

**TOSHIBA**

**SERVICE MANUAL**  
PRINTER

**e-STUDIO450S**  
**e-STUDIO500S**



**12G9662**

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## Laser notices

A laser notice label may be affixed to this MFP.

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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 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 laserprodukt van klasse I. Voor de Verenigde Staten zijn deze eisen vastgelegd in DHHS 21 CFR Subchapter J, voor andere landen in IEC 60825-1.

Laserprodukten van klasse I worden niet als ongevaarlijk aangemerkt. De printer is voorzien van een laser van klasse IIIb (3b), dat wil zeggen een gallium arsenide-laser van 5 milliwatt met een golflengte van 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.

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## 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 servicebetjninger.

---

## 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 määräyksiä voimakkaammalle säteilylle kirjoittimen normaalin toiminnan, käyttäjän tekemien huoltotoimien tai muiden huoltotoimien yhteydessä.

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

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

---

## Laser-notis

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

Laserprodukter i Klass I anses ej hälsovådliga. Skrivaren har en inbyggd laser av Klass 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.

---

## 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 concebutos 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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## Japanese Laser Notice

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

---

### 注意：

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

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

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## Korean Laser Notice

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.


---

## 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.


---

## Sicherheitshinweise

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


---

## Pautas de Seguridad

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


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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.


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## 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.


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## 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.

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## 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.


---


## 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:

	<b>CAUTION</b> A caution identifies something that might cause a servicer harm.
---	--

	<b>CAUTION</b> 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.
---	---

	<b>CAUTION</b> This type of caution indicates a hot surface.
---	---

	<b>CAUTION</b> This type of caution indicates a tipping hazard.
---	--



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## 1. General information

The Toshiba e-STUDIO450S and 500S are All-In-One laser MFPs that provide print, copy, scan, and fax functions designed to attach to IBM-compatible personal computers and most computer networks. The operator panel is touch-sensitive and allows the user to adjust the viewing angle.

These MFPs are available in the following models:

Model name	Configuration	Machine type
e-STUDIO 450S	Network, modem	7002-005
e-STUDIO 500S	Network, modem, hard disk	7002-111

---

## Maintenance approach

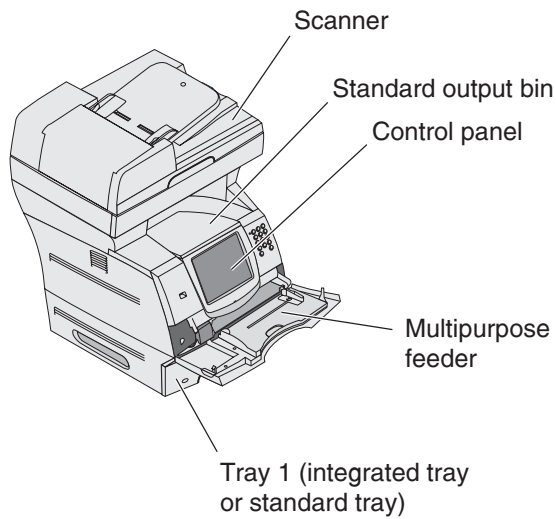
The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the service error codes, user status messages, user error messages, service checks, and diagnostic aids to determine the MFP problem and repair the failure. After you complete the repair, perform tests as needed to verify the repair. See **“Start” on page 2-1**.

## Configured models

The following illustrations show and compare standard 450S and 500S MFPs configured with a duplex unit and a 500-sheet drawer. Other print media handling options are also available.

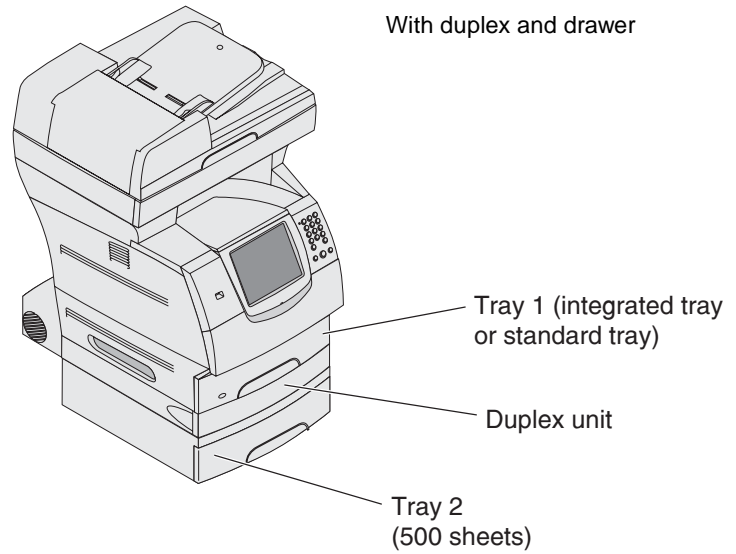
### Model 500S MFP

Standard



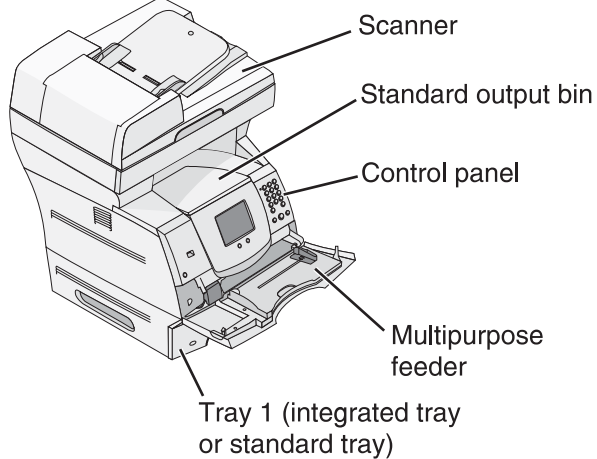
### Model 500S MFP

With duplex and drawer



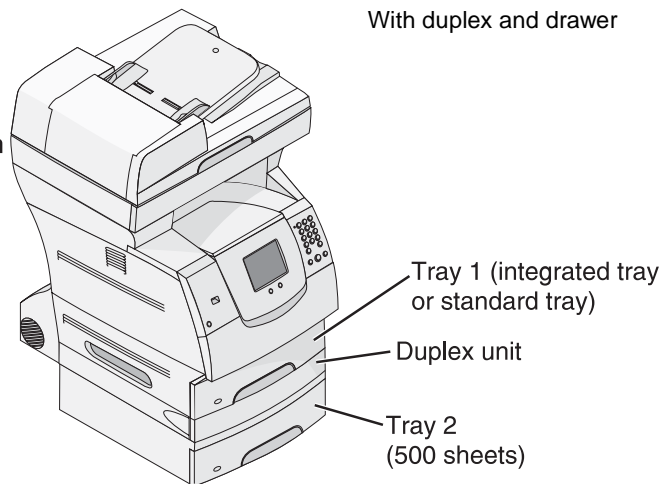
### Model 450S

Standard



### Model 450S

With duplex and drawer



#### CAUTION

Floor-mounted configurations require additional furniture for stability. You must use either a printer stand or printer base if you are using a 2000-sheet drawer. Certain other configurations also must have a printer stand or printer base.

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## Options

The following options are available but not in every country or region. Contact your point of purchase for options available in your country or region.

- Memory options of 128MB, 256MB, and 512MB SDRAM
- Flash memory options of 32MB and 64MB
- Hard disk—20GB+ with adapter (model 500S only)
- Integrated network options
  - Token-Ring
  - Ethernet
  - External serial adapter
  - IPDS card assembly and SCS/TNe
  - PRESCRIBE card assembly
  - Bar code card assembly
  - Parallel interface card
  - Forms card (single-byte and Simplified Chinese)
- Media handling operations
  - 250- and 500-sheet paper trays of A4, letter, A5, B5, Executive, folio, statement, and legal size
  - 250- and 400-sheet universally adjustable trays
  - 250- and 500-sheet paper drawers
  - 400-sheet universally adjustable tray
  - 2000-sheet high-capacity feeder—always used below any other drawer.
  - Envelope feeder
  - Duplex option—500-sheet (For 450S with integrated 500-sheet output tray)
- Application solutions
  - Bar code card
  - IPDS
  - PRESCRIBE emulation card
  - PrintCryption
- DBCS font cards
  - Simplified Chinese
  - Traditional Chinese
  - Japanese
  - Korean

