> <tr> <td>J4-4</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>Are the voltages correct?</p>	J4—Output Expander control board (motor idle)		J4-1	+24 V dc	J4-2	+24 V dc	J4-3	+5 V dc	J4-4	+5 V dc	Replace the output expander control board.	Replace the mechanical linkage/DC motor assembly.
J4—Output Expander control board (motor idle)													
J4-1	+24 V dc												
J4-2	+24 V dc												
J4-3	+5 V dc												
J4-4	+5 V dc												

### StapleSmart finisher

Check Bin x displayed—POST incomplete.

Step1—During POST, the stapler option does not try to home.

Replace the stapler option.

Step 2—During POST, the stapler option tries to home.

Replace the stapler option.

### 5-bin mailbox option service check

**Note:** Before proceeding with this service check, make sure the option(s) are installed correctly before attempting to service the unit. Make sure the machine is configured correctly. The majority of the mechanical components can be observed during operation by removing the left and right side covers.

Step	Actions and questions	Yes	No
1	Problems with excessive static electricity buildup.	Go to <b>“Problems with excessive static electricity buildup.” on page 2-94.</b>	Go to step 2
2	The printer does not recognize one or more output options as installed.	Go to <b>“The printer does not recognize one or more output options as installed.” on page 2-70.</b>	Go to step 3
3	272.xx Paper Jam—Check Bin 1 message	Go to <b>“272.xx paper jam service check” on page 2-52.</b>	Go to step 4

Step	Actions and questions	Yes	No
4	Ready-Bin x Full message—May be able to clear message and will feed paper into Bin selected.	Go to <b>“Ready bin x full message—may be able to clear message and will feed paper into bin selected.” on page 2-71.</b>	Go to step 5
5	Bin x is full—No message that bin x is full	Go to <b>“Bin x full—no message that bin x is full message” on page 2-71.</b>	Go to step 6
6	Ready-Bin x Full displays, and paper feeds into Bin x	Go to <b>“Ready—bin x full displays and paper feeds into bin x” on page 2-72.</b>	Go to step 7
7	Paper does not feed into the bin selected—272.xx Paper Jam. Check Bin 1 displays.	Go to <b>“Paper does not feed into the bin selected. 272.xx Paper Jam—check bin 1 message” on page 2-72.</b>	Go to step 8
8	990 Service Error	Go to 950.xx Error Code service check.	Contact your next level of support.

**The printer does not recognize one or more output options as installed.**

Step	Actions and questions	Yes	No
1	Are the output options not recognized?	Go to step 2	Go to step 4
2	Remove the output option, and reinstall it on the printer. Power on the printer. Does this resolve the problem?	Problem resolved	Go to step 3
3	Voltage check, base printer autoconnect connector—Turn the power off, and remove the output option from the printer. Check the voltages on the base printer top autoconnect connector. See <b>“Autoconnect—top” on page 5-18.</b> Are the voltages correct?	Replace the output option.	Replace the top Option autoconnect cable.
4	Remove the input options, and reinstall them on the printer. Turn on the printer. Does this resolve the problem?	Problem resolved	Go to step 4



Step	Actions and questions	Yes	No
5	Voltage check, base printer autoconnect connector— Turn the power off, and remove the output option from the printer. Check the voltages on the base printer top autoconnect connector. See <b>“Autoconnect—bottom” on page 5-19.</b>  Are the voltages correct?	Replace the output option.	Replace the bottom option autoconnect cable.

**Ready bin x full message—may be able to clear message and will feed paper into bin selected.**

**Note:** This sensor is normally in a open position with the flag out of the sensor slot.

Step	Actions and questions	Yes	No
1	Bin x sensor (bin x=Sensor 1 through 5)—Make sure the sensor is seated correctly in the side of tray x. Is the sensor seated correctly?	Go to step 2	Install the sensor correctly.
2	Bin x sensor cable—Make sure that bin x sensor cable is connected to the sensor and to the control board. Is the sensor cable connected correctly?	Go to step 3	Install the sensor cable correctly.
3	Bin x sensor flag—Check the bin x sensor flag for binding and proper operation. Are there any problems with the sensor flag?	Repair or replace the sensor flag.	Go to step 4
4	Bin x sensor cable—Check the continuity of the sensor cable. Is there continuity?	Replace the bin x sensor.	Replace the bin x cable.

**Bin x full—no message that bin x is full message**

Step	Actions and questions	Yes	No
1	Bin x sensor (bin x=sensor 1 through 5)—Make sure the sensor is seated correctly in the side of tray x. Is the sensor seated correctly?	Go to step 2	Install the sensor correctly.
2	Bin x sensor cable—Make sure that bin x sensor cable is connected to the sensor and to the control board. Is the sensor cable connected correctly?	Go to step 3	Install the sensor cable correctly.
3	Bin x sensor flag—check the bin x sensor flag for binding and proper operation. Are there any problems with the sensor flag?	Repair or replace the sensor flag.	Go to step 4
4	Bin x sensor cable—Check the continuity of the sensor cable. Is there continuity?	Replace the bin x sensor.	Replace the bin x cable.

Ready-bin x full **displays and paper feeds into bin x**

Step	Actions and questions	Yes	No
1	Bin x sensor flag—Make sure the bin x sensor flag is not in the up position and is operating correctly. Is the sensor flag operating correctly?	Replace the bin x sensor. If this does not fix the problem, replace the control board.	Repair or replace as necessary.

**Paper does not feed into the bin selected.** 272.xx Paper Jam-check bin 1 message

Step	Actions and questions	Yes	No
1	Bin parts—Check all the bin parts, deflector gate, deflector spring, deflector cover, deflector cover spring, and shaft assemblies for signs of missing or loose springs. Check for binds in the deflector gater or deflector cover, broken or binding shaft assemblies, or broken gear teeth. Are parts broken, loose, binding, or missing?	Replace parts or repairs necessary.	Go to step 2
2	Bin x solenoid—Check the solenoid for any binds or sticking problems. Is the solenoid binding or sticking?	Replace the solenoid assembly.	Go to step 3
3	Bin x solenoid—Check the resistance of the solenoid. It measures between approximately 30 ohms and 50 ohms. Is the resistance correct?	Replace the 5-Bin Mailbox control board assembly.	Replace bin x solenoid assembly.
4	Mechanical linkage/motor assembly—Check the gears, clutch, and other linkage parts for correct operation and any signs of wear, broken gear teeth, or damaged parts. Are the mechanical linkage assembly mechanical parts broken, worn, or damaged?	Replace the mechanical linkage/DC motor assembly.	Replace the 5-Bin Mailbox control board assembly.

## 500-sheet drawer option service check

If the paper does not feed from the 500-sheet option, see **“Autocompensator service check” on page 2-78.**

Whenever the 500-sheet tray is removed, use care as the autocompensator may be in its down position which could result in damage to the autocompensator assembly.

The tray empty sensor, paper low sensor, and pass thru sensor for any installed tray  $x$  ( $x=2$  through 4) can be checked using the **“Sensor Test” on page 3-20.**

### The base printer does not recognize that tray $x$ is installed.

Step	Actions and questions	Yes	No																
1	Is tray $x$ the only paper input option that is not recognized?	Go to step 5	Go to step 2																
2	Make sure the printer and any option above tray $x$ is installed correctly. Is the printer and any options installed correctly?	Go to step 3	Install the option correctly, and recheck.																
3	Verify correct installation of the lower options autoconnect cable to system board connector J20. Is the cable to J20 installed correctly?	Go to step 4	Install the cable correctly, and recheck.																
4	Autoconnect cables—check the autoconnect from the printer or option above tray $x$ . Check for cuts, pinched wiring, or damage to the contacts in the connector. Are there any problems with the autoconnect cables?	Repair or replace as necessary.	Go to step 5																
5	Tray $x$ autoconnect cable—check the tray $x$ autoconnect cable(s) for correct installation at the tray $x$ system board. Are the tray $x$ autoconnect cable(s) connected correctly?	Go to step 6	Install the cables correctly, and recheck.																
6	Tray $x$ autoconnect cable continuity—Check the continuity of the Tray $x$ Autoconnect cable(s). Is there continuity?	Go to step 7	Replace electronic size sensing assembly (includes the system board).																
7	Disconnect J20 from the system board, and check the voltages on connector J20 on the system board. <b>Note:</b> All voltages are approximate values: <table border="1" data-bbox="446 1470 738 1753"> <thead> <tr> <th>Connector pins</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J20-1</td> <td>+5 V dc</td> </tr> <tr> <td>J20-2</td> <td>Ground</td> </tr> <tr> <td>J20-3</td> <td>Ground</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+24 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pins	Voltage	J20-1	+5 V dc	J20-2	Ground	J20-3	Ground	J20-4	+5 V dc	J20-5	+24 V dc	J20-7	+5 V dc	J20-8	+5 V dc	Replace electronic size sensing assembly (includes the tray system board).	Replace the system board. See <b>“System board removal” on page 4-89.</b>
Connector pins	Voltage																		
J20-1	+5 V dc																		
J20-2	Ground																		
J20-3	Ground																		
J20-4	+5 V dc																		
J20-5	+24 V dc																		
J20-7	+5 V dc																		
J20-8	+5 V dc																		

**Tray x autocompensator fails to retract, stays in down position.**

Step	Actions and questions	Yes	No
1	Use care when removing a tray assembly when the autocompensator is in its down position. Remove the tray, and manually reset the autocompensator to its uppermost position by actuating the pick arm lift bellcrank. Does the autocompensator assembly stay in the up position?	Go to step 2	Go to step 3
2	Carefully replace the tray, and recheck to see if the autocompensator operates correctly. Does the autocompensator assembly operate correctly?	Problem resolved	Go to step 3
3	Make sure the autocompensator pick arm lift bellcrank is installed correctly. Is the pick arm lift bellcrank installed correctly?	Go to step 4	Install the bellcrank correctly.
4	Check the following for loose, broken, or missing parts: <ul style="list-style-type: none"> <li>• Boss on the side of the arm</li> <li>• Bellcrank lift spring</li> <li>• Tray interlock bellcrank</li> </ul> Are any of these parts loose, broken, or missing?	Repair or replace as necessary.	Contact your next level of support.

**The printer detects paper low in tray x when adequate paper is installed in the tray.**

Step	Actions and questions	Yes	No
1	Run Tray x sensor test from the Diagnostics Menu. Does the test pass for sensor L2?	Go to step 3	Go to step 2
2	Check the cable connection for the paper low/out sensor to tray x system board. Is the cable correctly installed?	Go to step 3	Install the cable correctly.
3	Check the paper level sensing assembly for correct installation. Check the following for damaged or broken parts: <ul style="list-style-type: none"> <li>• Check the paper level sensing flag bellcrank.</li> <li>• Check the paper level sensor is seated correctly.</li> <li>• Check the paper level sensing flag.</li> <li>• Check the paper level sensing flag spring.</li> </ul> Is the paper level sensing assembly installed correctly?	Go to step 4	Install the paper level sensing assembly correctly.
4	Is the paper level sensing assembly damaged or broken?	Replace the paper level sensing assembly.	

**The printer detects paper out in tray *x* when adequate paper is installed in the tray.**

Step	Actions and questions	Yes	No
1	Run Tray <i>x</i> Sensor Test from the Diagnostics Menu. Does the test pass for Sensor L1?	Go to step 5	Go to step 2
2	Check the cable connection for the paper level sensing assembly to tray <i>x</i> system board. Is the cable correctly installed?	Go to step 3	Install the cable correctly.
3	Check the paper level sensing assembly for correct installation. Is the paper level sensing assembly installed correctly?	Go to step 4	Reinstall the assembly if not installed correctly.
4	Check continuity of the paper level sensing assembly cable. Do you measure continuity?	Go to step 5	Replace the cable.
5	Check the paper level sensing assembly for correct installation. Check the following for damaged or broken parts: <ul style="list-style-type: none"> <li>• Paper level sensing flag bellcrank</li> <li>• Paper level sensing flag</li> <li>• Paper level sensing flag spring</li> </ul> Is the paper level sensing assembly installed correctly?	Replace the paper level sensing assembly.	Go to step 6
6	Make sure the paper level sensing assembly arm goes all the way through the bottom of tray <i>x</i> . Does the arm extend all the way down through the bottom of the tray?	Recheck the arm. If the problem continues, replace the paper leveling sensing assembly. If the problem still persists, replace the tray <i>x</i> system board.	See why the arm is not extending all the way to the bottom of the tray. Repair as necessary.

**Tray *x* does not detect size media installed**

Step	Actions and questions	Yes	No
1	Is the tray set for the size paper loaded in the tray, and are the restraints in the correct location?	Go to step 2	Set the correct size
2	Are there damaged or broken size sensing gears or size sensing barrel cam in the tray assembly?	Repair or replace defective parts.	Go to step 3
3	Check the media size sensing assembly for any signs of damaged, binding, or broken parts. Are there broken or damaged parts?	Replace the media size sensing assembly.	Replace the electronics/size sensing assembly.

## AC and DC power service check

Before proceeding with this service check remove or disconnect any options that may be installed. Turn the machine on. If it operates correctly, reattach one option at a time until the failing option is located.

**Note:** Set the voltage range switch to the proper power setting for the geographic area you are in.

**Note:** Before proceeding with this service check, turn the printer on, and check to see if the Power on LED on the system board is turned on.

Step	Actions and questions	Yes	No
1	Is the LED turned on?	Go to <b>“AC power service check” on page 2-76.</b>	Go to <b>“DC power service check” on page 2-77.</b>



### AC power service check

The printer appears to be inoperative when turned on with the Power on/Status LED off, the LCD display is blank, the fuser lamps do not come on, and no motors turn.

Step	Actions and questions	Yes	No
1	Main AC power—Make sure the printer is receiving main AC power. Is the printer receiving AC power?	Go to step 2	Inform the customer that AC power to the printer is incorrect.
2	AC power check (wall outlet)—Check the AC line voltage at the AC outlet. Is the AC line voltage correct?	Go to step 3	Inform the customer that the AC line voltage is incorrect.
3	AC power cord Is the power cord in good condition and correctly installed?	Go to step 4	If the cord is in poor condition, replace the cord.
4	AC power check (AC line cord)—Check the AC line voltage at the end of the AC line cord. Is the AC line voltage correct?	Go to step 5	Replace the line cord.
5	Low voltage power supply—Turn the power off, and disconnect the LVPS at J18 on the system board. Measure the voltages on J18-3 and J18-4. The voltage should measure approximately +5 V dc. Is there approximately +5 V dc on any of these connector pins?	Replace the system board. See <b>“System board removal” on page 4-89.</b>	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>

## DC power service check

The machine is partially operative, a motor turns, display is on, or the Power On LED may be on or off.

Step	Actions and questions	Yes	No																																
1	Does the printer <i>beep</i> 5 times and the operator panel display all diamonds?	Go to <b>“Operator panel LCD/ status LED/ buttons service check” on page 2-90.</b>	Go to step 2																																
2	<p>DC power to system board—Turn the power off, and disconnect the LVPS cable to J18 on the system board. Turn the power on, and check the following voltages on the LVPS cable:</p> <table border="1"> <tbody> <tr><td>J18-1</td><td>+3.3 V dc</td></tr> <tr><td>J18-2</td><td>+3.3 V dc</td></tr> <tr><td>J18-3</td><td>+5 V dc</td></tr> <tr><td>J18-4</td><td>+5 V dc</td></tr> <tr><td>J18-5</td><td>+24 V dc</td></tr> <tr><td>J18-6</td><td>+24 V dc</td></tr> <tr><td>J18-7</td><td>+24 V dc</td></tr> <tr><td>J18-8</td><td>+3.3V dc</td></tr> <tr><td>J18-9</td><td>Ground</td></tr> <tr><td>J18-10</td><td>Ground</td></tr> <tr><td>J18-11</td><td>Ground</td></tr> <tr><td>J18-12</td><td>Ground</td></tr> <tr><td>J18-13</td><td>Ground</td></tr> <tr><td>J18-14</td><td>Ground</td></tr> <tr><td>J18-15</td><td>Ground</td></tr> <tr><td>J18-16</td><td>Ground</td></tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values. Are the voltages correct?</p>	J18-1	+3.3 V dc	J18-2	+3.3 V dc	J18-3	+5 V dc	J18-4	+5 V dc	J18-5	+24 V dc	J18-6	+24 V dc	J18-7	+24 V dc	J18-8	+3.3V dc	J18-9	Ground	J18-10	Ground	J18-11	Ground	J18-12	Ground	J18-13	Ground	J18-14	Ground	J18-15	Ground	J18-16	Ground	Go to step 3	Replace the LVPS assembly. See <b>“LVPS assembly removal” on page 4-53.</b>
J18-1	+3.3 V dc																																		
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J18-14	Ground																																		
J18-15	Ground																																		
J18-16	Ground																																		
3	<p>Unplug all cables from the system board, except JOPP1, J18, and J20. See <b>“System board” on page 5-7.</b></p> <p>Does the printer power up and display a message?</p>	Go to step 4	Replace the system board. See <b>“System board removal” on page 4-89.</b>																																
4	<p>Turn off the printer, and plug in the cable for the component that is related to the error presented. For example, for the 109.xx Service Printhead error, plug in the black printhead JMMK1 and JMK1. Use connector locations on <b>“System board” on page 5-7.</b></p> <p>Repeat this step until the original DC power problem occurs.</p> <p>Does the DC power problem occur?</p>	Check the cable and component that was last connected to system board for short.	If printer comes to Ready, connect the remaining cables and print.																																

## Autocompensator service check

- If the paper fails to feed from Tray 1 or 500-sheet option, go to **“Step A” on page 2-78.**
- If the autocompensator fails to lower when Tray 1 is installed, go to **“Step B” on page 2-79.**
- If the autocompensator fails to retract when you attempt to remove Tray 1, go to **“Step C” on page 2-79.**
- If there is no indication that the media is out or low, go to **“Step D” on page 2-80.**

**Note:** When feeding paper through the printer to check for autocompensator problems, use the Tray 1 Feed test in the Diagnostics Menu. A printed copy is not required.

### Step A

Step	Actions and questions	Yes	No
1	Use the tray 1 feed test to feed paper from tray 1. Check to see if the pick rolls are turning. <b>Note:</b> Observe the pick rolls by opening the lower jam access door assembly. Do the pick rolls turn?	Go to step 2	Go to step 3
2	Check the autocompensator pick rolls for contamination or damage to the rolls. Is there any excessive contamination or damage to the pick rolls?	Replace the pick rolls. Always replace both pick rolls at the same time.	Go to step 3
3	Verify the autocompensator is not stuck in the up position. Verify the output clutch assembly is not damaged. Is the autocompensator stuck or the output clutch damaged?	Dislodge the autocompensator assembly. If this does not fix the problem, go to step 4.	Replace the autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b>
4	Check the voltages at JTRAY1-9 and JTRAY1-10 on the system board. Are the voltages correct?	Replace the autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b>	Replace the system board. See <b>“System board removal” on page 4-89.</b>



**Step B**

Step	Actions and questions	Yes	No
1	Check Tray 1 for damage to the pick arm lift bellcrank activation tabs on the rear of the tray. Is there any damage to the tray?	Replace tray 1.	Go to step 2
2	Check the following parts for damaged, loose, or missing parts. <ul style="list-style-type: none"> <li>• Pick arm lift bellcrank</li> <li>• Bellcrank lift spring</li> <li>• Tray interlock bellcrank</li> </ul> Are any of the parts broken, loose, or missing?	Repair or replace parts as necessary.	Go to step 3
3	Verify the autocompensator is not stuck in the up position (tires or hub caught on the deflector gate)	Dislodge the autocompensator assembly.	Replace the autocompensator pick assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b>

**Step C**

Step	Actions and questions	Yes	No
1	Can you remove Tray 1 from the printer?	Go to step 3	Go to step 2
2	Open the lower jam access door, carefully lift the autocompensator assembly until it is in its uppermost position, and carefully try to remove tray 1. Can you remove Tray 1?	Go to step 3	Determine what is causing the tray to stay in a locked position. Repair as necessary.
3	Check Tray 1 for damage to the pick arm lift bellcrank activation tabs on the rear of the tray. Is there damage to the tray?	Replace tray 1	Go to step 4
4	Check for loose or broken parts on the autocompensator assembly. Are there loose or broken parts?	Replace the autocompensator assembly. See <b>“Autocompensator pick assembly removal” on page 4-27.</b>	Go to step 5
5	Check the following parts for any signs of damaged or broken parts. <ul style="list-style-type: none"> <li>• Pick arm lift bellcrank</li> <li>• Pick arm bellcrank lift spring</li> </ul> Are there any damaged or broken parts?	Repair or replace parts as necessary.	Determine what is causing the autocompensator to stay in the down position. Repair as necessary.

**Step D**

Step	Actions and questions	Yes	No
1	Enter the Diagnostics Mode and select <b>INPUT TRAY TESTS, Sensor Test, and Tray 1</b> . You can activate the paper level sensor inside the printer. The paper level sensor is a dual sensor and checks the following levels for Tray 1.  The Tray 1 level sensor is a dual sensor assembly that senses when tray 1 is empty, nearly empty, or partially empty.  Does the Sensor Test pass?	Contact your next level of support.	Go to step 2
2	Paper level sensing assembly—Make sure the assembly is not loose or damaged. Make sure the bellcrank is not broken.  Are any parts loose or broken?	Repair or replace parts as necessary.	Go to step 3
3	Check the paper level sensing cable for correct installation at JTRAY1 on the system board and to the paper level sensing dual sensor assembly.  Is the cable connected correctly?	Go to step 4	Install the cable correctly.
4	Check the paper level sensing assembly flag for correct installation and that the flag is not broken or damaged.  Is the paper level sensing assembly installed correctly and the flag not broken or damaged?	Go to step 5	Install correctly or replace the flag if damaged or broken.
5	Check continuity of the paper level sensing cable.  Is there continuity?	Go to step 6	Replace the level sensing cable.
6	Check the voltage at JTRAY1. It should measure approximately +5 V dc.  Is the voltage correct?	Replace the level sensing assembly.	Replace the system board. See <b>“System board removal” on page 4-89.</b>

**Black only retract (BOR) service check**

Step	Actions and questions	Yes	No
1	Using the toggle ITU function in diagnostics mode, test the BOR system. Remove the print cartridges, and watch the belt while activating the toggle function.  Does the ITU belt move up and down when the ITU is toggled?	Go to <b>“Print quality service check” on page 2-95.</b>	Go to step 2
2	Remove the ITU. Locate the BOR gear, and manually activate the gear. Verify that the front and back BOR cams are moving the respective bell cranks.  Do the cams move back and forth properly?	Replace in the following order:  1. <b>“BOR drive assembly removal” on page 4-34.</b>  2. <b>“System board removal” on page 4-89.</b>	Determine which component is preventing the proper movement.

## Close door/HVPS/printhead interlock switch service check

**Note:** There are two separate cables that contain microswitches and a cable. These cable/switches provide separate interlocks for the printhead and HVPS. One switch in the Printhead/cover open cable is mounted in the front access door support, and the other switch in the printhead/open cover cable is mounted on the ITU light shield assembly. The HVPS/cover open cable only has one switch mounted on the front access door support and is routed through the ITU autoconnect. The HVPS/cover open cable is connected to J14 on the system board, and the printhead/cover open cable is connected to JCVR1 on the system board.

### POR incomplete, Close Door constantly displays

This symptom is usually associated with the lower switch mounted on the front access door support and with the switch mounted in the ITU light shield.

Step	Actions and questions	Yes	No
1	Make sure that the ITU light shield is not out of position. Is the ITU light shield out of position?	Properly align the ITU light shield.	Go to step 2
2	Make sure the ITU assembly interlock switch actuator is not damaged or broken and actuates the switches correctly. Is the actuator damaged or broken?	Replace the ITU assembly. See <b>"ITU assembly removal" on page 4-49.</b>	Go to step 3
3	Front cover assembly Does the front cover assembly close correctly?	Go to step 4	Install the front cover correctly, or repair as necessary
4	Front cover assembly Make sure the front cover flag is not broken or damaged and actuates the switches correctly. Is the flag broken or damaged?	Replace the front cover. See <b>"Front cover or front cover backplate assembly removal" on page 4-11.</b>	Go to step 5
5	Printhead/cover open interlock cable assembly and +24 V cover switch. Make sure that the cable is correctly connected to JCVR1 and J14 on the system board. Are the cables connected correctly?	Go to step 6	Install the cable correctly.
6	Make sure the front cover assembly is closed and the ITU is correctly installed. Disconnect JCVR1 from the system board, and check for continuity between pins JCVR1-1 and JCVR1-3. Do you measure continuity?	Go to step 7	Replace the printhead interlock cable/switch assembly (see <b>"Printhead interlock cable assembly" on page 7-37</b> for the part number.)
7	Disconnect J14 from the system board and check for continuity between pins J14-1 and J14-2. Do you measure continuity?	Replace the system board. See <b>"System board removal" on page 4-89.</b>	Replace the ITU light shield assembly. See <b>"ITU light shield assembly" on page 7-37.</b>

## POR complete, printer feeds blank page

This symptom is usually associated with the upper switch mounted on the front access door support.

Step	Actions and questions	Yes	No
1	Make sure that the ITU light shield is not broken. Is the ITU light shield broken?	Replace the ITU light shield.	Go to step 2
2	Make sure that the ITU light shield is not out of position. Is the ITU light shield out of position?	Properly align ITU light shield.	Go to step 3
3	Make sure the ITU assembly interlock switch actuator is not damaged or broken and actuates the switch correctly. Is the actuator damaged or broken?	Replace the ITU assembly. See <b>"ITU assembly removal" on page 4-49.</b>	Go to step 4
4	Front cover assembly Does the front cover assembly close correctly?	Go to step 5	Install the front cover correctly, or repair as necessary.
5	Front cover assembly Make sure the front cover flag is not broken or damaged and actuates the switches correctly. Is the flag broken or damaged?	Replace the front cover. See <b>"Front cover or front cover backplate assembly removal" on page 4-11.</b>	Go to step 6
6	HVPS/cover open interlock cable assembly to system board—Make sure that the cable is correctly connected to J14 on the system board and the ITU autoconnect is seated correctly. Is the cable connected correctly?	Go to step 7	Install the cable correctly.
7	HVPS/cover open interlock cable assembly—Make sure the front cover assembly is closed and the ITU is correctly installed. Disconnect the switch cable from J14 on the system board. Check for continuity between J14-1 and J14-2 on the cable connector. Is there continuity?	Replace the system board. See <b>"System board removal" on page 4-89.</b>	Replace the HVPS/cover open interlock switch/cable assembly (see <b>"Printhead interlock cable assembly" on page 7-37</b> for part number.)

## Duplex option service check

Before proceeding with this service check:

1. Check for any pieces of media or obstructions in the duplex paper path that might cause a paper jam.
2. Check for correct installation of the front duplex jam tray and right side clearance tray.
3. Check the duplex option for any signs of loose, damaged, contaminated, or warped parts that might cause a jam.

### Duplex not recognized as being installed

Step	Actions and questions	Yes	No																
1	Is duplex option the only option installed beneath the base printer?	Go to step 3	Go to step 2																
2	Except for the duplex option, remove any other paper options installed beneath the base printer. Does the printer recognize the duplex option as being installed?	The problem is in one of the option(s) that is installed beneath the printer. Try to isolate which of the options is causing the problem.	Go to step 3																
3	Make sure the duplex option is correctly installed. Is the duplex option installed correctly?	Go to step 4	Install the duplex option correctly.																
4	Make sure the bottom options cable connector is <i>snapped</i> firmly into the bottom of the base machine. Is the cable connector mounted correctly?	Go to step 5	Install the cable correctly.																
5	Make sure the bottom options cable is installed correctly to system board connector J20. Is the cable installed correctly?	Go to step 6	Install the cable correctly.																
6	<p>Check the voltages on connector J20 on the system board. The voltages are measured with the printer in standby mode:</p> <table border="1"> <thead> <tr> <th>Connector pin</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J20-1</td> <td>+5 V dc</td> </tr> <tr> <td>J20-2</td> <td>Ground</td> </tr> <tr> <td>J20-3</td> <td>Ground</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+24 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values. Are the voltages correct?</p>	Connector pin	Voltage	J20-1	+5 V dc	J20-2	Ground	J20-3	Ground	J20-4	+5 V dc	J20-5	+24 V dc	J20-8	+5 V dc	J20-7	+5 V dc	Go to step 7	Replace the system board.
Connector pin	Voltage																		
J20-1	+5 V dc																		
J20-2	Ground																		
J20-3	Ground																		
J20-4	+5 V dc																		
J20-5	+24 V dc																		
J20-8	+5 V dc																		
J20-7	+5 V dc																		

Step	Actions and questions	Yes	No																
7	<p>Check the voltages on the bottom options cable connector. The voltages are with the printer in standby mode.</p> <p><b>Note:</b> All voltages are approximate values.</p> <table border="1" data-bbox="370 380 639 657"> <thead> <tr> <th>Connector pin</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J20-1</td> <td>+5 V dc</td> </tr> <tr> <td>J20-2</td> <td>Ground</td> </tr> <tr> <td>J20-3</td> <td>Ground</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+24 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>Are the voltages correct?</p>	Connector pin	Voltage	J20-1	+5 V dc	J20-2	Ground	J20-3	Ground	J20-4	+5 V dc	J20-5	+24 V dc	J20-7	+5 V dc	J20-8	+5 V dc	Go to step 8	Replace the bottom options cable in the printer.
Connector pin	Voltage																		
J20-1	+5 V dc																		
J20-2	Ground																		
J20-3	Ground																		
J20-4	+5 V dc																		
J20-5	+24 V dc																		
J20-7	+5 V dc																		
J20-8	+5 V dc																		
8	<p>Make sure the upper options cable in the duplex option is installed correctly in the duplex frame.</p> <p>Is the cable installed correctly?</p>	Go to step 9	Correctly install the cable. If the connector is damaged, replace the cable assembly.																
9	<p>Make sure the upper options cable in the duplex option is connected correctly to J11 on the duplex options board.</p> <p>Is the cable connected correctly?</p>	Go to step 10	Install the cable correctly.																
10	<p>Check continuity of the upper duplex options cable.</p> <p>Is there continuity?</p>	Replace the duplex options board.	Install the cable correctly.																

**Top margin on duplexed copy set incorrectly**

Go to **“Duplex Quick Test” on page 3-19** to adjust the top margin on the back of the duplexed page.

## Envelope feeder option service check

**Note:** Except for the tray and pick tires, the envelope feeder option is a complete assembly with no other internal parts that can be replaced.

If a 24x.xx paper jam is displayed, go to the appropriate service check:

- 242.xx—go to **“Envelope feeder” on page 2-42**
- 243.xx—go to **“Envelope feeder” on page 2-47**

### The printer does not recognize that the envelope feeder option is installed

Step	Actions and questions	Yes	No														
1	Is the envelope feeder option the only option that is not recognized?	Go to step 2	Go to step 6														
2	Are the other options that are not recognized installed below the envelope feeder?	Replace the envelope feeder option.	Go to step 3														
3	Make sure the printer and any option installed above the envelope feeder option is installed correctly. Is the option installed above the envelope feeder installed correctly?	Go to step 4	Install the printer or options correctly, and recheck performance.														
4	Check for the correct installation of the lower options autoconnect cable for the system board connector J20. Is the cable installed correctly?	Go to step 5	Install the cable correctly, and recheck performance.														
5	Autoconnect cable—Check the autoconnect from the printer or option installed above the envelope feeder. Check for cuts, pinched wiring, or damage to the contacts in the connector.	Go to the service check for the option mounted above the envelope feeder.	Replace the envelope feeder.														
6	Disconnect the autoconnect cable from J20 on the printer system board. Measure the voltages on J20, the voltages are approximate values and should measure: <table border="1" data-bbox="412 1283 683 1528"> <thead> <tr> <th>Connector pin</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J20-1</td> <td>+24 V dc</td> </tr> <tr> <td>J20-2</td> <td>Ground</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+5 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pin	Voltage	J20-1	+24 V dc	J20-2	Ground	J20-4	+5 V dc	J20-5	+5 V dc	J20-7	+5 V dc	J20-8	+5 V dc	Go to step 7	Replace the system board.
Connector pin	Voltage																
J20-1	+24 V dc																
J20-2	Ground																
J20-4	+5 V dc																
J20-5	+5 V dc																
J20-7	+5 V dc																
J20-8	+5 V dc																
7	Check continuity of the autoconnect cable. Is there continuity?	Replace the envelope feeder option.	Replace the autoconnect cable.														

### Envelopes do not feed from the tray or do not feed correctly

Step	Actions and questions	Yes	No
1	Check the envelope feeder tray to make sure it is installed correctly. Is the tray installed correctly?	Go to step 2	Install the tray correctly.
2	Check the tray to make sure it has been set up correctly for the size of envelopes being used. Has the tray been set up correctly?	Go to step 3	Set the tray up correctly.
3	Check the tray for any signs of broken or damaged parts. Are there any signs of damage to the tray or parts in the tray?	Replace the envelope feeder tray.	Replace the envelope feeder option.

### HCIT 2000-sheet option service check

#### HCIT system board LED error code table

If a failure is detected by the system board, an error code may be displayed. If the system board LED is on solid, the HCIT detects that the tray or side door is not closed.

The LED on the system board may blink. Count the number of times the LED *blinks* and use the following table to determine the problem.

LED blinks	Problem
1	Jam at registration sensor S2
2	Jam before the leading edge of the paper reaches the registration sensor S2
3	Paper jam is still detected in the HCIT after removing the jam
4	Paper jam is still detected even with front of jam door closed
5	Paper jam detected at pick sensor
6	Error detected with the tray
7	Error detected at the registration roller home position
8	Error detected at the pick roller home position sensor (S1)
9	Error detected with the lift motor—no motor lock or loss of lock
10	Not used
11	Communication error
12	Other error—Failure of the adjustment of the mirror reflection sensors or EEPROM initialization



**Printer does not recognize that the HCIT 2000-sheet option is installed.**

Step	Actions and questions	Yes	No														
1	Is the HCIT 2000-sheet option the only paper input option that is not recognized?	Go to step 5	Go to step 2														
2	Make sure that the printer and any option above the HCIT 2000-sheet option are installed correctly. Are the printer and any options installed correctly?	Go to step 3	Install the options correctly, and recheck performance.														
3	Check for correct installation of the lower options autoconnect cable to system board connector J20. Is the cable to J20 installed correctly?	Go to step 4	Install the cable correctly, and recheck performance.														
4	Disconnect J20 from the system board, and check the voltages on connector J20 on the system board. <b>Note:</b> All voltages are approximate values: <table border="1" data-bbox="418 737 690 978"> <thead> <tr> <th>Connector pin</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J20-1</td> <td>+5 V dc</td> </tr> <tr> <td>J20-2</td> <td>Ground</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+24 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pin	Voltage	J20-1	+5 V dc	J20-2	Ground	J20-4	+5 V dc	J20-5	+24 V dc	J20-7	+5 V dc	J20-8	+5 V dc	Go to step 5	Replace the system board.
Connector pin	Voltage																
J20-1	+5 V dc																
J20-2	Ground																
J20-4	+5 V dc																
J20-5	+24 V dc																
J20-7	+5 V dc																
J20-8	+5 V dc																
5	Autoconnect cables—Check the autoconnect from the printer or option above the HCIT 2000-sheet option. Check for any signs of cuts, pinched wiring, or damage to the contacts in the connector. Are there any problems with the autoconnect cables?	Repair or replace as necessary.	Go to step 6														
6	HCIT autoconnect cable—Check the HCIT autoconnect cable for correct installation at the HCIT system board. Is the cable installed correctly?	Go to step 7	Install the cable correctly.														
7	HCIT autoconnect cable continuity—Check the continuity of the HCIT autoconnect cable(s). Is there continuity?	Replace HCIT system board.	Replace the HCIT autoconnect cable.														



## HCIT inoperative

Before proceeding with this service check, make sure the 2000-sheet tray option is properly connected to AC power. The printer power cord plugs into the HCIT AC outlet, and the power cord from the HCIT plugs into the AC voltage source.

**Note:** Make sure the electrical outlet is working properly and all power cords are plugged in correctly. Make sure the slide switch on the LVPS is toward the right.

The system board status LED can be observed by removing the rear cover. The LED is mounted on the HCIT system board.

Step	Actions and questions	Yes	No
1	Does the printer power up and work normally when plugged into the AC outlet on the HCIT?	Go to step 2	Go to step 5
2	Check the system board LED. Is it on solid or blinking? <ul style="list-style-type: none"> <li>• On solid means that the HCIT has detected the front door or side door open.</li> <li>• Blinking means that the system is operating.</li> </ul> Is the LED on solid or blinking?	If the LED is on solid, check the front and side doors. If the LED is blinking, replace the HCIT system board.	Go to step 3
3	Measure the voltage at TP3 (+5 V dc test point) on the HCIT system board. The voltage should measure approximately +5 V dc. Is the voltage correct?	Replace the HCIT system board.	Go to step 4
4	Measure the voltage at CN2 pin 2 on the HCIT system board. The voltage should measure approximately +5 V dc. Is the voltage correct?	Replace the HCIT system board.	Go to step 5
5	Check the AC line voltage at the input to the LVPS. Is the voltage correct?	Replace the HCIT LVPS.	Go to step 6
6	Check the AC cable from the HCIT AC inlet to the LVPS. Are the cables good?	Determine where the AC line voltage is being lost to the HCIT. Repair as necessary.	Replace the cables.

**HCIT 2000-sheet option does not recognize the size paper selected.**

Step	Actions and questions	Yes	No
1	Make sure the media loaded in the tray meets specifications. Is the media loaded properly and meet specifications?	Go to step 2	Load the media properly, or inform the customer that the media does not meet specifications.
2	Check the paper tray guide for correct installation. Is the paper tray guide installed correctly for the selected media size?	Go to step 3	Reinstall the guide if installed incorrectly.
3	Check for correct installation of the media size sensor cable to the HCIT system board at CN7. Is the cable installed correctly?	Go to step 4	Install the cable correctly.
4	Check for a broken, loose, or missing media size sensor flag spring. Is a sensor flag spring broken, loose, or missing?	Reconnect the spring if it is loose. Replace the spring if broken or missing.	Go to step 5
5	Check the media size sensor flag for sticking or broken parts. Is the media size sensor flag sticking or broken?	Replace the media size flag.	Go to step 6
6	Check continuity of the sensor cable. Do you measure continuity?	Replace the sensor. If this does not fix the problem, replace the HCIT system board.	Replace the sensor cable.

**Fuser drive assembly noise check****Excessive fuser drive motor assembly noise**

Step	Actions and questions	Yes	No
1	Excessive noise from the fuser drive motor assembly— Check for correct installation of the fuser drive assembly. Is the fuser drive installed correctly?	Go to step 2	Correctly install the fuser drive assembly. See <b>“Fuser drive assembly removal” on page 4-46.</b>
2	Install a new fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b> Is there still excessive noise from the fuser drive motor assembly?	Replace the fuser drive assembly. See <b>“Fuser drive assembly removal” on page 4-46.</b>	Problem resolved.

## Operator panel LCD/status LED/buttons service check

Use this service check to check both the operation of the panel buttons and to test the LCD display for correct operation.

- Replace the operator panel assembly if the LCD display functions normally, but the LED does not come on.
- If one or more of the operator panel buttons do not operate correctly, go to “Step A.”

If any of the following symptoms occur, go to **“Step B” on page 2-101.**

- Operator panel LCD is blank/power on/status LED off
- Operator panel LCD is blank/power on/status LED on
- Operator panel LCD displays all diamonds/5 beeps/power on/status LED on

### Step A

Step	Actions and questions	Yes	No
1	Buttons Test—Perform the <b>“Button Test” on page 3-15.</b> Do any or all of the buttons fail to operate correctly? <b>Note:</b> If all the buttons fail to operate correctly, the LCD display is blank, power on status LED is on, and the printer beeps 5 times, go step B.	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68.</b>	Test passes. No problem found.

### Step B

**Note:** Make sure the operator panel cable is seated firmly in J1 on the system board before proceeding with this step.

Step	Actions and questions	Yes	No
1	LCD Test—Perform the <b>“LCD Test” on page 3-15.</b> Can you run the test?	Go to step 2	Go to step 4
2	LCD Test—Does the test pass?	Problem resolved	Go to step 3
3	Operator panel—Is the operator panel operating correctly except for a few pixels missing or broken?	Replace the operator panel assembly. see <b>“Operator panel assembly removal” on page 4-68.</b>	Go to step 4
4	Operator panel assembly—Is the operator panel assembly completely blank and the power on status LED off?	Go to step 6	Go to step 5
5	Operator panel assembly—Is the operator panel assembly completely blank and the power on status LED on?	Go to step 10	Go to step 12
6	Does the printer <i>beep</i> 5 times?	Go to step 7	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68.</b>

Step	Actions and questions	Yes	No																		
7	System board—Measure the voltage at connector JOPP1-2 on the <b>“System board” on page 5-8</b> . The voltage measures approximately +5 V dc. Is the voltage correct?	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68</b> .	Go to step 8																		
8	Operator panel cable (operator panel connection)—Make sure that the operator panel cable is seated correctly in the connector on the operator panel board. Is the cable seated correctly?	Go to step 9	Seat the cable correctly.																		
9	Operator panel cable—Check continuity of the operator panel cable. Is there continuity?	Replace the system board. See <b>“System board removal” on page 4-89</b> .	Go to <b>“Operator panel assembly removal” on page 4-68</b> , and replace the operator panel cable.																		
10	System board—A poor ground connection between pin JOPP1-4 on the operator panel board connector can cause this symptom. Check for continuity between pin JOPP1-4 and ground on the board. Go to <b>“System board” on page 5-8</b> . Is there continuity?	Go to step 11	Replace the system board. See <b>“System board removal” on page 4-89</b> .																		
11	Operator panel cable—Check continuity of the operator panel cable. Is there continuity?	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68</b> .	Go to <b>“Operator panel assembly removal” on page 4-68</b> and replace the operator panel cable.																		
12	Operator panel assembly—Does the operator panel display all diamonds, with the power on/status LED on and five beeps?	Go to step 13	Contact your next level of support.																		
13	Voltage checks at system board connector JOPP1—Go to <b>“System board” on page 5-8</b> . Check the voltages on connector JOPP1 as shown: <table border="1" data-bbox="415 1350 1008 1577"> <thead> <tr> <th>Connector pin</th> <th>Voltage (display static)</th> <th>Voltage (display active—LCD Test running)</th> </tr> </thead> <tbody> <tr> <td>JOPP1-1</td> <td>+5 V dc</td> <td>Voltage varies 1.0 to 2.0 V dc</td> </tr> <tr> <td>JOPP1-2</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>JOPP1-3</td> <td>+5 V dc</td> <td>Voltage varies 1.0 to 2.4 V dc</td> </tr> <tr> <td>JOPP1-4</td> <td>Ground</td> <td>Ground</td> </tr> <tr> <td>JOPP1-5</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> </tbody> </table> Are the voltages correct?	Connector pin	Voltage (display static)	Voltage (display active—LCD Test running)	JOPP1-1	+5 V dc	Voltage varies 1.0 to 2.0 V dc	JOPP1-2	+5 V dc	+5 V dc	JOPP1-3	+5 V dc	Voltage varies 1.0 to 2.4 V dc	JOPP1-4	Ground	Ground	JOPP1-5	+5 V dc	+5 V dc	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68</b> .	Go to step 14
Connector pin	Voltage (display static)	Voltage (display active—LCD Test running)																			
JOPP1-1	+5 V dc	Voltage varies 1.0 to 2.0 V dc																			
JOPP1-2	+5 V dc	+5 V dc																			
JOPP1-3	+5 V dc	Voltage varies 1.0 to 2.4 V dc																			
JOPP1-4	Ground	Ground																			
JOPP1-5	+5 V dc	+5 V dc																			
14	Operator panel cable—Check continuity of the operator panel cable. Is there continuity?	Replace the operator panel assembly. See <b>“Operator panel assembly removal” on page 4-68</b> .	Go to <b>“Operator panel assembly removal” on page 4-68</b> , and replace the operator panel cable.																		

## Output expander option service check

**Note:** The majority of the mechanical components can be observed during operation by removing the covers. The output expander functions without the covers installed. Make sure the option is correctly installed before attempting to service the unit.

Step	Actions and questions	Yes	No
1	The printer does not recognize one or more output expander options as being installed.	Go to <b>“Printer does not recognize that one or more output options as being installed.”</b> on page 2-93.	Go to step 2
2	271.xx Paper Jam Open Rear Door message appears. A sheet of paper is jammed prior to the pass thru sensor flag or a sheet of paper feeds out to the standard bin even though bin x is selected. Paper exits half way out of the redrive.	Go to <b>“271.xx paper jam service check”</b> on page 2-51.	Go to step 3
3	Remove paper—Output Bin x is displayed, POST is incomplete, unable to clear the message.	Go to <b>“Remove Paper—Output Bin x is displayed, POST is incomplete unable to clear the message.”</b> on page 2-93.	Go to step 4
4	271.xx Paper Jam—Check Bin x, POST incomplete.	Go to <b>“POST incomplete”</b> on page 2-52.	Go to step 5
5	271.xx Paper Jam—Check Bin x, POST complete, first sheet of paper feeds into output bin x.	Go to <b>“271.xx paper jam service check”</b> on page 2-51.	Go to step 6
6	No indication that bin x is full <i>OR</i> No indication that bin x is near full.	Go to <b>“No indication that bin x is full or no indication that bin x is near full.”</b> on page 2-94.	Go to step 7
7	990.xx Service—Bin x	Go to <b>“990.01 error service check”</b> on page 2-67.	Contact your next level of support.

**Printer does not recognize that one or more output options as being installed.**

Step	Actions and questions	Yes	No
1	Excessive static electricity buildup—Check the output expander control board cover to make sure the ESD brush ground lead is firmly attached to the output expander frame. Make sure the ESD brush is not loose or damaged.  is the ESD brush ground cable correctly installed and the ESD brush not loose or broken?	Go to step 2	1. Attach the ground cable if not installed correctly.  2. Replace the cover assembly if the ESD brush is loose or damaged.
2	Output expander assembly mechanical linkage (cables)—Check the output expander autoconnect cable and connector for any signs of damage, especially the connector pins.  Are there any signs of damage to the cable, connector, or connector pins?	Replace the autoconnect cable.	Go to step 3
3	Output expander assembly mechanical linkage (electrical)—Check the cables at J1A, J1B, J2A, and J2B on the control board to make sure they are attached securely and correctly.  Are the cables attached securely and correctly?	Go to step 4	Reseat the cables.
4	Voltage check, base printer autoconnect connector—Turn the power off, remove the output expander option from the printer, and check the voltages on the base printer top autoconnect connector. Go to <b>“Connectors” on page 5-7</b> .  Are the voltages correct?	Go to step 5	The problem is in the base printer. Check autoconnects in the printer.
5	Voltage check, output expander system board—Reinstall the output expander option, and check the voltages at J1A and J1B on the connector.  Are the voltages correct?	Replace the output expander option system board.	Replace the output expander option mechanical linkage assembly.

**Remove Paper—Output Bin x is displayed, POST is incomplete unable to clear the message.**

Step	Actions and questions	Yes	No
1	Output sensor flag check—Check the flag for correct operation, binds, broken parts, or interference from the sensor cable.  Is there a problem with the sensor flag?	Replace the flag or repair as necessary.	Go to step 2
2	Output bin sensor—Run the sensor test to check the Output bin sensor for correct operation.  Does the sensor operate correctly?	Contact your next level of support.	Replace the sensor assembly. If this does not fix the problem, replace the <b>“System board removal” on page 4-89</b> .

**No indication that bin x is full or no indication that bin x is near full.**

Step	Actions and questions	Yes	No
1	Sensor cable installation—Check for correct installation of the sensor cable at J5 on the control board. Is the cable installed correctly?	Go to step 2	Install the cable correctly.
2	Dual output bin x sensor assembly Do either the bin x full or the bin x near full sensor fail the sensor test?	Go to step 3	Contact your next level of support.
3	Voltage—Check the voltages at J5-3 and J5-4. The voltages should measure approximately +5 V dc. Are the voltages correct?	Replace the sensor.	Replace the control board.

**Problems with excessive static electricity buildup.**

Step	Actions and questions	Yes	No
1	Excessive static electricity buildup—Check the front cover to make sure the ESD brush ground lead is firmly attached to the Output Expander frame or the ESD brush is not loose or damaged. Is the ESD brush ground cable correctly installed, and is the ESD brush loose or broken?	Make sure the brush is contacting the media being fed through the option.	<ol style="list-style-type: none"> <li>1. Attach the ground cable if not installed.</li> <li>2. Replace the cover assembly if the ESD brush is loose or damaged.</li> </ol>



## Print quality service check

**Note:** This symptom may require replacement of one or more CRUs (Customer Replaceable Units) designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install an ITU, fuser assembly, second transfer roll, or print cartridge.

Check the following before proceeding with any of the print quality service checks.

- Use tray 1 (internal tray) to test the print quality of the base printer.
- Be sure the fuser assembly is installed correctly.
- Be sure the ITU assembly is installed correctly.
- Be sure the second transfer roll is installed correctly.
- Check the media in tray 1 to make sure it meets paper specifications.
- Run a copy of the CE Test page. This sets all the printer defaults to the correct settings to check for print quality.
- If a specific color has a print quality problem, first try a new cartridge to help isolate the problem.

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

**Note:** Some 201.xx Paper Jam errors can be caused by a faulty print cartridge.

### Blank page (no image)

- If there is no image (blank page) and no error codes displayed, go to step 1.
- If there is no image (blank page) but error codes are displayed, go to **“Service error code and paper jam message table” on page 2-7** and perform the necessary action.

Step	Actions and questions	Yes	No
1	Second transfer roll—Make sure the second transfer roll is installed correctly. Is the second transfer roll correctly installed?	If a second transfer roll is not installed, install a new one.	Go to step 2
2	Second transfer roll release lever—Make sure the second transfer roll release Lever is not stuck in the down position. Check for broken or damaged parts. Is the second transfer roll release lever operating correctly?	Go to step 3	Repair as necessary.
3	Check continuity of the second transfer roll to the transfer HVPS cable. Is there continuity?	Replace the transfer HVPS board. See <b>“Transfer HVPS board removal” on page 4-91.</b>	Replace the cable.

## Entire page is mostly one color—Full bleed planes in one color

Some printing may appear in other colors. This applies to black, cyan, magenta, and yellow.

Step	Actions and questions	Yes	No
1	Change or switch the cartridge of the color that is experiencing the issue. Does the issue persist?	Go to step 2	Replace the cartridge.
2	Using a piece of paper, block the laser path between the printhead and cartridge for the color that is experiencing the full bleed issue. Does the issue still persist?	Go to step 3	Go to step 5
3	Turn the printer off. Check the cable connections between the printhead and the system board. Does the issue still persist?	Go to step 4	Problem resolved
4	Use the <b>“Printhead diagnostics” on page 3-1</b> to switch video cables between the printhead of the full bleed color and another color. Does the color of the full bleed plane stay the same?	Replace the printhead (see <b>“Printhead removal and adjustments” on page 4-72.</b> )	Replace the system board. See <b>“System board removal” on page 4-89.</b>
5	Cartridge contact assembly—Check the cartridge contact block. Make sure the PC drum contact pin is not stuck. See <b>“Cartridge contact assembly pin locations (cyan, magenta and yellow)” on page 5-4</b> to identify the PC drum contact pin. Does the pin operate correctly?	Go to step 6	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal” on page 4-35.</b>
6	Turn the printer off. Check the cable connections between the developer HVPS board and the system board. Does the issue persist?	Go to step 7	Problem resolved
7	Perform a continuity check on the developer HVPS cable. Does the cable check out?	Replace the FRUs in the following order:  1. Developer HVPS board. See <b>“Developer HVPS board removal” on page 4-39.</b>  2. System board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS cable.

## Missing colors—Complete or partially missing color planes

- If a color or colors are missing, or a color is partially missing, go to **“If cyan, magenta, and yellow is missing, go to “Black and white only—cyan, magenta, and yellow are missing” on page 2-98.” on page 2-97.**
- If cyan, magenta, and yellow is missing, go to **“Black and white only—cyan, magenta, and yellow are missing” on page 2-98.**

Step	Actions and questions	Yes	No
1	Print cartridge—Make sure the cartridge is seated properly and that all packing material has been removed from the cartridge.  Has all packing material been removed? Is the cartridge seated correctly?	Go to step 2	Remove packaging and seat cartridge.
2	Inspect each of the transfer roll bellcranks.  Were any of the bellcranks broken?	Replace the broken bell cranks.	Go to step 3
3	Perform the partial print test. See <b>“Partial Print Test” on page 3-4.</b>  Is the image well-developed on the PC drum but the same plane is missing or faded on the ITU belt?	Go to step 4	Go to step 6
4	Turn off the printer. Check the cable connections between the transfer HVPS board and the system board.  Does the issue persist?	Go to step 5	Problem resolved
5	Check continuity on the cable between the respective rear bellcrank and the lead on the transfer HVPS board.  Is there continuity?	Replace in the following order:  1. Transfer HPVS board. See <b>“Transfer HVPS board removal” on page 4-91.</b>  2. Cartridge contact assembly. See <b>“Cartridge contact assembly removal” on page 4-35.</b>  3. System board. See <b>“System board removal” on page 4-89.</b>	Replace the FRUs in the following order:  1. Cable 2. FTR spring.
6	Change or switch failing cartridge.  Does the issue persist?	Go to step 7	Replace the cartridge.

Step	Actions and questions	Yes	No
7	Cartridge contact assembly—Check the cartridge contact block. Make sure the PC drum contact pin is not stuck. See <b>“Cartridge contact assembly pin locations (cyan, magenta and yellow)” on page 5-4</b> to identify the PC drum contact pin. Does the pin operate correctly?	Go to step 8	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal” on page 4-35.</b>
8	Perform a continuity check on the developer HVPS cable. Does the cable check out?	Replace in order: 1. Developer HVPS board. See <b>“Developer HVPS board removal” on page 4-39.</b> 2. System board. See <b>“System board removal” on page 4-89.</b>	Replace the developer HVPS cable.

### Black and white only—cyan, magenta, and yellow are missing

Step	Actions and questions	Yes	No
1	Check the Print Mode setting in the Color Menu. Is the Print Mode set to <b>Black &amp; White</b> ?	Change the setting to <b>Color</b> .	Go to step 2
2	Ask the user or network administrator to check if the correct color driver is installed. Is the correct color driver installed?	Install the correct color driver.	Go to <b>“Black only retract (BOR) service check” on page 2-80.</b>

### Light print over the entire page

- If all colors have light print, go to **“All colors have light print over the entire page” on page 2-99.**
- If only one color has light print, go to **“One color has light print over the entire page” on page 2-99.**

### All colors have light print over the entire page

Step	Actions and questions	Yes	No
1	Replace the second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b> Does the light print persist?	Go to step 2	Problem resolved
2	Turn the printer off. Check the cable connections between the transfer HVPS board and the system board.	Go to step 3	Problem resolved
3	Check continuity on the cable between the rear second transfer roll arm and the 1 lead on the transfer HVPS board.	Replace the transfer HVPS board. See <b>“Transfer HVPS board removal” on page 4-91.</b>	Check the connection at the second transfer roll arm.

### One color has light print over the entire page

Step	Actions and questions	Yes	No
1	Print cartridge—Make sure the cartridge is seated properly and all packaging material is removed from the cartridge. Has all packaging material been removed and the cartridge seated correctly?	Go to step 2	Remove the packaging material, and seat the cartridge.
2	Print cartridge—The cartridge may be out of toner. Change or switch the cartridge. Does the issue persist?	Go to step 3	Problem resolved
3	Cartridge contact assembly—Check the cartridge contact block. Make sure the PC drum contact pin is not stuck. See <b>“Cartridge contact assembly pin locations (cyan, magenta and yellow)” on page 5-4</b> to identify the PC drum contact pin. Does the PC drum contact pin move freely?	Replace the FRUs in the order shown: <ul style="list-style-type: none"> <li>• Cartridge contact assembly. See <b>“Cartridge contact assembly removal” on page 4-35.</b></li> <li>• Developer HPVS board. See <b>“Developer HVPS board removal” on page 4-39.</b></li> </ul>	Replace the cartridge contact assembly. See <b>“Cartridge contact assembly removal” on page 4-35.</b>

### Vertical lines or streaks

Step	Actions and questions	Yes	No
1	Are the vertical lines or streaks visible outside the printed image?	Go to step 2	Replace the cartridge.
2	Are the vertical streaks in a single color?	Go to step 3	Replace the ITU assembly. See <b>"ITU assembly removal" on page 4-49.</b>
3	Vertical streaks in a single color, which are visible outside the printed area are most likely caused by a cleaner problem in the print cartridge. Are streaks magenta, cyan, or yellow?	Replace the cartridge.	Replace in order: <ul style="list-style-type: none"> <li>• Black print cartridge</li> <li>• ITU assembly. See <b>"ITU assembly removal" on page 4-49.</b></li> </ul>

### Horizontal lines or streaks

If the horizontal marks or lines repeat at evenly-spaced intervals, use the **"Print quality defect locator chart" on page 3-3** to determine the part to be replaced.

For lines or marks appearing at random intervals, go to step 1.

Step	Actions and questions	Yes	No
1	Does the printer display an 83 ITU Maintenance message?	Recommend the customer order the ITU maintenance kit. See <b>"Scheduled maintenance" on page 6-1.</b>	Go to step 2
2	Are the horizontal marks or lines in a single color?	Replace the cartridge.	Go to step 3
3	Print cartridge(s)—Enter the Diagnostics mode. Remove one print cartridge at a time, and run a Test Page to isolate the faulty print cartridge. Have you isolated the failing print cartridge?	Replace the <b>"Cartridge contact assembly removal"</b> for the failing color on <b>page 4-35.</b>	Go to step 4
4	Reseat the ITU. Do the marks/lines persist?	Replace the <b>"ITU assembly removal" on page 4-49.</b>	Problem resolved

## Low image density

**Note:** If all colors have a low image density problem, set the Print Darkness to High from the user's menu.

- If only one color has a problem, go to "Step A."
- If all colors have a problem, go to "Step B."

### Step A

Step	Actions and questions	Yes	No
1	Print cartridge—Make sure the print cartridge is seated correctly. Is the print cartridge seated correctly?	Go to step 2	Install the print cartridge correctly and recheck.
2	The print cartridge may be out of toner. Try a new print cartridge. Does a new print cartridge fix the problem?	Problem resolved	Replace the transfer HVPS board. See <b>"Transfer HVPS board removal" on page 4-91.</b>

### Step B

Step	Actions and questions	Yes	No
1	Make sure that color calibration has not been disabled in the Diagnostics menus, especially if the printer has been previously serviced. Was color calibration disabled?	Set Color Calibration on.	Go to step 2
2	Toner density calibration—Run toner density calibration from the Utility menu. Does this fix the problem?	Problem resolved	Replace the transfer HPVS board. See <b>"Transfer HVPS board removal" on page 4-91.</b>

## Poor color alignment

Step	Actions and questions	Yes	No
1	Print cartridge—Make sure that the print cartridges are properly inserted and are seated properly in their respective V blocks. Are the cartridges seated correctly?	Go to step 2	Install the cartridge(s) correctly.
2	Front cover and cartridge contact block—Check the front cover and the cartridge contact block to make sure that all the springs and cartridge hold downs are present and correctly installed. Are all springs and cartridge hold downs present and correctly installed?	Go to step 3	Replace any missing or damaged springs or hold downs.

Step	Actions and questions	Yes	No
3	<p>ITU—Make sure that the ITU legs are properly seated onto the rail at the right side of the printer. This is visible by removing the yellow print cartridge.</p> <p>Is the ITU seated correctly?</p>	<p>Alignment—Enter the Diagnostics Menu. Perform the alignment for the color required. See <b>“ALIGNMENT MENU” on page 3-11.</b></p>	<p>Reinstall the ITU. If the problem continues, replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b></p>

### Transparency print quality is poor

Step	Actions and questions	Yes	No
1	<p>Transparencies—Check the media type and transparency in use.</p> <p>Are the recommended transparencies and media type used?</p>	Go to step 2	Inform the customer.
2	<p>Is the quality of the transparency poor or do brown colors appear when projected?</p>	Go to step 3	Go to step 4
3	<p>Fuser settings—From the Diagnostics menu select fuser settings and set to high.</p> <p>Does this fuser setting fix the problem?</p>	Problem resolved	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>
4	<p>Does the transparency have a splotchy appearance?</p>	Go to step 5	Replace the second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b>
5	<p>Transfer setting: High—From the Diagnostics menu set Transfer setting to High.</p> <p>Does this transfer setting fix the problem?</p>	Problem resolved	Go to step 6
6	<p>Transfer setting: Low—From the Diagnostics menu set Transfer setting to Low.</p> <p>Does this transfer setting fix the problem?</p>	Problem resolved	Replace the second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b>



## Negative ghosting or faded image

The print has a negative ghost on the page or the image is faded, particular with text. This problem may happen with any color and can be mistaken as toner smudges on the page.

Step	Actions and questions	Yes	No
1	Check the bellcranks of the color that is having the problem. Is a bellcrank broken or missing?	Replace the broken or missing bellcrank.	Got to step 2
2	Check each of the springs that attach to the bellcranks to make sure they are attached and not broken or missing. Are the springs for the color having the problem missing or unattached?	Repair or replace the spring as necessary.	Look for any signs of missing or damaged parts in the area of the color having the problem, including the ITU.

## Residual image

- If only one color has a residual image repeated every 95 mm, replace the print cartridge.
- If all colors have a residual image 147 mm from the top of the page, replace the fuser assembly.  
**Note:** Do the following steps *before* you replace the fuser assembly:
  1. Check Media Type setting on the operator panel. If the setting is for light paper, select the correct setting for the current media type.
  2. If the problem continues, set the fuser temperature selection to High.
  3. If the problem continues, check the page count. If the page count is greater than 200K copies and the fuser has not been replaced, advise the customer to install a new fuser CRU or a maintenance kit.
    - If only one color has a residual image problem, go to **“Horizontal lines or streaks” on page 2-100.**
    - If all colors have a residual image problem, go to **“Residual image” on page 2-103.**

## Uneven printing

- If all colors have uneven print, replace the ITU assembly.
- The uneven print may appear as spots or streaks that are different on each page. The most likely cause for this type of problem is damage to the ITU belt in the ITU assembly. Replace the **“ITU assembly removal” on page 4-49.**
- If only one color is missing or printing uneven, go to step 1.

Step	Actions and questions	Yes	No
1	Print cartridge—Make sure the cartridge is seated properly and that all packing material has been removed from the cartridge. Has all packing material been removed? Is the cartridge seated correctly?	Problem resolved	Go to step 2
2	Cartridge check—the cartridge may be out of toner or have another toner problem. Try a new toner cartridge. Does a new toner cartridge fix the problem?	Problem resolved	Contact your next level of support.

### Toner smears or rubs off the page with no error code displayed

**Note:** This type of problem is associated with improper fusing or incorrect settings for media type being used.

Step	Actions and questions	Yes	No
1	Media settings—Does the media setting match the current media type?	Set the printer for current media type, and go to step 2.	Go to step 3
2	Does resetting the media type fix the problem?	Problem resolved	Go to step 3
3	Fuser settings—Set the fuser to High in the CE menu. Does setting the fuser to High fix the problem?	Problem resolved	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>

### Smudged or distorted images on fused page

Step	Actions and questions	Yes	No
1	Remove the ITU assembly and check for any signs of debris near the paper feed reference edge mechanism underneath the ITU assembly. Are there any signs of any debris in this location?	Remove the debris.	Go to step 2
2	Check for any signs of debris on the surface of the ITU belt near the toner patch sensor (TPS) which is the white egg shaped device located on the front left corner of the ITU assembly. <b>Note:</b> When toner cartridges are replaced, small pieces of plastic may drop off of a toner cartridge and be deposited on the ITU belt. Are there any debris in this location?	Remove the debris.	Look for any signs of damage to the ITU belt. If found, replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b>

## Toner is on the back of the printed page

Do the following steps before proceeding with this service check:

1. Enter the Diagnostics Mode.
2. Select **Print Test, Tray 1, Continuous** from the menu.
3. Run at least 20 pages of text, and see if the problem remains.
  - If toner is still on the back of the printed page, proceed with this service check.
  - If the problem is on the top two inches of the page, replace the second transfer roll.
  - If the toner is “stringy” over the top half of the page, go to step 1.

Step	Actions and questions	Yes	No
1	Media settings—Does the media setting match the current media type?	Set the printer for current media type, and go to step 2.	Go to step 3
2	Does resetting the media type fix the problem?	Problem resolved	Go to step 3
3	Fuser settings—Set the fuser to High in the CE menu. Does setting the fuser to High fix the problem?	Problem resolved	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-44.</b>

## Light lines or streaks appear on the page

Single color streaks outside the printed page are most likely caused by a problem in the print cartridge. Replace the print cartridge.

All the colors streaking at a different spot on each page is probably caused by a damaged ITU assembly. Replace the ITU assembly. See **“ITU assembly removal” on page 4-49.**

If only one color streaks in the printed area, go to step 1.

Step	Actions and questions	Yes	No
1	Print cartridge check—Try a new print cartridge. Does a new print cartridge fix the problem?	Problem resolved	Go to step 2
2	Printhead check—The printhead lens may be contaminated by toner. Check for any signs of contamination on the lens of the printhead. Is the printhead contaminated?	Go to Clear the printhead lens with a soft, lint-free cloth.	Contact your next level of support.

### White streak in color plane

A white streak appears in one particular color plane. This problem may be caused by a contaminated developer roll in the print cartridge.

Step	Actions and questions	Yes	No
1	Check to see which color is having the problem, and go to step 2.		
2	Try a new cartridge for the color having the problem. Does a new cartridge fix the problem?	Problem resolved	Go to step 3.
3	Printhead check—The printhead lens may be contaminated by toner. Check for any signs of contamination on the lens of the printhead. Is the printhead contaminated?	Go to <b>“Printhead removal and adjustments” on page 4-72.</b>	Contact your next level of support.

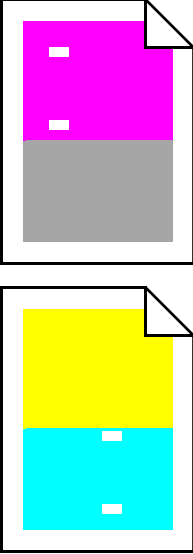
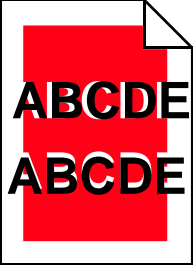
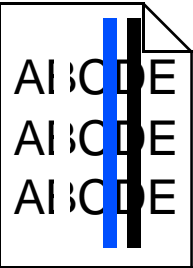
### Paper wrapped around the second transfer roll

Step	Actions and questions	Yes	No
1	Some media can get wrapped around the second transfer roll and can affect print quality. Is there a piece of media wrapped around the second transfer roll?	Remove the piece of media, and go to step 2.	Problem resolved
2	Run several pages to see if the media wraps around the second transfer roll again. Does the media wrap around the second transfer roll, again?	Replace the second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b> If this does not fix the problem, contact your next level of support for assistance.	Problem resolved

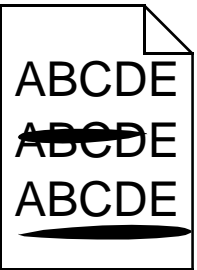
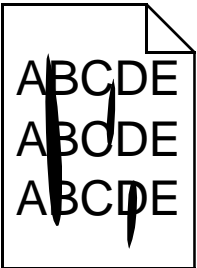
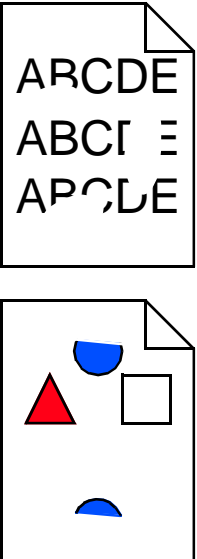
## User troubleshooting for quality

The information in the following table may help you solve print quality problems. If these suggestions still do not correct the problem, call for service. You may have a printer part that requires adjustment or replacement.

### Quality troubleshooting

Symptom	Cause	Solution
Repeating defects 	Either the print cartridges are defective, the image transfer unit and transfer roller are defective, or the fuser is defective.	Marks occur repeatedly only in one color and multiple times on a page: <ul style="list-style-type: none"> <li>• Replace the cartridge if the defects occur every:               <ul style="list-style-type: none"> <li>- 48 mm (1.9 in.)</li> <li>- 97 mm (3.8 in.)</li> </ul> </li> </ul> Marks occur down the page repeatedly in all colors: <ul style="list-style-type: none"> <li>• Replace the transfer roll if the defects occur every 60 mm (2.4 in.)</li> <li>• Check the first transfer bellcranks and springs or replace the image transfer unit if the defects occur every 101 mm (4 in.)</li> <li>• Replace the fuser if the defects occur every 148 mm (5.8 in.)</li> </ul> Marks occur on every third or sixth page in any color: Replace the image transfer unit.
Color misregistration 	Color has shifted outside of the appropriate area or has been superimposed over another color area.	Top to Bottom or Left to Right: <ol style="list-style-type: none"> <li>1. Re-seat the cartridges by removing them from the printer and then reinserting them.</li> <li>2. Adjust the Color Alignment under the Utilities Menu.</li> </ol>
White or colored line 	Either the print cartridges are defective, the image transfer unit and transfer roller are defective, or the fuser is defective.	<ol style="list-style-type: none"> <li>1. Replace the color print cartridge causing the line.</li> <li>2. If you still have the problem, replace the image transfer unit and transfer roller.</li> <li>3. If you still have the problem, replace the fuser.</li> </ol>

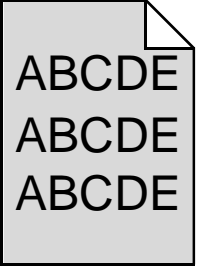
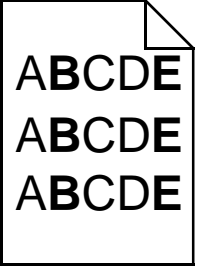
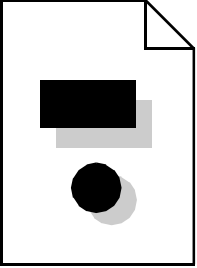
**Quality troubleshooting (continued)**

Symptom	Cause	Solution
<p>Streaked horizontal lines</p> 	<p>The print cartridges, the transfer roller, image transfer unit, or fuser may be defective, empty, or worn.</p>	<p>Replace the print cartridge, the transfer roller, the image transfer unit, or fuser as needed.</p> <p>From the printers operator panel, print the repetitive defects guide to determine which component needs to be replaced.</p>
<p>Streaked vertical lines</p> 	<ul style="list-style-type: none"> <li>• Toner is smeared before fusing to the paper.</li> <li>• The print cartridge is defective.</li> </ul>	<ul style="list-style-type: none"> <li>• If paper is stiff, try feeding from another tray.</li> <li>• Replace the color print cartridge causing the streaks.</li> </ul>
<p>Print irregularities</p> 	<ul style="list-style-type: none"> <li>• Paper has absorbed moisture due to high humidity.</li> <li>• You are using paper that does not meet the printer specifications.</li> <li>• The image transfer unit and transfer roller are worn or defective.</li> <li>• The fuser is worn or defective.</li> </ul>	<ul style="list-style-type: none"> <li>• Load paper from a fresh package in the paper tray.</li> <li>• Avoid textured paper with rough finishes.</li> <li>• Make sure the printer paper type, paper texture, and paper weight settings match the type of paper you are using.</li> <li>• Replace the image transfer unit and transfer roller.</li> <li>• Replace the fuser.</li> </ul>

## Quality troubleshooting (continued)

Symptom	Cause	Solution
Print too light	<ul style="list-style-type: none"> <li>Paper settings may be incorrect.</li> <li>The Toner Darkness setting is too light.</li> <li>You are using paper that does not meet the printer specifications.</li> <li>The print cartridges are low on toner.</li> <li>The print cartridges are defective or have been installed in more than one printer.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure the printer paper type, paper texture, and paper weight settings match the type of paper you are using.</li> <li>Select a different Toner Darkness setting from the printer driver before sending the job to print.</li> <li>Perform a Color Adjust in the Utilities Menu.</li> <li>Load paper from a new package.</li> <li>Avoid textured paper with rough finishes.</li> <li>Make sure the paper you load in the trays is not damp.</li> <li>Shake the specified toner cartridge to utilize the remaining toner. For more information, see Print cartridges.</li> <li>Replace the print cartridges.</li> </ul>
Print too dark	<ul style="list-style-type: none"> <li>The Toner Darkness setting is too dark.</li> <li>The print cartridges are defective.</li> </ul>	<ul style="list-style-type: none"> <li>Select a different Toner Darkness setting from the printer driver before sending the job to print.</li> <li>Replace the print cartridges.</li> </ul>
Transparency print quality is poor (Print has inappropriate light or dark spots, toner is smeared, horizontal or vertical light bands appear, or color does not project.)	<ul style="list-style-type: none"> <li>You are using transparencies that do not meet the printer specifications.</li> <li>The Paper Type setting for the tray you are using is set to something other than transparency.</li> </ul>	<ul style="list-style-type: none"> <li>Use only transparencies recommended by the printer's manufacturer.</li> <li>Make sure the Paper Type setting is set to Transparency.</li> </ul>
Toner specks	<ul style="list-style-type: none"> <li>The print cartridges are defective.</li> <li>The transfer roller is worn or defective.</li> <li>The image transfer unit is worn or defective.</li> <li>The fuser is worn or defective.</li> <li>Toner is in the paper path.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the print cartridges.</li> <li>Replace the transfer roller.</li> <li>Replace the image transfer unit.</li> <li>Replace the fuser.</li> <li>Call for service.</li> </ul>
Toner rubs off the paper easily when you handle the sheets.	<ul style="list-style-type: none"> <li>The Type setting is wrong for the type of paper or specialty media you are using.</li> <li>The Texture setting is wrong for the type of paper or specialty media you are using.</li> <li>The Weight setting is wrong for the type of paper or specialty media you are using.</li> <li>The fuser is worn or defective.</li> </ul>	<ul style="list-style-type: none"> <li>Change Paper Type to match the paper or specialty media you are using.</li> <li>Change Paper Texture from Normal to Smooth or Rough.</li> <li>Change Paper Weight from Plain to CardStock (or other appropriate weight).</li> <li>Replace the fuser.</li> </ul>

## Quality troubleshooting (continued)

Symptom	Cause	Solution
Gray background 	<ul style="list-style-type: none"> <li>The Toner Darkness setting is too dark.</li> <li>The print cartridges are defective.</li> </ul>	<ul style="list-style-type: none"> <li>Select a different Toner Darkness setting from the printer driver before sending the job to print.</li> <li>Replace the print cartridges.</li> </ul>
Uneven print density 	<ul style="list-style-type: none"> <li>The print cartridges are defective.</li> <li>The transfer roller is worn or defective.</li> <li>The image transfer unit is worn or defective.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the print cartridges.</li> <li>Replace the transfer roller.</li> <li>Replace the image transfer unit.</li> </ul>
Ghost Images 	Toner level is low in the print cartridges.	Replace the print cartridges.
Clipped images (Some of the print is cut off on the sides, top, or bottom of the paper.)	Guides in the selected tray are set for a different size paper than what is loaded in the tray.	Move the guides in the tray to the proper positions for the size loaded.
Incorrect margins	<ul style="list-style-type: none"> <li>Guides in the selected tray are set for a different size paper than what is loaded in the tray.</li> <li>Auto size sensing is set to <b>off</b>, but you loaded a different size paper in a tray. For example, you inserted A4 size paper into the selected tray but did not set the media size to A4.</li> </ul>	<ul style="list-style-type: none"> <li>Move the guides in the tray to the proper positions for the size loaded.</li> <li>Set the Paper Size to match the media in the tray.</li> </ul>
Skewed print (Print is inappropriately slanted.)	<ul style="list-style-type: none"> <li>Guides in the selected tray are not in the correct position for the media size loaded in the tray.</li> <li>You are using paper that does not meet the printer specifications.</li> </ul>	<ul style="list-style-type: none"> <li>Move the guides in the tray to the proper positions for the size loaded.</li> <li>Refer to the <i>Card Stock &amp; Label Guide</i> available on the Lexmark Web site at <a href="http://www.lexmark.com">www.lexmark.com</a> for detailed specifications.</li> <li>For more information, see <b>“Media guidelines” on page 1-17.</b></li> </ul>



**Quality troubleshooting (continued)**

Symptom	Cause	Solution
Blank pages	The print cartridges are defective or empty.	Replace the print cartridges.
Solid color pages	<ul style="list-style-type: none"> <li>The print cartridges are defective.</li> <li>Your printer requires servicing.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the print cartridges.</li> <li>Call for service.</li> </ul>
The paper curls badly once it prints and exits to a bin.	<ul style="list-style-type: none"> <li>The Type, Texture, and Weight settings are not appropriate for the type of paper or specialty media you are using.</li> <li>The paper has been stored in a high humidity environment.</li> </ul>	<ul style="list-style-type: none"> <li>Change Paper Type, Paper Texture, and Paper Weight to match the paper or specialty media loaded in the printer.</li> <li>Load paper from a fresh package.</li> <li>Store paper in its original wrapper until you use it.</li> </ul>


**Second transfer roll service check**

**Note:** The second transfer roll is 51.03 mm (2.009 inches) in circumference. Any print quality problems such as lines that are spaced apart indicate you should check the second transfer roll for damage, toner, or foreign material.

**Note:** The second transfer roll is also part of the maintenance kit and should be replaced when 83 ITU Maintenance appears. Ask the customer if they have replaced the second transfer roll recently.

**Note:** If any of the following problems occur, go to **“Print quality service check” on page 2-95:**

- A problem with only one color
- Light or very light print

	<p><b>CAUTION</b></p> <p>Make sure the printer is powered off before making any checks on the second transfer roll or associated parts for personal safety and to prevent damage to the printer.</p>
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Step	Actions and questions	Yes	No
1	Second transfer roll assembly—Check the second transfer roll for any signs of toner buildup, surface damage to the roll, oil, or other contaminants on the surface of the roll. Do you see any problems with the second transfer roll?	Replace the second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b>	Go to step 2
2	Transfer arms, springs, and associated hardware—Contact your next level of support. None of these parts are service related parts. Is there any problem with the associated hardware?	Contact your next level of support.	Go to step 3
3	Transfer high voltage power supply, HV wiring, and contacts—Check the second transfer cable (transfer HVPS contact to the second transfer roll rear arm contact) for correct installation. Is the cable installed correctly?	Go to step 4	Install the cable correctly.

Step	Actions and questions	Yes	No
4	<p>Check the continuity of the second transfer cable. Is there continuity?</p>	<p>Replace the FRUs in order:</p> <ol style="list-style-type: none"> <li>1) Second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b></li> <li>2) Transfer HPVPS board. See <b>“Transfer HPVPS board removal” on page 4-91.</b> If this does not correct the problem, go to step 5.</li> </ol>	<p>Replace the second transfer cable.</p>
5	<p>Make sure the ITU bias spring is not broken or missing for the color(s) that is having transfer problems. Is the ITU bias spring broken, off, or missing?</p>	<p>Repair as necessary.</p>	<p>Go to step 7</p>
6	<p>Check the transfer HVPS to ITU HV transfer terminal for the color(s) that is having transfer problems. Is the cable disconnected or broken?</p>	<p>Reinstall or replace the cable.</p>	<p>Go to step 7</p>
7	<p>Transfer terminal contact assembly and ITU transfer bellcrank—Check the transfer terminal contact, transfer cable, and ITU transfer bellcrank assemblies to make sure they are installed correctly, not loose, or broken.  Are there any problems with the transfer terminal contact, transfer cable connection, or ITU transfer bellcrank assemblies?</p>	<p>Repair or replace as necessary. If this does not correct the problem, contact your next level of support.</p>	<p>Replace the FRUs in order:</p> <ol style="list-style-type: none"> <li>1) Transfer HPVPS board. See <b>“Transfer HPVPS board removal” on page 4-91.</b></li> <li>2) Second transfer roll. See <b>“Second transfer roll removal” on page 4-88.</b></li> <li>3) ITU assembly. See <b>“ITU assembly removal” on page 4-49.</b></li> </ol>

## StapleSmart finisher service check

**Note:** When removing the stapler mechanism from the option, first remove the staple supply cartridge.

**Note:** When replacing staples in the supply cartridge, discard any old staples in the cartridge, and replace with a fresh strip.

### Problems with static electricity buildup

Make sure the brush is attached to the top cover assembly, the ground clips are installed, and the brush is grounded.

### Printer does not recognize StapleSmart finisher option as being installed

Step	Actions and questions	Yes	No										
1	Check the StapleSmart finisher autoconnects for signs of damage, especially the connector pins. Remove the right cover, and check the cables at J1A and J1B (bottom autoconnect) to the stapler card assembly to make sure they are attached securely. Are the cables secure?	Go to step 2	Reconnect the cables securely.										
2	Check the voltages of the StapleSmart finisher autoconnect. See " <b>StapleSmart finisher</b> " on <b>page 5-28</b> . The measurements should be approximately: <table border="1" data-bbox="423 953 703 1150"> <thead> <tr> <th colspan="2">J1A—top autoconnect</th> </tr> <tr> <th>Connector</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>J1A-1</td> <td>+24 V dc</td> </tr> <tr> <td>J1A-3</td> <td>Ground</td> </tr> <tr> <td>J1A-3</td> <td>+5 V dc</td> </tr> </tbody> </table> Do the voltages measure correctly?	J1A—top autoconnect		Connector	Voltage	J1A-1	+24 V dc	J1A-3	Ground	J1A-3	+5 V dc	Replace the staple option.	Replace the printer top options autoconnect cable.
J1A—top autoconnect													
Connector	Voltage												
J1A-1	+24 V dc												
J1A-3	Ground												
J1A-3	+5 V dc												

Close Finisher Top Cover **displayed—unable to clear or reset message (POST incomplete)**

Step	Actions and questions	Yes	No
1	Top cover assembly—Check the top cover assembly to make sure it is actuating the top cover switch and the cover is opening and closing correctly. Is the actuating the switch and closing properly?	Go to step 2	Replace the safety cover open switch assembly.
2	Top cover switch stapler card assembly—Check the continuity of the stapler top cover open switch. Is there continuity?	Replace the stapler card assembly.	Replace the switch assembly.

Close Finisher Side Door **displayed—unable to clear or reset message (POST incomplete)**

Step	Actions and questions	Yes	No
1	Side cover door—Check the stapler access door for any signs of damage or broken parts. Make sure the door correctly actuates the stapler side access door switch. If this does not fix the problem, replace the stapler option. Does the side cover door actuate the switch when it closes?	Replace the stapler option.	Replace the stapler access door switch assembly.

**Paper feeds into finisher option output tray—Paper is not stapled—Paper does not align with the right side**

Replace the stapler option.

**Misalignment of sheets to be stapled**

Step	Actions and questions	Yes	No
1	Left side bail assembly—Check the left side bail assembly for any signs of binding, missing, or broken parts. Are there binding, missing, or broken parts to the left side bail assembly?	Fix or replace the binding, missing, or broken parts.	Go to step 2
2	Stapler gearbox assembly—Check the stapler gearbox assembly for correct operation. Does the stapler gearbox assembly operate correctly?	Replace the staple option.	Replace the stapler assembly. <b>Note:</b> When replacing the stapler assembly, observe the location of the ground lead from the stapler assembly and the finisher frame, and make sure the ground lead is correctly reattached.

**Sheets are transported into output tray but not stapled**

Replace the stapler option.

## Stapled sheets are not transported to the output tray

Replace the stapler option.

### POST incomplete—Insert Stapler Cartridge displays (cartridge holder is installed and cannot clear message)

When this failure occurs, the following may also occur in the order shown:

- Insert Staple Cartridge displayed.  
The stapler assembly may cycle or fire a few times.
- 282.xx Stapler Jam displayed.  
The stapler assembly may try to cycle or fire.
- 990.01 Service displayed.

Step	Actions and questions	Yes	No
1	<p>Remove the stapler cartridge holder from the stapler assembly. If the holder is jammed in the stapler assembly:</p> <ol style="list-style-type: none"> <li>1. Turn the printer off, and remove the right side cover. Use care when removing the cover, as the right side door switch and cable assembly are easily damaged. Do not allow the right side cover to hang by the switch and cable assembly.</li> <li>2. Disconnect the 10-pin cable from the stapler assembly.</li> <li>3. Hold the stapler assembly with one hand while removing the three screws from the assembly. The assembly is heavy and easy to drop.</li> <li>4. Check the stapler assembly for damaged or broken parts. Check the flag and spring assembly on the front of the stapler assembly to see if the flag or spring are broken or missing.</li> </ol> <p>Is the flag or spring broken or missing?</p>	Replace the broken or missing flag or spring.	Go to step 2
2	<p>Carefully cycle the large gear on the side of the stapler assembly, and try to free the cartridge holder assembly. Note: Look for staples jammed at the throat of the cartridge holder, and remove any that are found. Gently try to remove the cartridge holder from the stapler assembly. It may be necessary to manually cycle the large gear on the side of the stapler assembly to release the cartridge holder.</p> <p>Reinstall the stapler assembly with a new stapler cartridge holder and staples.</p> <p><b>Note:</b> When replacing the stapler assembly, observe the location of the ground lead from the stapler assembly and the finisher frame, and make sure the ground lead is correctly reattached.</p> <p>Run the Finisher Feed Test to check the option. See <b>“Finisher Feed Test” on page 3-23.</b></p> <p>Does the problem persist?</p>	Go to step 3	Problem resolved
3	<p>Stapler to stapler board (J3) cable—Check the continuity of the cable.</p> <p>Is there continuity?</p>	Replace the staple option.	Replace the stapler board cable (J3).

### POST incomplete—stapler cycles several times

Step	Actions and questions	Yes	No
1	<p>Remove the stapler cartridge holder from the stapler assembly. If the holder is jammed in the stapler assembly:</p> <ol style="list-style-type: none"> <li>1. Turn the printer off, and remove the right side cover. Use care when removing the cover, as the right side door switch and cable assembly are easily damaged. Do not allow the right side cover to hang by the switch and cable assembly.</li> <li>2. Disconnect the 10-pin cable from the stapler assembly.</li> <li>3. Hold the stapler assembly with one hand while removing the three screws from the assembly. The assembly is heavy and easy to drop.</li> <li>4. Check the stapler assembly for damaged or broken parts. Check the flag and spring assembly on the front of the stapler assembly to see if the flag or spring are broken or missing.</li> </ol> <p>Is the flag or spring broken or missing?</p>	Replace the broken or missing flag or spring.	Go to step 2
2	<p>Carefully cycle the large gear on the side of the stapler assembly, and try to free the cartridge holder assembly. Note: Look for staples jammed at the throat of the cartridge holder, and remove any that are found. Gently try to remove the cartridge holder from the stapler assembly. It may be necessary to manually cycle the large gear on the side of the stapler assembly to release the cartridge holder.</p> <p>Reinstall the stapler assembly with a new stapler cartridge holder and staples. Run the Finisher Feed Test to check the option. See <b>“Finisher Feed Test” on page 3-23.</b></p> <p>Does the problem persist?</p>	Go to step 3	Problem resolved
3	<p>Stapler to stapler board (J3) cable—Check the continuity of the cable.</p> <p>Is there continuity?</p>	<p>Replace the stapler assembly.</p> <p><b>Note:</b> When replacing the stapler assembly, observe the location of the ground lead from the stapler assembly and the finisher frame, and make sure the ground lead is correctly reattached.</p>	Replace the stapler board cable (J3).

## Tray 1 service check

Tray 1 does not stay seated or fit correctly in the printer, the media fails to feed correctly from tray 1, or tray 1 is difficult to install.

The Tray 1 Feed Test in the Diagnostics menu can be used to help isolate problems with paper feeding from Tray 1.

Step	Actions and questions	Yes	No
1	Check the following parts in Tray 1 for broken or missing parts. <ul style="list-style-type: none"> <li>• Tray bias spring loose or missing</li> <li>• Tray bias bellcrank</li> </ul> Are any parts broken, loose, or missing?	Repair or replace parts as necessary.	Go to step 2
2	Make sure the autocompensator has fully retracted to its upper position. Does the autocompensator retract correctly?	Go to step 3	Go to <b>“Autocompensator service check” on page 2-78.</b>
3	Check for any signs of damage to the paper tray guide. Is the paper tray guide damaged, loose or missing?	Replace the paper tray guide.	Go to step 4
4	Check the following parts for wear, damage, or missing parts. <ul style="list-style-type: none"> <li>• Wear strips</li> <li>• Restraint pads</li> <li>• Wear clip</li> <li>• Side restraint</li> <li>• Back restraint and back restraint latch</li> </ul> Are there broken, worn, or missing parts?	Repair or replace parts as necessary.	Go to step 5
5	Check to make sure that the tray is correctly actuating the media size switches on the media size sensing board. Does the tray correctly actuate the media size sensing switches?	Go to step 6	Go to the <b>“Tray 1 media size sensing service check” on page 2-118.</b>
6	Check for any signs of damage to the tray that might prevent it from actuating the switches. Is there any problem with the tray?	Replace the tray assembly.	Go to step 7
7	Check to see if there is anything in the printer that might be interfering with the tray being correctly installed. Is there anything in the printer that might cause the tray from installing correctly?	Repair as necessary.	Replace the tray assembly.

### Tray 1 media size sensing service check

The printer does not sense the size of the media installed in Tray 1.

**Note:** If there is a problem when installing Tray 1, Tray 1 is difficult to remove or does not stay locked in position, go to **“Tray 1 service check” on page 2-117.**

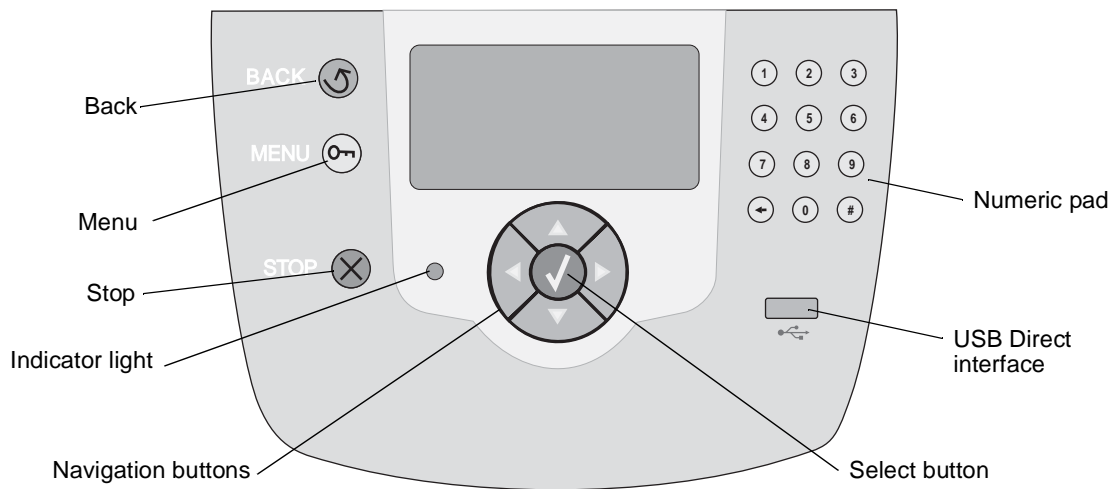
Step	Actions and questions	Yes	No
1	Make sure tray 1 is installed and seated correctly in the printer. Is the tray correctly installed?	Go to step 2	Install tray 1 correctly. If there is still a problem, go to <b>“Tray 1 service check” on page 2-117.</b>
2	Is another 500-sheet tray available?	Go to step 3	Go to step 4
3	Try another 500-sheet tray in place of the internal tray 1 paper tray. Does this fix the problem?	Go to step 4	Go to the <b>“Tray 1 media size sensing service check” on page 2-118.</b>
4	Check tray 1 for broken parts, especially the teeth on the back restraint. Is the back restraint broken or any of the teeth broken or missing?	Replace the back restraint.	Replace the tray assembly.






## User operator panel, menus, and messages


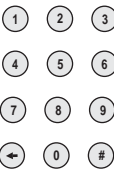
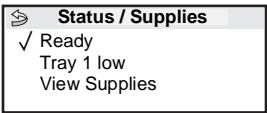
### Understanding the printer operator panel

The printer operator panel has a four-line, back lit, grayscale display that can show both graphics and text. The Back, Menu, and Stop buttons are located to the left of the display, the navigation buttons are located below the display, and the numeric pad is located to the right of the display.



### Operator panel buttons

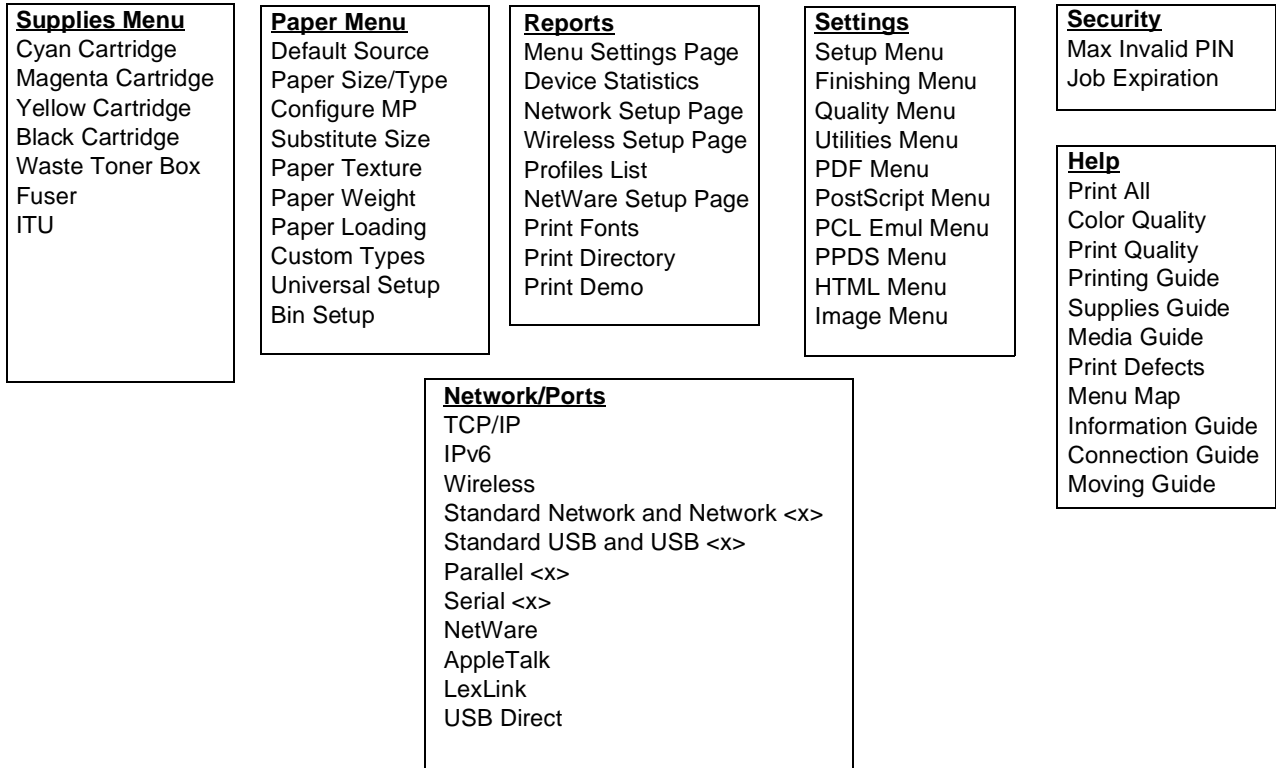
Button	Function										
Back 	Press the <b>Back</b> button to return to the last screen viewed. <b>Note:</b> Changes made on a screen will not be applied if you press the <b>Back</b> button.										
Menu 	Press the <b>Menu</b> button to open the menu index. <b>Note:</b> The printer must be in the Ready state to access the menu index. A message indicating the menus are unavailable will appear if the printer is not ready.										
Stop 	Press the <b>Stop</b> button to stop the mechanical operation of the printer. After pressing <b>Stop</b> , the message Stopping is displayed. When the printer has stopped, the status line in the operator panel will show Stopped, and a list of options will appear.										
Indicator light	A two-toned green and red LED is used on the operator panel. The lights indicate whether the printer power is on, the printer is busy, idle, processing a job, or requires operator intervention.										
	<table border="1"> <thead> <tr> <th>Status</th> <th>Indicates</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>Power is off</td> </tr> <tr> <td>Solid green</td> <td>Printer is on, but idle</td> </tr> <tr> <td>Flashing green</td> <td>Printer is warming up, processing data, or printing a job</td> </tr> <tr> <td>Solid red</td> <td>Operator intervention is required</td> </tr> </tbody> </table>	Status	Indicates	Off	Power is off	Solid green	Printer is on, but idle	Flashing green	Printer is warming up, processing data, or printing a job	Solid red	Operator intervention is required
	Status	Indicates									
	Off	Power is off									
	Solid green	Printer is on, but idle									
Flashing green	Printer is warming up, processing data, or printing a job										
Solid red	Operator intervention is required										

Button	Function
<p><b>Navigation buttons</b></p> 	<p>The up and down buttons are used to move up and down lists.</p> <p>When navigating through a list using the up or down button, the cursor moves one line at a time. Pressing the down button changes the screen to the next whole page.</p> <p>The left and right buttons are used to move within a screen, such as moving from one menu index item to another. They are also used to scroll through text that will not fit on the screen.</p> <p>The <b>Select</b> button is used to initiate action on a selection. Press <b>Select</b> to select an item, to submit a configuration item, or to start or cancel a job.</p>
<p><b>USB Direct interface</b></p>	<p>The host USB Direct interface on the operator panel is used to plug in a USB flash memory device and print PDF and supported graphic files (.gif, .jpeg, .jpg, .bmp, .png, .tiff, .tif, .pcx, and .dcx files).</p> <p><b>Note:</b> A USB port is located on the back of the printer to connect a host computer.</p>
<p><b>Numeric pad</b></p> 	<p>The numeric pad consists of numbers, a pound (#) sign, and a backspace button. The 5 button has a raised bump for non-visual orientation.</p> <p>The numbers are used to enter numeric values for items like quantities or PINs. The backspace is used to delete the number to the left of the cursor. Pressing the backspace multiple times will delete additional entries.</p> <p><b>Note:</b> The pound (#) sign is not used.</p>
	<p>The display panel shows messages and graphics describing the current state of the printer and indicating possible printer problems you must resolve.</p> <p>The top line of the display is the header line. If applicable, it will contain the graphic indicating the Back button can be used. It will also display the current status and the Supplies (Warnings) status. If multiple warnings are present, each warning will be separated by a comma.</p> <p>The other three lines of the display are the body of the screen. This is where you view printer status, supplies messages, Show me screens, and make selections.</p>

## Menu map

This menu map identifies menus available to customers. The diagram shows the menu index on the operator panel, the menus, and items available under each menu. The Color Menu and Utilities Menu are detailed below.

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



## Selected menus

### Quality Menu

Use this menu selection to change settings that affect print quality and save toner.

#### Quality menu details

Menu selection	Purpose	Values	
Print Mode	To determine whether images are printed in a monochrome grayscale or in color.	Color (default)	
		Black Only	
Color Correction	To adjust the printed color to better match the colors of other output devices or standard color systems.  Due to the differences between additive and subtractive colors, certain colors that appear on the monitor are impossible to duplicate on the printer.	Auto (default)	Applies different color conversion tables to each object on the printed page, depending on the type of object and how the color for each object is specified.
		Off	No color correction is implemented.
		Manual	Allows customization of the color conversion tables applied to each object on the printed page, depending on the type of object and how the color for each object is specified. Customization is performed using the selections available under the Manual Color menu item.
Print Resolution	Selects the quality of printed output.	1200 dpi	
		4800 CQ (default)	
Toner Darkness	Lighten or darkens printed output and conserves toner.	1 to 5	4 is the default setting. Select a lower number to lighten the printed output or save toner.
Color Saver	To conserve toner in graphics and images yet maintain high quality text. The amount of toner used to print graphics and images is reduced; however, text is printed with default toner usage. If selected, this setting overrides Toner Darkness settings. Color Saver is not supported in PPDS, and partially supported by the PCL emulation driver.	On	
		Off (default)	
RGB Brightness	To assist in making brightness, contrast, and saturation adjustments to color output.	-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6	-6 is the maximum decrease 6 is the maximum increase 0 is the default setting
RGB Contrast	These functions do not affect files where CMYK color specifications are being used.	0, 1, 2, 3, 4, 5	0 is the default setting 5 is the maximum increase
RGB Saturation		0, 1, 2, 3, 4, 5	0 is the default setting 5 is the maximum increase

## Quality menu details (continued)

Menu selection	Purpose	Values	
Color Balance	To provide users with the ability to make subtle color adjustments to printed output by increasing or decreasing the amount of toner being used for each color plane individually.	Cyan	-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5
		Magenta	0 is the default.
		Yellow	-5 is the maximum decrease
		Black	5 is the maximum increase
		Reset Defaults	Sets values for Cyan, Magenta, Yellow, and Black to <b>0</b> (zero).
Color Samples	<p>To assist users in selecting colors to be printed. Users can print color samples pages for each of the RGB and CMYK color conversion tables used in the printer.</p> <p>The color samples pages consist of a series of colored boxes along with the RGB or CMYK combination that creates the color observed for each particular box. These pages can be useful in helping users decide which RGB or CMYK combinations to use in their software applications to create the desired printed color output.</p> <p>The printer Embedded Web Server interface, which is only available on network models, offers users more flexibility. It lets users print Detailed Color Samples.</p>	sRGB Display	Prints RGB samples using sRGB Display color conversion tables.
		sRGB Vivid	Prints RGB samples using sRGB Vivid color conversion tables.
		Display — True Black	Prints RGB samples using Display — True Black color conversion tables.
		Vivid	Prints RGB samples using Vivid color conversion tables.
		Off—RGB	No color conversion is implemented.
		US CMYK	Prints CMYK samples using US CMYK color conversion tables.
		Euro CMYK	Prints CMYK samples using Euro CMYK color conversion tables.
		Vivid CMYK	Prints CMYK samples using Vivid CMYK color conversion tables.
		Off—CMYK	No color conversion is implemented.
Manual Color	To let users customize the RGB or CMYK color conversions applied to each object on the printed page. Color conversion of the data specified using RGB combinations can be customized based on object type (text, graphics, or image) through the printer operator panel.	RGB Image	sRGB Display (default)—Applies a color conversion table to produce output that approximates the colors displayed on a computer monitor.
			sRGB Vivid—Increases color saturation for the sRGB Display color conversion table. Preferred for business graphics and text.
			Display—True Black—Applies color conversion table to produce output that approximates the colors displayed on a computer monitor while using only black toner for neutral gray colors.
		Vivid—Applies a color conversion table that produces brighter, more saturated colors.	
Off—No color conversion is implemented.			
		RGB Text	sRGB Display
		RGB Graphics	sRGB Vivid (default) Display—True Black Vivid Off

## Quality menu details (continued)

Menu selection	Purpose	Values	
Manual Color (continued)	To let users customize the RGB or CMYK color conversions applied to each object on the printed page. Color conversion of the data specified using RGB combinations can be customized based on object type (text, graphics, or image) through the printer operator panel.	CMYK Image CMYK Text CMYK Graphics	<p>US CMYK (country/region-specific factory default values)—Applies a color conversion table to approximate SWOP color output.</p> <p>Euro CMYK (country/region-specific factory default values)—Applies color conversion table to approximate EuroScale color output.</p> <p>Vivid CMYK—Increases color saturation for the US CMYK color conversion table.</p> <p>Off—No color conversion is implemented.</p>
Color Adjust	Automatic color adjust will occur periodically during printing. Color adjustment can be manually started by this operation.	No selections exist for this operation. Pressing <input checked="" type="radio"/> initiates this operation.	
Enhance Fine Lines	<p>A selection to enable a print mode preferable for certain files containing fine line detail, such as architectural drawings, maps, electronic circuit diagrams, and flow charts.</p> <p>Enhance Fine Lines is not a menu item. This setting is only available on the PCL emulation driver or PostScript driver or on the printer Embedded Web Server.</p>	On	In the driver, enable the check box.
		Off (default)	In the driver, disable the check box.

## Utilities Menu

Use this menu selection to change printer settings, remove jobs, set up printer hardware, and troubleshoot printer problems.

## Utilities Menu

Menu selection	Purpose	Values	
Factory Defaults	Returns printer settings to the factory default values.	Do Not Restore (default)	User-defined settings remain.
		Restore Now	<p>All menu items are returned to the factory default values except:</p> <ul style="list-style-type: none"> <li>• Display Language</li> <li>• All settings in the Parallel Menu, Serial Menu, Network Menu, and USB Menu</li> <li>• Resources residing in flash memory or on the hard disk</li> </ul> <p><b>Note:</b> All downloaded resources (fonts, macros, and symbol sets) in printer memory (RAM) are deleted.</p>





## Utilities Menu (continued)

Menu selection	Purpose	Values	
Remove Held Jobs	Removes confidential and held jobs from the printer hard disk.	Confidential Held Not Restored All	Selecting a menu value only affects jobs that are resident in the printer. Bookmarks, jobs on USB flash memory devices, and other types of held jobs are not affected.
Format Flash	Formats the flash memory. <b>Warning:</b> Do not turn off the printer while the flash is formatting.	Yes	Deletes any data stored in flash memory and prepares the flash memory to receive new resources.
		No	Cancels the request to format the flash memory and leaves current resources stored in flash memory.
Defragment Flash	Retrieves lost storage area from resources that were deleted from flash memory. <b>Warning:</b> Do not turn off the printer while the flash is defragmenting.	Yes	Transfers all resources stored in flash memory to printer memory and then reformats the flash memory option. When the format operation is complete, the resources are loaded back into flash memory.
		No	Cancels the request to defragment the flash memory.
Format Disk	Formats the printer hard disk. <b>Warning:</b> Do not turn off the printer while the hard disk is formatting.	Yes	Deletes any data stored on the hard disk and prepares the device to receive new resources.
		No	Cancels the request to format the hard disk and leaves current resources stored on the disk.
Job Acct Stat	Prints a listing of all job statistics stored on the hard disk, or clears all statistics on the disk.	Print	Prints all statistics available for the most recent print jobs.
		Clear	Deletes all accumulated job statistics from the hard disk.
Color Alignment	To print a color alignment test page, which can be used to properly align how colors are printed.	Print Alignment Page	No selections exist for this operation. Pressing the Select button will print the alignment page.
		Set A–Set L	You are prompted to enter alignment values for each setting (A–L).
Hex Trace	Helps isolate the source of a print job problem.	Activate	With Hex Trace selected, all data sent to the printer is printed in hexadecimal and character representation. Control codes are not executed. <b>Note:</b> To exit Hex Trace, turn the printer off, or reset the printer by pressing <b>Stop</b> (⊗).
Coverage Estimator	Provides an estimate of the percent coverage of cyan, magenta, yellow, and black on a page. The estimate is printed on a separator page.	Off (default)	Percent coverage is not printed.
		On	Prints the estimated percentage of coverage for each color on a page.
LCD Contrast	Adjusts the contrast of the operator panel display.	1–10	<b>5</b> is the default setting. A higher value will make the display appear lighter, a lower value makes the display appear darker.
LCD Brightness	Adjusts the brightness of the operator panel display.	1–10	<b>5</b> is the default setting. A higher value increases the brightness of the display, a lower value decreases the brightness of the display.

## User attendance messages






**Note:** A secondary message only displays if the finisher option is installed.

### User attendance messages



User primary message	Explanation
Activating Demo Mode	The printer is entering Demo Mode.
Activating Menu Changes	Wait for the message to clear.
Activating PPDS Mode	The PPDS emulator has been activated.
Bin <x> Full	<ul style="list-style-type: none"> <li>The specified bin is full.</li> <li>Remove the stack of paper from the bin to clear the message. If you assigned the bin a name, the bin name is displayed instead of the bin number.</li> </ul>
Busy	Wait for the message to clear, or cancel the print job.
Calibrating	Wait for the message to clear.
Cancel not available	Wait for the message to clear.
Cancelling	Wait for the message to clear.
<color> Cartridge Low	Specified toner cartridge is low. <color> refers to either Cyan, Magenta, Yellow, or Black.
Change <src> <Custom Type Name>	<ul style="list-style-type: none"> <li>Press  if you have changed the media.</li> <li>Select <b>Use current</b> to print on media currently in the printer.</li> <li>Cancel the current job.</li> </ul>
Change <src> <Custom String>	
Change <src> <size>	
Change <src> <type> <size>	
Check <device> Connection	<p>The specified device is either not fully connected to the printer or is experiencing a hardware failure.</p> <ul style="list-style-type: none"> <li>Reestablish communication by removing the specified device and reattaching it to the printer.</li> <li>Press  to clear the message and continue printing.</li> <li>In the case of a hardware failure, turn the printer off and back on. If the error recurs, go to <b>“982.xx error service check” on page 2-66.</b></li> </ul>
Clearing job accounting statistics	Wait for the message to clear.
Close door	Close the upper and lower doors to clear the message.
Close <tray> door	Close the 2000-sheet drawer door to clear the message.
Copies	Enter the desired number of copies.
Deactivating Demo Mode	The printer is leaving Demo Mode.
Deactivating PPDS Mode	The PPDS emulator has been deactivated.
Defragmenting Flash DO NOT POWER OF F	<p>Do not turn the printer off while this message is displayed.</p> <p>Wait for the message to clear.</p>
Delete	<ul style="list-style-type: none"> <li>Press  to delete the specified job.</li> <li>Press  to cancel the operation.</li> </ul>






### User attendance messages (continued)

User primary message	Explanation
Delete all	<ul style="list-style-type: none"> <li>Press  to delete all held jobs.</li> <li>Press  to cancel the operation.</li> </ul>
Delete all confidential jobs	<ul style="list-style-type: none"> <li>Press  to delete all confidential jobs.</li> <li>Press  to cancel the operation.</li> </ul>
Deleting	Wait for the message to clear.
Disabling DLEs	Wait for the message to clear.
Disabling Menus	<p>Wait for the message to clear.</p> <p><b>Note:</b> While the menus are disabled, you cannot change the printer settings from the operator panel.</p>
Disk corrupted Reformat?	<p>The printer has attempted a disk recovery process, and cannot repair the disk.</p> <ul style="list-style-type: none"> <li>Press  to reformat the disk and delete all files currently stored on the disk.</li> </ul> <p><b>Warning:</b> All data will be lost if you select to reformat the disk.</p> <ul style="list-style-type: none"> <li>Select <b>Do not reformat</b> to clear the message without reformatting the disk.</li> </ul>
Disk Recovery x/5 yyy%	<p><b>Warning:</b> Do not turn the printer off while this message is displayed.</p> <p>The printer is attempting to recover the hard disk. Disk recovery takes place in five phases; the operator panel displays the percent complete of the current phase.</p> <p>Wait for the message to clear.</p>
Enabling Menus	Wait for the message to clear.
Encrypting Disk yyy% DO NOT POWER OFF	<p><b>Warning:</b> Do not turn the printer off while this message is displayed.</p> <p>The printer is encrypting the hard disk. The percent complete is displayed.</p> <p>Wait for the message to clear.</p>
Engine Warming	Wait for the message to clear.
Enter PIN	Enter the PIN you identified in the driver when you sent the confidential job to the printer.
Enter PIN to lock	Enter the correct PIN to lock the operator panel and prevent menu changes.
Error printing from USB drive	Wait for the message to clear.
Error reading USB drive	Wait for the message to clear.
Flushing buffer	Wait for the message to clear.
Formatting Disk yyy% DO NOT POWER OFF	<p><b>Warning:</b> Do not turn the printer off while this message is displayed.</p> <p>The printer is formatting the hard disk. The percent complete is displayed.</p> <p>Wait for the message to clear.</p>
Formatting Flash DO NOT POWER OFF	<p><b>Warning:</b> Do not turn the printer off while this message is displayed.</p> <p>Wait for the message to clear.</p>




### User attendance messages (continued)

User primary message	Explanation
Insert Tray <x>	<p>This message is displayed when the printer requests the user to insert tray <i>x</i> before it can continue printing the job. The printer needs to pick media from the missing tray or the trays below it.</p> <p><i>Tray</i>=Tray 1, Tray 2, Tray 3, Tray 4, or Tray 5</p> <p><b>Note:</b> This message displays when refilling the trays during a job. Before filling tray <i>x</i>, take the printer offline by pressing <b>Stop</b>, and wait for pages to read the output bin.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Insert the requested tray, or</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu.</li> </ul> <p>The following functions are available using the Busy/Waiting Menu:</p> <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul>
Install bin <x>	<p>This message is displayed when the user has Hot Unplugged a paper handling option and the printer requires the reinstallation of the option to print a page which has been formatted by an install Tray <i>x</i> interpreter prior to the removal of the option or Cancel Job.</p> <ul style="list-style-type: none"> <li>• Bin <i>x</i> (<i>x</i>=1, 2, or 3)</li> <li>• Tray <i>x</i> (<i>x</i>=2, 3, or 4)</li> <li>• Duplex</li> </ul> <p>The following options can be taken:</p> <ul style="list-style-type: none"> <li>• Insert the requested option, or</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu.</li> </ul> <p>The following functions are available using the Busy/Waiting Menu:</p> <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul>
Install duplex	
Invalid Engine Code	<p>Download valid engine code to the printer.</p> <p><b>Note:</b> You can download engine code while this message is displayed.</p>
Invalid file format	The selected file on the USB device is not valid.
Invalid Network Code	<p>Download valid code to the internal print server.</p> <p><b>Note:</b> You can download network code while this message is displayed.</p>
Invalid PIN	Enter the correct PIN.
ITU Life Warning	<ul style="list-style-type: none"> <li>• Image transfer unit is near end of life.</li> <li>• Press  to clear the message and print without installing a new ITU assembly.</li> <li>• Replace the image transfer unit and, if necessary, reset the printer internal counter for the image transfer unit.</li> </ul>
Load manual feeder with <Custom Type>	<ul style="list-style-type: none"> <li>• Load the specified paper in the manual feed tray or multipurpose feeder.</li> <li>• Press  to ignore the manual feed request and print on paper already installed in one of the input sources.</li> </ul> <p>If the printer finds a tray that has paper of the correct type and size, it feeds paper from that tray. If the printer cannot find a tray with the correct paper type and size, it prints on whatever paper is installed in the default input source.</p> <ul style="list-style-type: none"> <li>• Cancel the current job.</li> </ul>
Load manual feeder with <Custom String>	
Load manual feeder with <size>	
Load manual feeder with <size> <type>	



### User attendance messages (continued)

User primary message	Explanation
Load <src> with <Custom Type Name>	<ul style="list-style-type: none"> <li>• Load the input source with the correct type and size media.</li> <li>• Cancel the current job.</li> </ul>
Load <src> with <Custom String>	
Load <src> <size>	
Load <src> <type> <size>	
Menus are Disabled	<p>The printer menus are disabled. You cannot change the printer settings from the operator panel.</p> <p><b>Note:</b> You can still cancel a job, print a confidential job, or print a held job. Contact your system support person.</p>
Network	A network interface is the active communication link.
Network <x>	
Network <x>, <y>	A network interface is the active communication link, where <x> represents the active communication link, and <y> represents the channel.
No held jobs	Wait for the message to clear.
No jobs found Retry?	<p><b>Note:</b> The four-digit personal identification number (PIN) you entered is not associated with any confidential print job.</p> <ul style="list-style-type: none"> <li>• Select <b>Retry</b> to enter another PIN.</li> <li>• Select <b>Cancel</b> to exit the <b>Enter PIN</b> screen.</li> </ul>
No jobs to cancel	Wait for the message to clear.
No recognized file types	<p>Wait for the message to clear.</p> <p><b>Note:</b> The only supported file type is PDF.</p>
Not ready	<p>The printer is offline.</p> <p>Press  to return to normal operation.</p>
Overflow Bin Full	<ul style="list-style-type: none"> <li>• The mailbox's designated overflow bin is full.</li> <li>• Remove the stack of paper from the bin to clear the message.</li> </ul>
Parallel <x>	A parallel interface is the active communication link.
Port disabled Remove USB drive	Wait for the message to clear.
Power Saver	<ul style="list-style-type: none"> <li>• Send a job to print.</li> <li>• Press  to warm the printer to normal operating temperature and display the Ready message.</li> </ul>
Printer locked, enter PIN to unlock	<p>The operator panel has been locked.</p> <p>Enter the correct PIN number.</p>
Printing	Wait for the message to clear.
Printing from USB drive DO NOT REMOVE	<p><b>Warning:</b> Do not turn the printer off or remove the USB drive while this message is displayed.</p> <p>Wait for the message to clear.</p>
Printer busy Continue Quit	<p>Press  to read the information from the USB drive.</p> <p>Select <b>Quit</b> to cancel the information retrieval process.</p>
Programming System Code DO NOT POWER OFF	<p><b>Warning:</b> Do not turn the printer off while this message is displayed.</p> <p>Wait for the message to clear and the printer to reset.</p>






## User attendance messages (continued)

User primary message	Explanation
Programming Flash DO NOT POWER OFF	<b>Warning:</b> Do not turn the printer off while this message is displayed. Wait for the message to clear.
Programming Disk DO NOT POWER OFF	<b>Warning:</b> Do not turn the printer off while this message is displayed. Wait for the message to clear.
Reading USB drive DO NOT REMOVE	Wait for the message to clear.
Ready	Send a job to print.
Reattach <device>	The specified device is either not fully connected to the printer or is experiencing a hardware failure. <ul style="list-style-type: none"> <li>Reestablish communication by removing the specified device and reattaching it to the printer.</li> <li>Press  to clear the message and continue printing without using the device.</li> <li>In the case of a hardware failure, turn the printer off and back on. If the error recurs, got to <b>“982.xx error service check” on page 2-66.</b></li> </ul>
Remote Management Active DO NOT POWER OFF	The printer settings are being configured, and the printer was taken offline to ensure it is not currently printing and processing jobs. Wait for the message to clear.
Remove paper from standard output bin	Remove the stack of paper from the standard output bin.
Remove paper from bin <x>	Remove the paper from the specified output bin.
Remove paper from all bins	Remove the paper from all output bins.
Remove paper from <linked set bin name>	The printer automatically senses media removal and resumes printing. If removing the media does not clear the message, press  .
Replace ITU	<ul style="list-style-type: none"> <li>Image transfer unit is at end of life.</li> <li>Replace the image transfer unit.</li> </ul>
Replace Fuser	Replace the fuser. If the fuser is not replaced when the warning is cleared, the printer will post the warning again.
Resetting Active Bin	Wait for the message to clear.
Resetting Fuser Count	Wait for the message to clear.
Resetting the Printer	Wait for the message to clear.
Restore Held Jobs	<ul style="list-style-type: none"> <li>Press  to restore all Print and Hold jobs on the hard disk.</li> <li>Select <b>Do not restore</b> to delete Print and Hold jobs.</li> </ul>
Restoring Factory Defaults	Wait for the message to clear. <b>Note:</b> When factory default settings are restored: <ul style="list-style-type: none"> <li>All downloaded resources (fonts, macros, symbol sets) in the printer memory are deleted.</li> <li>All menu settings return to the factory default setting <i>except</i>: <ul style="list-style-type: none"> <li>The Display Language setting in the Setup Menu</li> <li>All settings in the Parallel Menu, Serial Menu, Network Menu, Infrared Menu, LocalTalk Menu, USB Menu, and Fax Menu.</li> </ul> </li> </ul>
Restoring held job(s) x/y	<ul style="list-style-type: none"> <li>Wait for the message to clear.</li> <li>Select <b>Quit restoring</b> to delete unrestored Print and Hold jobs.</li> </ul> <b>Note:</b> x represents the number of the job being restored, and y represents the total number of jobs to be restored.





### User attendance messages (continued)

User primary message	Explanation
Serial <x>	A serial interface is the active communication link.
Setup Required check <area name>	Packing material was detected in one or more areas. Remove any remaining packing material.
Some held jobs were not restored	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing. The printer frees memory by deleting the oldest held job and continues deleting held jobs until there is enough printer memory to process the job.</li> <li>Cancel the current job.</li> </ul>
Standard Bin Full	Remove the stack of paper from the bin to clear the message.
Submitting selection	Wait for the message to clear.
Tray <x> Empty	Load paper in the tray to clear the message.
Tray <x> Low	Add paper to the tray to clear the message.
Tray <x> Missing	Insert the tray into the printer.
Unlocking Printer	PIN entry is successful. Wait for the message to clear.
USB	The printer is processing data through the specified USB port.
USB <x>	
USB device unsupported	Remove the USB device to clear the message.
USB drive removed	<ul style="list-style-type: none"> <li>Wait for the message to clear.</li> <li>Insert the USB drive.</li> </ul>
USB hub unsupported	Remove the USB device to clear the message.
View supplies	Displays the current level of all printer supplies.
Waiting	<p>The printer has received a page of data to print, but is waiting for an End of Job command, a Form Feed command, or additional data.</p> <ul style="list-style-type: none"> <li>Press  to print the contents of the buffer.</li> <li>Cancel the current job.</li> </ul>
Waste Toner Life Warning	<ul style="list-style-type: none"> <li>Waste toner bottle is nearly full.</li> <li>Replace the waste toner bottle.</li> </ul>
1565 Emul Error Load Emul Option	<p>The printer automatically clears the message in 30 seconds, and then disables the download emulator on the firmware card.</p> <p>Download the correct download emulator version from the Lexmark Web site.</p>
30 <color> toner cartridge missing	Install the specified toner cartridge, and close the front cover.
31 Defective <color> cartridge	Replace the specified toner cartridge, and close the front cover.
32 Replace unsupported <color> cartridge	Remove the toner cartridge, and install a supported one.








## User attendance messages (continued)

User primary message	Explanation
34 Incorrect media	<p>This message is displayed when the printer detects a media mismatch.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Replace the media in the source with the requested media, and press  to clear the message and print the job.</li> <li>• Press Menu to access the Busy/Waiting Menu. The following functions are available: <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> </li> <li>• Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</li> <li>• If the message persists, go to <b>“BASE SENSOR TEST” on page 3-24</b> and check for the correct operation of the inline media sensor.</li> </ul>
34 Short Paper	<ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. The printer does not automatically reprint the page that prompted the message.</li> <li>• Check tray length and width guides to ensure paper is properly fitted in the tray.</li> <li>• Make sure the print job is requesting the correct size of paper.</li> <li>• Adjust the Paper Size setting for the size paper you are using. If MP Feeder Size is set to Universal, make sure the paper is large enough for the formatted data.</li> <li>• Cancel the current job.</li> </ul>
35 Insufficient memory to support Resource Save feature	<p>This message displays when the printer lacks sufficient memory to enable Resource Save. This message usually indicates the user has allocated too much memory for one or more of the printer link buffers; however, modification of other printer settings which affect the amount of available memory may also create this condition. If restoration of Resource Save is required after this message is received, the customer should install additional memory or set each link buffer to Auto. Once all link buffers are returned to Auto, you should exit the menu to activate the link buffer changes. Once the printer returns to the Ready state, you can enable Resource Save and go back and modify the link buffers again. Note the reduction of available memory to the link buffers when Resource Save has been enabled, and compare it to the memory available when Resource Save is disabled.</p> <ul style="list-style-type: none"> <li>• Press  to disable Resource Save and continue printing. To enable Resource Save after you get this message: <ul style="list-style-type: none"> <li>- Make sure the link buffers are set to Auto, then exit the menus to activate the link buffer changes.</li> <li>- When Ready is displayed, enable Resource Save.</li> </ul> </li> <li>• Install additional memory.</li> </ul>
36 Printer Service Required	<p>This message is displayed when background toner prevents a completion of a TPS calibration cycle. Service is required to fix the problem.</p> <p>Press  to clear the message.</p> <p>If the Service Printer message is displayed, it means that a TPS failure has most likely occurred. The printer continues to operate, but the color quality degrades. The most probable cause for this error message is a defective print cartridge or ITU.</p>
37 Insufficient memory to collate job	<p>This message is displayed when the printer memory and disk used to store pages is too full to collate the print job.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Press  to print the portion of the job already stored, and begin collating the rest of the job.</li> <li>• Press Menu to access the Busy/Waiting Menu. The following functions are available. <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> </ul> </li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p>

### User attendance messages (continued)




User primary message	Explanation
37 Insufficient memory for Flash Memory Defragment operation	<p>This message is displayed when insufficient printer memory is available to perform Flash Memory Defragment operation.</p> <p>This message appears prior to the actual start of the defragment operation.</p> <p>Press  to stop the defragment operation.</p> <p>To perform the defragment operation, you can:</p> <ul style="list-style-type: none"> <li>• Delete fonts, macros, and other data in RAM.</li> <li>• Install additional printer memory.</li> <li>• Press Menu to access the Busy/Waiting Menu.</li> </ul> <p>The following functions are available using the Busy/Waiting Menu:</p> <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p>
37 Insufficient memory, some held jobs were deleted	<p>The printer was unable to restore some or all of the confidential or held jobs on the hard disk.</p> <p>Press  to clear the message.</p> <p><b>Note:</b> Some of the confidential or held jobs remain on the disk but may not be accessed.</p>
38 Memory Full	<p>This message is displayed when the printer is processing an incoming job and there is not enough memory available to continue processing the job.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Determine how to make more memory available to your print job by: <ul style="list-style-type: none"> <li>- Deleting fonts, macros and other data in RAM.</li> <li>- Simplify your print job.</li> <li>- Install additional memory</li> </ul> </li> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu.</li> </ul> <p>The following functions may be available:</p> <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul>
39 Page is too complex to print	<p>This message is displayed when a page is too complex to print.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Simplify the print job.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu.</li> </ul> <p>The following functions may be available:</p> <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p>
40 [color] invalid refill, change cartridge	<p>Replace the specified toner cartridge, and close the front cover.</p>

## User attendance messages (continued)



User primary message	Explanation
50 PPDS font error	<p>This error displays when the PPDS interpreter has detected a font error. When a specific font, which is not installed, is requested based on a PPDS mode Set Font Global command, a Select Code Page command, or a comprehensive Font Selection command and the printer BEST FIT setting is off. If BEST FIT is on, the printer performs a best fit search to find a similar font, and this error does not occur.</p> <p>This error also displays when the printer receives invalid PPDS download font data.</p> <p>This error only occurs when a printer is formatting PPDS print data. Other data streams support different protocols for handling the font errors.</p> <p>The following actions can be taken while this message is displayed:</p> <ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu. The following functions may be available: <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> </ul> </li> </ul>
51 Defective flash detected	<p>Press  to clear the message and continue printing.</p> <p>You must install different flash memory before you can download any resources to flash.</p>
52 Not enough free space in flash memory for resources	<ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. Downloaded fonts and macros not previously stored in flash memory are deleted.</li> <li>• Delete fonts, macros, and other data stored on the flash memory.</li> <li>• Install a larger capacity flash memory card.</li> </ul>
53 Unformatted flash detected	<p>Press  to clear the message and continue printing.</p> <p>You must format the flash memory before you can store any resources on it. If the error message remains, the flash memory may be defective and require replacing.</p>
54 Serial option <x> error	<p>This message is displayed when a serial error, either framing, parity or overrun, is detected on the specified (option x) serial port. This usually means the serial port is not set up correctly.</p> <ul style="list-style-type: none"> <li>• Make sure the serial link is set up correctly, and you are using the appropriate cable.</li> <li>• Make sure the serial interface parameters (protocol, baud, parity, and data bits) are set correctly on the printer and host computer.</li> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Turn the printer off and then on to reset the printer.</li> </ul>
54 Network <x> software error	<p>The printer disables all communications to the associated network interface. No data may be received or sent from or to the associated interface. The user can program new firmware in the network using the parallel port after this message clears.</p> <ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Program new firmware for the network interface.</li> <li>• Reset the printer.</li> </ul>
54 Standard network software error	<p>This message is displayed when the RIP software detects that a network port is installed but cannot establish communications with it.</p> <ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing. The job may not print correctly.</li> <li>• Program new firmware for the network interface.</li> <li>• Reset the printer.</li> </ul>













## User attendance messages (continued)

User primary message	Explanation
55 Unsupported option in slot <x>	<p>This message displays when an unsupported option is installed or when an unsupported flash DIMM, such as a C750 version, is installed in a memory slot.</p> <ol style="list-style-type: none"> <li>1. Turn the printer off.</li> <li>2. Remove the unsupported option.</li> <li>3. Turn the printer on.</li> </ol>
56 Parallel port <x> disabled	<p>This message may appear when data is sent to the printer across a parallel port, but the port is disabled.</p> <p><b>Note:</b> Once the error is displayed the first time, reporting of further errors is suppressed until the printer is reset or menus are entered.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Press  to clear the message. Any data received on the parallel port is discarded.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu. The following functions may be available: <ul style="list-style-type: none"> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> </li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p> <p><b>Note:</b> Make sure the Parallel Buffer menu item is not set to Disabled.</p>
56 Serial port <x> disabled	<p>These messages may appear when data is sent to the printer across a serial port, but the port is disabled.</p> <p><b>Note:</b> Once the error is displayed the first time, reporting of further errors is suppressed until the printer is reset or menus are entered.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Press  to clear the message. Any data received on the serial port is discarded.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu. The following functions may be available: <ul style="list-style-type: none"> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> </li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p>
56 Standard USB port disabled 56 US port <x> disabled	<p>These messages may appear when data is sent to the printer across the USB port, but the port is disabled.</p> <p><b>Note:</b> Once the error is displayed the first time, reporting of further errors is suppressed until the printer is reset or menus are entered.</p> <p>The following actions can be taken:</p> <ul style="list-style-type: none"> <li>• Press  to clear the message. Any data received on the USB port is discarded.</li> <li>• Press <b>Menu</b> to access the Busy/Waiting Menu. The following functions may be available: <ul style="list-style-type: none"> <li>- Reset Printer</li> <li>- Reset Active Bin</li> <li>- Check Supply Levels</li> </ul> </li> </ul> <p><b>Note:</b> Menu Lockout does NOT prevent access to the Busy/Waiting Menu.</p> <p><b>Note:</b> Make sure the USB Buffer menu item is not set to Disabled.</p>

### User attendance messages (continued)

User primary message	Explanation
57 Configuration Change	<p>This message are displays when the printer has attempted to Print and Hold jobs from the disk and found that some or all of the jobs could not be restored. The printer firmware could not restore jobs from the disk because the configuration of the printer has changed. Some configuration changes that can cause a 57 Configuration Change message are:</p> <ul style="list-style-type: none"> <li>• Code version change</li> <li>• Paper handling option removed</li> <li>• Disk drive has been moved to a different printer.</li> </ul> <p><b>Note:</b> Some of the held jobs may not be restored. They remain on the disk, but cannot be accessed.</p>
58 Too many bins attached	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the additional bins.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
58 Too many disks installed	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the excess disks.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
58 Too many flash options installed	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the excess flash memory.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
58 Too many trays attached	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the additional trays.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
58 Input Config Error	<p>This message is displayed when:</p> <ul style="list-style-type: none"> <li>• An high-capacity input tray (HCIT) is connected when it is not supported (C770).</li> <li>• More than one duplex unit is installed.</li> <li>• More than one option tray (500-sheet tray, envelope feeder, or outdoor media tray) are connected above the HCIT.</li> <li>• The duplex unit and HCIT are installed without a tray.</li> <li>• The duplex unit is located in the wrong location, for example if an option tray is in installed above the duplex unit.</li> </ul> <p>To fix the problem:</p> <ol style="list-style-type: none"> <li>1. Turn off, and unplug the printer.</li> <li>2. Remove the non-compliant input option or properly configure the printer options.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
59 Incompatible duplex	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the incompatible duplex unit.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
59 Incompatible output bin <x>	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the specified incompatible output bin.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
59 Incompatible tray <x>	<ol style="list-style-type: none"> <li>1. Turn off and unplug the printer.</li> <li>2. Remove the specified incompatible tray.</li> <li>3. Plug in the printer, and turn it on.</li> </ol>
61 Remove defective disk	<ul style="list-style-type: none"> <li>• Press  to clear the message and continue printing.</li> <li>• Install a different hard disk before you perform any operations that require a hard disk.</li> </ul>
62 Disk full	<ul style="list-style-type: none"> <li>• Press  to clear the message and continue processing. Any information not previously stored on the hard disk is deleted.</li> <li>• Delete fonts, macros, and other data stored on the hard disk.</li> <li>• Install a larger hard disk.</li> </ul>

## User attendance messages (continued)

User primary message	Explanation
63 Unformatted disk	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing.</li> <li>Format the disk.</li> </ul> <p>If the error message remains, the hard disk may be defective and require replacing.</p>
82 Waste toner box nearly full	Press  to clear the message and continue printing.
82 Replace Waste toner box	<ul style="list-style-type: none"> <li>Replace the waste toner box.</li> <li>Press  to clear the message and continue printing.</li> </ul>
82 Waste toner box missing	Install the waste toner box, and press  to clear the message and continue printing.
83.xx ITU Missing	<p>83.03 ITU Missing and 83.05 ITU Missing—indicate the ITU release lever was disengaged before POR.</p> <p>83.02 ITU Missing and 83.07 ITU Missing—indicates the ITU release lever was disengaged when the printer is on.</p> <p>Check the ITU release lever for correct operation. The ITU release lever is the black lever located on the left upper side frame above the ITU opening and can be seen by opening and lowering the MPF assembly. When locked, the lever should be at the 6 o'clock position. When unlocked, it should be in a 3 o'clock position. Undue pressure is not required to operate the lever.</p> <p>Turn the printer off, insert the ITU, move the lever to the 6 o'clock position, and turn the printer back on.</p> <div data-bbox="867 957 1175 1268" data-label="Image"> </div> <p>If this does not resolve, replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49</b>.</p> <p>Press  to continue. The message persists until replacement.</p>
83 ITU life warning	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing.</li> <li>If print quality is unacceptable, replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49</b>.</li> </ul>
83 Replace ITU	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing.</li> <li>If print quality is unacceptable, replace the ITU assembly. See <b>“ITU assembly removal” on page 4-49</b>.</li> </ul>
87 Fuser life warning	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing.</li> <li>If print quality is unacceptable, replace the fuser. See <b>“Fuser assembly removal” on page 4-44</b>.</li> </ul>
87 Fuser missing	Install the fuser unit. See <b>“Fuser assembly removal” on page 4-44</b> .
87 Replace Fuser	<ul style="list-style-type: none"> <li>Press  to clear the message and continue printing.</li> <li>If print quality is unacceptable, replace the fuser. See <b>“Fuser assembly removal” on page 4-44</b>.</li> </ul>
88 <color> cartridge low	<ul style="list-style-type: none"> <li>Replace the specified toner cartridge.</li> <li>Press  to clear the message and continue printing.</li> </ul>



### 3. Diagnostic aids

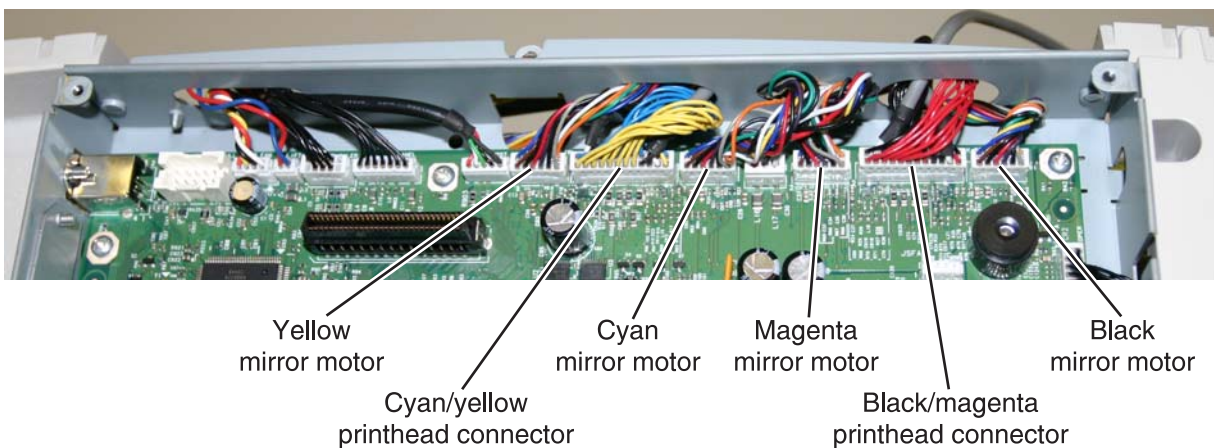
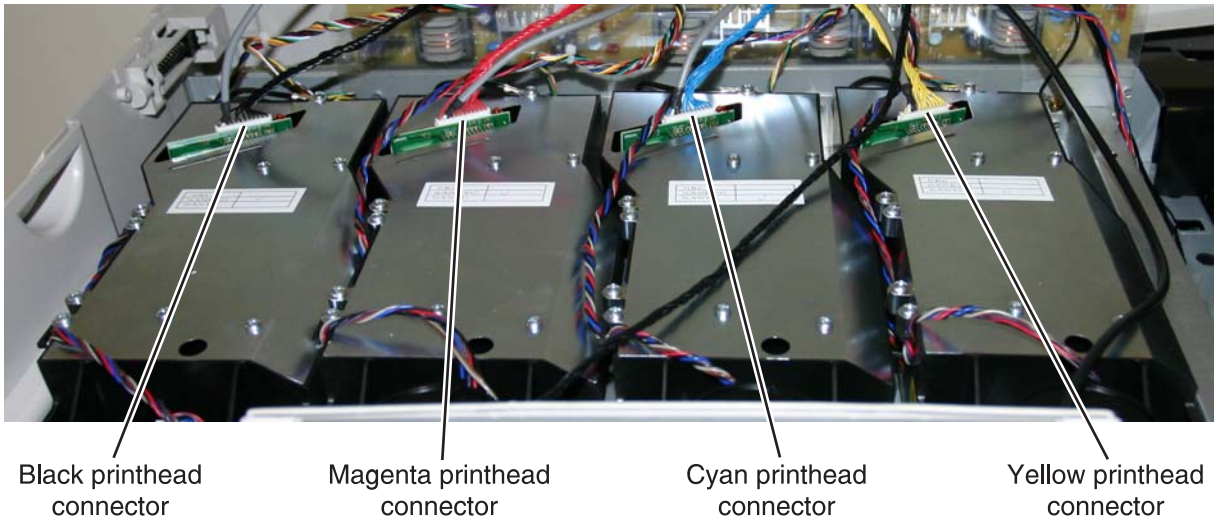
This chapter explains the tests and procedures to identify printer failures and verify repairs have corrected the problem.

## Diagnostic procedures

### *Printhead diagnostics*

If you get a printhead error, follow this diagnostic to find the specific failure.

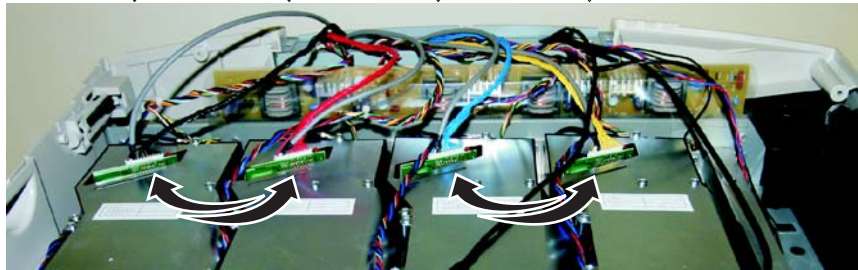
1. Remove the top cover. See **“Top cover assembly removal” on page 4-13.**
2. Remove the outer system board shield. See **“Outer system board shield removal” on page 4-69.**
3. Verify that all the connectors are properly seated. Check the printhead cable connectors on the printheads as well as the printhead cable connectors and mirror motor cable connectors on the system board.



If the printhead and mirror motor cables are properly seated and the error remains, record the error code. Continue to the next step.

4. Select which pair of printheads to switch based on the error code.
  - If the printer displays one of the codes that indicate yellow or cyan, switch the yellow with the cyan printhead cable and the yellow with the cyan mirror motor cable.
  - If the error code indicates a magenta or a black error, switch the magenta with the black printhead cable and the magenta with the black mirror motor cable.

Error Codes				
Black (K)	Magenta (M)	Cyan (C)	Yellow (Y)	Failure Mode
109.01	107.01	106.01	108.01	Lost Hsync
109.02	107.02	106.02	108.02	Failed Servo
109.03	107.03	106.03	108.03	Failed Lock
109.04	107.04	106.04	108.04	Lost Lock



Magenta and black **OR** Cyan and yellow



Cyan and yellow **OR** Magenta and black

5. Turn on the printer and compare the new error codes with the original error code you recorded.
 

**Note:** If an automatic calibration begins, 36 Printer Service Required may appear. Check the printhead cable connections. Press to clear the error.

  - If the error code remains the same, replace the system board. See **“System board removal” on page 4-89**. If that solves the problem, you are finished. Make sure you return all the cables to the original positions.
  - If the printer displays a different printhead error code, which indicates the code for the other color of the pair you switched, the printhead or the printhead cables are defective. Return all the cables to the original positions. Replace the printhead cables. If the problem remains, replace the printhead. See **“Printhead removal and adjustments” on page 4-72**.

Error Codes				
Black (K)	Magenta (M)	Cyan (C)	Yellow (Y)	Failure Mode
109.01	107.01	106.01	108.01	Lost Hsync
109.02	107.02	106.02	108.02	Failed Servo
109.03	107.03	106.03	108.03	Failed Lock
109.04	107.04	106.04	108.04	Lost Lock

## ***Print quality defect locator chart***

The print quality locator chart is attached to the back of this book, use the tables and rulers to determine the source of repeating defects.


### **Using the charts**

Measure repeating horizontal lines from the reference lines at the top to determine what may have caused the lines to form in that pattern. Be sure to use portrait orientation for the test file.

### **Printing the chart from the user menu**

The printer has an internal copy of the defect locator chart under the Help Menu.

At the Ready prompt:

1. Press .
1. Select **Help**.
2. Select **Print Defects**.  
Printing Print Defects displays.

Verify the proper image size by measuring any of the marks on the chart and comparing them to the corresponding measurement in the chart. Use Step 2 if adjustments are needed.

### **Print quality**

For a transparency of the defect locator chart, go to the back of the hard copy service manual.

**Note:** If you want to copy the chart, then the following should be observed.

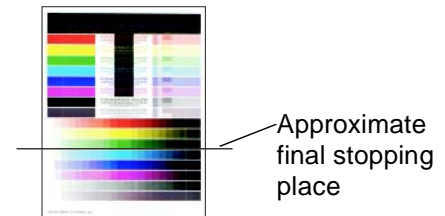
Since fax machines, digital scanners, and xerographic copiers can distort images, charts should be printed using the PDF provided in back of this service manual. In order to maintain the accuracy of the edge rulers, the following steps should be heeded when printing a copy of the Defect Location Chart.

1. When printing this document, make sure "Fit the page" is NOT selected. This may distort the measurements.
2. Measure the distance between the reference line and the 110 mm calibration mark to verify that it is correct. If the distance is inaccurate, the bottom registration margin setting can be adjusted to correct the discrepancy. Increasing the bottom margin value stretches the image; reducing the bottom margin value shrinks the image. Original margin settings should be noted in case these changes adversely affect the print quality or registration when printing normal documents.

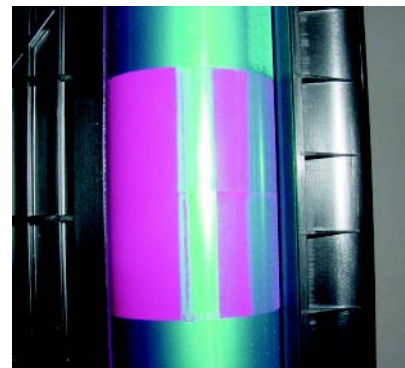
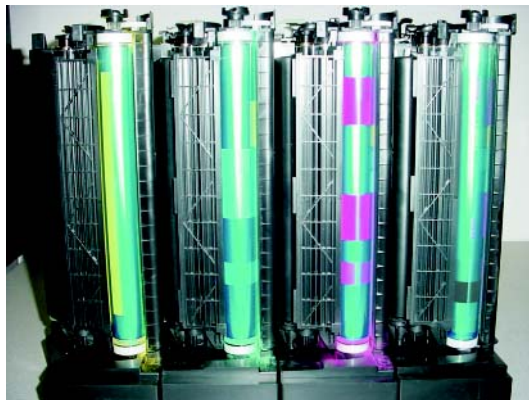
## Partial Print Test

### Diagnostic procedure for missing or faded planes

1. Turn the printer off.
2. Remove all cartridges and the ITU.
3. Inspect the bellcranks.
4. Enter the Configuration Menu. See **“Configuration Menu” on page 3-31**.
5. Select **Prt Quality Pgs**, and press **Select**.
6. Open the vacuum transport belt (VTB) jam access door, and watch the test pages pass from left to right over the VTB.  
There is a delay between the first and second page.
7. Once the pages are printed, examine the pages to confirm the color plane is not printing.  
**Note:** The third page is particularly important since it is the image on the belt when the test printed.
8. Select **Prt Quality Pgs**, and press **Select**.  
Open the VTB through the access door and, once again, watch the test pages pass over the VTB.
9. When the top half of the second page passes over the VTB, quickly open the front cover assembly. The printing stops.



10. Remove all four toner cartridges, and set them facedown.  
Look at the surface of each toner cartridge, and check for a developed image.



### Interpreting the results

If the developed images are not visible on one of the PC drums, the following components should be checked:

- Toner cartridge—Switch cartridges to determine if the problem stays with the slot or cartridge.
- Cartridge contact block pins—Verify that pins are spring loaded and properly positioned. See **“Cartridge contact assembly pin locations (cyan, magenta and yellow)” on page 5-4**.
- Developer HVPS cable—Make sure that there is no damage to the cable running from the system board.
- Developer HVPS board
- System board



If the image is well developed on the PC drum, but the same plane is missing or faded on the ITU belt, the following components should be checked:

- Bell cranks—Check the condition of the bell cranks.
- Continuity on the bell crank circuit—Turn the printer off. Using a multimeter, check the continuity between the rear bell crank contact for the failing color and the respective cable on the transfer HVPS board. See **“Transfer high voltage power supply (HVPS)” on page 5-20.**
- Transfer HVPS cable—Make sure that there is no damage to the cable running from the system board to the transfer HVPS board. Verify the connection at both ends.
- Transfer HVPS board
- Engine board

### **HCIT standalone test mode**

This test lets you check out and test the HCIT (2000-sheet high capacity Input tray) without removing any option or the base printer mounted above the optional HCIT.

**Note:** During normal operation, the red LED on the HCIT system board *blinks* on for one second and off for one second.

### **Dip switch settings**

Do the following steps to set and run the Test/Diagnostic:



1. Use the Dip Switch Settings table to determine the settings (DSW1 thru DSW4) on the HCIT control board for the test you want to run.
2. Turn the HCIT power off by moving the LVPS slide switch to the left position.
3. Press and hold the Push Button Switch PBSW1 while moving the LVPS slide switch to the right position. The red LED on the HCIT control board comes on.
4. Press PBSW1 to feed paper.
5. Press PBSW1 to stop feeding paper.

### **Dip switch settings**

DSW1	DSW2	DSW3	DSW4	Mode
Off	Off	Off	N/A	Set for shipping
Off	Off	On	N/A	The Mirror Reflection Sensors must be adjusted anytime the sensors are replaced.
Off	On	Off	N/A	EEPROM Initialize
Off	On	On	N/A	Not used
On	Off	Off	N/A	Paperless Operation Mode
On	Off	On	N/A	Self Operation Mode
On	On	Off	N/A	Standalone Feeding Operation Mode
On	On	On	N/A	Not used

## Accessing service menus

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

Diagnostics Mode	<ol style="list-style-type: none"> <li>1. Turn off the printer.</li> <li>2. Press and hold ▼ and ► .</li> </ol>  <ol style="list-style-type: none"> <li>3. Turn on the printer.</li> <li>4. Hold the buttons about 10 seconds (until the clock face appears).</li> </ol>	<p>The Diagnostics Mode group contains the settings and operations used while manufacturing and servicing the printer.</p> <p>See <b>“Diagnostics mode”</b> on page 3-7 for more information.</p>
Configuration Menu	<ol style="list-style-type: none"> <li>1. Turn off the printer.</li> <li>2. Press and hold ✓ and ► .</li> </ol>  <ol style="list-style-type: none"> <li>3. Turn on the printer.</li> <li>4. Hold the buttons about 10 seconds (until the clock face appears).</li> </ol>	<p>The Configuration menu group contains a set of menus, settings, and operations which are infrequently required by a user. Generally, the options made available in this menu group are used to configure a printer for operation.</p> <p>See <b>“Configuration Menu”</b> on page 3-31 for more information.</p>

## Diagnosics mode

To run the printer diagnostic tests described in this chapter, put the printer in Diagnostics mode.

### Entering Diagnostics mode

To enter the Diagnostics Mode:

1. Turn off the printer.
2. Press and hold ▼ and ►.



3. Turn on the printer.
4. Hold the buttons about 10 seconds (until the clock face appears).

### Diagnostic mode menus

REGISTRATION	See <b>“REGISTRATION”</b> on page 3-10
Top Margin	
Bottom Margin	
Left Margin	
Right Margin	
Quick Test	See <b>“Quick Test”</b> on page 3-11
ALIGNMENT	See <b>“ALIGNMENT MENU”</b> on page 3-11
Cyan	
Yellow	
Magenta	
Factory Scanner	
Factory Manual	
Drift Sensors	See <b>“Drift Sensors”</b> on page 3-12
MISC TESTS	
Toggle ITU	See <b>“Toggle ITU”</b> on page 3-13
Belt Tracking	See <b>“Belt Tracking (ITU 4th point adjustment)”</b> on page 3-13
Printhead Inst	See <b>“Printhead Inst”</b> on page 3-14
PRINT TESTS	See <b>“PRINT TESTS”</b> on page 3-14
Tray 1	
Tray 2 (If installed)	
Tray 3 (if installed)	
Tray 4 (If installed)	
MP Feeder	
Prt Quality Pgs	See <b>“Print Quality Pgs”</b> on page 3-15

<b>HARDWARE TESTS</b>	
LCD Test	See <b>"LCD Test"</b> on page 3-15
Button Test	See <b>"Button Test"</b> on page 3-15
DRAM Test	See <b>"DRAM Test"</b> on page 3-16
CACHE Test	See <b>"CACHE Test"</b> on page 3-16
Parallel 1 Wrap (If installed)	See <b>"Parallel Wrap Test"</b> on page 3-17
Serial 1 Wrap (If installed)	See <b>"Serial Wrap Test"</b> on page 3-18
<b>DUPLEX TESTS (If installed)</b>	
Quick Test	See <b>"Duplex Quick Test"</b> on page 3-19
Top Margin	See <b>"Duplex Top Margin Offset"</b> on page 3-19
Sensor Test	See <b>"Duplex Sensor Test"</b> on page 3-19
<b>INPUT TRAY TESTS</b>	
Feed Tests	See <b>"Feed Test"</b> on page 3-20
Sensor Tests	See <b>"Sensor Test"</b> on page 3-20
<b>OUTPUT BIN TESTS</b>	
Feed Tests	See <b>"Feed Test"</b> on page 3-21
Feed To All Bins	See <b>"Feed to All Bins"</b> on page 3-21
Sensor Test	See <b>"Sensor Test"</b> on page 3-22
Diverter Test	See <b>"Diverter Test"</b> on page 3-22
<b>FINISHER TESTS</b>	
Staple Test	See <b>"Staple Test"</b> on page 3-23
Feed Test	See <b>"Finisher Feed Test"</b> on page 3-23
Sensor Test	See <b>"Finisher Sensor Test"</b> on page 3-23
<b>BASE SENSOR TEST</b>	See <b>"BASE SENSOR TEST"</b> on page 3-24
<b>DEVICE TESTS (If installed)</b>	
Quick Disk Test	See <b>"Quick Disk Test"</b> on page 3-25
Disk Test/Clean	See <b>"Disk Test/Clean"</b> on page 3-25
Flash Test	See <b>"Flash Test"</b> on page 3-25
<b>PRINTER SETUP</b>	
Defaults	See <b>"Defaults"</b> on page 3-26
<b>PAGE COUNTS</b>	See <b>"PAGE COUNTS"</b> on page 3-26
Serial Number	See <b>"Serial Number"</b> on page 3-27
Engine Setting 1-4	See <b>"Engine Setting x"</b> on page 3-27
Model Name	See <b>"Model Name"</b> on page 3-27
Configuration ID	See <b>"Configuration ID"</b> on page 3-27
Reset Color Cal	See <b>"Reset Color Calibration"</b> on page 3-28
Edge to Edge	See <b>"Edge to Edge"</b> on page 3-28
Cal Ref Adj	See <b>"Cal Ref Adj"</b> on page 3-28

EP SETUP	
EP Defaults	See <b>“EP Defaults” on page 3-28</b>
Fuser Temp	See <b>“Fuser Temp” on page 3-28</b>
DC Charge Adjust	See <b>“DC Charge Adjustment” on page 3-28</b>
Dev Bias Adj	See <b>“Dev Bias Adj” on page 3-28</b>
Transfer Adjust	See <b>“Transfer Adjust” on page 3-28</b>
EVENT LOG	
Display Log	See <b>“Display Log” on page 3-29</b>
Print Log	See <b>“Print Log” on page 3-29</b>
Clear Log	See <b>“Clear Log” on page 3-30</b>
EXIT DIAGNOSTICS	


### ***Exiting the Diagnostics mode***

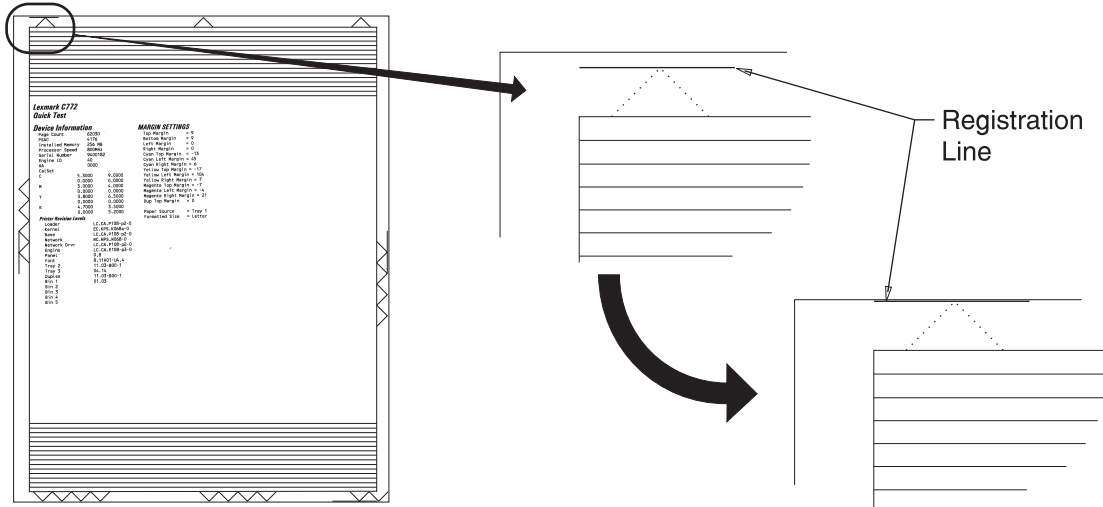
Select **EXIT DIAGNOSTICS** to exit the Diagnostics mode and return to normal mode.

## REGISTRATION

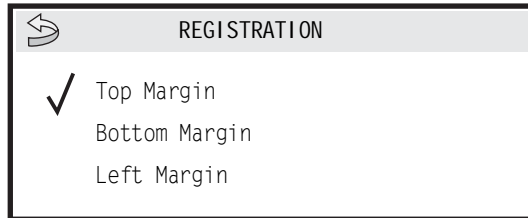
Use REGISTRATION to align the black image on the page. Use ALIGNMENT to align the individual colors. The black image should be aligned before the individual colors are aligned.



To set Registration:

1. Select **REGISTRATION** from the Diagnostics mode.
2. Press  to print the Quick Test Page. Current margin settings are listed on the printout.
3. Determine how values should change to align the arrows to the top, bottom, right, and left margins. Align the Registration Line to the edge of the page.



4. Select Top Margin.





5. Press  or  to decrease or increase the value for Top Margin.

The print registration range is:

Top Margin:	-25 to +25	Increasing the value moves the image down the page. Always adjust the top before the bottom margin.
Bottom Margin:	-25 to +25	Increasing the value stretches the image toward the bottom of the page.
Left Margin:	-15 to +15	Increasing the value moves the image toward the left margin. Always adjust the left before the right margin.
Right Margin:	-15 to +15	Increasing the value compresses the image toward the left on the page.

**Note:** Adjusting the Top and Left margins moves the entire image. Adjusting the Bottom and Right margins causes the image to expand or compress. It is easier to adjust the Top and Left margins first, then adjust the Bottom and Right.

6. Press **Select** () to save the value. Submitting Selection... appears.
7. To verify the margin values are correct, print the Quick Test Page from the registration screen. Press  to print the test page. While printing, Quick Test Printing... is displayed. Once printing is complete, the Registration screen appears. See a sample of the **“Quick Test Page”** on **appendix page B-6**.

Print the Quick Test Page on letter or A4 paper.

- Repeat for **Bottom Margin**, **Left Margin**, and **Right Margin**. Print a Test Page after each change to evaluate the results.

To exit the Registration menu, press **Back** (↩).

## Quick Test

See **“REGISTRATION” on page 3-10** for information on using the Quick Test page to set registration. See **“Quick Test Page” on appendix page B-6** for a sample printout.

Current margin settings are listed on the printout. The page includes:

- Arrow points (diamonds) are shown in the margins to use to determine page registration.
- Horizontal lines help to adjust skew
- General printer information, including current page count, installed memory
- Specific information including serial number, code level and print registration settings

The Quick Test is printed from the default paper source, unless the default paper source contains envelopes. In that case, it prints from tray 1. It should be printed on A4 or letter paper.

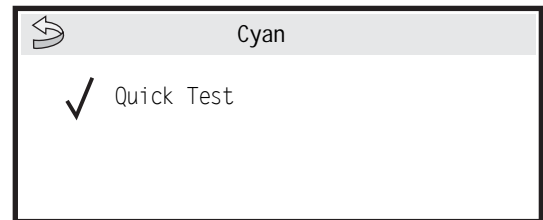
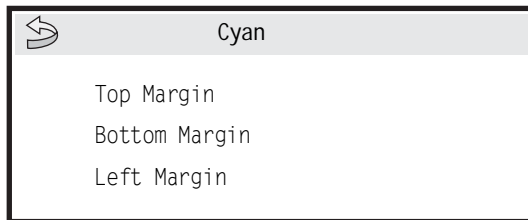
## ALIGNMENT MENU

Aligns the image on the page for the individual colors: cyan, yellow, and magenta. The black image should be aligned using REGISTRATION before the individual colors are aligned.

### Setting alignment for color

- Select **ALIGNMENT MENU** from the Diagnostics mode.
- Select **CYAN**, **YELLOW**, or **MAGENTA**.

The following screen is displayed:



- Scroll down and select **Quick Test**.

A two page instruction sheet prints. See **“Printhead mechanical alignment test page” on appendix page B-7** for a full page sample.

The printer prints the test page from the default paper source, however if the default source only supports envelopes, then the page prints from Tray 1. Print on A4 or letter paper for best results.

- Determine which settings to change and follow the instructions on the printed sheets to determine the adjustment.

Description:	Range:
Top Margin	-127 to +127
Left Margin	-300 to +300
Right Margin	-350 to +350

- Press ◀ or ▶ to increase or decrease. Once the value is displayed, press **Select** to save the value. Submitting Selection... appears.
- Reprint the Quick Test to evaluate the changes. Continue until each adjustment is correct.
- Repeat steps 4 through 6 if required.
- Continue until all three colors are aligned. A separate Quick Test prints for each color.

Press **Back** (↩) to exit the ALIGNMENT MENU.

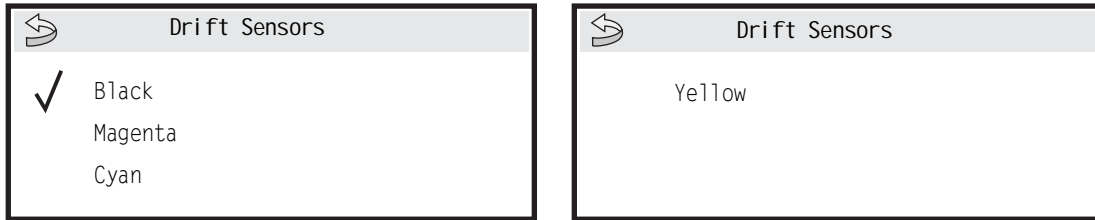
## Drift Sensors

This check is used to display the status of the thermal system used to compensate for printhead drift.

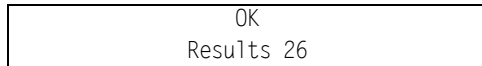
To perform the test:

1. Select **ALIGNMENT** from Diagnostics mode.
2. Select **Drift Sensors**.

The following screen is displayed when the test is selected:



Black Testing... appears, followed by the results. For example:



Values:

Value:	Description:
OK	Communication is good
Error	RIP to A/D communication error
Open	Open thermistor error
Short	Short thermistor error
Range	Range error
Number	Detected temperature in Celsius of last reading. Indicates the system is functioning properly.

- If **Error** appears, replace the system board. See **“System board removal” on page 4-89**.
- If a number, **Open**, or **Short** appears, check the following:
  - a.** Check the cable of the appropriate thermistor (cyan, magenta, yellow, or black) to make sure it is installed correctly to the system board and to the thermistor board. If correct, go to step b.
  - b.** Check the continuity of the appropriate cable. Replace the cable if there is no continuity. If continuity is correct, go to step c.
  - c.** Replace the appropriate thermistor assembly. If this does not fix the problem, replace the system board.

To exit the test, press **Back** (↩) or **Stop** (⊗).



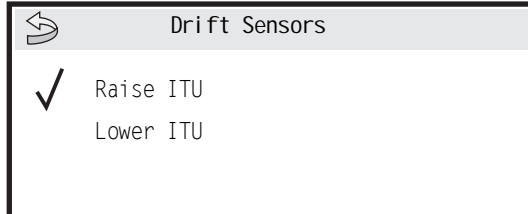
## MISC TESTS

### Toggle ITU

The test is used to verify that ITU belt retraction, BOR, hardware is functioning properly. Two options are available: Raise Belt and Lower Belt. If the belt is already in the requested position, no action occurs. Otherwise the belt will move to the requested position.

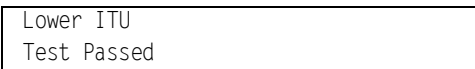
1. Select **Toggle ITU** from the menu.
2. Select **Raise Belt** or **Lower Belt** from the menu.

The following screens display for the test selected:



Raise ITU Testing... or Lower ITU Testing... appears.

The results appear on the display. For example:

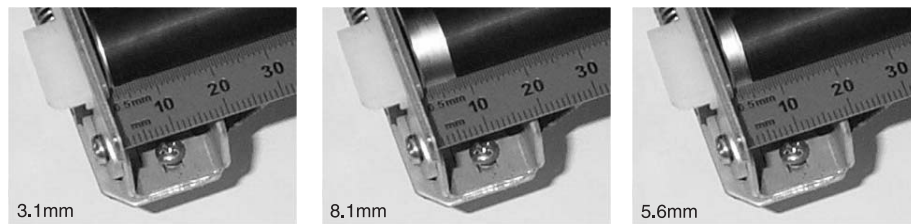


3. To exit the test, press any button.

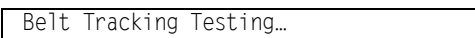
### Belt Tracking (ITU 4th point adjustment)

This test is used to determine the need for the ITU Shim to correct 4th point alignment following the ITU replacement. If the belt tracks to one side or the other, a shim may be required to keep it aligned.

**Note:** Remove all cartridges and close all covers before initiating this test, and note the belt position.



1. Remove the cartridges from the printer, and close all covers.
  2. Select **Belt Tracking** from the menu.
- The following screen is displayed:



The operation normally takes approximately 15 minutes to complete. It may take less time if the test fails.

### 3. Evaluate results:

When the test is complete, the following screen is displayed:

Test Complete Code <pass code>	OR	Test Failed Failure Code=<fail code>
-----------------------------------	----	---

If the test is successful, the pass code will be a number between -250 and +250. Do not install a shim.  
If the test fails, then a fail code will be a number between 0 and 200 and a message indicates the cause of the failure. The following is a list of failure codes:

Failure Code	Results
01	Cover open.
02	Some cartridges NOT removed.
03	Less than three revolutions before the test ended (may never be displayed). Belt tracked to front.
04-100	Number of revolutions when test ended, belt tracked to front.
103	Three or fewer revolutions before test ended. Belt tracked to rear. Probably never displayed.
104-200	100 or more revolutions when test ended. Belt tracked to rear.

4. Exit the test; press any button.
5. Verify the failure code by comparing the belt position to the initial position. Install the shim to the rear if the belt tracked to the rear. Install the shim to the front if the belt tracked to the front. Refer to the instructions included with the shim for installation.
6. After installing the shim, run the test again. If the test fails, rerun several times as the belt needs time to stabilize. Once the test is successful, reinstall the cartridges and restart the printer.

### Printhead Inst

The purpose of this test is to print a page that aids in the mechanical alignment of a printhead. This test should not be used independently of the mechanical alignment. See **“Mechanical alignment” on page 4-72.**

## PRINT TESTS

### Print Tests (input sources)

This test determines if the printer can print on media from any of the paper input sources. Each of the installed sources is available within the Print Tests menu.

The content of the test page varies depending on the media installed in the selected input source.

- If a source is selected that contains paper, then a page similar to the Quick Test Page is printed and does not contain the Print Registration diamonds.
- If a source is selected which contains envelopes, then an Envelope Print Test pattern is printed. This pattern only contains text, which consists of continuous print of each character in the selected symbol set.
- If **Continuous** is selected, all sources printing with media sizes prints the same page continuously until the test is stopped. If Continuous is selected from a source which contains envelopes, then the envelope print test pattern is printed on the first envelope, and the rest are blank.

The Print Test page always prints single-sided, regardless of the Duplex setting or the presence of the Duplex option.

To run the Print Test:

1. Select **PRINT TESTS** from the Diagnostics mode.
2. Select the paper source from the menu.

3. Select either **Single** or **Continuous** from the menu.

**Note:** If **Single** is selected, no buttons are active while the Print Test Page is printing. If **Continuous** is selected, **Back** (↶) or **Stop** (⊗) can be pressed to cancel the test.

The following screen is displayed while printing.

```
<input source>
Printing... <media width>
```

*<input source>* Tray 1, Tray 2, Tray 3, Tray 4, Tray 5, MP Feeder, or Env Feeder  
*<media width>* N for narrow media, or W for wide media

4. Press **Back** (↶) or **Stop** (⊗) at the end of the test to return to the original screen.

## Print Quality Pgs

The print quality test consists of five pages. Pages one and two contain a mixture of graphics and text. The remainder of the pages only contain graphics. See **“Print tests” on appendix page B-1** for samples of the Print Quality Pgs.

This test may be printed from either Configuration menu or the Diagnostics mode. To run the print quality pages from the Diagnostics mode, select **PRINT TESTS** and **Print Quality Pgs** from the menu. Once the test is started it cannot be canceled. When the test pages print the printer returns to the original screen.

## HARDWARE TESTS

### LCD Test

This test verifies the operator panel LCD function.

To run the LCD Test:

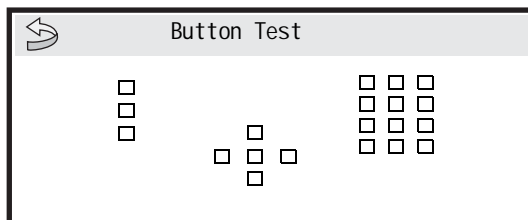
1. Select **LCD Test** from HARDWARE TESTS in the Diagnostics mode.  
The LCD test continually executes.
2. Press **Back** (↶) or **Stop** (⊗) to cancel the test.

### Button Test

This test verifies the operator panel button function.

To run the Button Test:

1. Select **Button Test** from HARDWARE TESTS in the Diagnostics mode.  
With no buttons pressed, a pattern matching the operator panel buttons is displayed.



2. Press each operator panel button one at a time, and an “X” displays in the box that represents the button. If you press Back or Stop, you exit the test. You can start the test and continue.

Press **Back** (↶) or **Stop** (⊗) to exit the test.

## DRAM Test

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

To run the DRAM Test:

1. Select **DRAM Test** from **HARDWARE TESTS** in the Diagnostics mode.  
The power indicator *blinks* indicating the test is in progress and **Resetting the Printer and DRAM Test Testing...** appears on the screen. The printer resets, but continues the test.
2. Press **Back** (↩) or **Stop** (⊗) to exit the test.

```

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

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

F:##### represents the number of times the memory test has failed and finished with errors. Initially 00000 displays with the maximum fail count being 99,999.

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

## CACHE Test

The CACHE Test is used to verify the processor CACHE is functioning properly.

1. Select **CACHE Test** from **HARDWARE TESTS** in the Diagnostics mode.  
The machine initiates a POR of the printer and **Resetting the Printer and CACHE Test Testing...** appears. The power indicator light *blinks*.  
Upon completion of the POR the following screen is displayed:

```

CACHE Test x100
P:#####      F:#####
  
```

P:##### represents the number of times the CACHE test has passed, finished successfully. Initially 000000 is displayed. The maximum pass count is 999,999.

F:##### represents the number of times the CACHE test has failed, finished with errors. Initially 000000 is displayed. The maximum fail count is 999,999.

2. To exit the test, turn the printer off.

## Parallel Wrap Test

Use this test with a wrap plug to check operation of the parallel port hardware. Each parallel signal is tested.

To run the Parallel Wrap Test:

1. Disconnect the parallel interface cable, and install the wrap plug (P/N 1319128).
2. Select the **Parallel Wrap Test** from HARDWARE TESTS in the Diagnostics mode.  
The power indicator *blinks*, indicating the test is in progress. The test runs continuously until canceled.

Each time the test finishes, the screen updates. If the test passes, the Pass Count increases by 1. However, if the test fails, one of the following messages appears for approximately three seconds:

Sync Busy Error  
 Byte Interrupt Request Error  
 Strobe Interrupt Request Error  
 Init Fail Error  
 Init Busy Error  
 Init Rise Error  
 Host Busy Error  
 RAM Data FF Error  
 RAM Data AA Error  
 RAM Data 00 Error  
 RAM Data 55 Error  
 DMA Count Error  
 DMA Address Error  
 DMA Interrupt Error  
 DMA Memory Error  
 DMA Background Error  
 Clear Init Rise Error  
 False Init Rise Error  
 Autofeed Rising Interrupt Error  
 Clear Autofeed Rise Error  
 False Autofeed Rise Error  
 Autofeed Falling Interrupt Error  
 Clear Autofeed Fall Error

Once the maximum count is reached the test stops, the power indicator goes on solid and the final results are displayed. Press **Back** (↩) or **Stop** (⊗) to exit the test.

## Serial Wrap Test

Use this test to check the operation of the Serial Port Hardware using a wrap plug. Each signal is tested.

To run the Serial Wrap Test:

1. Disconnect the serial interface cable, and install the wrap plug.
2. Select the appropriate **Serial Wrap Test** from HARDWARE TESTS in the Diagnostics mode. Values include **Serial Wrap**, **Serial 1 Wrap**, **Serial 2 Wrap**, or **Serial 3 Wrap**. P and F represent the same numbers for DRAM.  
The power indicator *blinks*, indicating the test is running.
3. This test runs continuously unless canceled by pressing **Back** (⏪) or **Stop** (⏹).

Each time the test finishes, the screen updates with the result. If the test passes, the Pass Count increases by 1. However, if the test fails, one of the following failure messages appears for approximately three seconds, and the Fail Count increases by 1:

Receive Status Interrupt Error  
 Status Error  
 Receive Data Interrupt Error  
 Transmit Data Interrupt Error  
 Transmit Empty Error  
 Threshold Error  
 Receive Data Ready Error  
 Break Interrupt Error  
 Framing Error  
 Parity Error  
 Overrun Error  
 Data Error  
 Data 232 Error  
 Data 422 Error  
 FIFO Error  
 DSR Error  
 DSR PIO Error  
 DSR Interrupt Error  
 CTS Error  
 CTS PIO Error  
 CTS Interrupt Error

Once the maximum count is reached, the test stops. The power indicator goes on solid and the final results are displayed.

Press **Back** (⏪) or **Stop** (⏹) to exit the test.

## DUPLEX TESTS

### Duplex Quick Test

This test verifies if the Duplex Option Top Margin is set correctly. This test prints a duplexed version of the Quick Test Page that can be used to adjust the Top Margin for the back of the duplexed page. You can run one duplexed page (**Single**) or continue printing duplexed pages (**Continuous**) until **Back** (↺) or **Stop** (✖) is pressed.

You must use either Letter or A4 paper.

To run the Duplex Quick Test:

1. Select **Duplex Quick Test** from DUPLEX TESTS in the Diagnostics mode.
2. Select **Single** or **Continuous**.
  - The single Duplex Quick test cannot be canceled.
  - The printer attempts to print the Quick Test Page from the default paper source. If the default paper source only supports envelopes, then the page is printed from Tray 1.
  - Check the Quick Test Page for the correct offset between the placement of the first scan line on the front and back side of a duplexed sheet.
  - If adjustment is necessary, the Top Margin in the Registration menu must be adjusted first. The Duplex Top Margin Offset may be adjusted next.
  - A positive offset moves the text down the page and widens the top margin, while a negative offset moves the text up the page and narrows the top margin.
3. Press **Back** (↺) or **Stop** (✖) to exit the test.

### Duplex Top Margin Offset

Modification of this setting controls the offset between the placement of the first scan line on the front and back side of a duplex sheet.

Changing the value by 1 unit moves the margin by 1/100 inches. A positive value moves the text down the page and widens the top margin. A negative value moves the text up the page and narrows the top margin.

### Duplex Sensor Test

This test determines whether or not the duplex sensors and switches are working correctly.

1. Select **Sensor Test** from DUPLEX TESTS in the Diagnostics mode.
2. Select the sensor to test:
  - Duplex input sensor
  - Duplex exit sensor
3. Manually actuate the duplex sensors. When the sensor/switch is closed, **Closed** displays, when the sensor/switch is open, **Open** displays.
4. Press **Back** (↺) or **Stop** (✖) to exit the test.

## INPUT TRAY TESTS

### Feed Test

This test lets you observe the paper path as media is feeding through the printer. The upper front door, used to access the print cartridge, cannot be opened during the feed test. To observe the paper path, you must open the lower front door, used to access the paper jams on the vacuum transport belt. Blank pages feed during the test.

**Note:** This test can run using any of the paper or envelope sizes supported by the printer. The pages are placed in the default output bin, however, the Feed Test menu lets you select the input source.

To run the Input Tray Feed Test:

1. Select **Feed Test** from INPUT TRAY TESTS in the Diagnostics mode.
2. Select the input source from the sources displayed on the Feed Test menu. All installed sources are displayed.
3. Select either **Single** (feeds one sheet of media from the selected source) or **Continuous** (continues to feed from the selected source until **Back** (↶) or **Stop** (✖) is pressed).
4. Press **Back** (↶) or **Stop** (✖) to exit test.

### Sensor Test

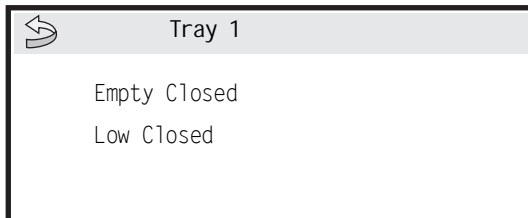
This test can be used for either 500-sheet trays or 2000-sheet trays, as well as the standard trays.

#### 500-sheet trays

Use this test to determine if the input tray sensors for a 500-sheet tray are working correctly.

To run the Sensor Test for 500-sheet trays:

1. Select the **Sensor Test** from INPUT TRAY TESTS in the Diagnostics mode.
2. Select the input source from the sources displayed. All installed sources are displayed.  
For example, Tray 1 may appear as follows:



Not all sensors display for all trays. Tray sensors are supported by the following sources:

Source	Empty sensor	Low sensor	Pass thru sensor
Tray 1	Yes	Yes	Not present
Tray 2*	Yes	Yes	Yes
Tray 3*	Yes	Yes	Yes
Tray 4*	Yes	Yes	Yes
Multipurpose Feeder	Yes	Not present	Not present
* 2000-sheet trays may be in this position. See <b>“For 2000-sheet trays”</b> below.			



3. Manually actuate each sensor. The tray empty sensor can be actuated by hand, however, a sheet of paper can be used to cover the pass thru sensor. When the sensor is closed, CL displays when the sensor is open, OP appears.
4. Press **Back** (↺) or **Stop** (✖) to exit the test.

#### For 2000-sheet trays

This test can also be used to determine if the 2000-sheet tray sensors are working correctly.

1. Select **Sensor Test** from INPUT TRAY TESTS in the Diagnostics mode. for the tray you want to test. The display lists the sensors and their current state, for example:

Empty Open
------------

The selected tray is displayed on line 1 (<input tray> is either **Tray 2**, **Tray 3**, or **Tray 4**.)

Empty sensor  
Near empty sensor  
Paper level sensor  
Input trays side cover sensor

2. Manually actuate each tray sensor by moving the flag in and out of the sensor. Open appears when the flag is out of the sensor, or Closed when the flag is in the sensor.

## OUTPUT BIN TESTS

### Feed Test

**Note:** If the “Configure Bins” printer setting is link rather than mailbox, the printer selects its own internal bin linking regardless of which output bin is selected for the feed test.

This test verifies that media can be fed to a specific output bin. No information is printed on the media because the printhead is not turned on during this test.

To run the Output Bin Feed Test:

1. Select **Feed Test** from OUTPUT BIN TESTS in the Diagnostics mode.
2. Select the output bin you want the paper to exit into. All output bins installed on the printer are shown on the feed test menu.
3. Select either **Single** (one sheet of media feeds to the selected output bin) or **Continuous** (media continues feeding to the selected output bin) until **Back** (↺) or **Stop** (✖) is pressed.
4. Press **Back** (↺) or **Stop** (✖) to exit the test.

### Feed to All Bins

One page is fed to every bin, including the finisher, if available. The test runs continuously until **Back** (↺) or **Stop** (✖) is pressed.

## Sensor Test

This test verifies if the output bin sensors are working correctly.

The following output sources, if installed, are supported by this test.

Standard Bin  
Output Expander  
5-Bin Mailbox

To run the Output Bin Sensor Test:

1. Select **Sensor Test** from OUTPUT BIN TESTS in the Diagnostics mode.
2. Select the bin you want to test.
  - If **Standard Bin** is selected, the display shows something like the following:

Full Open

Standard Bin Output Bin Full Sensor

- If **Output Expander** is selected, the following is displayed:

Pass Thru Open

Output Expander Pass Thru Sensor.  
Output Expander Full Sensor  
Output Expander Near Full Sensor.

- If **5-Bin Mailbox** is selected, the following is displayed:

Pass Thru Sensor

	5-Bin Mailbox first Pass Thru Sensor.
	5-Bin Mailbox second Pass Thru Sensor.
	5-Bin Mailbox output level sensor where:
Empty	EM indicates the bin is empty.
NL	NL indicates the bin contains media but the bin is not near full nor full.
Near Full	NF indicates the bin is near full.
Full	FL indicates the bin is full.

3. Once the selection is displayed, you can manually actuate the sensor you want to test. When the sensor is closed, `Closed` displays, and when the sensor is open, `Open` displays.
4. To exit the test, press **Back** (⏪) or **Stop** (⛔).

## Diverter Test

**Note:** This test checks the operation of each mailbox output diverter. Also if more than one 5-Bin mailbox option is installed, the test checks all of the diverters installed on the printer.

When the test is selected from OUTPUT BIN TESTS in the Diagnostics mode, `Diverter Test Running` is displayed.

This is a single test and ends upon completion.

## FINISHER TESTS

### Staple Test

This test verifies the operation of the staple mechanism in the finisher.

To run the Staple Test:

1. Select **Staple Test** from FINISHER TESTS in the Diagnostics menu.
2. The printer feeds eight pieces of media to the finisher and accumulates all eight pieces in the finisher. After the last sheets are accumulated, the pack is stapled.
3. When the test is complete, the operator panel displays Staple Test Passed.
4. To exit the test, press **Stop** (⊗).

### Finisher Feed Test

This test verifies that media can be fed from the default source to a finisher output bin. The sheet fed for this test is blank. Any size paper that is supported can be used. You can also specify which bin to test by using the Output Bin Feed Test (see “**Feed Test**” on page 3-21) or send media to all bins Output Bin Feed To All Bins (see

To run the Finisher Feed Test, select **Finisher Feed Test** from the menu. The printer feeds eight pieces of media to the finisher output bin.

This test cannot be canceled or terminated once the test has begun. When the test is complete, the printer returns to the original screen.

### Finisher Sensor Test

This test determines if the finisher sensors are working correctly. The sensors that are tested are:

- Bin Level
  - Bin Empty
  - Bin Full
  - Bin Near Full
- Cover and Door
  - Top Cover
  - Side Door
- Pass and Media
  - Passthru
  - Media
- Staple Sensors
  - Cartridge Presence
  - Staple Low
  - Self-priming
  - Home Signal

To run the Finisher Sensor Test, select **Finisher Sensor Test** from FINISHER TESTS in the Diagnostics mode.


- If you select Sensor group you want to test, such as **Bin Level**, from the menu, Bin Level Testing... is displayed and the sensors in that group are polled:
- Once the sensors are polled, you can manually actuate each of the sensors. When the sensor is closed, Closed is displayed; when the sensor is open, Open is displayed.
- To exit the sensor test, press **Back** (⏪) or **Stop** (⊗).

## BASE SENSOR TEST

Use the Base Sensor Test to determine that the sensors located inside the printer are operating correctly. The following sensors can be checked using this test:

- Input—In-Line Media Clear
- Input—S2 Media Clear
- Fuser Exit Media Clear
- NarrowMedia Media Clear
- K TMC Sensor Not Closed (black)
- C TMC Sensor Not Closed (cyan)
- M TMC Sensor Not Closed (magenta)
- Y TMC Sensor Not Closed (yellow)

See **“Printer sensors” on page 5-3** for locations for these sensors. See **“Cartridge contact assembly pin locations (cyan, magenta and yellow)” on page 5-4** or **“Cartridge contact assembly pin locations (black)” on page 5-5**.

	<p><b>CAUTION</b></p> <p>These sensors are near high voltage terminals to the print cartridge. Use a nonconducting item to toggle these switches and not your hand.</p>
---	---

To run the Base Sensor Test.

1. Select **Base Sensor Test** from BASE SENSOR TEST in the Diagnostics mode.
2. Select the sensor to test.  
Open, Clear, Closed, or Not Closed may be displayed, depending on the sensor.
3. Manually toggle the sensors by hand to verify that each sensor switches from open to closed.

## DEVICE TESTS

### Quick Disk Test

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

To run the Quick Disk Test:

1. Select **Quick Disk Test** from DEVICE TESTS in the Diagnostics mode.
  - The power indicator *blinks* while the test is in progress.
  - Quick Disk Test/Test Passed is displayed if the test passes and the power indicator turns on solid.
  - Quick Disk Test/Test Failed is displayed if the test failed and the power indicator turns on solid.
2. Press **Back** (↶) or **Stop** (⊗) to return to the Device Tests menu.

### Disk Test/Clean

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

To run the Disk Test/Clean Test:

1. Select **Disk Test/Clean** from DEVICE TESTS in the Diagnostics mode.  
Files will be lost/Go or Stop? is displayed to warn the user.
2. To exit the test immediately and return to DEVICE TESTS, press **Back** (↶) or **Stop** (⊗). To continue with the test, press **Select** (✓).  
If (✓) is selected, Disk Test/Clean/BAD:000000 00% is displayed. The screen updates periodically, indicating the percentage of test completed and the number of bad blocks found.
3. The power indicator *blinks* during the test. The test can be canceled anytime during the test by pressing **Back** (↶) or **Stop** (⊗).
  - Once the test is complete, the power indicator turns on solid and a message displays.
  - xxxx Bad Blocks/yyyyy Usable is displayed if fewer than 2000 bad blocks are detected. xxxx indicates the number of bad blocks, and yyyyyy indicates the number of usable blocks.
  - xxxx Bad Blocks/Replace Disk is displayed if more than 2000 bad blocks are detected. The disk cannot be recovered because too many bad blocks exist on the disk.
4. Press **Back** (↶) or **Stop** (⊗) to return to DEVICE TESTS.

### Flash Test

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

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

To run the Flash Test:

1. Select **Flash Test** from DEVICE TESTS in the Diagnostics mode.
  - The power indicator *blinks* while the test is running.
  - Flash Test/Test Passed is displayed if the test passes and the power indicator turns on solid.
  - Flash Test/Test Failed is displayed if the test fails and the power indicator turns on solid.
2. Press **Back** (↶) or **Stop** (⊗) to return to DEVICE TESTS.

## PRINTER SETUP

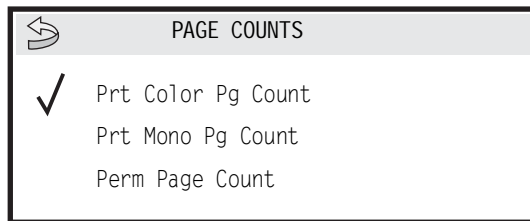
### Defaults

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

Printer default values	US value	Non-US value
Media size (paper feeding sources which do not have hardware size sensing capabilities)	Letter	A4
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

**Warning:** Modification of the printer setting Defaults causes the NVRAM space to be restored to the printer's factory settings.

### PAGE COUNTS



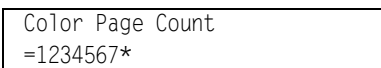
#### Setting the page counts

The printer's page count can be changed through the diagnostic menu. The Color and Mono Page Count can be changed whenever the media size sensing board is replaced.

**Note:** The Perm Page Count cannot be changed.

1. Select **PAGE COUNTS** from PRINTER SETUP in the Diagnostics mode.
2. Select either **Color Page Count** or **Mono Page Count**.

When you have made the selection, a screen similar to the following is displayed:



3. The left most digit *blinks*, indicating it is the first digit to be changed. To change the value, press ◀ or ▶ until the desired value is displayed. Press **Select** to move to the next digit. The digit *blinks*. Continue modifying each digit using this method. To skip a digit and keep its current value, press **Select**.
4. When you have completed selecting the final digit, press **Select** and the count is stored in NVRAM.
5. Press **Back** (⏪) to return to PRINTER SETUP.
6. Select a new test or select **Exit Diagnostics** from the Diagnostic Menu.

### Viewing the permanent page count

The permanent page count can only be viewed from the operator panel and cannot be changed.

1. Select **Perm Page Count** from PRINTER SETUP in the Diagnostics mode.
2. A screen similar to the following screen displays when permanent page count is selected:

Perm Page Count =1234567*
------------------------------

3. Press **Back** (↶) to return to PRINTER SETUP in the Diagnostics mode.

### Serial Number

You can view the serial number.

### Engine Setting x

**Warning:** Should not be changed without specific instructions from the next level of support.

### Model Name

You can view the model name.

### Configuration ID

The two configuration IDs are used to communicate information about certain areas of the printer that cannot be determined using hardware sensors. The configuration IDs are originally set at the factory when the printer is manufactured, however the servicer may need to reset Configuration ID 1 or Configuration ID 2 whenever you replace the system board. The IDs consist of eight hexadecimal characters, including 0 through 9 and A through F.

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

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

To set the configuration ID:

1. Select **Printer Setup** from the Diagnostic mode.
2. Select **Configuration ID** from the Printer Setup menu.  
Submitting Selection displays, followed by the value for Configuration ID 1.
3. Enter the Configuration ID 1.
  - To select a digit or character to change, press ◀ or ▶ until the digit or character is underlined.
  - To change a digit or character, press ▲ to increase or ▼ to decrease the value.
  - When the last digit is changed, press ✓ to validate the Configuration ID 1.  
If Invalid ID appears, the entry is discarded, and the previous Configuration ID 1 is displayed on the screen.  
If the process is successful, Submitting Selection appears on the display, followed by the current value for Configuration ID 2.
4. Repeat the steps for entering the Configuration ID, and press ✓.  
If the Configuration ID 2 is validated, Submitting Selection appears, and a check (✓) appears next to **Printer Setup**.
5. Restart the printer.

## Reset Color Calibration

The Reset Calibration resets the TPS NVRAM values when initiated.

1. Select **Reset Calibration** from PRINTER SETUP in the Diagnostics mode, and the following screen displays:

PRINTER SETUP Reset Calibration
------------------------------------

Then the following screen is displayed:

Resetting Calibration
--------------------------

2. The printer returns to the previous screen when calibration is complete.

## Edge to Edge

Turn Edge to Edge printing on or off.

## Cal Ref Adj

**Warning:** Should not be changed without specific instructions from the next level of support.

## EP SETUP

### EP Defaults

The EP Defaults is used to restore each of the printer settings contained in the EP Setup menu to their factory default value.

To restore the EP Setup settings to factory defaults, select **Restore**.

To exit the menu without restoring the settings to the factory defaults, select **Do Not Restore**.

### Fuser Temp

**Warning:** Should not be changed without specific instructions from the next level of support.

### DC Charge Adjustment

**Warning:** Should not be changed without specific instructions from the next level of support.

### Dev Bias Adj

**Warning:** Should not be changed without specific instructions from the next level of support.

### Transfer Adjust

**Warning:** Should not be changed without specific instructions from the next level of support.



## ERROR LOG

### Display Log

The event log provides a history of printer errors. The event log contains the 12 most recent errors. The most recent error appears in position 1, and the oldest error appears in position 12 (if 12 errors have occurred). If an error occurs after the log is full, the oldest error is discarded. Identical errors in consecutive positions in the log are entered. All 1xx, 2xx, and 9xx error messages are stored in the error log. These errors are also shown in Print Quality Pages.

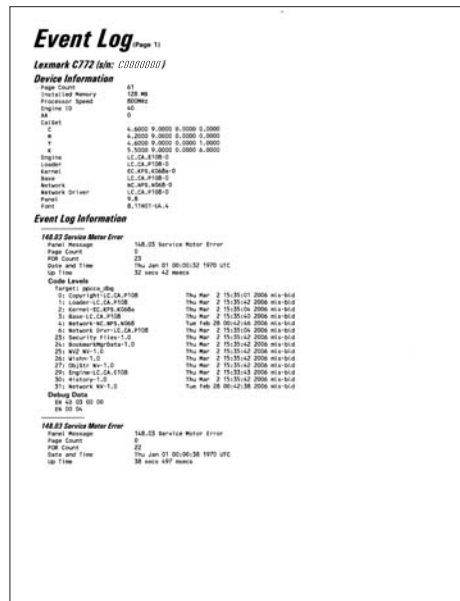
To view the Event Log:

1. Select **Display Log** from **EVENT LOG** in the Diagnostics mode.  
The Event log is displayed on three screens as only four entries display at a time.
2. Press ◀ or ▶ to move forward or backward and view additional lines.
3. Press **Back** (⏪) or **Stop** (⏹) to exit the Event Log.

### Print Log

The history of printer errors can be printed. The first page of the event log contains a Printer Information section similar to what is printed on a Menu Setting Page. Printed at the top of each page is the model name and serial number to assist in tracking each page of a report to a specific printer. The printout of the log contains the following information for each error in the log:

- Page count when the error occurred (except for 900 service RIP software errors).
- Code versions of all packages when error occurred.
- Panel display when error occurred (except for 900 service RIP software errors).
- Debug information and secondary error codes depending on the error.



The Clear Log operation clears out the errors that print in this report. The errors listed in the Display Log operation do not necessarily match in number nor in order with the errors from the printer log.

**Note:** This log can be printed from configuration menu, but the debug and secondary error codes are not printed on this log.

## Clear Log

To clear the Event Log:

1. Select **Clear Log** from EVENT LOG in the Diagnostics mode.
2. Select **Yes** to clear the Event Log or **No** to exit the Clear Log menu.  
If **Yes** is selected, the Empty Event Log displays on the screen.
3. Press **Back** (⏪) or **Stop** (⏹) to exit the Clear Log menu.

## ***EXIT DIAGNOSTICS***

Select **EXIT DIAGNOSTICS** to exit the Diagnostics mode and return to normal mode.



## Configuration Menu

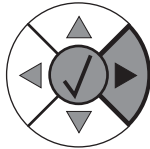
The Configuration menu contains a set of menus, settings, and operations which are infrequently used by a user. Generally, the options made available in this menu are used to configure a printer for operation.

**Note:** An asterisk (\*) in the value list in the following menus indicates the default value.

### Entering Config Menu

To enter the Configuration Menu:

1. Turn off the printer.
2. Press and hold  and .



3. Turn on the printer.
4. Hold the buttons about 10 seconds (until the clock face appears).

The following are available from the Configuration Menu:

### Configuration Menu

Reset Fuser Cnt	See <b>“Reset Fuser Cnt”</b> on page 3-32
Black Only Mode	See <b>“Black Only Mode”</b> on page 3-32
Prt Quality Pgs	See <b>“Prt Quality Pgs”</b> on page 3-32
Color Trapping	See <b>“Color Trapping”</b> on page 3-32
Tray Insert Msg	See <b>“Tray Insert Msg”</b> on page 3-32
SIZE SENSING	See <b>“SIZE SENSING”</b> on page 3-32
Panel Menus	See <b>“Panel Menus”</b> on page 3-33
PPDS Emulation	See <b>“PPDS Emulation”</b> on page 3-33
Demo Mode	See <b>“Demo Mode”</b> on page 3-33
Factory Defaults	See <b>“Factory Defaults”</b> on page 3-33
Energy Conserve	See <b>“Energy Conserve”</b> on page 3-33
EVENT LOG	See <b>“EVENT LOG”</b> on page 3-33
Auto Color Adjust	See <b>“Auto Color Adjust”</b> on page 3-34
Paper Prompts	See <b>“Paper Prompts”</b> on page 3-34
Env Prompts	See <b>“Env Prompts”</b> on page 3-34
Font Sharpening	See <b>“Font Sharpening”</b> on page 3-34
Jobs On Disk	See <b>“Jobs On Disk”</b> on page 3-35
Disk Encryption	See <b>“Disk Encryption”</b> on page 3-35
Exit Config Menu	

### Exiting the Config Menu

Select **EXIT Config Menu** to exit the Configuration menu and return to normal mode.

## Reset Fuser Cnt

This only displays if the Maintenance Warning and Intervention function is enabled in the printer Configuration ID. The fuser maintenance page counter is incremented when a page is printed and incremented by two when a duplex sheet is printed. The counter can be used to track printer usage. When the counter reaches 120,000 for models C78x or 200,000 for models C77x, the printer posts a fuser maintenance message on the operator panel.

1. Select **Reset Fuser Cnt** in the Config Menu to view the page count.
2. Press **Back** (↶) to return to the previous menu or press **Select** to reset the maintenance page counter back to zero.

## Black Only Mode

When this setting is set to On the printer prints only grayscale printing. The default is Off. The result is similar to setting Print Mode to Black Only.

## Prt Quality Pgs

The Print Quality Test consists of five pages. Pages one and two contain a mixture of graphics and text. The remainder of the pages only contain graphics. Use this test to identify print quality problems. The Test Pages must be printed on A4, Legal, or Letter paper.

1. Select **Prt Quality Pgs** from the Config Menu.
2. Press **Select**.

Go to **“Print tests” on appendix page B-1** for representative samples of the pages.

## Color Trapping

Color trapping is an aid to graphics and text. When text or graphics appear over other colors, a misalignment may allow white paper to show through at the borders of the colors. Color trapping reduces the cutout area under the upper image so a slight misalignment does not show. This only affects PostScript printing.