# Specifications

## General

### MFP specifications

	e-STUDIO 450S	e-STUDIO 500S
<b>Scanner</b>		
Scanner type	Color flatbed scanner with ADF	Color flatbed scanner with ADF
Scanner technology	Charge coupled device (CCD)	Charge coupled device (CCD)
Light sources	Two Cold Cathode Fluorescent Lamp (CCFL) and one CCD module per scanner	Two CCFL and two CCD modules per scanner
Max optical resolution	600 x 600 dpi maximum (mono) 600 x 300 dpi (color) with final resolution 300 x 300 dpi	600 x 600 dpi maximum (mono) 600 x 300 dpi (color) with final resolution 300 x 300 dpi
Scan area (flatbed)	8.5 in. x 14 in. (216 mm x 355.6 mm) maximum	8.5 in. x 14 in. (216 mm x 355.6 mm) maximum
<b>Scanner ADF</b>		
ADF type	Simplex ADF with C-path	Single pass duplex ADF with C-path
ADF optical resolution	600 x 600 dpi maximum	600 x 600 dpi maximum
Document capacity	50 sheets (assuming 20 lb./75 g/m <sup>2</sup> )	50 sheets (assuming 20 lb./75 g/m <sup>2</sup> )
Media thickness	0.05 mm (minimum) to 0.15 mm (maximum)	0.05 mm (minimum) to 0.15 mm (maximum)
Media weight	15 lb (56 g/m <sup>2</sup> ) to 32 lb (120 g/m <sup>2</sup> )	15 lb (56 g/m <sup>2</sup> ) to 32 lb (120 g/m <sup>2</sup> )
ADF scan area	8.5 in. x 14.0 in. (216 mm x 355 mm)	8.5 in. x 14.0 in. (216 mm x 355 mm)
<b>Printer</b>		
Print technology	Hot roll fuser	Hot roll fuser
<b>Fax</b>		
Modem (in models with modem)	Built-in Group 3 compatible, full function fax 33,600 bps, Max V.34 half duplex	Built-in Group 3 compatible, full function fax 33,600 bps, Max V.34 half duplex

## Resolution

- 1200 x 1200 dpi
- 2400 Image Quality
- 1200 Image Quality
- 600 x 600 dpi

## Data streams

- PostScript 3 emulation
- PCL 6 emulation
- PPDS migration tool
- PDF v1.5 emulation

## Memory configuration

Memory type	Models		
	e-STUDIO 450S		e-STUDIO 500S
Standard DRAM (MB)	128		256
Optional memory (MB) (One slot—100 pin DDR SDRAM unbuffered DIMMs)	128, 256, and 512 available		
Maximum (MB)	640		768
Optional flash memory (MB)	32 and 64 available		
Hard disk	N/A		<20GB
<b>Note:</b> One firmware card and one flash memory card are supported. Either slot supports both card types.			

Depending upon the options and features used, additional memory may be required to optimize performance.

## Recommended operating clearances

Dimension	Measurement
Left	12 in. (30.5 cm)
Right	8 in. (20.3 cm)
Front	20 in. (50.8 cm)
Rear	8 in. (20.3 cm)
Top*	12 in. (30.5 cm)
* Allow clearance above the printer front door clearance and for adding options, such as additional input drawers.	

## Dimensions

Description	Height	Width	Depth	Weight
<b>Printer</b>				
e-STUDIO 450S	28.0 in. (710 mm)	22.0 in. (560 mm)	25.4 in. (645 mm)	80.0 lb (34.9 kg)-
e-STUDIO 500S (with duplex and 500-sheet option)	35.0 in. (890 mm)	22.0 in. (560 mm)	26.0 in. (660 mm)	103 lb (46.7 kg)
<b>Options</b>				
Duplex 500-page option	2.0 in. (51 mm)	15.7 in. (398 mm)	24.1 in. (595 mm)	11.3 lb (5.1 kg)
250-Sheet drawer	3.5 in. (90 mm)	15.7 in. (398 mm)	18.0 in. (457 mm)	6 lb (2.7 kg)
500-Sheet drawer	5.2 in. (134 mm)	15.7 in. (398 mm)	19.0 in. (520 mm)	7 lb (3.2 kg)
2,000-Sheet drawer	15.0 in. (381 mm)	15.7 in. (398 mm)	18.0 in. (457 mm)	31 lb (14.1 kg)
Envelope option (closed position)	*	*	7.72 in. (196 mm)	4 lb (1.8 kg)
Envelope option (support fully extended)	*	*	12.28 in. (312 mm)	4 lb (1.8 kg)
MFP Stand with Cabinet	31.5 in. (800 mm)	22.4 in. (569 mm)	24.5 in. (622 mm)	64 lb (29.0 kg)
Low Profile MFP Stand	22.8 in. (579 mm)	22.4 in. (569 mm)	24.5 in. (594 mm)	45 lb (20.4 kg)
MFP Stand without Cabinet	31.5 in. (800 mm)	22.4 in. (569 mm)	24.5 in. (622 mm)	64 lb (28.1 kg)
Stability Enhanced Caster Base	6.0 in. (152 mm)	27 in. (685 mm)	27.0 in. (686 mm)	25 lb (11.3 kg)
10 Inch Cabinet Option	10.0 in. (255 mm)	15.7 in. (397.6 mm)	17.54 in. (445.7 mm)	17.1 lb. (7.8 kg)
* Envelope option fits within height and width of printer.				

## Power requirements

Average nominal power requirements for the base printer configuration (110 volt). Power levels are shown in watts (W). Maximum current is given in Amperes (A).

Printing states	e-STUDIO 450S	NA	e-STUDIO 500S
Off	0 W	.05 W	.05 W
<b>Idle—average power</b>			
Power Saver on	30 W	20 W	20 W
Power Saver off	105 W	90 W	95 W
<b>Continuous copying</b>	650 W	875 W	875 W
<b>Continuous printing</b>	800 W	675 W	830 W
<b>Printing—maximum current</b>			
100 V	12.3 A	7.8 A	8.9 A
120 V	10.5 A	7.2 A	8.0 A
230 V	5.4 A	3.4 A	4.1 A

## Electrical specifications

### Low voltage model

- 100 to 127 V ac at 50 to 60 Hz nominal
- 90 to 137 V ac, extreme

### High voltage model

- 220 to 240 V ac at 50 to 60 Hz nominal (not available in all countries or regions)
- 198 to 259 V ac, extreme

### Notes:

- Using a power converter or inverter is not recommended.
- All models are ENERGY STAR qualified.
- All models ship with Power Save Mode on.
- The default timeout to power saver is 30 minutes for model 500S and 45 minutes for model 450S

## Environment

Printer temperature and humidity

- Operating
  - Temperature: 16 to 32° C (60° to 90° F)
  - Relative humidity: 8 to 80%
  - Altitude: 10,000 ft. (0 to 3,048 meters)
- Storage and shipping environment (packaged)
  - Temperature: -40° to 43° C (-40° to 110° F)
  - Relative humidity: 5% to 95%
  - Altitude: equivalent to 10,300 meters (0 to 34,000 feet)
- Storage environment (unpacked)
  - Temperature: 0° to 40° C (32° to 104° F)
  - Relative humidity: 5% to 80%

## Acoustics

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

Mode	Emission sound pressure level (dBA)		Declared sound power level (Bels)
	Bystander position average (LpAm)	Standing Operator Position (LpAm)	(LpAm)
Printing	56	N/A	7.0
Copying	57	62	7.2
Scanning	52	59	6.8
Ready	30	N/A	4.5

**Note:** Measurements apply to 300 dpi, 600 dpi, and 1200 dpi printing.



## Media specifications

### Paper and specialty media guidelines

*Print media* is paper, card stock, transparencies, labels, and envelopes. This printer provides high quality printing on a variety of print media. You must consider a number of things concerning print media before you print, including:

- Supported print media
- Selecting print media
- Storing print media
- Avoiding jams

For more details about the types of paper and specialty media your printer supports, refer to your dealer.

We recommend that you try a limited sample of any paper or specialty media you are considering using with the printer before purchasing large quantities.

### Supported print media

The following tables provide information on standard and optional sources for both input and output trays and bins.

- Print media sizes
- Print media weights
- Media weights supported in optional output bins

**Note:** If you use a print media size not listed, select the next larger size.

### Print media sizes

— indicates support										
Print media size	Dimensions	250-sheet tray	500-sheet tray	250 UAT	400 UAT	Multipurpose feeder	2000-sheet drawer (option)	Envelope feeder (option)	Duplex unit (option)	Standard output bin
A4	210 x 297 mm (8.27 x 11.7 in.)	✓	✓	✓	✓	✓	✓		✓	✓
A5	148 x 210 mm (5.83 x 8.27 in.)	✓	✓	✓	✓	✓	✓		✓	✓
JIS B5	182 x 257 mm (7.17 x 10.1 in.)	✓	✓	✓	✓	✓	✓		✓	✓
Letter	215.9 x 279.4 mm (8.5 x 11 in.)	✓	✓	✓	✓	✓	✓		✓	✓
Legal	215.9 x 355.6 mm (8.5 x 14 in.)	✓	✓	✓	✓	✓	✓		✓	✓
<sup>1</sup> This size does not appear in the Paper Size menu until Tray Size Sensing is turned off. Refer to the <i>User Guide</i> for more information.										
<sup>2</sup> This size setting formats the page for 215.9 x 355.6 mm (8.5 x 14 in.) unless the size is specified by the software application.										