1. Select **Color Trapping** from the Config Menu.
2. Select the value or **Off**. The range is 1 to 5, and the default value is 2.  
Press ► to increase the value.

## Tray Insert Msg

This setting controls how long, in seconds, the tray insert message displays when a tray is inserted.

The values are **Disabled** and 1 to 90. The default value is 5.

## SIZE SENSING

Automatic size sensing can be disabled or enabled in this menu. Only paper sources that support Auto Size Sensing are displayed.

1. Select **SIZE SENSING** from the Config Menu.
2. Select a tray. Only those trays with size sensing display. One of the following is displayed:  
Tray 1 Sensing  
Tray 2 Sensing  
Tray 3 Sensing  
Tray 4 Sensing
3. Select **Auto** to turn size sensing on for that tray, or select **Off** to disable size sensing.
4. Press **Back** (↶) to exit.

## **Panel Menus**

Disabling Panel Menus prohibits users from modifying any setting or executing any operation available in the Ready Menu group.

1. Select **Panel Menus** from the Config Menu.
2. Select **Disable** or **Enable**.  
Enable is the default.

## **PPDS Emulation**

This only displays if the PPDS interpreter is available.

1. Select **PPDS Emulation** from the Config Menu.
2. Select **Activate** or **Deactivate**.

## **Demo Mode**

This printer supports a demo mode that is usually used in retail environments to illustrate the features of the printer. The printer features are illustrated by demonstration files stored in the RIP firmware, flash option, or disk option.

1. Select **Demo Mode** from the Config Menu.
2. Select **Activate** or **Deactivate**.  
Deactivate is the default value.

## **Factory Defaults**

The customer can restore either the network settings or the base printer settings to their factory default values. When Restore Base is selected, non-critical base printer NVRAM settings are restored. When Restore Network is selected, all network NVRAM settings are restored to their factory default settings. This option is only available on models with an integrated network adapter. In either case, Restoring Factory Defaults is displayed after the operation is selected.

1. Select **Factory Defaults** from the Config Menu.
2. Select **Restore Base** or **Restore Network**.  
**Note:** Restore Network is only listed on models that have integrated network support.

## **Energy Conserve**

When Energy Conserve is on, the customer does not have access to disable the Power Saver function. When Energy Conserve is off, Disable appears as an additional menu item in the Power Saver menu. This setting only affects the values that are displayed in the Power Saver Menu.

1. Select **Energy Conserve** from the Config Menu.
2. Select **On** or **Off**.

## **EVENT LOG**

The history of printer errors can be printed by selecting **Print Log**.

**Note:** This log can be printed from Diagnostics mode or the Configuration Menu, but the report from Configuration menu contains the debug and secondary error codes that are not printed in the version from the Diagnostics mode. The errors printed here do not necessarily match in number or in order those printed with Display Log in Diagnostics. However, you can select additional options in Diagnostics mode, including Display Log and Clear Log. For additional information, see **“ERROR LOG” on page 3-29**. Errors are also shown on the Print Quality Pages.

## ***Auto Color Adjust***

Automatic color adjustments periodically occur during printing, based on internal algorithms. The following situations prompt the adjustment:

- If the printer detects a new or different color cartridge is installed, usually at power on or when the cover is closed.
- If the printer detects a new or different ITU is installed, usually at power on or when the cover is closed.
- If the fuser detects at power on that the fuser temperature is at 60° C.
- If Power Saver has been active for eight hours or more.
- If the printer was turned off during a calibration cycle.
- At the Ready state, if one of several internal engine parameters has exceeded a given threshold.
- If requested by the user from the operator panel or by a PjL command.
- At the Ready state if more than 500 pages are printed since the last calibration. This value can be adjusted in this menu.

Selecting Off disables all Auto Color Adjust prompts listed above except the request of the user or the PjL command.

1. Select **Auto Color Adjust** from the Config Menu.
2. Select **Off** or a value from 100 to 1000. The default value is 500.  
Use ► to increase the value.

The values are in increments of 50. The default is 500 pages. The number refers to how many pages since the last calibration before recalibration begins automatically.

## ***Paper Prompts***

Setting Paper Prompts controls which tray a change prompt is directed to when paper is sensed to be the wrong size.

1. Select **Paper Prompts** from the Config Menu.
2. Select **Auto**, **MP Feeder**, or **Manual Paper**.

## ***Env Prompts***

Env Prompts controls which tray a change prompt is directed to when the envelopes are sensed to be the wrong size.

1. Select **Env Prompts** from the Config Menu.
2. Select **Auto**, **MP Feeder**, or **Manual Envelope**.

## ***Font Sharpening***

Font Sharpening allows the user to adjust the value of the high frequency screens used for font data. For example, if the value is 24, all fonts 24 points and less use the high frequency screens.

1. Select **Font Sharpening** from the Config Menu.
2. Select a value from 1 to 150. The default value is 24.  
Use ► to increase the value. The increment is 1.

This feature only works in PostScript emulation.

### ***Jobs On Disk***

This setting only appears if a hard disk is installed. Jobs can be deleted from the hard disk. Settings are Delete and Do Not Delete (default).

### ***Disk Encryption***

This setting only appears if a hard disk is installed, the disk is not read only, and Disk Encryption is enabled.

**Warning:** When the settings are changed, all data on the hard disk is deleted.

### ***Exit Config Menu***

Press **Select** to exit the Configuration menu and reboot the printer.

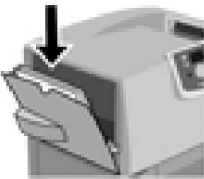
## Paper jams

### Identifying jams

If the printer jams, the appropriate jam message will be displayed on the printer operator panel. If you select Show areas on the operator panel, you can view one or more images to help you clear the jam.

<p style="text-align: center;"><b>230.13 Paper jam, 2 pages jammed</b></p> <p style="text-align: center;">Continue</p> <p>✓ Show areas</p>	<p style="text-align: center;"><b>Show areas</b></p> <p>✓ Show duplex</p> <p>✓ Show rear door</p>
--	---

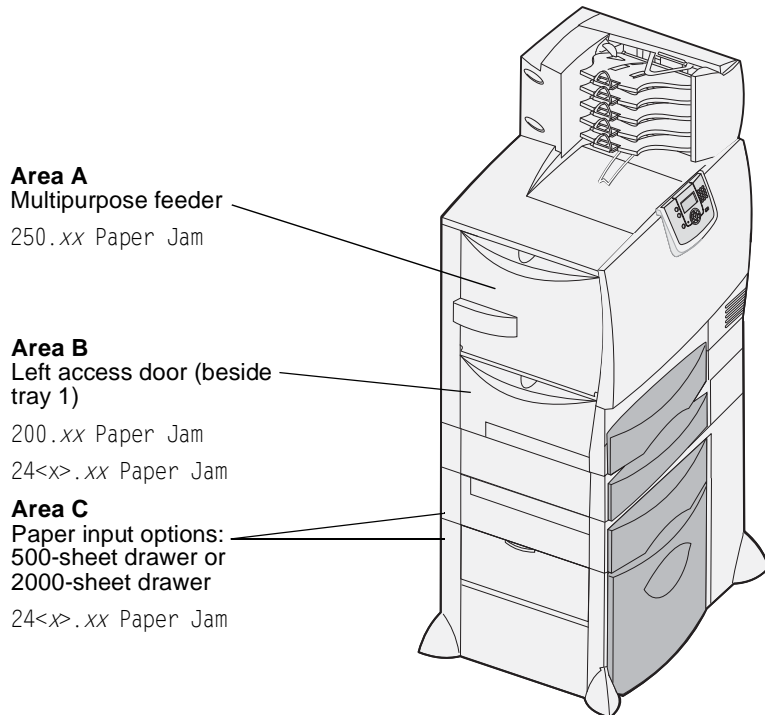


**1. Open  
manual feed  
door**

See the diagram **“Access doors and trays” on page 3-36** for an overview of the paper path and areas where jams may occur. The path varies depending on the paper source and output bins.

### Access doors and trays

The following illustrations show areas where jams can occur.

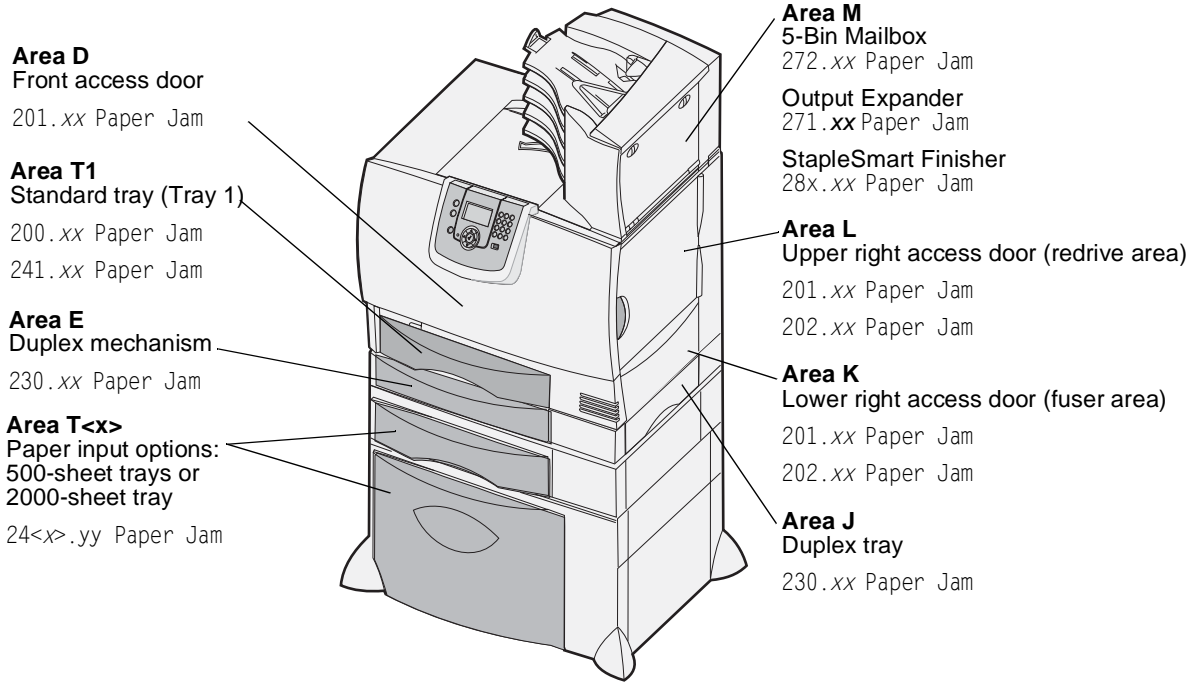




## Understanding jam messages

**Note:** Always clear the entire paper path when you receive any jam message.


### Paper jam messages




Message	Check Areas	What to do
200.xx Paper Jam (tray 1 and left access door beside tray 1)	B, T1	Follow the instructions for clearing Area B, and Area T1. If the jam message persists, paper may be caught in the image transfer unit. For instructions, see <b>“Clearing image transfer unit jams” on page 3-45.</b>
201.xx Paper Jam (fuser area)	D, K, L	Follow the instructions for clearing Area D, Area K, and Area L. If the jam message persists, paper may be caught in the fuser. For instructions, see Clearing fuser jams.
202.xx Paper Jam (fuser area)	K, L	Follow the instructions for clearing Area K and Area L. If the jam message persists, paper may be caught in the fuser. For instructions, see Clearing fuser jams.
230.xx Paper Jam (duplex area)	E, J	Follow the instructions for clearing Area E and Area J.
24<x>.xx Paper Jam (trays 1–4)	B,C, T<x>	Follow the instructions for clearing Area B, Area C and Area T<x>.
250 Paper Jam (multipurpose feeder)	A,D	Follow the instructions for clearing Area A and Area D.
27<x>.xx Paper Jam (mailbox and output expander)	M	Follow the instructions for Clearing mailbox, finisher, or output expander jams (Area M).

## Clearing the entire paper path

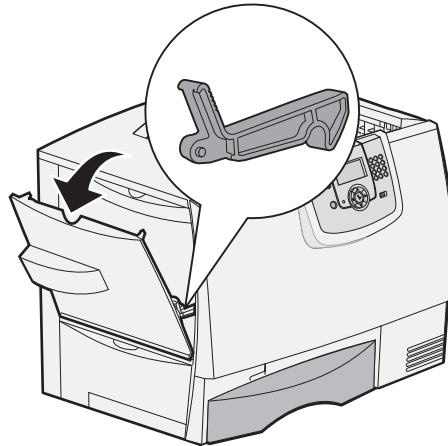
When a paper jam occurs, the printer stops operating and displays 2<xx>.yy Paper Jam and a message to clear certain printer areas.

After you have cleared the following areas, make sure all printer covers, doors, and trays are closed, and then press  to resume printing.

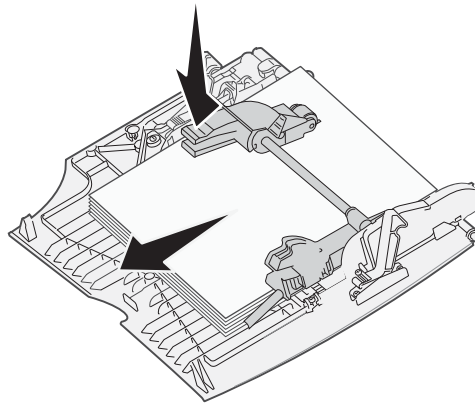
**Note:** The printer also displays <x> Pages Jammed. Be sure to remove all the jammed pages before pressing .

### Area A

1. If you are using the multipurpose feeder, release the levers on each side of the feeder to lay it flat.



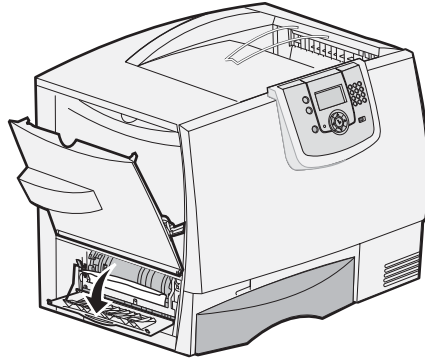
2. Press the pick assembly release lever, and remove all media and jams.



3. Return the feeder to its working position, and reload your media.

## Area B

1. Open the left access door until it latches open.

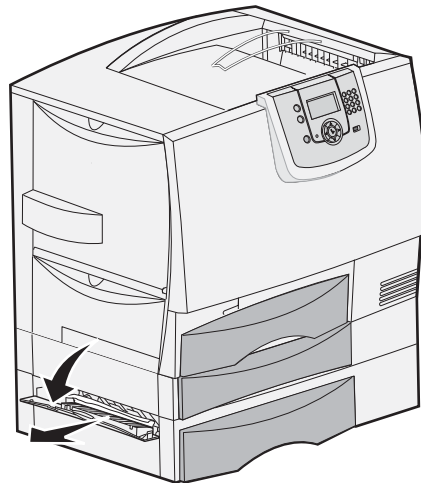


2. Remove all visible media.  
**Note:** Remove any torn media from the printer.
3. Close the door.  
**Note:** Open Tray 1, and make sure the entire media stack is pushed all the way down into the tray.

## Area C

If you have one or more optional 500-sheet drawers:

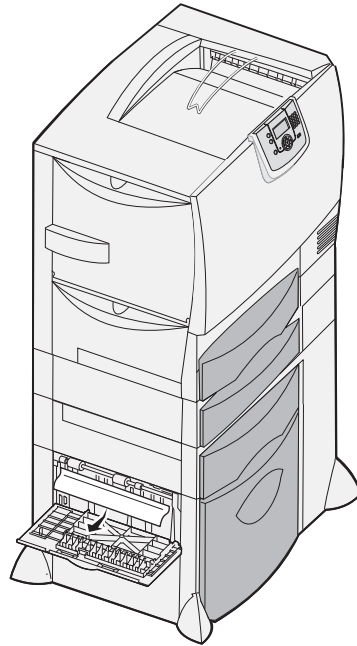
1. Open the 500-sheet drawer access door. Hold the door down while removing jams.  
**Note:** Make sure the entire paper stack is loaded correctly and pushed all the way down into the tray.



2. Close the door.

If you have an optional 2000-sheet drawer:

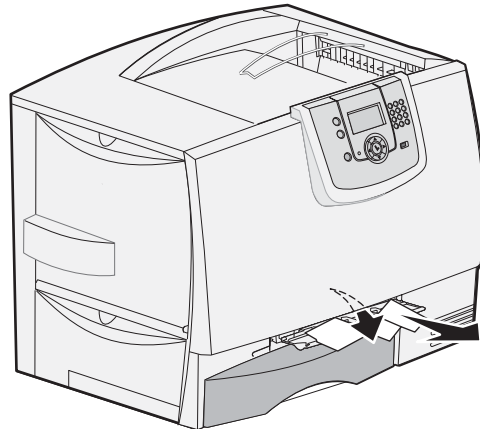
1. Open the 2000-sheet drawer access door. Pull the jam down and out of the rollers.



2. Close the door.

#### Area D

1. Open the front access door.
2. Hold down the front access door. Remove jams in the rollers under the image transfer unit.



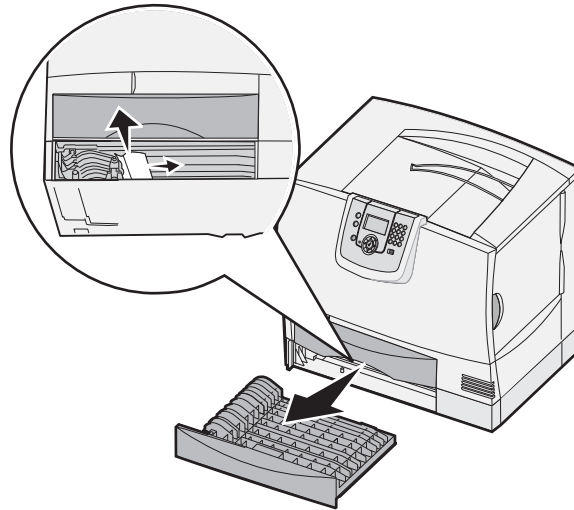
**Note:** Any image printed will not be fused to the page.

#### Area T1

1. If clearing Area B did not clear the jam, then carefully open tray 1. Remove any jams.  
**Note:** Make sure the paper is pushed all the way down into the tray.
2. Close tray 1.

## Area E

1. Pull the duplex tray E completely out. Look inside, and remove any paper caught in the rollers. Also, look up inside, as some jams may be above the rollers.



2. Reinstall the duplex mechanism in the printer.

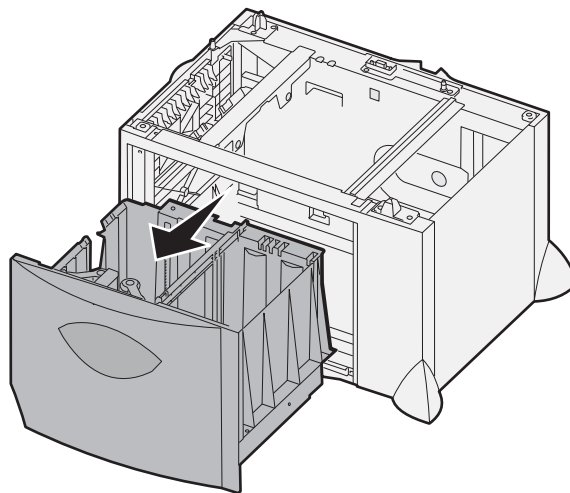
## Area T<x>

If you cannot clear all the 500-sheet drawer jams from Area C:

1. Carefully open trays 2 through 4 (all 500-sheet trays), and remove jams.  
**Note:** Make sure the paper is pushed all the way down into the tray.
2. Close trays 2 through 4.

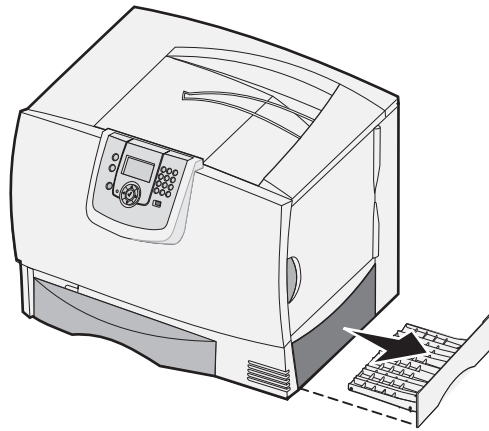
If you cannot clear the 2000-sheet drawer jam from Area C:

1. Open the 2000-sheet drawer.
2. Remove any jams, and then close the 2000-sheet drawer.



### Area J

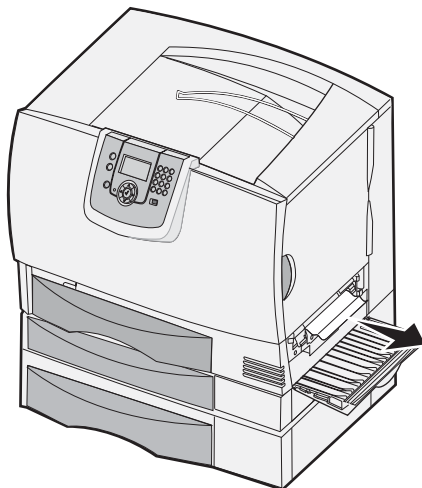
1. Remove the duplex tray J.



2. Remove any jams, and then reinstall the tray.

### Area K

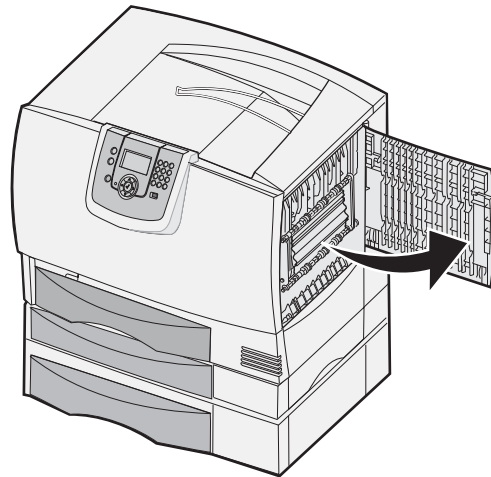
1. Open the lower right access door.



2. Remove any jams, and then close the door.

**Area L**

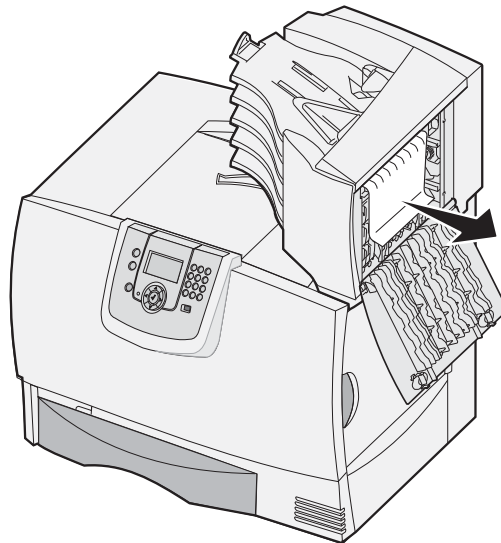
1. Open the upper right access door.



2. Remove jams from the rollers, and then close the door.

**Clearing mailbox, finisher, or output expander jams (Area M)**

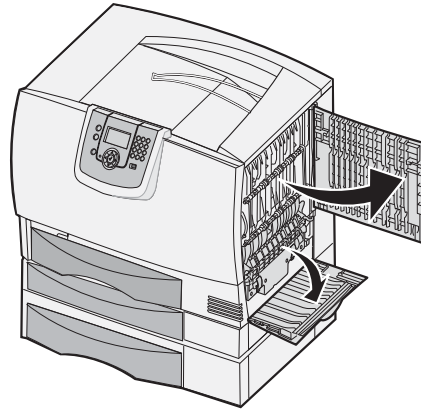
1. Open the rear door of the 5-bin mailbox or output expander.



2. Pull the jam straight out, and then close the door.

## Clearing fuser jams

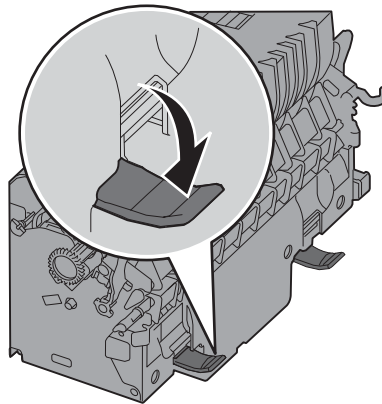
1. Clear the paper path. If the jam error message persists, go to step 2.
2. Open both the upper right and the lower right access doors (Areas K and L).



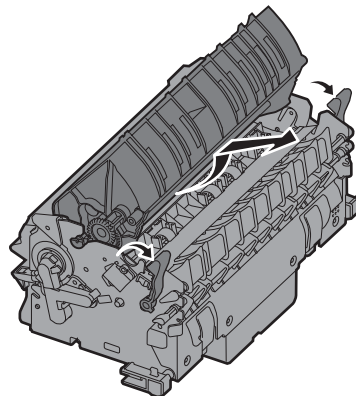
### CAUTION

The fuser assembly may be hot. Let it cool before continuing.

3. Pull down the latches. They slide toward the center to release the fuser.

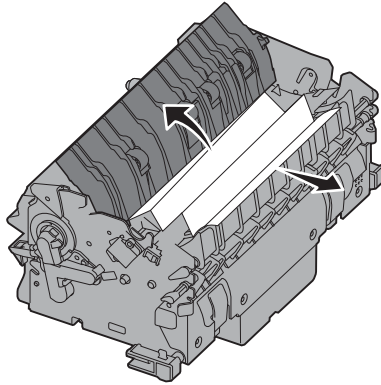


4. Pull the fuser out, and set it on a clean, flat surface.
5. *Unsnap* the housing, and set it aside.





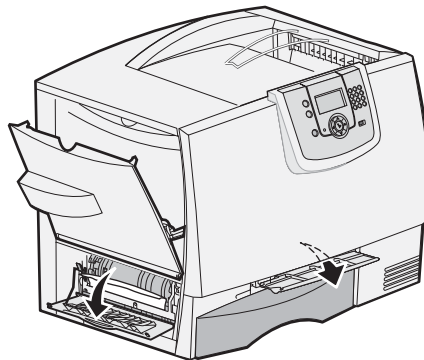
- Lift up the fuser roller cover, and remove the jam.



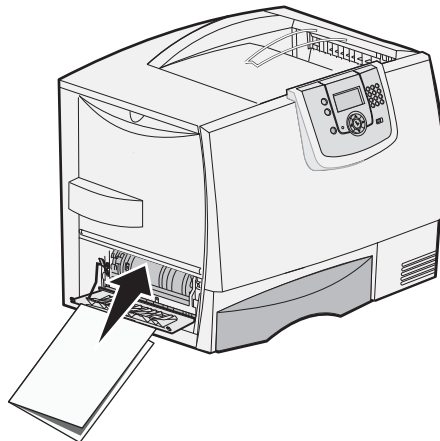
- Close the fuser roller cover.
- Snap* the housing back onto the fuser.
- Insert the fuser back into the printer.
- Slide the latches out, and then pull up to refasten them.
- Close the doors.

### Clearing image transfer unit jams

- Open the front access door and the left access door.

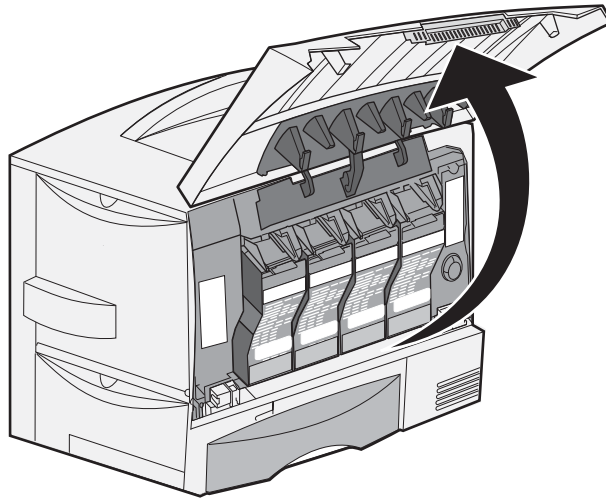


- While holding down the front access door, insert a folded piece of paper as shown to clear the paper sensors under the image transfer unit. Make sure to clear the entire width of the paper path.

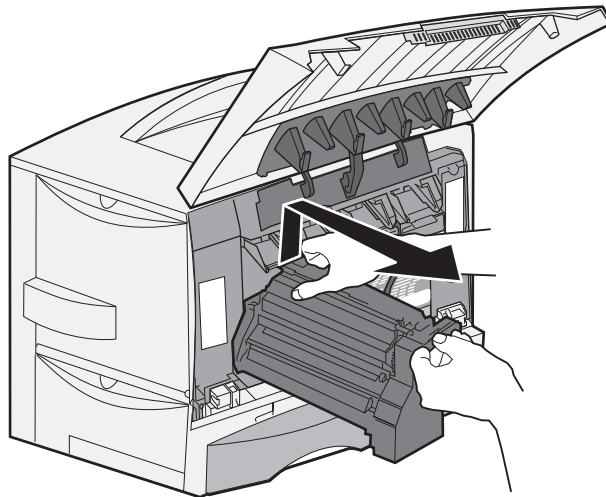


- Close the left access door and the front access door. If the jam persists, continue with step 4.

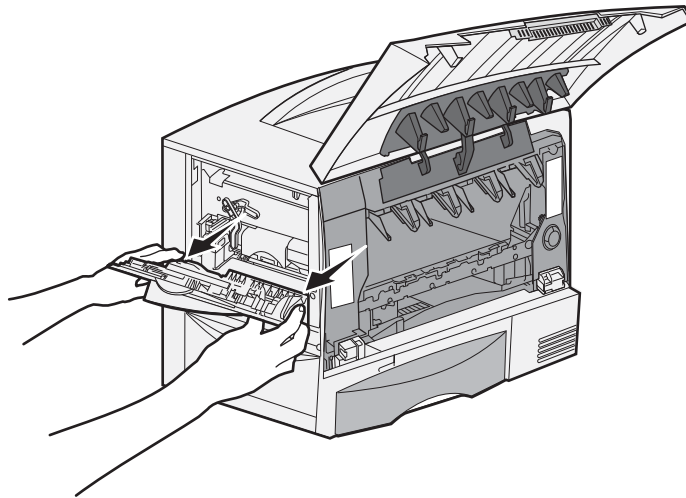
4. Turn the printer off. Open the front cover assembly.



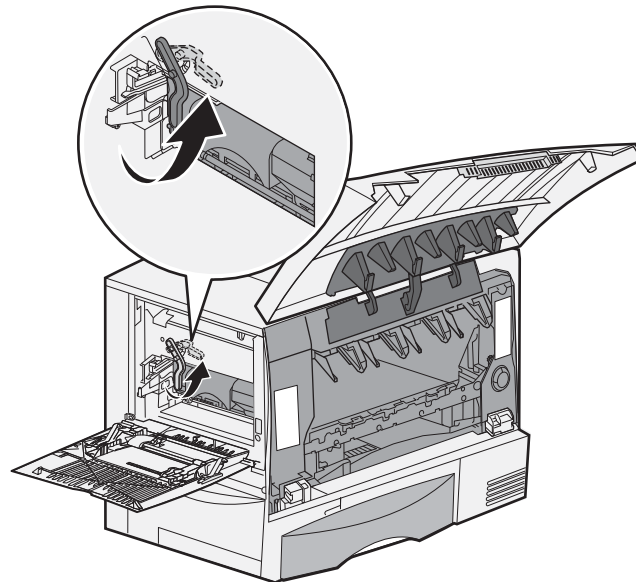
5. Remove all the print cartridges.
  - a. Pull up slightly on the cartridge handhold.
  - b. Pull the cartridge straight out, and use the handle to lift it off the guides.
  - c. Place the cartridges on a clean, flat surface out of direct light.



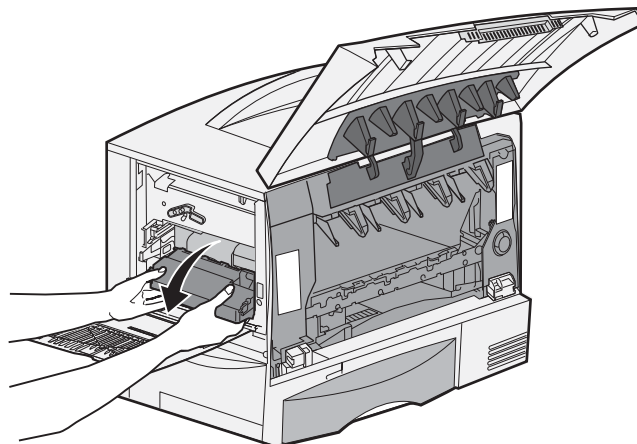
6. Release the latches to open the multipurpose feeder (area A) all the way.



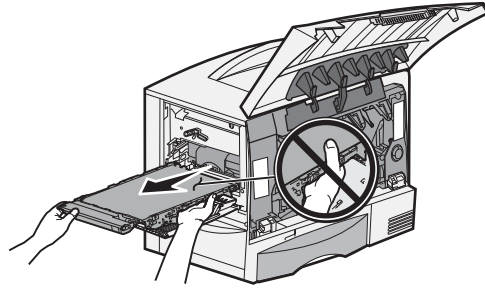
7. Remove the image transfer unit.  
a. Raise the lever to unlock the image transfer unit.



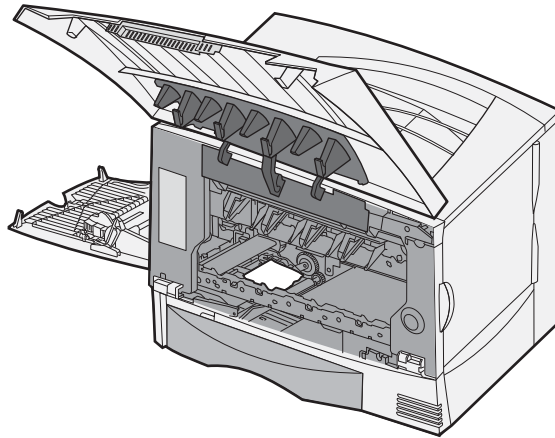
- b. Pull down on the handle.



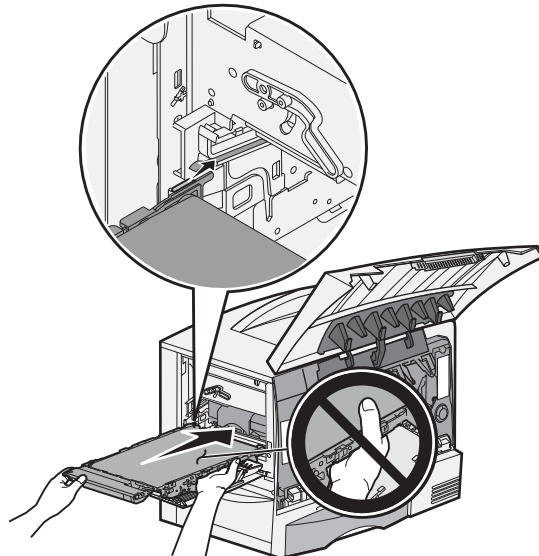
- C. Slide the image transfer unit out, and place it on a clean, flat surface.  
**Warning:** Do not touch the transfer belt. Touching the belt will damage the image transfer unit.



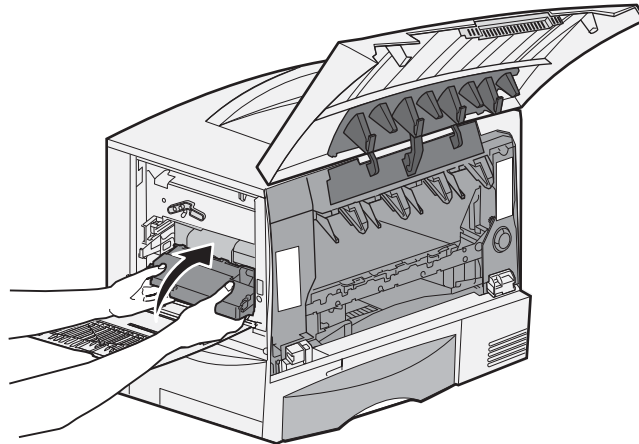
8. Look inside the printer. Remove all torn paper or other jams.



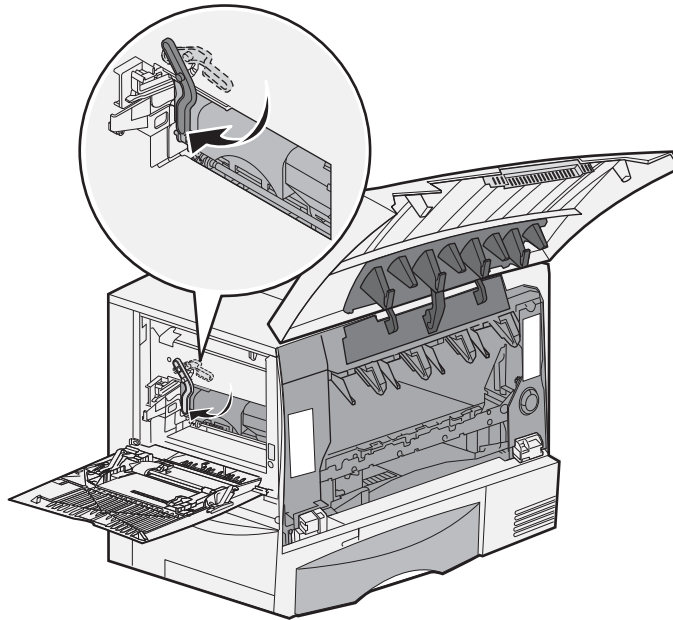
9. Insert the image transfer unit back into the printer.  
a. Align the guides with the insertion grooves, and gently slide the unit in.



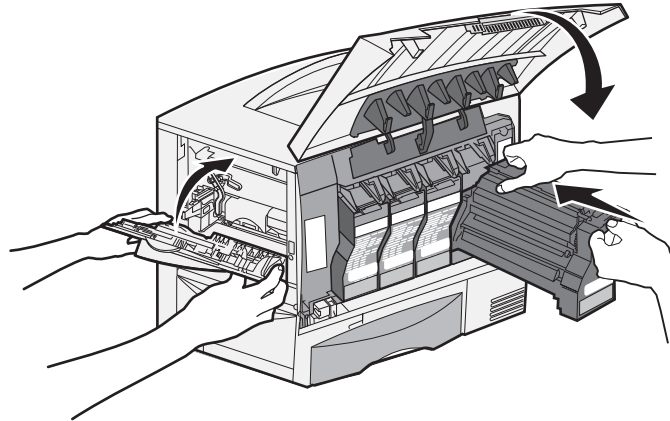
- b.** Rotate the handle up, and push gently to lock the unit in place.



- c.** Lower the lever to lock the image transfer unit into place.



10. Return the multipurpose feeder to its working position.  
Reinstall all the print cartridges.



11. Close the printer door.
12. Turn the printer on. The printer returns to a Ready state.

**If you still need help**

Turn the printer off and then back on.

---

## 4. Repair information

**Warning:** Read the following before handling electronic parts.

---






### Handling ESD-sensitive parts

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

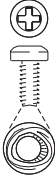


- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD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


## Screw identification table




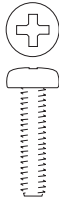
The following table contains screw types, locations, and quantities necessary to service the printer. Pay careful attention to each screw type location when doing removals. You must install the correct screw type in each location during reassembly.

Reference number	Screw type	Location	Purpose	Qty
002 	4-40 Machine	Parallel connector to shield	Attach	2
102 	M3.5x8 mm Thread Cutting	Cartridge guides to upper frame	Attach	8
		Upper front cover assembly to cartridge guides	Attach	4
		Front cover pivot to front upper cover	Attach	2
		Front left light shield to upper front cover assembly	Attach	1
121 	M3.5x6 mm Machine	LVPS to lower frame	Mounting	7
		Right rear cover to LVPS	Attach	1
		HVPS standoffs to upper frame	Mounting	4
133 	M3x8 mm Panhead	Door handle to cover	Attach	2
		Detent housing to cover	Attach	1
		Door spring shields to cover	Attach	4
214 	M3.5x10 mm Machine	ITU motor to gearbox	Mounting	4



Reference number	Screw type	Location	Purpose	Qty
232 	M3x6 mm Tapite Metal Thread Forming	Ground cable to right front cover support and upper frame.	Attach	2
		Blank INA covers to system card shield	Mounting	2
		Rear V-block plate to upper frame	Mounting	1
		Transfer HVPS to card shield	Attach	1
		Media size card to support plate	Attach	3
		Black bellcrank studs	Mounting	2
		Ground cable to bottom support plate shield support assembly	Attach	2
		Rear cover to card shield	Attach	6
		Ground cable strap to system card shield assembly	Attach	1
		Card shield to card support plate	Attach	2
		System card to shield	Mounting	8
		Card shield cover to card shield	Attach	4
		USB connector to shield	Mounting	1
312 	M2.9x6 mm Plastite	Front access door assembly	Mounting	3
		ITU switch housing to light shield	Attach	1
		Duplex baffle to lower right door	Attach	4
		Front and rear latches to lower right door	Mounting	2
		Bias latch cover to door	Attach	1
		MPF asm to MPF door	Attach	6
		Support bracket to MPF door	Attach	4
		MPF cable cover to door asm	Mounting	1
		MPF latch support brackets to upper frame	Attach	2
		Voltage cable to terminal (BOR/ITU) black	Attach	1
		Voltage cable to terminal (BOR/ITU) cyan	Attach	1
		Voltage cable to terminal (BOR/ITU) Magenta	Attach	1
		Voltage cable to terminal (BOR/ITU) yellow	Attach	1
		Thermistor to printheads	Attach	8
Guides to V-blocks	Attach	8		
323 	M3.5x8 mm Plastite Thread Forming	Frame support back plate to lower frame	Attach	2
		Door latch catch to frame	Attach	2
		Transfer HVPS to lower frame	Mounting	2
		Fuser top duct to lower frame	Attach	1
		Right front cover support to lower frame	Attach	1
		Front lower left cover to lower frame	Attach	1
		Front left handle cover asm to lower frame	Attach	4
		Front lower right cover to lower frame	Attach	1
		Front right handle cover asm to lower frame	Attach	4
		Right front cover to lower frame	Attach	2

Reference number	Screw type	Location	Purpose	Qty
323 	M3.5x8 mm Plastite Thread Forming (continued)	Left lower cover to lower frame	Attach	2
		Left upper cover asm to lower frame	Attach	2
		Left upper cover asm to upper frame	Attach	1
		Left lower pivot to lower frame	Attach	2
		Left upper pivot lower frame	Attach	1
		Rear cover to lower frame, left cover	Attach	6
		Rear fan cover to lower frame and top cover	Attach	4
		RIP fan assembly to upper frame	Attach	1
		Cartridge contact caps to housing	Attach	8
		Rear cover to lower frame, left cover and top cover	Attach	10
		Top cover asm to upper front cover	Attach	3
		Top cover asm to card shield	Attach	1
		ITU light shield asm to upper front guide ITU	Attach	1
		Ribs to upper redrive door	Mounting	5
		Upper door hinges to upper frame (redrive)	Mounting	2
		Inner redrive asm to upper frame (redrive)	Mounting	2
		Developer HVPS to cartridge contact asm	Mounting	4
		BOR drive asm to upper frame	Mounting	1
		ITU drive asm to lower frame	Mounting	3
		Fuser drive asm to lower frame	Mounting	4
		Vacuum top duct to lower frame	Mounting	2
		Toner shield to lower frame	Attach	4
		Diverter gate to lower frame (PF XPORT)	Mounting	2
		VTB asm to lower frame (PF XPORT)	Mounting	3
		Inner deflector to lower frame (PF XPORT)	Attach	1
		Jam access spring to VTB asm (PF XPORT)	Attach	1
		500 pick assembly to lower frame	Mounting	3
		Media size sensing assembly to lower frame	Mounting	1
		Paper level sensing assembly to lower frame	Mounting	3
		Duplex actuator bracket to lower frame	Mounting	2
		Fuser top duct to lower frame	Mounting	1
		Tray interlock bellcrank to lower frame	Attach	1
Front left light shield to upper front cover and front left handle assembly	Mounting	2		
Card support plate to frame	Mounting	2		
Card shield to lower frame	Mounting	3		

Reference number	Screw type	Location	Purpose	Qty
324 	M3.5x10 mm Plastite Thread Forming	Transfer HVPS/RIP fan asm to RIP shield	Attach	1
		Front left light shield to left upper cover asm and top cover	Attach	1
		Front right light shield to right front cover support and top cover	Attach	1
		Cartridge drive assemblies to upper frame	Mounting	12
		Upper door hinges to upper frame (redrive)	Attach	2
		Inner redrive assembly to upper frame	Mounting	2
		Paper level sensing assembly to lower frame	Mounting	3
		Inner deflector/pick assembly to lower frame	Mounting	1
		RIP fan to RIP fan duct	Attach	2
412 	2.9x5.2 mm Plastite	Hinge restraint to door (MPF) SEMS	Attach	1
423 	M3.5x9 mm Plastite	Tray bias bellcrank to tray	Mounting	1
484 	M3.5x14 mm Machine Panhead	Printhead to upper frame	Mounting	12

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## Removal procedures

**CAUTION**

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

**CAUTION**

The C77x weighs approximately 48–82 kg (105–181 lb) and requires at least three people to lift it safely. Remove the options before lifting the printer. Make sure your fingers are not under the printer when you lift or set the printer down.

**Note:** 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.

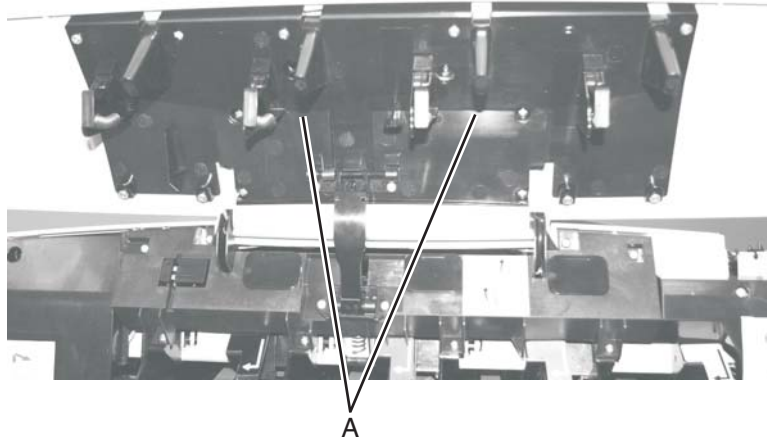
## Operator panel bezel removal

See “Operator panel bezel with overlays—1xx only”, “Operator panel bezel with overlays—2xx only”, “Operator panel bezel with overlays—3xx only”, or “Operator panel bezel with overlays—4xx only” on page 7-3 for the part number.

1. Open the front cover assembly.



2. Remove the two small screws (A).

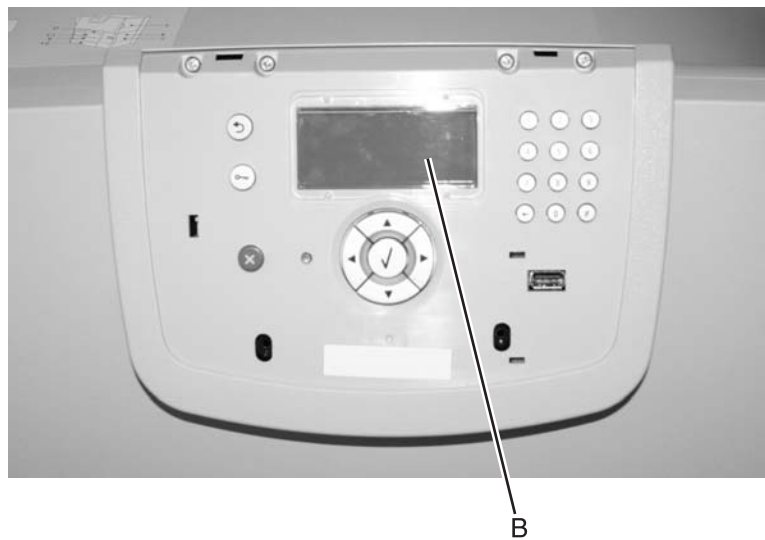


3. Close the front cover assembly.

4. Lift the bezel out and then straight up.  
**Note:** Be careful not to swing the bezel out too far and break off the clips.



**Note:** Set the lens (B) aside. It is not part of the bezel FRU.



## Lens removal

See **“Clear LCD lens”** on page 7-3 for the part number.

1. Remove the bezel. See **“Operator panel bezel removal”** on page 4-7.
2. Remove the lens (A).



### **Front cover rear pivot cover removal**

See **“Front cover rear pivot cover” on page 7-3** for the part number.

1. Remove the bezel. See **“Operator panel bezel removal” on page 4-7**.
2. Remove the four screws (A).



3. Remove the front cover rear pivot cover.





## ***Front cover or front cover backplate assembly removal***

The front cover does not include the front cover backplate assembly and operator panel. To remove the front cover, remove the front cover backplate and operator panel and reinstall on the new front cover.

See **“Front cover”** or **“Front cover backplate assembly”** on page 7-3 for the part numbers.

1. Remove the front cover rear pivot cover. See **“Front cover rear pivot cover removal”** on page 4-10.
2. Open the front cover assembly.

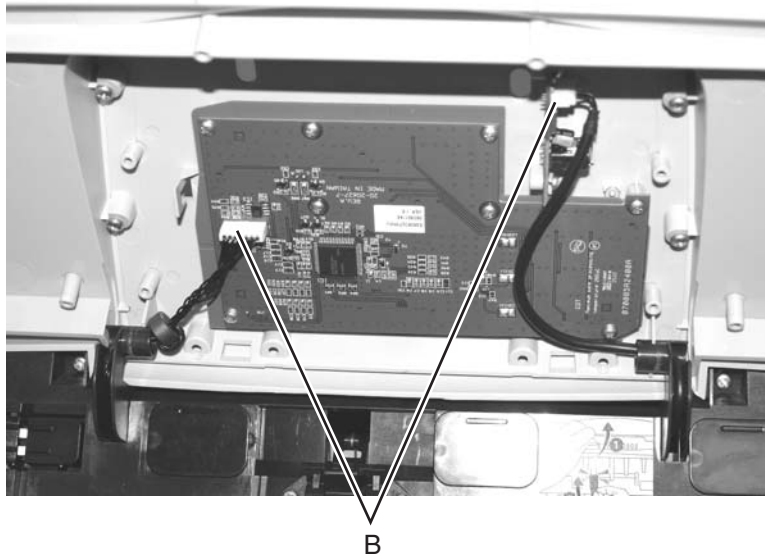


3. Remove the 12 screws (A).



4. Remove the front cover backplate assembly.

5. Unplug the two cables (B) from the operator panel assembly.



6. Remove the front cover.
7. Remove the operator panel. See **“Operator panel assembly removal” on page 4-68.**  
**Note:** Set aside the operator panel assembly and front cover backplate assembly for reinstallation. The operator panel is not part of the front cover FRU.

### ***Redrive cap removal***

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

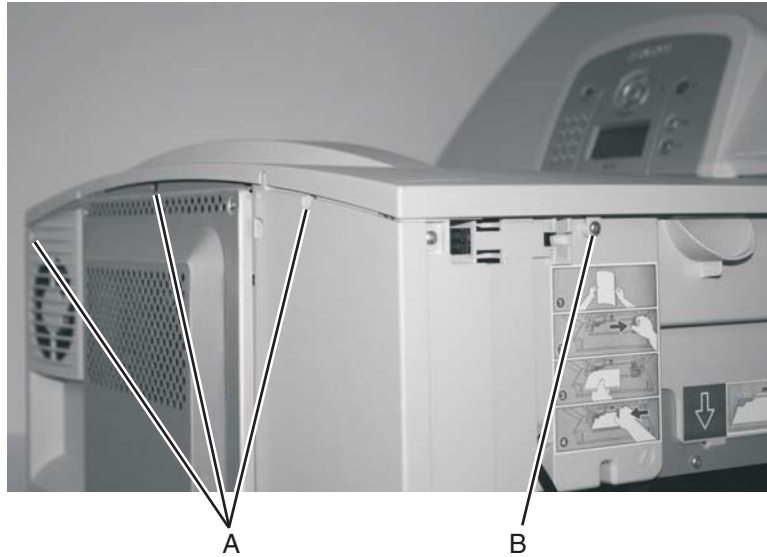
Lift the redrive cap to remove it.



## Top cover assembly removal

See **“Top cover assembly Also order cable tie parts packet (P/N 40X1648)” on page 7-3** for the part number.

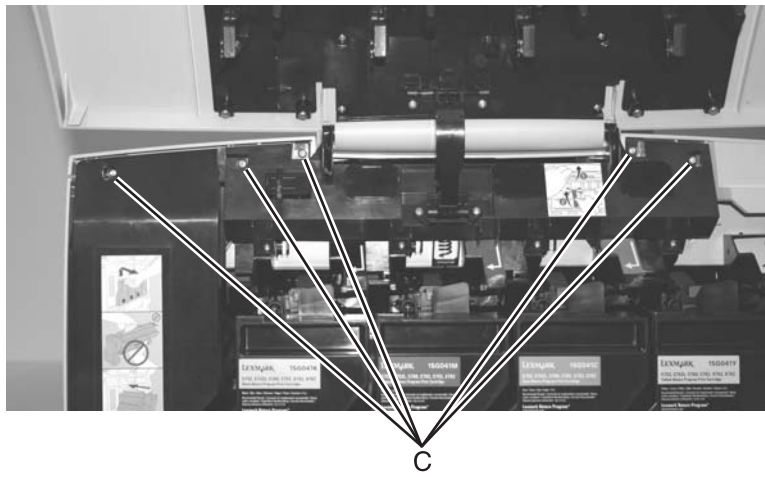
1. Remove the redrive cap. See **“Redrive cap removal” on page 4-12**.
2. Remove the front right light shield screw. See **“Front right light shield removal” on page 4-42**.
3. Remove the top cover screws (A) from the rear of the printer.
4. Open the MPF, and remove the top cover screw (B) from the left side of the printer.



5. Open the front cover assembly.



6. Remove the top cover mounting screws (C) from the front of the printer.

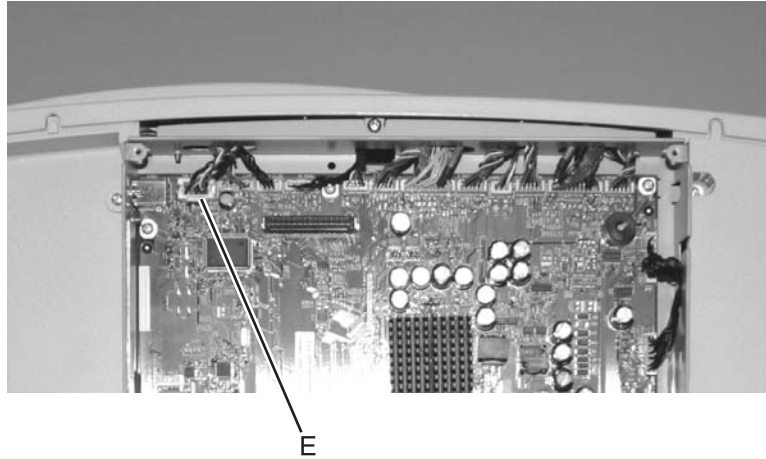


7. Remove four screws (D) holding the outer system board shield.

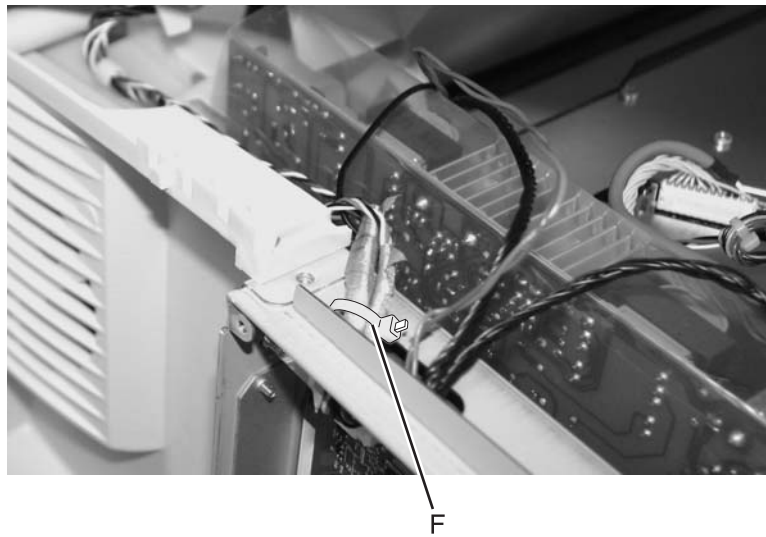


8. Remove the shield.

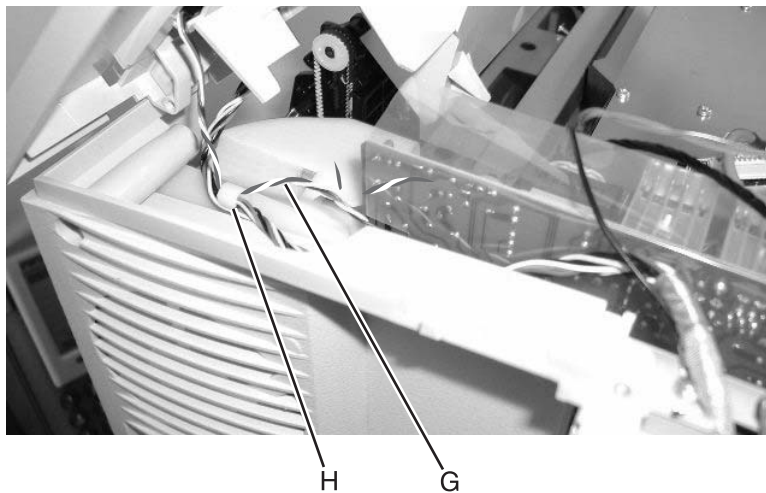
9. Disconnect the cable from J2 (E) on the system board.



10. Lift the top cover, and clip and remove the cable tie (F).



11. Pull the cable through the inner system board shield.  
12. Remove the autoconnect cable (G) from the cable retainer (H).



13. Remove the top cover.

## Installation notes

**Note:** Replace all cable ties.

**Warnings:**

- Be sure the cables are in the cable retainer (A).
- Be sure the cables are not pinched by the top cover ribs against the indicated surfaces (B) of the printer frame.
- Be sure to replace the cable tie (C).



A

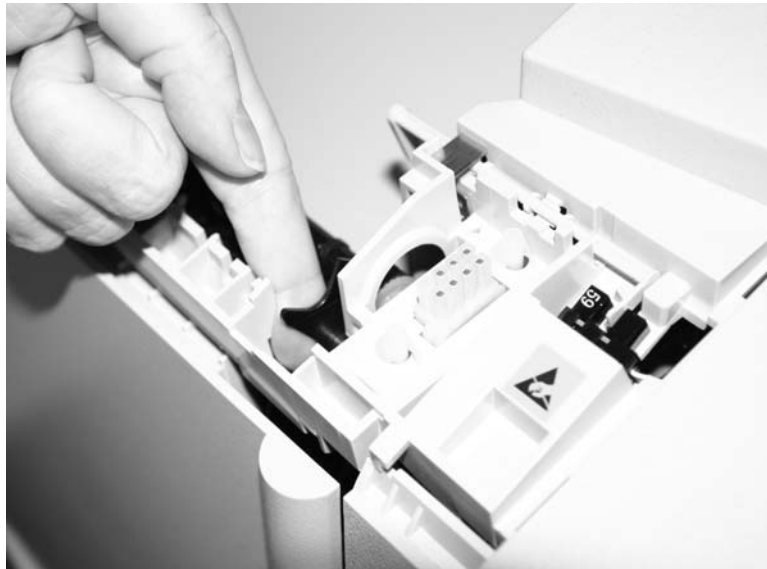


B

C

B

- Place the cover carefully over the upper redrive diverter to avoid damage.



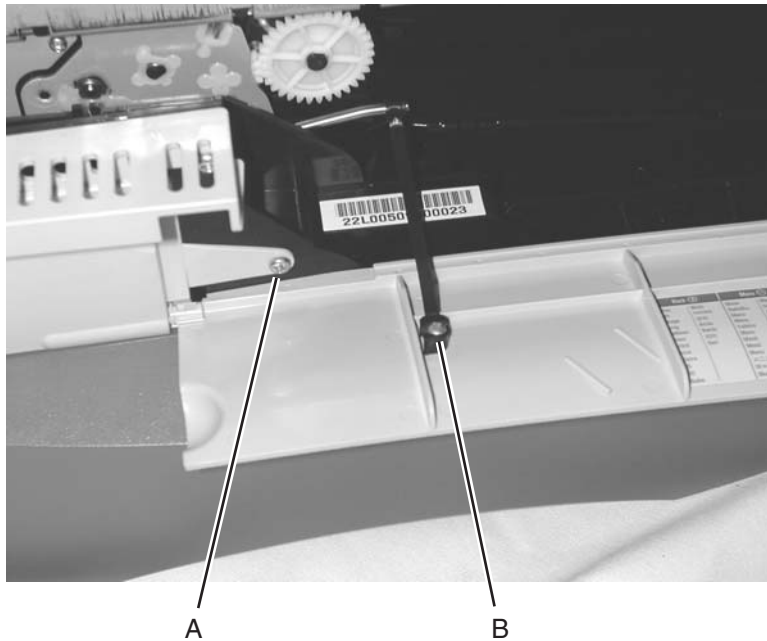
## Front lower left cover removal

See **“Front lower left cover”** on page 7-3 for the part numbers.

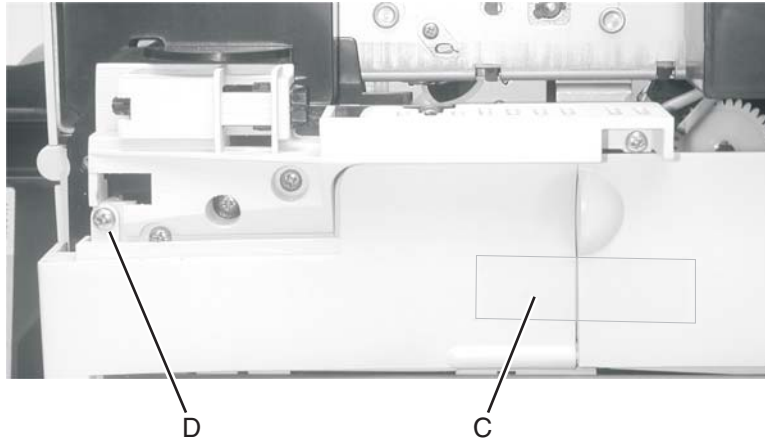
1. Remove the paper tray.
2. Open the front cover assembly.



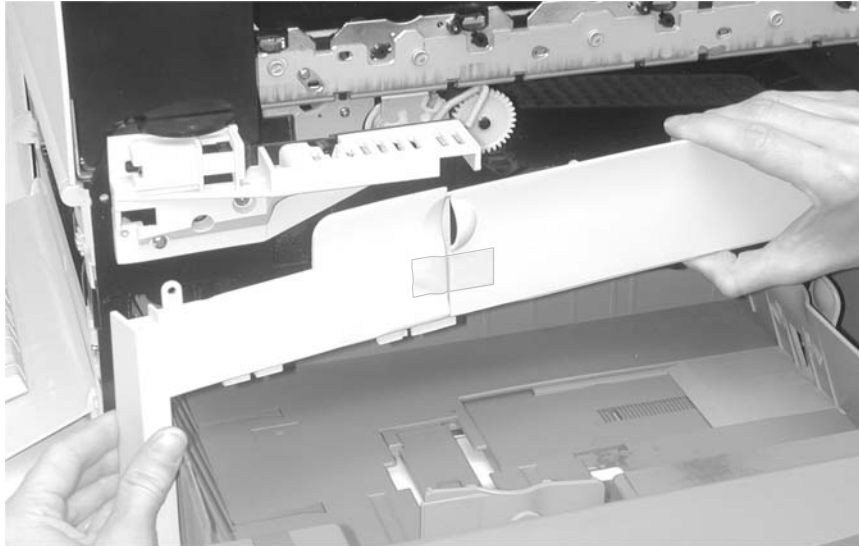
3. Open the paper path access door, carefully remove screw (A) type **“323”** on page 4-3 and screw (B), and close the door.



4. Tape front jam access door (C), to help hold the door in place.  
The spring loaded door is difficult to reassemble. Avoid disassembly of the door, unless you need to replace the paper path access door.
5. Remove the screw (D) in the front left handle cover assembly.



6. Remove the front lower left cover with the paper path door attached.



### ***Paper path access door removal***

See **“Paper path access door”** on page 7-3 for the part numbers.

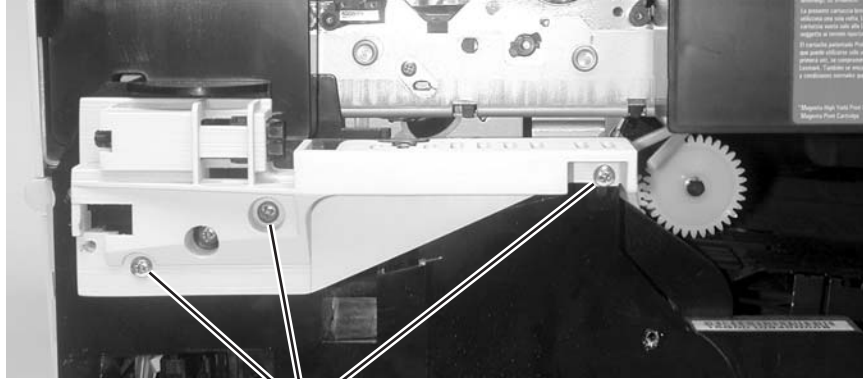
1. Remove the front lower left cover. See **“Front lower left cover removal”** on page 4-17.
2. Separate the paper path access door cover and the front lower left cover.  
**Note:** Do not lose the spring.



### Front left handle cover assembly removal

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

1. Remove the front lower left cover. See **“Front lower left cover removal” on page 4-17**.
2. Remove the three front left handle cover assembly screws (A) type **“323” on page 4-3**, and remove the assembly.



A(323)

### Front lower right cover removal

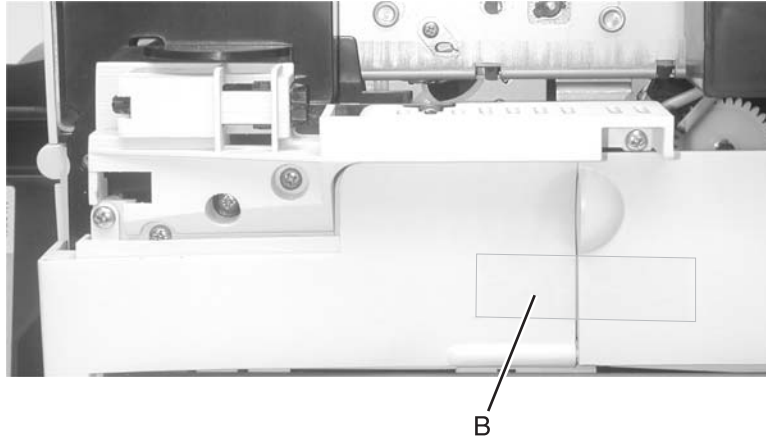
See **“Front lower right cover” on page 7-3** for the part number.

1. Remove tray.
2. Open the paper path access door, and remove the left lower cover screw (A) type **“323” on page 4-3**.

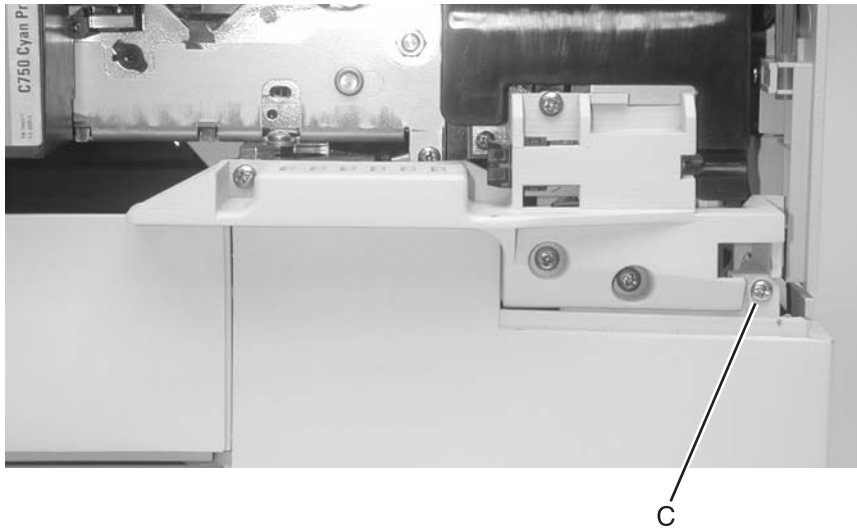


A

3. Close the paper path access door, and tape front jam access door (B), if tape is available, to help hold the door in place.  
The spring loaded latch is difficult to reassemble. Avoid unlatching the left side if you just need access to the right screw.



4. Remove the screw (C) from the front lower right cover.



5. Remove the assembly.

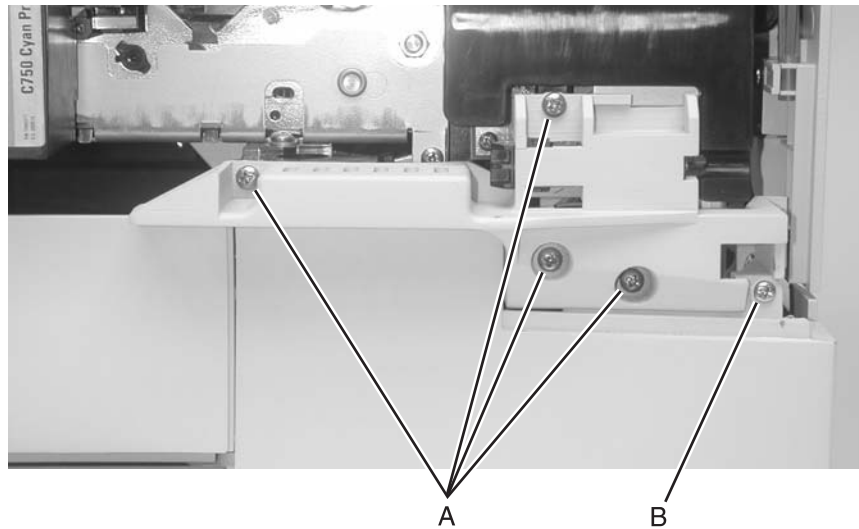
## Front right handle cover assembly removal

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

1. Open the front cover assembly.



2. Remove the toner cartridges.