Legend ✓ — indicates support										
Print media size	Dimensions	250-sheet tray	500-sheet tray	250 UAT	400 UAT	Multipurpose feeder	2000-sheet drawer (option)	Envelope feeder (option)	Duplex unit (option)	Standard output bin
Executive	184.2 x 266.7 mm (7.25 x 10.5 in.)	✓	✓	✓	✓	✓	✓		✓	✓
Folio <sup>1</sup>	216 x 330 mm (8.5 x 13 in.)	✓	✓	✓	✓	✓	✓		✓	✓
Statement <sup>1</sup>	139.7 x 215.9 mm (5.5 x 8.5 in.)	✓	✓	✓	✓	✓				✓
Universal <sup>2</sup>	139.7 x 210 mm to 215.9 x 355.6 mm (5.5 x 8.27 in. to 8.5 x 14 in.)	✓	✓	✓	✓	✓				✓
	69.85 x 127 mm to 215.9 x 355.6 mm (2.75 x 5 in. to 8.5 x 14 in.)					✓				✓
	148 x 182 mm to 215.9 x 355.6 mm (5.83 x 7.17 in. to 8.5 x 14 in.)								✓	
	76.2 x 127 mm to 215.9 x 355.6 mm (3 x 5 in. to 8.5 x 14 in.)			✓						
	76.2 x 177.8 mm to 215.9 x 355.6 mm (3 x 7 in. to 9.01 x 14 in.)				✓					
7 ¾ Envelope	98.4 x 190.5 mm (3.875 x 7.5 in.)					✓		✓		✓
9 Envelope	98.4 x 225.4 mm (3.875 x 8.87 in.)					✓		✓		✓
10 Envelope	104.8 x 241.3 mm (4.12 x 9.5 in.)					✓		✓		✓
DL Envelope	110 x 220 mm (4.33 x 8.66 in.)					✓		✓		✓
B5 Envelope	176 x 250 mm (6.93 x 9.84 in.)					✓		✓		✓
C5 Envelope	162 x 229 mm (6.38 x 9.01 in.)					✓		✓		✓
Other Envelope <sup>1</sup>	98.4 x 162 mm to 176 x 250 mm (3.87 x 6.38 in. to 6.93 x 9.84 in.)					✓		✓		✓
<sup>1</sup> This size does not appear in the Paper Size menu until Tray Size Sensing is turned off. Refer to the <i>User Guide</i> for more information. <sup>2</sup> This size setting formats the page for 215.9 x 355.6 mm (8.5 x 14 in.) unless the size is specified by the software application.										

## Print media types

Print media	250-sheet drawer	500-sheet drawer	Multipurpose feeder	2000-sheet drawer	Duplex unit	Output bin
Paper	✓	✓	✓	✓	✓	✓
Card stock	✓	✓	✓			✓
Transparencies	✓	✓	✓			✓
Vinyl labels*	✓	✓	✓			✓
Paper labels*	✓	✓	✓			✓
Polyester label*	✓	✓	✓			✓
Dual-web and integrated labels*	✓	✓	✓			✓

\* Printing label applications on the MFP requires a special label fuser cleaner. The label fuser cleaner is included with a special label cartridge for label applications.

## Print media weights

Print media	Type	Print media weight		
		Integrated tray and optional 500-sheet drawer	Multipurpose feeder and optional 250-sheet drawer	Envelope feeder
Paper	Xerographic or business paper	60 to 176 g/m <sup>2</sup> grain long (16 to 47 lb bond)	60 to 135 g/m <sup>2</sup> grain long (16 to 36 lb bond)	n/a
Card stock—maximum (grain long) <sup>1</sup>	Index Bristol	163 g/m <sup>2</sup> (90 lb)	120 g/m <sup>2</sup> (67 lb)	
	Tag	163 g/m <sup>2</sup> (100 lb)	120 g/m <sup>2</sup> (74 lb)	
	Cover	176 g/m <sup>2</sup> (65 lb)	135 g/m <sup>2</sup> (50 lb)	
Card stock—maximum (grain short) <sup>1</sup>	Index Bristol	199 g/m <sup>2</sup> (110 lb)	163 g/m <sup>2</sup> (90 lb)	n/a
	Tag	203 g/m <sup>2</sup> (125 lb)	163 g/m <sup>2</sup> (100 lb)	
	Cover	216 g/m <sup>2</sup> (80 lb)	176 g/m <sup>2</sup> (65 lb)	
Transparencies	Laser printer	138 to 146 g/m <sup>2</sup> (37 to 39 lb bond)	138 to 146 g/m <sup>2</sup> (37 to 39 lb bond)	

**Print media weight**

Print media	Type	Integrated tray and optional 500-sheet drawer	Multipurpose feeder and optional 250-sheet drawer	Envelope feeder
Labels—maximum <sup>4</sup>	Paper	180 g/m <sup>2</sup> (48 lb bond)	163 g/m <sup>2</sup> (43 lb bond) <b>Note:</b> Not supported in the multipurpose feeder.	n/a
	Dual-web paper	180 g/m <sup>2</sup> (48 lb bond)	163 g/m <sup>2</sup> (43 lb bond) <b>Note:</b> Not supported in the multipurpose feeder.	
	Polyester	220 g/m <sup>2</sup> (59 lb bond)	220 g/m <sup>2</sup> (59 lb bond) <b>Note:</b> Not supported in the multipurpose feeder.	
	Vinyl <sup>5</sup>	300 g/m <sup>2</sup> (92 lb liner)	260 g/m <sup>2</sup> (78 lb liner) <b>Note:</b> Not supported in the multipurpose feeder.	
Integrated forms	Pressure-sensitive area (must enter the MFP first)	140 to 175 g/m <sup>2</sup>	140 to 175 g/m <sup>2</sup>	
	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)	
Envelopes 100% cotton content maximum weight—24 lb	Sulfite, wood-free, or up to 100% cotton bonds	Not recommended	60 to 105 g/m <sup>2</sup> (16 to 28 lb bond) <sup>2, 3</sup>	60 to 105 g/m <sup>2</sup> (16 to 28 lb bond) <sup>3</sup>
			<b>Note:</b> 28 lb envelopes are limited to 25% cotton content.	
<p><sup>1</sup> Grain short is preferred for papers over 135 g/m<sup>2</sup>.</p> <p><sup>2</sup> Includes envelopes fed from the multipurpose feeder only.</p> <p><sup>3</sup> 28 lb bond envelopes are limited to 25% cotton content.</p> <p><sup>4</sup> Printing label applications on the MFP requires a special label fuser cleaner.</p>				

## Selecting print media

Selecting the appropriate print media for the MFP helps you avoid printing problems. The following sections contain guidelines for choosing the correct print media for the MFP.

- Paper
- Transparencies
- Envelopes
- Labels
- Card stock

### Paper

For the best print quality, use 75 g/m<sup>2</sup> (20 lb) xerographic, grain long paper. Try a sample of any paper you are considering using with the MFP before buying large quantities.

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. We recommend that you follow these guidelines when evaluating new paper stock.

The laser printing process heats paper to high temperatures of 230°C (446°F). For Magnetic Ink Character Recognition (MICR) applications and 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 you have chosen is acceptable for laser printers.

### Weight

The MFP can automatically feed paper weights from 60 to 176 g/m<sup>2</sup> (16 to 47 lb bond) grain long in the integrated and optional 500-sheet trays and paper weights from 60 to 135 g/m<sup>2</sup> (16 to 36 lb bond) grain long in the multipurpose feeder and optional 250-sheet trays. Paper lighter than 60 g/m<sup>2</sup> (16 lb) might not be stiff enough to feed properly, causing jams. For best performance, use 75 g/m<sup>2</sup> (20 lb bond) grain long paper. When using paper narrower than 182 x 257 mm (7.2 x 10.1 in.), make sure the weight is greater than or equal to 90 g/m<sup>2</sup> (24 lb bond).

### Unacceptable paper

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

- Some 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 MFP
- Preprinted papers that can be affected by the temperature in the MFP fuser
- Preprinted papers that require a *registration* (the precise print location on the page) greater than ±0.09 in., such as optical character recognition (OCR) forms
- In some cases, you can adjust registration with your software application to successfully print on these forms.
- Coated papers (erasable bond), synthetic papers, thermal papers
- Rough-edged, rough or heavily textured surface papers or curled papers
- Recycled papers containing more than 25% post-consumer waste that do not meet DIN 19 309
- Recycled paper having a weight less than 60 g/m<sup>2</sup> (16 lb)
- Multiple-part forms or documents

## Transparencies

The MFP can print directly on transparencies designed for use in laser printers. Print quality and durability depend on the transparency used. Always print samples on the transparencies you are considering before buying large quantities.

The Paper Type setting should be set to Transparency to help prevent jams. In Macintosh, be sure to set the Paper Type to Transparency in the Print dialog on the Imaging choice in the Copies & Pages pop-up menu.

Use transparencies designed specifically for laser printers. Check with the manufacturer or vendor to determine whether your transparencies are compatible with laser printers that heat transparencies to 230°C (446°F). Use only transparencies that are able to withstand these temperatures without melting, discoloring, offsetting, or releasing hazardous emissions.

Transparencies can be fed automatically from the multipurpose feeder and all standard and optional trays, except the 2000-sheet drawer. Before loading transparencies, fan the stack to prevent sheets from sticking together.

Be careful when you handle transparencies. Fingerprints on the surface of the transparency cause poor print quality.

## Envelopes

You can load up to 10 envelopes in the multipurpose feeder and 85 envelopes in the envelope feeder. Try a sample of any envelopes you are considering using with the MFP before buying large quantities.

When printing on envelopes:

- To achieve the best possible print quality, use only high-quality envelopes that are designed for use in laser printers.
- Set the Paper Size/Type in the Paper menu to MP Feeder, Manual Env, or Env Feeder depending on the source you are using. Set the paper type to Envelope, and select the correct envelope size from the operator panel, the MFP driver, or from MarkVision™ Professional.
- For best performance, use envelopes made from 75 g/m<sup>2</sup> (20 lb bond) paper. You can use up to 105 g/m<sup>2</sup> (28 lb bond) weight for the multipurpose feeder or 105 g/m<sup>2</sup> (28 lb bond) weight for the envelope feeder as long as the cotton content is 25% or less. Envelopes with 100% cotton content must not exceed 90 g/m<sup>2</sup> (24 lb bond) weight.
- Use only new, undamaged envelopes.
- For best performance and to minimize jams, do not use envelopes that:
  - Have excessive curl or twist.
  - Are stuck together or damaged in any way.
  - Contain windows, holes, perforations, cutouts or embossing.
  - Use metal clasps, string ties, or metal folding bars.
  - Have an interlocking design.
  - Have postage stamps attached.
  - Have any exposed adhesive when the flap is in the sealed or closed position.
  - Have nicked edges or bent corners.
  - Have rough, cockle, or laid finishes.
- Use envelopes that can withstand temperatures of 230°C (446°F) without sealing, excessive curling, wrinkling, or releasing hazardous emissions. If you have any doubts about the envelopes you are considering using, check with the envelope supplier.
- Load only one size of envelope at a time in the envelope feeder.
- A combination of high humidity (over 60%) and the high printing temperatures may seal the envelopes.

## Labels

The MFP can print on many labels designed for use with laser printers. These labels are supplied in letter size, A4 size, and legal size sheets. Label adhesives, face sheet (printable stock), and topcoats must be able to withstand temperatures of 230°C (446°F) and pressure of 25 pounds per square inch (psi).

Try a sample of any labels you are considering using with the MFP before purchasing a large quantity.

**Note:** Labels are one of the most difficult print media for laser MFPs. All MFP models require a special fuser cleaner for label applications to optimize feed reliability.

After printing approximately 10,000 pages of labels (or each time you replace the print cartridge), complete the following steps to maintain MFP feeding reliability:

1. Print five sheets of paper.
2. Wait approximately five seconds.
3. Print five more sheets of paper.

When printing on labels:

- Set the Paper Size/Type menu item to Labels in the Paper menu. You can set the Paper Size/Type from the MFP operator panel, the MFP driver, or from MarkVision Professional.
- Feed vinyl labels from the standard 250- or 500-sheet trays or the optional 250- or 500-sheet drawers. For vinyl labels, set the Paper Type to Labels, the Labels Texture to Smooth, and the Label Weight to Heavy, or set the Paper Type to vinyl labels and the texture and weight to normal.
- Do not load labels with paper or transparencies in the same source; mixing print media can cause feeding problems and print quality problems.
- Do not use label sheets with a slick backing material.
- Use full label sheets. Partial sheets may cause labels to peel off during printing, resulting in a jam. Partial sheets also contaminate the MFP and your cartridge with adhesive, and could void the MFP and cartridge warranties.
- Use labels that can withstand temperatures of 230°C (446°F) without sealing, excessive curling, wrinkling, or releasing hazardous emissions.
- Do not print within 1 mm (0.04 in.) of the edge of the label, of the perforations, or between die-cuts of the label.
- Do not use label sheets that have adhesive to the edge of the sheet. We recommend zone coating of the adhesive at least 1 mm (0.04 in.) away from edges. Adhesive material contaminates the MFP and could void the warranty.
- If zone coating of the adhesive is not possible, a 1.6 mm (0.1 in.) strip should be removed on the leading and driver edge, and a non-oozing adhesive should be used.
- Remove a 1.6 mm (0.1 in.) strip from the leading edge to prevent labels from peeling inside the MFP.
- Portrait orientation is preferred, especially when printing bar codes.
- Do not use labels that have exposed adhesive.

## Card stock

Card stock is single ply, and has a large array of properties, such as the moisture content, thickness, and texture, that can significantly affect print quality. See “**Supported print media**” on page 1-9 for information on the preferred weight and for the grain direction of print media.

Try a sample of any card stock you are considering using with the MFP before purchasing a large quantity.

After printing approximately 10,000 pages of card stock (or each time you replace the print cartridge), complete the following steps to maintain MFP feeding reliability:

1. Print five sheets of paper.
2. Wait approximately five seconds.
3. Print five more sheets of paper.

When printing on card stock:

- Set the Paper Type menu item in the Paper menu to Card Stock from the operator panel, from the MFP driver, or from MarkVision Professional.
- Be aware that preprinting, perforation, and creasing can significantly affect the print quality and cause print media handling or jamming problems.
- Avoid using card stock that may release hazardous emissions when heated.
- Do not use preprinted card stock manufactured with chemicals that may contaminate the MFP. Preprinting introduces semi-liquid and volatile components into the MFP.
- We recommend the use of grain short card stock.

## Storing print media

Use the following guidelines to avoid paper feeding problems and uneven print quality.

- Store paper in an environment where the temperature is approximately 21°C (70°F) and the relative humidity is 40%.
- Store cartons of paper on a pallet or shelf rather than directly on the floor.
- If you store individual packages of paper out of the original carton, make sure they rest on a flat surface so the edges do not buckle or curl.
- Do not place anything on top of paper packages.
- Store paper in its original wrapper until you load it into the MFP.

## Avoiding jams

Use appropriate print media (paper, transparencies, labels, and card stock) to help ensure trouble-free printing.

**Note:** Try a limited sample of any print media you are considering using with the MFP before purchasing large quantities.

By selecting the appropriate print media and loading it properly, you can avoid most jams.

The following hints can help you avoid jams:

- Use only recommended print media.
- Do not overload the print media sources. Make sure the stack height does not exceed the maximum height indicated by the stack line on the labels in the sources.
- Do not load wrinkled, creased, damp, or curled print media.
- Flex, fan, and straighten print media before you load it. If jams do occur with print media, try feeding one sheet at a time through the multipurpose feeder.
- Do not use print media that you have cut or trimmed yourself.
- Do not mix print media sizes, weights, or types in the same print media source.
- Make sure the recommended print side is loaded in the source according to your simplex or duplex needs.



- Keep print media stored in an acceptable environment. See **“Storing print media” on page 1-16.**
- Do not remove trays during a print job.
- Push all trays in firmly after loading them.
- Make sure the guides in the trays are properly positioned for the size of print media you have loaded. Make sure the guides are not placed too tightly against the stack of print media.
- If a jam occurs, clear the entire media path.

---

## Tools required

Flat-blade screwdrivers, various sizes  
Phillips screwdrivers, various sizes  
7/32 inch open-end wrench  
7.0 mm nut driver  
5.5 mm wrench  
Needlenose pliers  
Diagonal side cutters  
Spring hook  
Feeler gauges  
Analog or digital multimeter  
Parallel wrap plug 1319128  
Twinax/serial debug cable 1381963  
Flash light (optional)


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## Acronyms

ADF	Automatic Document Feeder
AIO	All-In-One
CCD	Charge Coupled Device (CCD)
CRU	Customer Replaceable Unit
DIMM	Dual Inline Memory Module
DRAM	Dynamic Random Access Memory
EP	Electrophotographic process
EPROM	Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
GB	Gigabyte
HCIT	High-Capacity Input Tray
HVPS	High Voltage Power Supply
ITC	Internal Tray Card
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
MDC	Motor Driver Control
MFP	Multifunction Printer
MPF	Multipurpose Feeder
NVRAM	Nonvolatile Random Access Memory
OPT	Optical Sensor
PC	Photoconductor
PIN	Personal Identification Number
PJL	Printer Job Language
POR	Power-On Reset
POST	Power-On Self Test
PP	Parts Packet
PWM	Pulse Width Modulation
RIP	Raster Imaging Processor
SCC	Scanner Control Card
SDRAM	Synchronous Dynamic Random Access Memory
SIMM	Single Inline Memory Module
UAT	Universally Adjustable Tray
USB	Universal Serial Bus
V ac	Volts alternating current
V dc	Volts direct current

## 2. Diagnostic information

### Start

	<b>CAUTION</b> Remove the power cord from the printer or wall outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer.
---	--

	<b>CAUTION</b> Use the handholds on the side of the printer. Make sure your fingers are not under the printer when you lift or set the printer down.
---	---

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

### Symptom tables

If your machine completes the does not display an error message, and you have a problem, go to **“Symptom tables” on page 2-10**. Locate your symptom, and take the appropriate action. The following tables are available:

### Service errors (8xx.xx and 9xx.xx's)

If a service error code appears while you are working on the machine, go to **“Service error codes” on page 2-13**, and take the indicated action for that error.

Service error codes are indicated by a three-digit error code followed by a period and additional numbers in the format XXX.YY. In most cases, five digits are shown.

### User status and attendance messages

- User status messages provide the user with information on the current status of the printer. Ready displays on the first line of the display unless invoked, and then Power Saver displays. If a user status message is displayed, go to **“User status displays.” on page 2-38**.
- User attendance messages are indicated by a two or three-digit error code that provides the user with information that explains a problem with a print cartridge, paper jam, option, port, and so on. If a user error message displays, go to **“User attendance messages” on page 2-42** and **“User attendance messages—paper jams and paper handling errors (2xx.xx)” on page 2-57**.