3. Remove the four front right handle cover assembly screws (A) type **“323”** on page 4-3 and the screw (B) from the front lower right cover.

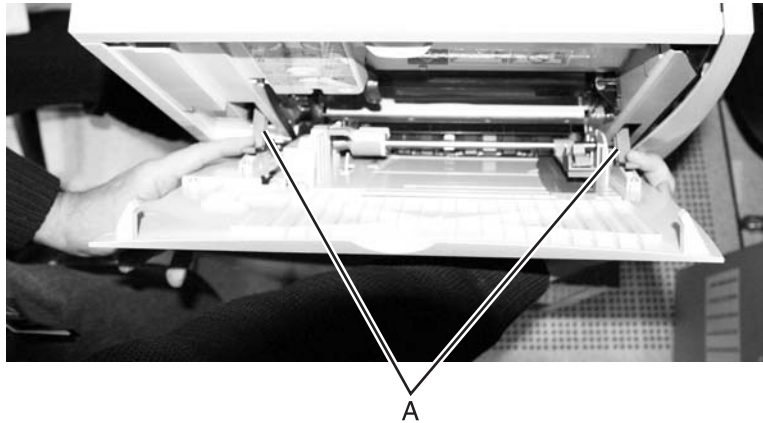


4. Remove the assembly.

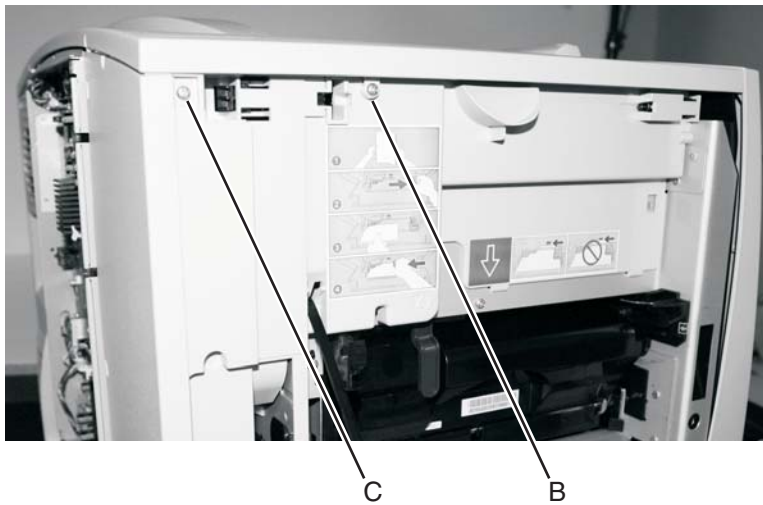
## Rear cover removal

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

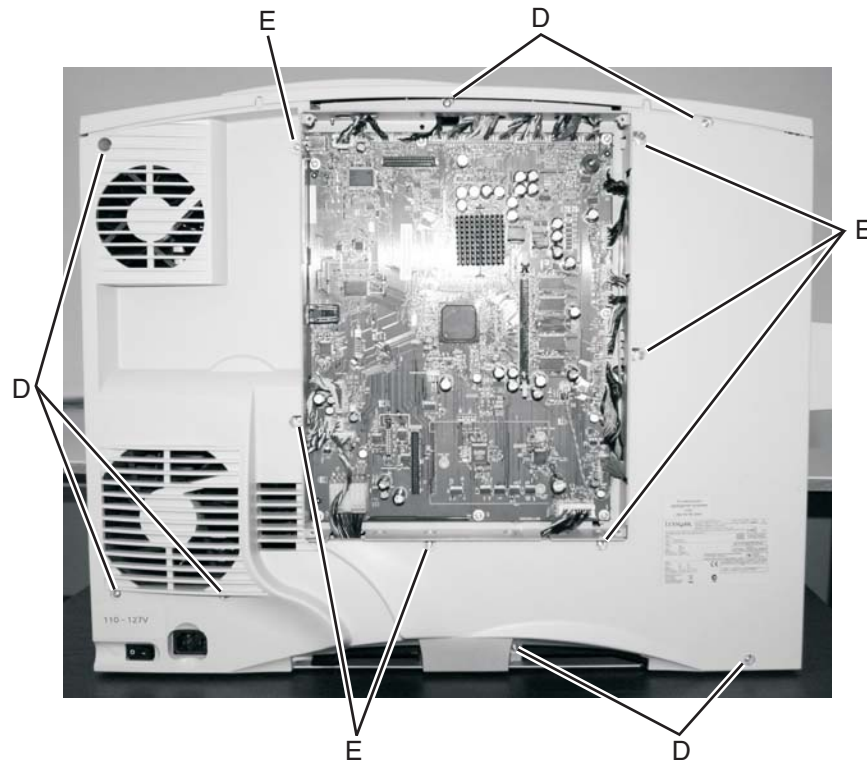
1. Remove the outer system board shield. See **“Outer system board shield removal” on page 4-69**.
2. Press the releases (A) to open the MPF all the way.



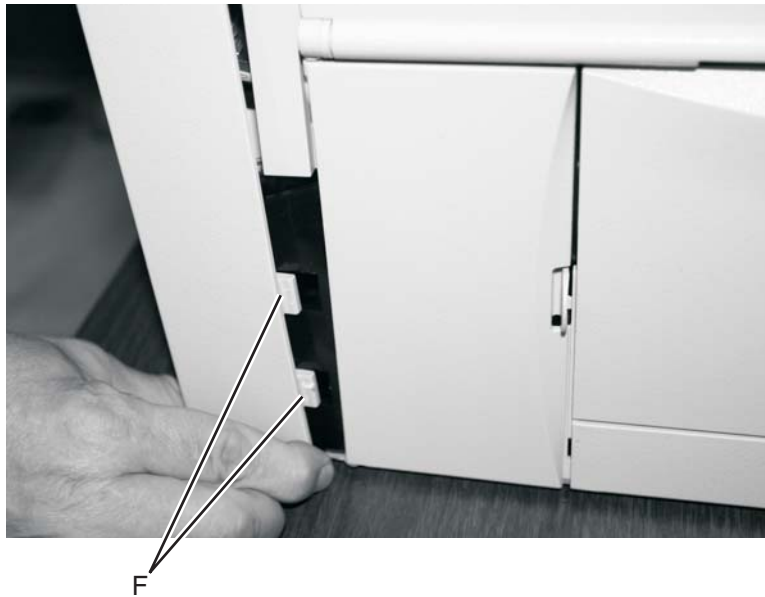
3. Loosen the screw (B).
4. Remove the screw (C).



5. Remove 13 rear cover screws (D) and (E).



6. Remove tabs (F) from slots.

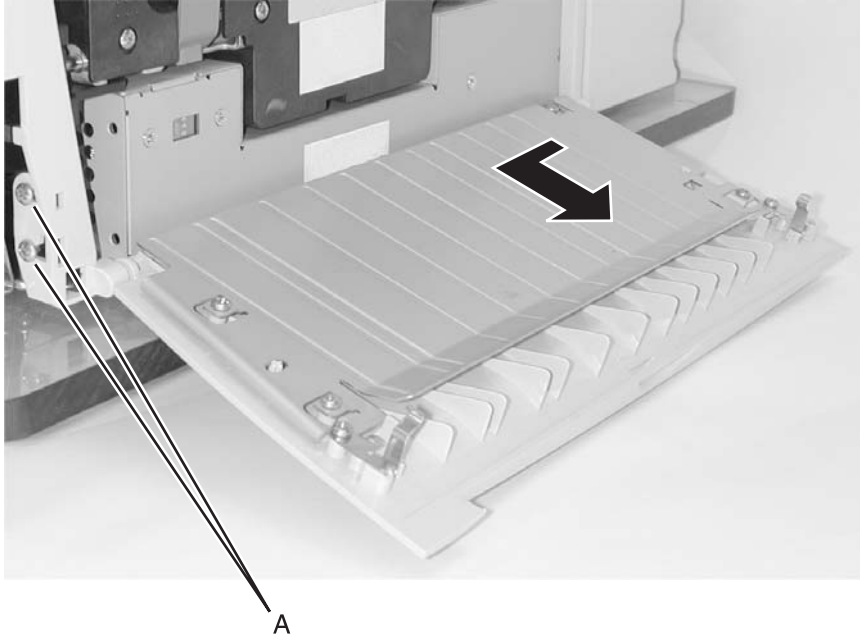


7. Remove the rear cover.

### Lower right door assembly removal

See **“Lower right door assembly”** on page 7-3 for the part number.

1. Open the lower right door assembly.
2. Remove the front lower right cover. See **“Front lower right cover removal”** on page 4-19.
3. Loosen the two screws (A).

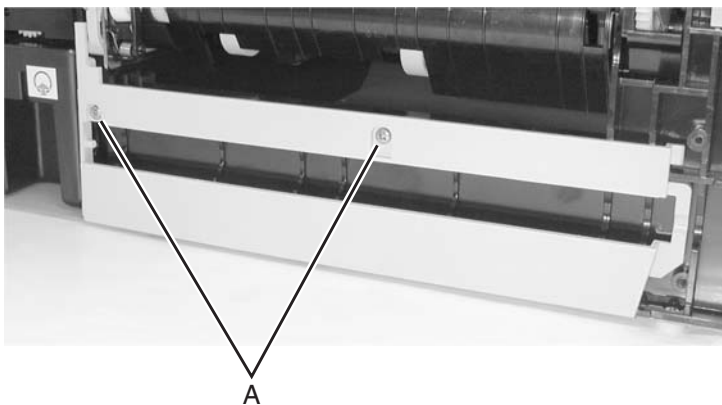


4. Remove the lower right door assembly.

### Left lower cover removal

See **“Left lower cover”** on page 7-5 for part number.

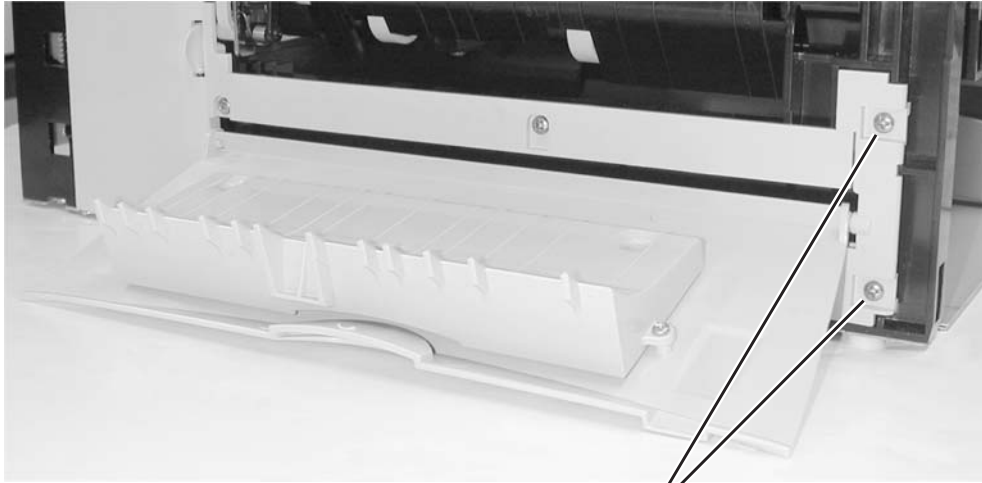
1. Remove the lower jam access door assembly. See **“Lower jam access door assembly removal”** on page 4-25.
2. Remove the left lower cover screws (A) type **“323”** on page 4-3, and remove the cover.



## Lower jam access door assembly removal

See **“Lower jam access door assembly” on page 7-5** for the part number.

1. Remove the paper path access door cover. See **“Paper path access door removal” on page 4-18**.
2. Remove the front left handle cover assembly. See **“Front left handle cover assembly removal” on page 4-19**.
3. Remove the lower jam access door assembly screws (A) type **“323” on page 4-3**, and remove the door.



A(323)

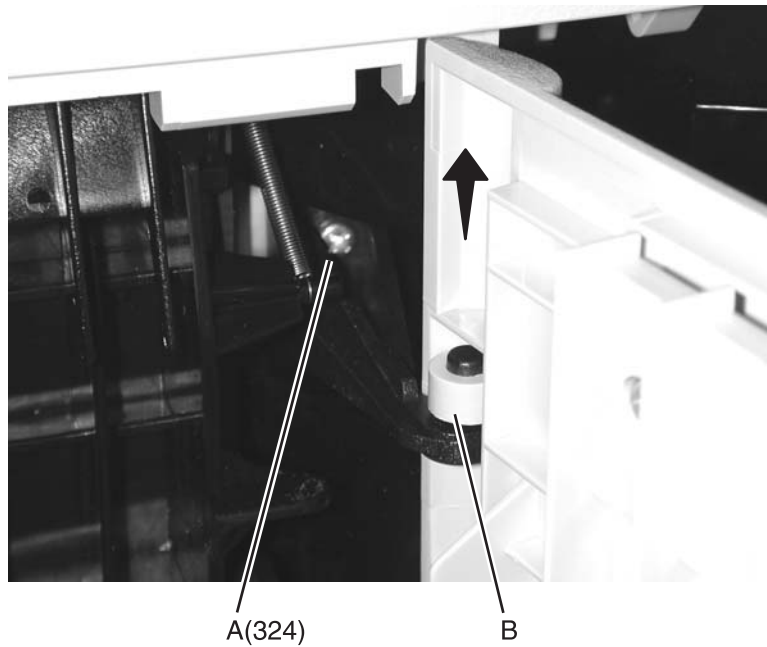
## Redrive door removal

See **“Redrive door assembly”** on page 7-14 for the part number.

1. Open the redrive door.



2. Loosen the redrive door upper hinge screw (A) type **“324”** on page 4-5.
3. Lift the redrive door from the hinge (B), and remove the redrive door.





## Autocompensator pick assembly removal

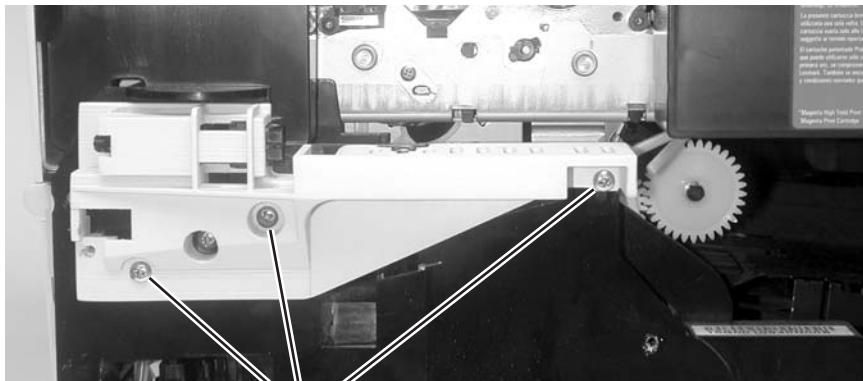
See **“Pick assembly 500-tray”** on page 7-21 for the part number.

1. Remove the transfer plate assembly. See **“Transfer plate assembly removal”** on page 4-94.
2. Cut the cable tie (A) and remove the black mylar piece.



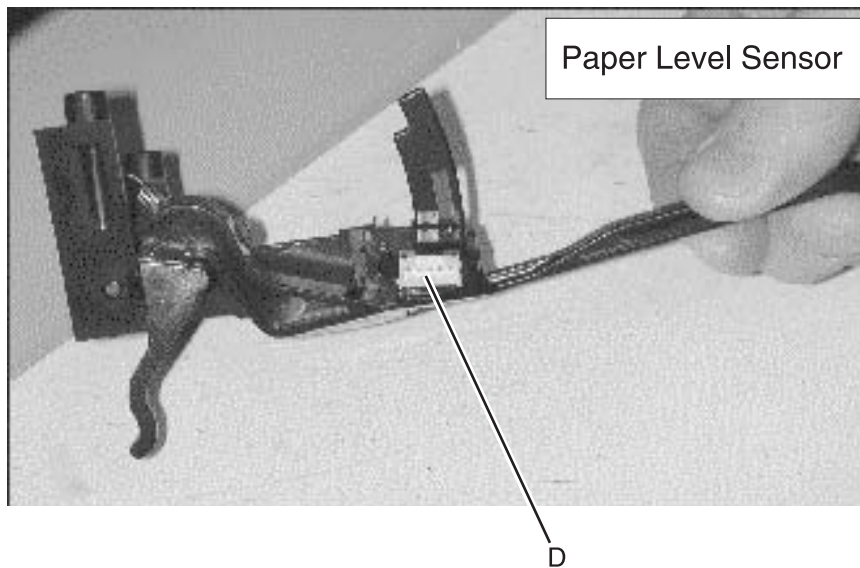
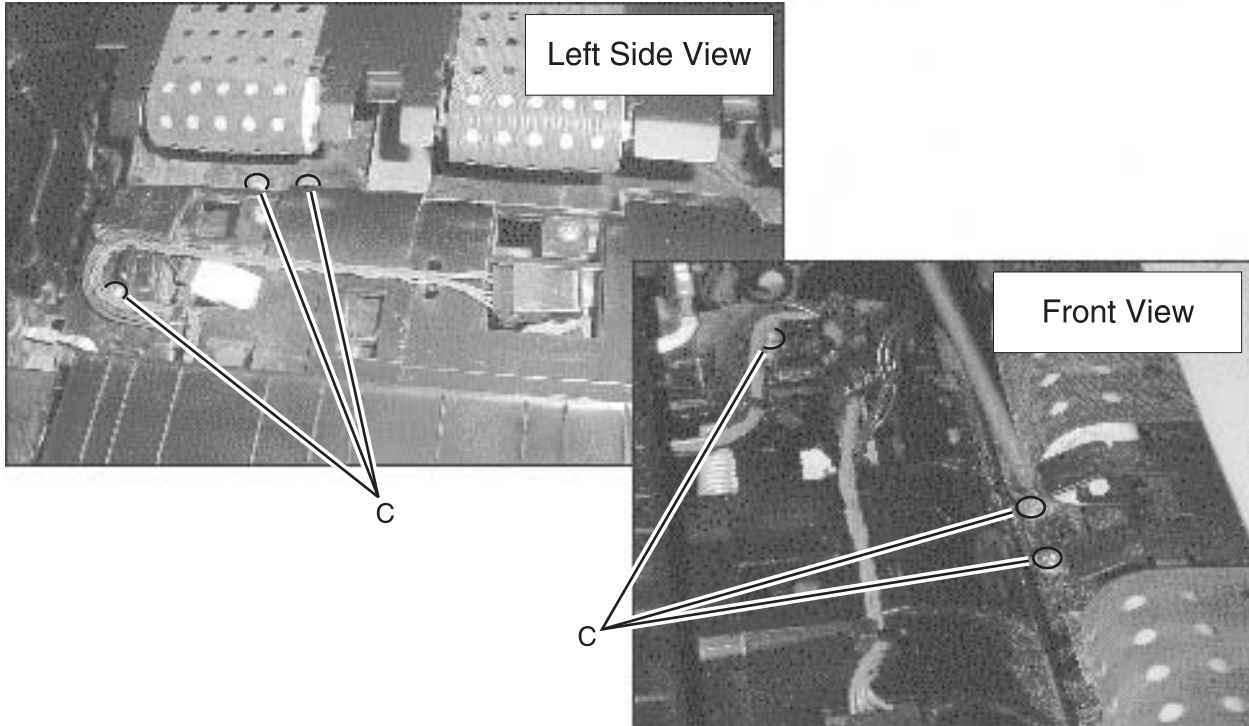
A

3. Remove the front lower left cover. See **“Front lower left cover removal”** on page 4-17.
4. Remove the three screws (B) type **“323”** on page 4-3 to remove the front left handle cover assembly.

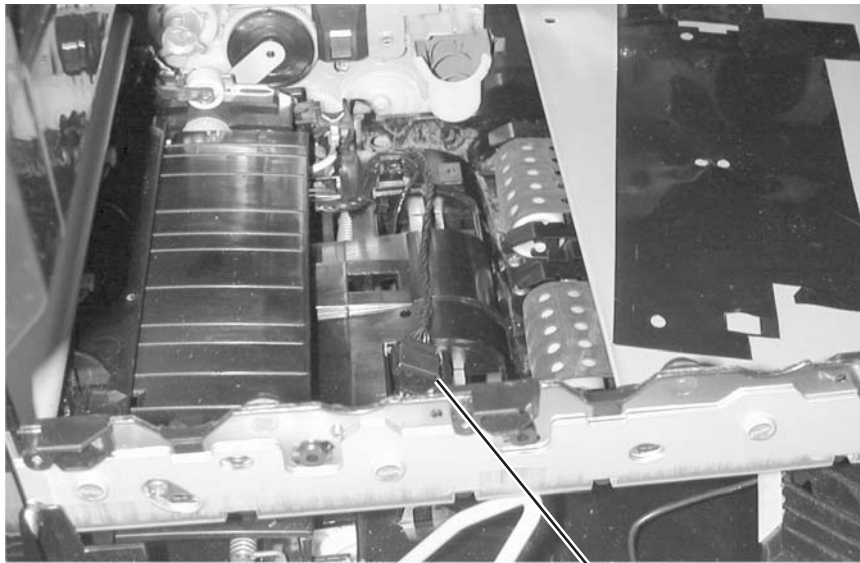


B(323)

5. Remove the paper level sensor.
- Remove the three screws (C). Two screws are located under the back VTB belt. The third screw is located at the rear pivot point for the transfer plate.  
This allows the paper level assembly to drop into the integrated paper drawer.
  - Disconnect the cable from the connector (D) on the paper level sensor.
  - Pull the paper level sensor cable up through the opening.
  - Remove the paper level sensor assembly.

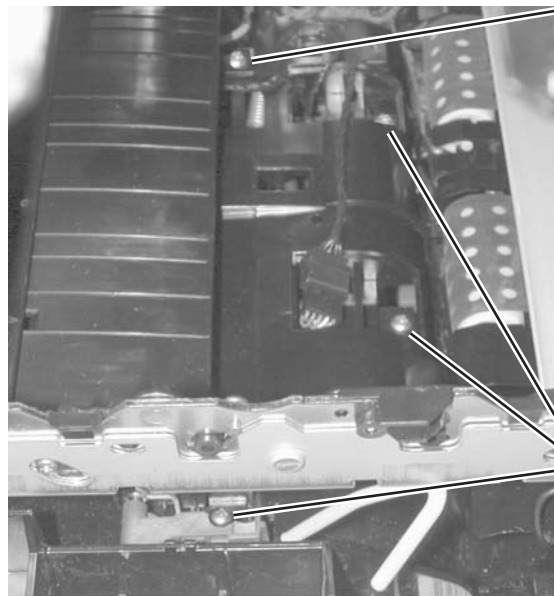


6. Disconnect the pick motor connector (E).



E

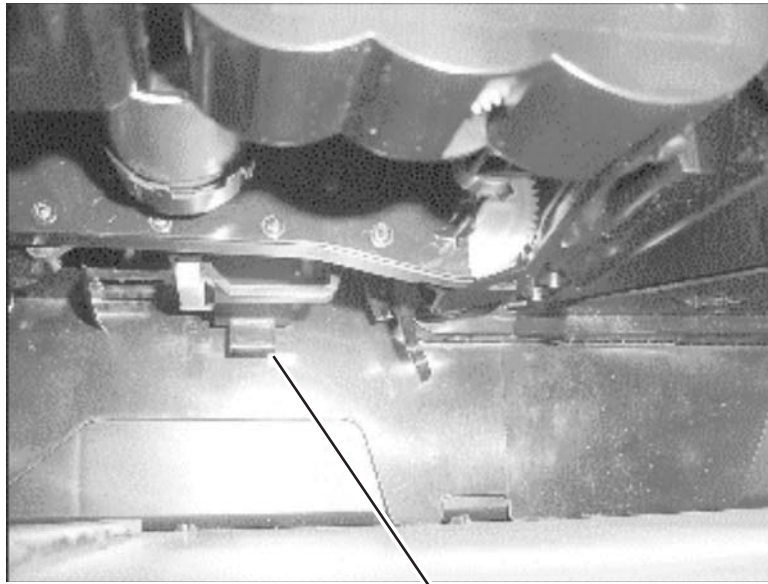
7. Remove three screws (F) holding the pick assembly in place.



DO NOT REMOVE  
THIS SCREW

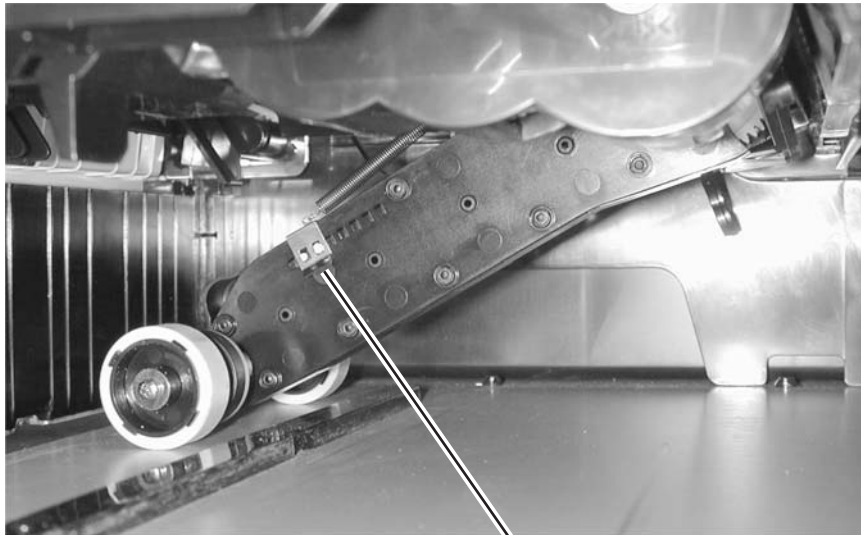
F

8. Push the bellcrank (G) in to allow the pick arm to fall to the bottom of the tray.



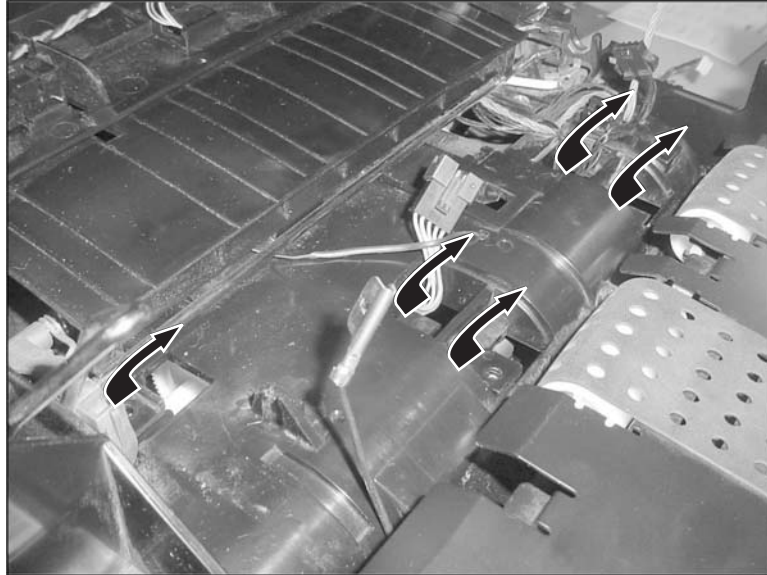
G

9. Disconnect the spring clip (H) from the pick arm. Be sure not to let the spring come off of the lower frame. Also identify which pegs the spring clip is sitting on. These pegs are typically marked with white paint.



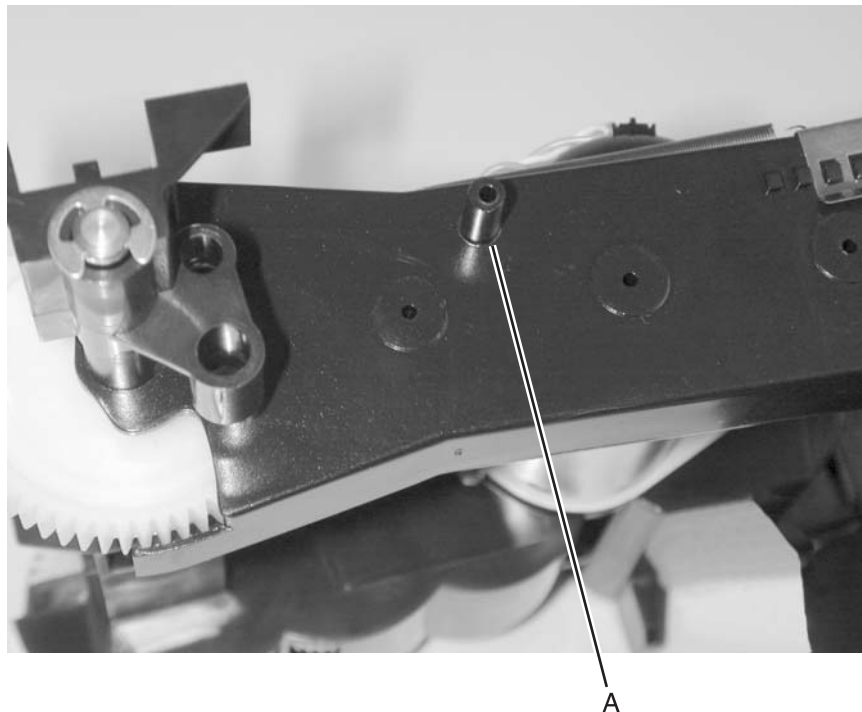
H

10. Leaving the pick arm down, lift the pick assembly and slide it toward the back of the printer, and drop it through the holes located next to the brackets.

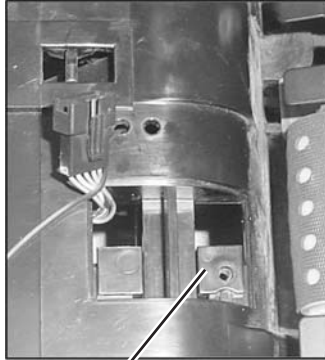


**Installation notes:**

1. Put the new pick assembly into the printer.
  - Make sure the pick motor connector is placed through the holes before you insert the brackets.
  - Make sure the boss (A) on the pick arm is on top of the bellcrank so it can raise and lower the arm.

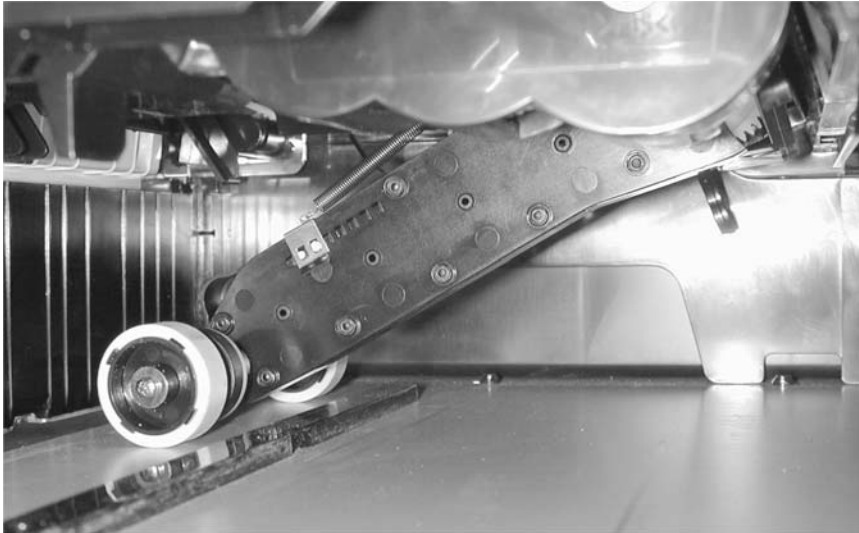


2. Lift the pick assembly to insert the brackets up through the appropriate openings. Once the pick assembly brackets are through their openings, slide the assembly toward the front of the machine until the half moon on the bracket is against the locator pin (B).



B

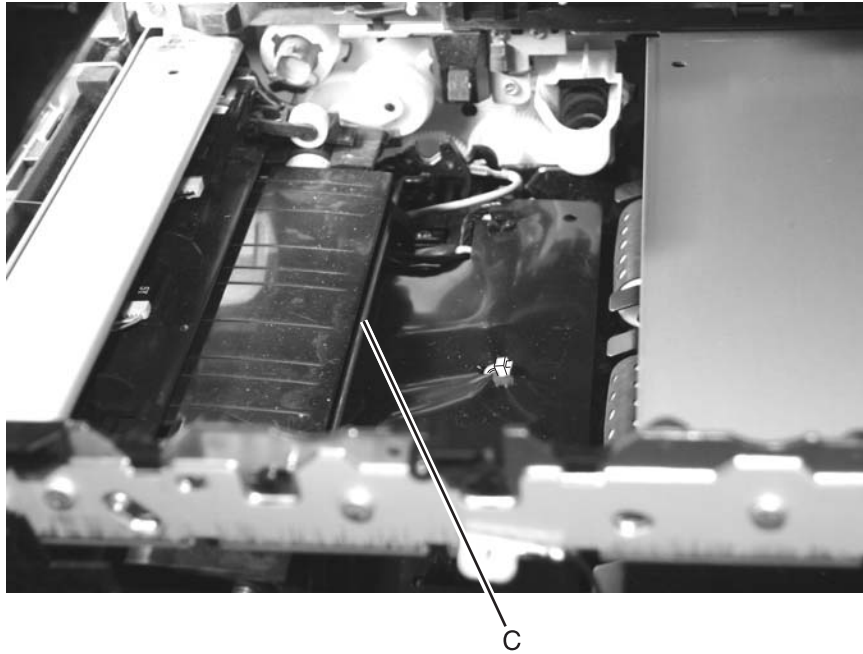
3. Reattach the spring clip to the pick arm. Make sure the pick arm rotates freely from top to bottom in the machine.



4. Once the pick assembly is in place, put the three screws for the pick assembly back into place.  
**Note:** Placing the front side screw in first makes it easier to put in the rest of the screws. When starting the front screw, push the pick assembly towards the front of the printer.
5. Reconnect the connectors.
6. Reattach the paper lever sensor (three screws).

7. Position the mylar piece, and replace the cable tie.

**Note:** When you place the mylar piece, make sure you place it back under the metal bar (C) under the inner deflector. Make sure that the blue cable running under the mylar piece is retained by the cable tie.



### ***BOR drive assembly removal***

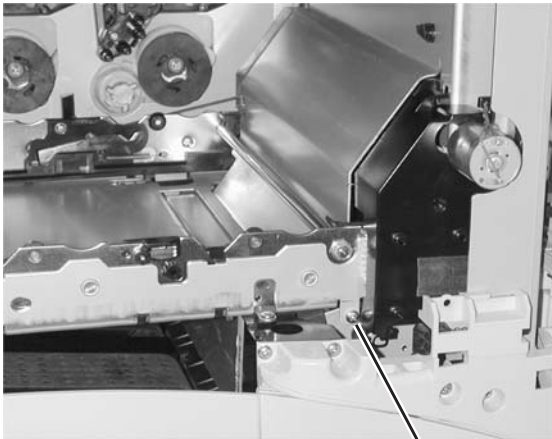
See **“Lift/BOR assembly” on page 7-27** for the part numbers.

1. Open the front cover assembly.

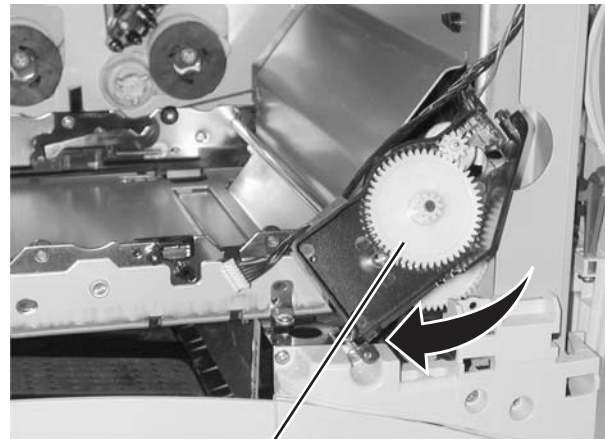


2. Remove the yellow toner cartridge.
3. Remove the front right light shield cover. See **“Front right light shield removal” on page 4-42**.
4. Remove the BOR housing assembly screw (A) type **“323” on page 4-3**, and remove the assembly.

**Note:** Gear (B) can easily fall from the assembly. Be careful not to drop the gear.



A



B



## Cartridge contact assembly removal

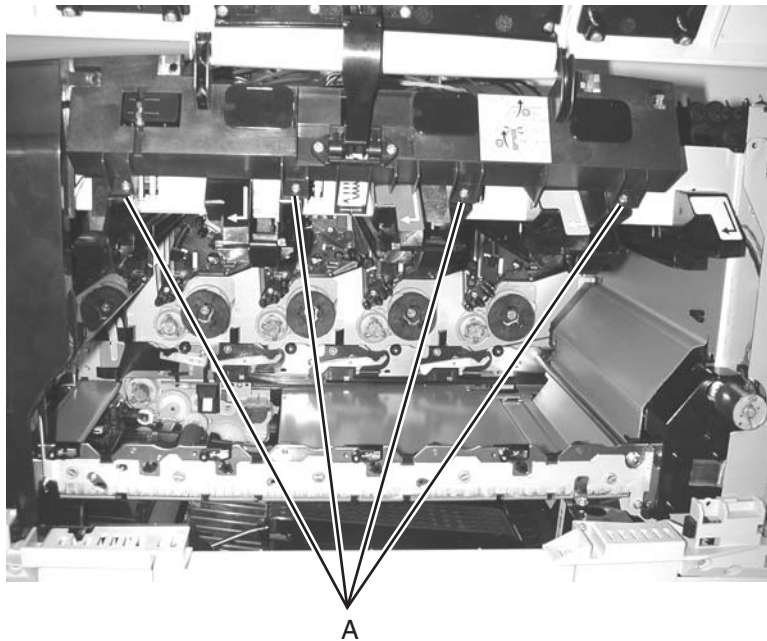
See **“Cartridge contact assembly, complete Also order cable tie parts packet (P/N 40X1648)”** on page 7-28 for the part numbers.

**Warning:** Do not remove the printheads.

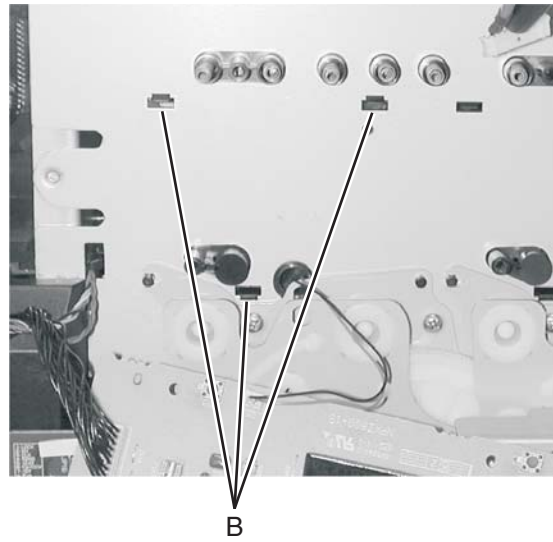
1. Open the front cover assembly.



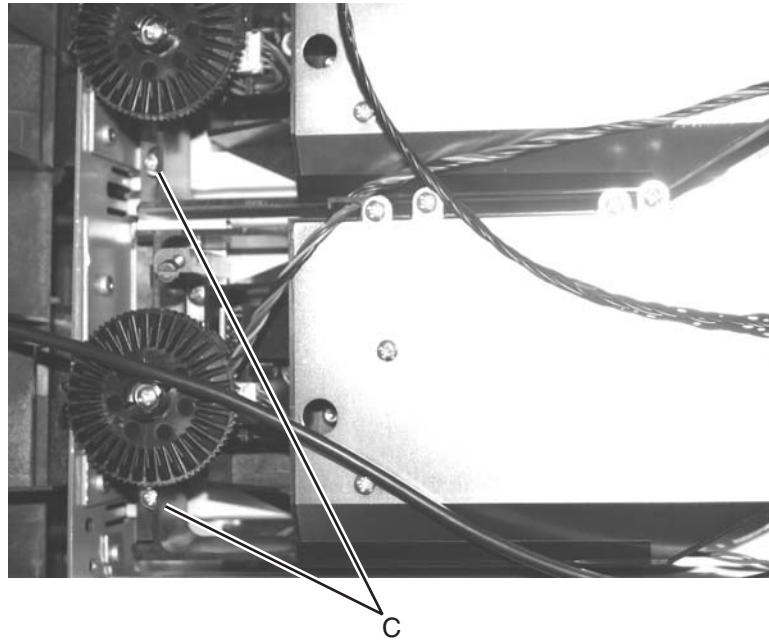
2. Remove the toner cartridges.
3. Remove the ITU assembly. See **“ITU assembly removal”** on page 4-49.
4. Remove the top cover assembly. See **“Top cover assembly removal”** on page 4-13.
5. Remove the developer HVPS board. See **“Developer HVPS board removal”** on page 4-39.
6. Remove the cartridge rail front and rear mounting screws (A), and remove the rail of selected cartridge assembly.



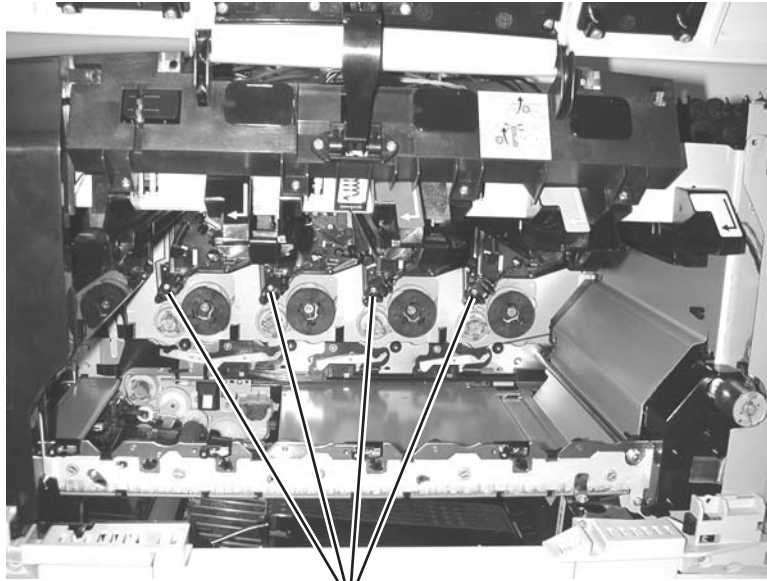
7. Press the cartridge contact assembly (yellow shown) retaining tabs (B), and remove the assembly.



8. Remove the screw (C) from the front of the printhead.



9. Remove the screws (D) for the contact assembly you are removing.



D

**Installation note:** Be sure to replace all the cable ties.

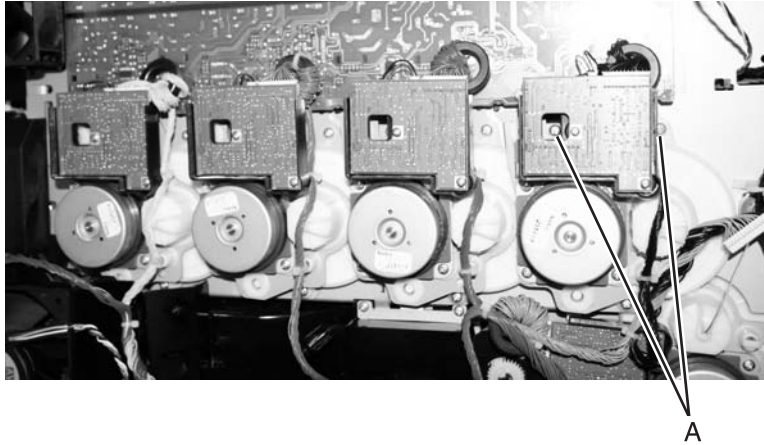
## Cartridge drive assembly removal

**Note:** Drive assemblies *must* be removed in the following order until the desired assembly can be removed:

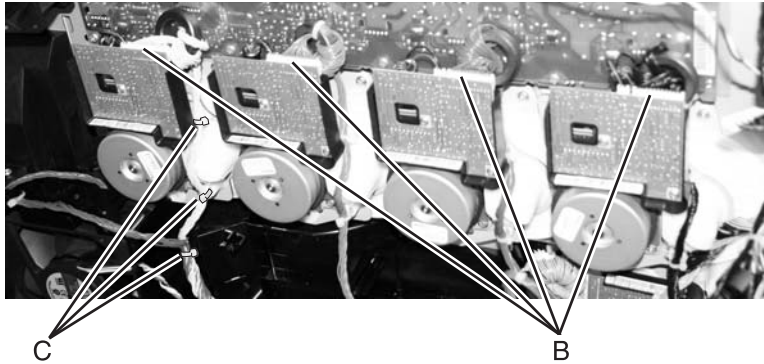
1. Black
2. Magenta
3. Cyan
4. Yellow

See **“Cartridge drive assembly (one drive assembly per package) Also order cable tie parts packet (P/N 40X1648).” on page 7-29** for the part number.

1. Remove inner system board shield. See **“Inner system board shield removal” on page 4-48.**
2. Remove the cartridge drive assembly mounting screws (A). Black is shown.



3. Disconnect the cable (B) from the cartridge drive assembly.
4. Note the location of the cable ties (C), and cut them. Yellow is shown.



5. Remove the cartridge drive assembly.

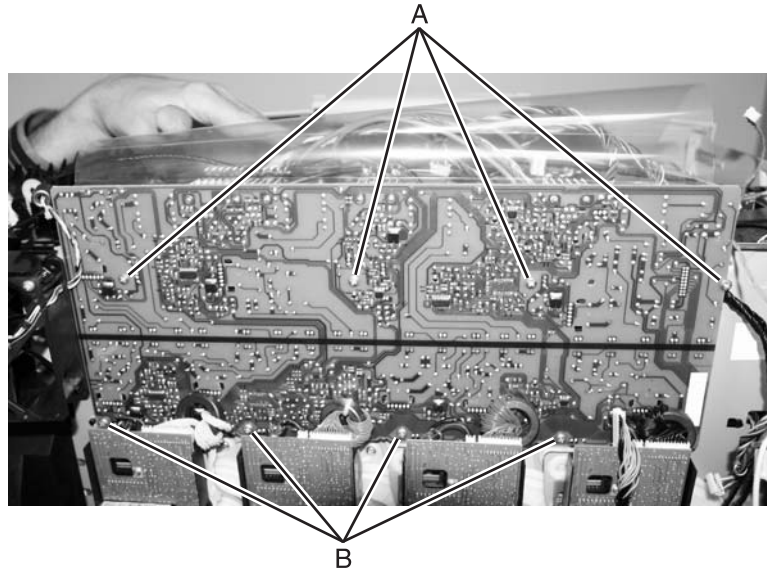


**Installation note:** Be sure to replace all the cable ties.

## Developer HVPS board removal

See **“Developer HVPS board—1xx/3xx only Also order cable tie parts packet (P/N 40X1648)”** on page 7-34 for the part numbers.

1. Remove inner system board shield. See **“Inner system board shield removal”** on page 4-48.
2. Lift the plastic shield.
3. Remove all connectors from the HVPS developer board.
4. Remove four top machine screws (A) type **“323”** on page 4-3 and four bottom screws (B) type **“121”** on page 4-2 from the developer HVPS board.



5. Remove the developer HVPS boards.

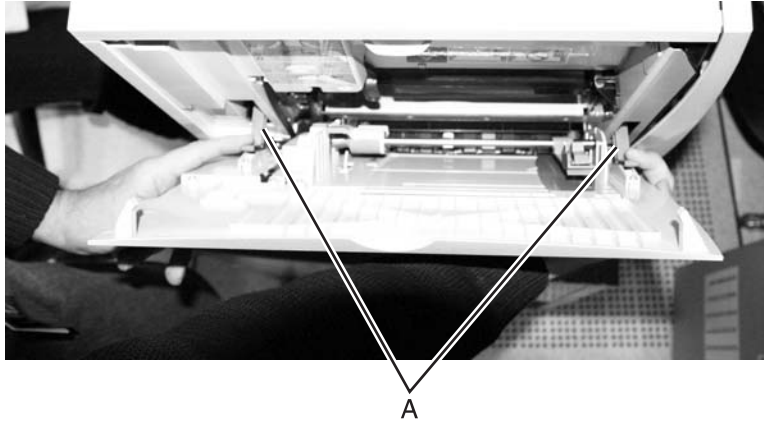
### Installation notes:

- Be sure to replace all the cable ties.
- Install the large board by attaching the bottom screws loosely, attach the top screws, then tighten the bottom screws.
- When replacing the developer HVPS, verify the TMC switches are properly functioning by performing the Base Sensor Test for the black, cyan, yellow, and magenta sensors. See **“BASE SENSOR TEST”** on page 3-24. If a sensor fails the test, realign the developer HVPS boards and rerun the test.

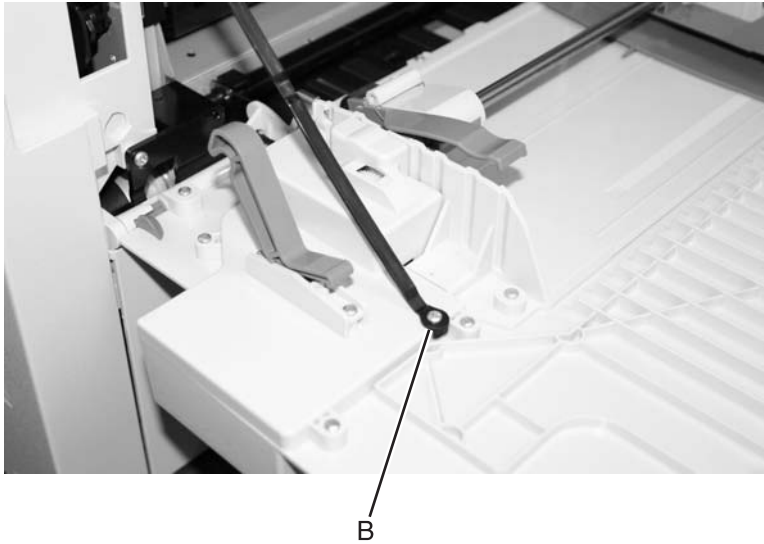
### Friction buckler and buckler housing removal

See **“Friction buckler and buckler housing”** on page 7-19 for the part number.

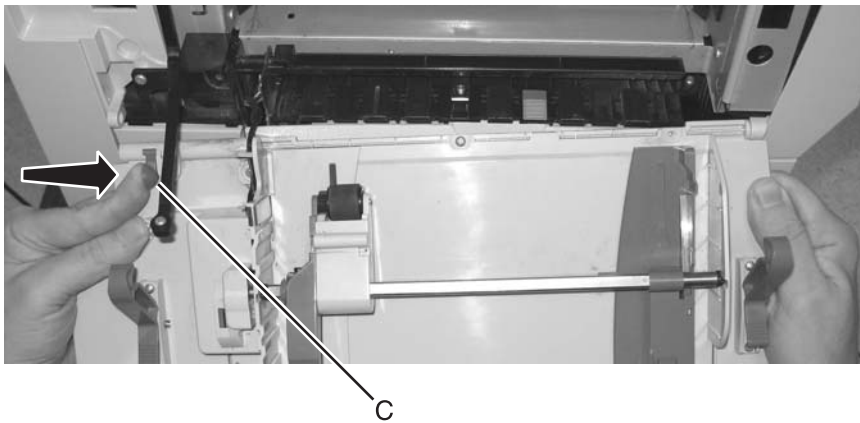
1. Open the MPF, and press the releases (A) to open the MPF to the lowest position.



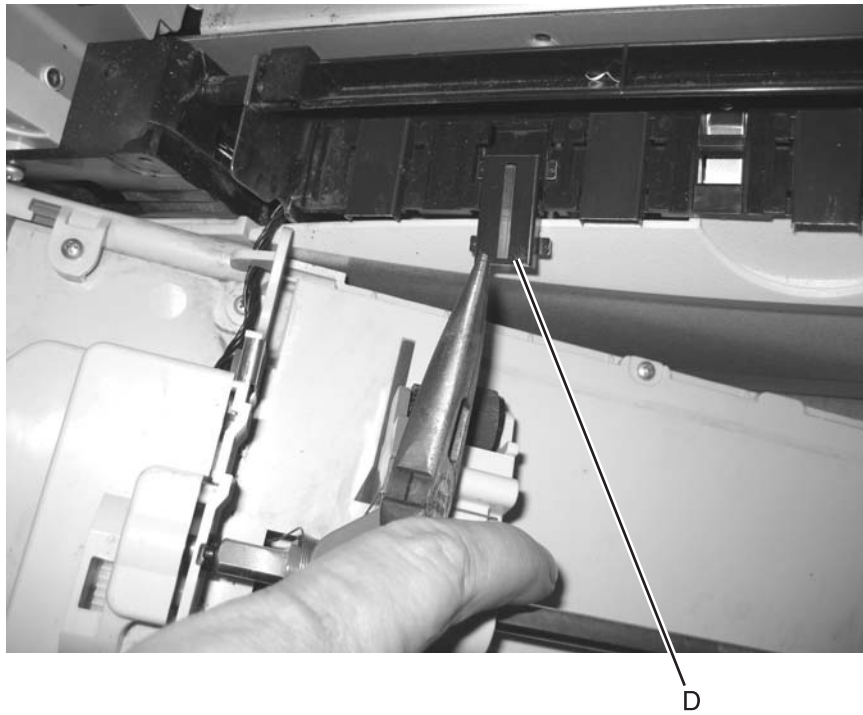
2. Remove the MPF cable cover screw (B).



3. Release the MPF latch (C), and lower the MFP door down. Support the tray to relieve pressure on the MPF switch cable.

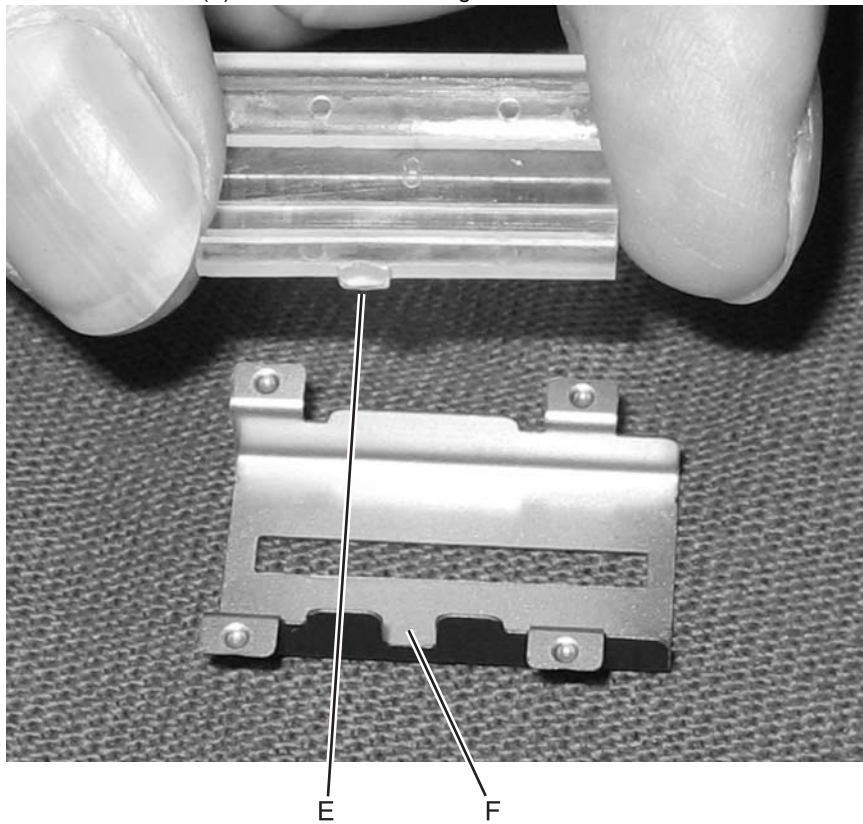


4. Use needlenose pliers to remove the buckler housing (D).

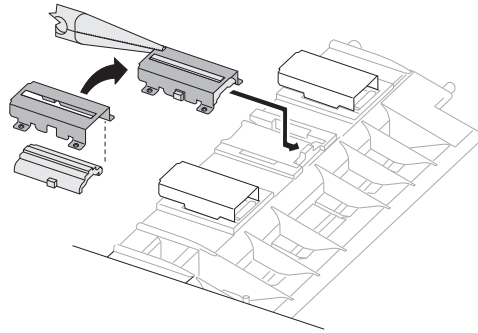


**Installation notes:**

1. Before installation, insert the friction buckler into the buckler housing. The tab (E) on the side should be aligned with the notch (F) in the buckler housing.



2. The end of the buckler housing that goes into the printer first has tabs flush with the edge. Place the housing between the two sets of slots in the printer, and then slide the housing into position.



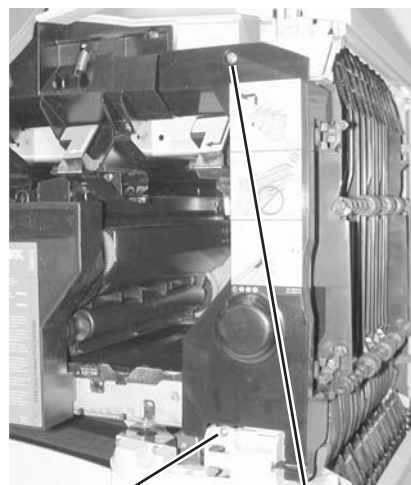
### Front right light shield removal

See **“Front right light shield” on page 7-3** for the part numbers.

1. Open the front cover assembly.



2. Remove the front right light shield screws (A) and (B).



A(323)

B(324)



3. Unlatch the alignment stud (C).



C

4. Remove the front right light shield.

## Fuser assembly removal

**CAUTION**

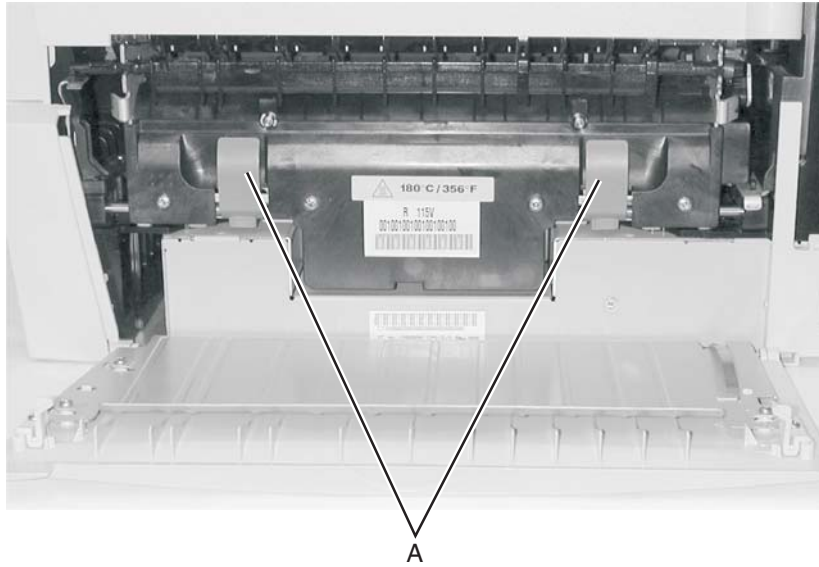
Be sure the fuser assembly has cooled before you remove it.

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



1. Turn the printer off.  
**Note:** The printer should be powered down prior to removal and/or replacement of the fuser.
2. Open the lower right door assembly and remove door.



3. Unlatch the two fuser latches (A).
4. Remove the fuser assembly.



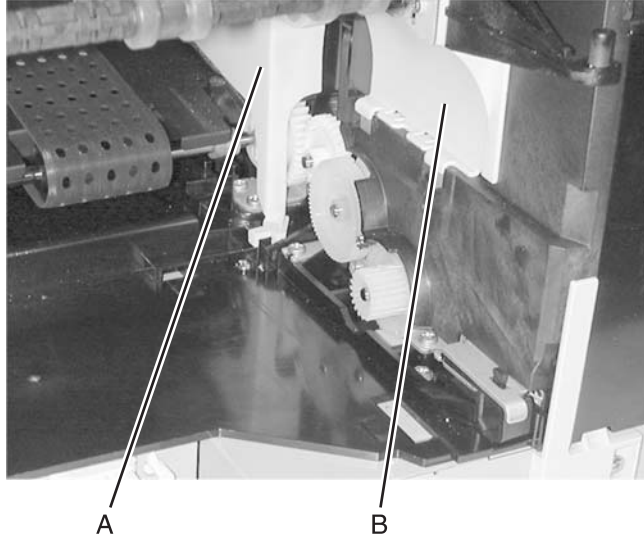
**Installation note:** Reset the Reset Fuser counter in the Configuration Menu.

1. Enter the Configuration Menu (Turn off the printer, turn on the printer while holding  and , release the buttons after about 10 seconds or when the clock face appears.)
2. Select **Reset Fuser Cnt** in the Config Menu to view the page count.
3. Confirm you want to reset the counter.

### ***Fuser bottom duct removal***

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

1. Remove the fuser assembly. See **“Fuser assembly removal”** on page 4-44.
2. Remove the fuser top duct. See **“Fuser top duct removal”** on page 4-47.
3. Remove the redrive belt cover duct (A).
4. Remove fuser left duct (B).

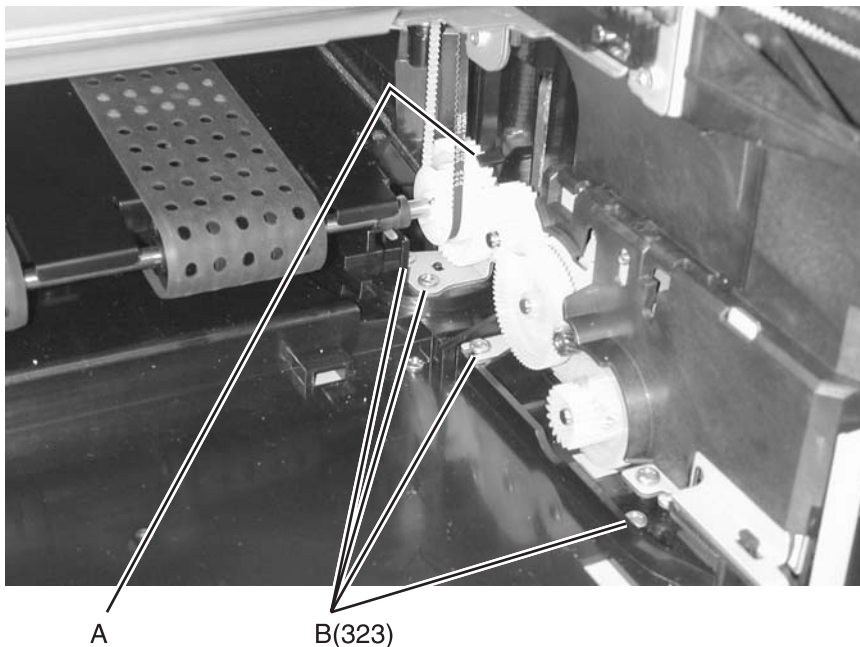


5. Remove fuser bottom duct.

### ***Fuser drive assembly removal***

See **“Fuser drive assembly”** on page 7-10 for the part number.

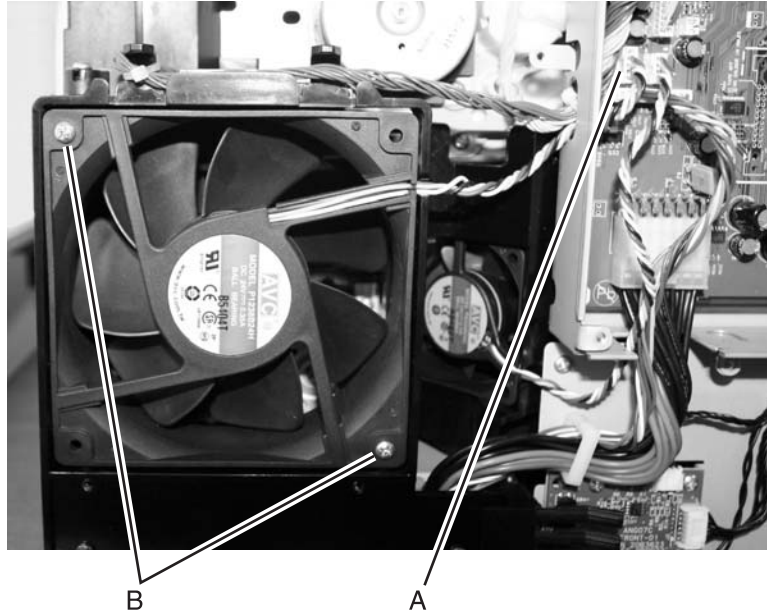
1. Remove the fuser bottom duct. See **“Fuser bottom duct removal”** on page 4-46.
2. Swing lever (A), and disengage VTB shaft. See **“Vacuum transport belt (VTB) removal”** on page 4-95.
3. Remove the fuser drive assembly screws (B) type **“323”** on page 4-3, and remove the assembly.



## Fuser fan removal

See **“Fuser fan assembly” on page 7-35** for part number.

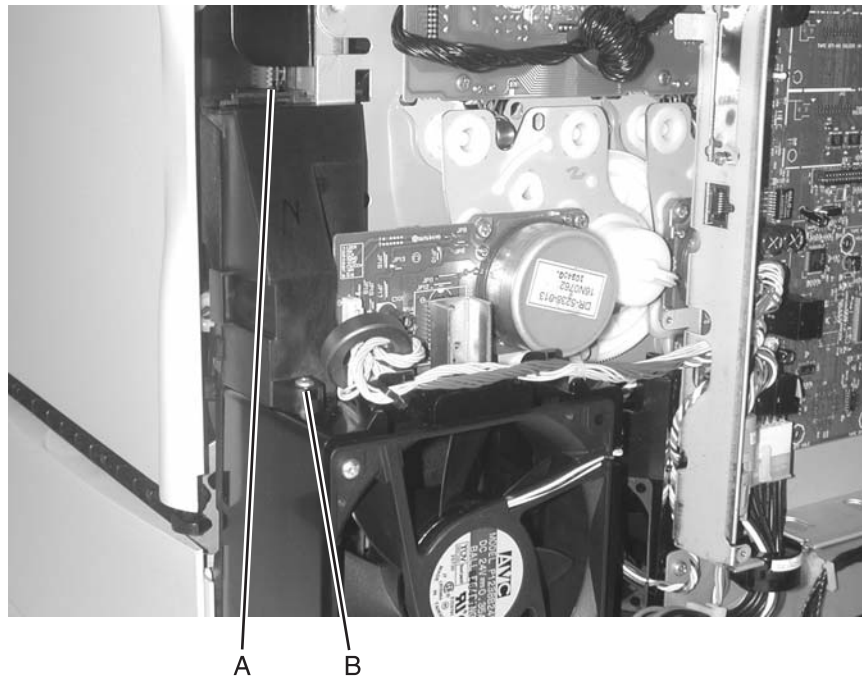
1. Remove rear cover. See **“Rear cover removal” on page 4-22**.
2. Disconnect the fuser fan cable from connector JM1 (A) on the system board.
3. Remove the fuser fan screws (B), and remove the fan.



## Fuser top duct removal

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

1. Remove the rear cover. See **“Rear cover removal” on page 4-22**.
2. Remove the fuser top duct screw (B), and disconnect tab (A).
3. Remove the top duct.



## Inner system board shield removal

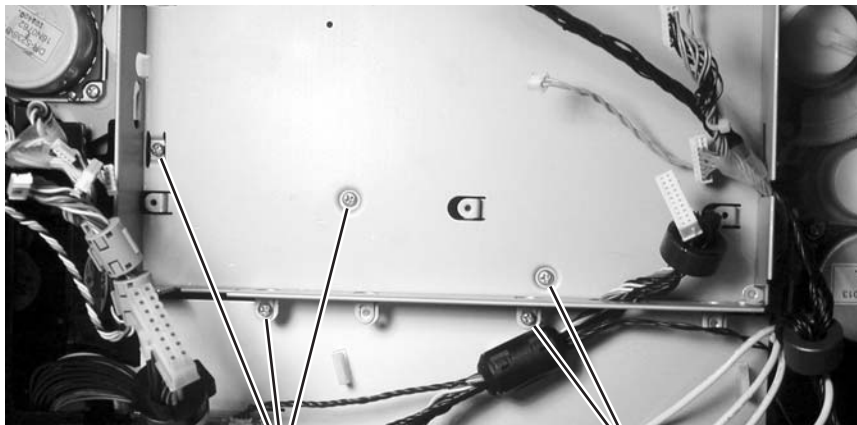
See “**System board inner shield assembly**” on page 7-33 for part number.

1. Remove the top cover assembly. See “**Top cover assembly removal**” on page 4-13.
2. Remove the rear cover. See “**Rear cover removal**” on page 4-22.
3. Remove the transfer HVPS board. See “**Transfer HVPS board removal**” on page 4-91.
4. Remove the system board. See “**System board removal**” on page 4-89.
5. Remove the ground wire screw (A). (Shown from above the inner system board shield.)



A

6. Remove the five screws (B).



B

B

7. Lay the inner system board shield out of the way.

**Installation note:** Be sure to replace all the cable ties.

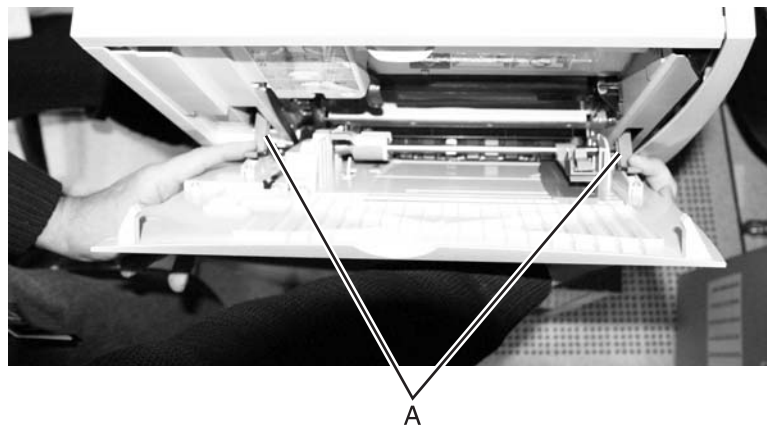
## ***ITU assembly removal***

See **“ITU assembly—1xx/3xx only”** on page 7-22 for the part number.

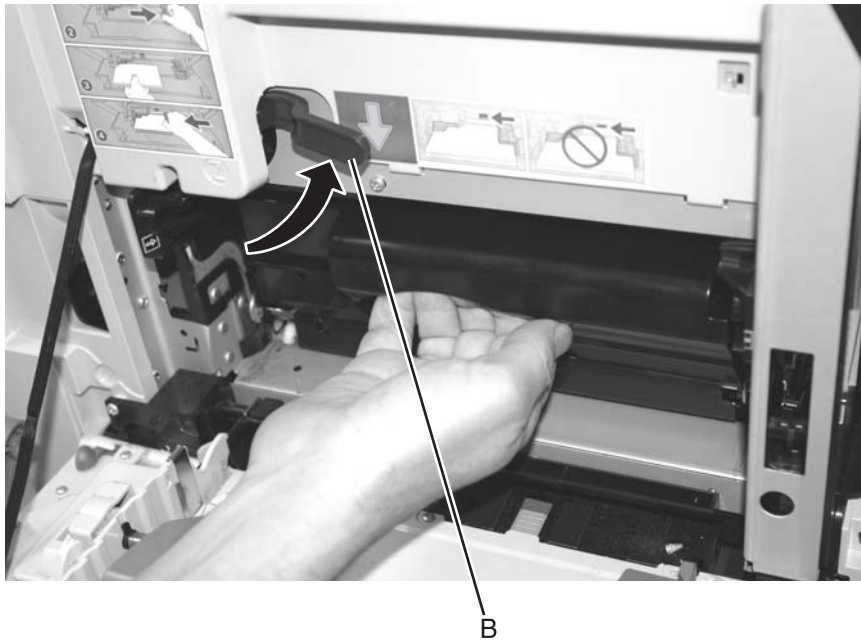
1. Open the front cover assembly.



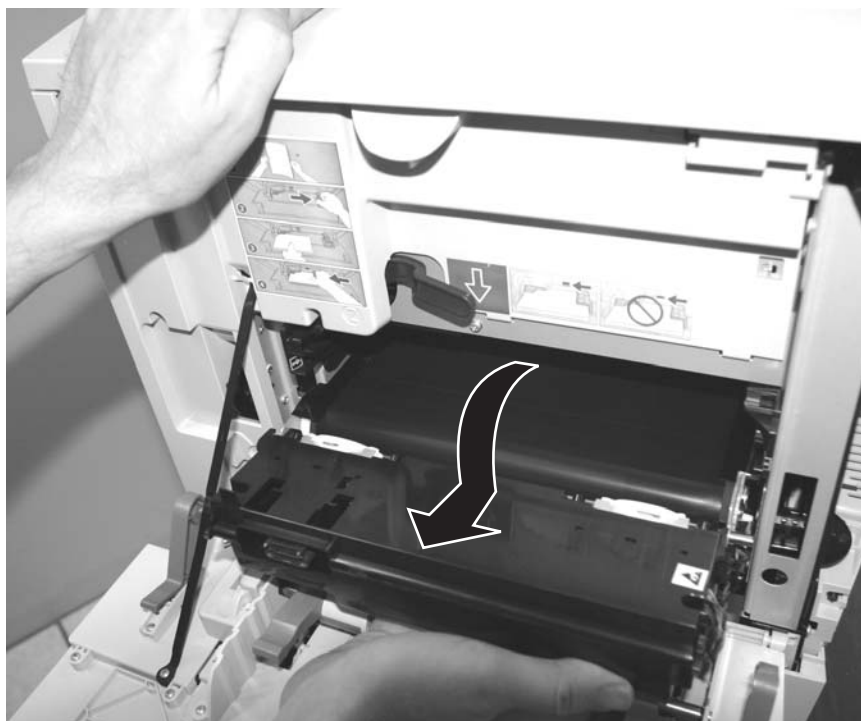
2. Remove the toner cartridges.
3. Open the MPF, and press the releases (A) to open the MPF to the lowest position.



4. Raise the ITU release lever (B).



5. Slide the ITU assembly from the printer.

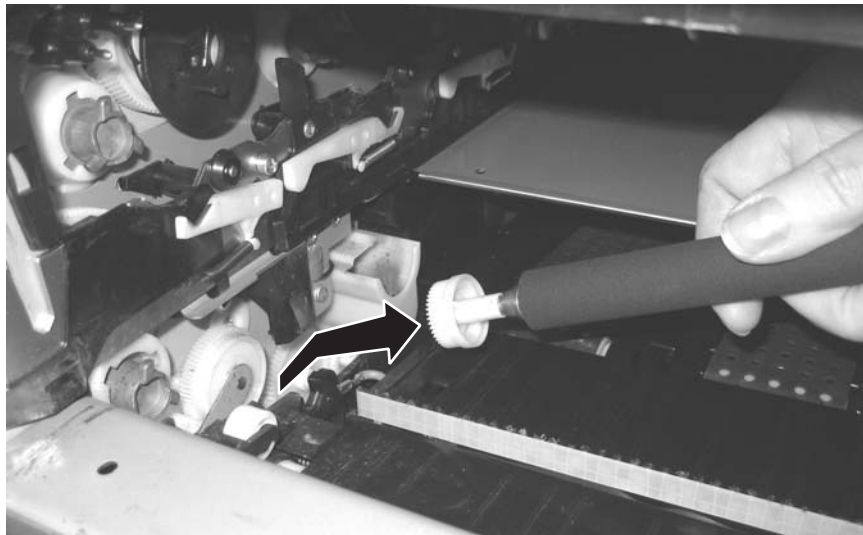




6. Lift the second transfer roll right end (closest to front).



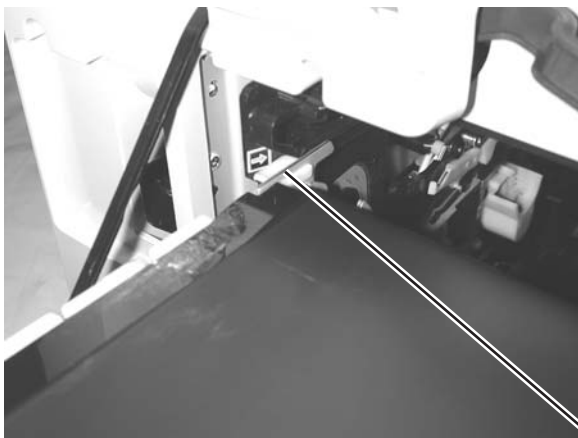
7. Slide the left side to the side to disengage from the gear, and allow clearance to remove the roll.



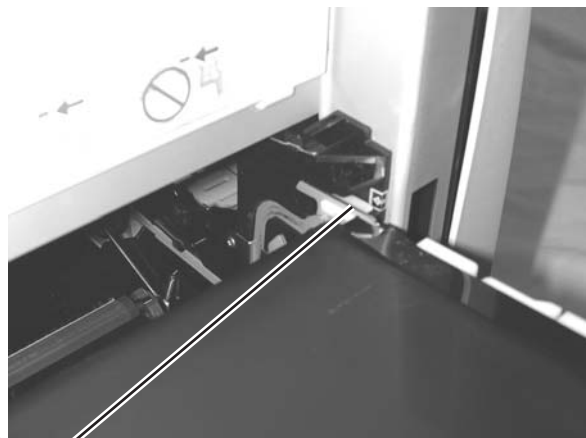
**Installation notes:**

1. Replace the second transfer roll.
2. Be sure to replace the ITU assembly in the slots (C) indicated by arrows.

Rear edge



Front edge

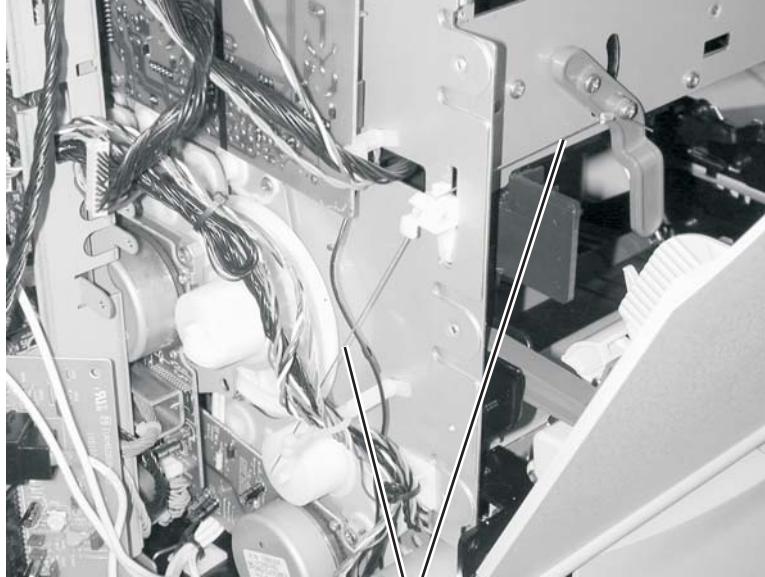


C

## ITU drive assembly removal

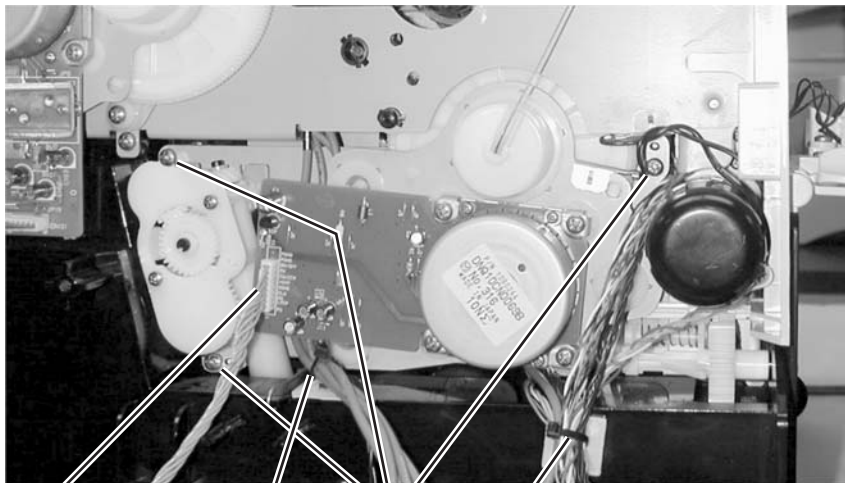
See **“ITU drive assembly Also order cable tie parts packet (P/N 40X1648).” on page 7-23** for the part number.

1. Remove the ITU assembly. See **“ITU assembly removal” on page 4-49.**
2. Remove the black cartridge drive assembly. See the removal for the **“Cartridge drive assembly removal” on page 4-38.**
3. Disconnect the ITU drive coupling cable (A).



A

4. Cut the two cable ties (B).
5. Disconnect the ITU drive motor cable (C).
6. Remove the three ITU drive assembly mounting screws (D), and disconnect the ITU drive motor cable (D).



C

B

D

B

7. Move the bottom of the ITU drive assembly toward you as you rotate the top of the assembly out of the printer. Be careful not to damage the large drive gear as you remove the ITU drive assembly.

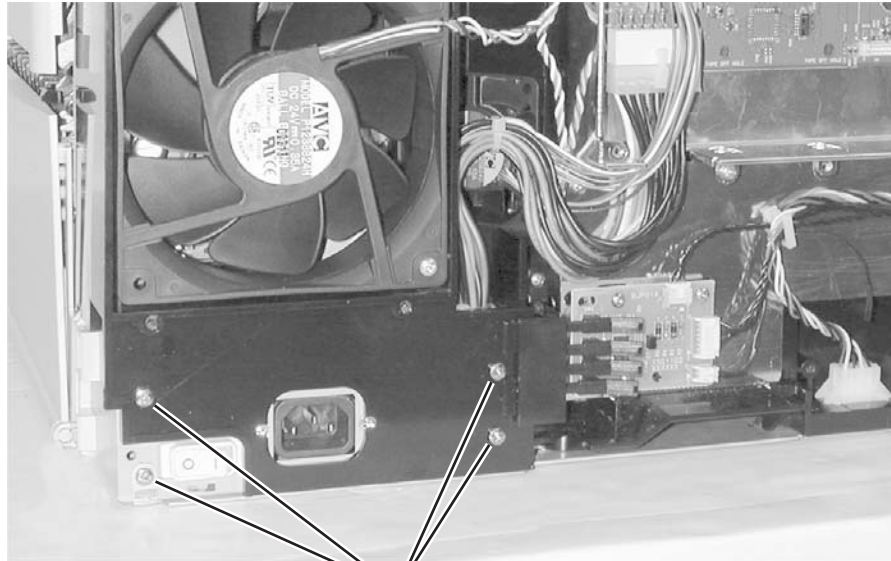
**Installation note:** Be sure to replace all the cable ties.

## LVPS assembly removal

See **“LVPS assembly” on page 7-31** for the part number.

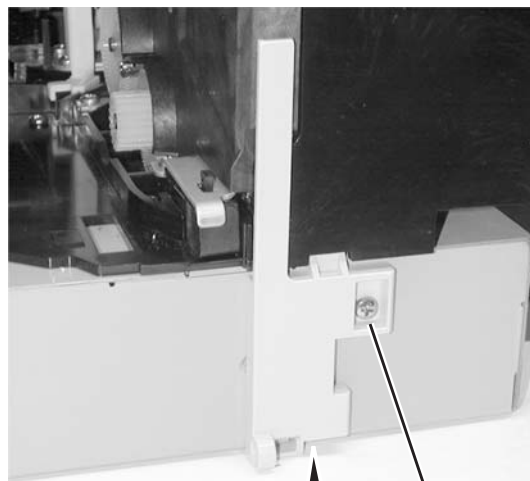
**Note:** Set the voltage range switch to the proper power setting for the geographic area you are in.

1. Remove the fuser drive assembly. See **“Fuser drive assembly removal” on page 4-46**.
2. Remove the rear cover. See **“Rear cover removal” on page 4-22**.
3. Disconnect the J17 and J18 cables from the system board.
4. Remove the four LVPS screws (A) type **“121” on page 4-2** from the rear of the printer.



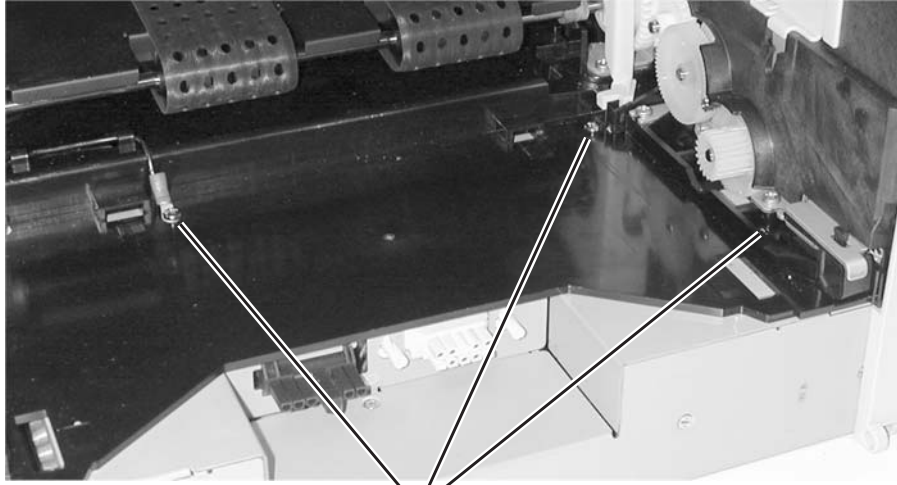
A(121)

5. Remove the right rear cover screw (B) type **“121” on page 4-2**.



B(121)

6. Remove the screw (C) type "121" on page 4-2 from the top of the LVPS, and remove the LVPS from the printer.



C(121)

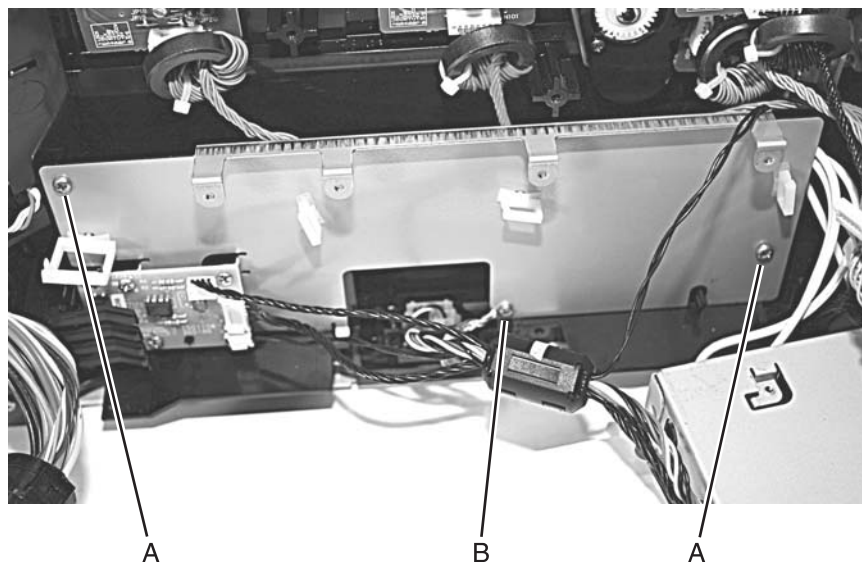
## Media size sensing assembly removal

See **“Media size sensing” on page 7-16** for part numbers associated with this assembly.

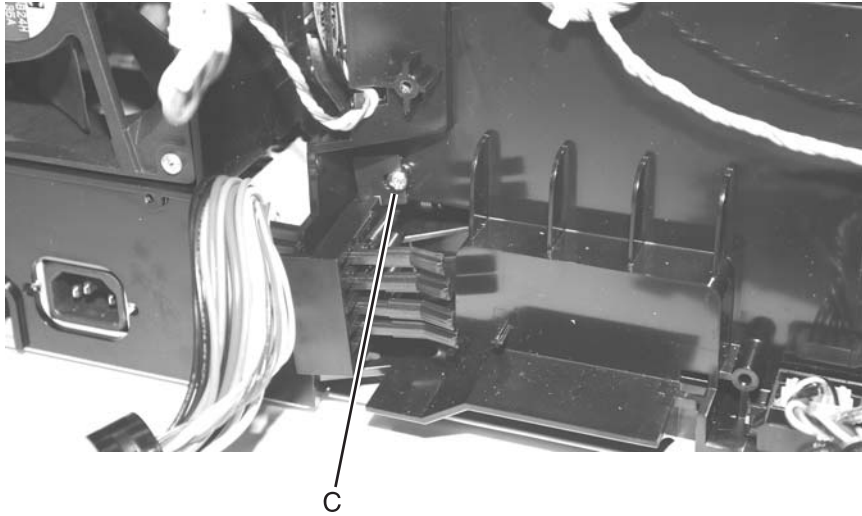
1. Enter Diagnostics mode. Power up the printer in Diagnostics mode (holding ▼ and ► about 10 seconds or until the clock face appears).
2. Print the Quick Test Page, if possible. Retain this sheet to verify the installation.
  - a. Select **REGISTRATION**.
  - b. Press **Select** (✓) to print the page.
3. Turn the printer off.
4. Remove the inner system board shield. See **“Inner system board shield removal” on page 4-48**.
5. Open the waste toner container door, and slide the container out.



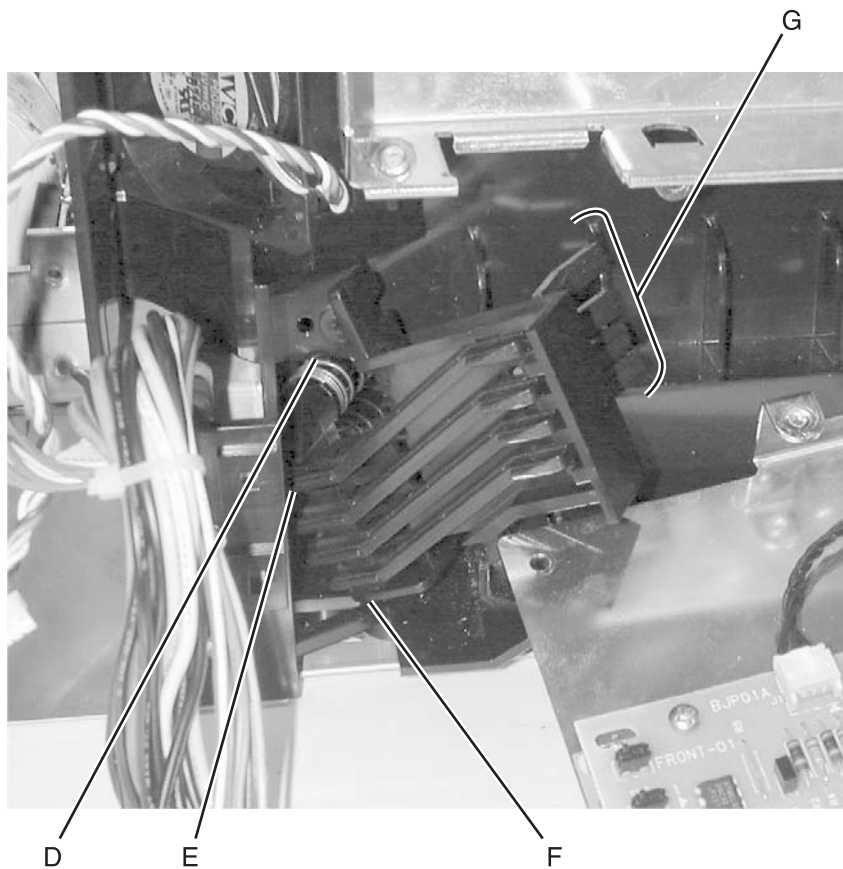
6. Remove the two screws (A) on the lower shield, and remove the ground wire screw (B).



7. Remove screw (C) from the media size sensing assembly.



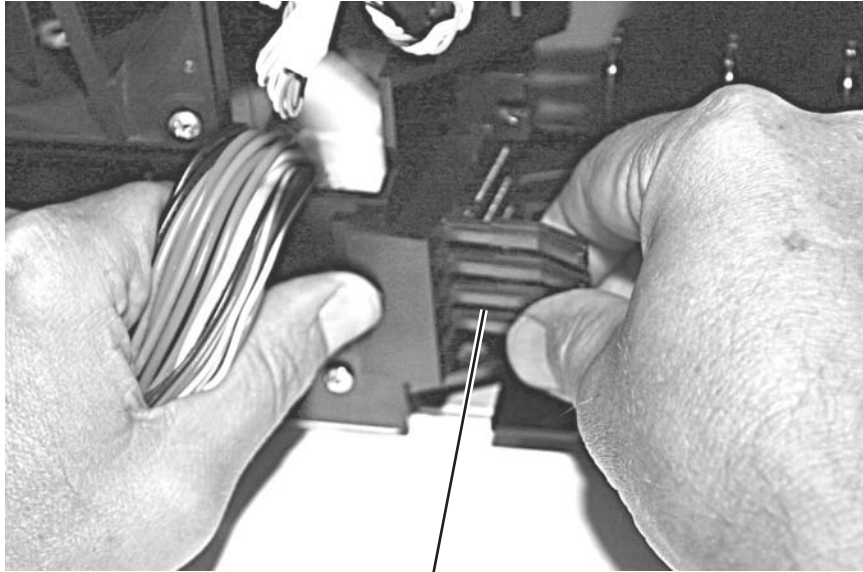
8. Gently twist and remove the media size sensing assembly. As shown, the assembly touches at the spring (D), the fingers (E), the bottom (F), and the right side (G). This also occurs when replacing the assembly.



## Replacing the media size sensing assembly

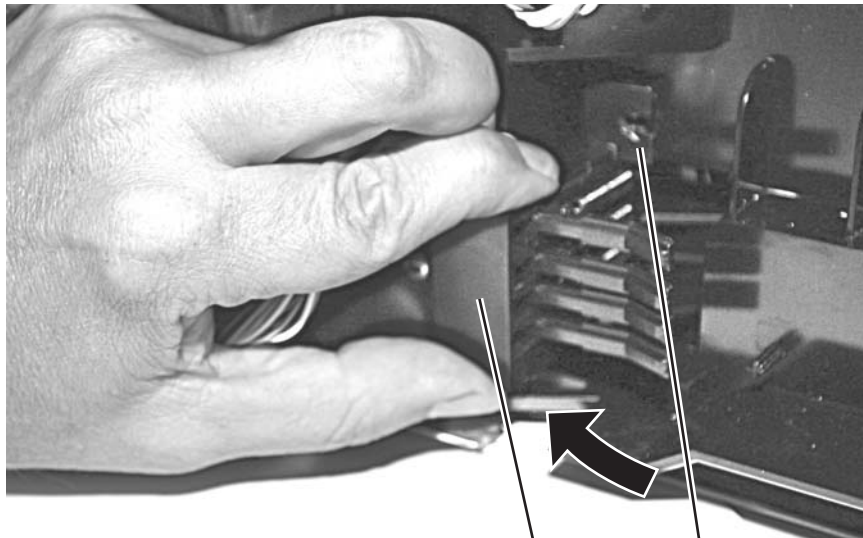
**Installation note:** Be sure to replace all cable ties.

1. Press on the back of the media size sensing assembly fingers (H).



H

2. Move the assembly down to the bottom of the aligning hole. Be careful with the exposed fingers. Do not allow them to press against the black plastic frame.
3. Gently wiggle the entire assembly, and press in and around the corner to the right.
4. Grasp the rectangular piece (J) of the media size sensing assembly and move up and to the left until the screw hole (K) lines up.



J

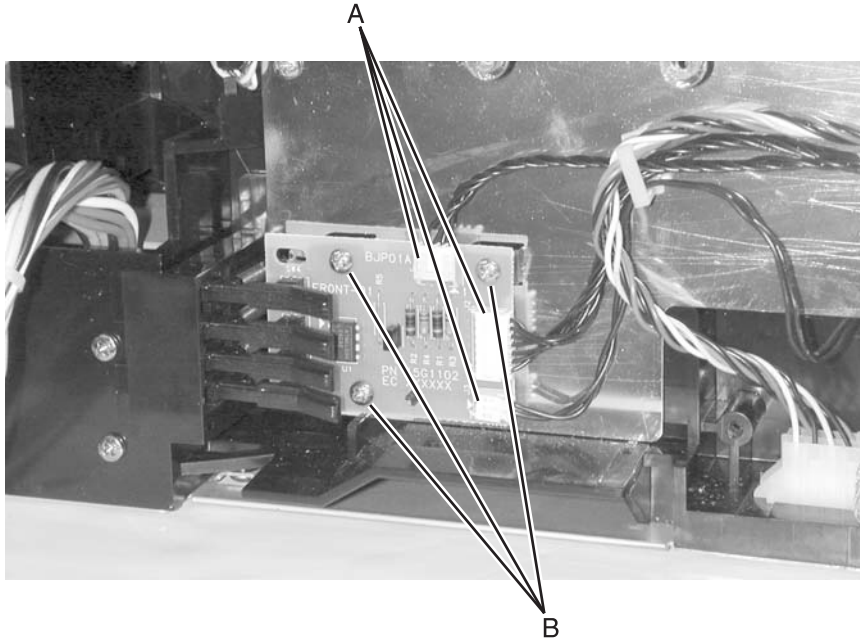
K

5. Reinstall the ground screw, inner system board shield, waste toner container, outer system board shield, and the covers.

## Media size sensing board removal

See **“Media size sensing board assembly Also order cable tie parts packet (P/N 40X1648)”** on page 7-16 for the part number.

1. Remove the rear cover. See **“Rear cover removal”** on page 4-22.
2. Disconnect the cables (A).
3. Remove the media size sensing board screws (B).



4. Remove the board.

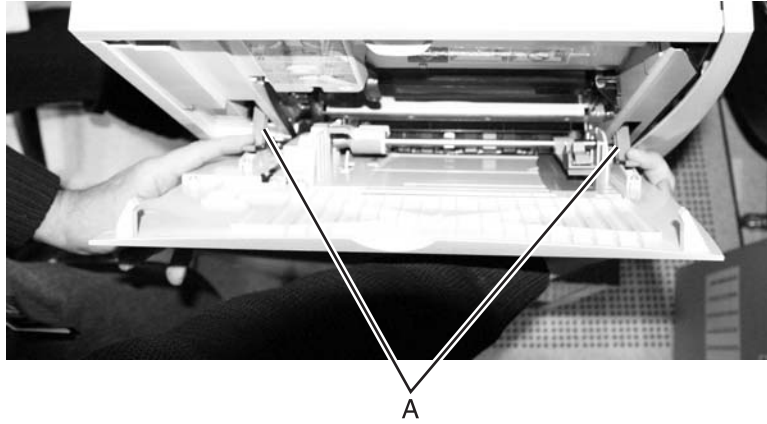
**Installation note:** Be sure to replace all cable ties.



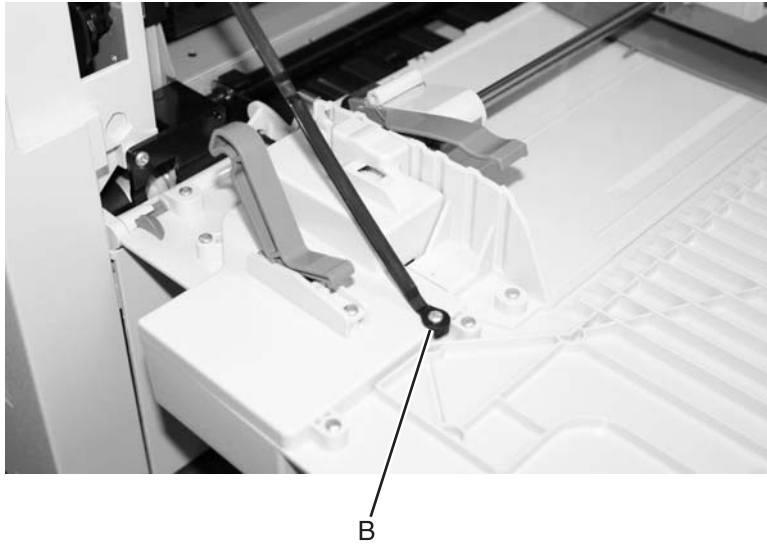
## Multipurpose feeder (MPF) removal

See “**Multipurpose feeder (MPF)**” on page 7-19 for the part numbers.

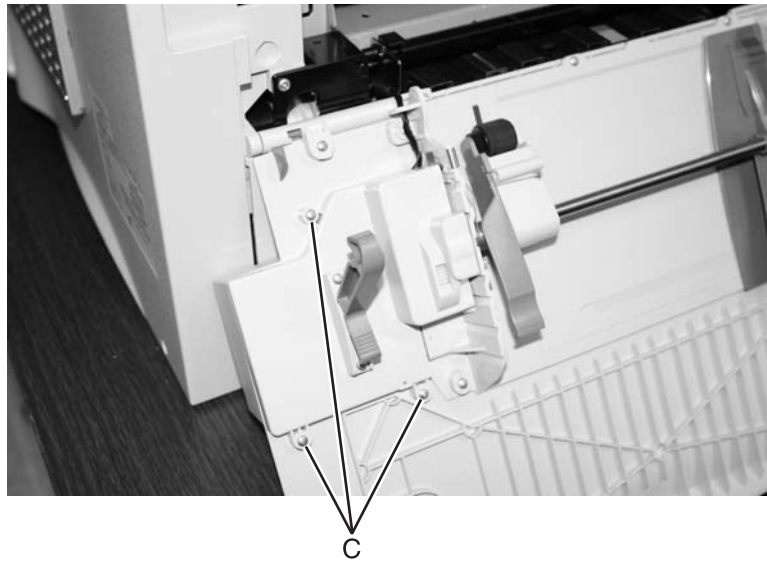
1. Open the MPF, and press the releases (A) to open the MPF to the lowest position.



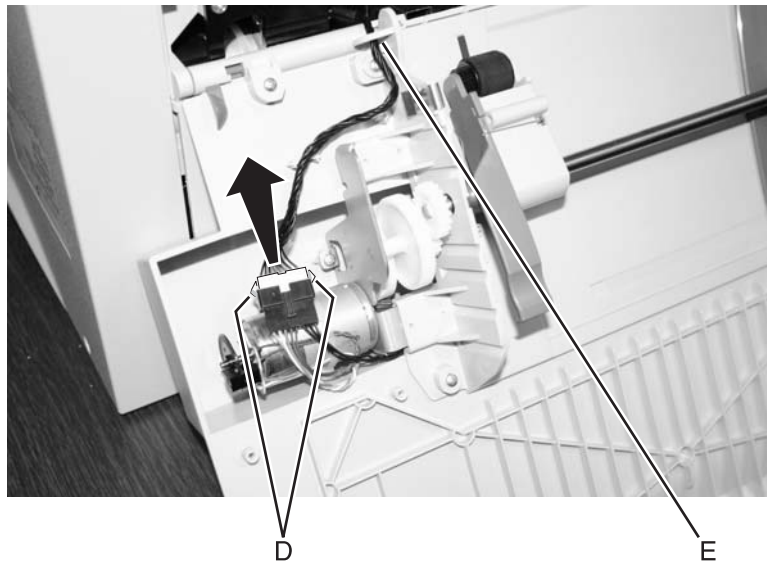
2. Remove the MPF cable cover screw (B).



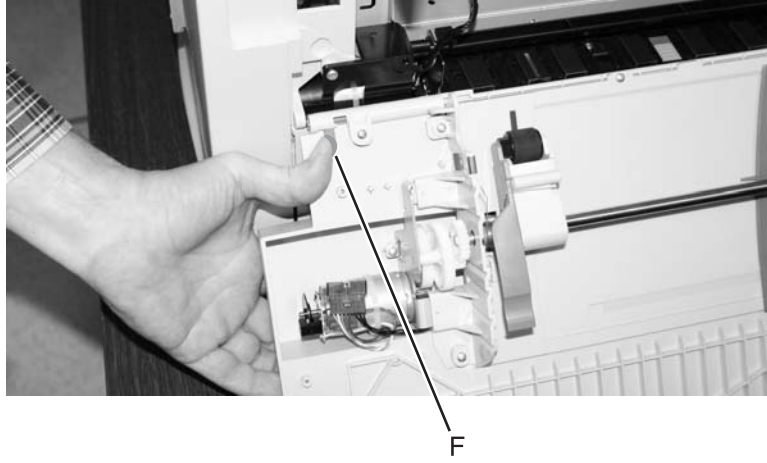
3. Remove the three screws (C) that secure the MPF inner cover.



4. Press the latches (D) to release the MPF switch cable from the MPF sensor, and disconnect the cable.
5. Remove the cable from the cable retainer (E).



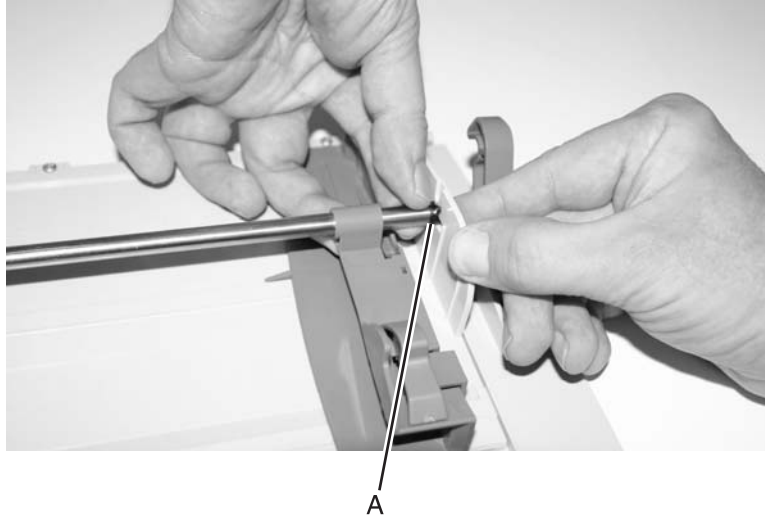
6. Release the MPF latch (F), and remove the MPF.



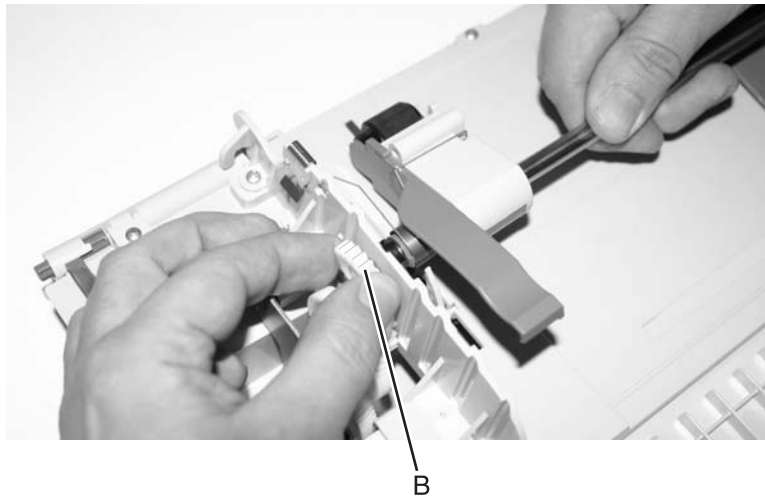
### ***Multipurpose feeder (MPF) autocompensator or side restraints removal***

See **“MPF autocompensator pick assembly”** or **“MPF side restraint”** on page 7-19 for the part numbers.

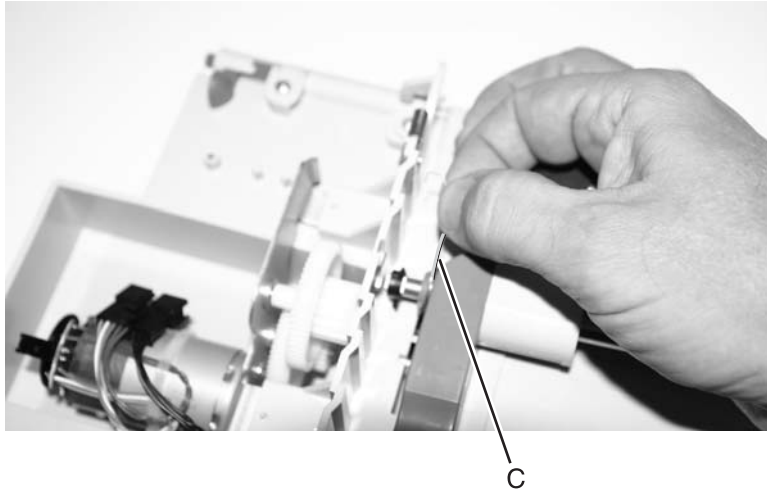
1. Remove the MPF. See **“Multipurpose feeder (MPF) removal”** on page 4-59.
2. Remove the c-clip (A).



3. Remove the gear (B).



4. Unhook the autocompensator spring (C).



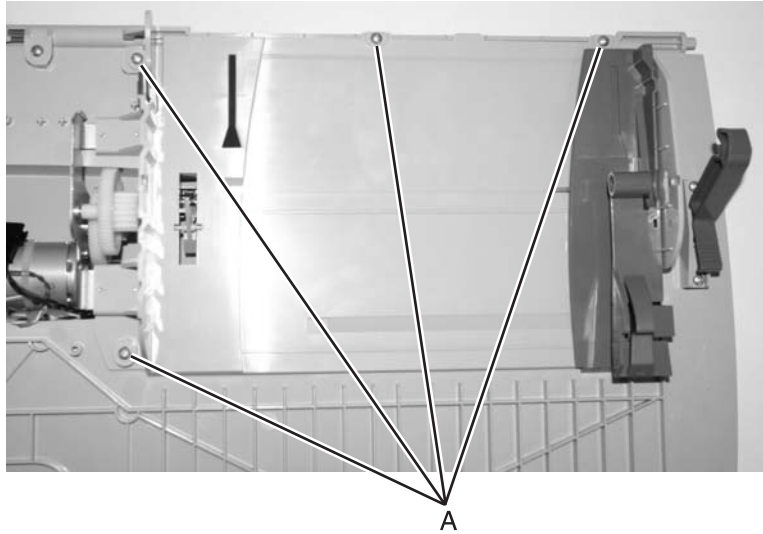
5. Rotate the shaft up and out of the MPF assembly.



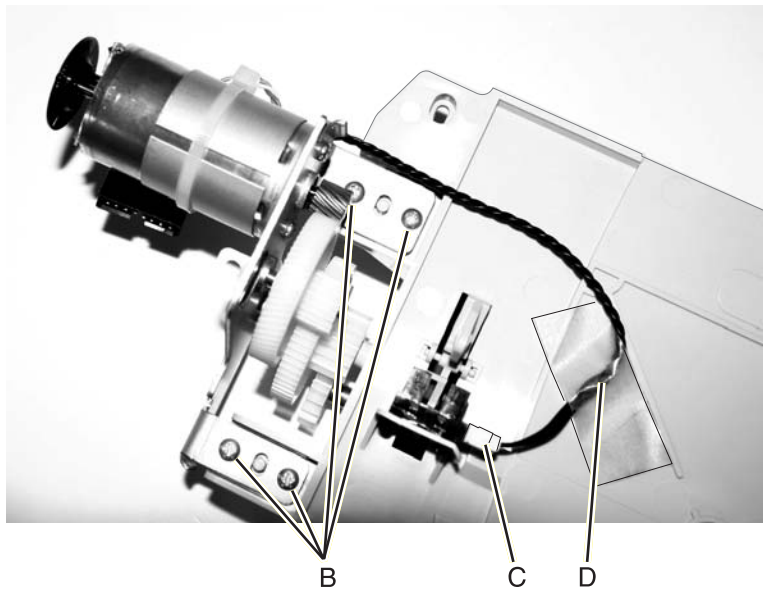
## Multipurpose feeder (MPF) motor removal

See **“MPF drive assembly”** on page 7-19 for the part number.

1. Remove the MPF. See **“Multipurpose feeder (MPF) removal”** on page 4-59.
2. Remove the MPF autocompensators 1 and 2. See **“Multipurpose feeder (MPF) autocompensator or side restraints removal”** on page 4-62.
3. Remove the four screws (A) to secure the MPF inner cover.



4. Disconnect the cable (C), and remove the tape (D) securing the cable in place.

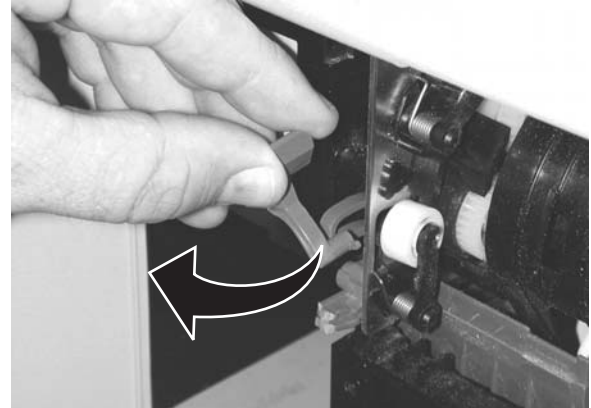
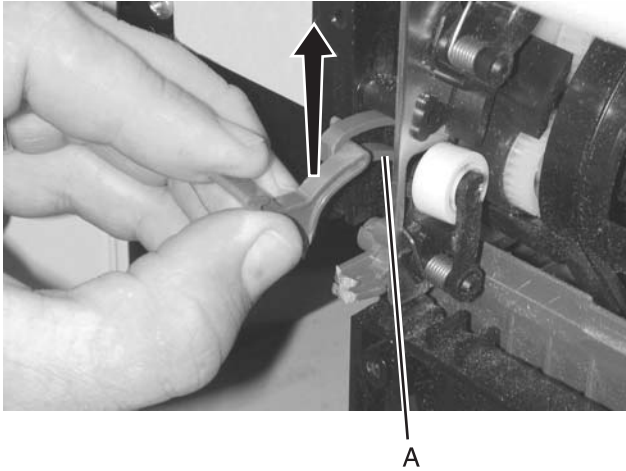


5. Turn the MPF inner cover over, and remove the four screws (B) securing the motor.
6. Remove the MPF motor.

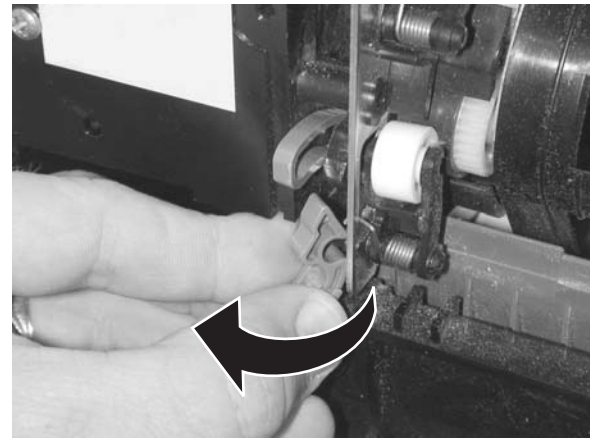
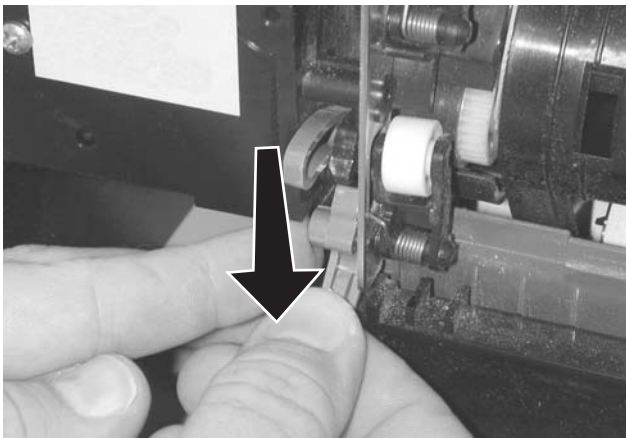
## Nip relief handle removal

See **“Nip relief handle Also order cable tie parts packet (P/N 40X1648)” on page 7-17** for the part number.

1. Remove the left lower cover to access the nip relief handle. See **“Left lower cover removal” on page 4-24.**
2. Remove waste toner container.
3. Reinsert paper tray into printer.
4. Remove the broken pieces of old handle.
  - a. Pull up the upper piece of handle to raise the nip relief link (A), and rotate upper piece of handle 90° clockwise to free it from the nip relief link.

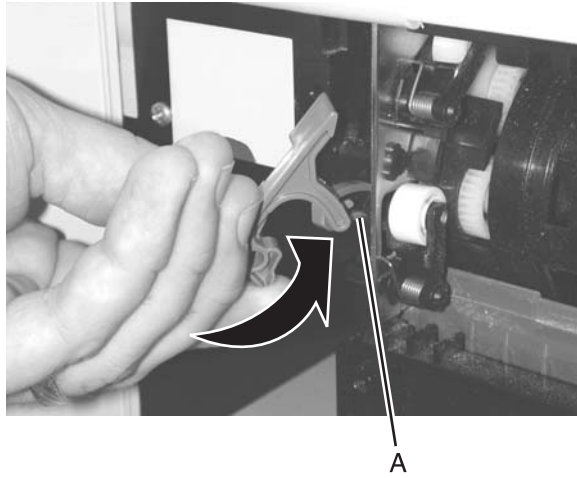


- b. Pull down the lower portion of the broken handle as far as it goes. Rotate the handle to slide off the post.

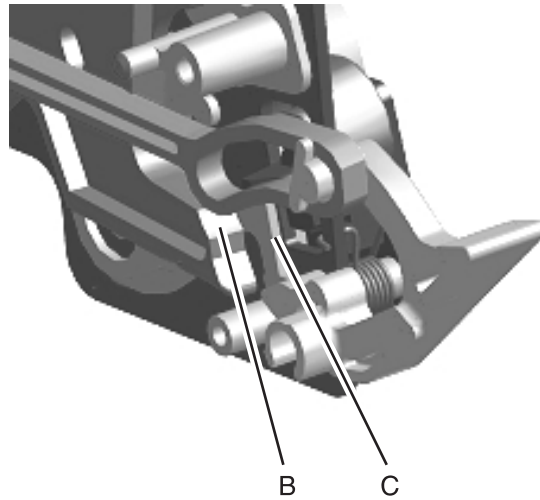
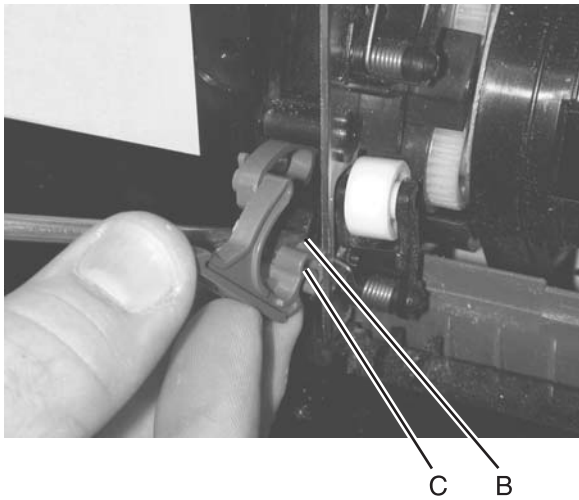


### Installation notes

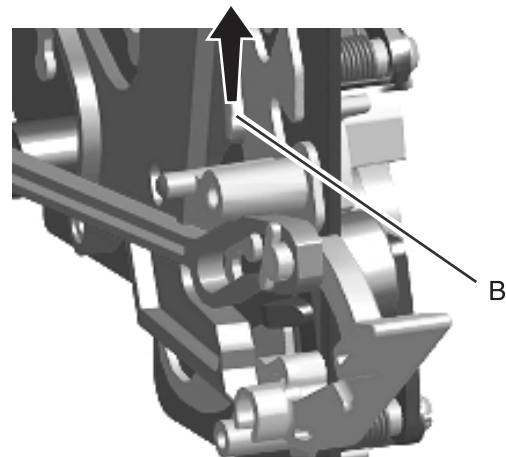
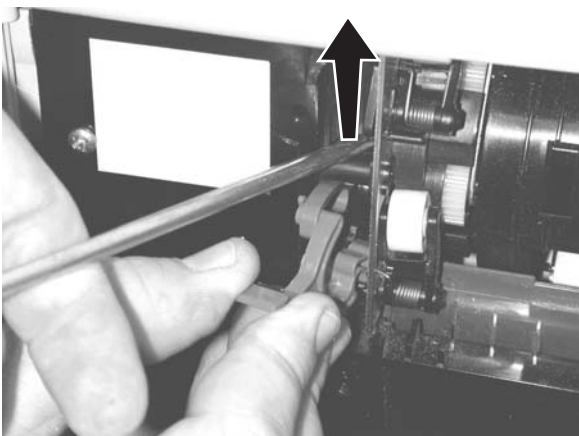
1. Rotate the new nip relief handle into place to connect it to the nip relief link (A).



2. Using a screwdriver, gently pry the nip relief lever (B) toward the rear of the printer, and insert lower portion of the handle so that it is between the nip relief lever and the reference edge plate (C).

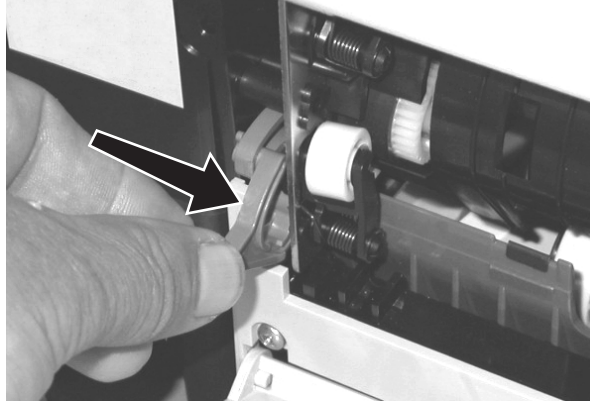


3. Holding the handle in place, use a flathead screwdriver to gently pry up on the top portion of the nip relief lever allowing the handle to *snap* into place onto the post using moderate force.





4. Once the handle *snaps* onto the post, press the upper portion of the handle to the right, and rotate the handle into its home position.  
This seats the nip relief lever into the correct position.

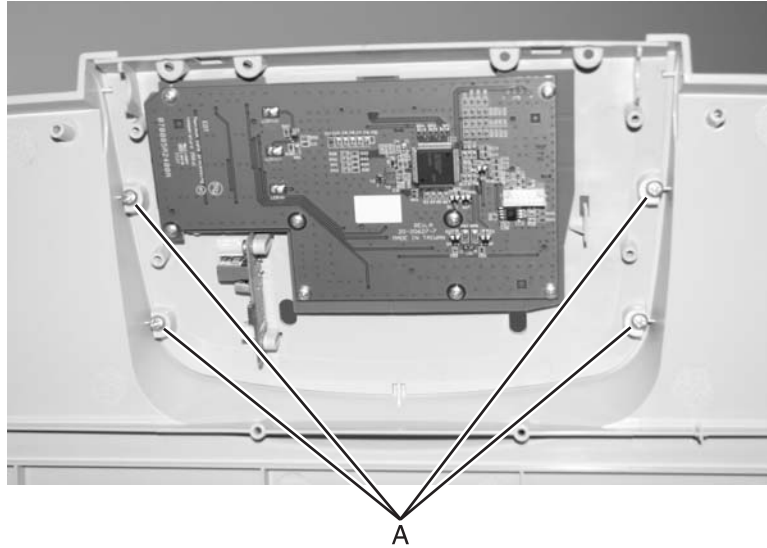


5. Check for proper operation.
6. Install the waste toner container.
7. Replace the covers.

## Operator panel assembly removal

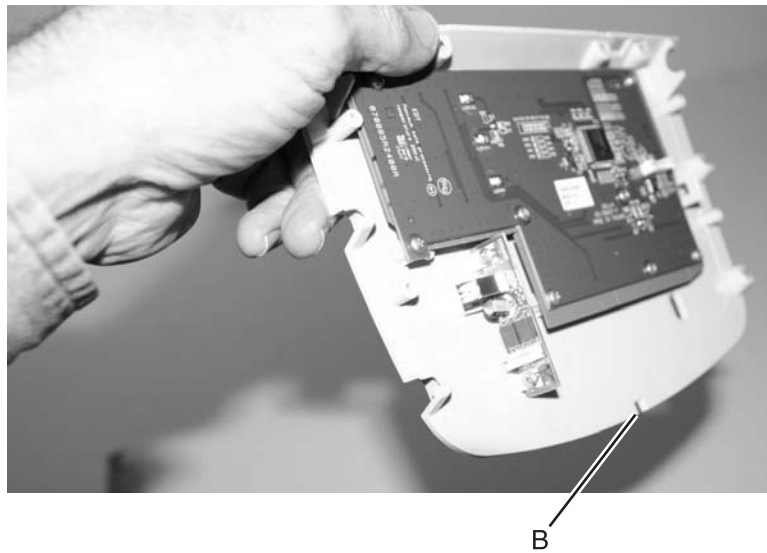
See **“Operator panel assembly”** on page 7-3 for the part number.

1. Remove the front cover and front cover backplate assembly. See **“Front cover or front cover backplate assembly removal”** on page 4-11.
2. Remove the four screws (A) attaching the operator panel to the front cover.



3. Remove the operator panel assembly.

**Installation note:** Be sure the notch (B) at the bottom of the operator panel connects securely on the front cover.



## Outer system board shield removal

See **“System board outer shield”** on page 7-33 for the part number.

1. Remove four screws (A).



2. Remove outer system board shield.

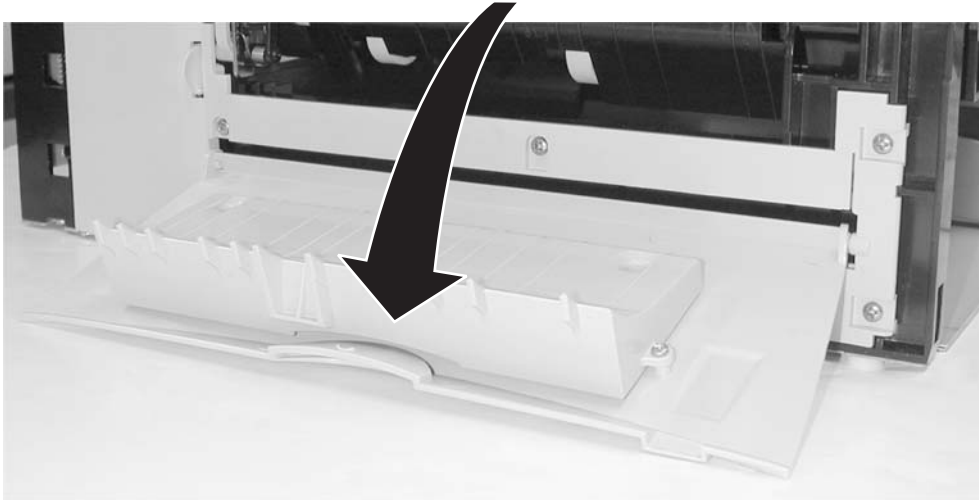
## Pick rolls removal

See **“Pick roll tires (2 per pack)”** on page 7-53 for the part number.

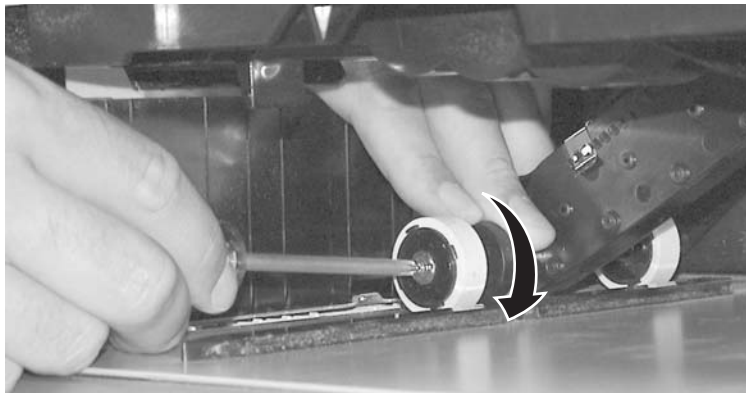
**Note:** Replace both rolls at the same time.

### Front roll

1. Remove the paper tray.
2. Wipe any toner or debris from the bottom pan to avoid contaminating the pick rolls.
3. Open the lower jam access door assembly for access.



4. Pull the pick assembly down into the bottom pan, and remove the screw.



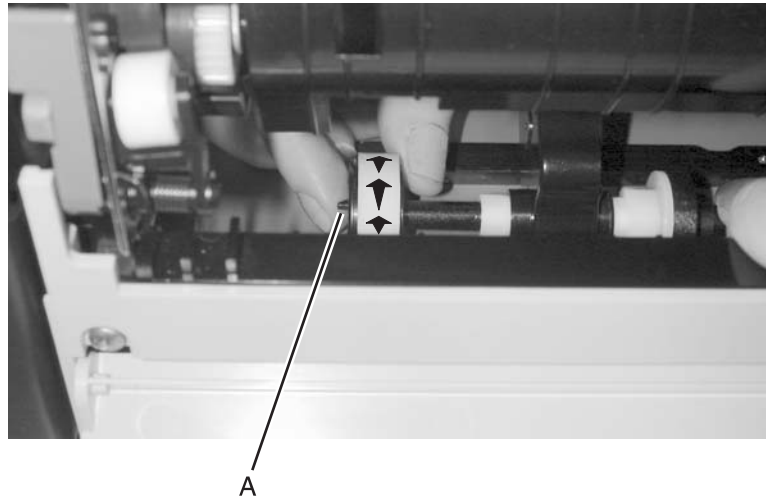
**Note:** Do not attempt to remove either the shaft or the clutch races.

#### Installation notes for the front roll:

- When you replace the front roll, make sure the roll is pressed against the shaft and the screw is fastened all the way down.
- When replacing both the front and back rolls, note the directional markings on the roll and make sure the rolls turn clockwise when viewed from the front. Check out the directional arrows in the pictures. Verify the rolls turn freely.

## Rear roll

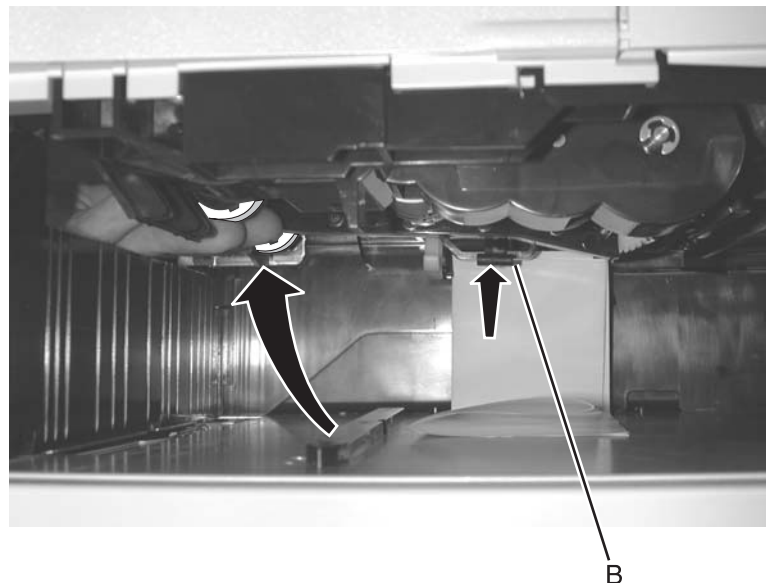
Reach around and depress the latch (A) on the end of the shaft, and remove the roll.



### Installation note for the rear roll:

- When replacing both the front and back rolls, note the directional markings on the roll and make sure the rolls turn clockwise when viewed from the front. Check out the directional arrows in the pictures. Verify the rolls turn freely.
- Once the pick arm assembly is lowered, the spring is disengaged. To properly position the pick arm assembly and re-engage the spring:
  1. Reach through the lower jam access door opening, and lift and hold the pick assembly in the proper position.
  2. Press the autocompensator release lever (B) to engage the spring.

**Note:** A piece of paper is shown in the picture only for contrast.



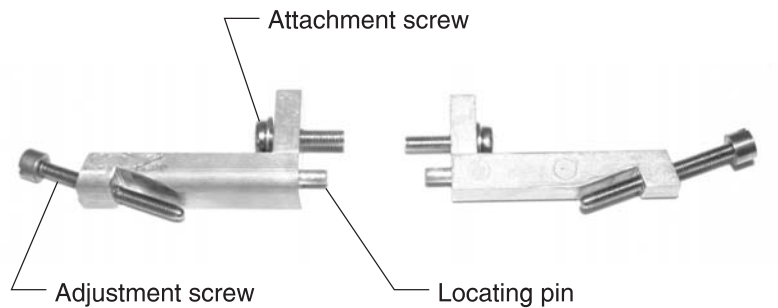
## Printhead removal and adjustments

See Printhead assembly on [page 7-13](#) for the part number.

### Warnings:

- Whenever a printhead is replaced, it is necessary to perform the “**Mechanical alignment**”. Then, if a black printhead is replaced, perform the “**Black printhead electronic alignment**” on [page 4-77](#) and the “**Color printhead electronic alignment**” on [page 4-78](#). If a yellow, cyan, or magenta printhead is replaced, perform the “**Color printhead electronic alignment**” on [page 4-78](#).
- Do not loosen or replace more than one printhead at a time to retain factory settings.
- The printhead alignment assemblies must be removed once the mechanical alignment is completed.

The printhead comes with two printhead alignment assemblies.



### Mechanical alignment



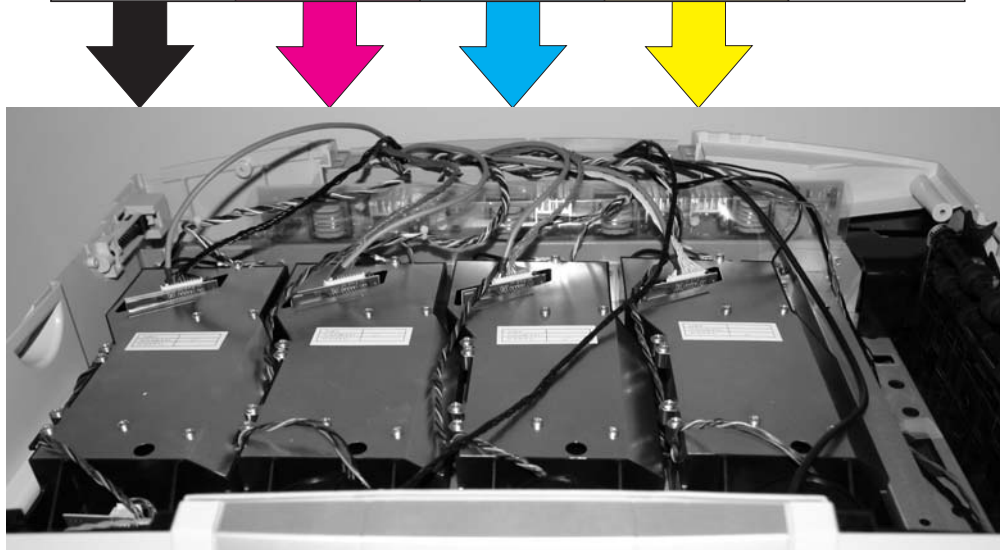
#### CAUTION

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

1. Turn the printer off.
2. Remove the top cover. See “[Top cover assembly removal](#)” on [page 4-13](#).

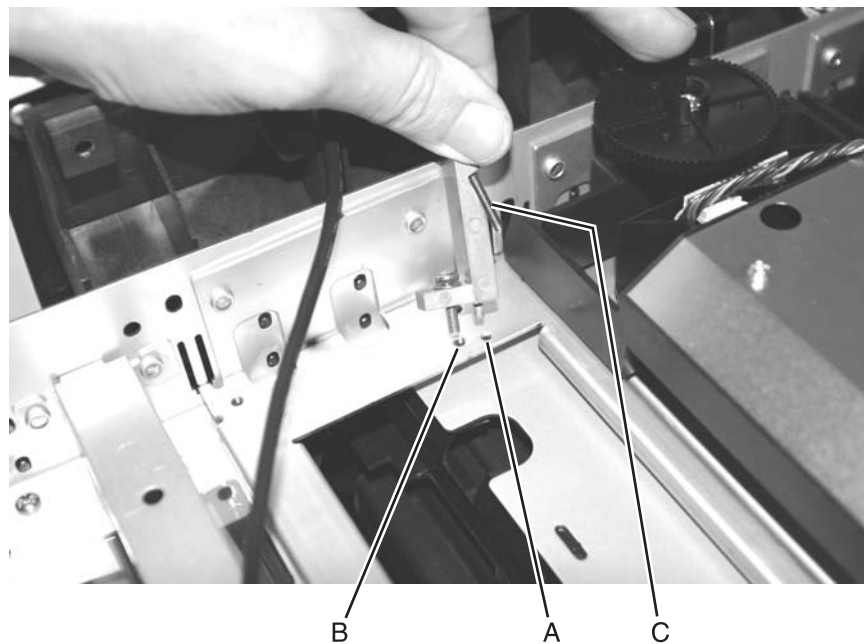
3. Determine which printhead to remove.

Error Codes				
Black (K)	Magenta (M)	Cyan (C)	Yellow (Y)	Failure Mode
109.01	107.01	106.01	108.01	Lost Hsync
109.02	107.02	106.02	108.02	Failed Servo
109.03	107.03	106.03	108.03	Failed Lock
109.04	107.04	106.04	108.04	Lost Lock

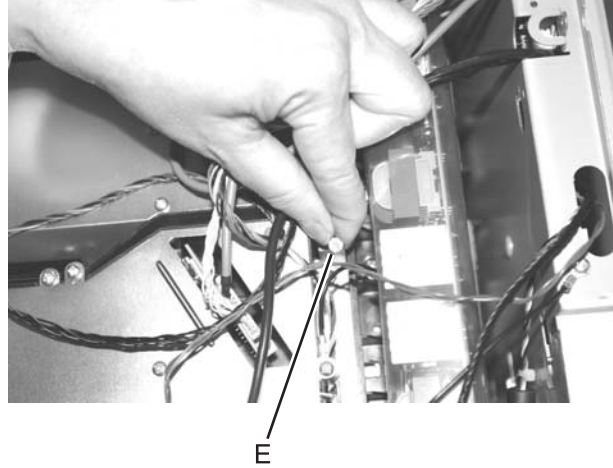
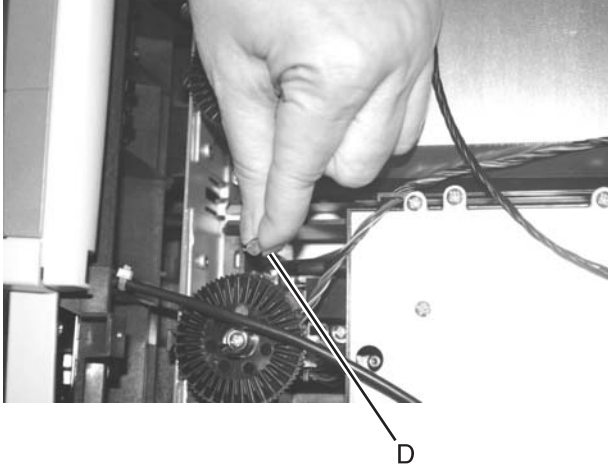


## Front

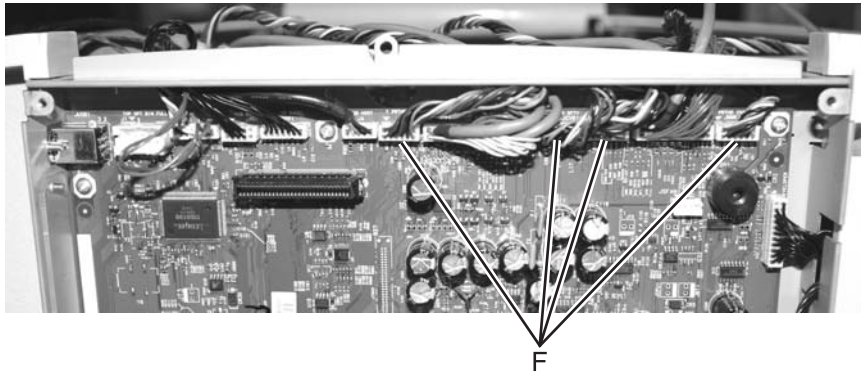
4. Align the printhead alignment assembly locating pin (A) with the hole in the printer frame and the attachment screw (B) with the screw hole (shown without the printhead for clarity). The adjustment thumbscrew (C) should be facing the closest mounting beam.



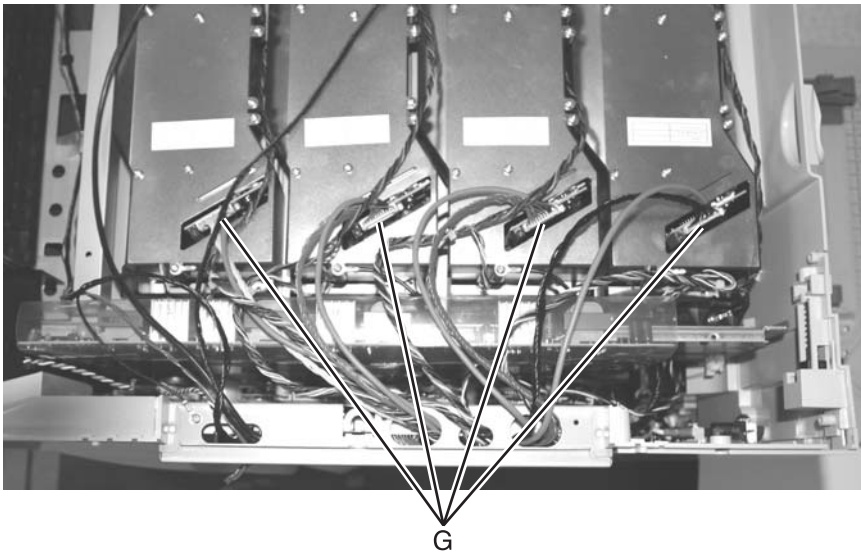
5. Install one printhead alignment assembly (D) in the front and the other (E) in the rear of the selected printhead.



6. Screw the printhead alignment assembly to the printer frame.
7. Finger tighten the adjustment screw until the end of the screw is pressing firmly against the mounting beam.
8. Disconnect the printhead motor cable (F) at the system board.

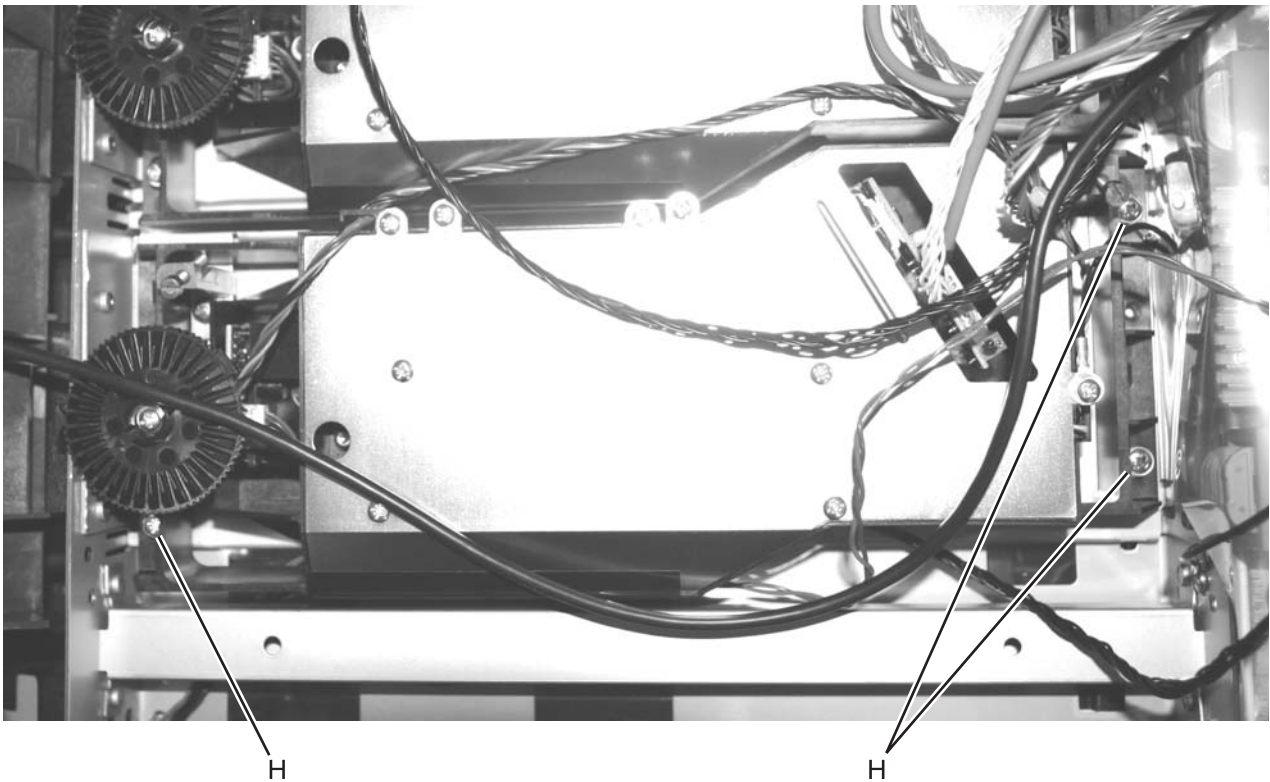


9. Disconnect the color-keyed printhead cable (G) on top of the printhead.





10. Remove the three printhead mounting screws (H), and remove the printhead.



11. Lift the old printhead out, leaving the printhead alignment assemblies in place.  