### Additional information

- **“Understanding the MFP operator panel” on page 2-2**
- **“Menus” on page 2-9**
- **“Diagnostics Menu” on page 3-2**
- **“Configuration menu (CONFIG MENU)” on page 3-24**
- **“Theory” on page 3-36**
- **“Paper feed jams” on page 3-38**
- **“Parts catalog” on page 7-1**

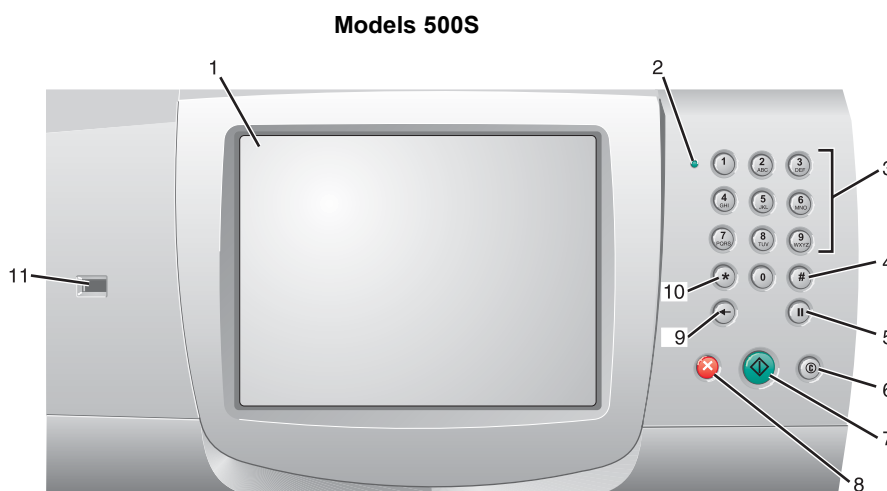
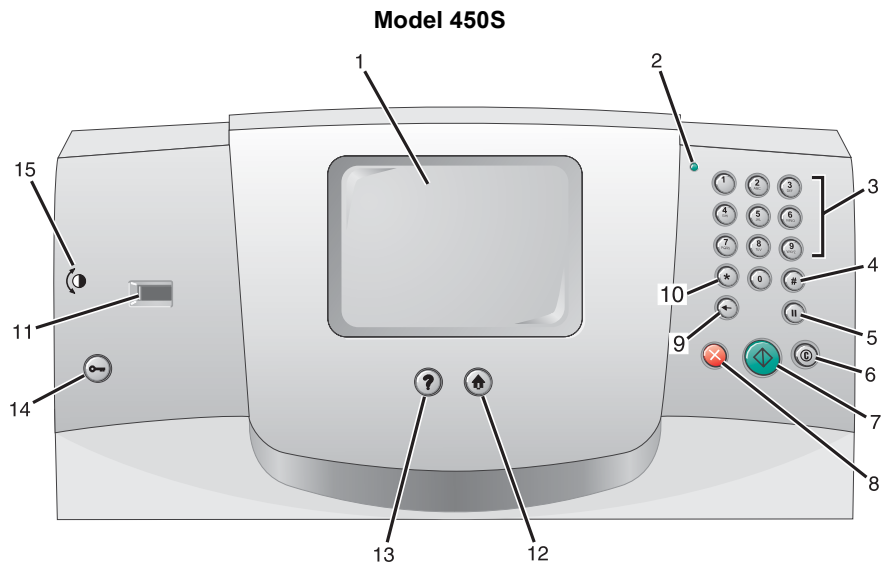
## Understanding the MFP operator panel

MFP and scanner settings can be changed several ways: through the MFP operator panel, the software application in use, the print driver, MarkVision Professional, or the Web pages. Settings changed from the application or print driver apply only to the job being sent to the MFP.

Changes made to print, fax, copy, and e-mail settings from an application override changes made from the operator panel.

If a setting cannot be changed from the application, use the MFP operator panel, MarkVision Professional, or the Web pages. Changing a setting from the MFP operator panel, MarkVision Professional, or the Web pages makes that setting the user default.

### *MFP operator panels*

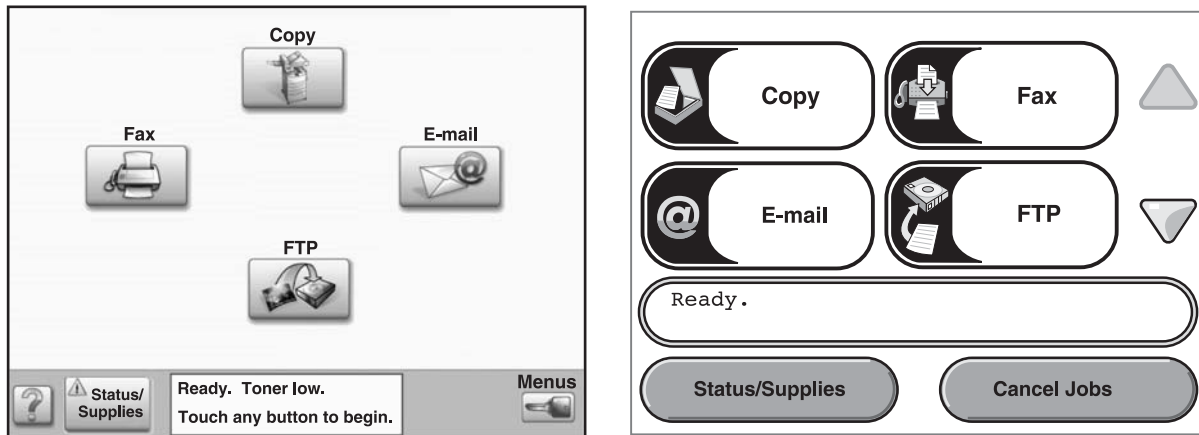


Callout	Operator panel item	Function										
1	LCD	A liquid crystal display (LCD) which shows home screen buttons, menus, menu items, and values. Allows for making selections within Copy, Fax, and so on.										
2	Indicator light	<p>Gives information about the status of the MFP using the colors red and green.</p> <table border="0"> <thead> <tr> <th>Status</th> <th>Indicates</th> </tr> </thead> <tbody> <tr> <td>Off</td> <td>MFP power is off.</td> </tr> <tr> <td>Blinking green</td> <td>MFP is warming up, processing data, or printing a job.</td> </tr> <tr> <td>Solid green</td> <td>MFP is on, but idle.</td> </tr> <tr> <td>Solid red</td> <td>Operator intervention is required.</td> </tr> </tbody> </table>	Status	Indicates	Off	MFP power is off.	Blinking green	MFP is warming up, processing data, or printing a job.	Solid green	MFP is on, but idle.	Solid red	Operator intervention is required.
Status	Indicates											
Off	MFP power is off.											
Blinking green	MFP is warming up, processing data, or printing a job.											
Solid green	MFP is on, but idle.											
Solid red	Operator intervention is required.											
3	0–9 <b>Note:</b> Referred to as the numeric keypad.	<p>Press these buttons to enter numbers when the LCD screen has a field that accepts the entry of numbers. Also, use these buttons to dial phone numbers for faxes.</p> <p><b>Note:</b> If a number is pressed while on the home screen without pressing the # button first, the Copy menu opens and changes the Copy Quantity.</p>										
4	# (Pound or number character)	<p>Press this button:</p> <ul style="list-style-type: none"> <li>• For a shortcut identifier.</li> <li>• Within phone numbers. For a Fax number with a #, enter it twice — ##.</li> <li>• From the home screen, the Fax Destination List menu item, E-mail Destination List menu item, or Profile List menu item to access shortcuts.</li> </ul>										
5	Dial Pause	<p>Press to cause a two- or three-second dial pause in a fax number. The button only functions within the Fax menu or with fax functions.</p> <p>Press from the home screen to redial a fax number.</p> <p>When outside of the Fax menu, fax function, or home screen, pressing Dial Pause causes an error beep.</p> <p>When sending a fax, in the Fax To: field, a Dial Pause press is represented by a comma (,).</p>										
6	Clear All	<p>When in the function menus, such as Copy, Fax, E-mail, and FTP, it returns all settings to their default values, and then returns the MFP to the home screen.</p> <p>When in any other menu while the MFP is Ready, it cancels all changes that have not been submitted and returns the MFP to the home screen.</p>										
7	Start	<p>Press to initiate the current job indicated on the operator panel.</p> <p>From the home screen, press it to start a copy job with the default settings.</p> <p>If pressed while a job runs through the scanner, the button has no effect.</p>										
8	Stop	<p>Press to cause the printing or scanning to stop.</p> <p>During a scan job, the scanner finishes scanning the current page and then stops, which means paper may remain in the automatic document feeder (ADF).</p> <p>During a print job, the print media path is cleared before the printing stops.</p> <p>Stopping appears on the operator panel during this process.</p>										
0	Backspace	<p>Within the Copy menu, which is accessed by touching the Copy button, press <b>Backspace</b> to delete the right-most digit of the value in the Copy Count. The default value of 1 appears if the entire number is deleted by pressing <b>Backspace</b> numerous times.</p> <p>Within the Fax Destination List, press <b>Backspace</b> to delete the right-most digit of a number entered manually. It also deletes an entire shortcut entry. Once an entire line is deleted, another press of <b>Backspace</b> causes the cursor to move up one line.</p> <p>Within the E-mail Destination List, press <b>Backspace</b> to delete the character to the left of the cursor. If the entry is in a shortcut, the entire entry is deleted.</p>										
10	Asterisk (*)	* is used as part of a fax number or as an alphanumeric character.										

Callout	Operator panel item	Function
11	USB Direct interface	The host Universal Serial Bus (USB) direct interface on the operator panel is used to plug in a USB flash memory device and print any Portable Document Format (PDF) [.pdf file], Joint Photographic Experts Group (JPEG) [.jpeg or .jpg file], Tagged Image File Format (TIFF) [.tiff or .tif file], Graphics Interchange Format (GIF) [.gif file], Basic Multilingual Plane (BMP) [.bmp file], Portable Network Graphics (PNG) [.png file], PiCture eXchange (PCX) [.pcx file], and PC Paintbrush File Format [.dcm file] files.  The USB direct interface can also be used to scan a document to a USB flash memory device using the PDF, TIFF, or JPEG formats.
12	Home (only on model 450S)	Returns the LCD to the home screen.
13	Help Tips (only on model 450S)	Accesses the context-sensitive Help feature.
14	Menu (only on model 450S)	Accesses the menus. These menus are only available when the MFP is in the Ready state.
15	Contrast icon (only on model 450S)	Identifies the location of the contrast wheel. Look on the left side of the MFP near this icon to locate the contrast wheel which adjusts the contrast on the LCD.

### Home screen and Home screen buttons

After the MFP is turned on and a short warm-up period occurs, the LCD shows the following basic screen which is referred to as the Home screen. Use the Home screen buttons to initiate an action such as copy, fax, or scan, to open the menu screen, or to respond to messages.



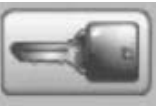

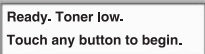















### Buttons and touchscreen icon buttons

Buttons and touchscreen icon buttons (refer to *Menus & Messages* for comprehensive list)

Models 500S	Model 450S	Button name	Function
		Copy	Touch to access the Copy menu.  If the home screen is shown, press a number to access the Copy menu, too.

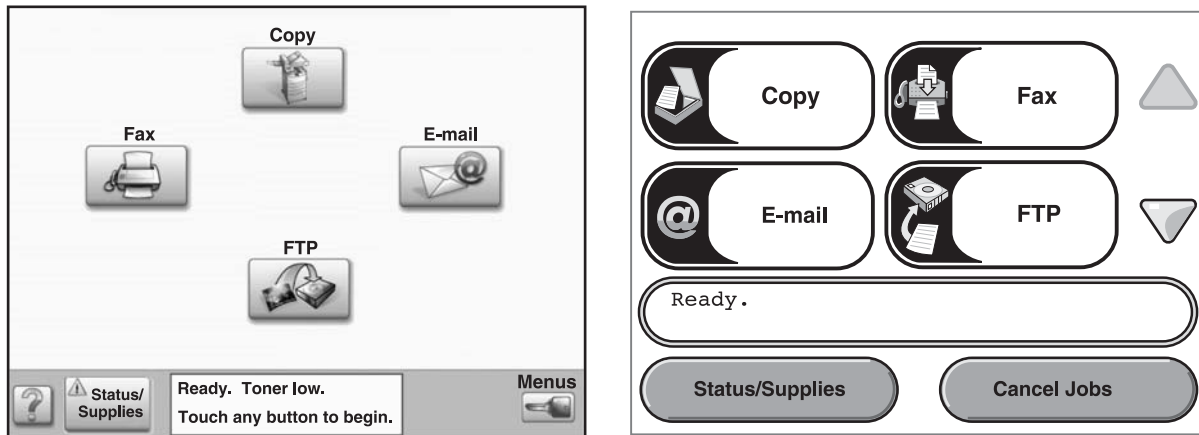
**Buttons and touchscreen icon buttons (refer to *Menus & Messages* for comprehensive list) (continued)**

Models 500S	Model 450S	Button name	Function
		E-mail	Touch to access the E-mail menus. It is possible to scan a document directly to an e-mail address.
(Icon) 	(Button) 	Menus (A key is shown on the button.)	Touch to access the menus. These menus are only available when the MFP is in the Ready state. For model 500S, the Menu icon is on a gray bar called the navigation bar. For model X642e, the Menu button is on the left side of the operator panel. See <b>“Menu (only on model 500S)” on page 2-4.</b>
		Status message bar	Shows the current MFP status such as Ready or Busy. Shows MFP conditions such as Toner Low. Shows intervention messages to give instructions on what the user should do so the MFP can continue processing, such as Close door or insert print cartridge.
		Status/Supplies	Appears on the LCD whenever the MFP status includes a message requiring intervention. Touch it to access the messages screen for more information on the message including how to clear it.
(Icon) 	(Button) 	? (Tips)	Tips is a context-sensitive Help feature. For model 500S, all menus have a Tips icon on the touchscreen panel. For model 450S, there is a Tips button on the operator panel, below the touchscreen panel. See <b>“Help Tips (only on model 500S)” on page 2-4.</b>
		FTP	Touch to access the File Transfer Protocol (FTP) menus. A document can be scanned directly to an FTP site.
		Fax	Touch to access the Fax menus.
(Icon) 	(Button) 	Home	For model 500S, touch the <b>Home</b> icon to return to the home screen. The <b>Home</b> icon appears on every screen except the home screen. For model 450S, press the <b>Home</b> button on the operator panel below the touchscreen to return to the home screen. See <b>“Home (only on model X642e)” on page 2-4.</b>
		Release Held Faxes (or Held Faxes if in Manual Mode)	There are held faxes with a scheduled hold time previously set. To access the list of held faxes, touch this button.

Callout	Operator panel item	Function
11	USB Direct interface	The host Universal Serial Bus (USB) direct interface on the operator panel is used to plug in a USB flash memory device and print any Portable Document Format (PDF) [.pdf file], Joint Photographic Experts Group (JPEG) [.jpeg or .jpg file], Tagged Image File Format (TIFF) [.tiff or .tif file], Graphics Interchange Format (GIF) [.gif file], Basic Multilingual Plane (BMP) [.bmp file], Portable Network Graphics (PNG) [.png file], PiCture eXchange (PCX) [.pcx file], and PC Paintbrush File Format [.dcm file] files.  The USB direct interface can also be used to scan a document to a USB flash memory device using the PDF, TIFF, or JPEG formats.
12	Home (only on model 450S)	Returns the LCD to the home screen.
13	Help Tips (only on model 450S)	Accesses the context-sensitive Help feature.
14	Menu (only on model 450S)	Accesses the menus. These menus are only available when the MFP is in the Ready state.
15	Contrast icon (only on model 450S)	Identifies the location of the contrast wheel. Look on the left side of the MFP near this icon to locate the contrast wheel which adjusts the contrast on the LCD.

### Home screen and Home screen buttons

After the MFP is turned on and a short warm-up period occurs, the LCD shows the following basic screen which is referred to as the Home screen. Use the Home screen buttons to initiate an action such as copy, fax, or scan, to open the menu screen, or to respond to messages.















### Buttons and touchscreen icon buttons

Buttons and touchscreen icon buttons (refer to *Menus & Messages* for comprehensive list)







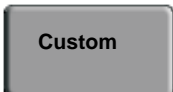




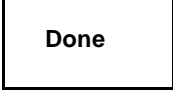

Model 500S	Model 450S	Button name	Function
		Copy	Touch to access the Copy menu. If the home screen is shown, press a number to access the Copy menu, too.



Buttons and touchscreen icon buttons (refer to *Menus & Messages* for comprehensive list) (continued)

Models 500S	Model 450S	Button name	Function
	 	Cancel Jobs	<p>To open the Cancel Jobs screen. The Cancel Jobs screen shows any of the following items under three headings on the screen which are Print, Fax, and Network:</p> <ul style="list-style-type: none"> <li>• print job</li> <li>• copy job</li> <li>• fax</li> <li>• profile</li> <li>• FTP</li> <li>• e-mail send</li> </ul> <p>Each heading has its own list of jobs shown in a column under the heading. Each column can only show three jobs per screen. The job appears as a button. If more than three jobs exist in a column, then the <b>down arrow</b> appears at the bottom of the column. Each touch of the <b>down arrow</b> accesses one job in the list. When more than three jobs exist, once the fourth job in the list is reached, then an <b>up arrow</b> appears at the top of the column.</p>
 		Scan the ADF Scan the flatbed	<p>Model 500S—On the gray navigation bar, these two choices indicate that two types of scanning are possible. One may choose to scan from the ADF or the flatbed.</p>
			<p>For both models—To save the value as the new user default setting, touch <b>Submit</b>. A <i>green button</i> indicates a choice. If a different value within a menu item is touched, it needs to be saved to become the current user default setting.</p> <p>For model 450S—To save the value as the new user default setting, touch <b>Submit</b>.</p>
		Back	<p>For all models, touch <b>Back</b> to return to the previous screen, and all the settings for the scan job made on Sample screen one are lost.</p> <p>          For both models, when the <b>Back</b> button is shaped like this, no other navigation is possible from this screen except to go back. If any other choice is made on the navigation bar, the screen closes.     </p> <p>          For both models, when the <b>Back</b> button is shaped like this, both forward and backward navigation is possible from this screen, so there are other options available on the screen besides selecting <b>Back</b>.     </p>
		Down arrow	<p>Touch the <b>down arrow</b> to move down to the next item in a list, such as a list of menu items or values. The <b>down arrow</b> does not appear on a screen with a short listing. It only appears if the entire listing cannot be seen on one screen. On the last screen of the listing, the <b>down arrow</b> is gray to indicate that it is not active since the end of the list appears on this screen.</p>