**Note:** Untwist the printhead motor cables before placing the printhead assembly into the printer.
12. Install the new printhead assembly, reconnect the printhead motor cable into the system board, and reconnect the color keyed printhead cable into the top of the printhead.  
**Note:** Replace the printhead mounting screws, but do not tighten them yet.

13. With one hand, bias the new printhead against the front and rear adjustment screws of the printhead alignment assembly.
- Note:** Using a consistent force on the front and back of the printhead is important and will reduce the number of iterations.



14. While maintaining bias pressure, tighten the right rear printhead mounting screw. Then tighten the front screw followed by the left rear screw.
15. Securely close the front cover assembly.
16. Print the Mechanical Alignment Test page:
- Enter Diagnostics Mode (Turn the printer off, press and hold **▼** and **▶**, turn on the printer, and release the buttons in about 10 seconds or until the clock face appears on the display).
  - Select **MISCELLANEOUS TESTS**, and then select **Printhead Inst.**  
The Mechanical Alignment Test page prints and can be used to determine the printhead alignment. This page contains information for black (K), magenta (M), cyan (C), and yellow (Y) printheads.
  - Look at the line pertaining to the color of printhead you are replacing.  
The goal is to get the vertical line that runs from "REAR SIDE" to "FRONT SIDE" between 1 and -1 for both front and rear.  
For example, the following is a sample of the magenta "FRONT SIDE" with the vertical line at +5.



- If the line is outside of this range, turn off the printer, loosen the printhead mounting screws, and turn the adjustment screw of the printhead alignment assembly as indicated by the Mechanical Alignment Test page.  
In the example above, the vertical line is at +5. Therefore, turn the front adjustment screw clockwise five full turns. If the vertical line had been at -5 it would indicate you should turn the adjustment screw five turns in a *counterclockwise* direction. After adjusting the screw for the front and similarly determining the adjustment and making it for the back, go to step 13.

- e. Repeat steps 13 through 16 as necessary until the line is within 1 and -1 on *both* ends.



17. Remove both printhead alignment assemblies from the printer.

**Warning:** Leaving the printhead alignment assemblies in the printer can cause damage to the printer.

18. Press **Back** (⏪) to return to the main Diagnostic Menu.

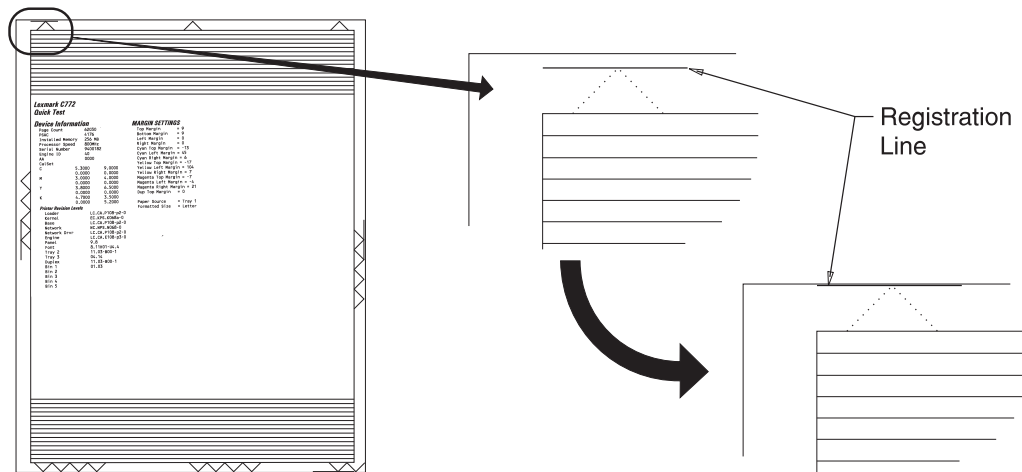
19. Perform the electronic alignment(s):

- If a Black printhead is replaced, perform the **“Black printhead electronic alignment” on page 4-77** and then the **“Color printhead electronic alignment” on page 4-78.**
- If a magenta, cyan, or yellow printhead is replaced, perform only the **“Color printhead electronic alignment” on page 4-78.**

## Black printhead electronic alignment

After replacing the black printhead:

1. Select **REGISTRATION** from the Diagnostic Menu.
2. Select **Quick Test**.
3. Set the top, bottom, left, and right margin in that order. The margins are set when the tip of the triangle touches the edge of the page.



The print registration range is:

- |                |            |  |
|----------------|------------|--|
| Top Margin:    | -25 to +25 | Increasing the value moves the image down the page. Always adjust the top before the bottom margin.          |
| Bottom Margin: | -25 to +25 | Increasing the value stretches the image toward the bottom of the page.                                      |
| Left Margin:   | -15 to +15 | Increasing the value moves the image toward the left margin. Always adjust the left before the right margin. |
| Right Margin:  | -15 to +15 | Increasing the value compresses the image to the left on the page.   |

**Note:** Adjusting the Top and Left margins moves the entire image. Adjusting the Bottom and Right margins causes the image to expand or compress. It is easier to adjust the Top and Left margins first, then adjust the Bottom and Right.

4. Perform the **“Color printhead electronic alignment” on page 4-78** for all colors (not black).

## Color printhead electronic alignment

After replacing a color printhead:

1. Select **Alignment** from the Diagnostics Menu.
2. Select the color of printhead you are replacing.
3. Select **Quick Test**.  
Test pages are printed.
4. Adjust the Step 1 settings, based on the Test pages.
  - Follow Step 1 of the instruction on the Test pages. The goal is to change the values until the Test page shows A is within  $\pm 1$  from B.  
**Note:** If fine adjustment lines do not line up, then use coarse alignment.
  - For Step 1 (top margin), press ▲ or ▼ on the operator panel to adjust the top margin. Press ✓ to submit the change. Press ◀ or ▶ to adjust the right margin. Press ✓ to submit the change.
  - After each adjustment, print another set of Test pages by pressing ↻ and selecting **Quick Test** to verify the change.
  - Repeat Step 1 until A is within  $\pm 1$  from B, then go to step 2.
5. Adjust the Step 2 settings.
  - Follow Step 2 of the instructions on the Test pages. The goal is to change the value until the Test page shows A and B are within  $\pm 1$ .
  - For Step 2 (top margin), press ▲ or ▼ to adjust the top margin. Press ✓ to submit the change.
  - Press ◀ or ▶ to adjust the right margin. Press ✓ to submit the change.
  - After each adjustment, print the Quick Test pages to verify the change.
  - Repeat Step 2 until A and B are within  $\pm 1$ , then go to step 3.
6. Adjust the Step 3 settings.
  - Follow Step 3 of the instructions on the Test pages. The goal is to change the value for both the left and right margins until the Test page shows C and D within  $\pm 6$ .
  - After each adjustment, print another set of Test pages to verify the change.
  - Round any fractional numbers up to the nearest whole number. For example:  $(1+2)/2 = 1.5$  rounds to 2.
  - Repeat Step 3 until C and D are within  $\pm 6$ . When they are, you are done.
7. Exit Diagnostics mode.

**Installation note:** Be sure to replace all cable ties.

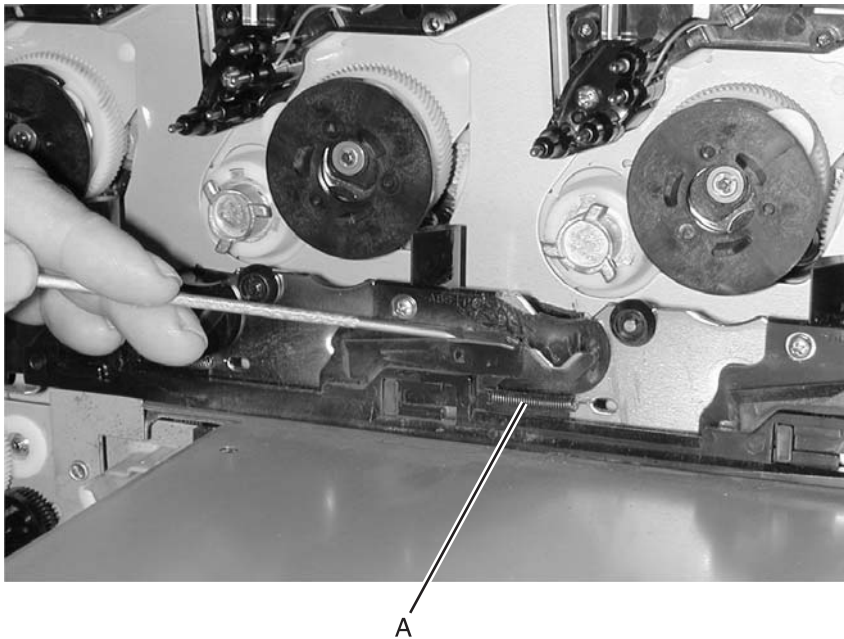
## Rear bellcrank removal (cyan, magenta, yellow)

See [page 7-25](#) for the part numbers for the parts packet, including the rear transfer bellcranks, for yellow, cyan, and magenta.

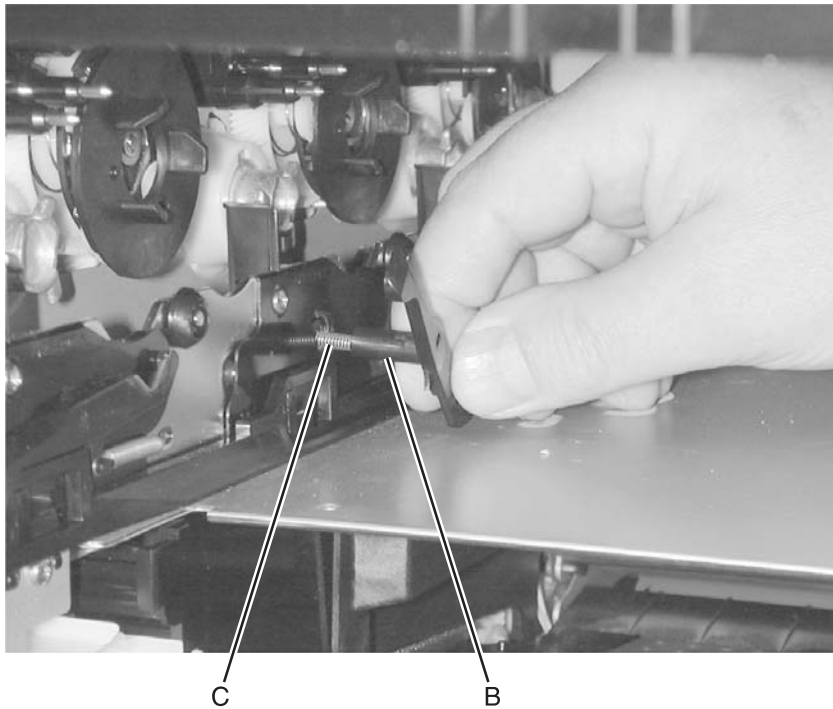
1. Power off the printer.
2. Remove the four toner cartridges, and leave the front door open.
3. Remove the ITU assembly. See [“ITU assembly removal” on page 4-49](#).
4. Check each of the rear bellcranks for cracks or breakage.



5. Remove the spring (A).



6. Rotate the contact end of the bellcrank down (B) and remove. Be careful not to lose the contact spring (C).



### Installation note

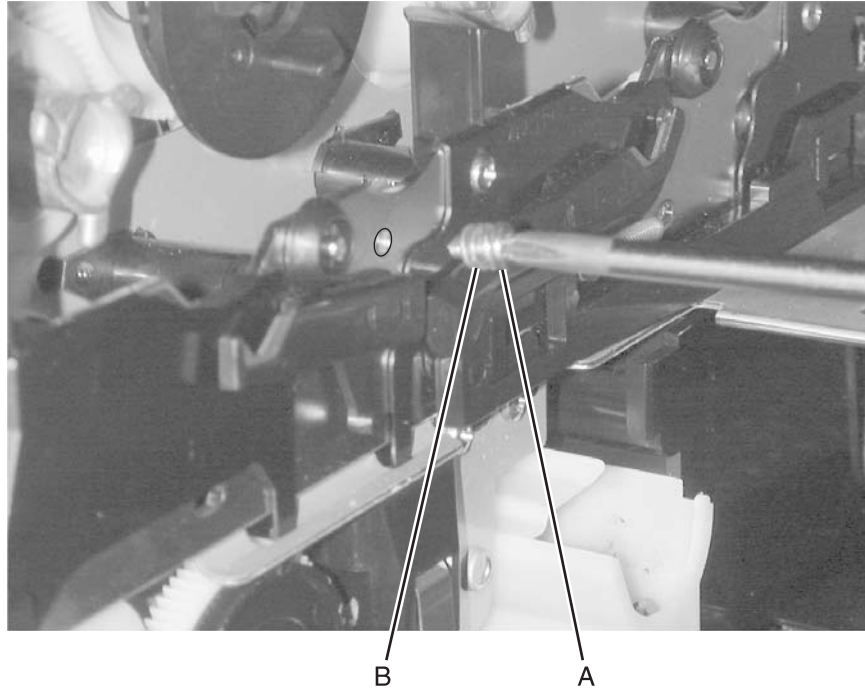
Replace the bellcranks by reversing the order of removal.

**Note:** Test the color coverage by running the Print Quality Pages in the Diagnostics or Configuration Menu.

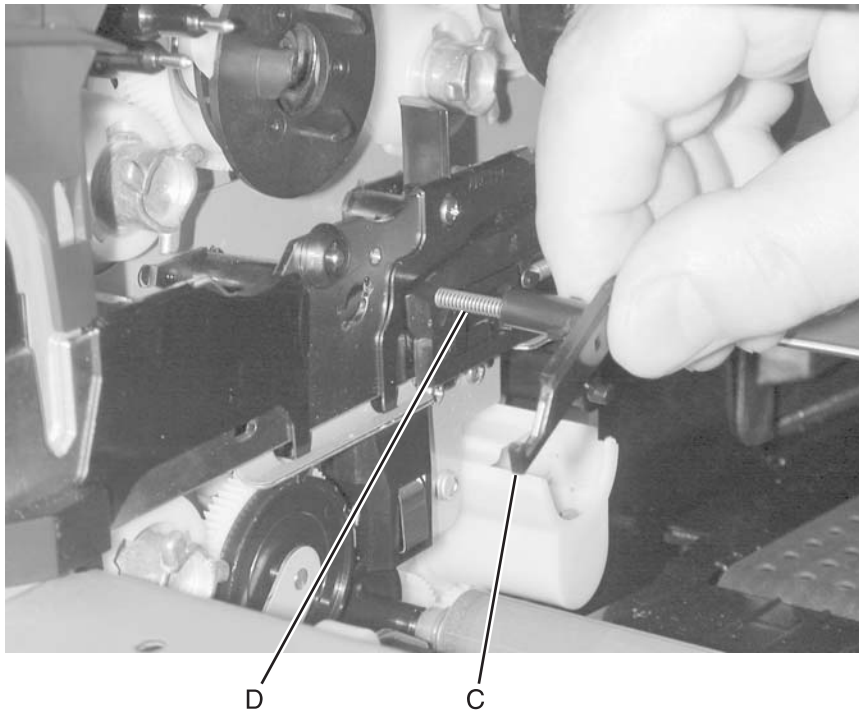
## Rear bellcrank (black) removal

See [page 7-25](#) for the part number for the parts packet, including the rear transfer bellcranks, for black.

1. Power off the printer.
2. Remove the four toner cartridges, and leave the front door open.
3. Remove the ITU assembly. See [“ITU assembly removal” on page 4-49](#).
4. Check each of the rear bellcranks for cracks or breakage.
5. Remove the spring.
6. Remove the stop screw (A) and two washers (B). Be careful not to lose the washers. Recommend using a magnetic tipped screwdriver to remove the screw.



7. Rotate the contact end of the bellcrank down (C) and remove. Be careful not to lose the spring (D).



### Installation note

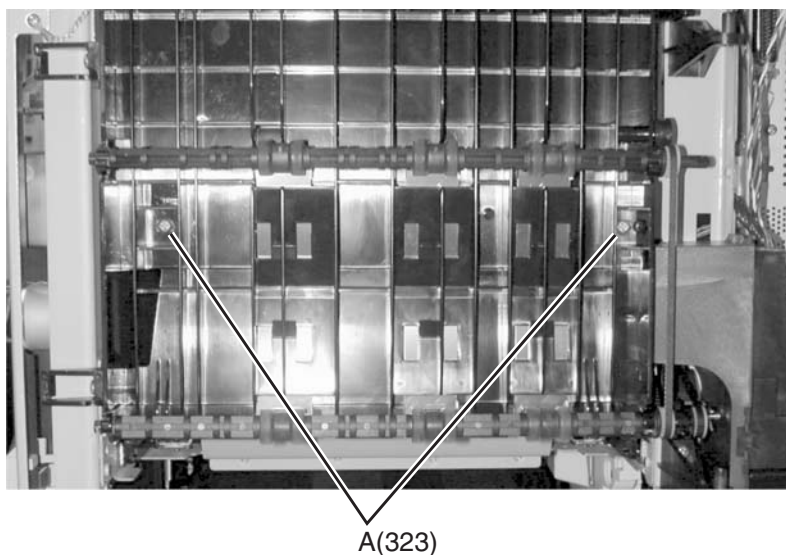
Replace the bellcranks by using reverse order of removal.

**Note:** Test the color coverage by running the Print Quality Pages in the Diagnostics or Configuration Menu.

### Redrive assembly removal

See **“Redrive assembly” on page 7-14** for the part number.

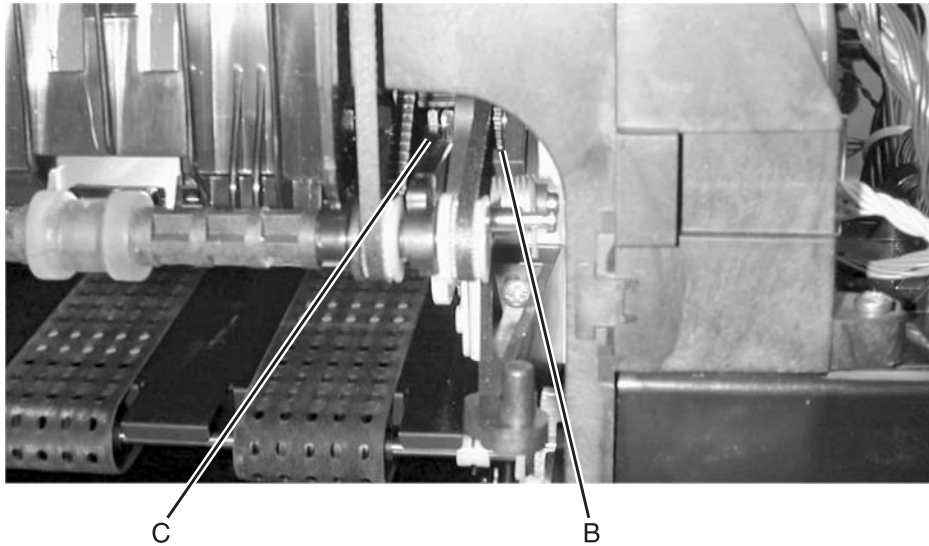
1. Remove the redrive door. See **“Redrive door removal” on page 4-26**.
2. Remove the fuser bottom duct. See **“Fuser bottom duct removal” on page 4-46**.
3. Remove the redrive assembly screw (A) type **“323” on page 4-3**.





4. Remove the drive belt (B) from the lower redrive pulley.
5. Remove the redrive assembly.

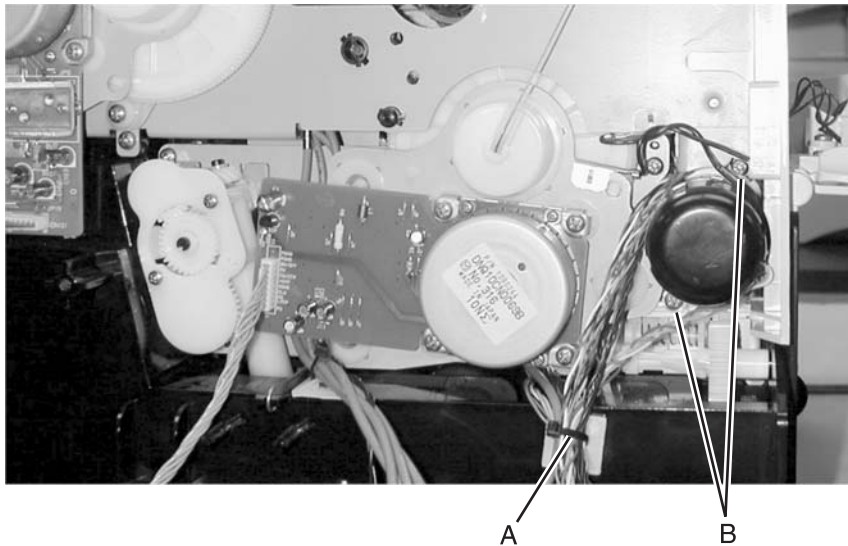
**Note:** When you reinstall the redrive assembly be sure to align the notch in the redrive assembly with tab (C).



### **Registration motor removal**

See [page 7-17](#) for the part number for the registration motor assembly kit.

1. Remove the inner system board shield. See **“Inner system board shield removal”** on [page 4-48](#).
2. Remove the registration motor mounting screws (B), cut the cable tie (A), and remove the assembly.

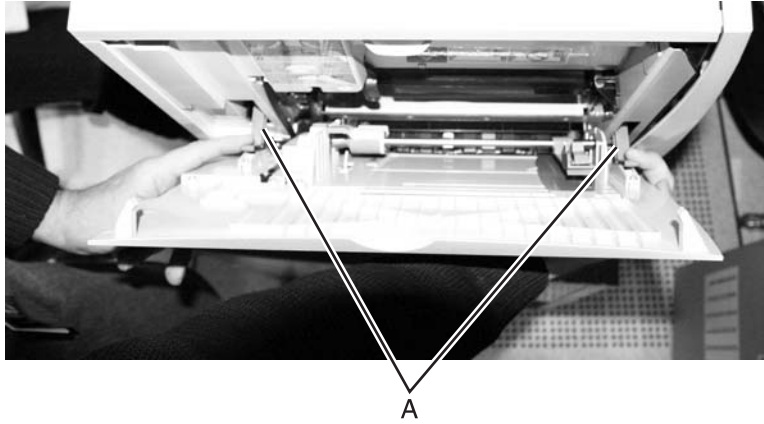


**Installation note:** Be sure to replace the cable tie (A).

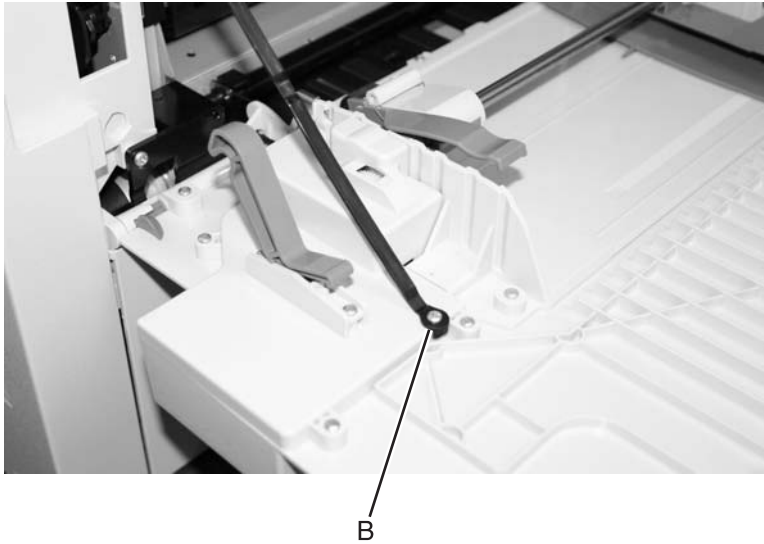
### Rib housing removal

See **“Rib housing” on page 7-19** for the part number.

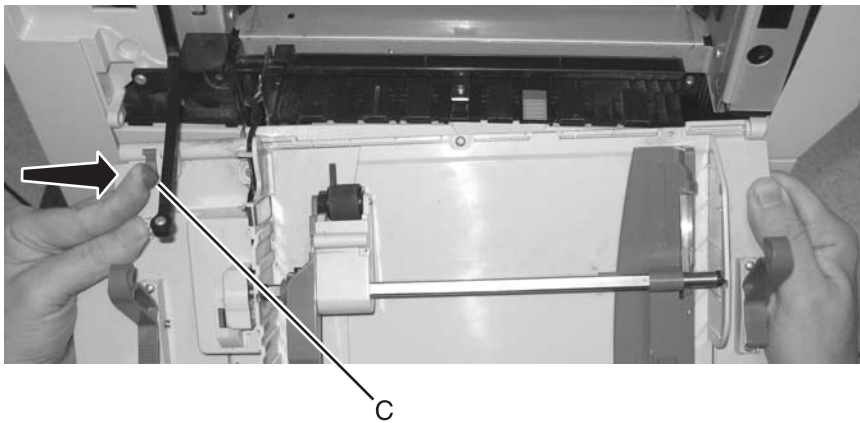
1. Open the MPF, and press the releases (A) to open the MPF to the lowest position.



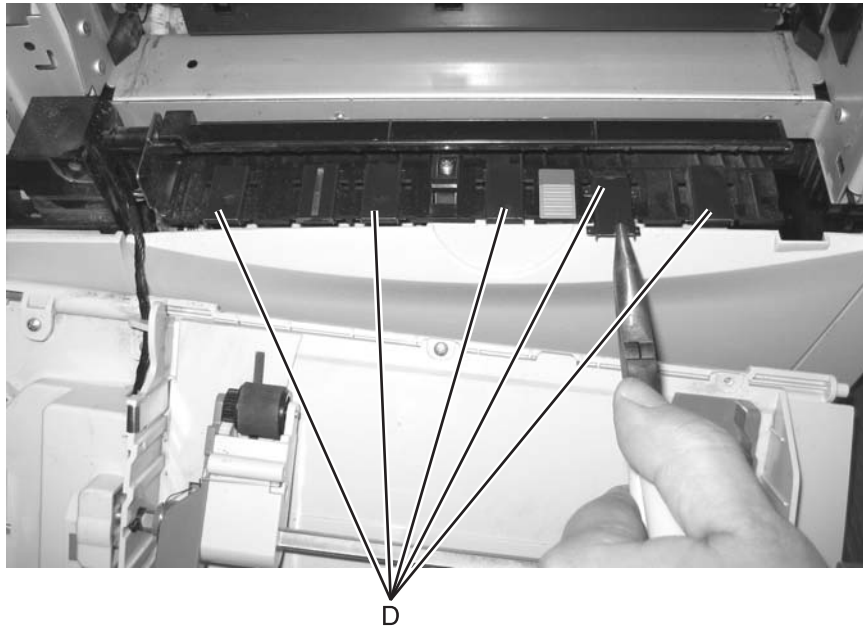
2. Remove the MPF cable cover screw (B).



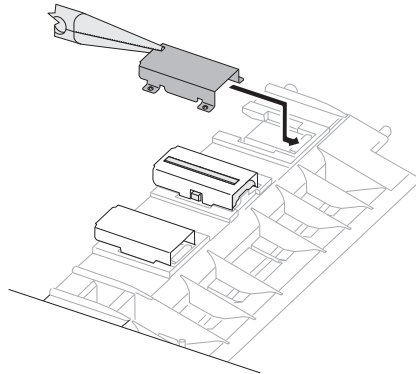
3. Release the MPF latch (C), and lower the MFP door down. Support the tray to relieve pressure on the MPF switch cable.



4. Use needlenose pliers to remove the rib housing (D) that requires replacement.



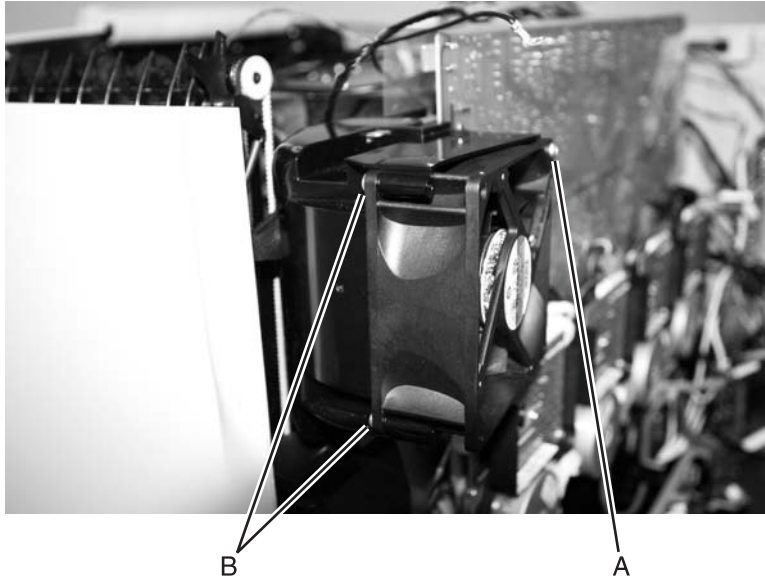
**Installation note:** The end of the rib housing that goes into the printer first has tabs flush with the edge. Place the housing between the two sets of slots in the printer, and then slide the housing into position.



## ***RIP fan removal***

See **“RIP fan, 92 mm” on page 7-35** for the part number.

1. Remove the rear cover. See **“Rear cover removal” on page 4-22**.
2. Disconnect the rip fan cable from the system board at connector J3.
3. Remove the front rip fan screw (A).
4. Remove the two rip fan rear screws (B).

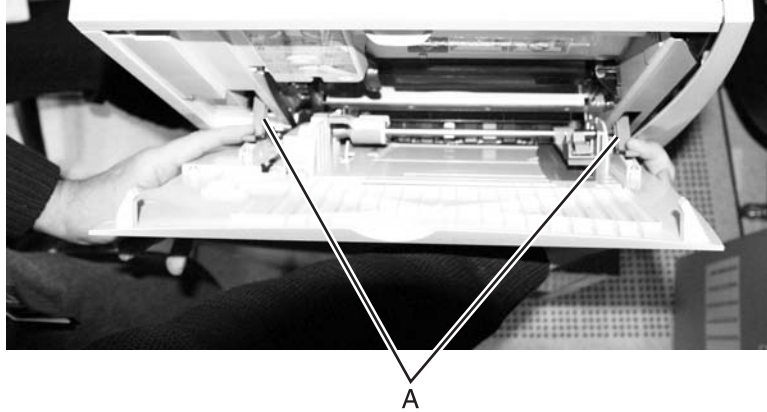


5. Remove the rip fan.

## S2/narrow media/transparency/multipurpose feeder cable removal

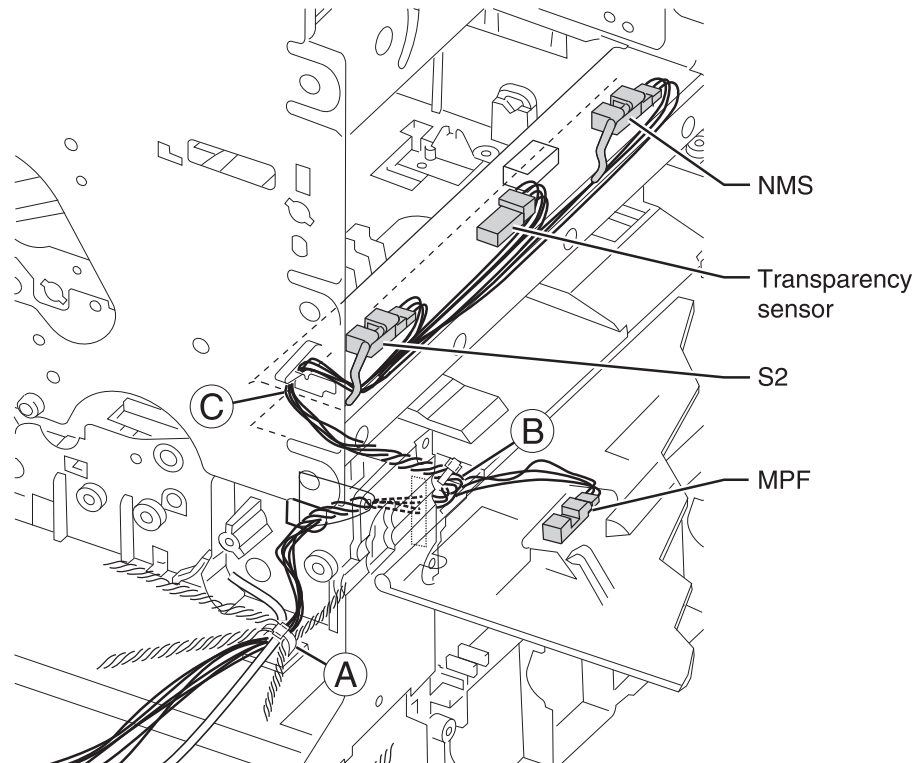
See **“S2/XPAR/NMS/MPF cable assembly (with sensors)”** on page 7-37 for the part number.

1. Remove the rear cover. See **“Rear cover removal”** on page 4-22.
2. Open the MPF, and press the releases (A) to open the MPF to the lowest position.



3. Remove the J10 connector cable to allow space. Note the route it shares with the sensor cable assembly through the frame.
4. Route the new cable connector through the rectangular opening in the upper frame and out through the opening in the lower frame.

**Note:** Guiding the cable through the small opening requires patience. Use the following diagram as a guide.



### Installation notes

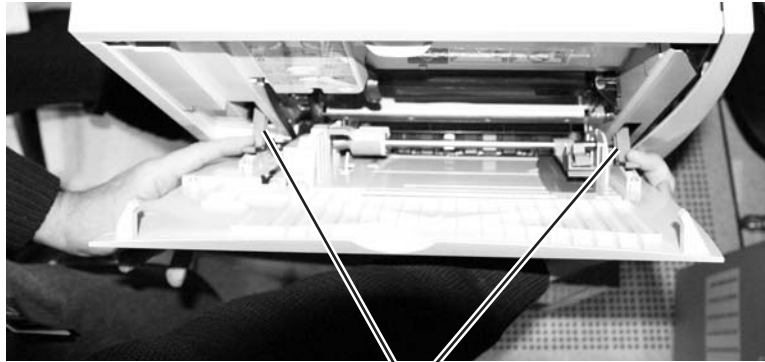
- When replacing the cable tie, make sure the tape on the cable protects the cable at the opening in the frame and is not pinched or obstructs the MPF door.
- Make sure the cable at point C is clear of sharp edges.

**Note:** Remove only the necessary sensors from the cable harness.

## ***S2/narrow media/transparency/multipurpose feeder sensors removal***

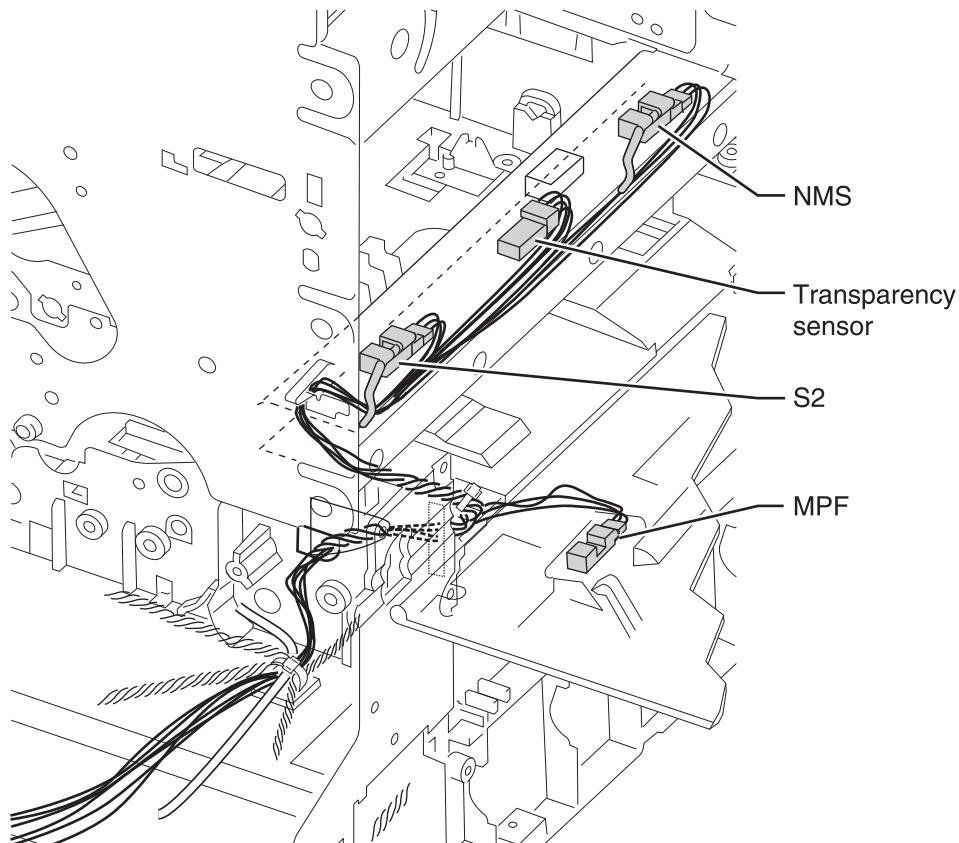
The individual sensors are not available separately from the cable. If you need to replace a single sensor, remove it from the S2/narrow media/transparency/multipurpose feeder cable and replace that one. See **“S2/XPAR/NMS/MPF cable assembly (with sensors)” on page 7-37** for the part number.

1. Remove the rear cover. See **“Rear cover removal” on page 4-22**.
2. Open the MPF and press the releases (A) to open the MPF to the lowest position.



A

3. Remove the sensor you need from the new cable FRU and replace it in the installed cable.



## ***Second transfer roll removal***

See **“Second transfer roll” on page 7-12** for the part number.

See **“ITU assembly removal” on page 4-49** for removal of the ITU and the second transfer roll.

## System board removal

See **“System board, network—1xx/3xx only Also order cable tie parts packet (P/N 40X1648)”** on page 7-33 for the part numbers.

**Note:** For a color image of the cabling, see **“System board cabling reference”** on page 5-6.

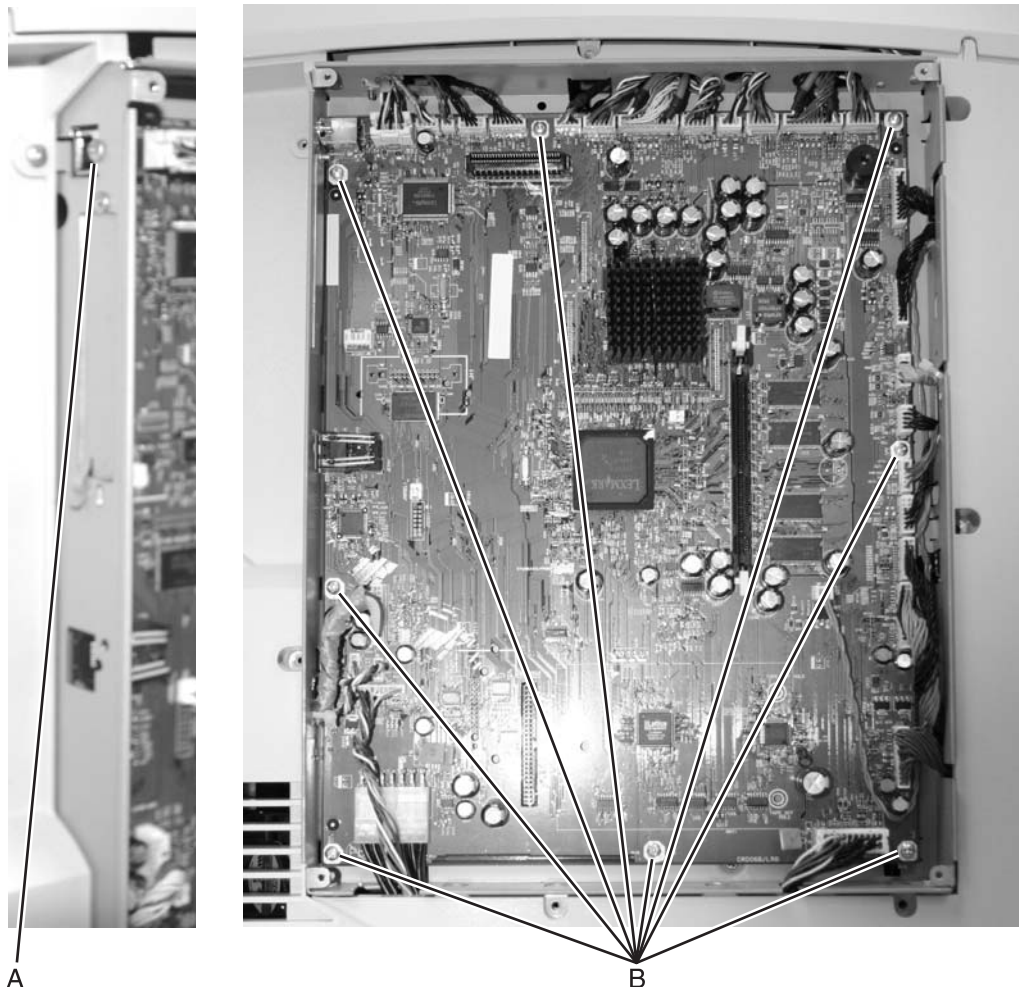
**Warning:** When replacing any one of the following components:

- Operator panel assembly
- System board assembly
- Media size sensing assembly

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

1. Remove the outer system board shield. See **“Outer system board shield removal”** on page 4-69.
2. Disconnect all the cables from the system board.
3. Remove the USB screw (A).
4. Remove the eight screws (B) type **“232”** on page 4-3 from the system board.



5. Clip the cable ties (C).



6. Remove the system board.

**Note:** When reinstalling the system board, verify the input and output option cables are fully connected. Replace all cable ties.

To verify the input sources are recognized:

1. On the operator panel, at the Ready prompt, select **Paper Menu**.
2. Select **Paper Source**.
3. Make sure all installed options are listed.

To verify the output options are recognized:

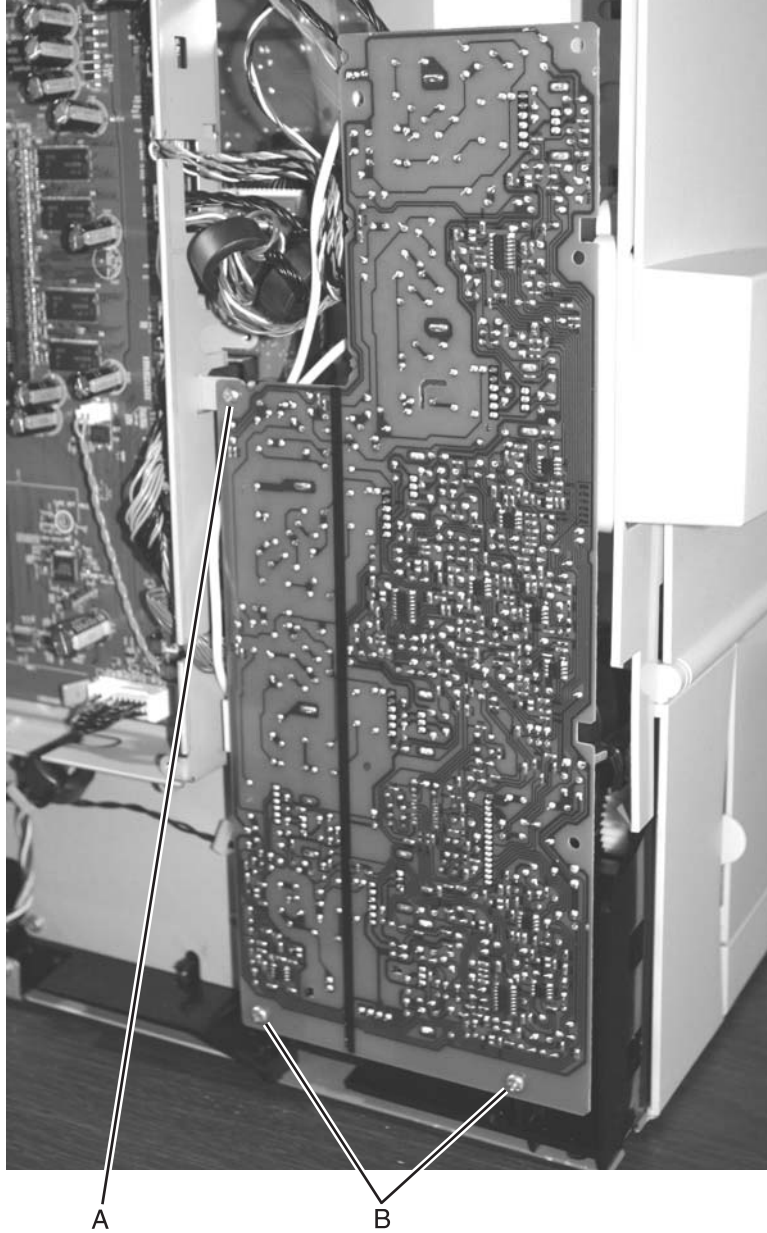
1. At the Ready prompt, select **Paper Menu**.
2. Select **Output Bin**.
3. Make sure all installed options are listed.



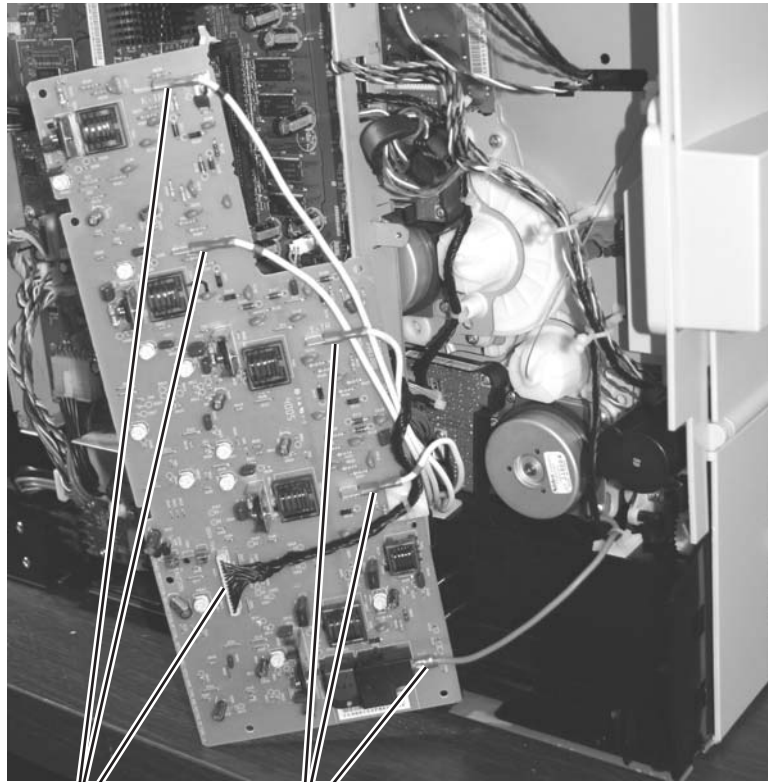
## Transfer HVPS board removal

See **“Transfer HVPS board”** on page 7-34 for the part number.

1. Remove the rear cover. See **“Rear cover removal”** on page 4-22.
2. Remove screw (A) and the two screws (B) on the bottom of the transfer HVPS.



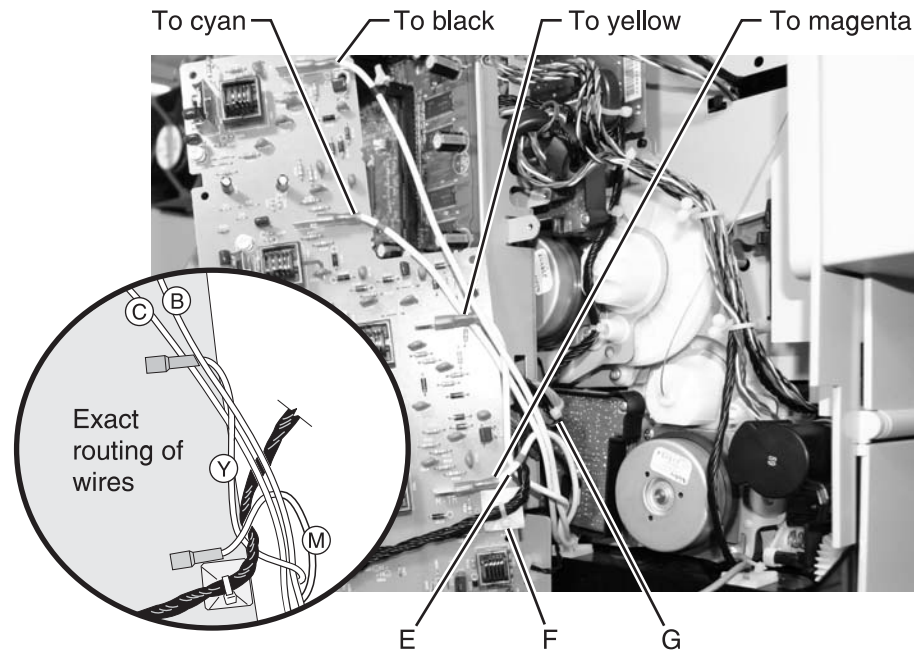
3. Remove all connectors (C).



4. Remove the transfer HVPS board.

## Installation notes

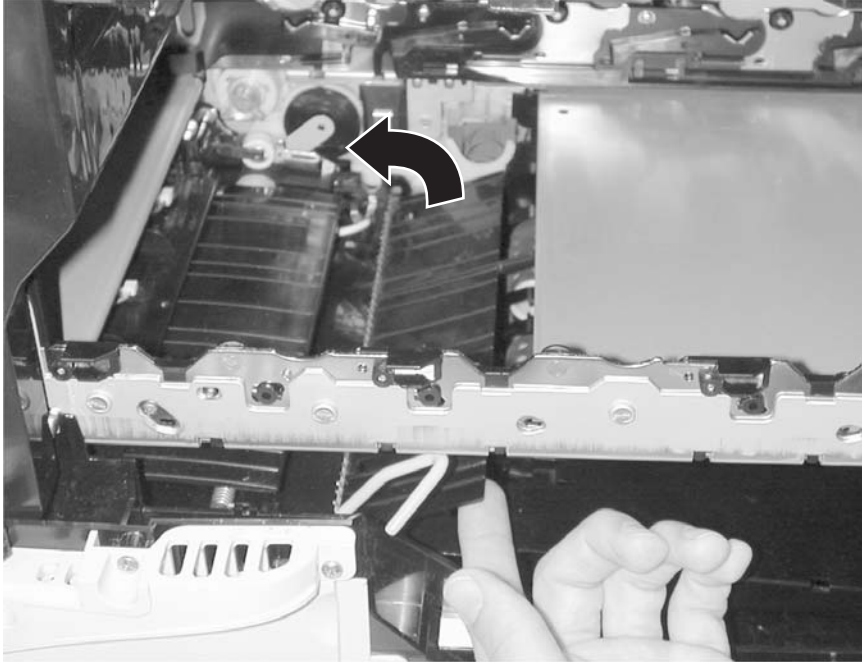
- To identify the color coded cable bands to the connectors, see **“Transfer high voltage power supply (HVPS)” on page 5-20.**
- When installing the transfer HVPS board, route the cable to the HVPS input connector at CN1 (C) over the cable to the yellow transfer contact (D), under the cable to the magenta transfer contact (E), and attached to the cable tie (F). This makes sure the toroid (G) does not come into contact with the motor when the card is in place.



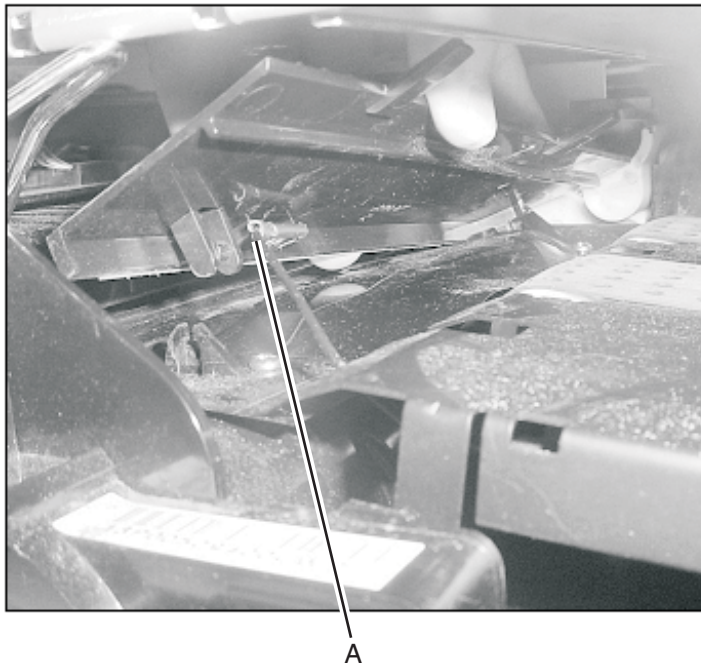
## Transfer plate assembly removal

See **“Transfer plate assembly”** on page 7-12 for the part number.

1. Remove the ITU assembly. See **“ITU assembly removal”** on page 4-49.
2. Remove tray 1.
3. Lifting and rotate the right edge of the transfer plate up to a 45° angle to release the transfer plate.



4. Remove the grounding strap (A) attached to the bottom of the transfer plate.

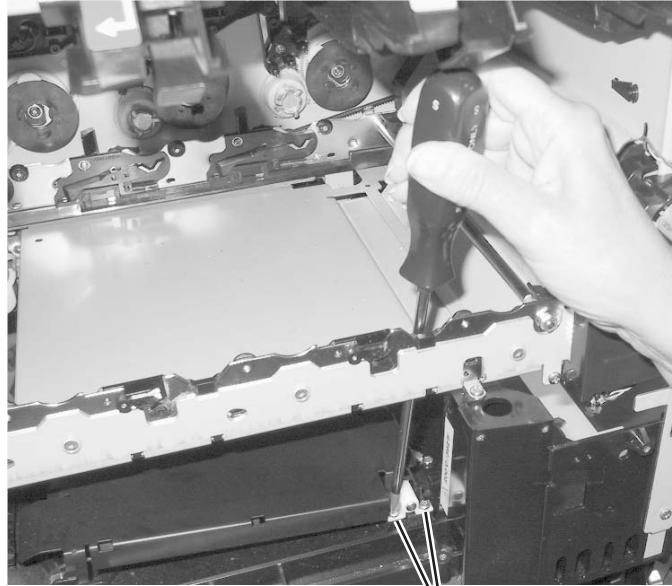


5. Remove the transfer plate assembly.

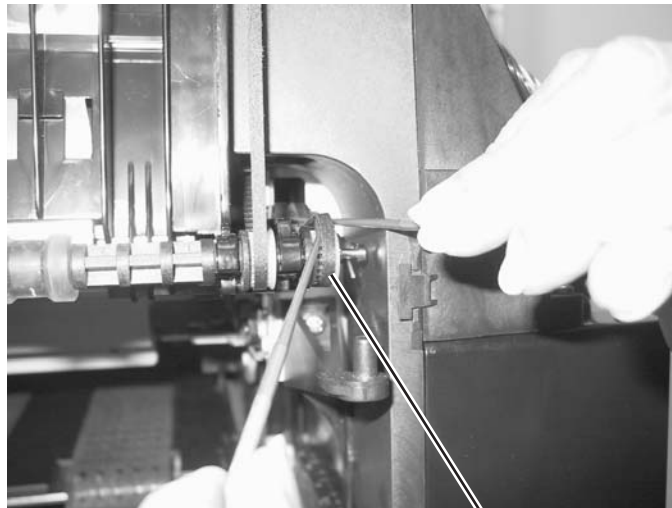
## Vacuum transport belt (VTB) removal

See **“Vacuum transport belt assembly”** on page 7-11 for the part number.

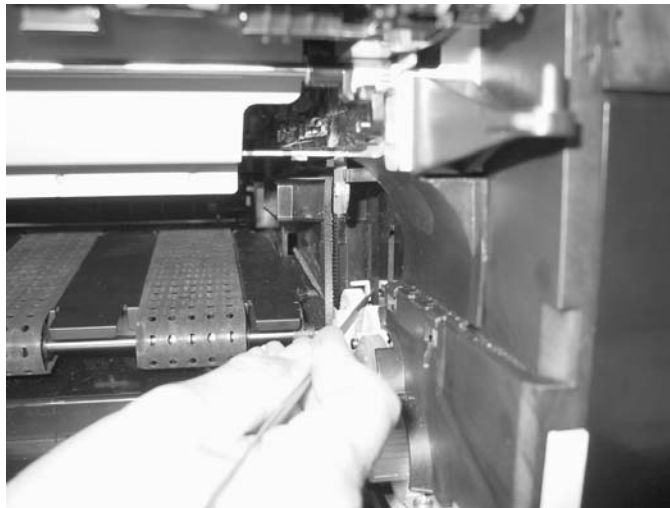
1. Remove the transfer plate assembly. See **“Transfer plate assembly removal”** on page 4-94.
2. Remove the fuser bottom duct. See **“Fuser bottom duct removal”** on page 4-46.
3. Remove the two front screws (A).



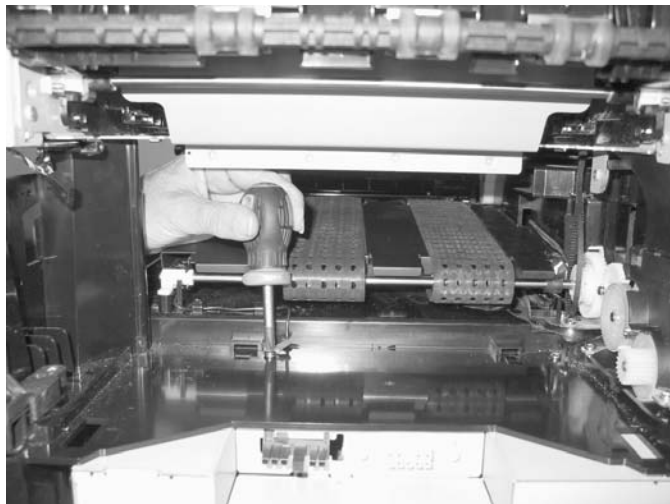
4. Loosen belt (B) on redrive assembly, and remove from redrive gear.
5. Remove belt from gear on vacuum belt transfer unit.



6. Rotate release lever on gear until the gear can be removed.



7. Remove screw from ground wire.



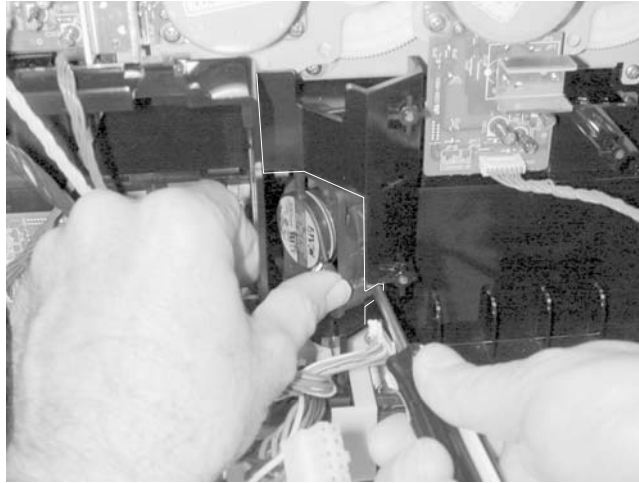
8. Remove vacuum belt transfer belt unit far enough to release ground wire from restraint clips, and remove completely.



### ***Vacuum transport belt (VTB) fan removal***

See **“VTB fan, 60 mm”** on page 7-35 for the part number.

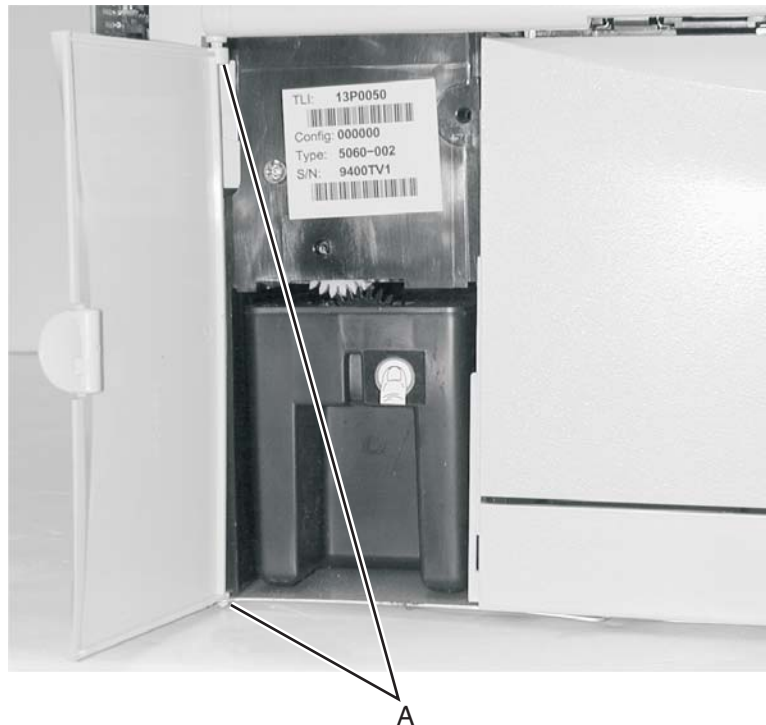
1. Remove the rear cover. See **“Rear cover removal”** on page 4-22.
2. Disconnect VTB fan from the system board.
3. Remove VTB fan with a flatblade screwdriver.



### ***Waste container door removal***

See **“Waste container door”** on page 7-5 for the part number.

1. Open the waste container door.
2. Flex the door, and remove it from the hinges (A).



### ***Waste container latch removal***

See **“Waste container latch Also order cable tie parts packet (P/N 40X1648)”** on page 7-26 for the part number.

1. Remove the media size sensing assembly. See **“Media size sensing assembly removal”** on page 4-55.
2. Use a flatblade screwdriver to release the waste container latch from the media size sensing assembly.




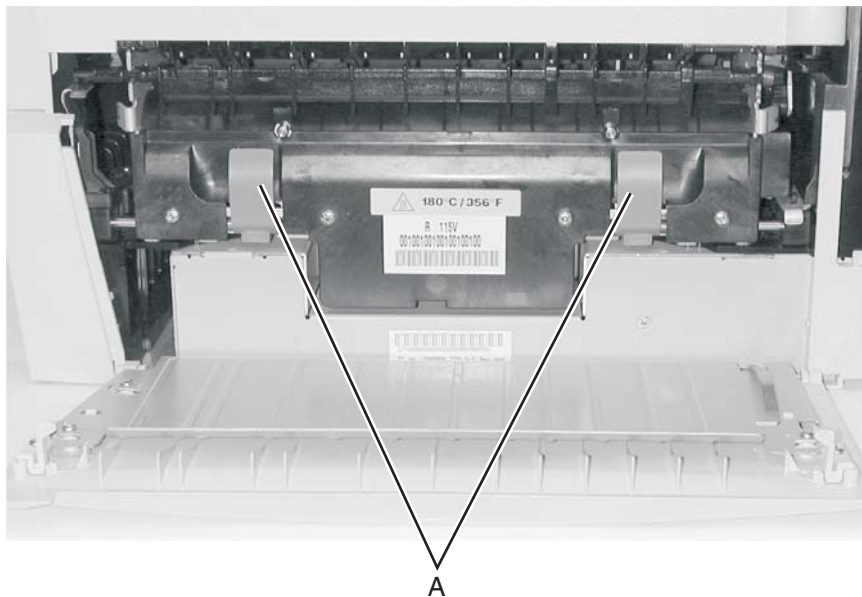


## Web oiler fuser assembly and card removal and replacement

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

1. Turn the printer off.
2. Open the fuser access cover.
3. Unlatch the two fuser latches (A).
4. Remove the fuser assembly.

	<p><b>CAUTION</b></p>
<p>The fuser may be hot. To avoid a burn injury, allow the fuser to cool to room temperature before removing.</p>	

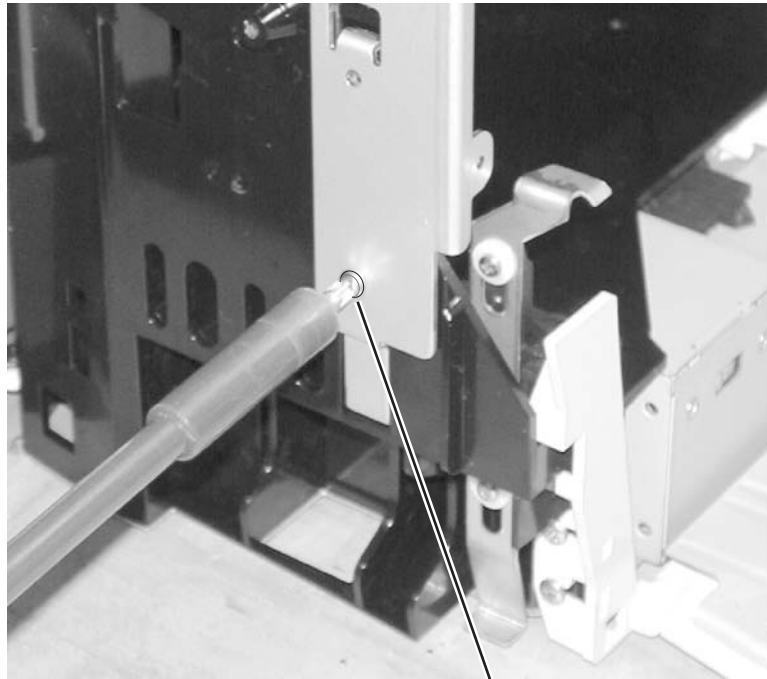


5. Open the front cover assembly.



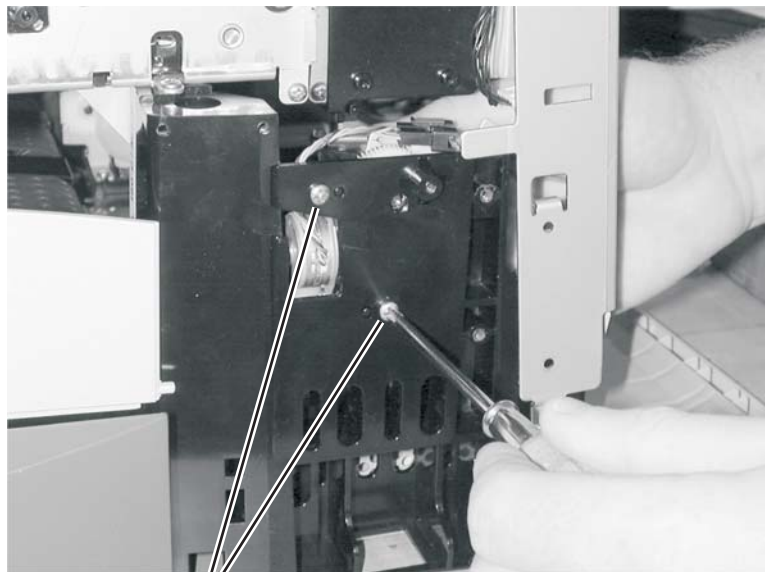
6. Remove the yellow print cartridge.
7. Remove the front light shield. See **“Front right light shield removal” on page 4-42**.
8. Remove the front lower right cover. See **“Front lower right cover removal” on page 4-19**.

9. Remove screw (B) from the top front support bracket. Swing bracket to the right.



B

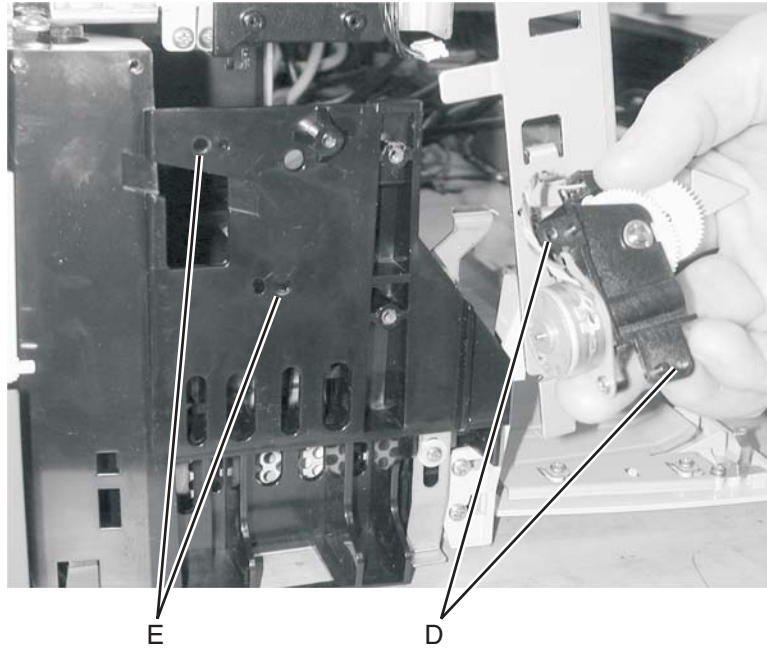
10. Remove the two screws (C) securing the web oiler motor assembly.



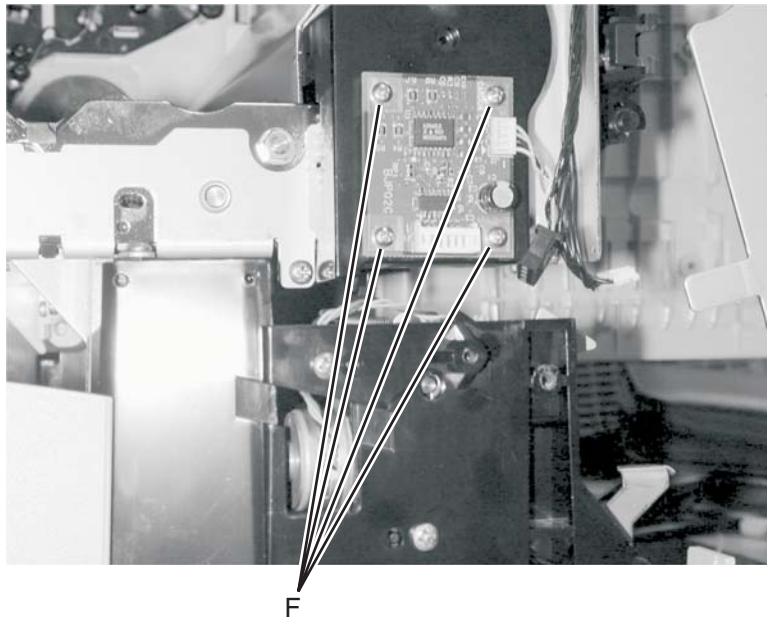
C

11. Remove the web oiler fuser motor assembly.

**Note:** To reinstall the web oiler fuser motor assembly, use the alignment pins (D) to position the assembly in holes (E).

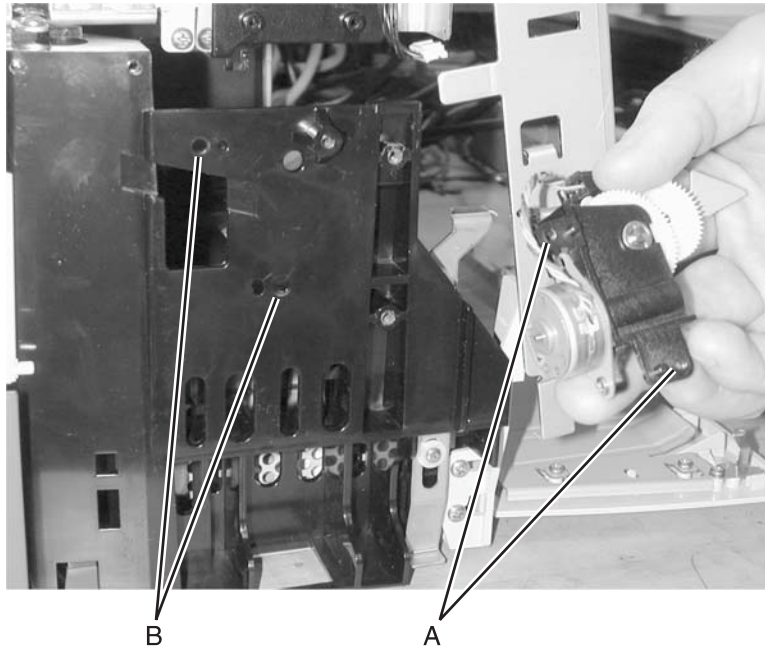


12. Remove the four screws (F) securing the card.

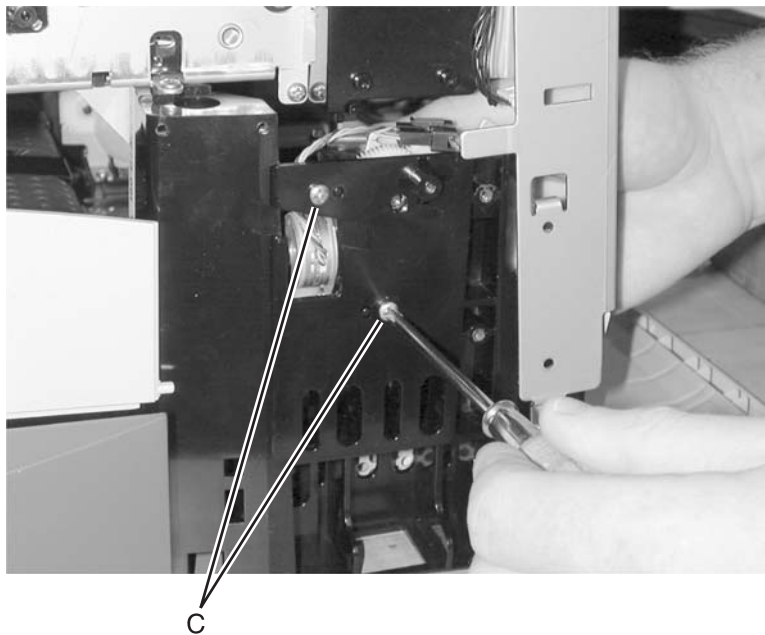


**Installation notes:**

1. Use the alignment pins (A) on the web oiler fuser motor assembly to position the assembly in holes (B), and install the assembly.

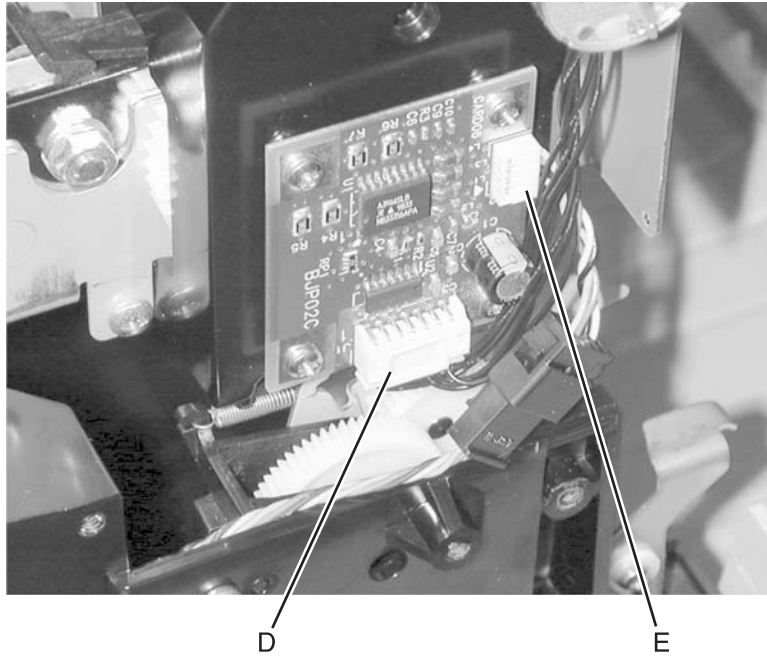


2. Secure the web oiler motor assembly with screws (C).

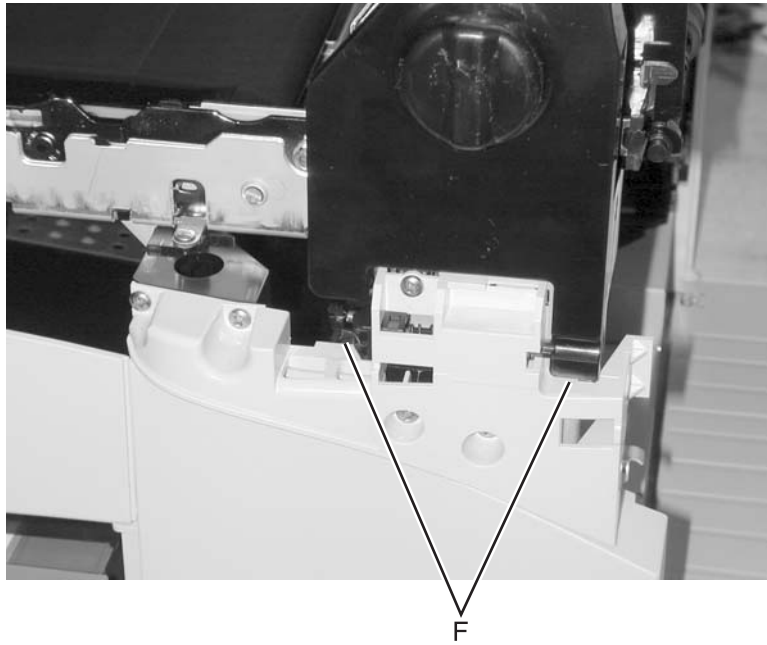


3. Install the web oiler card using screws.
4. Plug web oiler cable (D) into web oiler card connector.  
**Note:** Make sure the cables from the drive assembly are routed along the lower frame and are not in contact with the drive assembly gears.

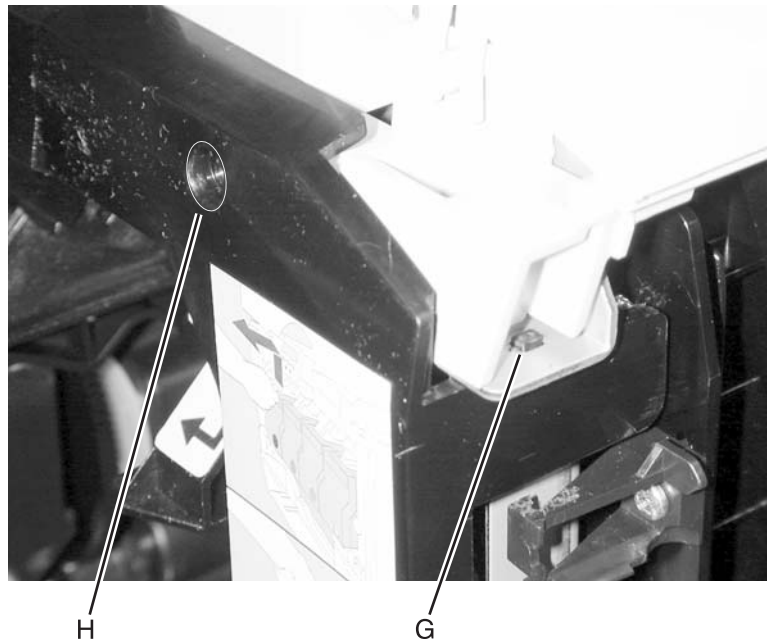
5. Plug web oiler drive assembly cable into cable connector (E).



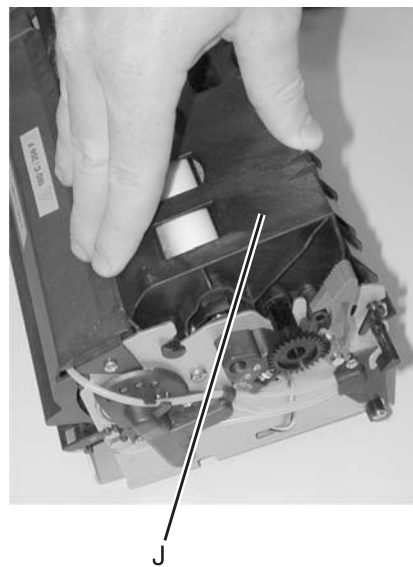
6. Reinstall paper path access door.
7. Align tabs on the front right light shield with the slots (F) on the frame.



8. Move the front right light shield up until alignment stud (G) and the screw hole (H) are aligned.



9. Attach the new web oiler fuser housing (J) to new web oiler fuser.

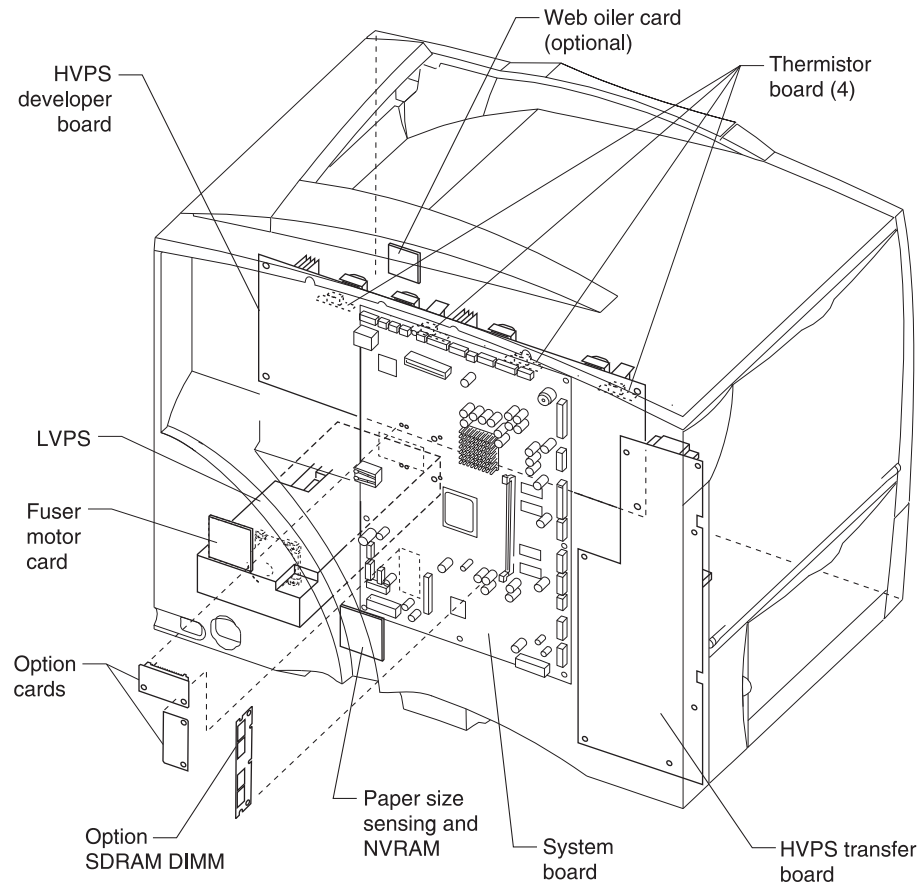


10. Insert the web oiler fuser assembly into the fuser assembly, and install the fuser assembly into the printer.

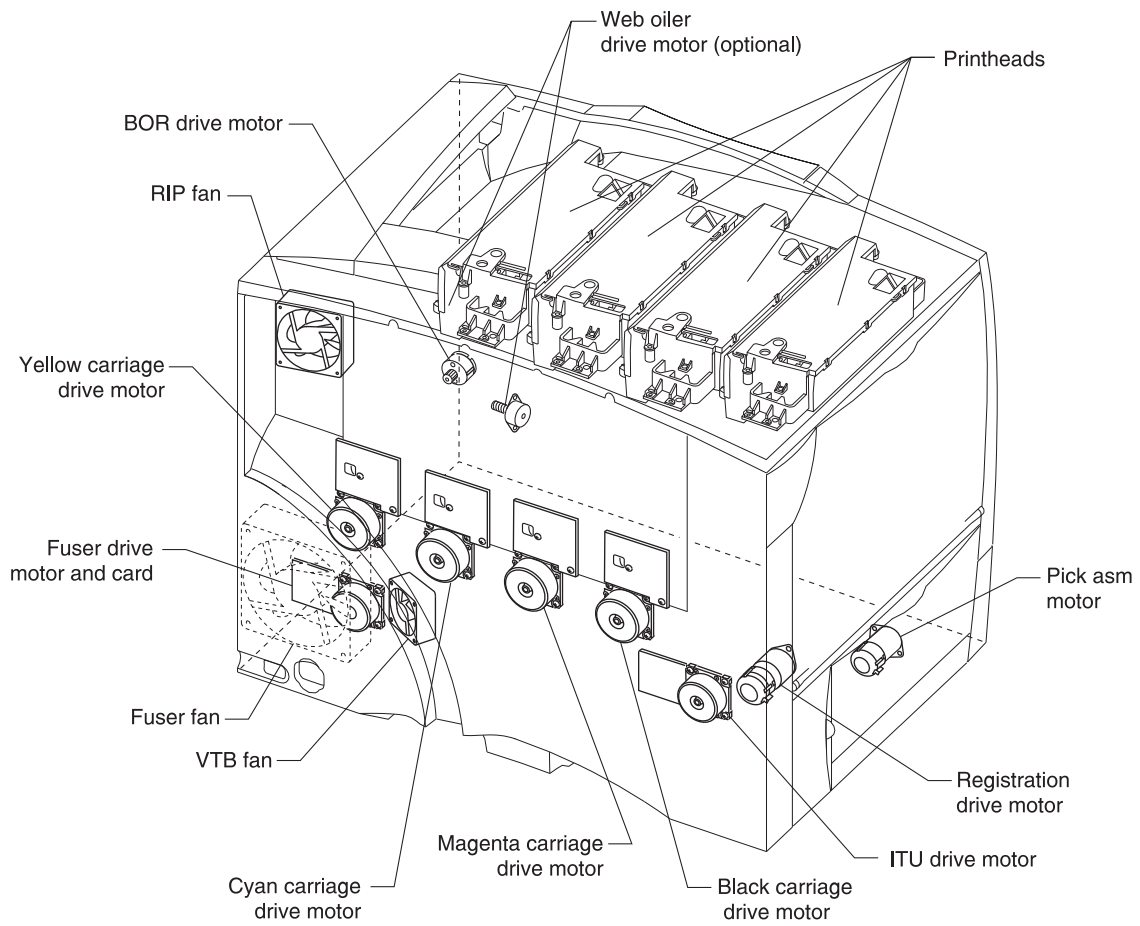
## 5. Connector locations

### Locations

#### Printer boards

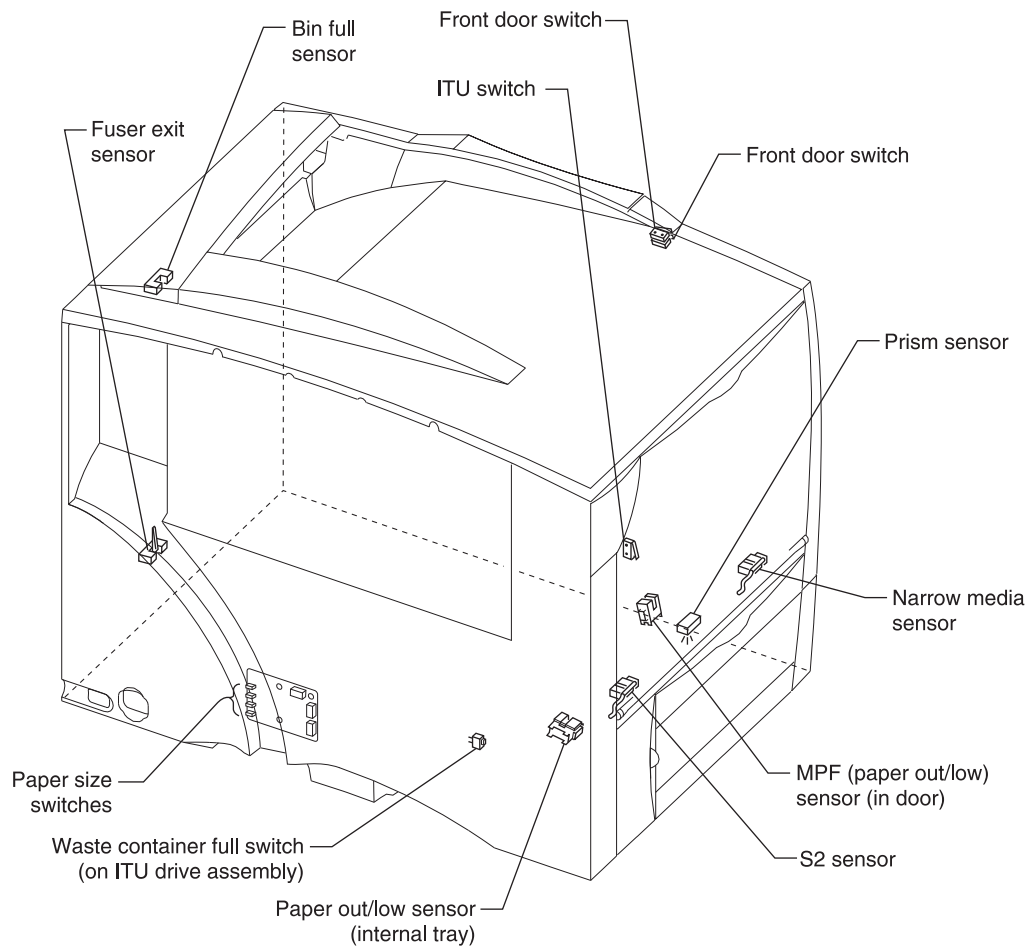


### Printer motors

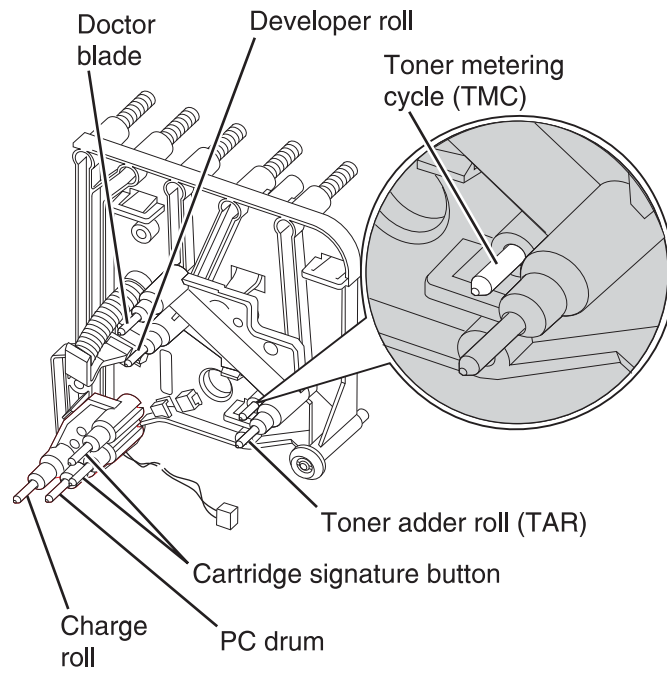


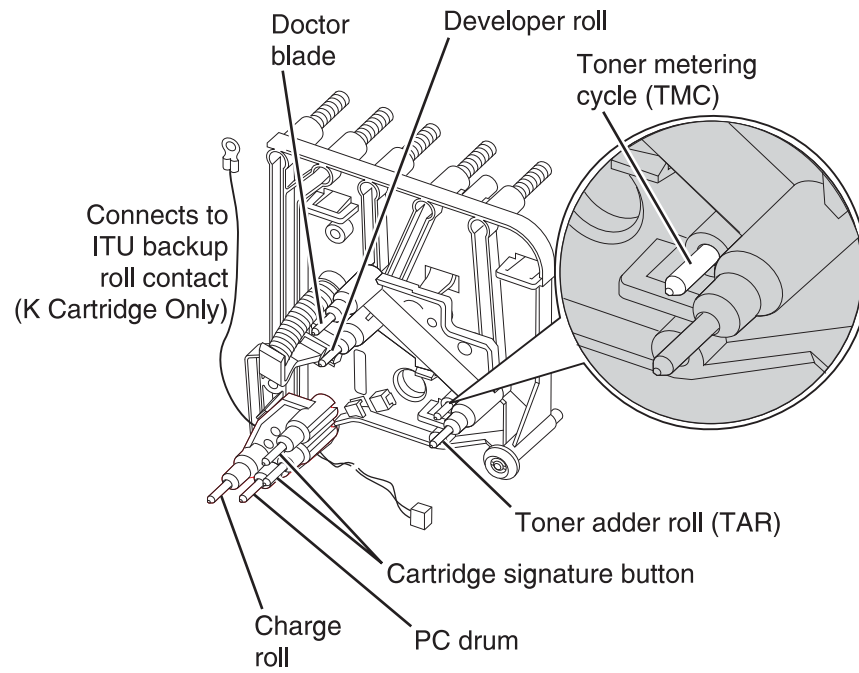


## Printer sensors



**Cartridge contact assembly pin locations (cyan, magenta and yellow)**



**Cartridge contact assembly pin locations (black)**

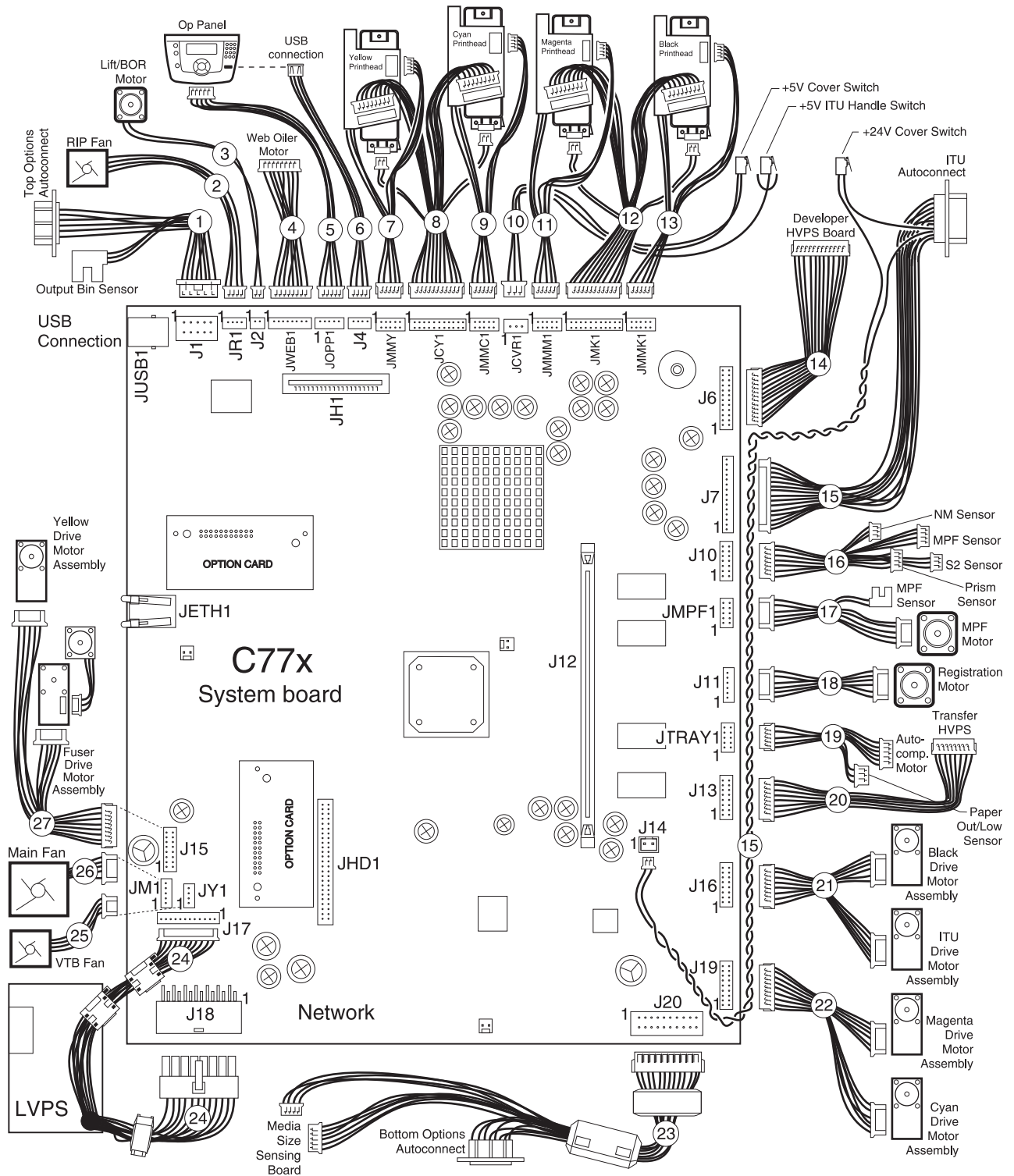
## System board cabling reference

Refer to the System board wiring diagrams for additional details.



# Connectors

## System board



## System board

See “System board” on page 5-7.

Connector	Pin no.	Signal
J1 Top options connector bin full	1	Printer TXD
	2	Ground
	3	Ground
	4	Printer RXD
	5	+24V_OPTIONS (through fuse F11)
	6	Ground
	7	+5V_OPTIONS (through fuse F9)
	8	+5V_BIN_FULL (switched)
	9	Ground
	10	BIN_FULL_IN
J2 BOR lift motor	1	LIFT_OUT- (+24 V dc in standby)
	2	LIFT_OUT+ (+24 V dc in standby)
J4 Operator panel USB	1	VBUS
	2	D-
	3	D+
	4	Ground
J6 Developer HVPS	1	-CART_METER_K_IN
	2	K_AC_BIAS_ENABLE (active low)
	3	SC_K_CHIP
	4	N/C
	5	K_DEV_PWM_OUT
	6	-CART_METER_M_IN
	7	K_CHARGE_PWM_OUT
	8	CMY_CHARGE_PWM_OUT
	9	SC_M_CHIP
	10	N/C
	11	-CART_METER_C_IN
	12	CMY_AC_BIAS_ENABLE (active low)
	13	SC_C_CHIP
	14	N/C
	15	M_DEV_PWM_OUT
	16	-CART_METER_Y_IN
	17	C_DEV_PWM_OUT
	18	Y_DEV_PWM_OUT
	19	SC_Y_CHIP
	20	N/C
	21	Ground

See “System board” on page 5-7.

Connector	Pin no.	Signal
J6 (continued) Developer HVPS	22	+24V_SWITCHED
	23	N/C
	24	N/C
J7 ITU/TPS autoconnect	1	N/C
	2	ITU_I2C_DATA
	3	+3.3 V dc (Through fuse F13)
	4	TPS_GAIN_OUT
	5	ITU_TEMP
	6	BELT_HOLE 1 N/C
	7	Ground
	8	Ground
	9	ITU_I2C_CLK
	10	+24V_SWITCHED
	11	TPS_LED_ON_OUT
	12	TONER_PATCH_OUT
	13	N/C
	14	BELT_HOLE 2
	15	+5V_SWITCHED
J10 S2/narrow media/prism/MPF sensor	1	Ground
	2	+5V dc S2 (switched)
	3	NARROW_MEDIA_IN
	4	PAPERPATH_S2_IN
	5	+5 V dc NM (switched)
	6	Ground
	7	Ground
	8	+5 V dc PRISM (switched)
	9	PRISM_SENSOR_IN
	10	PRISM_LED_VOLT
	11	Ground
	12	+5 V dc MPF (switched)
	13	MPF_FEED_OUT_IN
	14	N/C
J11 Registration (staging) motor	1	+5V_SWITCHED
	2	STAGING_ENC
	3	Ground
	4	N/C
	5	STAGING_OUT_2 (+24 V dc in standby)
	6	STAGING_OUT_1 (+24 V dc in standby)

See “System board” on page 5-7.

Connector	Pin no.	Signal
J12 Option DRAM Socket		
J13 Transfer HVPS	1	ITU_TX_ENA_OUT (active low)
	2	ITU_TX_CUR_PWM_OUT
	3	ITU_SERVO_IN
	4	ITU_TX_PWM_OUT
	5	CMY_TX_ENA_OUT (active low)
	6	K_SERVO_IN
	7	K_TX_PWM_OUT
	8	C_SERVO_IN
	9	C_TX_PWM_OUT
	10	M_SERVO_IN
	11	Y_TX_PWM_OUT
	12	Y_SERVO_IN
	13	M_TX_PWM_OUT
	14	Ground
	15	+24V_SWITCHED
	16	N/C
J14 Cover open switch (+24V dc switched)	1	+24V To Cover Open Switch
	2	+24V dc Switched
J15 Fuser stepper motor/yellow BLDC motor	1	Y_ON_OUT
	2	FUSER_ON_OUT (Fuser current I0)
	3	+5V dc (Through fuse F8)
	4	+5V dc (Through fuse F8)
	5	Y_DIR_OUT
	6	FUSER_DIR_OUT (Fuser phase B)
	7	+24V _Y_AND_FUSER (Through fuse F3)
	8	+24V_Y_AND_FUSER (Through fuse F3)
	9	Ground
	10	Ground
	11	Y_CLK_OUT
	12	FUSER_CLK_OUT (Fuser Phase A)
	13	Y_HALL_IN
	14	FUSER_HALL_IN (Fuser Current I1)
	15	N/C
	16	Ground



See “System board” on page 5-7.

Connector	Pin no.	Signal
J16 ITU/black BLDC motors	1	K_ON_OUT
	2	ITU_ON_OUT
	3	+5V dc (Through fuse F8)
	4	+5V dc (Through fuse F8)
	5	K_DIR_OUT
	6	ITU_DIR_OUT
	7	+24V_K_AND_ITU (Through fuse F4)
	8	+24V_K_AND_ITU (Through fuse F4)
	9	Ground
	10	Ground
	11	K_CLK_OUT
	12	ITU_CLK_OUT
	13	K_HALL_IN
	14	ITU_HALL_IN
	15	N/C
	16	N/C
J17 Fuser interface	1	EXIT_SENSOR_IN
	2	FUSER_CAM_1_IN
	3	Ground
	4	OILER_ENC_A_IN
	5	OILER_ENC_B_IN
	6	HR_THERM_IN (hot roll thermistor)
	7	BR_THERM_IN (backup roll thermistor)
	8	Ground
	9	+5V_SWITCHED
	10	ZERO_XING_IN
	11	HR_HEAT_ON_OUT (hot roll control)
	12	BR_THERM_ON_OUT (backup roll control)

See **“System board”** on page 5-7.

Connector	Pin no.	Signal
J18 Low voltage power supply	1	+3.3 V dc
	2	+3.3 V dc
	3	+5 V dc
	4	+5 V dc
	5	+24V dc
	6	+24V dc
	7	+24V dc
	8	+3.3 V dc Sense
	9	Ground
	10	Ground
	11	Ground
	12	Ground
	13	Ground
	14	Ground
	15	Ground
	16	Ground
J19 Magenta/cyan BLDC motors	1	M_ON_OUT
	2	C_ON_OUT
	3	+5V dc (Through fuse F8)
	4	+5V dc (Through fuse F8)
	5	M_DIR_OUT
	6	C_DIR_OUT
	7	+24V_M_AND_C (Through fuse F5)
	8	+24V_M_AND_C (Through fuse F5)
	9	Ground
	10	Ground
	11	M_CLK_OUT
	12	C_CLK_OUT
	13	M_HALL_IN
	14	C_HALL_IN
	15	N/C
	16	N/C
	17	N/C
	18	N/C

See “System board” on page 5-7.

Connector	Pin no.	Signal
J20 Bottom options connector Waste toner full Media size	1	Printer TXD
	2	Ground
	3	Ground
	4	Printer RXD
	5	+24V_OPTIONS (Through fuse F11)
	6	Ground
	7	+5V_OPTIONS (Through fuse F9)
	8	Staging Encoder
	9	ITU_CLNR_FULL
	10	N/C
	11	Ground
	12	WASTE_BTL_PRES
	13	TRAY_SIZE_3
	14	Ground
	15	TRAY_SIZE_2
	16	TRAY_SIZE_1
	17	Ground
	18	+3.3 V dc (Through fuse F13)
	19	MEM_DATA (I <sup>2</sup> C Data to Media Size Card)
	20	MEM_CLK (I <sup>2</sup> C Clock to Media Size Card)
JETH1 Ethernet port		
JMMY1 Yellow printhead mirror motor	1	FUSE24V
	2	Ground
	3	Ground
	4	+5 V dc (through fuse F12)
	5	Y MMSTART
	6	Y HSYN-SOS
	7	Y MMLOCK
	8	Ground
	9	Y MMREF
	10	N/C

See **“System board”** on page 5-7.

Connector	Pin no.	Signal
JCY1 Yellow and cyan video to printheads	1	C_DATA+
	2	Ground
	3	C_DATA-
	4	Y_THERMISTOR
	5	Ground
	6	Y_LENA
	7	+5 V dc (through fuse F12 and safety switches at J10)
	8	Ground
	9	C_LPWM
	10	Y_LADJ
	11	Ground
	12	Ground
	13	C_LADJ
	14	Y_LPWM
	15	Ground
	16	+5 V dc (through fuse F12 and safety switches at J10)
	17	C_LENA
	18	Ground
	19	C_THERMISTOR
	20	Y_DATA-
	21	Ground
	22	Y_DATA+
JHD1 Optional hard disk drive		
JM1 Fuser fan	1	FAN1_STALL_IN
	2	Ground
	3	FAN1_CNTRL
	4	+24V_LEFTSIDE
	5	Ground
JCVR1 Cover open switch	1	+5 V dc (direct from low voltage power supply)
	2	Ground
	3	VDO_ERR (+5 V dc to J8 and J12)

See “System board” on page 5-7.

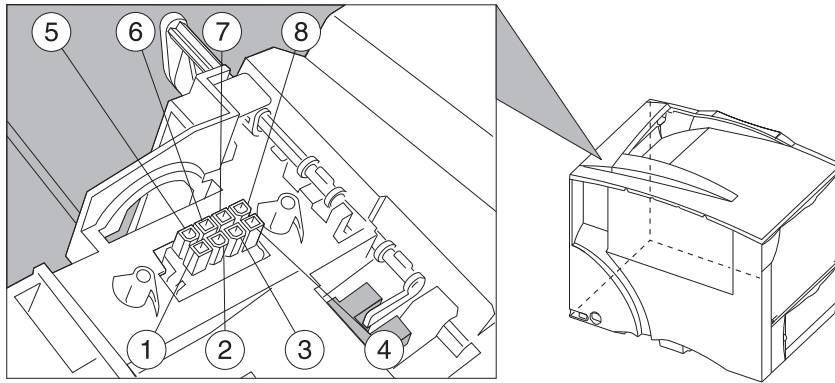
Connector	Pin no.	Signal
JMK1 Printhead—black/magenta video	1	K_DATA+
	2	Ground
	3	K_DATA-
	4	M_THERMISTOR
	5	Ground
	6	M_LENA
	7	+5 V dc (through fuse F12 and safety switches at J10)
	8	Ground
	9	K_LPWM
	10	M_LADJ
	11	Ground
	12	Ground
	13	K_LADJ
	14	M_LPWM
	15	Ground
	16	+5 V dc (through fuse F12 and safety switches at J10)
	17	K_LENA
	18	Ground
	19	K_THERMISTOR
	20	M_DATA-
	21	Ground
	22	M_DATA+
JMMC1 Printhead—cyan mirror motor	1	FUSE24V
	2	Ground
	3	Ground
	4	+5 V dc (through fuse F12)
	5	C_MMSTART
	6	C_HSYN_SOS
	7	C_MMLOCK
	8	Ground
	9	C_MMREF
	10	N/C

See “System board” on page 5-7.

Connector	Pin no.	Signal
JMMK1 Printhead—black mirror motor	1	FUSE24V
	2	Ground
	3	Ground
	4	+5 V dc (through fuse F12)
	5	K_MMSTART
	6	K_HSYN-SOS
	7	K_MMLOCK
	8	Ground
	9	K_MMREF
	10	N/C
JMMM1 Printhead—magenta mirror motor	1	FUSE24V
	2	Ground
	3	Ground
	4	V_V5FUSE
	5	M_MMSTART
	6	M_HSYN-S0S
	7	M_MMLOCK
	8	Ground
	9	M_MMREF
	10	N/C
JMPF1 MPF motor and sensor	1	+5 V dc
	2	MPF+Enc
	3	Ground
	4	MPF_Mtr-
	5	MPF_Mtr+
	6	Ground
	7	+5 V dc
	8	MPF Paper Out
	9	MPF Paper Low
	10	Ground
JOPP1 Operator panel	1	BUF_I2CDATA
	2	+5V dc (through fuse 8)
	3	BUF_I2CCLK
	4	Ground
	5	OP-Panel Interrupt (Active line)

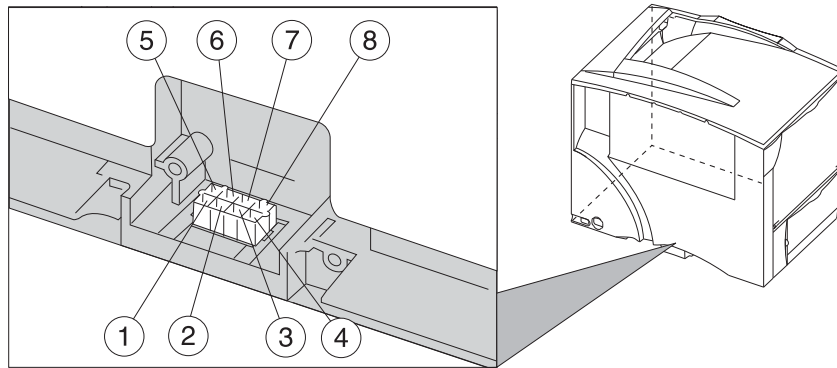
See “System board” on page 5-7.

Connector	Pin no.	Signal
JR1 RIP fan	1	FAN3_STALL_IN
	2	Ground
	3	FAN3_CNTRL-
	4	+24V_LEFTSIDE
	5	N/C
JTRAY1 Autocomp motor	1	+5 V dc Paper level (switched)
	2	+5V_SWITCHED
	3	PAPER_OUT_IN
	4	AUTOCOMP_ENC
	5	PAPER_LOW_IN
	6	Ground
	7	Ground
	8	Ground
	9	AUTOCOMP_OUT1 (+24 V dc in standby)
	10	AUTOCOMP_OUT2 (+24 V dc in standby)
JUSB1 USB port	G1	Ground
	1	USB +5 V dc
	2	USB D-
	3	USB D+
	4	Ground
	G2	Ground
JWEB1 Web oiler motor	1	+5 V dc (through fuse F8)
	2	OILER_CURR_SEL_A
	3	OILER_CURR_SEL_B
	4	OILER_PHASE_A
	5	OILER_PHASE_B
	6	Ground
	7	+24V_LEFTSIDE
JY1 VTB fan	1	FAN2_STALL_IN
	2	Ground
	3	VTB_FAN_OUT (Fan 2 control)
	4	+24V_LEFTSIDE
J INA Card Socket		

**Autoconnect—top**

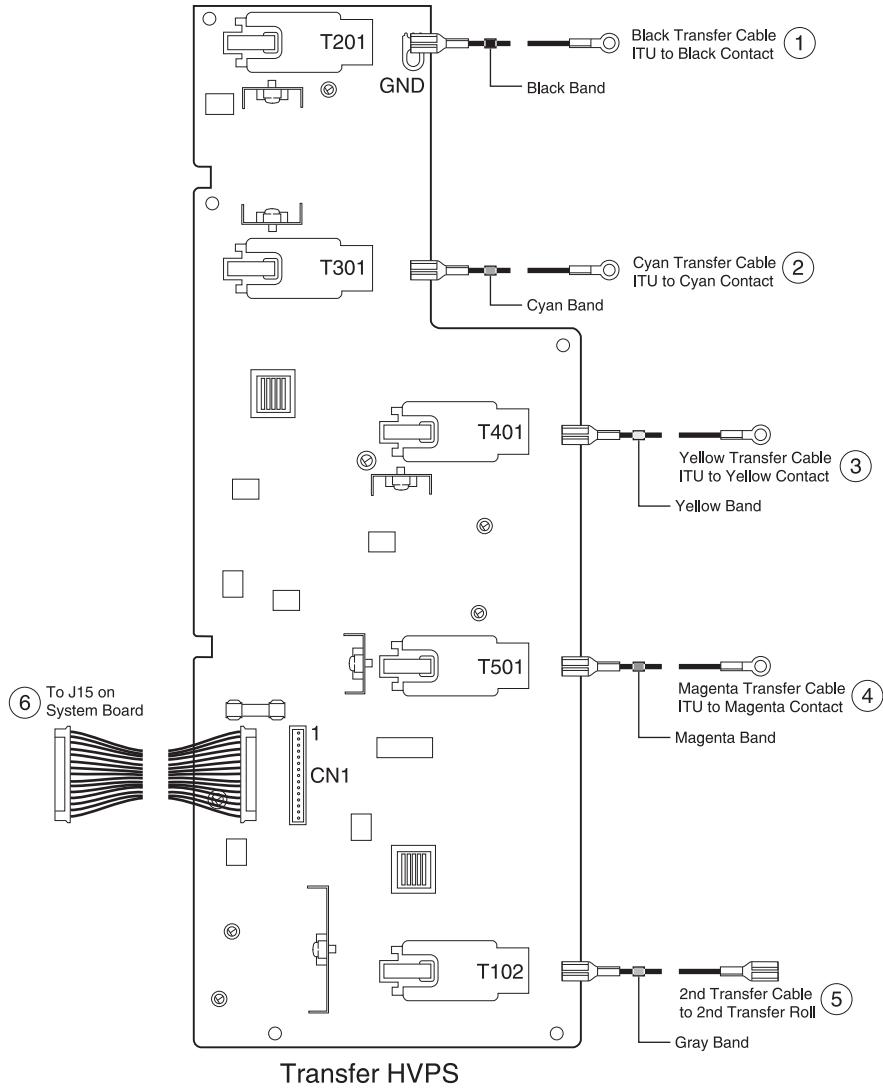
Connector	Pin no	Color	Signal
CN1 Autoconnect—top	1	White	+24 V dc
	2	Black	Ground
	3	Yellow	Printer RXD
	4	Black	Ground
	5	N/A	NC
	6	Red	+5 V dc
	7	Black	Ground
	8	Blue	Printer TXD



**Autoconnect—bottom**

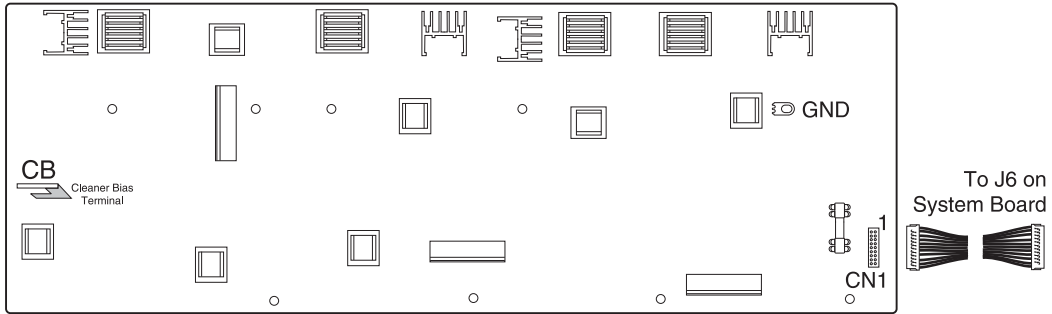
Connector	Pin no	Signal	Signal
CN1 Autoconnect—bottom	1	White	+24 V dc
	2	Black	Ground
	3	Yellow	Printer RXD
	4	Black	Ground