**Buttons and touchscreen icon buttons (refer to *Menus & Messages* for comprehensive list) (continued)**

Models 500S	Model 450S	Button	Function
		Up arrow	Touch the <b>up arrow</b> to move up to the next item in a list, such as a list of menu items or values. When on the first screen presented with a long list, the <b>up arrow</b> is gray to indicate that it is not active. On the second screen needed to show the rest of the listed item, the <b>up arrow</b> is blue to show that it is active.
		Unselected radio button	This is an unselected <b>radio</b> button.
		Selected radio button	This is a selected <b>radio</b> button. Touch a <b>radio</b> button to select it. The <b>radio</b> button changes color to show it is selected. In Sample screen two, the only paper size selected is Letter.
		Continue	Touch <b>Continue</b> after a menu item or value on a screen is selected and more changes need to be made for a job from the original screen. Once <b>Continue</b> is touched, the original screen appears.
		Custom	Allows for creating a <b>custom</b> button based on the user's needs.
		Cancel	Touch <b>Cancel</b> to cancel an action or a selection. Touch to cancel out of a screen and return to the previous screen.
		Select	Touch to select a menu. The next screen appears showing menu items. Touch to select a menu item. The next screen appears showing values.
		Done	Allows specifying that a job is finished. For example, when scanning an original document, one could indicate that the last page is scanned, and then printing the job would begin.
		Home	Touch the <b>Home</b> button to return to the home screen. The <b>Home</b> button appears on every screen except the home screen. See the " <b>Home screen and Home screen buttons</b> " on page 2-4 for more information.

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## Menus

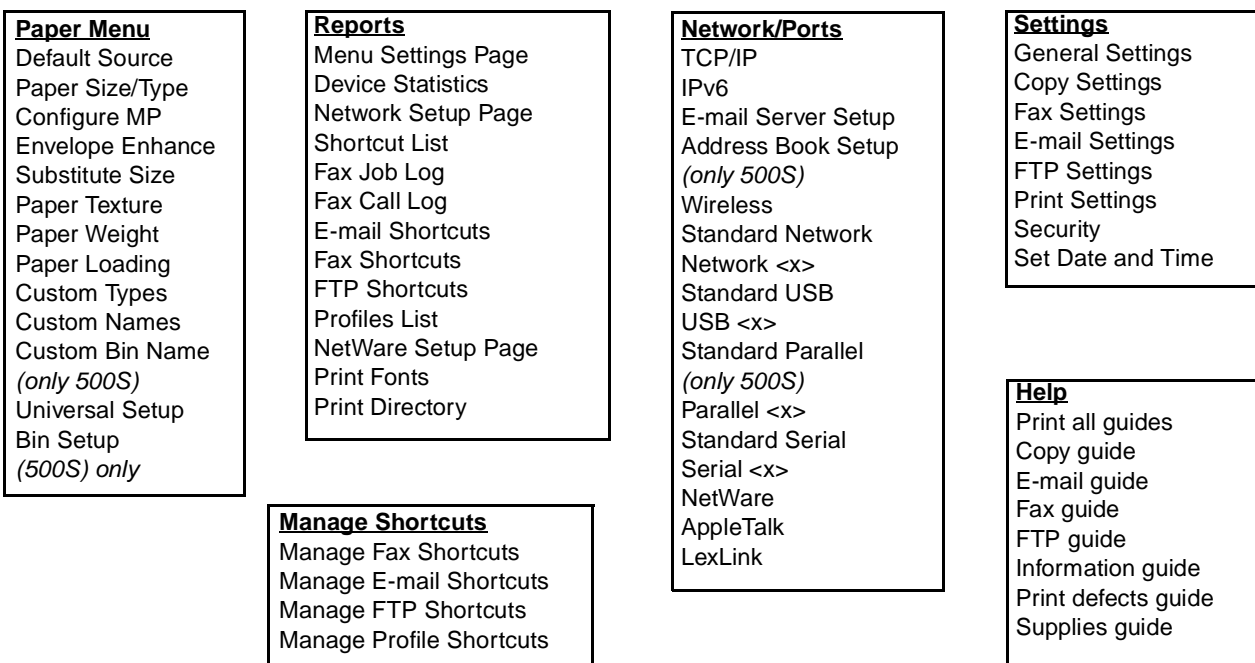
A number of menus are available to make it easy for you to change MFP settings or print reports. To access the menus and settings:

- Model 500P—touch the menu icon in the lower right corner of the home screen
- Model 450S—press the menu button (  ) to the left of the operator panel.

When a value or setting is selected and saved, it is stored in MFP memory. Once stored, these settings remain active until new ones are stored or the factory defaults are restored.

**Note:** Settings chosen for faxing, scanning, e-mailing, copying, and settings for printing from the application may override the settings selected from the operator panel.

The following diagram shows the touch screen menu index and the menus and items available under each menu. For more information about menus and menu items, see the *Menus and Messages Guide* on the *Software and Documentation CD*.



## Symptom tables

### Printer symptoms

Symptom	Action
Dead machine	Go to <b>“Dead machine service check” on page 2-125.</b>
Touchscreen panel blank, LED is on	Go to <b>“LCD touchscreen display service check—model 500S on page 2-149.</b>
Touchscreen all white	Go to <b>“LCD touchscreen display service check—model 500S” on page 2-149</b>
Touchscreen panel blank, LED off, operator panel buttons do not work	Go to <b>“Operator panel right cover assembly service check” on page 2-154.</b>
LCD touchscreen icon buttons do not work	Go to <b>“LCD touchscreen display service check—model 500S on page 2-149.</b>
LCD touchscreen (mono—model 450S)—contrast does not change with contrast control	Go to <b>“LCD touchscreen contrast control service check—model 450S” on page 2-149.</b>
LCD touchscreen (color—model 500S)—unable to change LCD touchscreen backlight	Go to <b>“LCD touchscreen backlight—model 500S” on page 2-151</b>
LCD (mono—model 450S)— <b>Home</b> and <b>Help</b> buttons on operator panel do not operate.	Go to <b>“Operator panel Help and Home buttons service check—model 450S” on page 2-154.</b>
LCD (mono—model 450S)—Menu button on operator panel does not operate.	Go to <b>“Operator panel Menu button service check—model X642e” on page 2-154.</b>
Operator panel—none of the buttons work.	Replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>
Operator panel—one button does not work	Replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>
Operator panel LED does not come on while MFP operates normally	Go to <b>“Operator panel right cover assembly service check” on page 2-154.</b>
Paper feed problems—printer or integrated 500-sheet paper tray	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
Paper jams at exit of redrive assembly—duplex option not installed.	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
Paper jams at exit of redrive assembly—duplex option installed.	Go to <b>“Duplex option service check” on page 2-127.</b>
Fuser solenoid fails to operate.	Go to <b>“Fuser solenoid service check” on page 2-140.</b>
Printer—black page (print quality)	Go to <b>“Print quality—all black page” on page 2-160.</b>
Printer—blank page (print quality)	Go to <b>“Print quality—blank page” on page 2-161.</b>
Printer—light print (print quality)	Go to <b>“Print quality—light print” on page 2-164.</b>
Printer—background (print quality)	Go to <b>“Print quality—background” on page 2-162.</b>
Printer—residual image (print quality)	Go to <b>“Print quality—residual image” on page 2-163.</b>
Printer—skew (print quality)	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
Printer—banding (print quality)	Go to <b>“Print quality—banding” on page 2-163.</b>
Printer—random marks (print quality)	Go to <b>“Print quality—random marks” on page 2-161.</b>
Printer—toner on backside of printed page. (print quality)	Go to <b>“Print quality—toner on backside of printed page” on page 2-164.</b>

### Printer symptoms (continued)

Symptom	Action
Printer—vertical black bands on edge of copy (print quality)	Go to <b>“Print quality—black bands on outer edges of the page” on page 2-163.</b>
Unable to clear a 32-Unsupported Print Cartridge user error message.	Go to <b>“Signature button assembly service check” on page 2-170.</b>

### Scanner—ADF symptoms

Symptom	Action
ADF does not recognize paper length in the paper tray	Go to <b>“ADF paper length sensor service check—model 500S” on page 2-122.</b>
ADF does not recognize one or all paper widths of paper in the paper tray	Go to <b>“ADF paper width sensor service check—model 500S” on page 2-123.</b>

### Scanner—flatbed symptoms

Symptom	Action
Flatbed scanner does not recognize paper size.	Go to <b>“Flatbed size sensor service check” on page 2-131.</b>
A blue screen on the touchscreen. The MFP does not come to a Ready state.	Go to <b>“843.xx Error code service check” on page 2-116</b>
A clicking noise coming from the back of the MFP between the scanner and the printing unit.	Go to <b>“843.xx Error code service check” on page 2-116</b>