	5	Brown	STAGING_ENCODER
	6	Red	+5 V dc
	7	Black	Ground
	8	Blue	Printer TXD

### Transfer high voltage power supply (HVPS)



Connector	Pin no	Signal
CN1 HVPS Input Connector	1	+24 V dc Switched
	2	+24 V dc Return
	3	M-Txpwm
	4	M-Srvo out
	5	Y-Txpwm
	6	Y-Srvo out
	7	C-Txpwm
	8	C-Srvo out
	9	K-Txpwm
	10	K-Srvo out
	11	KCYM-Txenable
	12	ITU-Txpwm
	13	ITU-Srvo out
	14	ITU-Txcurpwm
	15	TUI-Txenable
T102 Transformer HV Terminal I (ITU)	1	HV Transformer output to 2nd Transfer Roll Cable
T201 Transformer HV Terminal K Black	1	HV Transformer Output Terminal to Black Transfer Cable
T301 Transformer HV Terminal C Cyan	1	HV Transformer Output Terminal to Cyan Transfer Cable
T401 Transformer HV Terminal Y Yellow	1	HV Transformer Output Terminal to Yellow Transfer Cable
T501 Transformer HV Terminal M Magenta	1	HV Transformer Output Terminal to Magenta Transfer Cable

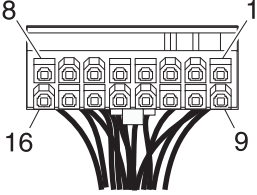
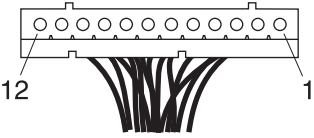
**Developer high voltage power supply (HVPS) board**



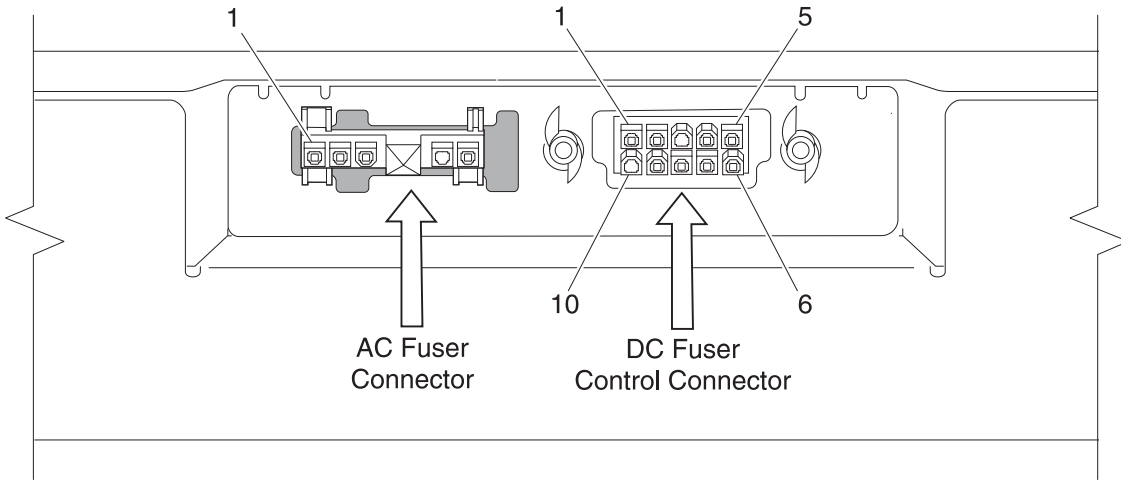
Connector	Pin no	Signal
CN1 Developer HVPS Input	1	+24 V dc Return
	2	+24 V dc
	3	Y-Ctsense
	4	Y-Devpwm
	5	Y-TnrSense
	6	C-Devpwm
	7	C-CtSense
	8	M-Devpwm
	9	C-TnrSense
	10	CYM-Acenable
	11	M-CtSense
	12	CYM-Chgpwm
	13	M-TnrSense
	14	K-Chgpwm
	15	K-CtSense
	16	K-Devpwm
	17	K-TnrSense
	18	K-Acenable
CB Terminal		Cleaner Bias Terminal (not used)

## Low voltage power supply (LVPS)

### LVPS cable connectors to system board

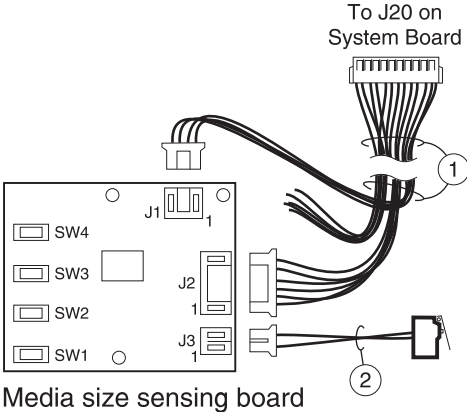
	Connector	Pin	Signal
 <p>LVPS to J18 Cable Connector</p>	Main power to system board (J35)	1	+3.3 V dc
		2	+3.3 V dc
		3	+5 V dc
		4	+5 V dc
		5	+24 V dc
		6	+24 V dc
		7	+24 V dc
		8	+3.3 V dc Sense
		9	Ground
		10	Ground
		11	Ground
		12	Ground
		13	Ground
		14	Ground
		15	Ground
		16	Ground
 <p>LVPS to J17 Cable Connector</p>	LVPS to system board cable for fuser (J17)	1	FusExitSen
		2	BURCam1
		3	Ground
		4	WebEncoderA IN
		5	WebEncoderB IN
		6	HRThermistor IN
		7	BURThermistor IN
		8	Ground
		9	+5 V dc switched
		10	XOVERRIDE
		11	Heat On #1 (HR)
		12	Heat On #2 (BUR)

**LVPS fuser connectors**



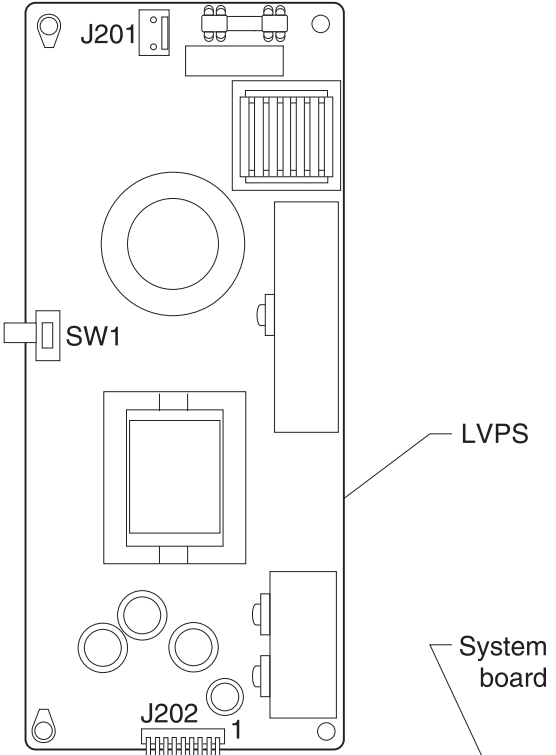
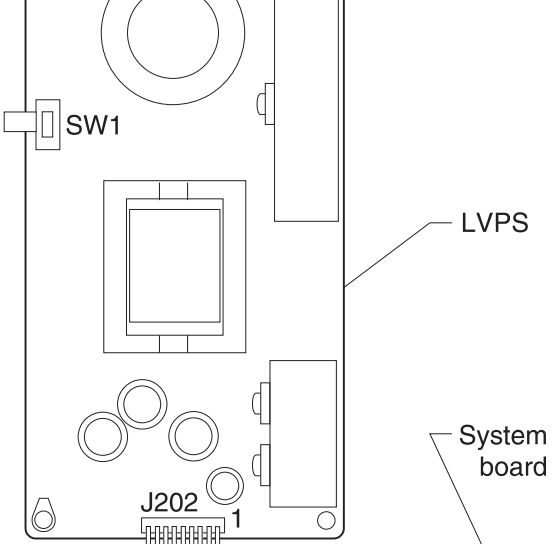
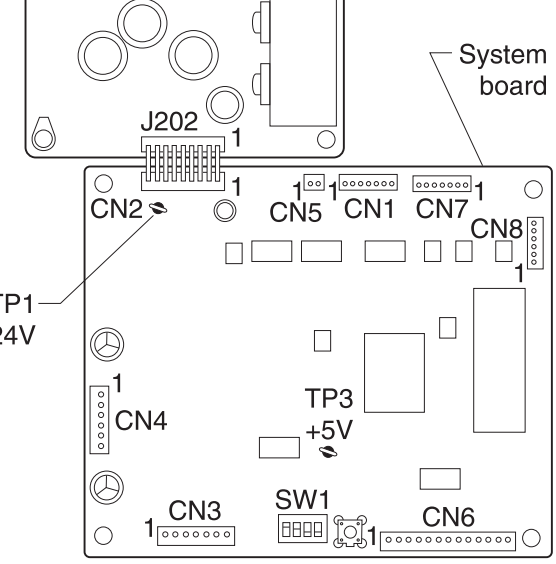
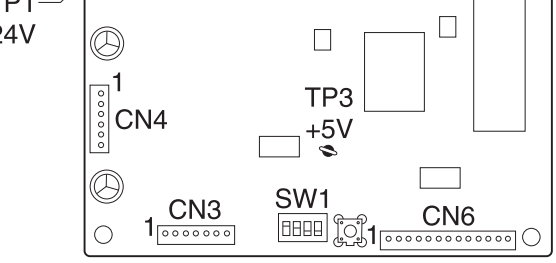
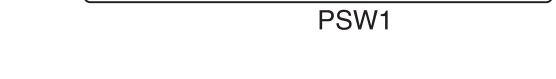
Connector	Pin no.	Signal
LVPS AC Fuser Connector	1	AC Load #1
	2	AC Common
	3	Ground
	4	N/C
	5	AC Load #2x
LVPS DC Fuser Control Connector	1	FusExitSen
	2	BURCam1
	3	N/C
	4	WebEncoderA
	5	WebEncoderB
	6	HRThermistor
	7	BURThermistor
	8	Return—Analog Ground
	9	+5 V dc switched
	10	N/C

**Media size sensing board**

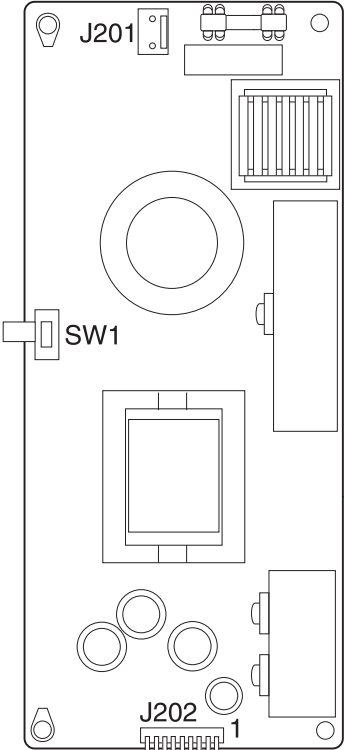
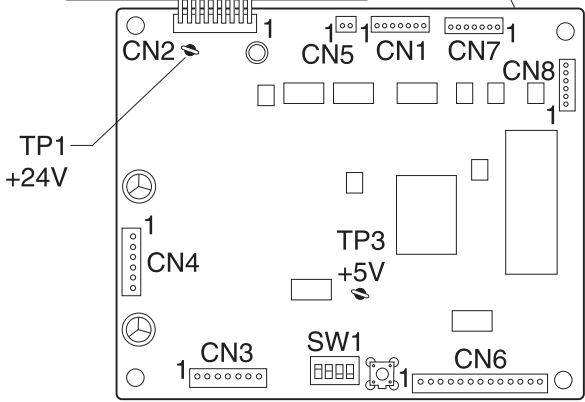
	Connector	Pin	Signal
 <p data-bbox="316 735 617 766">Media size sensing board</p>	J1	1	+3.3V dc
	2	EPROM Data	
	3	Ground	
	4	EPROM Clock	
	J2	1	J3-1 (Waste BTL Full)
	2	Ground	
	3	Waste BTL PRESENT (SW4)	
	4	Tray Size 1 (SW3)	
	5	Ground	
	6	Tray Size 2 (SW2)	
	7	Tray Size 3 (SW1)	
	J3	1	J2-1 (Waste BTL Full)
	2	Ground	

**High-capacity input tray (HCIT)**

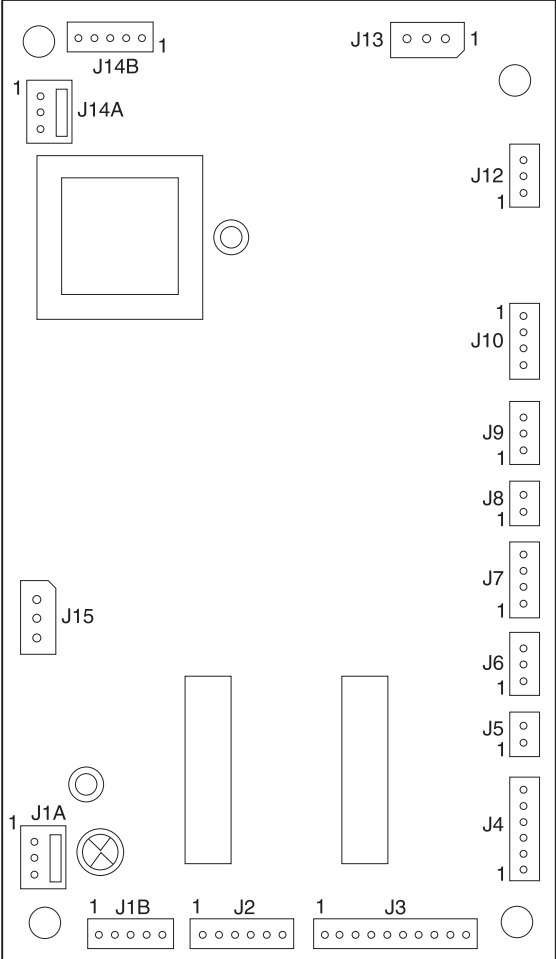
**HCIT 2000-sheet board**

	Connector	Pin	Signal
	CN1 I/F	1	Send
		2	PRI RXD
		3	PGND
		4	PERON
		5	SGND
		6	PRI TXD
	CN2 LVPS	1	Poweron
		2	+5 V dc
		3	SGND
		4	PGND
		5	PGND
		6	PGND
		7	+24 V dc
		8	+24 V dc
		9	+24 V dc
	CN3 REG Motor	1	+24 V dc
		2	+24 V dc
		3	REG A
		4	REG A
		5	REG B
		6	REG B
		7	No Connection
	CN4 PICK Motor	1	+24 V dc
		2	+24 V dc
		3	PICK A
		4	*PICK A
		5	PICK B
		6	*PICK B
	CN5 LIFT Motor	1	+24 V dc
		2	LHOT



	Connector	Pin	Signal
 <p>Diagram of LVPS board showing connector J201 and SW1.</p>	<p>CN6 Sensors Side Door/Level/ Empty/ Registration Home/Pick Home</p>	1	+5 V dc
		2	GND
		3	SIDE
		4	+5 V dc
		5	GND
		6	LEVEL
		7	+5 V dc
		8	GND
		9	EMPTY
		10	+5 V dc
		11	GND
		12	RHOME
		13	+5 V dc
		14	GND
		15	PHOME
 <p>Diagram of System board showing connectors CN2, CN5, CN1, CN7, CN8, TP1, TP3, SW1, PSW1, and CN6.</p>	<p>CN7 Size Sensors/Near Empty</p>	1	+5 V dc
		2	GND
		3	SIZE 0
		4	+5 V dc
		5	GND
		6	SIZE 1
		7	+5 V dc
		8	GND
		9	SIZE 2
		10	+5 V dc
		11	GND
		12	NE EMP
<p>Diagram of PSW1 board showing connector CN6.</p>	<p>CN8 S1(Pick Sensor) S2(Registration Sensor)</p>	1	+5 V dc
		2	S2
		3	GND
		4	+5 V dc
		5	S1
		6	GND

**StapleSmart finisher**

	Connector	Pin	Signal
<p>Staple card assembly</p> 	J1A Bottom autoconnect	1	+24 V dc
		2	Ground
		3	+5 V in
	J1B Bottom autoconnect	1	rtxdin
		2	Ground
		3	prtrxd
		4	Ground
		5	Ground
	J2 Feed motor	1	fdmtr1
		2	fdmtr2
		3	Ground
		4	Ground
		5	tachft
		6	5Vptt
	J3 Stepper motor	1	stpmtr-
		2	stpmtr-
		3	stpmtr+
		4	stpmtr+
		5	crtprsnt-
		6	stplow+
		7	'stpphomo-
		8	Ground
		9	5Vstpl
		10	stprimed-
J4 Accessory connector	1	+24 V dc	
	2	accmtr-	
	3	Ground	
	4	Ground	
	5	tacha+	
	6	5Vptt	
J5 Solenoid	1	Sol1-	
	2	+24 V dc	
J6 Stapler	1	Ground	
	2	pfrinstp+	
	3	5Vsnsr2	

	Connector	Pin	Signal
<p>Staple card assembly (continued)</p>	J7 Right side sensor board	1	Ground
	2	Bottom	
	3	Top	
	4	Ground	
	J8 Solenoid	1	Sol2-
	2	+24 V dc	
	J9 Bin empty sensor	1	Ground
	2	bnempty-	
	3	5Vsnsr2	
	J10 Left side sensor board	1	Ground
	2	full+	
	3	NRFull+	
	4	Ground	
	J12 Pass thru sensor	1	Ground
	2	psthruint	
	3	5Vptt	
	J13 Cover open switch	1	+5V dc
	2	Ground	
	3	cvropin-	
	J14A	1	+24V dc
2	Ground		
3	5V in		
J14B	1	prtxdout	
2	Ground		
3	prtxd		
4	Ground		
5	Ground		
J15 Stapler door open	1	Dooropin-	
2	Ground		
3	5Vswitch		



## 6. Preventive maintenance

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

### Safety inspection guide

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

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

Check the following items:

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

### Scheduled maintenance

The operator panel displays 80 Fuser Maintenance and 83 ITU Maintenance for scheduled maintenance.

80 Fuser Maintenance is displayed at 120,000 copies for C78x models, and at 200,000 copies for C77x models indicating the fuser assembly needs to be replaced to maintain the print quality and reliability of the printer. The parts are available as a maintenance kit with the following part numbers:

#### Standard fusers

Description	Part number	
	Models 1xx/3xx (C77x)	Models 2xx/4xx (C78x)
Maintenance kit 115 V fuser	40X1859	40X1831
Maintenance kit 220 V fuser	40X1860	40X1832
Maintenance kit 100 V fuser	40X1861	40X1833

83 ITU Maintenance is displayed at each 120,000 copies when the ITU Assembly needs to be replaced to maintain the print quality and reliability of the printer. There are two assemblies, ITU assembly and Second Transfer Roll, in a maintenance kit. Both should be replaced at the same time. The parts are available as a maintenance kits:

#### ITU Maintenance kits

Description	Part number
ITU Maintenance kit for 1xx and 3xx models	40X0342
ITU Maintenance kit for 2xx and 4xx models	40X0343

After replacing the kit, the fuser maintenance count must be reset to zero to clear the maintenance message.

84 Oiler Nearly Exhausted is displayed at each 100,000 copies when the Web Oiler Assembly is nearly exhausted. Go to **“Web Oiler Assembly” on page 7-9** for part number.

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## Lubrication specifications

Lubricate only when parts are replaced or as needed, not on a scheduled basis. Use of lubricants other than those specified can cause premature failure. Some unauthorized lubricants may chemically attack polycarbonate parts. Use IBM no. 10 oil, P/N 1280443 (Approved equivalents: Mobil DTE27, Shell Tellus 100, Fuchs Renolin MR30), IBM no. 23 grease (Approved equivalent Shell Darina 1), and grease, P/N 99A0394 to lubricate appropriate areas. Use Nyogel type 774 to lubricate the Fuser Drive Assembly and Nyogel 744 to lubricate the ITU and Cartridge Drive assemblies.

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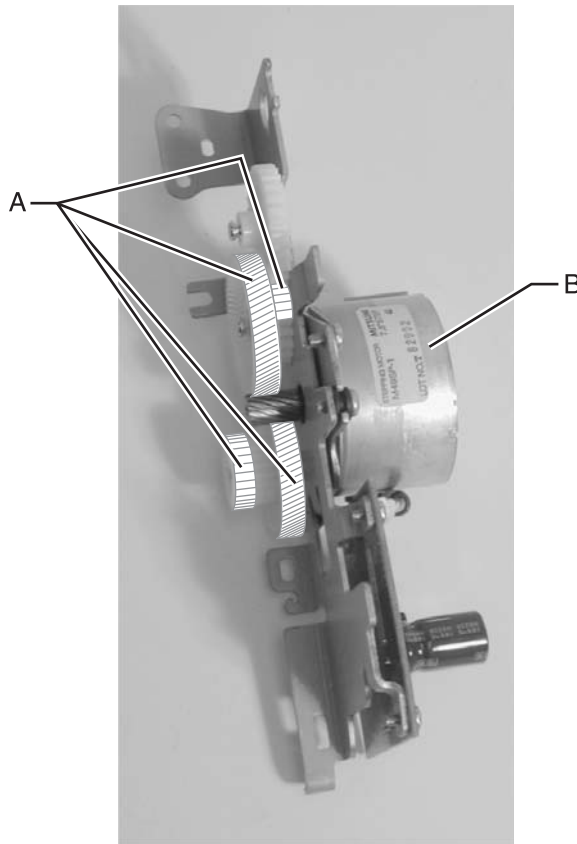
## Lubrication for replacement motors

The motor drive FRUs contain the proper lubricant in the FRU. Only use the lubricant included.

### Fuser drive assembly

Before installing the new fuser drive assembly:

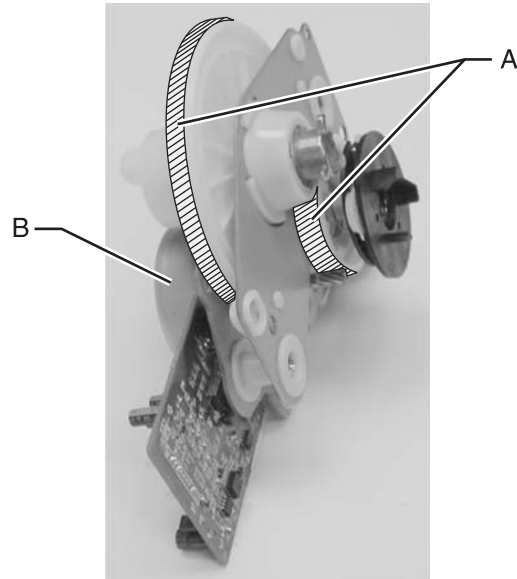
1. Apply a thin coating of Nyogel type 774 grease to the points identified (A) from the supplied packet.



2. Rotate the motor housing (B) to distribute evenly.

## Cartridge drive assembly

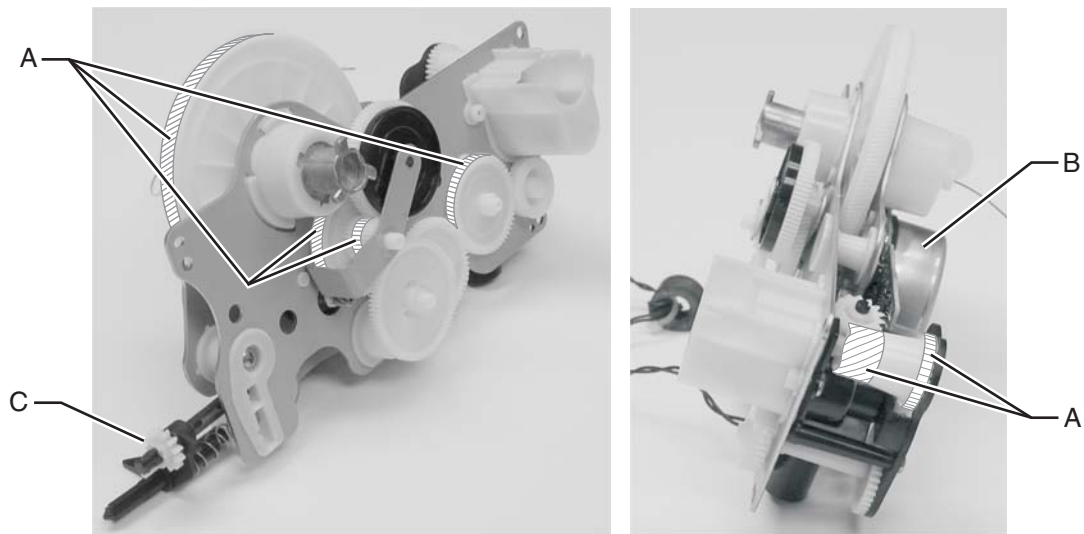
1. Apply a thin coating of Nyogel type 744 grease to the points identified (A) from the supplied packet.



2. Rotate the motor housing (B) to distribute evenly.

## ITU drive assembly

1. Apply a thin coating of Nyogel type 744 grease to the points identified (A) from the supplied packet.



**Note:** Do not lubricate Gear 58 (C).

2. Rotate the motor housing (B) to distribute evenly.





## 7. Parts catalog

### How to use this parts catalog

The following legend is used in the parts catalog:

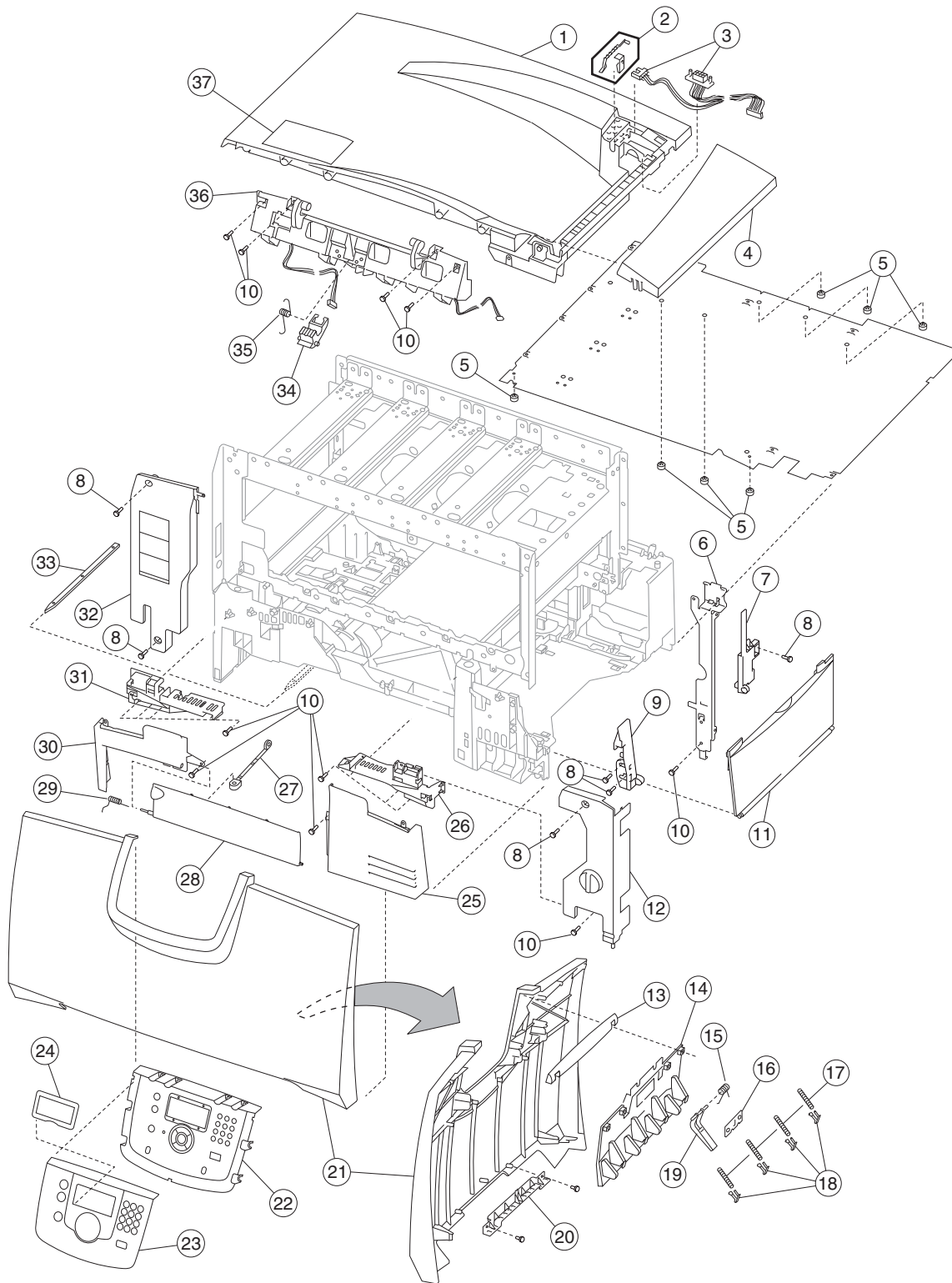
Asm-Index	Part number	Units/mach - OR - Units/option	Units/ FRU	Description
-----------	-------------	--------------------------------------	---------------	-------------

- **Asm-index:** identifies the assembly and the item in the diagram. For example, 3-1 indicates Assembly 3 and the item number 1.
- **Part number:** identifies the unique number that identifies this FRU.
- **Units/mach:** refers to the number of units actually used in the base machine or product.
- **Units/option:** refers to the number of units used in the option and does not include the base machine.
- **Units/kit or pkg:** refers to the number of units packaged together and identified by the part number.
- **NS:** (Not shown) in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- **NA:** (Not available) in the parts description column indicates the part is shown for identification purposes only and is not available as a FRU.

The Lexmark C77x (506x-4xx) laser printer is available in four models:

Name	Machine type/model	Description	Abbreviation used in parts catalog
Lexmark C770	5061-110	Network	110
Lexmark C772	5061-310	Network	310
Lexmark C780n	5061-210	Network	210
Lexmark C782n	5061-410	Network	410

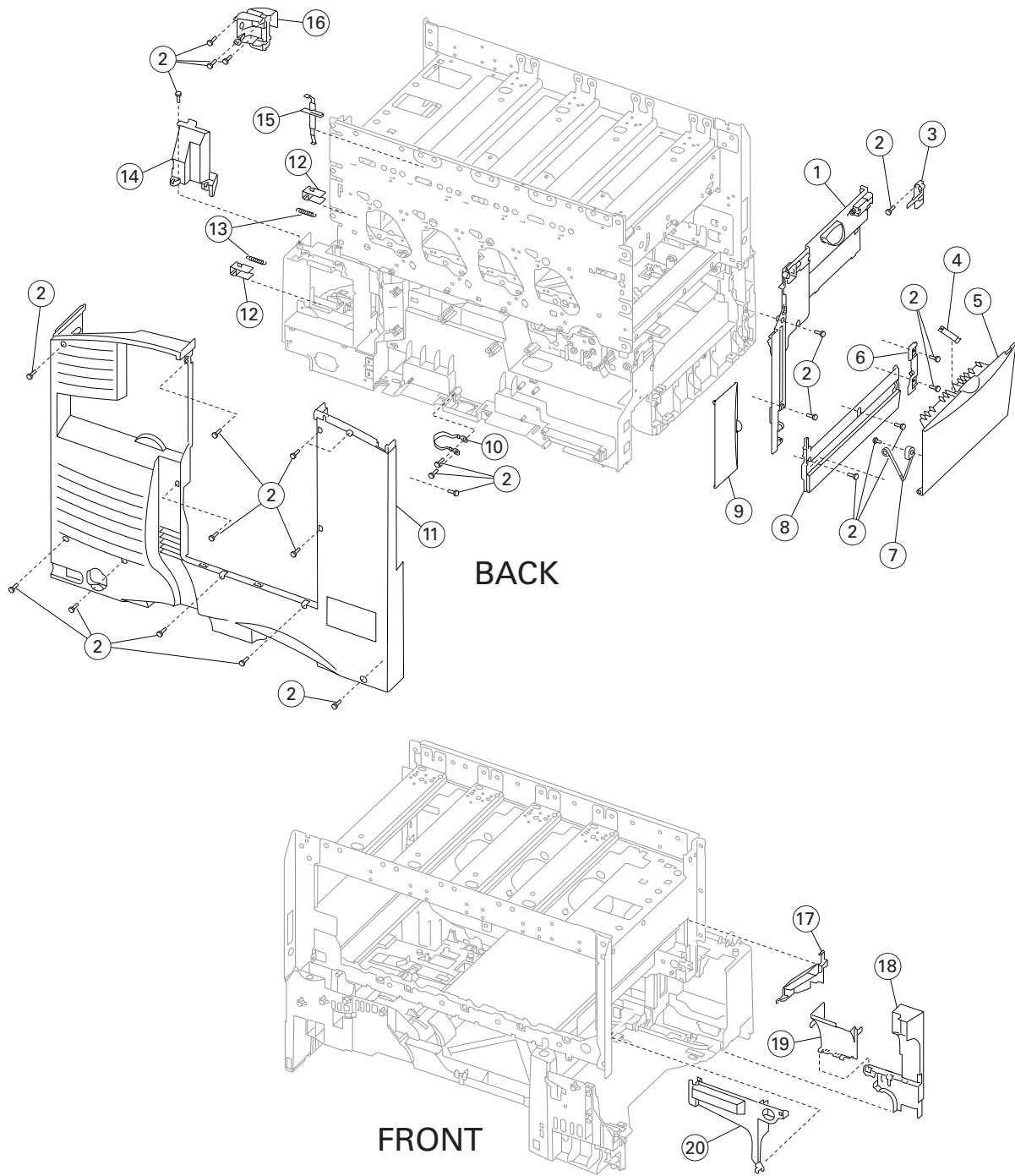
# Assembly 1: Covers



## Assembly 1: Covers

Asm-Index	Part number	Units/mach	Units/FRU	Description
1-1	40X1628	1	1	Top cover assembly Also order cable tie parts packet (P/N 40X1648)
2	40X1631	1	1	250 output flag and retainer
3	40X1637	1	1	Top autoconnect and output bin sensor—1xx/3xx only
3	40X1777	1	1	Top autoconnect and output bin sensor—2xx/4xx
4	40X1638	1	1	Redrive cap cover assembly
5	40X1601	7	1	Machine pad
6	40X1602	1	1	Top front support bracket
7	40X1622	1	1	Right rear cover
8		3	3	Screw type 324, parts packet (40X1635)
9	40X1620	1	1	Right front cover
10		12	12	Screw type 323, parts packet (40X1633)
11	40X1634	1	1	Lower right door assembly
12	40X1605	1	1	Front right light shield
13	40X1615	1	1	Front cover rear pivot cover
14	40X1607	1	1	Front cover backplate assembly
15	40X1608	1	1	Detent link spring
16	40X1672	1	1	Bellcrank detent bearing
17	40X1636	4	1	Rear hold down spring
18	40X1610	4	1	Front hold down bellcrank
19	40X1609	1	1	Detent link
20	40X1623	1	1	Front access door handle
21	40X1614	1	1	Front cover
22	40X1626	1	1	Operator panel assembly
23	40X1625	1	1	Operator panel bezel with overlays—1xx only
23	40X1822	1	1	Operator panel bezel with overlays—2xx only
23	40X1624	1	1	Operator panel bezel with overlays—3xx only
23	40X1874	1	1	Operator panel bezel with overlays—4xx only
24	40X1627	1	1	Clear LCD lens
25	40X1621	1	1	Front lower right cover
26	40X1629	1	1	Front right handle cover assembly
27	40X1867	1	1	Reference edge nip release strap
28	40X1619	1	1	Paper path access door
29	40X1603	1	1	Paper path access door spring
30	40X1618	1	1	Front lower left cover
31	40X1630	1	1	Front left handle cover assembly
32	40X1604	1	1	Left front light shield cover
33	40X1606	1	1	Paper tray guide
34	40X1612	1	1	Detent bellcrank
35	40X1613	1	1	Bellcrank detent spring
36	40X1611	1	1	Front access door support
37	40X1616	1	1	Top paper jam label—3xx/4xx only
37	40X1617	1	1	Top paper jam label—1xx/2xx only

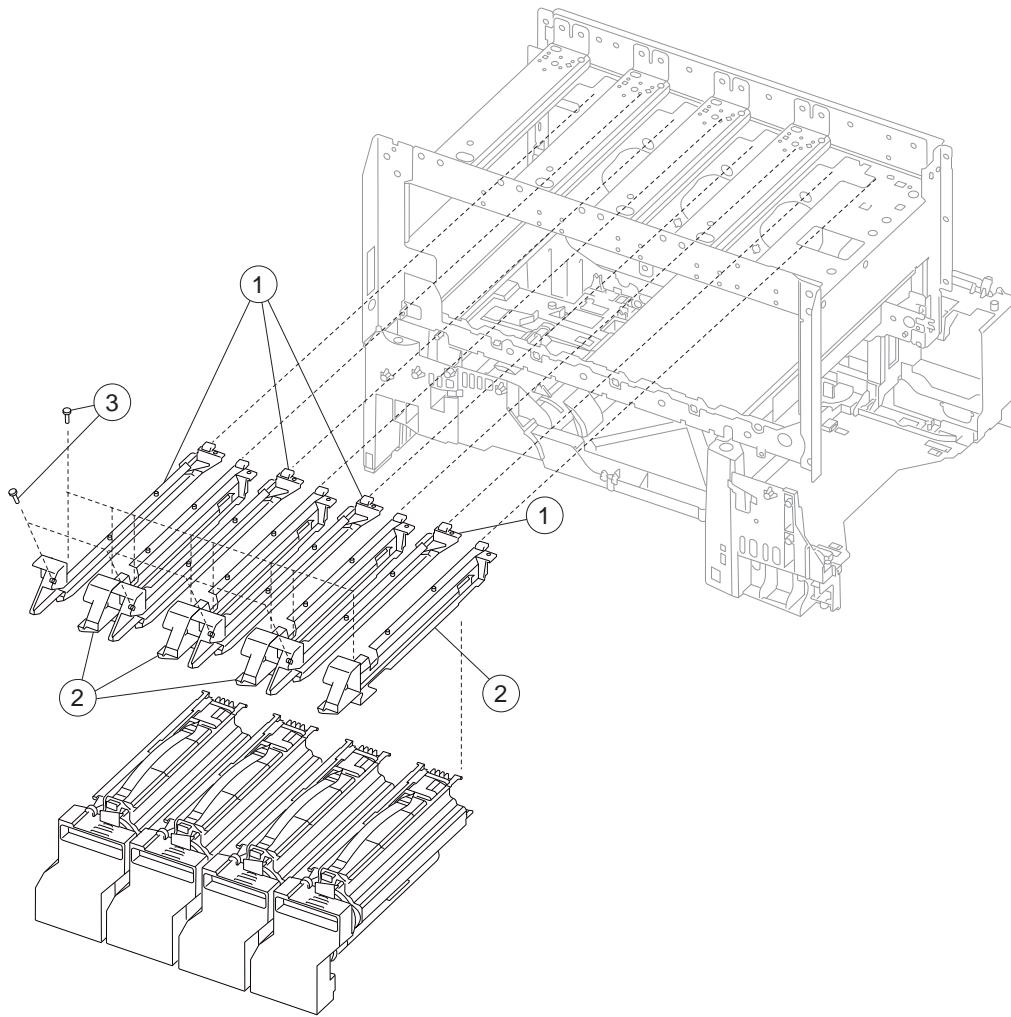
### Assembly 1.1: Covers



## Assembly 1.1: Covers

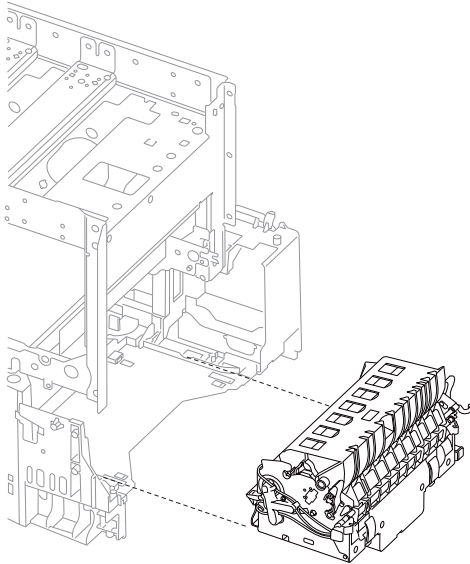
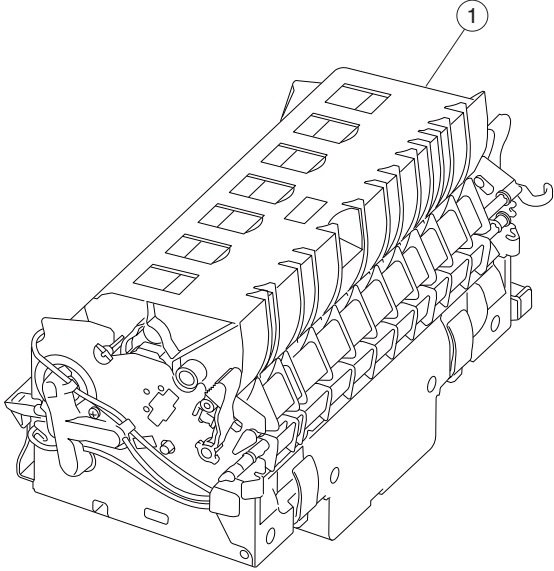
Asm-Index	Part number	Units/mach	Units/FRU	Description
1.1-1	40X1657	1	1	Left upper cover assembly
2		21	1	Screw type 323, parts packet, (40X1633)
3	40X1653	1	1	Left upper pivot cover
4	40X1787	1	1	Jam access door spring
5	40X1658	1	1	Lower jam access door assembly
6	40X1655	1	1	Left lower pivot cover
7	40X1768	1	1	Reference edge nip release strap
8	40X1654	1	1	Left lower cover
9	40X1656	1	1	Waste container door
10	40X1647	1	1	Ground cable
11	40X1644	1	1	Rear cover
12	40X1643	2	2	Fuser latch slide
13	40X1645	2	2	Fuser latch slide spring
14	40X1640	1	1	Fuser top duct
15	40X1646	1	1	Duplex actuator arm assembly
16	40X1662	1	1	RIP fan duct
17	40X1642	1	1	Fuser wall duct
18	40X1641	1	1	Fuser bottom duct
19	40X1650	1	1	Fuser left duct
20	40X1652	1	1	Redrive belt cover duct
NS	40X1648	6	6	Cable tie (6 in pack) <b>Note:</b> Use to secure cables to the inner system board shield)
NS	40X1649	2	2	Cable tie mount
NS	40X1671	6	6	Cable tie (6 in pack)

## Assembly 2: Cartridge mounting



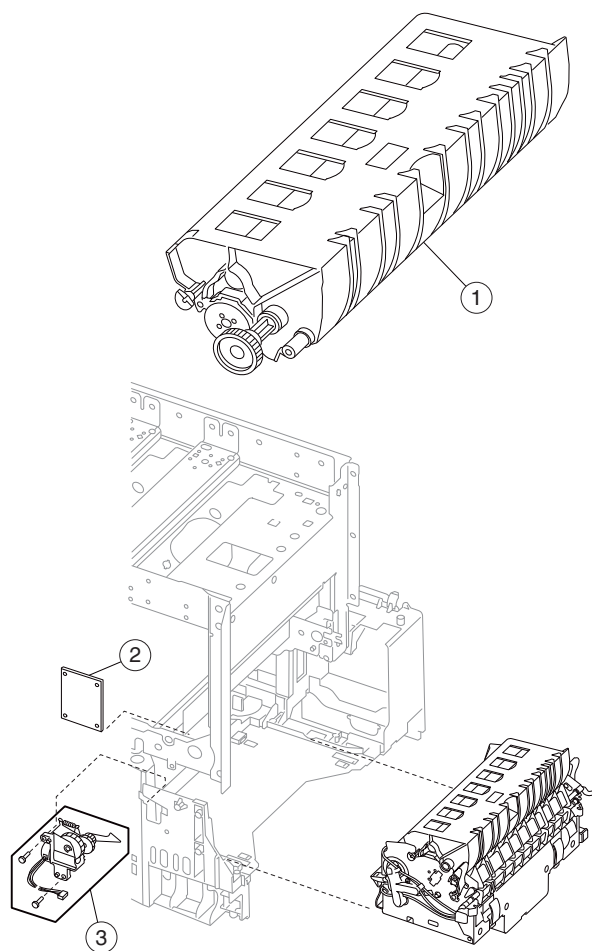
Asm-Index	Part number	Units/mach	Units/FRU	Description
2-1	40X1663	4	1	Guide assembly, left side
2	40X1664	4	1	Guide assembly, right side
3		12	8	Screw type 102, parts packet (40X1639)

**Assembly 3: Fuser assembly**



Asm-Index	Part number	Units/mach	Units/FRU	Description
3-1	40X1666	1	1	Fuser assembly, 220 V 500W—1xx/3xx
1	40X1832	1	1	Fuser assembly, 220 V 500W—2xx/4xx
1	40X1651	1	1	Fuser assembly, 115 V 500W—1xx/3xx
1	40X1831	1	1	Fuser assembly, 115 V 500W—2xx/4xx
1	40X1667	1	1	Fuser assembly, 100 V 500W (Japan)—1xx/3xx
1	40X1833	1	1	Fuser assembly, 100 V 500W (Japan)—2xx/4xx

### Assembly 3.1: Fuser (web oiler)

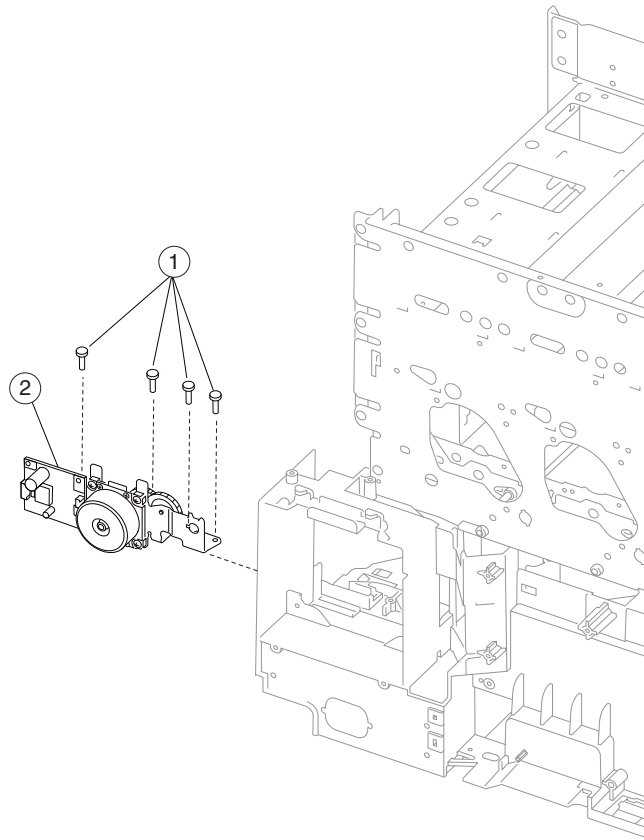




**Assembly 3.1: Fuser (web oiler)**

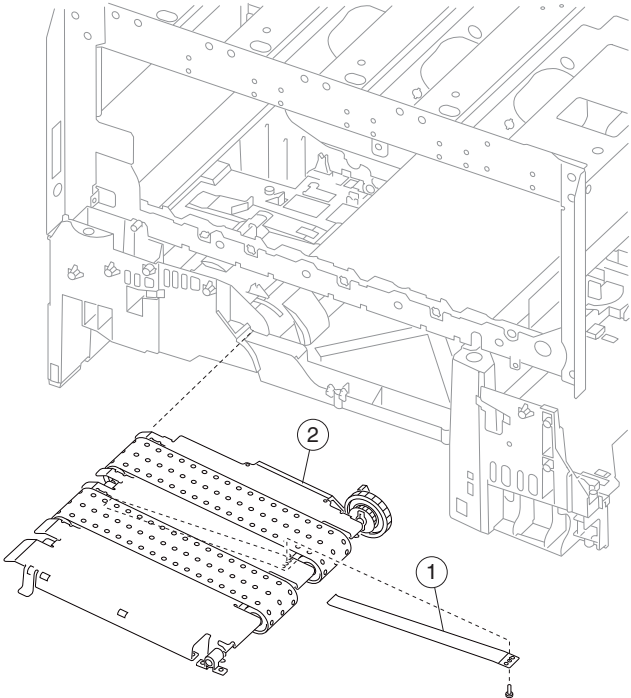
<b>Asm-Index</b>	<b>Part number</b>	<b>Units/mach</b>	<b>Units/FRU</b>	<b>Description</b>
3.1-1	40X1674	1	1	Web oiler assembly
2	40X1670	1	1	Web oiler driver board assembly
3	40X1669	1	1	Web oiler index drive assembly

## Assembly 4: Fuser drive



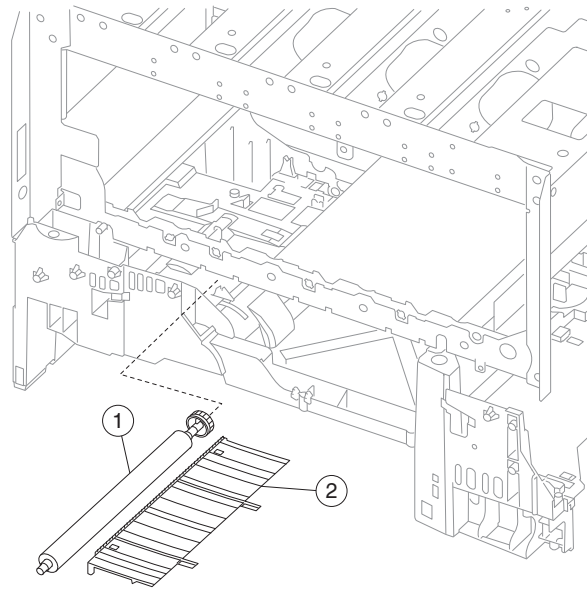
Asm-Index	Part number	Units/mach	Units/FRU	Description
4-1		4	1	Screws type 323, parts packet (40X1633)
2	40X1661	1	1	Fuser drive assembly

### Assembly 5: Vacuum transport belt (VTB) assembly



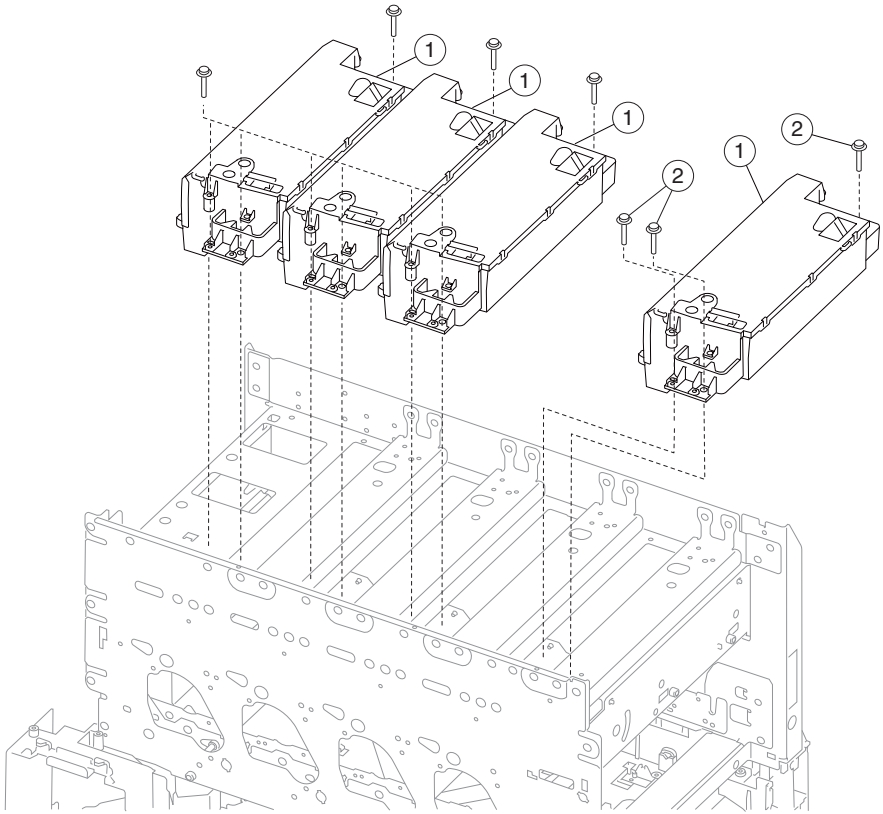
Asm-Index	Part number	Units/mach	Units/FRU	Description
5-1	40X1660	1	1	Jam access spring
2	40X1677	1	1	Vacuum transport belt assembly

## Assembly 6: Transfer



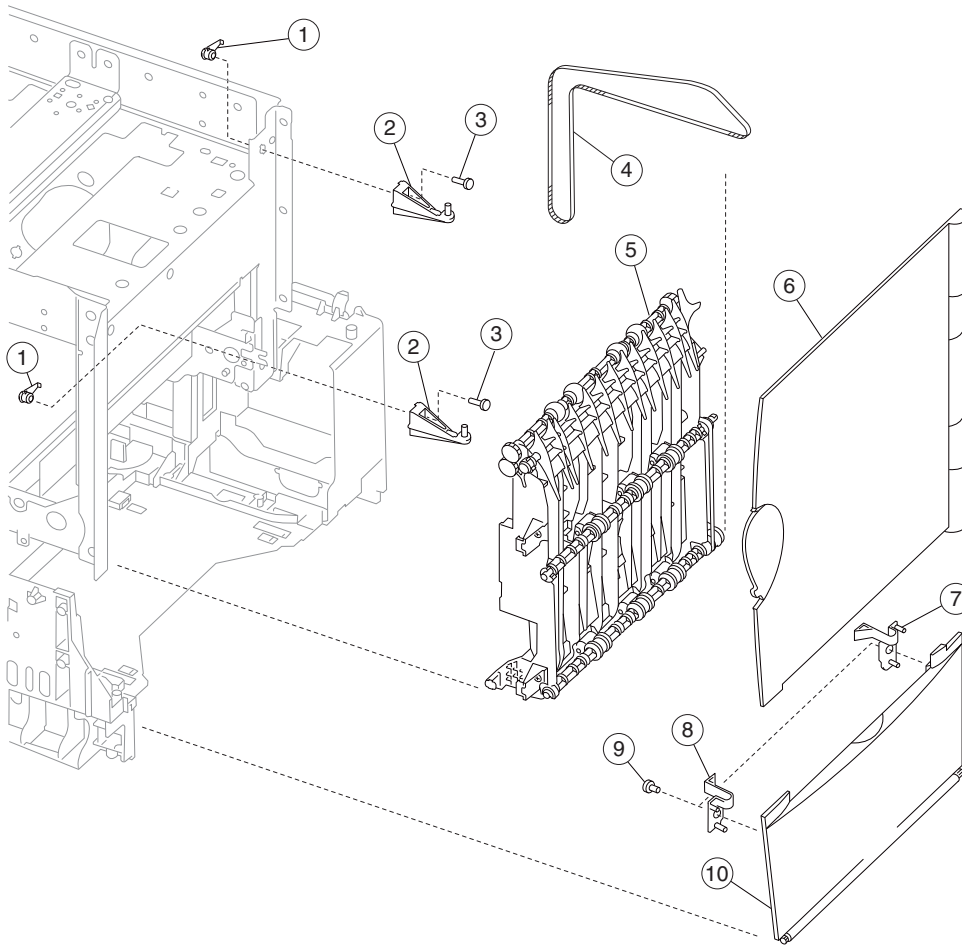
Asm-Index	Part number	Units/mach	Units/FRU	Description
6-1	40X1678	1	1	Second transfer roll
2	40X1679	1	1	Transfer plate assembly

**Assembly 7: Printheads**



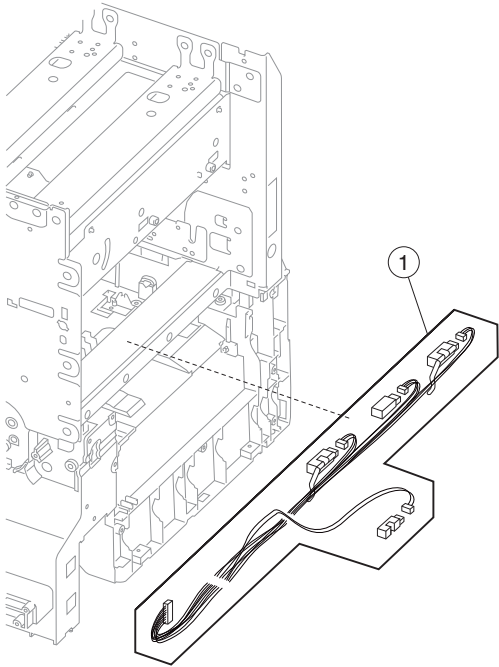
Asm-Index	Part number	Units/mach	Units/FRU	Description
7-1	40X1828	4	1	Printhead assembly (do not replace more than one printhead at a time) Also order cable tie parts packet (P/N 40X1648)
2		12	12	Screw type 484, parts packet (40X1632)

## Assembly 8: Paper feed output (redrive)



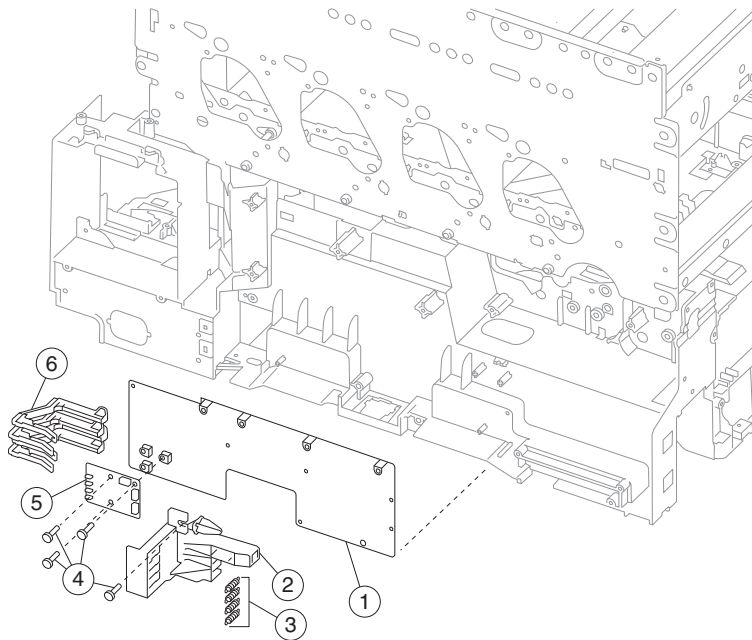
Asm-Index	Part number	Units/mach	Units/FRU	Description
8-1	40X1686	8	2	Bracket mounting anchor (2 per package)
2	40X1685	2	2	Upper door hinge
3		2	2	Screw type 312/322/412/423, parts packet, (40X1691)
4	40X1689	1	1	Redrive belt 300 T
5	40X1684	1	1	Redrive assembly
6	40X1690	1	1	Redrive door assembly
7	40X1687	1	1	Lower right door latch
8	40X1688	1	1	Lower left door latch
9		2	2	Screw type 324, parts packet (40X1635)
10	40X1634	1	1	Lower right door assembly

### Assembly 9: Paper feed input



Asm-Index	Part number	Units/mach	Units/FRU	Description
9-1	40X1692	1	1	S2/XPAR/NMS/MPF cable assembly (with sensors)

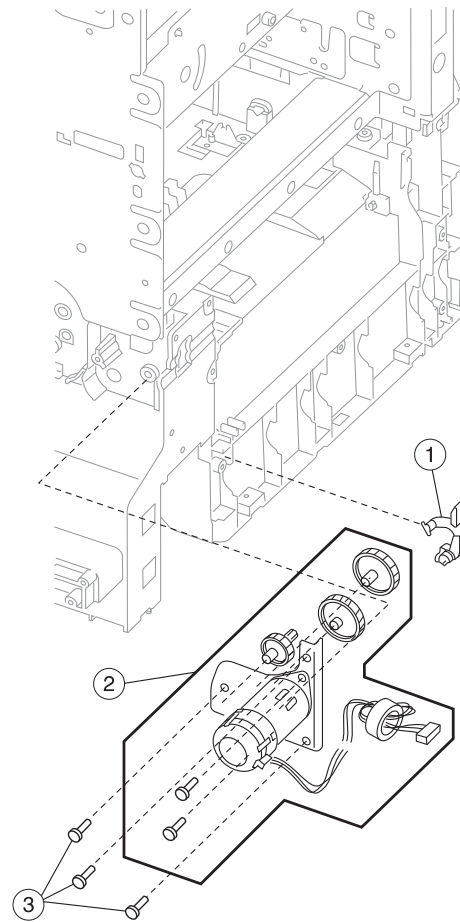
## Assembly 10: Media size sensing



Asm-Index	Part number	Units/mach	Units/FRU	Description
10-1	40X1700	1	1	System board shield support with clips Also order cable tie parts packet (P/N 40X1648)
2	40X1698	1	1	Media size sensing bracket Also order cable tie parts packet (P/N 40X1648)
3	40X1697	4	4	Media size sensing spring Also order cable tie parts packet (P/N 40X1648)
4		4	4	Screw type 232, parts packet, 40X1676 (media size sensing assembly mounting)
5	40X1699	1	1	Media size sensing board assembly Also order cable tie parts packet (P/N 40X1648)
6	40X1696	4	4	Media size sensing link Also order cable tie parts packet (P/N 40X1648)

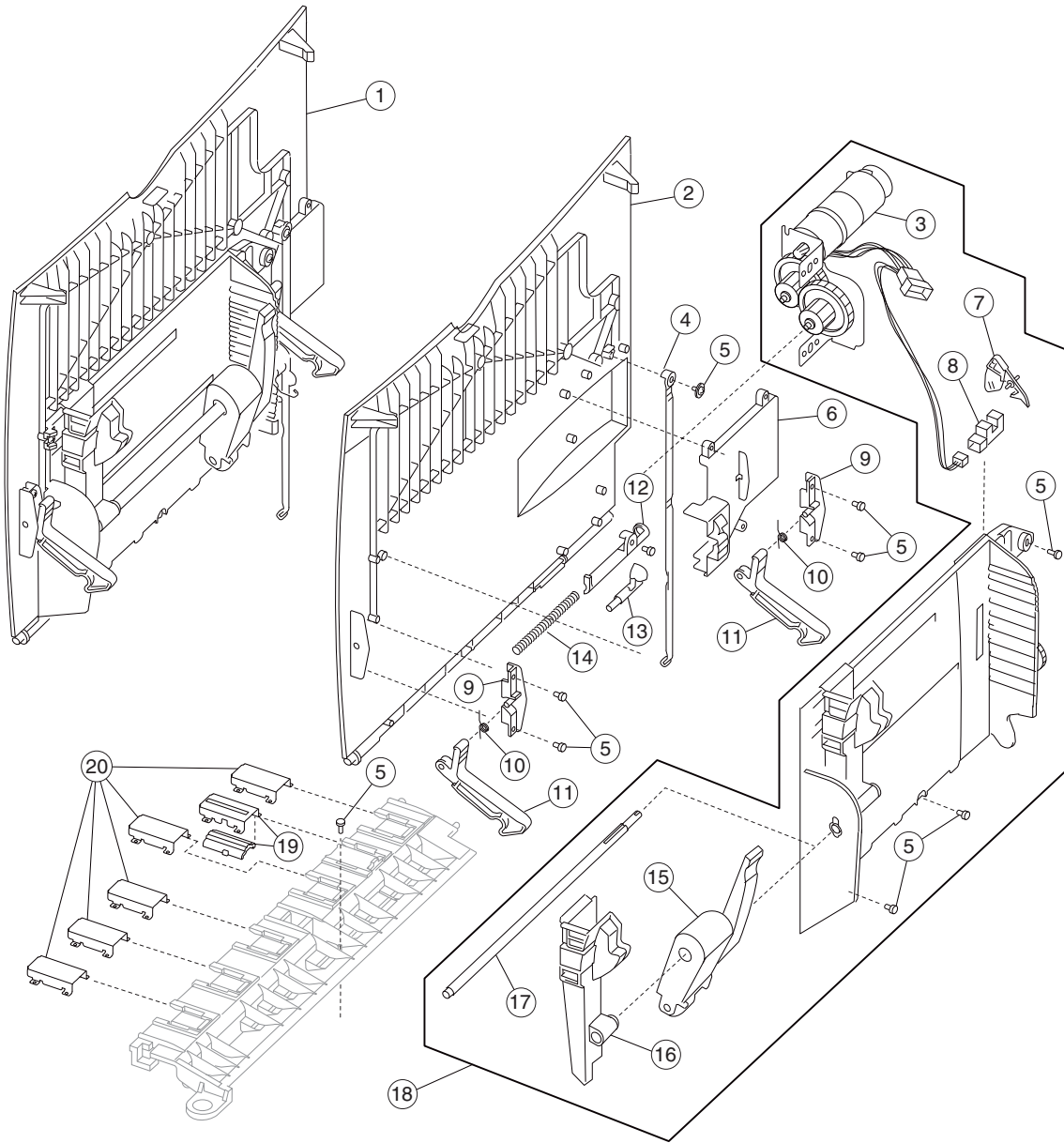


## Assembly 11: Paper feed transport



Asm-Index	Part number	Units/mach	Units/FRU	Description
11-1	40X1701	1	1	Nip relief handle Also order cable tie parts packet (P/N 40X1648)
2	40X1702	1	1	Registration motor assembly kit, including: (also order cable tie parts packet, P/N 40X1648) - Staging motor assembly - Gear, reference plate - Gear, staging idler - Gear, staging reduction - Motor screws
3		3	3	Screw type 323, parts packet, 40X1633

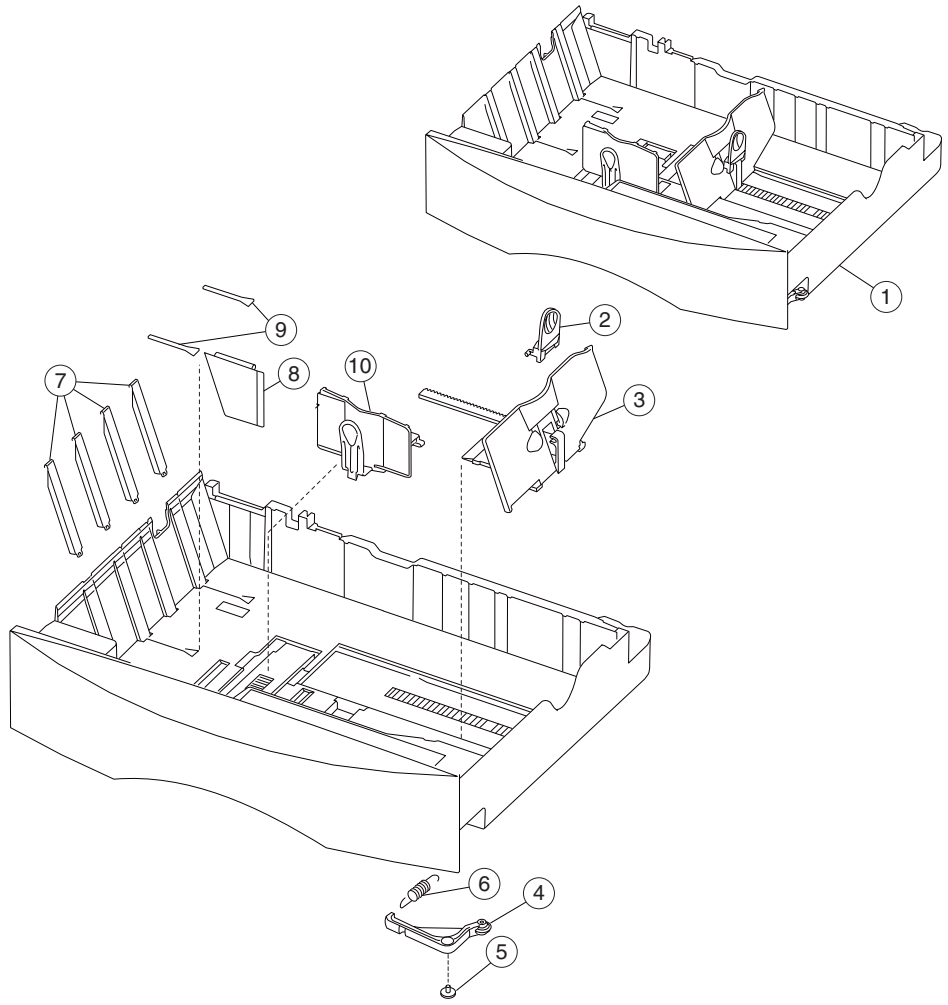
### Assembly 12: Multipurpose feeder (MPF)



## Assembly 12: Multipurpose feeder (MPF)

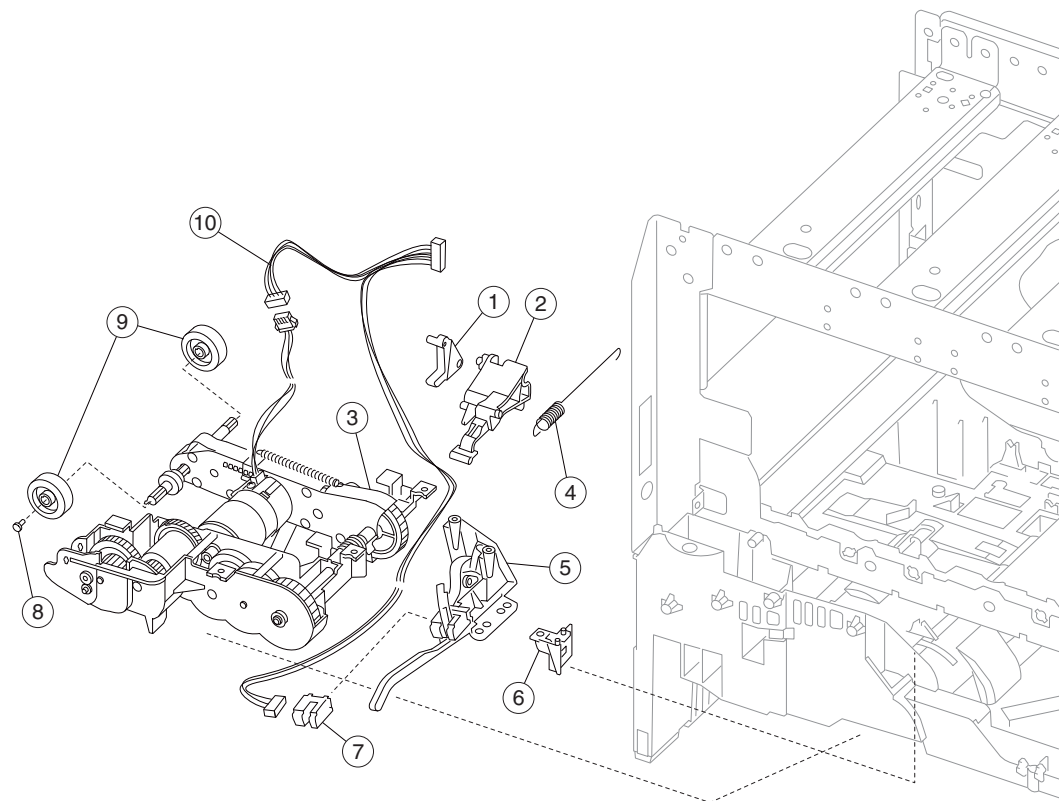
Asm-Index	Part number	Units/mach	Units/FRU	Description
12-1	40X1714	1	1	MPF door assembly—1xx/3xx
1	40X1841	1	1	MPF door assembly—2xx/4xx
2	40X1711	1	1	MPF door cover
3	40X1853	1	1	MPF drive assembly
4	40X1708	1	1	Door hinge restraint
5		12	12	Screw type 312/322/412/423, parts packet, 40X1691
6	40X1710	1	1	MPF gear cover
7	40X1673	1	1	MPF paper out flag
8	40X1852	1	1	Paper out sensor MPF
9	40X1715	2	2	MPF support bracket cover
10	40X1707	2	2	MPF support bracket spring
11	40X1717	2	1	MPF support bracket
12	40X1713	1	1	Frame bias latch cover
13	40X1712	1	1	Frame bias latch
14	40X1706	1	1	Frame bias spring
15	40X1716	1	1	MPF autocompensator pick assembly
16	40X1736	1	1	MPF side restraint
17	40X1682	1	1	MPF pick shaft
18	40X1709	1	1	MPF feed assembly—1xx/3xx
18	40X1840	1	1	MPF feed assembly—2xx/4xx
19	40X1808	1	1	Friction buckler and buckler housing
20	40X1704	5	5	Rib housing
NS	40X1854	1	1	MPF motor/sensor cable

### Assembly 13: 500-Sheet integrated tray



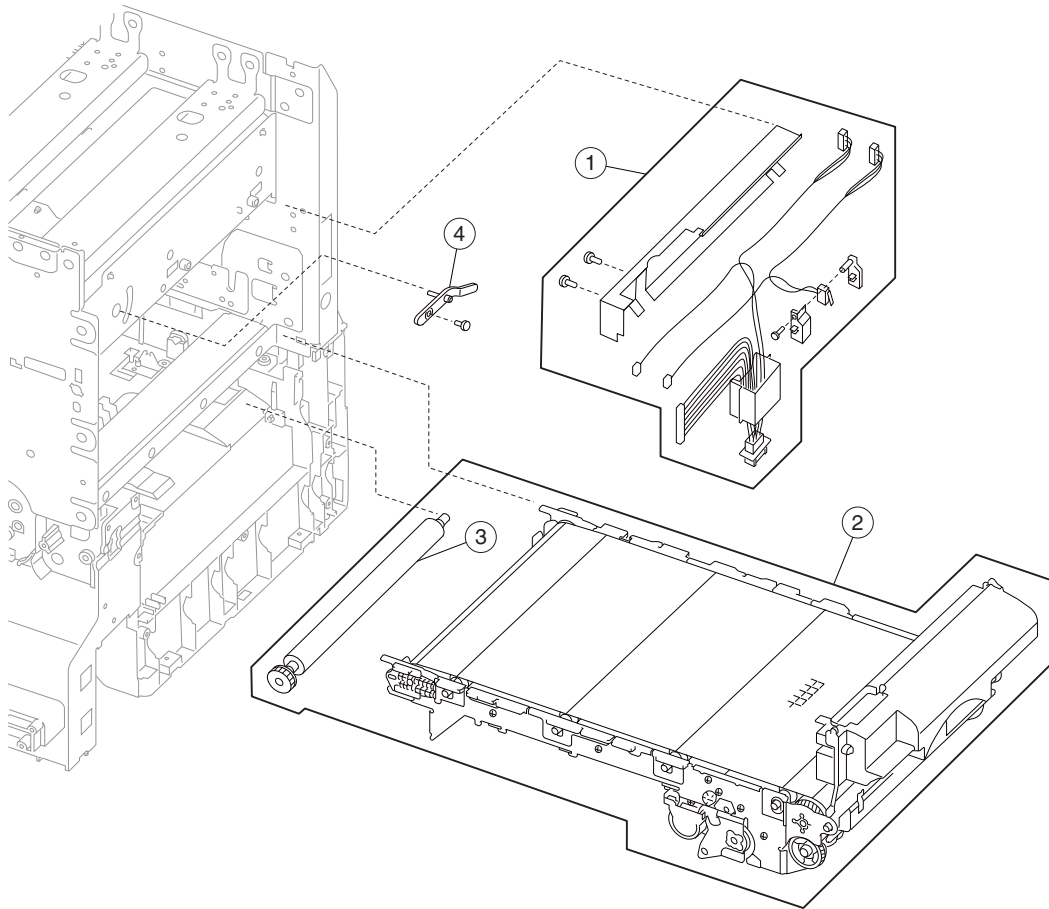
Asm-Index	Part number	Units/mach	Units/FRU	Description
13-1	40X1728	1	1	500-Sheet tray assembly
2	40X1720	1	1	Back restraint latch
3	40X1719	1	1	Back restraint
4	40X1723	1	1	Tray bias bellcrank assembly
5		1	1	Screw type 312/322/412/423, parts packet, 40X1691
6	40X1725	1	1	Tray bias spring
7	40X1722	4	4	Wear strip
8	40X1885	1	1	Tray wear clip
9	40X1727	2	2	Restraint pad
10	40X1718	1	1	Side restraint

## Assembly 14: Autocompensator assembly



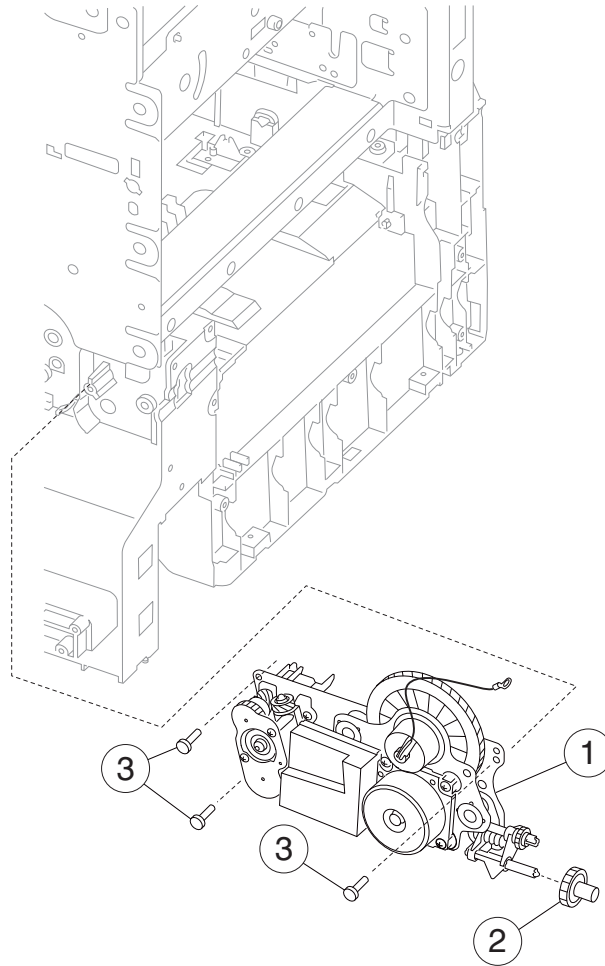
Asm-Index	Part number	Units/mach	Units/FRU	Description
14-1	40X1730	1	1	Tray interlock bellcrank
2	40X1741	1	1	Pick arm lift bellcrank
3	40X1724	1	1	Pick assembly 500-tray
4	40X1734	1	1	Bellcrank lift spring
5	40X1732	1	1	Paper level sensing assembly
6	40X1731	1	1	Tray interlock bracket
7	40X1729	1	1	Sensor, paper out/low
8		1	1	Screw type 312/322/412/423, parts packet, 40X1691 (pick roll mounting)
9	40X1765	2	2	Pick roll tires (2 per pack)
10	40X1733	1	1	Pick motor extension and paper level sensing cable

### Assembly 15: ITU assembly



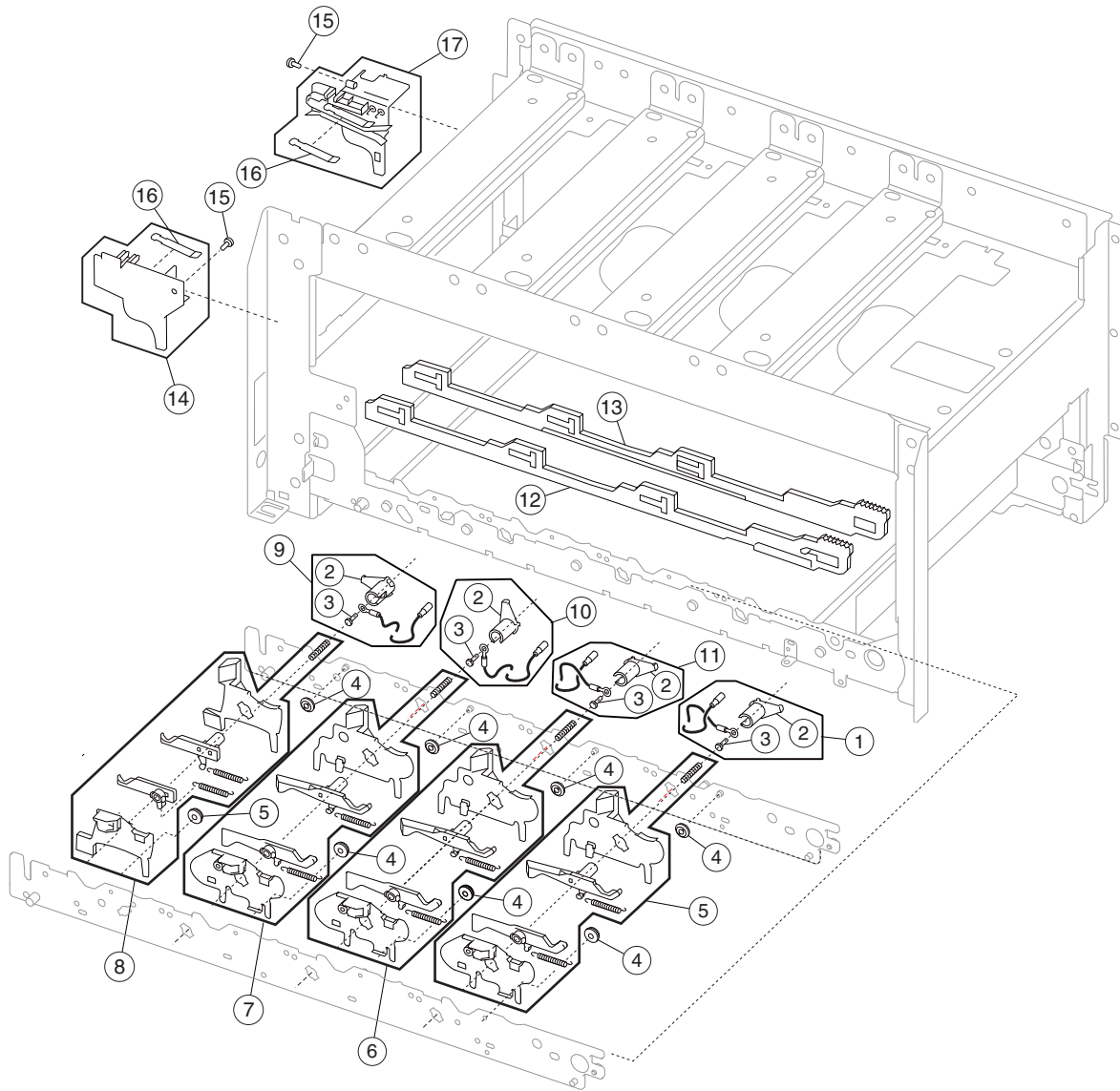
Asm-Index	Part number	Units/mach	Units/FRU	Description
15-1	40X1739	1	1	ITU light shield assembly
2	40X0342	1	1	ITU assembly—1xx/3xx only
2	40X0343	1	1	ITU assembly—2xx/4xx only
3	40X1678	1	1	Second transfer roll
4	40X1737	1	1	ITU coupler retract lever

## Assembly 16: ITU drive assembly



Asm-Index	Part number	Units/mach	Units/FRU	Description
1	40X1823	1	1	ITU drive assembly Also order cable tie parts packet (P/N 40X1648).
2	40X1742	1	1	#58 gear Also order cable tie parts packet (P/N 40X1648)
3		3	3	Screw type 323, parts packet, 40X1633 (ITU drive assembly lower frame)

### Assembly 17: ITU loading

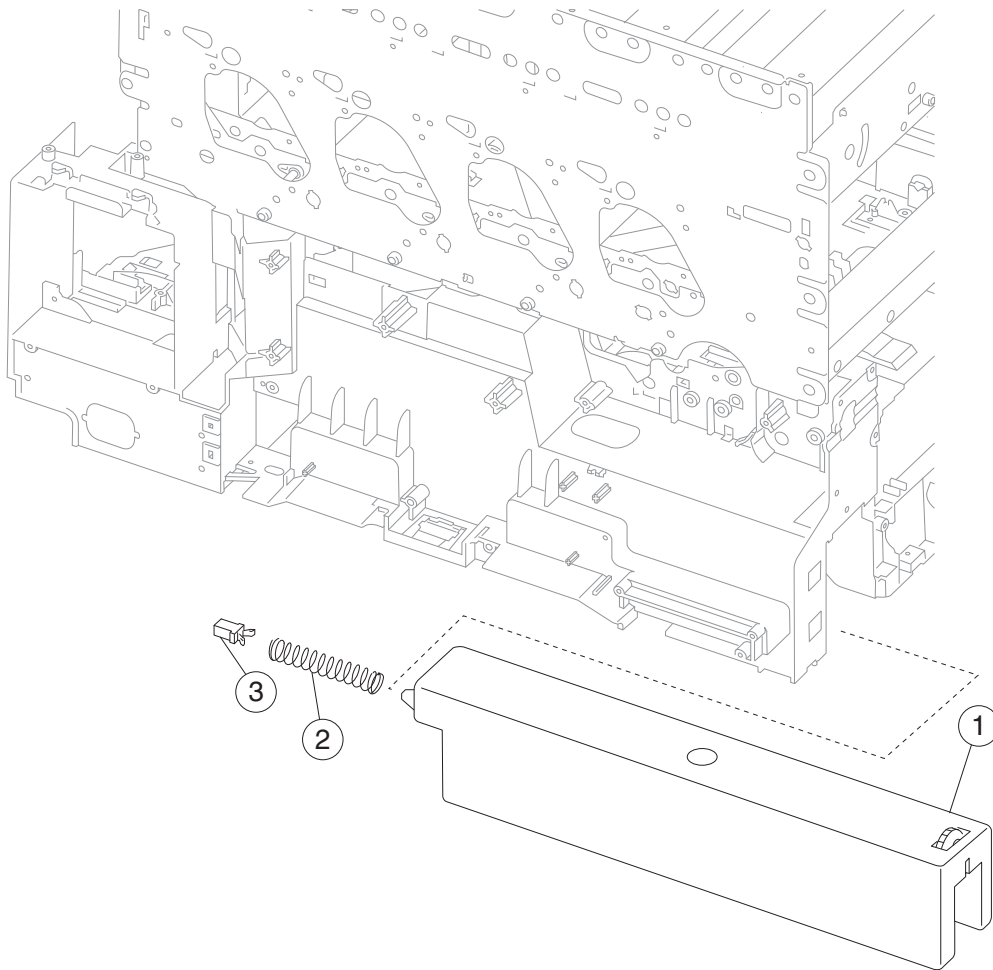




## Assembly 17: ITU loading

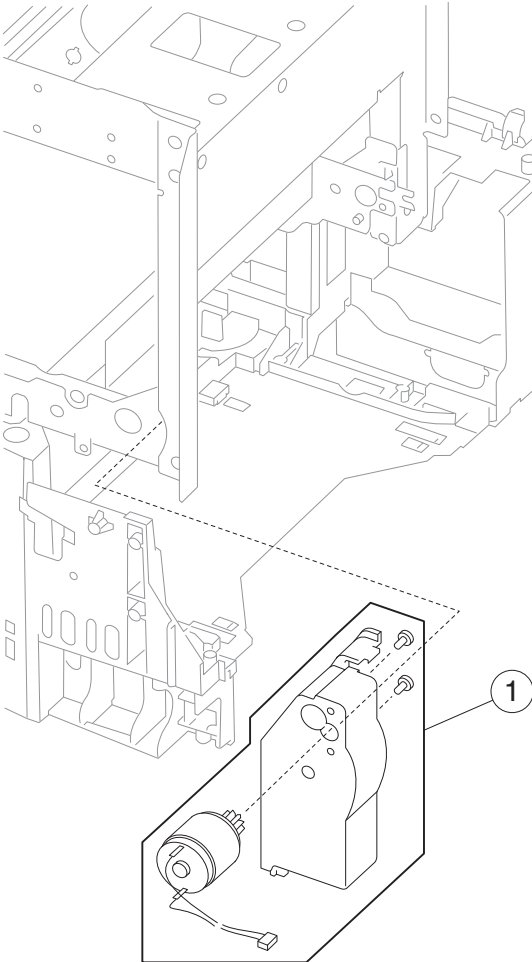
Asm-Index	Part number	Units/mach	Units/FRU	Description
17-1	40X1761	1	1	Yellow terminal contact assembly
2	40X1744	4	1	Contact spring terminal
3		4	1	Screw type 312/322/412/423, parts packet, 40X1691
4	40X1743	8	1	Cartridge support roller
5	40X1749	1	1	Parts packet, ITU loading—yellow, including - Yellow BOR spring - Rear block guide - Rear transfer bellcrank - Front V block guide - Front transfer bellcrank - High voltage contact spring
6	40X1750	1	1	Parts packet, ITU loading—cyan, including - Cyan BOR spring - Rear V block guide - Rear transfer bellcrank - Front V block guide - Front transfer bellcrank - High voltage contact spring
7	40X1751	1	1	Parts packet, ITU loading (1xx/3xx)—magenta, including - Magenta BOR spring - Rear V block guide - Rear transfer bellcrank - Front V block guide - Front transfer bellcrank - High voltage contact spring
7	40X1849	1	1	Parts packet, ITU loading (2xx/4xx)—magenta, including - Magenta BOR spring - Rear V block guide - Rear transfer bellcrank - Front V block guide - Front transfer bellcrank - High voltage contact spring
8	40X1752	1	1	Parts packet, ITU loading—black, including - Black BOR spring - Rear block guide - Rear transfer bellcrank - Front V block guide - Front transfer bellcrank - High voltage contact spring
9	40X1753	1	1	Black terminal contact assembly
10	40X1757	1	1	Magenta terminal contact assembly
11	40X1759	1	1	Cyan terminal contact assembly
12	40X1747	1	1	BOR front cam
13	40X1748	1	1	BOR rear cam
14	40X1770	1	1	Front ITU guide
15		2	2	Screw type 323, parts packet, 40X1633
16	40X1745	1	1	ITU bias spring
17	40X1746	1	1	Rear ITU guide

## Assembly 18: Waste toner



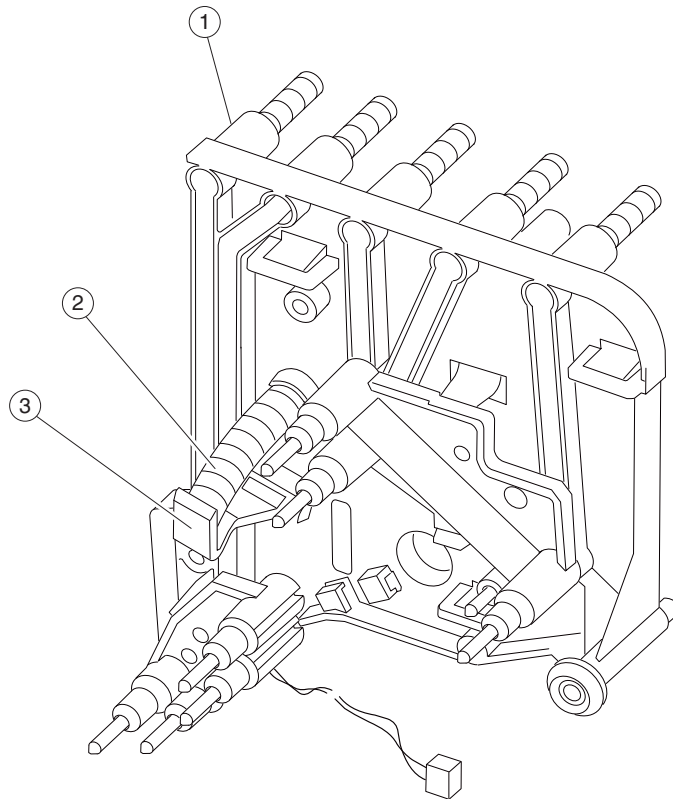
Asm-Index	Part number	Units/mach	Units/FRU	Description
18-1	40X1756	1	1	Waste toner container
2	40X1755	1	1	Waste container latch spring Also order cable tie parts packet (P/N 40X1648)
3	40X1754	1	1	Waste container latch Also order cable tie parts packet (P/N 40X1648)

**Assembly 19: BOR drive assembly**



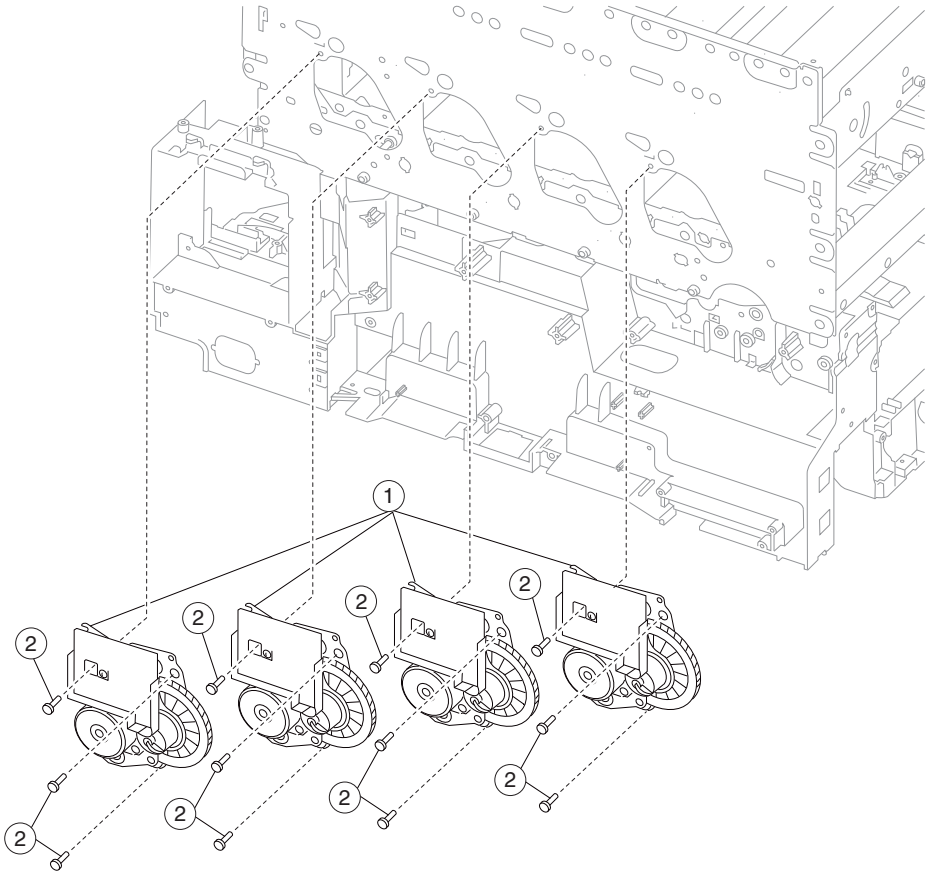
Asm-Index	Part number	Units/mach	Units/FRU	Description
19-1	40X1758	1	1	Lift/BOR assembly

## Assembly 20: Cartridge contact assembly



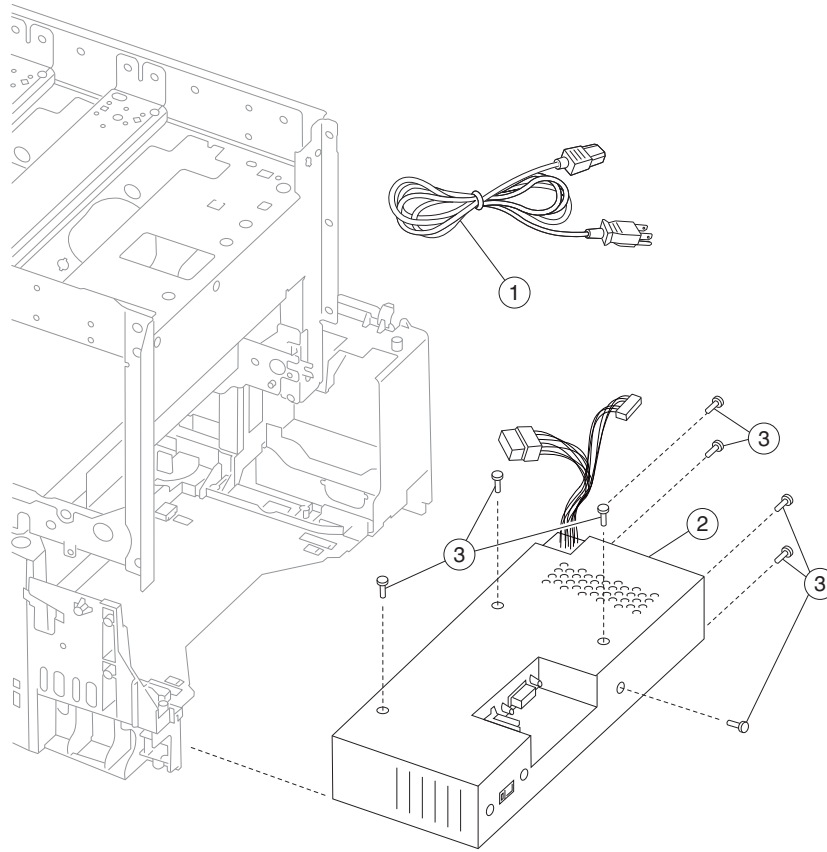
Asm-Index	Part number	Units/mach	Units/FRU	Description
20-1	40X1762	4	1	Cartridge contact assembly, complete Also order cable tie parts packet (P/N 40X1648)
2	40X1636	4	1	Rear hold down spring Also order cable tie parts packet (P/N 40X1648)
3	40X1760	4	1	Rear hold down bellcrank Also order cable tie parts packet (P/N 40X1648)

**Assembly 21: Cartridge drive assembly**



Asm-Index	Part number	Units/mach	Units/FRU	Description
1	40X1824	4	1	Cartridge drive assembly (one drive assembly per package) Also order cable tie parts packet (P/N 40X1648).
2		12	12	Screw type 324, parts packet, 40X1635

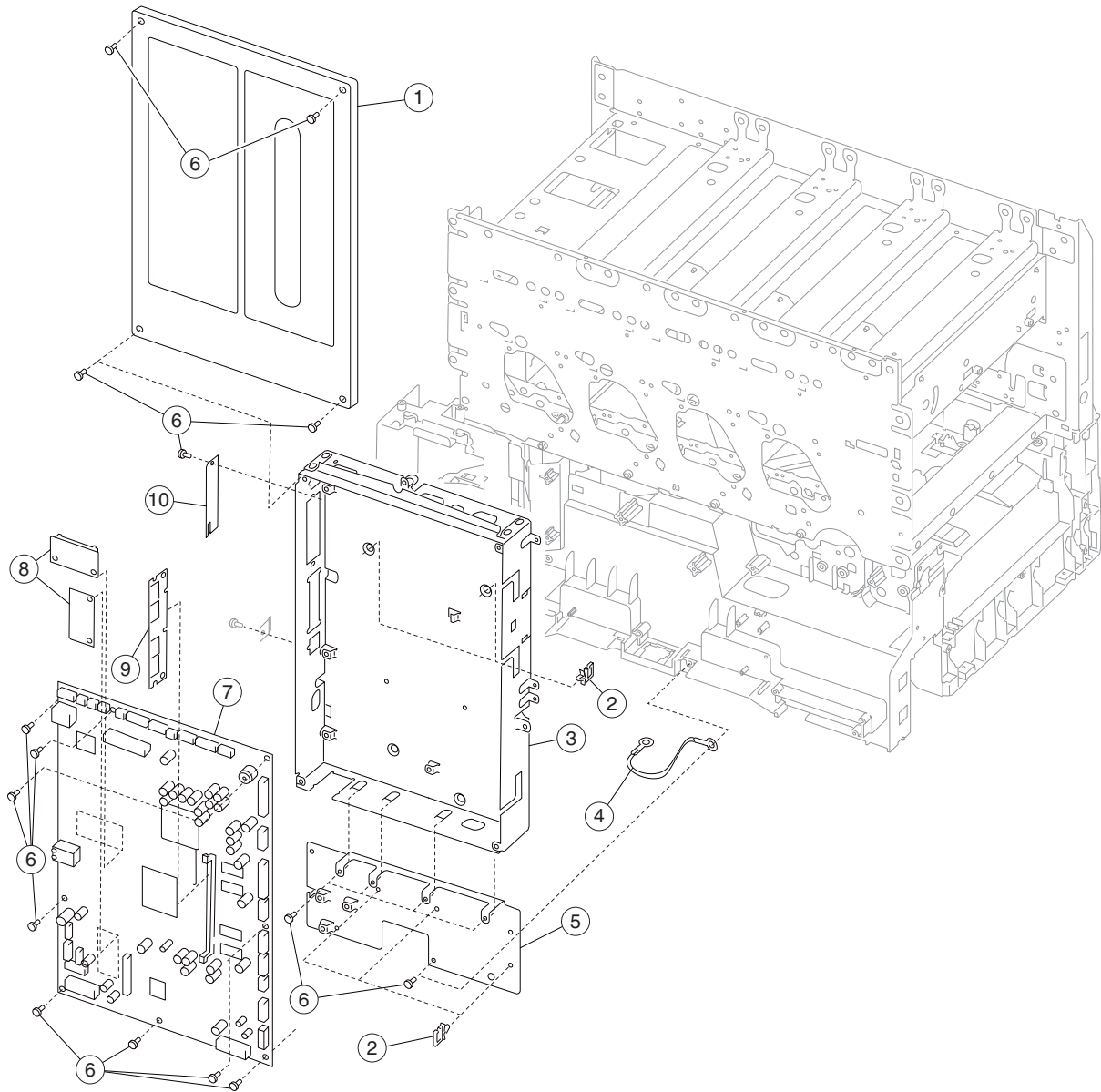
## Assembly 22: Electronics



## Assembly 22: Electronics

Asm-Index	Part number	Units/mach	Units/FRU	Description
22-1	40X0269	1	1	Power cord set, 8 ft (straight)—U.S., Asia Pacific (English), Canada, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Puerto Rico, Saudi Arabia, Taiwan, Venezuela, Virgin Islands
1	40X1767	1	1	Power cord set, 8 ft (straight)—African countries—Bluemark, Austria, Belgium, Bulgaria, Catalan, CIS, Croatia, Finland, France, Germany, Greece, Hungary, Italy, Macedonia, Netherlands, Norway, Paraguay, Poland, Portugal, Romania, Russia, Slovenia, Spain, Sweden, Turkey, Yugoslavia (Serbia and Montenegro)
1	40X0288	1	1	Power cord set, 8 ft (straight)—Argentina
1	40X0301	1	1	Power cord set, 8 ft (straight)—Australia
1	40X1766	1	1	Power cord set, 8 ft (straight)—Bolivia, Peru
1	40X1773	1	1	Power cord set, 8 ft (straight)—Botswana, Lesotho, Namibia, South Africa
1	40X0277	1	1	Power cord set, 8 ft (straight)—Brazil
1	40X0273	1	1	Power cord set, 8 ft (straight)—Chile, Uruguay
1	40X1774	1	1	Power cord set, 8 ft (straight)—Denmark
1	40X0271	1	1	Power cord set, 8 ft (straight)—Ireland, UK
1	40X0275	1	1	Power cord set, 8 ft (straight)—Israel
1	40X0270	1	1	Power cord set, 8 ft (straight)—Japan
1	40X0280	1	1	Power cord set, 6 ft (straight)—Korea
1	40X1792	1	1	Power cord set, 8 ft (straight)—Korea
1	40X0303	1	1	Power cord set, 8 ft (straight)—PRC
1	40X1772	1	1	Power cord set, 8 ft (straight)—Switzerland
1	40X0281	1	1	Power cord set, 6 ft (straight)—Taiwan
1	40X1791	1	1	Power cord set, 8 ft (straight)—Taiwan
2	40X1781	1	1	LVPS assembly
3		8	8	Screw type 121, parts packet, 40X1780

### Assembly 22.1: Electronics

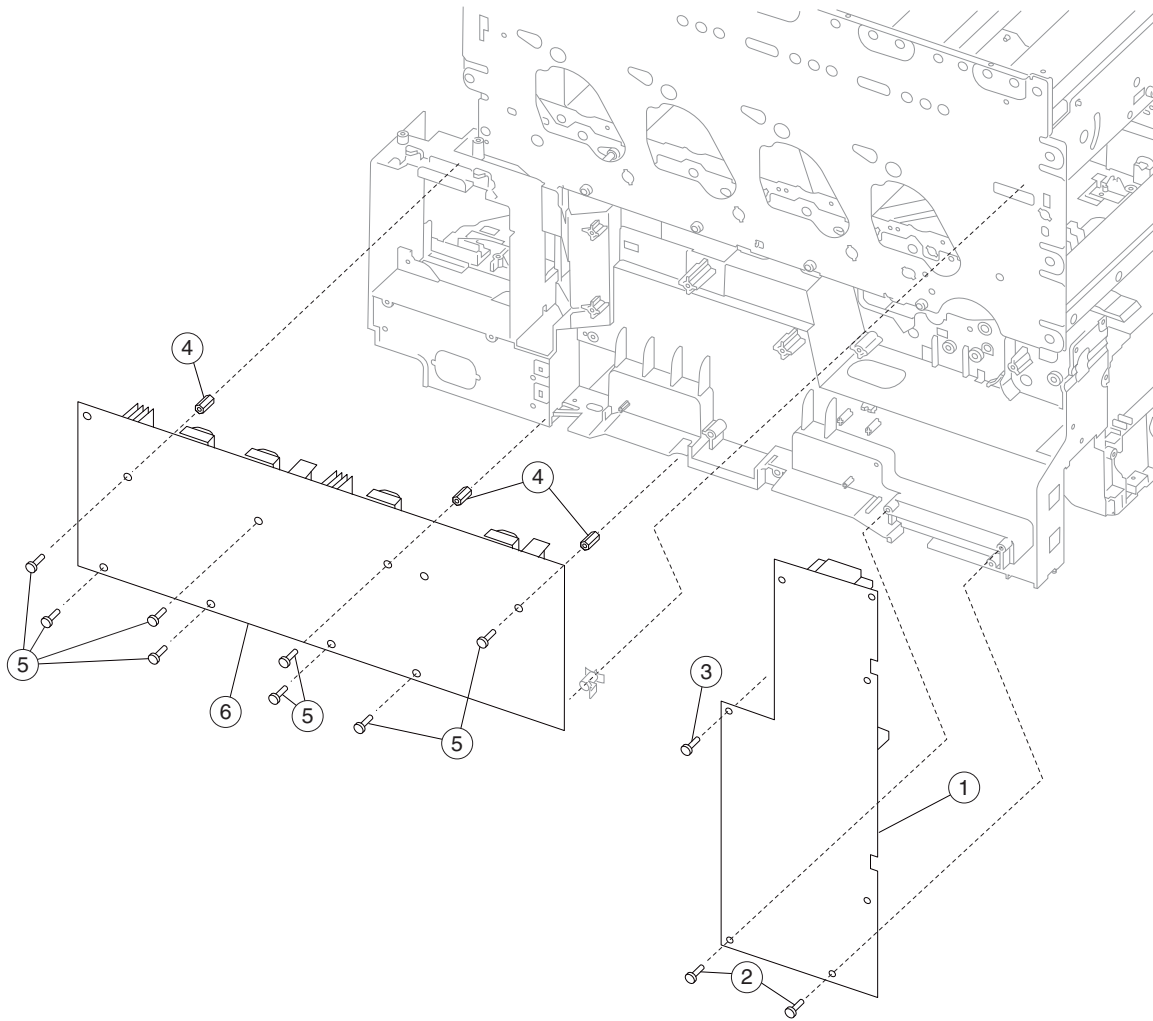




## Assembly 22.1: Electronics

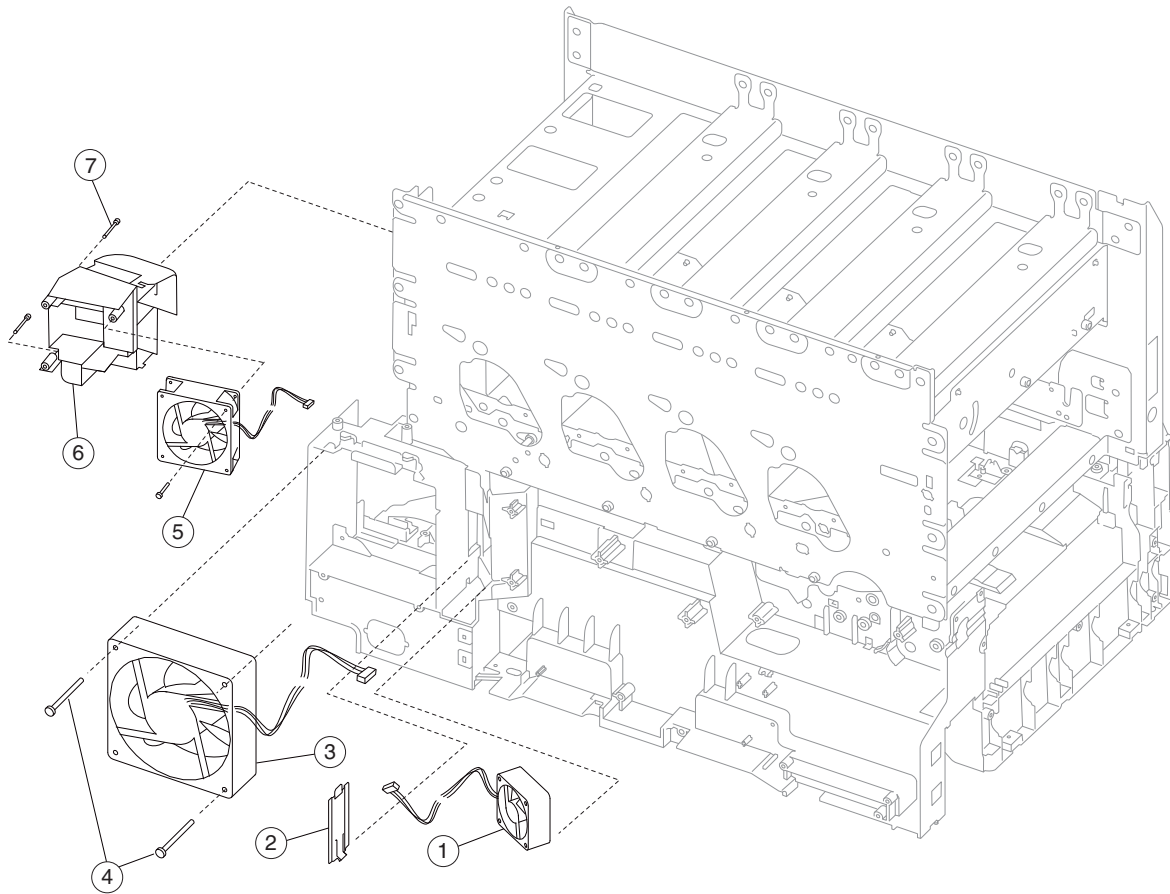
Asm-Index	Part number	Units/mach	Units/FRU	Description
22.1-1	40X1782	1	1	System board outer shield
2	40X1786	5	1	Cable clip
3	40X1783	1	1	System board inner shield assembly Also order cable tie parts packet (P/N 40X1648)
4	40X1785	1	1	Ground cable
5	40X1700	1	1	System board shield support with clips
6		20	20	Screw type 232, parts packet, 40X1676
7	40X1775	1	1	System board, network—1xx/3xx only Also order cable tie parts packet (P/N 40X1648)
7	40X1817	1	1	System board, network—2xx/4xx only Also order cable tie parts packet (P/N 40X1648)
8	40X3521	1	1	Bar code card assembly—1xx/3xx only
8	40X4741	1	1	Bar code card assembly—2xx/4xx only
9	40X1508	1	1	128MB SDRAM card assembly
9	40X1509	1	1	256MB SDRAM card assembly
9	40X1510	1	1	512MB SDRAM card assembly
10	40X1784	1	1	INA blank flat shield, use when options are not installed

## Assembly 22.2: Electronics



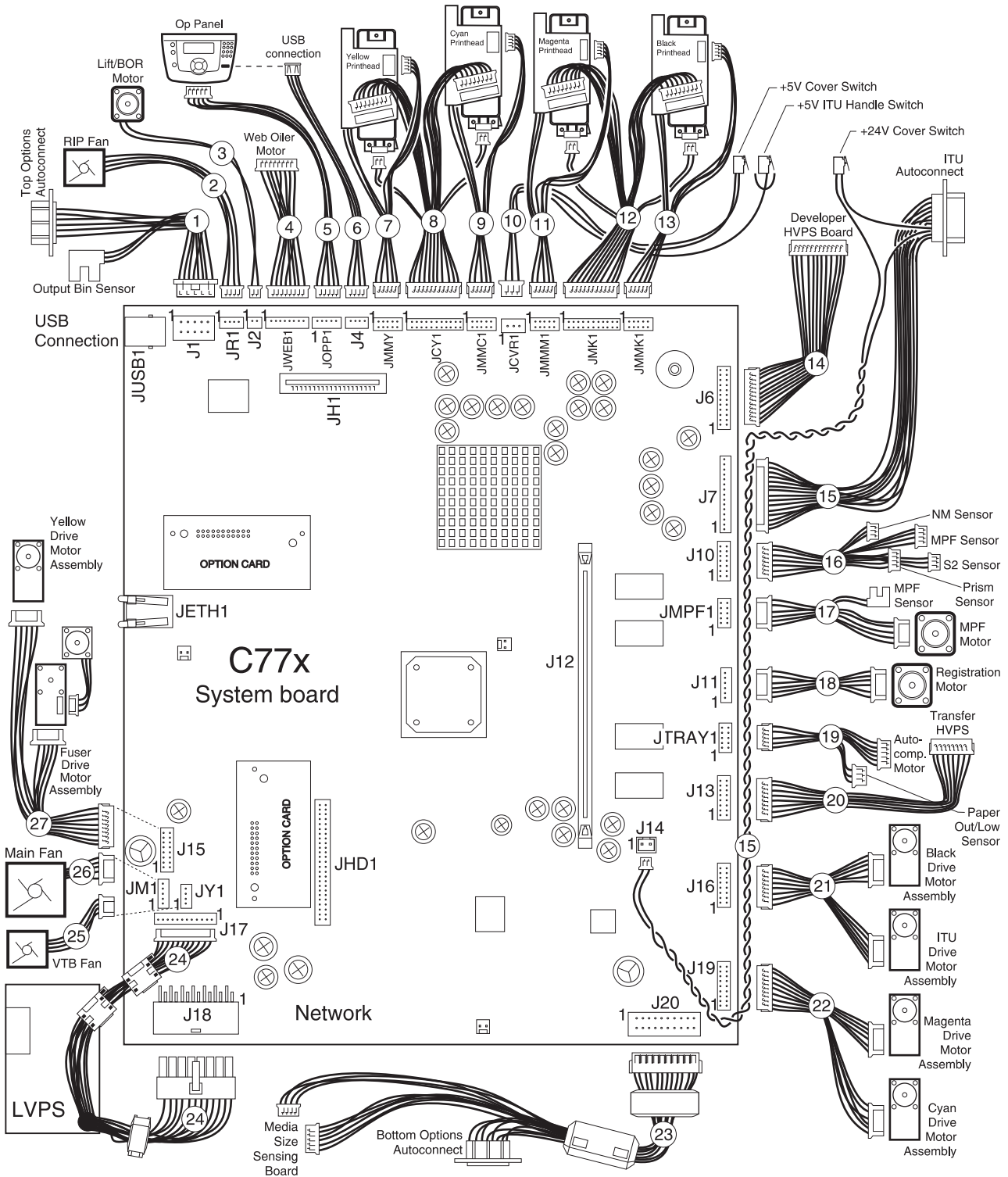
Asm-Index	Part number	Units/mach	Units/FRU	Description
22.2-1	40X1793	1	1	Transfer HVPS board
2		2	2	Screw type 323, parts packet, 40X1633 (TFR HVPS board to frame)
3		1	1	Screw type 324, parts packet, 40X1635 (TFR HVPS board to frame)
4	40X1794	3	3	Standoff, high voltage power supply—developer board
5		8	8	Screw type 121, parts packet, 40X1780
6	40X1795	1	1	Developer HVPS board—1xx/3xx only Also order cable tie parts packet (P/N 40X1648)
6	40X1825	1	1	Developer HVPS board—2xx/4xx only Also order cable tie parts packet (P/N 40X1648)

## Assembly 22.3: Electronics



Asm-Index	Part number	Units/mach	Units/FRU	Description
22.3-1	40X1800	1	1	VTB fan, 60 mm
2	40X1796	1	1	VTB fan gap cover
3	40X1798	1	1	Fuser fan assembly
4		2	2	Screws, parts packet, 40X1797 (fuser fan mounting)
5	40X1799	1	1	RIP fan, 92 mm
6	40X1662	1	1	RIP fan duct
7		2	2	Screw type 324, parts packet, 40X1635

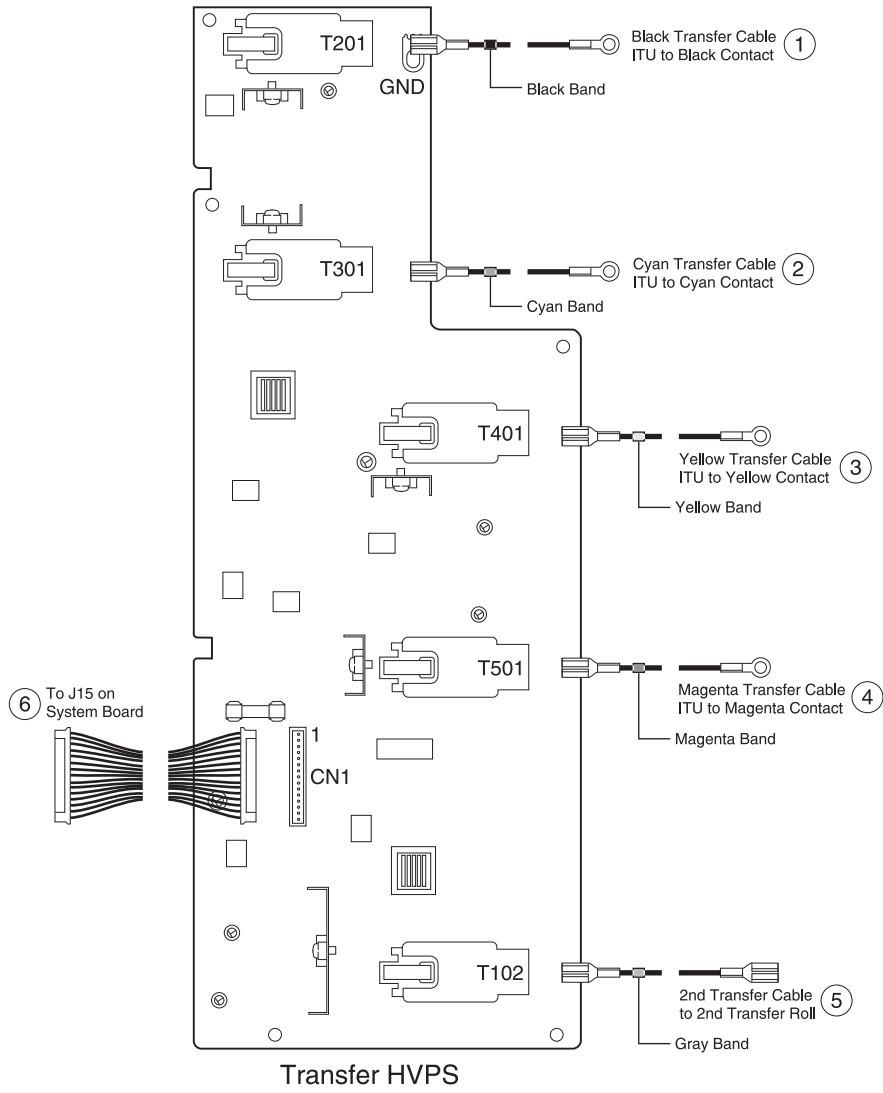
# Assembly 23: Electronics—cabling interconnections 1



## Assembly 23: Electronics—cabling interconnections 1

Asm-Index	Part number	Units/mach	Units/FRU	Description
23-1	40X1637	1	1	Top autoconnect and output bin sensor—1xx/3xx only
1	40X1777	1	1	Top autoconnect and output bin sensor—2xx/4xx
2	40X1799	1	1	RIP fan, 92 mm
3	40X1758	1	1	Lift/BOR assembly
4	40X1807	1	1	Oiler motor driver cable
5	40X1801	1	1	Operator panel cable
6	40X1769	1	1	Operator panel USB cable
7	40X1828	1	1	Printhead assembly—yellow mirror motor (attached to yellow printhead)
8	40X1806	1	1	Laser cable—cyan/yellow
9	40X1828	1	1	Printhead assembly—cyan mirror motor (attached to cyan printhead)
10	40X1740	1	1	Printhead interlock cable assembly
11	40X1828	1	1	Printhead assembly—magenta mirror motor (attached to magenta printhead)
12	40X1805	1	1	Laser cable—black/magenta
13	40X1828	1	1	Printhead assembly—black mirror motor (attached to black printhead)
14	40X1810	1	1	HVPS control cable—developer
15	40X1739	1	1	ITU light shield assembly
16	40X1692	1	1	S2/XPAR/NMS/MPF cable assembly (with sensors)
17	40X1854	1	1	MPF motor/sensor cable
18	40X1702	1	1	Registration motor assembly kit
19	40X1733	1	1	Pick motor extension and paper level sensing cable
20	40X1809	1	1	HVPS control cable—transfer
21	40X1804	1	1	ITU and black cartridge motor cable
22	40X1803	1	1	Cyan and magenta cartridge motor cable
23	40X1811	1	1	Options bottom/media size sensing cable assembly
24	40X1781	1	1	LVPS assembly
25	40X1800	1	1	VTB fan, 60 mm
26	40X1798	1	1	Fuser fan assembly
27	40X1802	1	1	Fuser and yellow cartridge motor cable

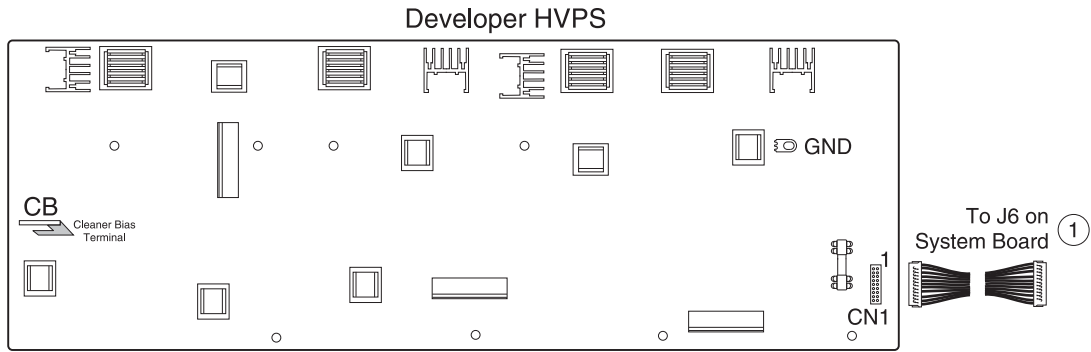
## Assembly 24: Electronics—cabling interconnections 2



**Assembly 24: Electronics—cabling interconnections 2**

<b>Asm-Index</b>	<b>Part number</b>	<b>Units/mach</b>	<b>Units/FRU</b>	<b>Description</b>
24-1	40X1753	1	1	Black terminal contact assembly
2	40X1759	1	1	Cyan terminal contact assembly
3	40X1761	1	1	Yellow terminal contact assembly
4	40X1757	1	1	Magenta terminal contact assembly
5	40X1812	1	1	Second transfer voltage cable assembly
6	40X1809	1	1	HVPS control cable—transfer

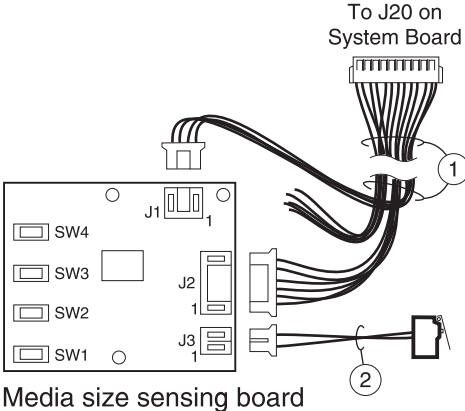
### Assembly 25: Electronics—cabling interconnections 3



Asm-Index	Part number	Units/mach	Units/FRU	Description
25-1	40X1810	1	1	HVPS control cable—developer
2	40X1762	4	1	Cartridge contact assembly, complete

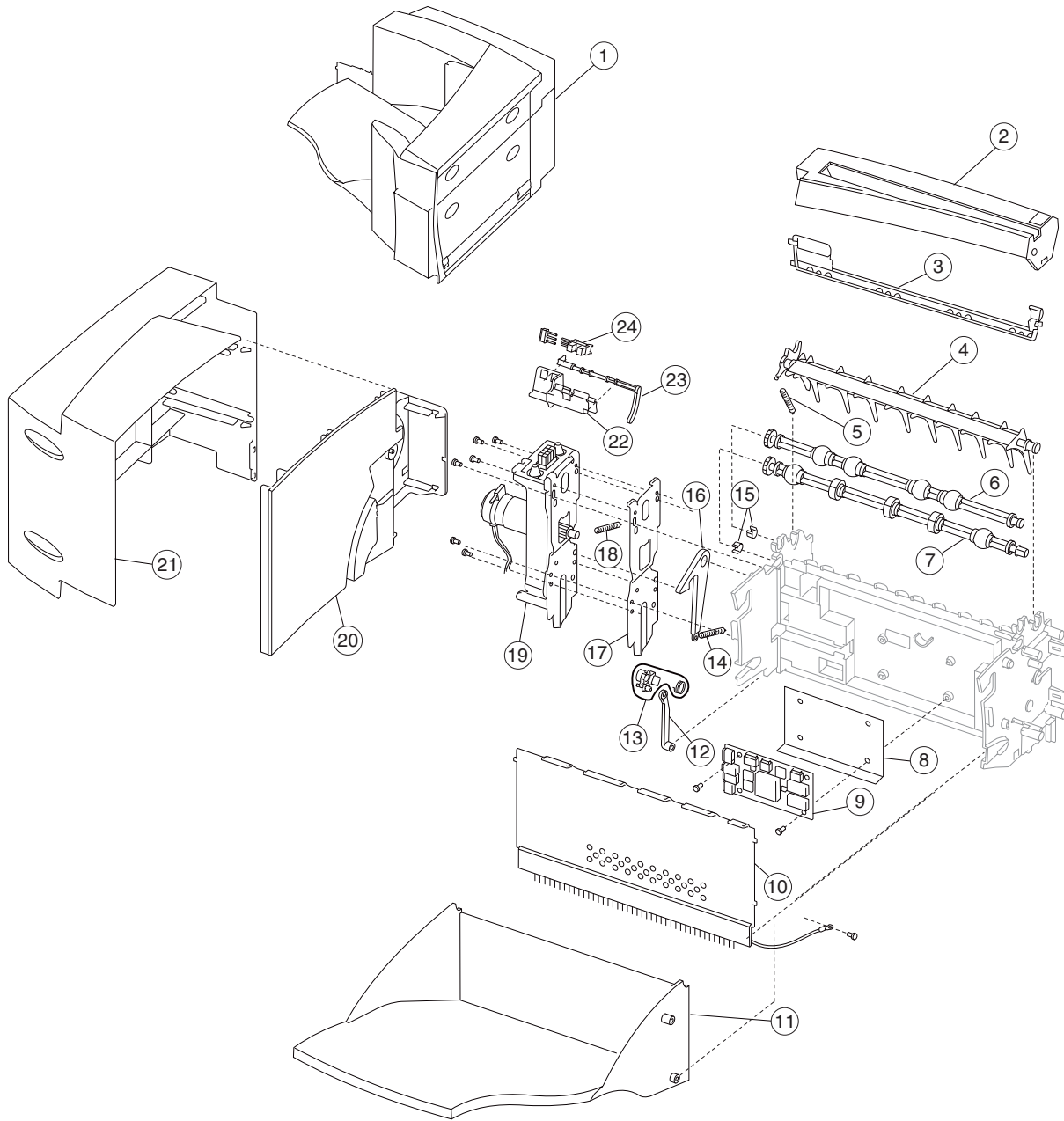


### Assembly 26: Electronics—cabling interconnections 4



Asm-Index	Part number	Units/mach	Units/FRU	Description
26-1	40X1811	1	1	Options bottom/media size sensing cable assembly
2	40X1823	1	1	ITU drive assembly

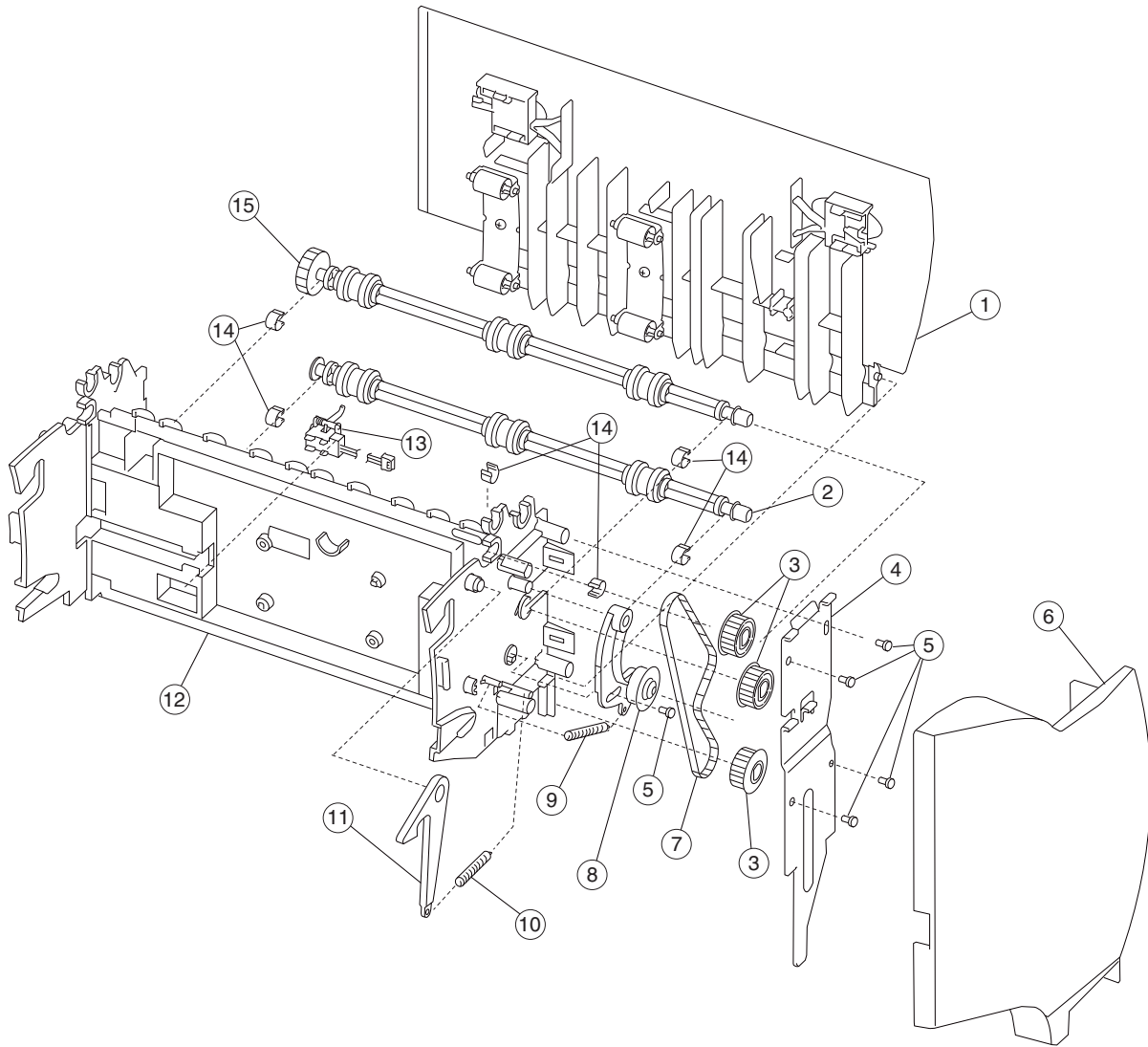
### Assembly 27: Output expander



## Assembly 27: Output expander

Asm-Index	Part number	Units/option	Units/FRU	Description
27-1	40X1980	1	1	Output expander, complete
2	40X1996	1	1	Right cover
3	40X1997	1	1	ESD brush cover
4	40X1988	1	1	Deflector gate (also order 40X2000) Also called upper redrive deflector.
5	40X2000	1	1	Upper diverter spring
6	40X2007	1	1	Exit shaft assembly, also order parts packet 40X2011
7	40X1999	1	1	Lower exit shaft assembly, also order parts packet 40X2011
8	40X1982	1	1	Output option card shield
9	40X2013	1	1	Output expander DC motor board
10	40X1984	1	1	Front control board cover
11	40X1992	1	1	Output expander tray
12	40X2014	1	1	Diverter arm
13	40X1978	1	1	Spring clutch assembly
14	40X2010	1	1	Output tray spring
15		2	1	Shaft bearing, parts packet, 40X2011
16	40X1991	1	1	Output tray latch
17	40X1981	2	1	Front attach bracket
18	40X2009	2	1	Swing arm spring
19	40X1995	1	1	Output expander assembly, mechanical linkage
20	40X1987	1	1	Rear support cover
21	40X1986	1	1	Rear cover
22	40X1989	1	1	Level sensor bracket
23	40X1990	1	1	Output paper level flag
24	40X3265	1	1	Dual bin full sensor

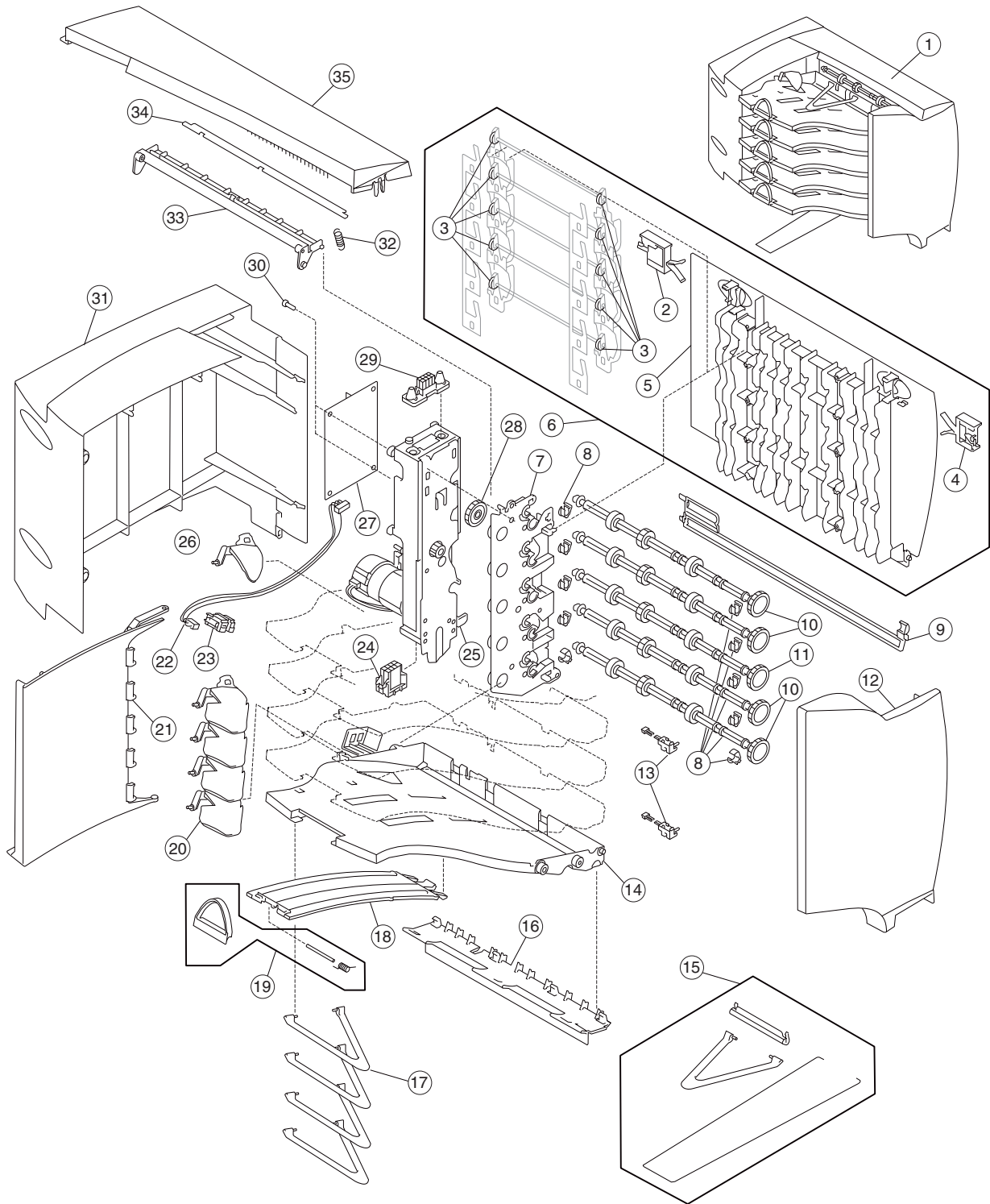
### Assembly 27.1: Output expander



## Assembly 27.1: Output expander

Asm-Index	Part number	Units/option	Units/FRU	Description
27.1-1	40X1994	1	1	Right jam access door assembly
2	40X2006	1	1	Lower shaft assembly, also order parts packet 40X2011
3	40X2004	3	1	Drive pulley
4	40X1983	2	1	Rear attach bracket
5		4	4	Screw, parts packet, 40X1813
6	40X1985	1	1	Front cover
7	40X2002	1	1	160-gear belt
8	40X2003	1	1	Belt idler arm assembly
9	40X2005	1	1	Belt tensioner spring
10	40X2010	1	1	Output tray spring
11	40X1991	1	1	Output tray latch
12	40X2015	1	1	Frame assembly
13	40X3264	1	1	Output expander pass thru sensor
14		6	1	Shaft bearing, parts packet, 40X2011
15	40X2012	1	1	Shaft assembly, middle 40T, also order parts packet 40X2011
NS	40X1998	1	1	Multi-bin stacker kit

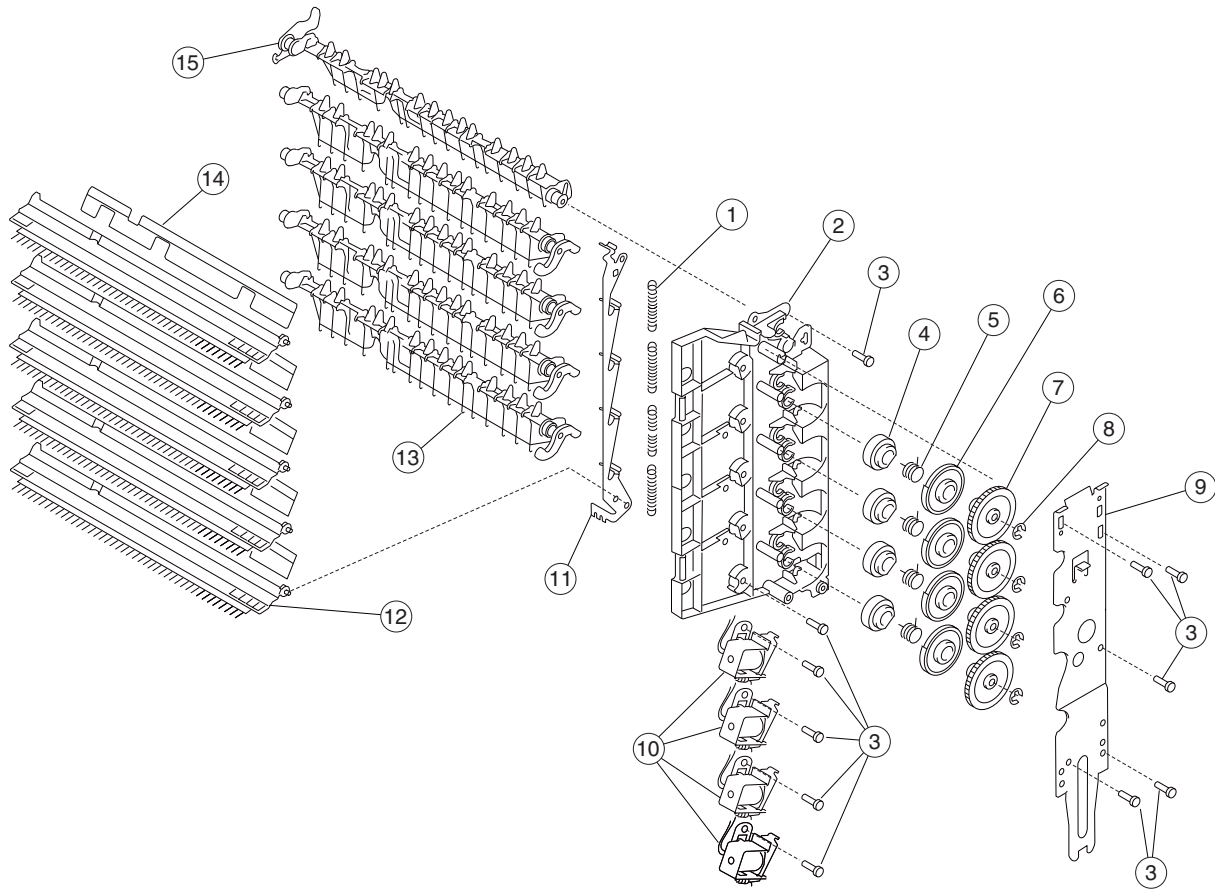
### Assembly 28: 5-Bin mailbox



## Assembly 28: 5-Bin mailbox

Asm-Index	Part number	Units/ option	Units/ FRU	Description
28-1	40X2020	1	1	5-Bin mailbox, complete
2	40X2157	1	1	Access door rear latch
3	40X2049	10	1	Rear access door roller assembly
4	40X2024	1	1	Access door front latch
5	40X2032	1	1	Front door cover
6	40X4268	1	1	Front door assembly
7	40X2044	1	1	Left frame assembly w/clutch assembly
8	40X2056	1	1	Drive shaft bushing packet
9	40X2033	1	1	Right cover
10	40X2054	4	1	Drive shaft assembly
11	40X2055	1	1	Drive with gear shaft assembly
12	40X2029	1	1	Front cover
13	40X3242	5	1	5-bin mailbox pass thru sensor
14	40X2028	5	1	Paper cap tray
15	40X2043	1	1	5-bin mailbox assembly kit
16	40X2027	1	1	Bail attach bracket assembly
17		1	1	Bail, order P/N 40X2043, 5-bin mailbox assembly kit
18	40X2035	5	1	Paper tray support
19	40X2042	5	1	Paper tray stop assembly
20	40X2038	4	1	Bin full flag
21	40X2030	1	1	Rear structural cover
22	40X2023	5	1	Tray media level sensor cable
23	40X3240	5	1	Dual bin level sensor
24	40X2052	1	1	Lower autoconnect cable assembly
25	40X2050	1	1	Main DC drive assembly
26	40X2026	1	1	Bin full flag
27	40X2064	1	1	5-bin mailbox system board assembly
28	40X2067	1	1	Drive gear
29	40X2053	1	1	Upper autoconnect cable assembly
30		12	12	Screw, parts packet, 40X2046 (board mounting)
31	40X2031	1	1	Rear assembly cover
32	40X2000	1	1	Upper diverter spring
33	40X2025	1	1	Top bin cover
34	40X2040	1	1	Wire cover
35	40X1638	1	1	Redrive cap cover assembly

### Assembly 28.1: 5-Bin mailbox

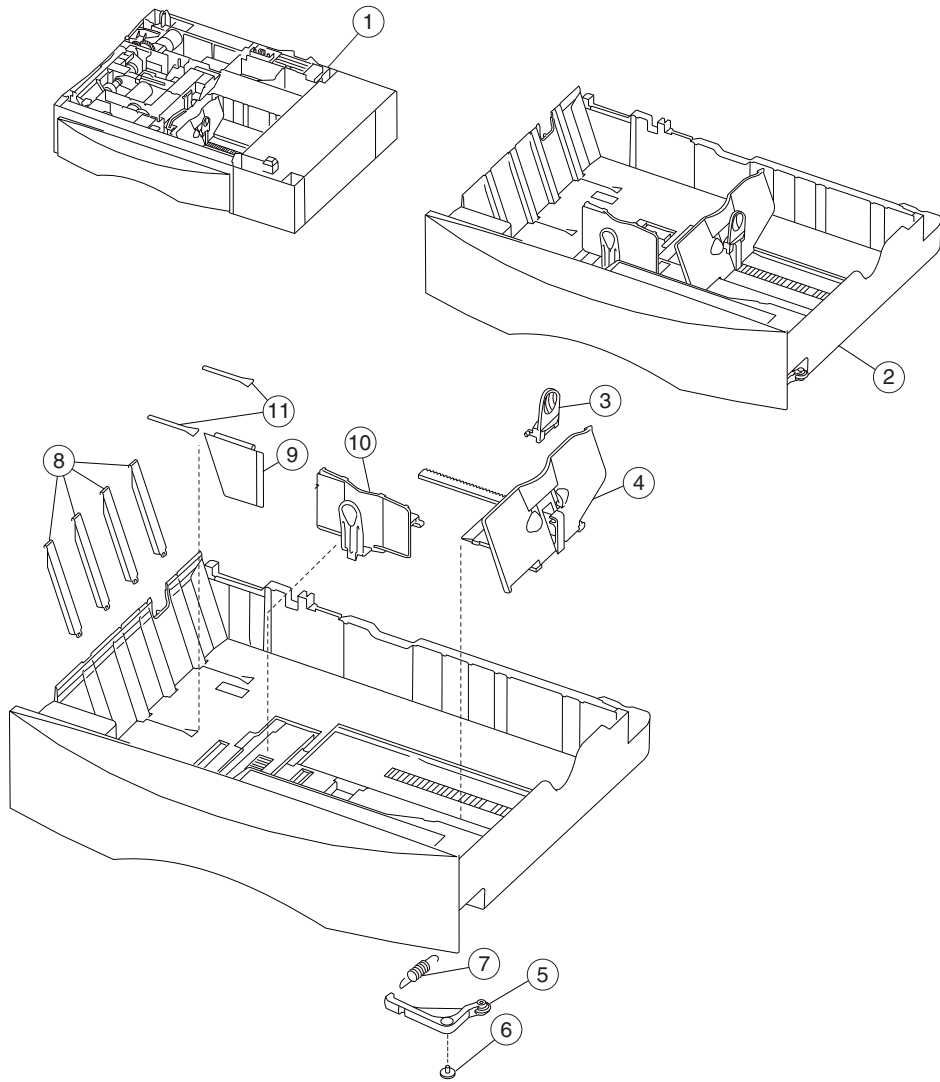




## Assembly 28.1: 5-Bin mailbox

Asm-Index	Part number	Units/option	Units/FRU	Description
28.1-1	40X2065	4	1	Diverter spring
2	40X2039	1	1	Right side frame assembly
3		12	12	Screw type 323, parts packet, 40X1633
4	40X2057	4	1	Diverter actuator cam
5	40X2060	4	1	Diverter actuator spring
6	40X2058	4	1	Diverter actuator latch
7	40X2059	4	1	Diverter actuator arbor
8	40X2069	4	1	C-clip retainer
9	40X2021	1	1	Attach front bracket
10	40X2061	4	1	Diverter solenoid
11	40X2022	1	1	Static ground contact
12	40X2041	5	1	Paper exit deflector w/brush
13	40X2037	4	1	Paper deflector
14	40X2068	4	1	Deflector
15	40X2036	1	1	Paper top bin deflector
NS	40X1968	1	1	Drive gear
NS	40X2047	10	1	Roller retainer

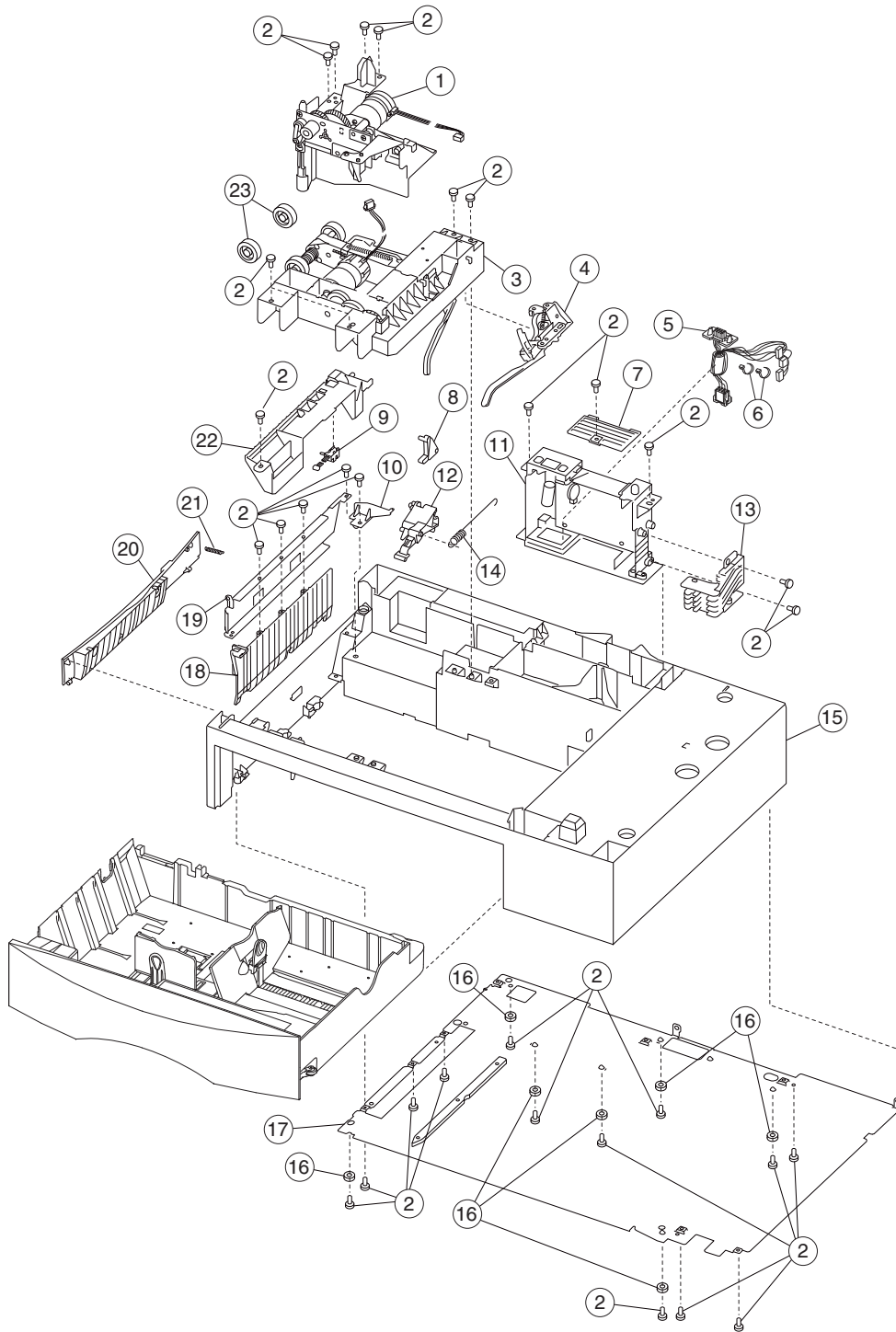
### Assembly 29: 500-Sheet drawer option



## Assembly 29: 500-Sheet drawer option

Asm-Index	Part number	Units/option	Units/FRU	Description
29-1	40X1880	1	1	500-Sheet drawer option, complete
2	40X1728	1	1	500-Sheet tray assembly
3	40X1720	1	1	Back restraint latch
4	40X1719	1	1	Back restraint
5	40X1723	1	1	Tray bias bellcrank assembly
6		1	1	Screw type 312/322/412/423, parts packet, 40X1691
7	40X1725	1	1	Tray bias spring
8	40X1722	4	1	Wear strip
9	40X1721	1	1	Tray wear clip
10	40X1885	1	1	Tray wear clip
11	40X1727	2	2	Restraint pad

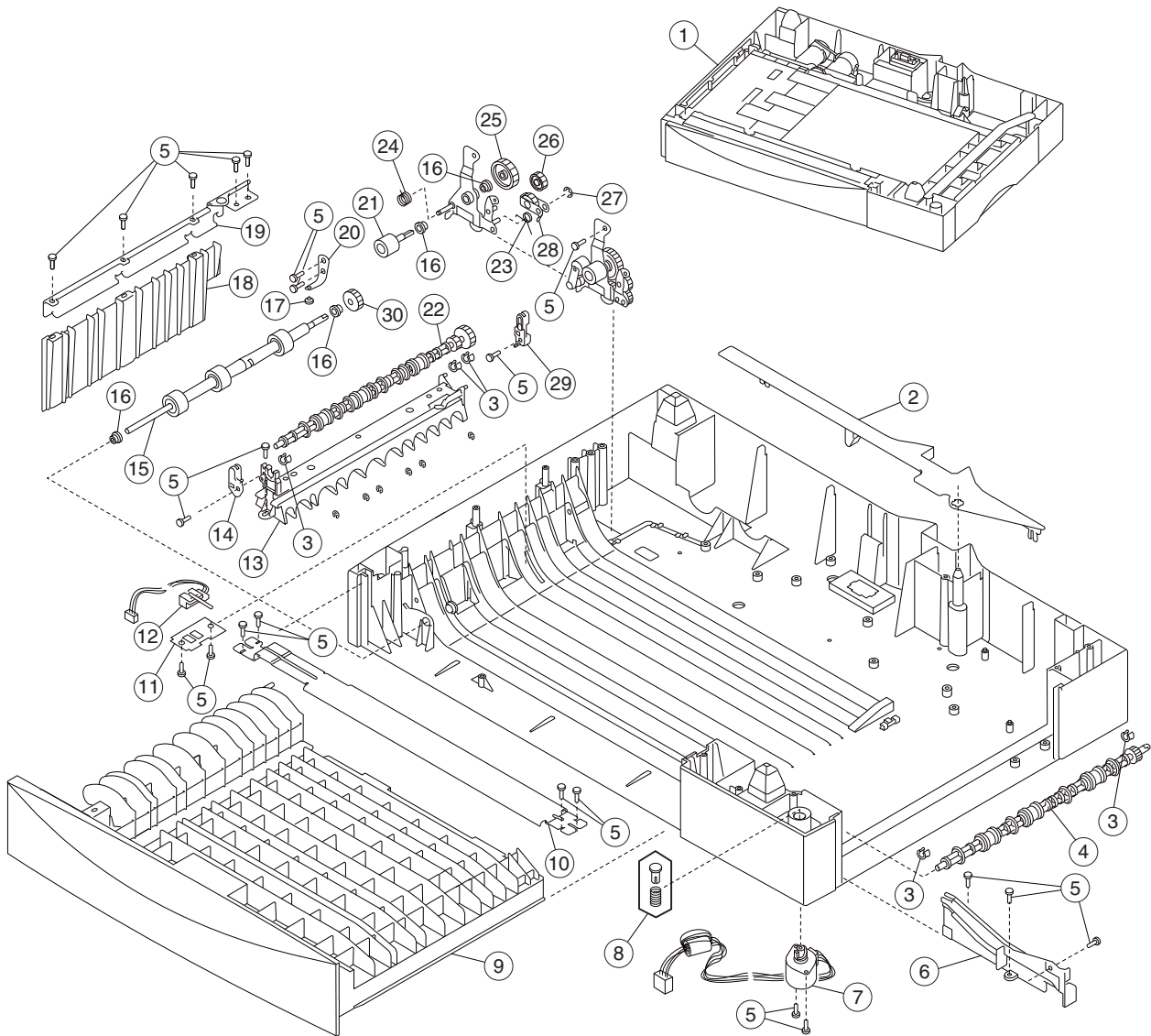
### Assembly 29.1: 500-Sheet drawer option



## Assembly 29.1: 500-Sheet drawer option

Asm-Index	Part number	Units/ option	Units/ FRU	Description
29.1-1	40X1901	1	1	Drive assembly, 500 option 2
2		31	31	Screw type 323, parts packet, 40X1633
3	40X1910	1	1	500-Sheet option tray pick assembly
4	40X1898	1	1	Paper level sensing assembly
5	40X1938	1	1	Autoconnect cable assembly
6	40X1648	1	6	Cable tie (6 in a pack) <b>Note:</b> To secure cables to the inner system board shield)
7	40X1908	1	1	Frame cover
8	40X1730	1	1	Tray interlock bellcrank
9	40X1891	1	1	Pass thru sensor
10	40X1896	1	1	Hinge
11	40X1894	1	1	Electronics/size sensing assembly with system board
12	40X1741	1	1	Pick arm lift bellcrank
13	40X1899	1	1	Media size sensing assembly
14	40X1734	1	1	Bellcrank lift spring
15	40X1907	1	1	500-Sheet base assembly
16	40X1601	7	1	Machine pad
17	40X1903	1	1	Plate, 500-Sheet support assembly
18	40X1909	1	1	Paper guide
19	40X1897	1	1	Wall support plate
20	40X1911	1	1	Base door assembly
21	40X1895	1	1	500-sheet option spring
22	40X1913	1	1	500-Sheet option deflector
23	40X1765	2	2	Pick roll tires (2 per pack)
NS	40X1671	4	6	Cable tie (6 in pack)

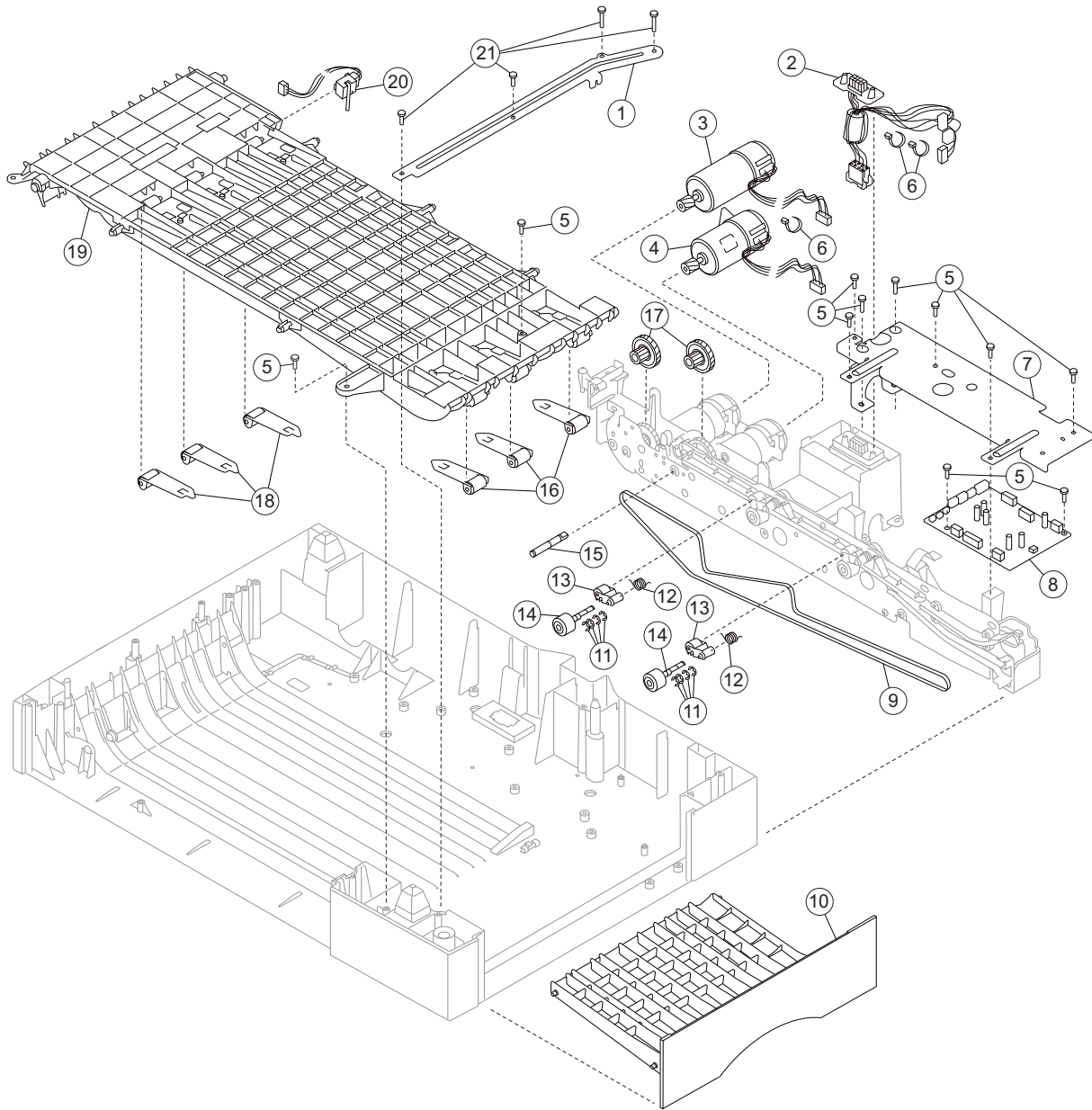
### Assembly 30: Duplex option



## Assembly 30: Duplex option

Asm-Index	Part number	Units/ option	Units/ FRU	Description
30-1	40X1920	1	1	Duplex option, complete
2	40X1961	1	1	Back cover
3	40X1965	5	1	Redrive bearing
4	40X1930	1	1	Duplex entry shaft assembly
5		20	20	Screw type 312/322/412/423, parts packet, 40X1691
6	40X1923	1	1	Right side front tray guide
7	40X1956	1	1	Deflector actuator assembly
8	40X1957	1	1	Deflector follower assembly
9	40X1959	1	1	Duplex front jam tray assembly
10	40X1935	1	1	Duplex support bracket
11	40X1964	1	1	Sensor mount plate
12	40X1927	1	1	Duplex exit sensor
13	40X1924	1	1	Duplex shaft mount
14	40X1954	1	1	Front decurl assembly
15	40X1979	1	1	F/R backup shaft assembly
16	40X1951	1	1	5 mm bushing
17	40X1948	1	1	Brake pad
18	40X1963	1	1	Duplex paper guide
19	40X1933	1	1	Wall support
20	40X1950	1	1	Brake spring
21	40X1947	1	1	Pass thru shaft assembly
22	40X1926	1	1	Duplex shaft assembly
23	40X1944	1	1	Pass thru spring
24	40X1814	1	1	Aligner arm spring
25	40X1942	1	1	Spur drive gear
26	40X1943	2	1	26T duplex gear
27			1	Retainer, parts packet, 40X1966
28	40X1946	1	1	Bellcrank assembly
29	40X1949	1	1	Decurl BAC assembly
30	40X1929	1	1	40T shaft drive F/R gear
NS	40X1955	1	1	Pulley washer

### Assembly 30.1: Duplex option

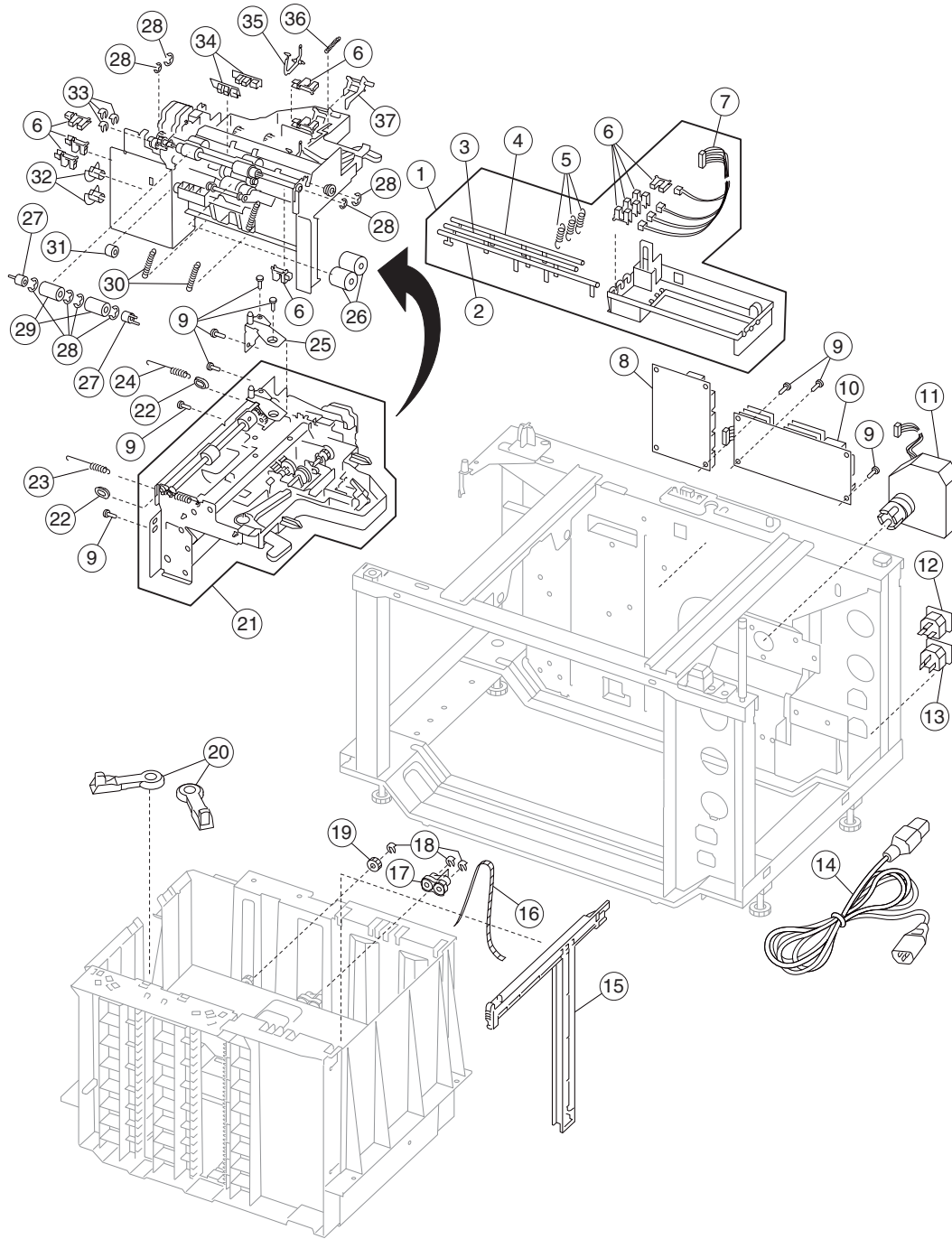




## Assembly 30.1: Duplex option

Asm-Index	Part number	Units/option	Units/FRU	Description
30.1-1	40X1934	1	1	Duplex support plate
2	40X1938	1	1	Autoconnect cable assembly
3	40X1939	1	1	DC forward/reverse motor assembly
4	40X1940	1	1	DC duplex feed motor
5		1	1	Screw type 323, parts packet, 40X1633
6	40X1648	6	6	Cable tie (6 in pack)
7	40X1937	1	1	Back support
8	40X1922	1	1	Duplex card assembly
9	40X1958	1	1	Transfer belt
10	40X1960	1	1	Right jam clearance tray assembly
11	40X1969	1	1	C-clip retainer
12	40X1953	2	1	Aligner spring
13	40X1967	2	1	Paper guide assembly
14	40X1941	2	1	Drive alignment shaft assembly
15	40X1952	1	1	Reduction gear shaft
16	40X1931	3	3	Right backup spring assembly
17	40X1968	2	1	Drive gear
18	40X1932	3	3	Left backup spring assembly
19	40X1962	1	1	Upper rib assembly
20	40X1925	1	1	Duplex input sensor
21		4	4	Screw type 324, parts packet 440X1635

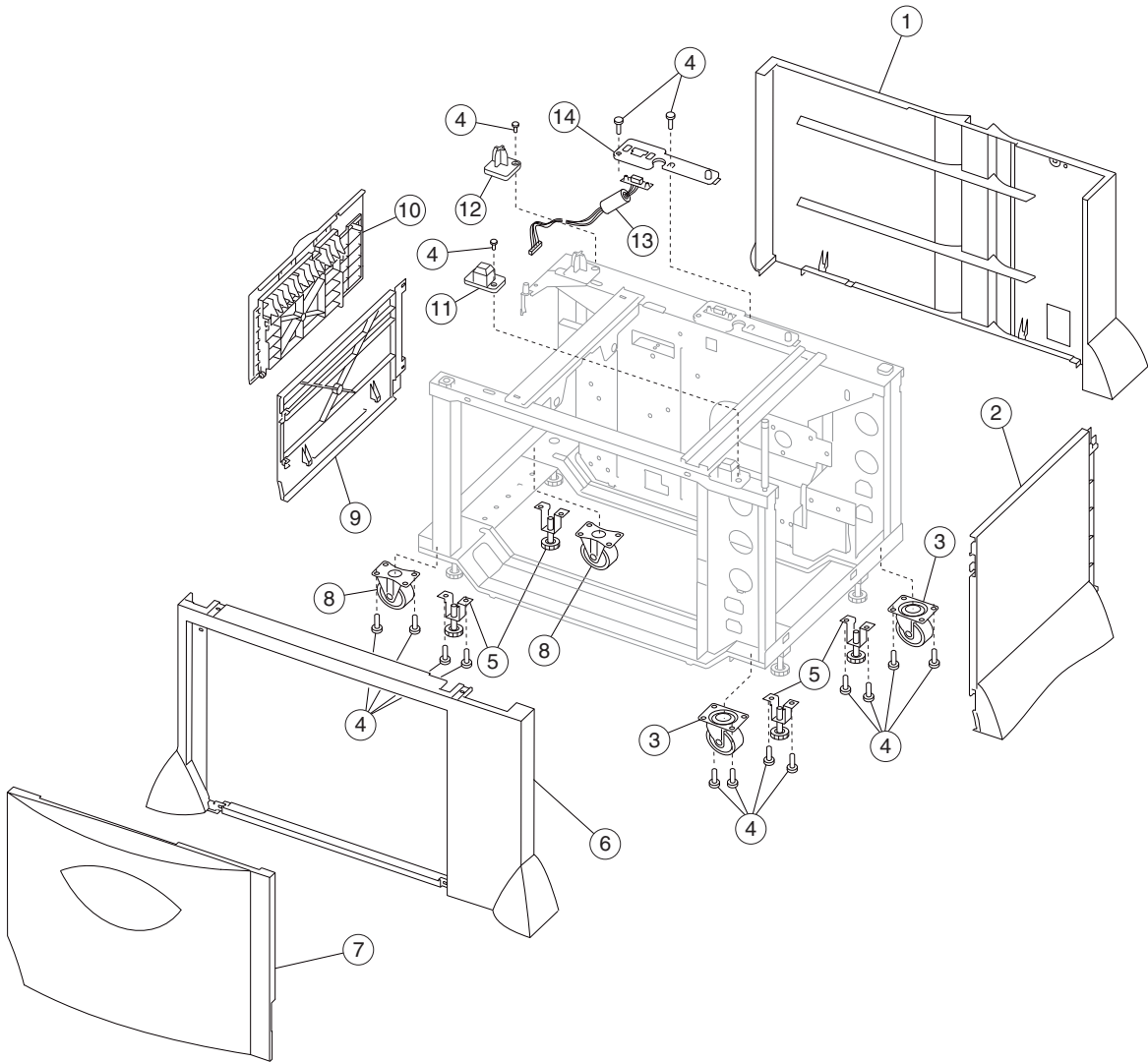
### Assembly 31: High-capacity input tray (HCIT)



## Assembly 31: HCIT

Asm-Index	Part number	Units/option	Units/FRU	Description
31-1	40X2137	1	1	Paper size sensor box assembly
2	40X2111	1	1	Flag, paper size F
3	40X2112	1	1	Flag, paper size C
4	40X2110	1	1	Flag, paper size R
5	40X2113	3	1	Spring, paper size flag
6	40X2108	10	1	Sensor, photo interrupter
7	40X2103	1	1	Paper size sensors cable
8	40X2095	1	1	System control board
9				Screw type 312/322/412/423, parts packet, 40X1691
10	40X2096	1	1	LVPS
11	40X2105	1	1	Elevator motor assembly
12	40X2097	1	1	AC power outlet
13	40X2098	1	1	AC power inlet
14	40X2091	1	1	AC power cord jumper
15	40X2115	1	1	Paper tray guide
16	40X2134	1	1	Elevator lift belt
17	40X2136	1	1	Elevator lift
18	40X2139	3	1	Ring 7, elevator lift gear/elevator lift
19	40X2135	1	1	Elevator lift gear
20	40X2114	2	1	Paper tray arms
21	40X2116	1	1	Feed unit, complete assembly
22	40X2118	2	1	Bushing
23	40X2124	1	1	Front feed unit spring
24	40X2125	1	1	Rear feed unit spring
25	40X2138	1	1	Feed cover
26	40X2131	2	1	Separation/torque roller
27	40X2120	2	1	Feed cam
28				E-clips, parts packet, 40X2122
29	40X2119	2	2	Feed roller
30	40X2121	2	1	Feed unit spring
31	40X2123	1	1	060 bushing
32	40X2133	2	1	Emitter timing wheel
33	40X2126	2	2	Plastic 5W clip
34	40X2117	2	1	Special optical sensors
35	40X2127	1	1	Level sensor flag
36	40X2129	1	1	Extension spring
37	40X2128	1	1	Near empty sensor flag
NS	40X2090	1	1	HCIT option

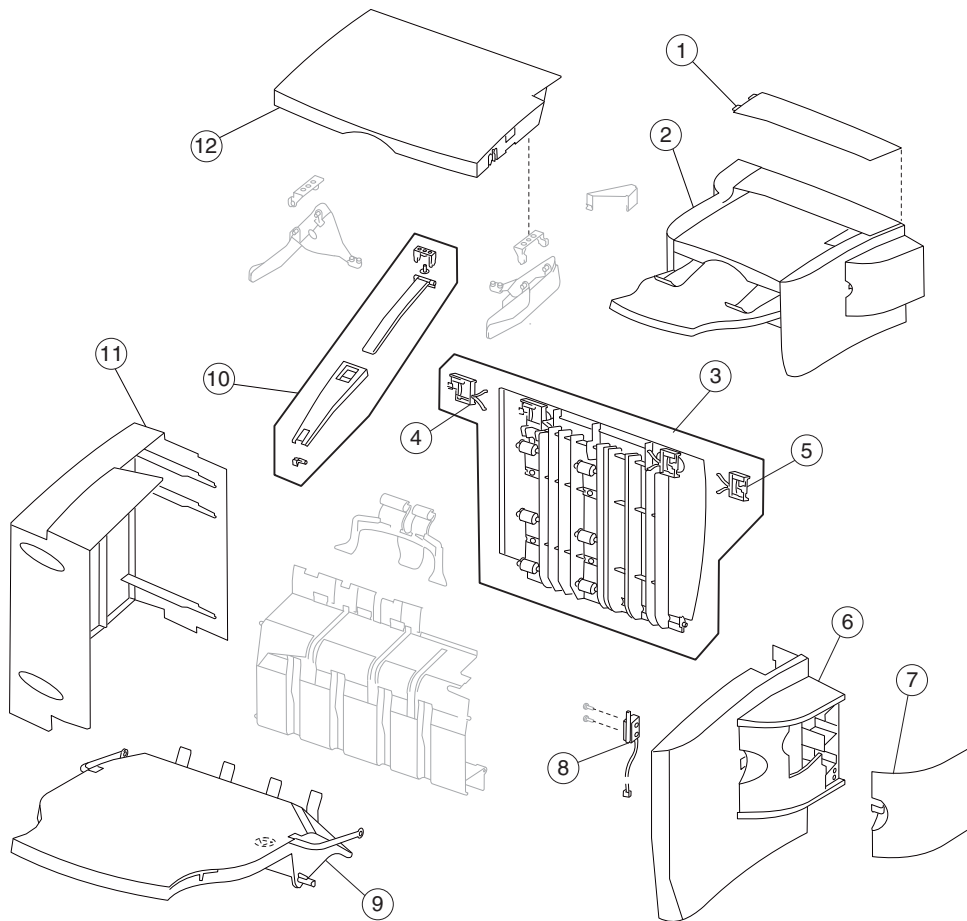
### Assembly 31.1: High-capacity input tray (HCIT)



## Assembly 31.1: HCIT

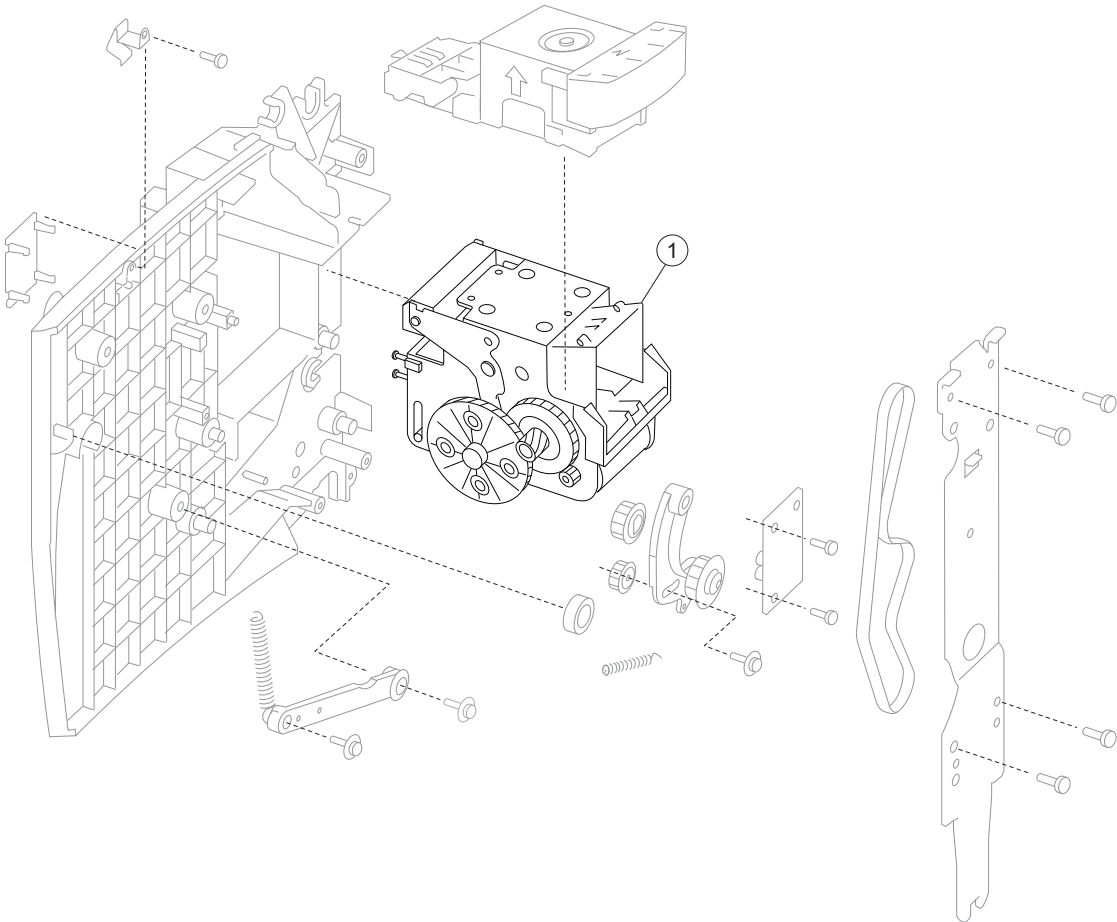
Asm-Index	Part number	Units/ option	Units/ FRU	Description
31.1-1	40X2145	1	1	Rear cover
2	40X2143	1	1	Right side cover
3	40X2092	2	1	Caster, movable
4		16	16	Screw type 312/322/412/423, parts packet, 40X1691
5	40X2094	4	1	F adjuster
6	40X2141	1	1	Front cover
7	40X2142	1	1	Cover, main CA
8	40X2093	2	1	Caster, fixed
9	40X2144	1	1	Left side cover
10	40X2146	1	1	Upper left side jam cover
11	40X2100	1	1	Locating pin, options front right
12	40X2099	1	1	Locating pin, options rear left
13	40X2106	1	1	Options autoconnect cable assembly
14	40X2109	1	1	Options cable mounting plate
NS	40X2101	1	1	Feed unit special sensors cable
NS	40X2102	1	1	Feed unit sensors cable
NS	40X2104	1	1	Elevator motor cable
NS	40X2107	1	1	Magnetic latch
NS	40X2130	1	1	Tray present lever
NS	40X2132	9	1	Cable clamp
NS	40X2140	1	1	Stabilizer kit with mounting screws

## Assembly 32: StapleSmart finish



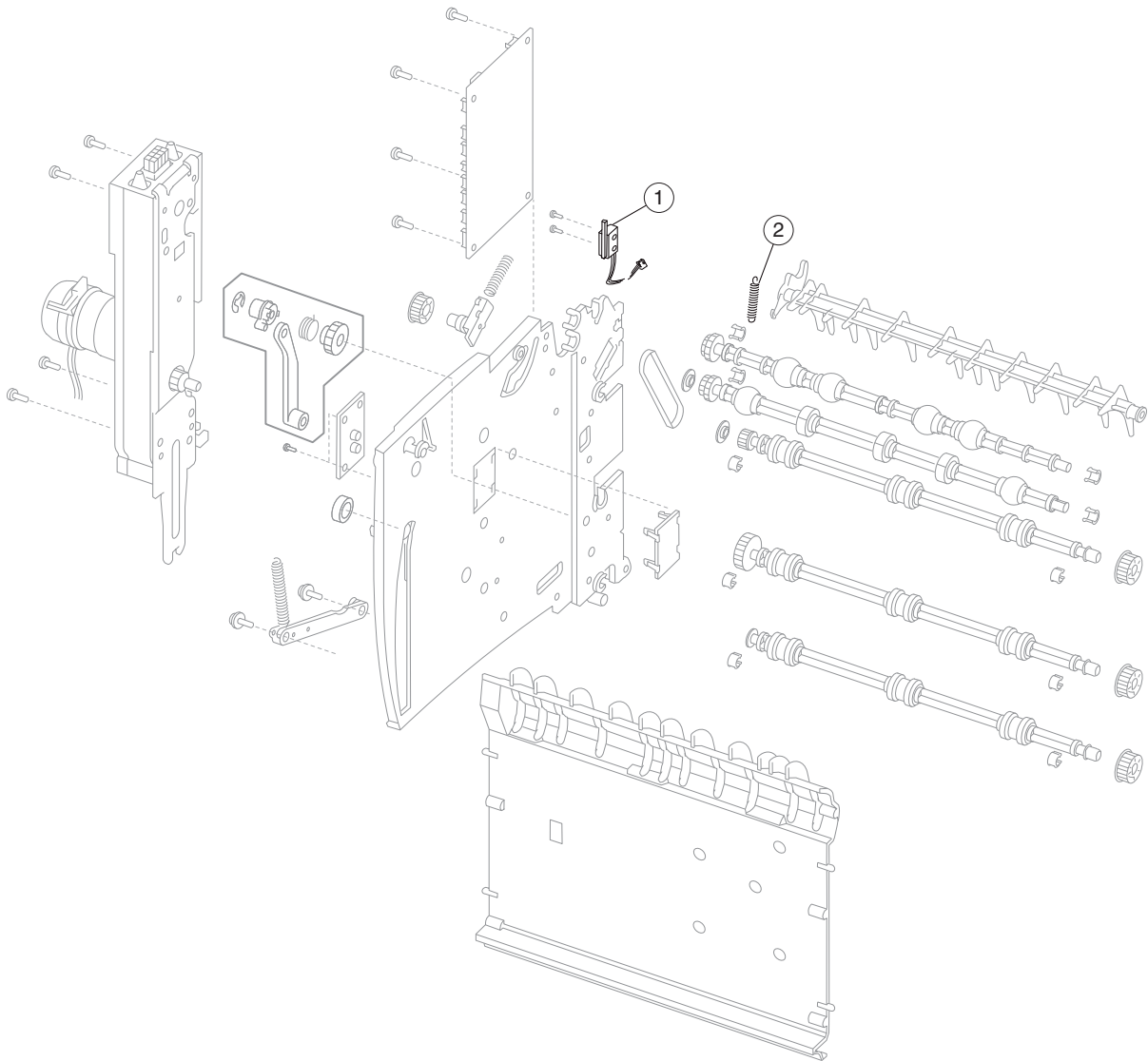
Asm-Index	Part number	Units/ option	Units/ FRU	Description
32—1	40X2159	1	1	Redrive cap cover
2	40X2150	1	1	Complete option
3	40X2155	1	1	Jam access door
4	40X2156	1	1	Front door latch
5	40X2157	1	1	Access door rear latch
6	40X2152	1	1	Front assembly cover
7	40X2153	1	1	Stapler access cover
8	40X3274	1	1	Stapler access door switch assembly
9	40X3277	1	1	Output assembly tray
10	40X1816	1	1	Stacking bail kit
11	40X2031	1	1	Rear assembly cover
12	40X2154	1	1	Top assembly cover

### Assembly 32.1: StapleSmart finisher



Asm-Index	Part number	Units/option	Units/FRU	Description
32.1—1	40X3278	1	1	Stapler assembly

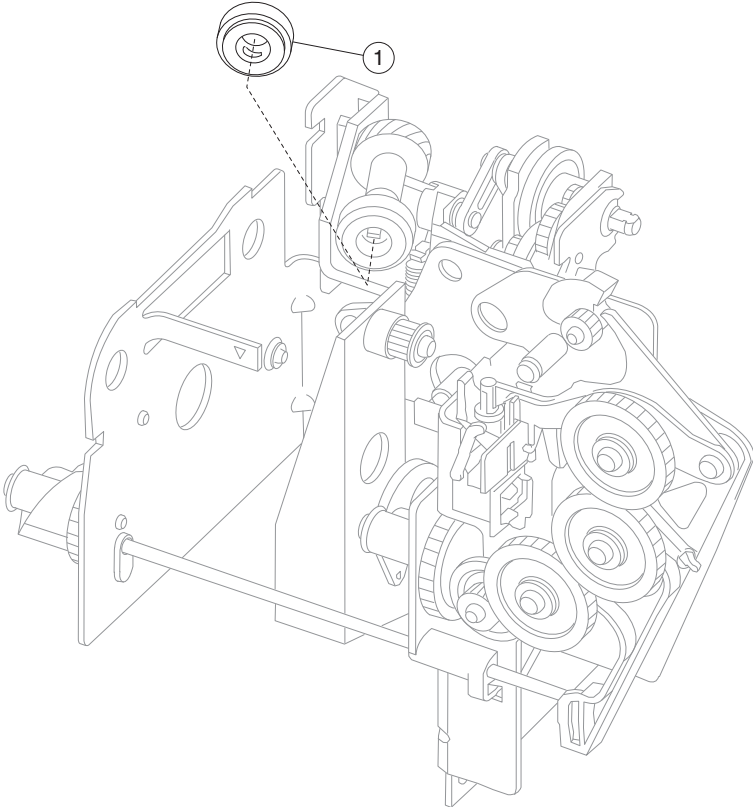
## Assembly 32.2: StapleSmart finisher



Asm-Index	Part number	Units/ option	Units/ FRU	Description
32.2—1	40X3279	1	1	Switch assembly, safety cover open
2	99A0104	1	1	Spring, upper diverter

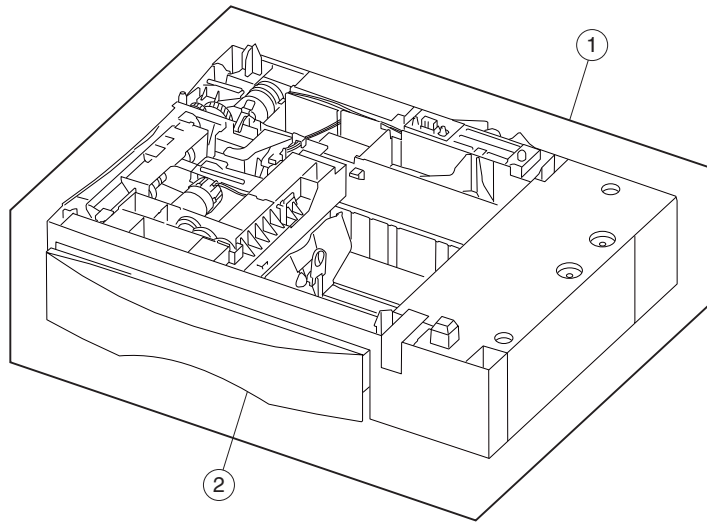


### Assembly 32.3: StapleSmart finisher



Asm-Index	Part number	Units/option	Units/FRU	Description
32.3—1	99A2480	1	1	StapleSmart wheels maintenance kit

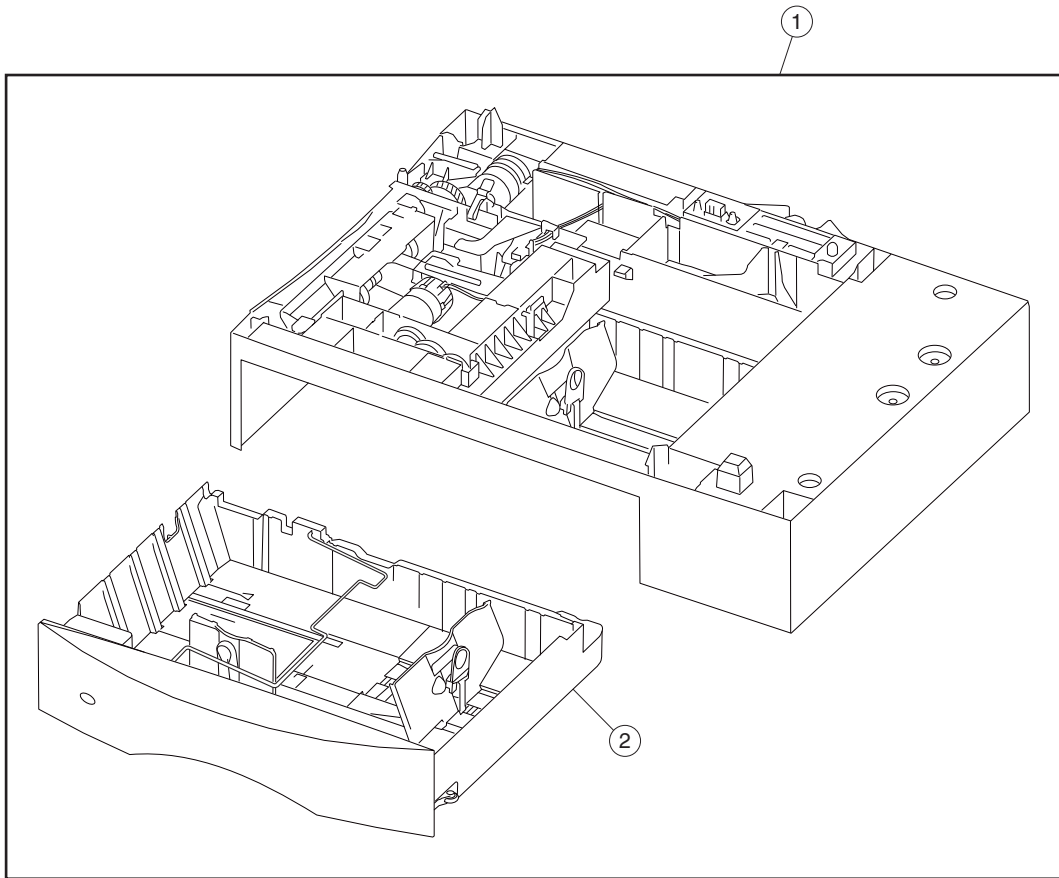
## Assembly 33: Envelope option



**Assembly 33: Envelope option**

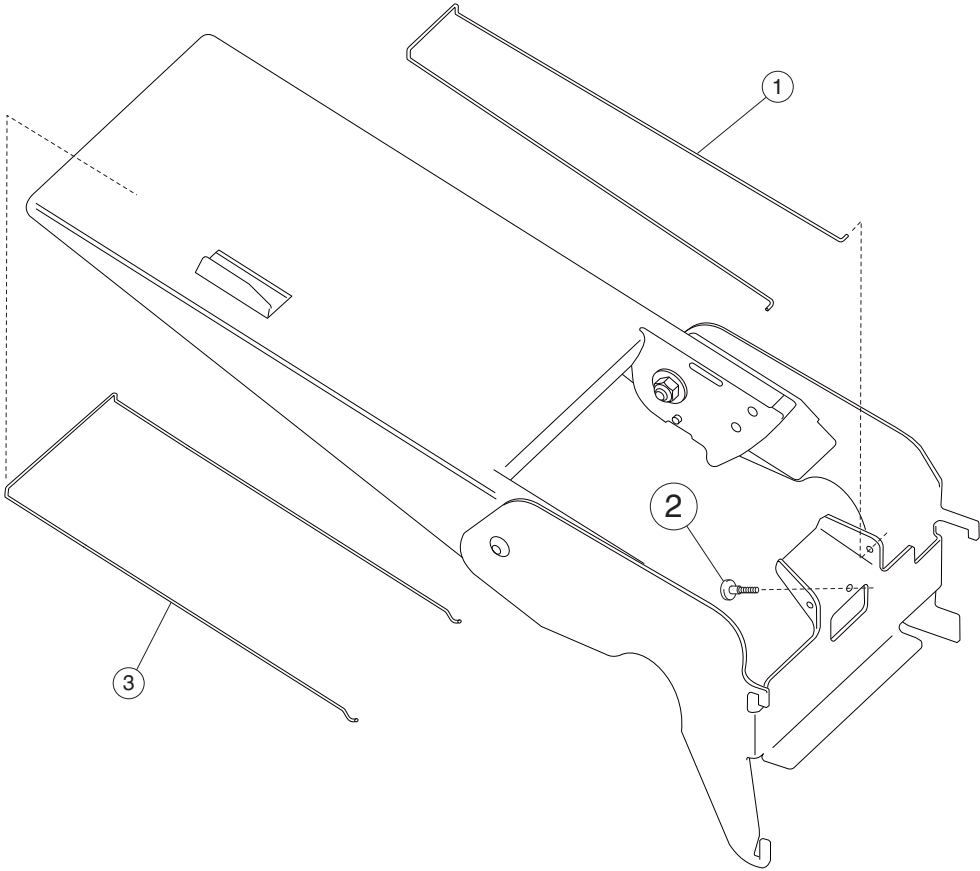
<b>Asm-Index</b>	<b>Part number</b>	<b>Units/option</b>	<b>Units/FRU</b>	<b>Description</b>
33-1	40X1842	1	1	Envelope option, complete
2	40X1843	1	1	Envelope tray assembly
NS	40X2080	1	1	Envelope feeder pick tire

**Assembly 34: Outdoor media tray option**



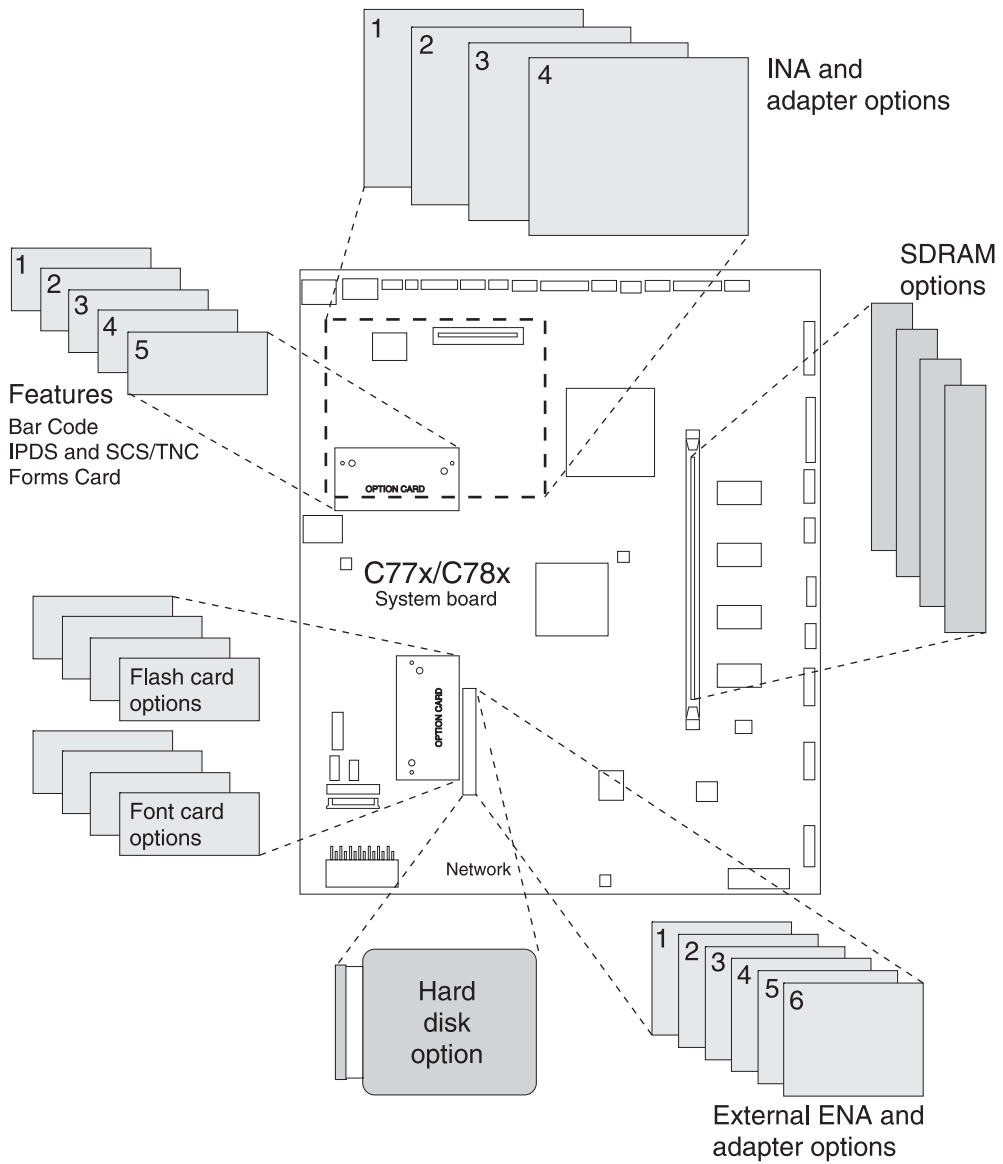
Asm-Index	Part number	Units/option	Units/FRU	Description
35-1	40X2083	1	1	Outdoor media drawer assembly
2	40X2084	1	1	Outdoor media tray assembly

### Assembly 35: Banner option



Asm-Index	Part number	Units/option	Units/FRU	Description
36-1	40X2086	1	1	Paper support bail
2	40X2088	1	1	Banner option screw
3	40X2087	1	1	Wire bail

## Assembly 36: Options



## Assembly 36: Options and miscellaneous

Asm-Index	Part number	Units/option	Units/FRU	Description
NS	40X1508	1	1	128MB SDRAM card assembly
NS	40X1509	1	1	256MB SDRAM card assembly
NS	40X1510	1	1	512MB SDRAM card assembly
NS	40X1454	1	1	32MB Flash DIMM card assembly
NS	40X1455	1	1	64MB Flash DIMM card assembly
NS	40X1514	1	1	Traditional Chinese font DIMM card assembly
NS	40X1513	1	1	Simplified Chinese font DIMM card assembly
NS	40X1512	1	1	Japanese font card assembly
NS	40X1515	1	1	Korean font card assembly card assembly
NS	40X0290	1	1	RS-232 serial interface card
NS	40X3522	1	1	IPDS/SCS card assembly—1xx/3xx only
NS	40X4743	1	1	IPDS/SCS card assembly—2xx/4xx only
NS	40X3521	1	1	Bar code card assembly—1xx/3xx only
NS	40X4741	1	1	Bar code card assembly—2xx/4xx only
NS	40X3523	1	1	Lexmark Forms card assembly—1xx/3xx only
NS	40X4742	1	1	Lexmark Forms card assembly—2xx/4xx only
NS	40X3524	1	1	PrintCryption™ card assembly—1xx/3xx only
NS	40X4744	1	1	PrintCryption card assembly—2xx/4xx only
NS	40X4754	1	1	PRESCRIBE card assembly—2xx/4xx only
NS	40X0291	1	1	Adapter, parallel 1284-B
NS	40X2610	1	1	Hard Disk, 40GB with/adapter (formatted)
NS	40X1592	1	1	MarkNet N7020e ENA adapter
NS	40X1593	1	1	MarkNet N7000e ENA adapter
NS	40X1594	1	1	MarkNet N7000e ENA adapter (requires parallel)
NS	40X1376	1	1	MarkNet N8020 Gigabit Ethernet adapter
NS	40X1377	1	1	MarkNet N8030 Fiber Ethernet adapter
NS	40X1378	1	1	MarkNet N8050 wireless print server, 802.11g, U.S.
NS	40X1562	1	1	MarkNet 8050 wireless print server, 802.11g, non-U.S.
NS		1	1	Screw type 323, parts packet, 40X1633
NS		1	1	Screw type 324, parts packet, 40X1635
NS		1	1	Screw type 232, parts packet, 40X1676
NS		1	1	Screw type 102, parts packet, 40X1639
NS		1	1	Screw type 312/322/412/423, parts packet, 40X1691
NS		1	1	Screw type 484, parts packet, 40X1632
NS		1	1	Screw, 500-sheet tray, parts packet, 40X1665
NS		1	1	Screw type 121, parts packet, 40X1780
NS	7371549	1	1	Relocation package kit assembly—printer
NS	7370563	1	1	Relocation package kit assembly—output expander
NS	7370564	1	1	Relocation package kit assembly—5-bin mailbox
NS	7370565	1	1	Relocation package kit assembly—500 drawer
NS	7370566	1	1	Relocation package kit assembly—duplex

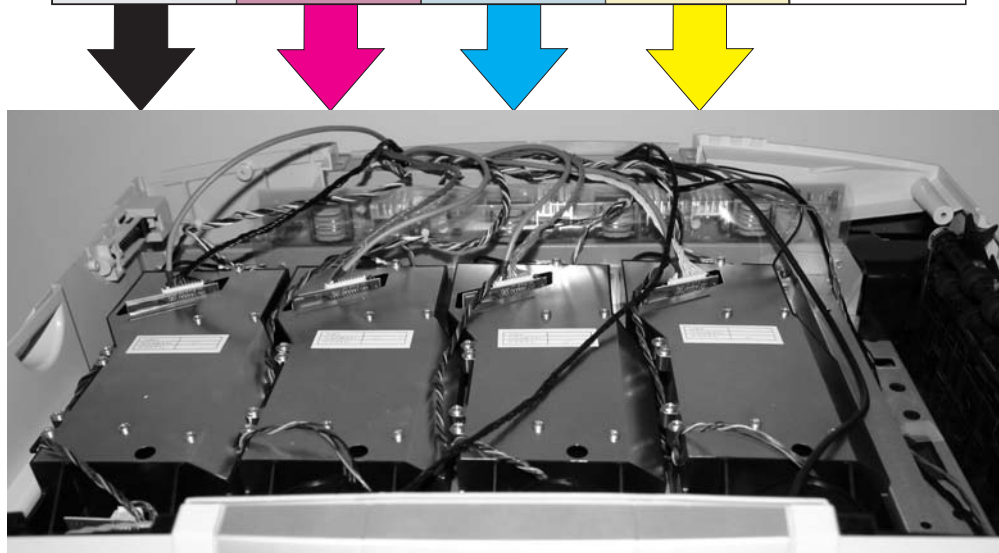




## Appendix A—Service tips

### Identifying the printheads

Error Codes				
Black (K)	Magenta (M)	Cyan (C)	Yellow (Y)	Failure Mode
109.01	107.01	106.01	108.01	Lost Hsync
109.02	107.02	106.02	108.02	Failed Servo
109.03	107.03	106.03	108.03	Failed Lock
109.04	107.04	106.04	108.04	Lost Lock



## Front

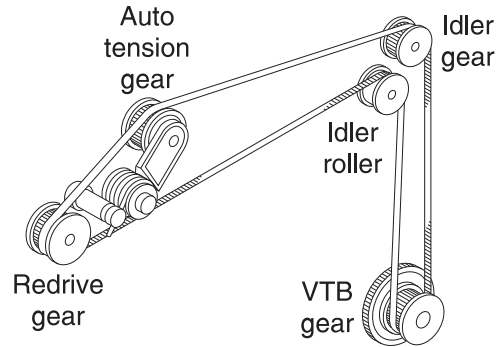
**Warning:** Do not loosen or remove all printheads at the same time. If all printheads are loosened or removed, your reference to readjust will be lost.

**Notes:**

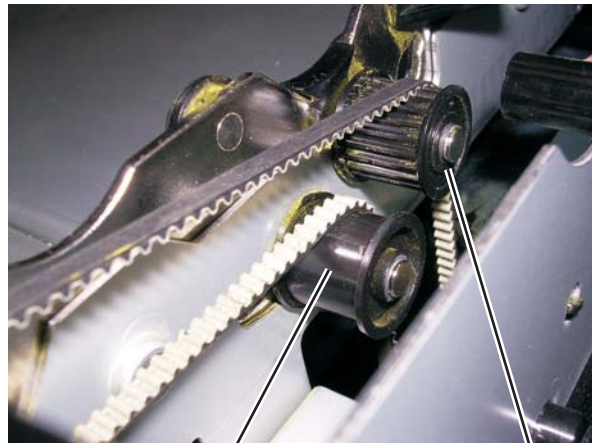
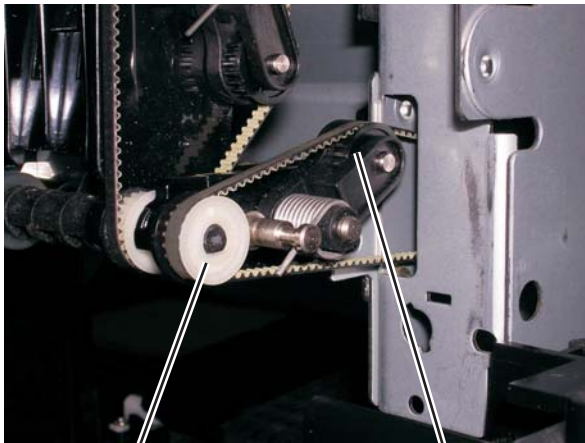
- Whenever a printhead is removed, it is necessary to perform the **“Mechanical alignment” on page 4-72**, the **“Black printhead electronic alignment” on page 4-77** (if necessary), and the **“Color printhead electronic alignment” on page 4-78**.
- The front cover assembly must be installed and closed before any printhead alignment can be performed. It is not necessary to remove the cover to access the printheads.
- If there is a protective lens cover on the new printhead, it must be removed before installing the replacement printhead.

## Redrive belt routing

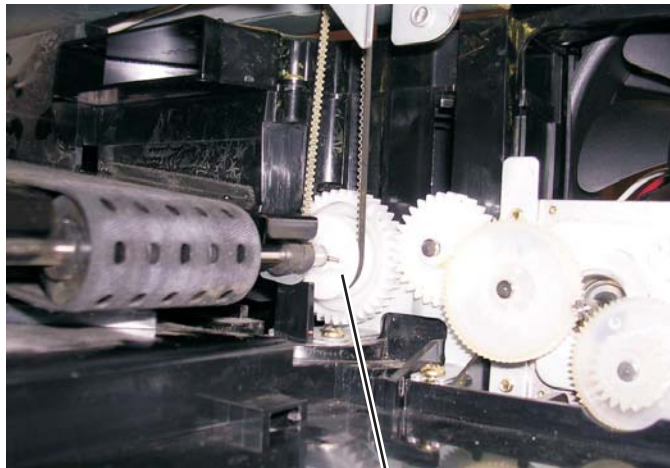
If the redrive belt has been removed, use the diagram and information to properly route the belt. The idler gear roller in these photos is only visible because the printer has been disassembled to the frame. The gear will have to be located by feel to ensure proper installation.



- Redrive gear (A) and auto tension gear (B) properly routed.
- Redrive belt properly routed on the idler gear (C) and the roller (D).



- Redrive belt properly routed on the vacuum transfer belt (VTB) gear (E).



---

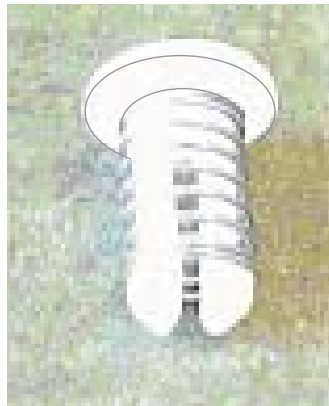
## Duplex option deflector button replacement

### *230 Paper Jam—duplex deflector fails*

During a duplex job, the duplex option fails to actuate the deflector in the fuser, and the paper is diverted away from the duplex. The duplex option does not receive the sheet and prompts a 230 Paper Jam message. Replace the rubber deflector button with the enclosed compression spring deflector button.

### **Replacing the button**

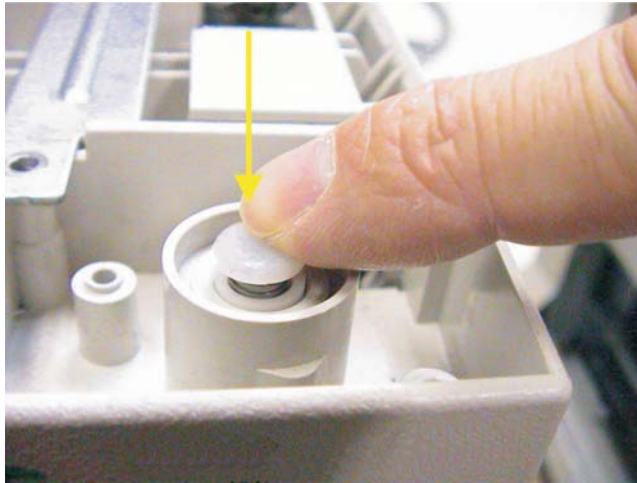
1. The FRU kit contains two parts that should be assembled as shown.



2. Remove the deflector button by pulling up.



3. Place the new button into the cam.



4. Verify the new button moves freely by pressing the button firmly down and watching it *snap* back.  
**Note:** Leave the button in the up position.

# Appendix B—Print quality samples

The following pages represent some of the pages available in various menus. While they are as close as possible to what you will see, variations in printing may result from individual user printer settings, media, and printer alignment.

## Print tests

### Print Quality Pages—Title page (total of five)

In Diagnostics Menu, select **PRINT TESTS** and select **Prt Quality Pgs.**

**Lexmark C772**  
**Print Quality Test**

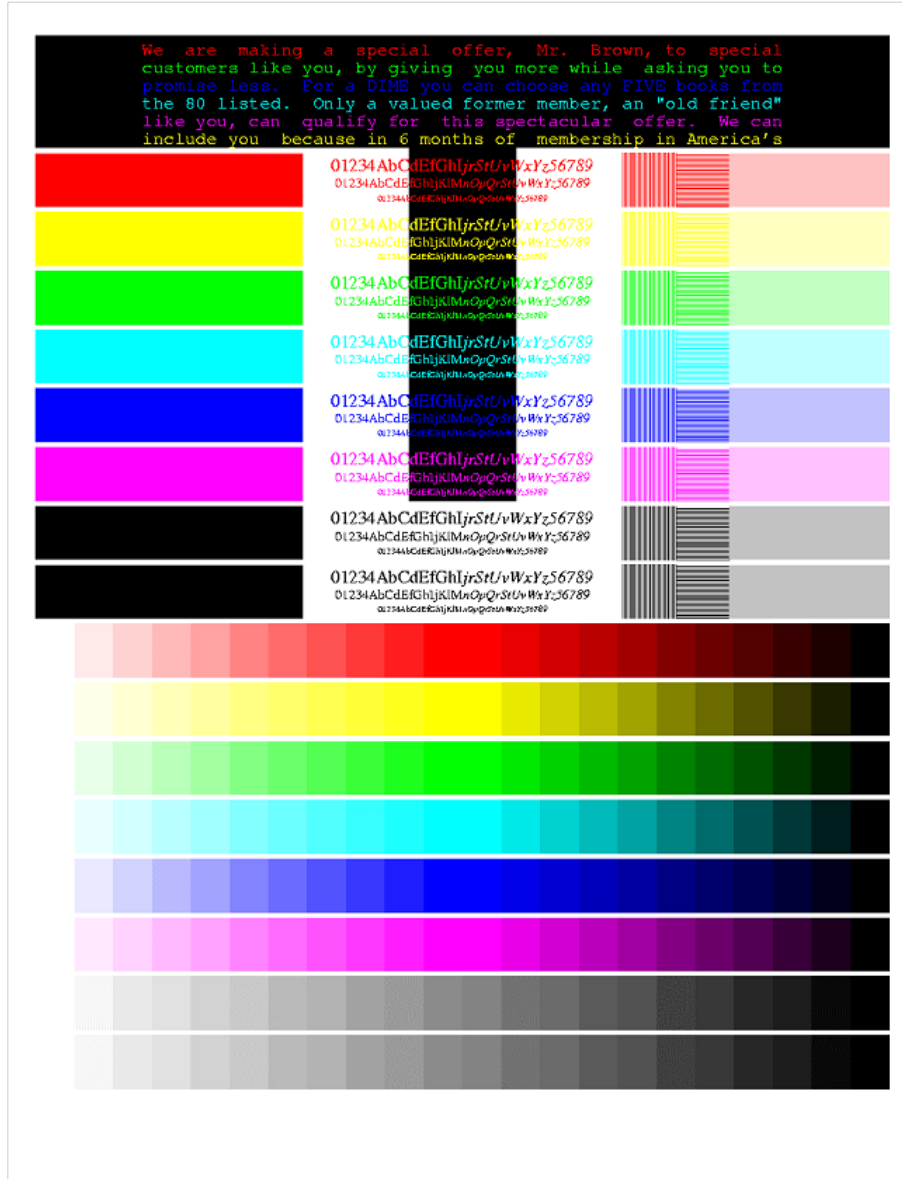
<b>Device Information</b>		<b>ITU Information</b>		
Page Count	75	ITU Serial Num	00000000000000000000	
PSAC	75	ITU Page Count	75	
Installed Memory	128 MB	ITU Cycle Count	0	
Processor Speed	800MHz			
Serial Number	W6URJ800	<b>MARGIN SETTINGS</b>		
[Configuration ID 1	FC000588]	Top Margin	= 10	
[Configuration ID 2	00555245]	Bottom Margin	= 6	
Engine ID	40	Left Margin	= 3	
AA	0000	Right Margin	= 0	
CalSet		Cyan Top Margin	= 0	
C	4.6000 9.0000	Cyan Left Margin	= 0	
	0.0000 0.0000	Cyan Right Margin	= 0	
M	4.2000 9.0000	Yellow Top Margin	= 0	
	0.0000 0.0000	Yellow Left Margin	= 0	
Y	4.6000 9.0000	Yellow Right Margin	= 0	
	0.0000 1.0000	Magenta Top Margin	= 0	
K	5.5000 9.0000	Magenta Left Margin	= 0	
	0.0000 6.0000	Magenta Right Margin	= 0	
<b>Printer Revision Levels</b>		<b>Feed Forward Information</b>		
Loader	LC.CA.P108-0	Cyan	= 00000000000000000000	
Kernel	EC.KPS.K068a-0		00000000000000000000	
Base[debug]	LC.CA.P108-0	Yellow	= 00000000000000000000	
Network	NC.NPS.N068-0		00000000000000000000	
Network Drvr	LC.CA.P108-0	Magenta	= 00000000000000000000	
Engine	LC.CA.E108-0		00000000000000000000	
Panel	9.8	Black	= 00000000000000000000	
Font	B.11H01-U4.4		00000000000000000000	
		ITU	= 00000000000000000000	
			00000000000000000000	
<b>Cartridge Information</b>		Paper Source	= Tray 1	
		Formatted Size	= Letter	
Cyan Cartridge	0% 100%			
Serial Number	= 053131CAZA			
Capacity	= 3 K			
Type	= Prebate			
	0% 100%			
Magenta Cartridge	0% 100%			
Serial Number	= 05313103FA			
Capacity	= 3 K			
Type	= Prebate			
	0% 100%			
Yellow Cartridge	0% 100%			
Serial Number	= 053142106A			
Capacity	= 3 K			
Type	= Prebate			
	0% 100%			
Black Cartridge	0% 100%			
Serial Number	= 0531421A3A			
Capacity	= 3 K			
Type	= Prebate			

aaaaa.a.a

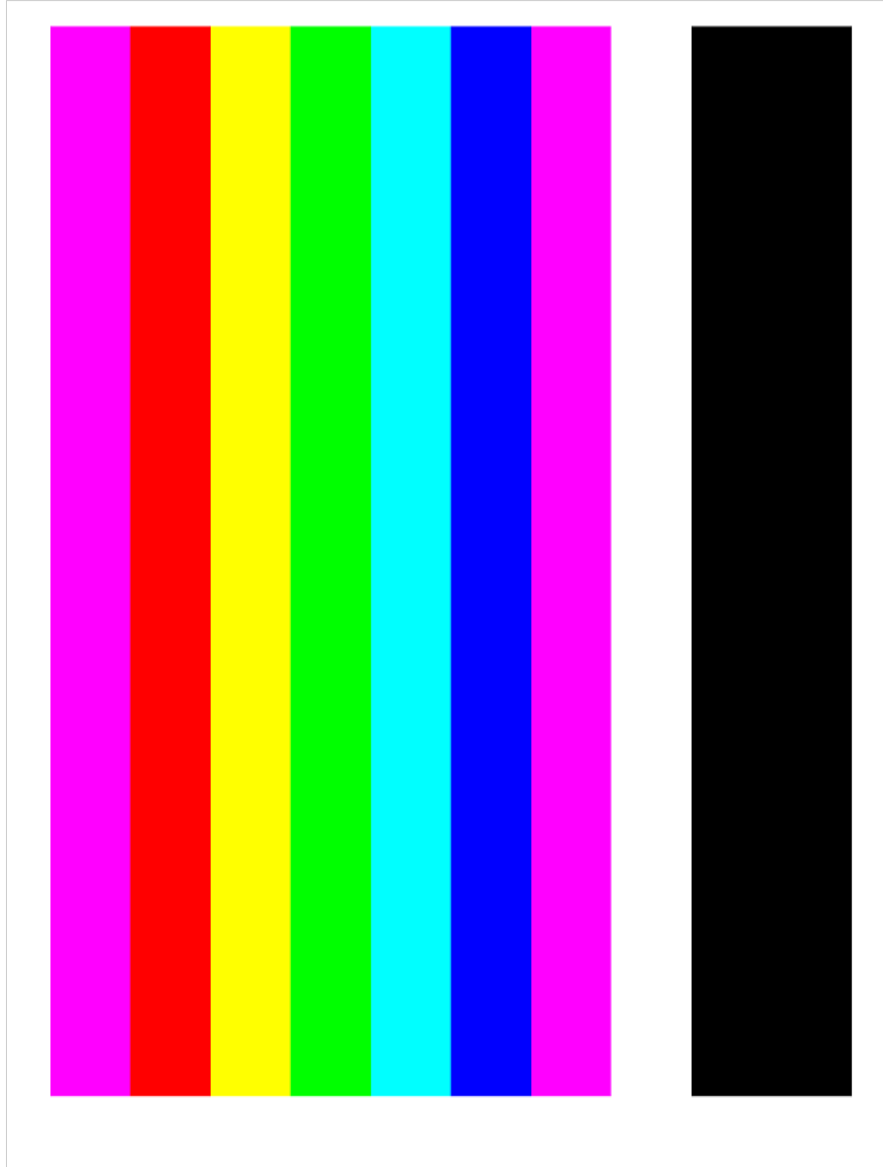
ABCDEF GHIJ KLMNOPQRSTU  
ABCDEF GHIJ KLMNOPQRSTU

12 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^Çüë  
10 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööð  
8 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööðúÿÛÜÝÞ\_`áíóñÑ²³´µ¶·¸¹º;  
6 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööðúÿÛÜÝÞ\_`áíóñÑ²³´µ¶·¸¹º;  
4 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööðúÿÛÜÝÞ\_`áíóñÑ²³´µ¶·¸¹º;  
2 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööðúÿÛÜÝÞ\_`áíóñÑ²³´µ¶·¸¹º;  
0 - 0123456789::<=>?@ABCDEF GHIJ KLMNOPQRSTU VWXYZ[]\*\_`abcdefghijklmnopqrstuvwxyz{|}~^ÇüëääääçèèèèèÀÁÊË:É:ööðúÿÛÜÝÞ\_`áíóñÑ²³´µ¶·¸¹º;

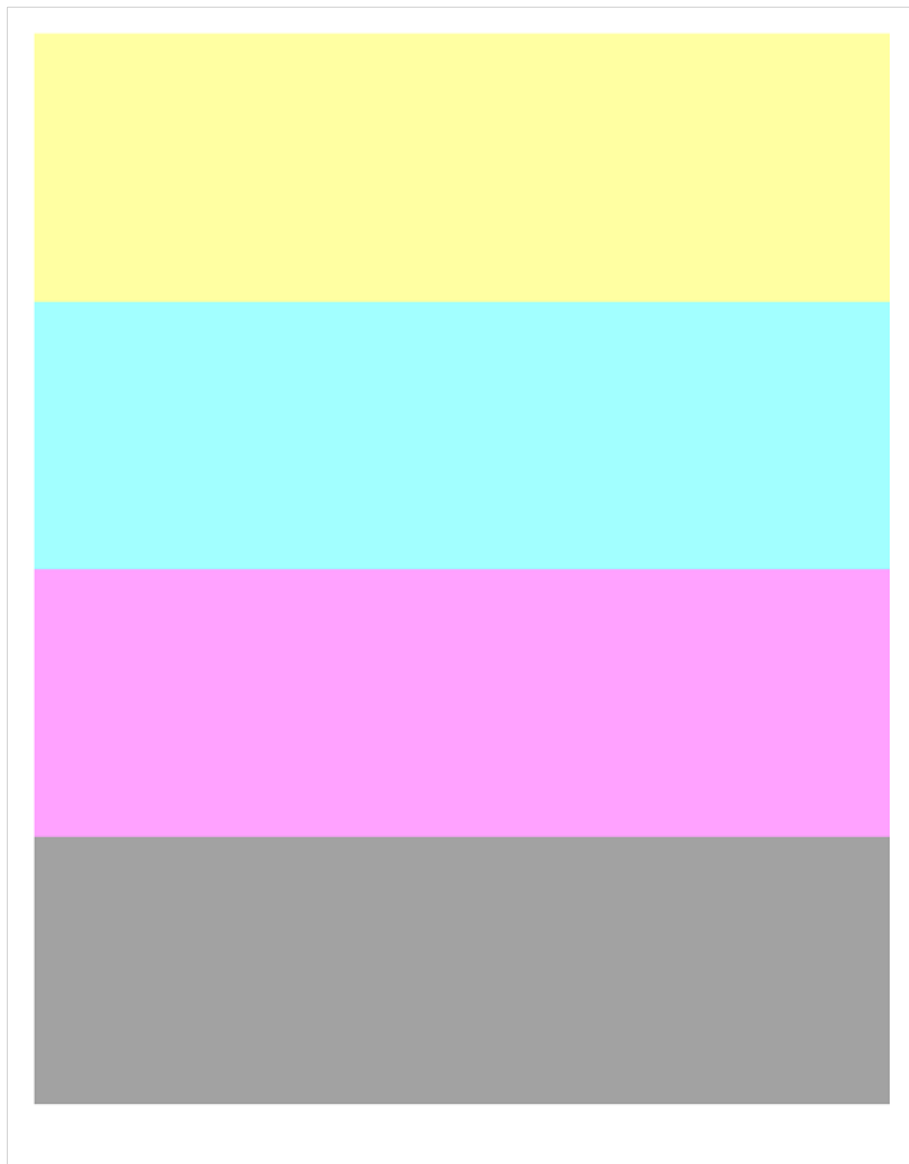
Print Quality Pages—Page 1 (total of five)



*Print Quality Pages—Page 2 (total of five)*



***Print Quality Pages—Page 3 (total of five)***





**Print Quality Pages—Page 4 (total of five)**

			4				4				4				4
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
85	86	87	88	89	90	91	92	93	94	95	96				

# Registration and alignment

## Quick Test Page

In Diagnostic Menu, select **REGISTRATION** and select **Quick Test**.

**Lexmark C772**  
**Quick Test**

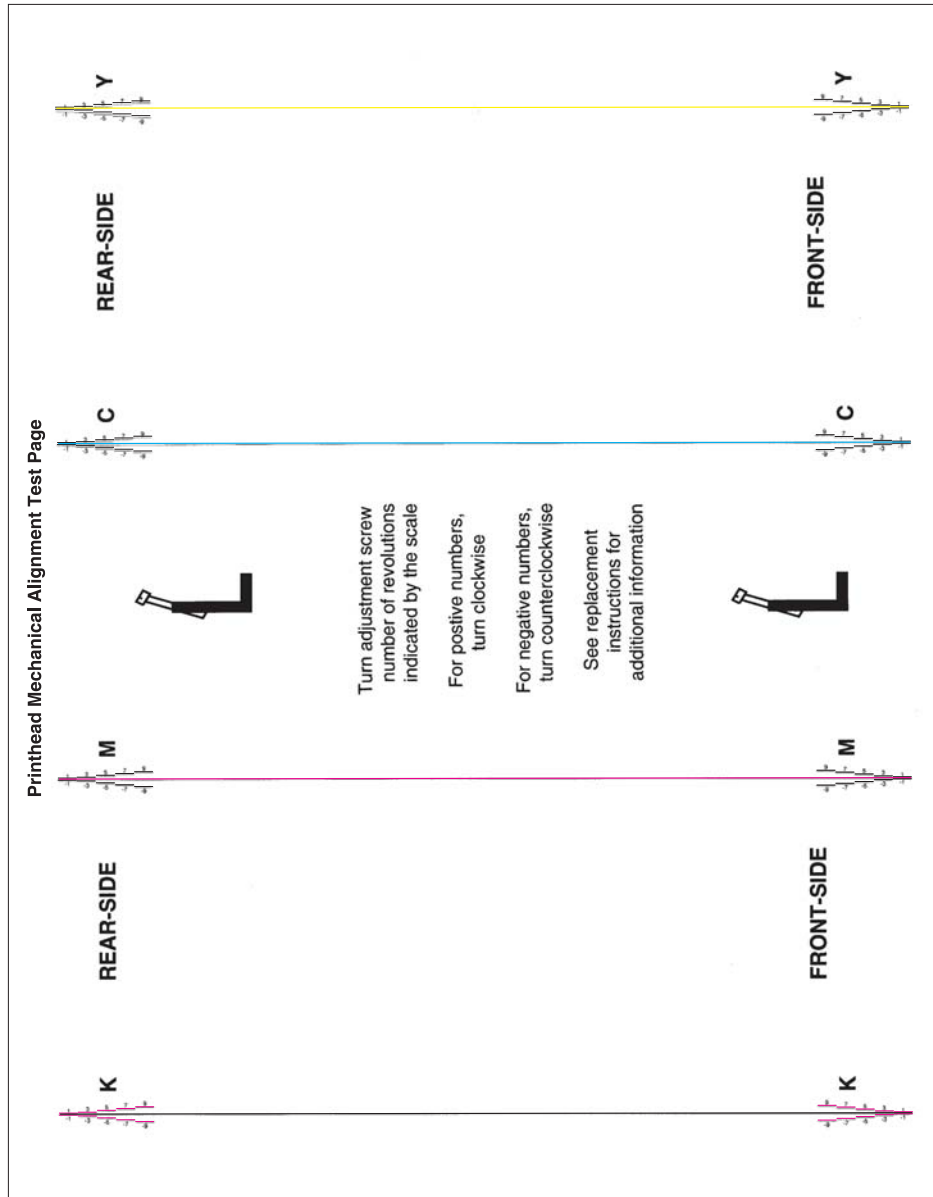
<b>Device Information</b>		<b>MARGIN SETTINGS</b>	
Page Count	55	Top Margin	= 10
PSAC	55	Bottom Margin	= 6
Installed Memory	128 MB	Left Margin	= 3
Processor Speed	800MHz	Right Margin	= 0
Serial Number	W8JR1800	Cyan Top Margin	= 0
[Configuration ID 1	FC000588]	Cyan Left Margin	= 0
[Configuration ID 2	00555245]	Cyan Right Margin	= 0
Engine ID	40	Yellow Top Margin	= 0
AA	0000	Yellow Left Margin	= 0
CalSet		Yellow Right Margin	= 0
C	4.6000 9.0000	Magenta Top Margin	= 0
	0.0000 0.0000	Magenta Left Margin	= 0
M	4.2000 9.0000	Magenta Right Margin	= 0
	0.0000 0.0000		
Y	4.6000 9.0000	Paper Source	= Tray 1
	0.0000 1.0000	Formatted Size	= Letter
K	5.5000 9.0000		
	0.0000 6.0000		

**Printer Revision Levels**

Loader	LC.CA.P108-0
Kernel	EC.KPS.K068a-0
Base(debug)	LC.CA.P108-0
Network	NC.NPS.N068-0
Network Drvr	LC.CA.P108-0
Engine	LC.CA.E108-0
Panel	9.8
Font	8.11H01-U4.4

## Printhead mechanical alignment test page

In Diagnostics Menu, select **MISC TESTS** and select **Printhead Inst.**



**Printhead electronic alignment test page—Magenta (one of two)**

In Diagnostic Menu, select **ALIGNMENT**, select a color, and select **Quick Test**.

### Magenta Alignment Page 1

**A**  
Coarse Adjustment

**A**  
Fine Adjustment

**B**  
Coarse Adjustment

**B**  
Fine Adjustment

**Step 1: Adjust Skew**

- Turn Skew Wheel ( B - A ) \* 2 Clicks
- If value is negative then turn Skew Wheel clockwise.
- If value is positive then turn Skew Wheel counter clockwise.

**B**

↓

**A**

↓

Skew = ( \_\_\_\_\_ - \_\_\_\_\_ ) \* 2 = \_\_\_\_\_

- Reprint and repeat Step 1 until B is within +/- 1 of A.
- For example if A = 4 then B must equal 3, 4, or 5.

**Step 2: Adjust Top Margin**

- Add ( A + B ) / 2 to current Top Margin value.

**A**

↓

**B**

↓

**New  
Magenta  
Top Margin**

↓

Top Margin = ( \_\_\_\_\_ + \_\_\_\_\_ ) / 2 - 2 = \_\_\_\_\_

↑

**Current  
Magenta  
Top Margin**

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

**Go To Page 2**

**Printhead electronic alignment test page—Magenta (two of two)**

### Magenta Alignment Page 2

**C**  
Fine Adjustment

**C**  
Coarse Adjustment

**D**  
Fine Adjustment

**D**  
Coarse Adjustment

**STEP 3: Adjust Left and Right Margins.**

**C**

↓

$$\text{Left Margin} = -82 + \frac{\text{Current Magenta Left Margin}}{\text{New Magenta Left Margin}} = \text{_____}$$

**D**      **C**

↓          ↓

$$\text{Right Margin} = -4 + \frac{\text{Current Magenta Right Margin}}{\text{New Magenta Right Margin}} = \text{_____}$$

**STEP 4: Reprint these pages to confirm final settings.**



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## Components

**C77x, C78x Repeating Defect Locator**

**NOTE:** Do not use the side rulers to assess repeating defects if the left and right calibration lines do not measure 110 mm respectively.

When printing this document, make sure 'Fit to page' is **not** selected.

## Nip Shock

**Rollers**

Component Description	Component	Planes Effected	Defect Period	
			mm	inches
Charge Roll	Cartridge	One	38.2	1.5
PC Drum		One	93.8	3.69
PC Cleaner		One	96.8	3.8
Developer Roll		One	46.3	1.82
TAR		One	48.2	1.9
Toner Meter		One	1092.2	43.0
Cart Auger		One	349.9	13.8
First Transfer Roll		ITU	One	53.1
Second Transfer Roll	2 <sup>nd</sup> XferRoll	All	59.4	2.34
ITU Drive / Back-up Rolls	ITU	All	101.0	3.98
ITU Reverse Roll	ITU	All	50.5	1.99
Fuser Hot Roll	Fuser	All	148.0	5.83
Fuser BUR		All	147.0	5.79
Metering Rolls	Reference Edge	All	47.0	1.85
Color Charge Roll (CR)Short	C, M, or Y Cart	C, M, & Y	101.0	3.98

Fuser Nip to 1<sup>st</sup> RedriveMeter 4 to 2<sup>nd</sup> XferMeter 3 to 2<sup>nd</sup> Xfer

Cartridge Spacing

110mm Calibration Mark

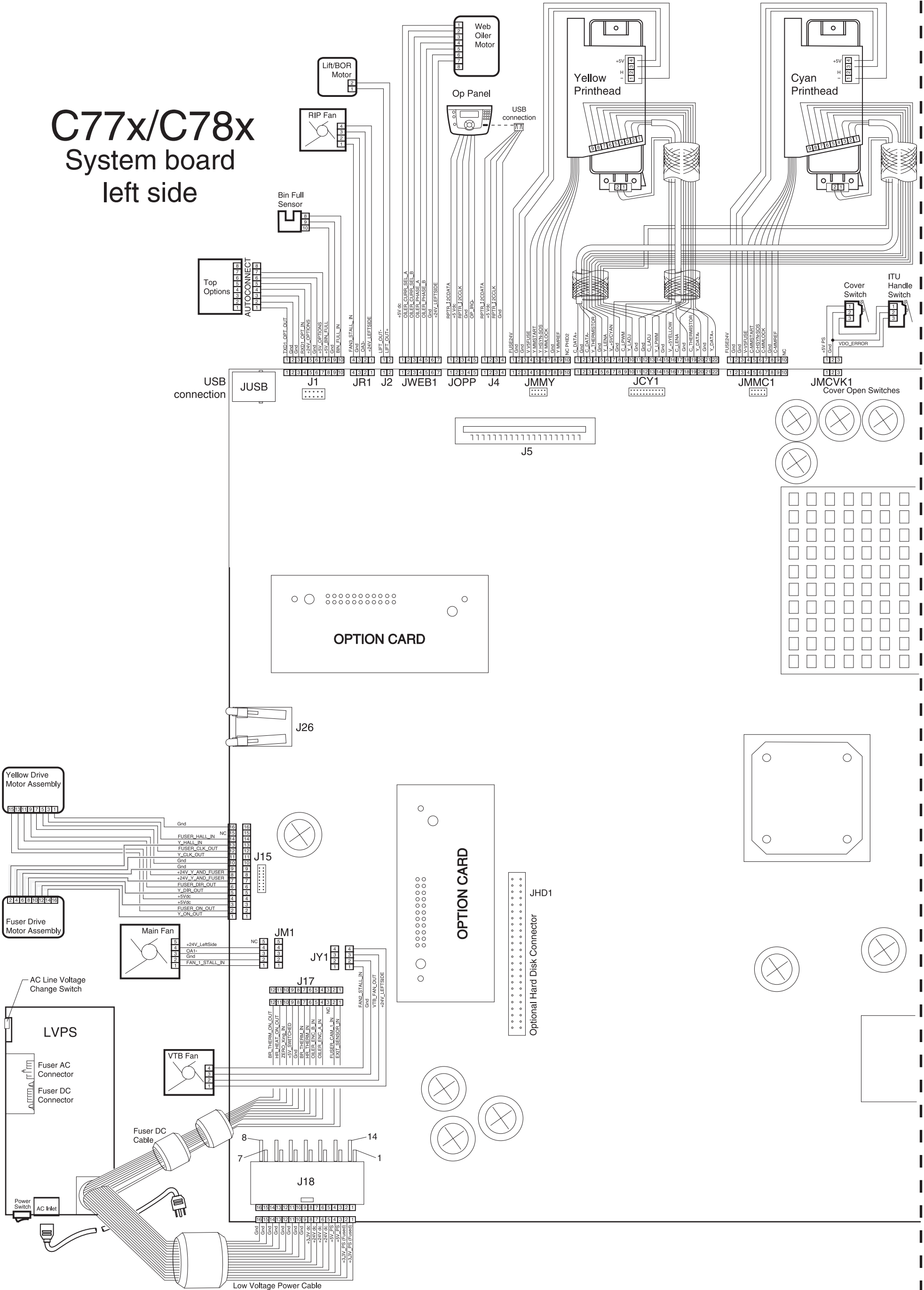
Meter 2 to 2<sup>nd</sup> XferK to 2<sup>nd</sup> XferMeter 1 to 2<sup>nd</sup> XferM to 2<sup>nd</sup> Xfer**NIP Shock**

NIP Distances	Defect Period	
	mm	inches
Y-C-M-K Cartridge Spacing	101.0	3.98
K to Second Transfer Roll	144.6	5.69
M to Second Transfer Roll	245.6	9.67
C to Second Transfer Roll	346.6	13.65
Y to Second Transfer Roll	447.6	17.62
Meter 1 to Second Transfer	164.8	6.49
Meter 2 to Second Transfer	126.4	4.98
Meter 3 to Second Transfer	86.4	3.40
Meter 4 to Second Transfer	51.4	2.02
2 <sup>nd</sup> Transfer to Fuser	319.4	12.57
Fuser Nip to First Redrive	50.0	1.97
Fuser Nip to Exit Sensor	58.2	2.29
Fuser Nip to Exit Tray Nip	420.3	16.55

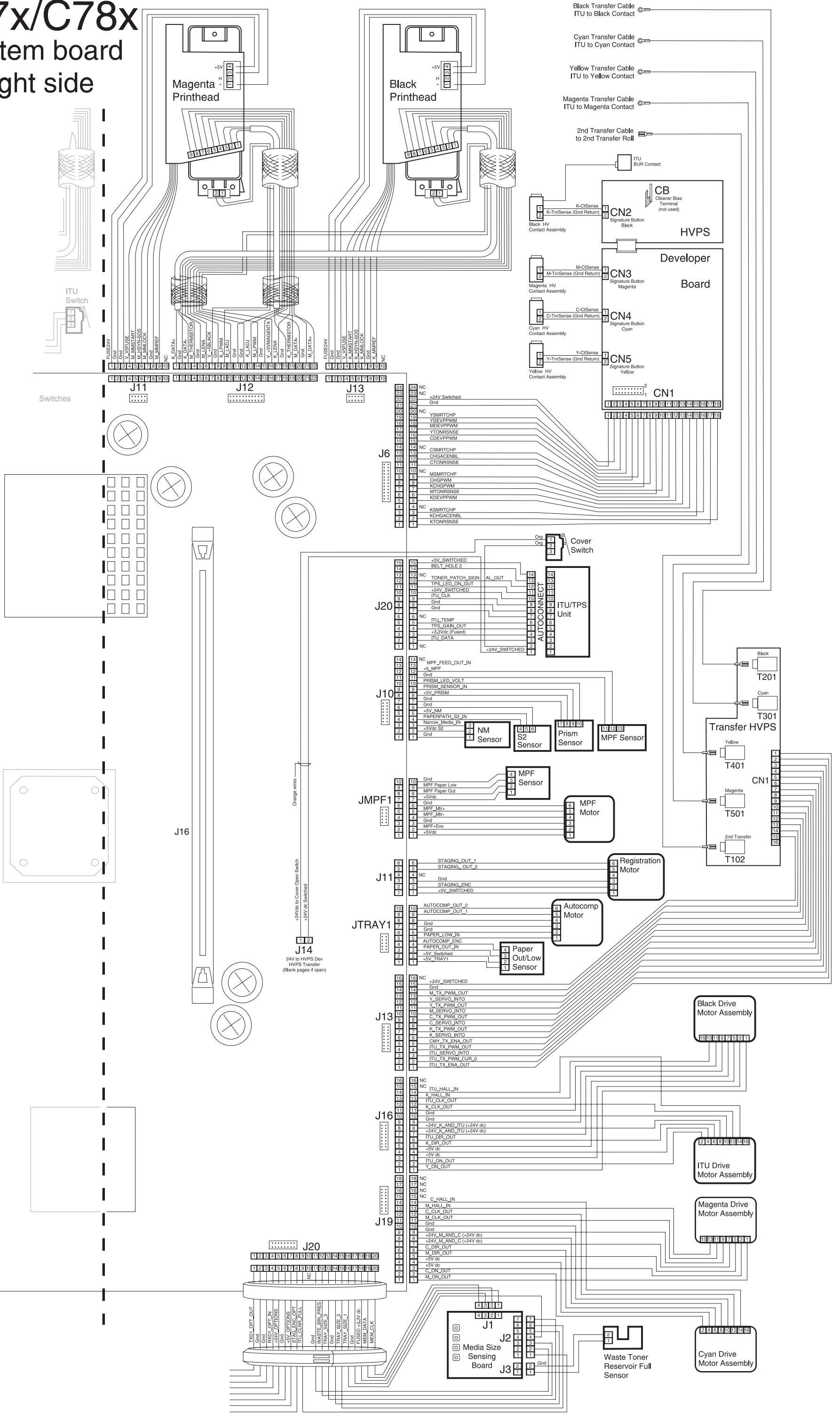
# C77x/C78x

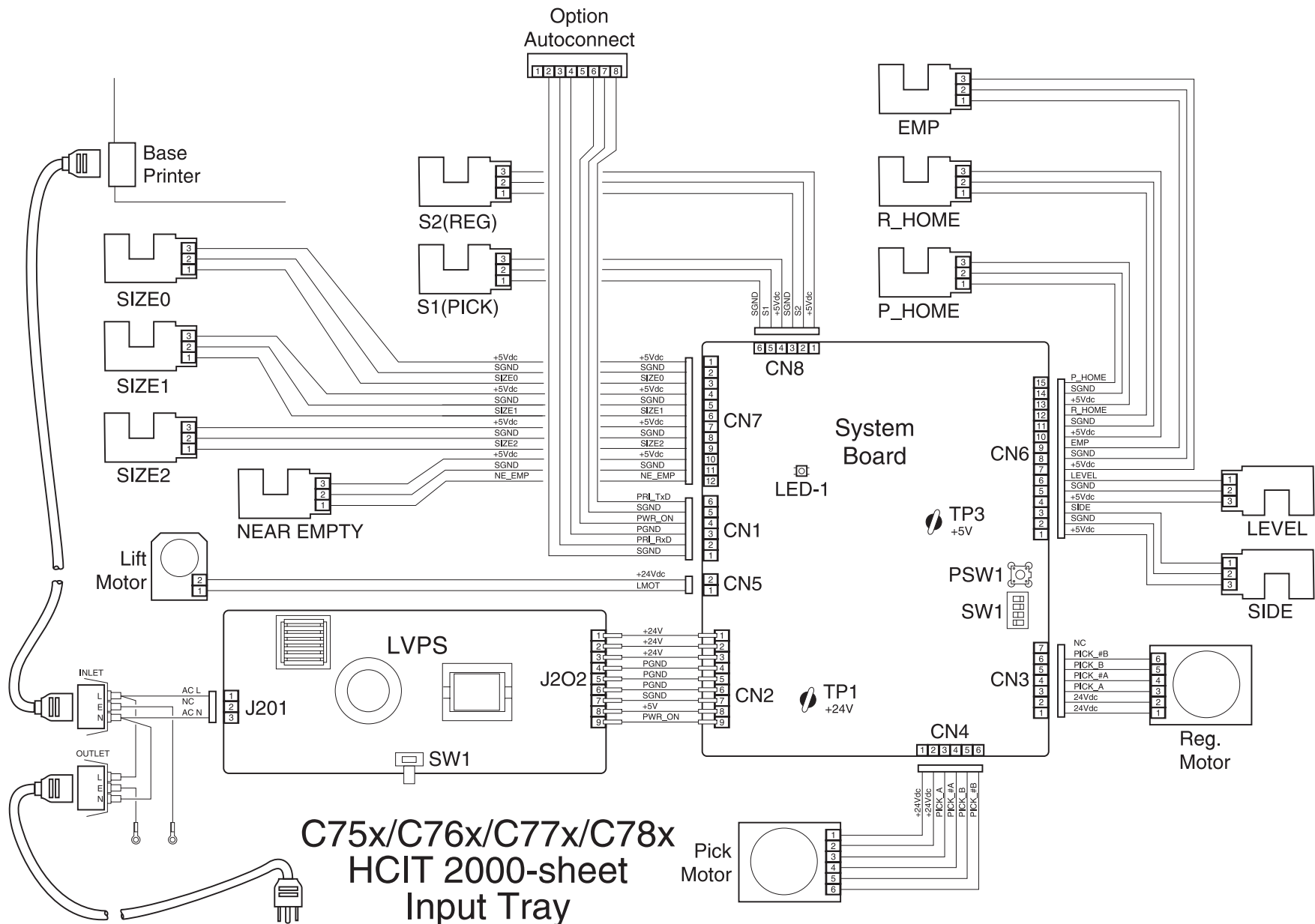
## System board

### left side



# C77x/C78x System board right side





**C75x/C76x/C77x/C78x  
HCIT 2000-sheet  
Input Tray  
Wiring Diagram**