### Scanner—scan quality

Symptom	Action
Vertical streaks or lines on image	Go to <b>“Vertical streaks or lines on image” on page 2-165</b>
All black or blank page	Go to <b>“All black or blank image” on page 2-168</b>
Wavy lines—flatbed or mixed mode up to 300 dpi	Go to <b>“Wavy lines” on page 2-169</b>
Line compression	Go to <b>“Line compression” on page 2-169</b>

### High-capacity feeder (2000-sheet) symptoms

Symptom	Action
The printer does not recognize the high-capacity feeder installed.	Go to <b>“High-capacity feeder input tray service check” on page 2-141.</b>
Paper feed problem with the high-capacity feeder.	Go to <b>“High-capacity feeder input tray service check” on page 2-141.</b>

### ***Paper tray symptoms***

<b>Symptom</b>	<b>Action</b>
Paper feed problem with 250-Sheet Paper Tray.	Go to <b>“Input tray(s) service check” on page 2-147.</b>
Paper feed problem with 500-Sheet Paper Tray.	Go to <b>“Input tray(s) service check” on page 2-147.</b>
Media fails to pass through from the lower attached Paper Tray option to the next higher mounted option.	Go to <b>“Input tray(s) service check” on page 2-147.</b>

### ***Duplex option symptoms***

<b>Symptom</b>	<b>Action</b>
Paper feed problem with Duplex.	Go to <b>“Duplex option service check” on page 2-127.</b>
Paper jams at Paper Removal Tray.	Go to <b>“Duplex option service check” on page 2-127.</b>
Paper skews in the Duplex Option.	Go to <b>“Duplex option service check” on page 2-127.</b>
Paper fails to pass from lower option through the Duplex Option.	Go to <b>“Duplex option service check” on page 2-127.</b>

### ***Envelope feeder symptoms***

<b>Symptom</b>	<b>Action</b>
Envelopes do not feed from the envelope feeder.	Go to <b>“Envelope feeder service check” on page 2-129.</b>
Envelopes do not feed properly into printer.	Go to <b>“Envelope feeder service check” on page 2-129.</b>

## Messages and error codes

### Service error codes

Service error codes are generally non-recoverable except in an intermittent condition when you can POR the printer to temporarily recover from the error condition.

Service error codes are indicated by a three-digit error code followed by a period and additional numbers in the format XXX.YY. In most cases, five digits are shown. Additional sub error codes display if you press and hold **Start** (⏻) and **2** when an error message is displayed. Not all error conditions have additional sub error information.

### Sub error codes for 8xx, 9xx, and 2xx error codes

The sub error codes are helpful troubleshooting a paper path problem, especially paper jams in the printer, envelope feeder, and duplex option.

#### To display sub error codes (where available)

When a 9xx or 2xx error displays:

1. Press and hold **Start** (⏻) and **2** to view for sub error codes.  
The first screen of information displays. Write down the information.
2. Continue pressing **Start** and **2** until each screen of information is obtained.
3. When the last screen displays, the original message displays.

#### Printed error codes

Additional information is available by printing the error log. See **“Print Log” on page 3-22**.

### Service error codes (8xx.xx)

Error code	Sub codes	Display text	Description	Action
842	.xx	Service Scanner	This error indicates that a scanner communications failure.	Go to <b>“842.xx Error code service check” on page 2-115</b> .
843	.xx	Service Scanner	This error indicates that a problems has been detected with the flatbed carriage mechanical hardware. It may also indicate interference between the flatbed CCD assembly and a metal bracket.	Go to <b>“843.xx Error code service check” on page 2-116</b> .
845	.00	Service Image Processing Unit	This error code indicates a failure of the image processing ASIC.	Replace the scanner control card (SCC). See <b>“Scanner control card removal” on page 4-48</b> .
848	.00	Modem/Config ID Mismatch	There is no modem installed on a modem version of the MFP.	Check to see if a modem card is installed in the MFP. If no modem is installed, install a modem card. If the modem is installed, go to <b>“848.00 Error code service check” on page 2-118</b> .
848	.01	Modem/Config ID Mismatch	Modem is present on a no modem version of the MFP.	Remove the modem that has been installed as this MFP does not support a modem.

## Service error codes (9xx.xx)

Error code	Sub codes	Display text	Description	Action
900	.xx	RIP Software		Go to <b>“900.xx Error code service check” on page 2-118.</b>
900	.90	947 Modem Init Failed	Defective modem hardware.	Replace the modem card.
901	.xx	Engine flash error	Indicates that the flash which the system board code is programmed into is bad. Replace the system board.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
902	.xx	Engine software error	These errors indicate an unrecoverable system software error.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
903	.xx	Paperport link driver error	These errors indicate an unrecoverable system software error.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
904	.xx	Interface violation by RIP	These errors indicate an unrecoverable system software error.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
905	.xx	Interface violation by Paperport device	These errors indicate an unrecoverable system software error.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
906	.xx	RIP interface driver error	These errors indicate an unrecoverable system software error.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
910	.xx	DC pick motor acceleration stall (autocompensator motor).	<ul style="list-style-type: none"> <li>• Check autocompensator cable connectors</li> <li>• Check autocompensator for binds</li> </ul>	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
911	.00	DC pick motor excessive PWM	<ul style="list-style-type: none"> <li>• Check system board</li> <li>• Check autocompensator motor</li> </ul>	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
912	.00	DC pick motor underspeed error	<ul style="list-style-type: none"> <li>• Check system board</li> <li>• Check autocompensator</li> </ul>	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
913	.00	DC pick motor overspeed error	<ul style="list-style-type: none"> <li>• Check system board</li> <li>• Check autocompensator</li> </ul>	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
914	.00	DC pick motor no encoder feedback	Check autocompensator assembly	Go to <b>“Paper feed service check—printer” on page 2-156.</b>
917	.00	Problem with transfer—transfer servo start error.	<ul style="list-style-type: none"> <li>• Check HVPS</li> <li>• Check system board</li> <li>• Check HVPS/input sensor/toner sensor cable.</li> </ul>	Go to <b>“Transfer roll service check” on page 2-172.</b>



## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.01	Hot roll took too long to heat up after transitioning to new enhanced mode (standby control only). Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low wattage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.02	Hot roll fell too far below the desired temperature while in standby. Fuser page between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low wattage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.03	Hot roll too cool when checking for slope change in standby. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low wattage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.04	Hot roll too cool when heating to desired temperature after slope change (standby control only). Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low wattage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.06	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920.	.07	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Abrupt change in temperature that has disrupted control.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.11	Hot roll took too long to heat up after transitioning to new enhanced mode. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.12	Hot roll fell too far below the desired temperature while printing. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.13	Hot roll too cool while checking for slope change. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.14	Hot roll too cool when heating to desired temperature after slope change. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.16	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.17	Fuser has been below the desired temperature for too long while the media is in the nip. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> <li>• Abrupt change in temperature that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.21	Hot roll took too long to heat up after transitioning to new enhanced mode. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.22	Hot roll fell too far below the desired temperature while printing. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.23	Hot roll too cool while checking for slope change. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.24	Hot roll too cool when heating to desired temperature after slope change. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.26	Fuser is not increasing in temperature even though the lamp has been on for an extended tim. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.27	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> <li>• Abrupt change in temperature that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.31	Under temperature during steady state control. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.32	Hot roll fell too far below desired temperature while printing. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.33	Hot roll too cool while checking for slope change. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.34	Hot roll too cool when heating to desired temperature after slope change. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.36	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.37	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> <li>• Abrupt change in temperatures that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.41	Hot roll took too long to heat up after transitioning to new enhanced mode. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.42	Hot roll fell too far below the desired temperature while printing. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.43	Hot roll too cool while chickens for slope change. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.44	Hot roll too cool when heating to desired temperature after slop change. Fuser page count between 400,000 and 499,999	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.46	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.47	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> <li>• Abrupt change in temperatures that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.51	Hot roll took too long to heat up after transitioning to new enhanced mode. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.
920	.52	Hot roll fell too far below desired temperature while printing. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.
920	.53	Hot roll too cool while checking for slope change. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.
920	.54	Hot roll too cool when heating to desired temperature after slope change. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.
920	.56	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser count more than 500,000.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.
920	.57	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> <li>• Abrupt change in temperatures that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check”</b> on page 2-132.

### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
920	.91	Hot roll took too long to heat up after transitioning to new enhanced mode. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.92	Hot roll fell too far below desired temperature while printing. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.93	Hot roll too cool while checking for slope change. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.94	Hot roll too cool when heating to desired temperature after slope change. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Incorrect hot roll.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.96	Fuser is not increasing in temperature even though the lamp has been on for an extended time. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Fuser is not receiving AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>
920	.97	Fuser has been below the desired temperature for too long while media is in the nip. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Very noisy thermistor signal.</li> <li>• Fuser not receiving AC power.</li> <li>• Poor supply line voltage.</li> <li>• Excessive load on the fuser.</li> <li>• Low voltage or incorrect lamp.</li> <li>• Abrupt change in temperatures that has disrupted control.</li> </ul>	Go to <b>“920.xx—Cold fuser service check” on page 2-132.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.02	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.03	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.04	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.06	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.07	Fuser has taken too long to reach desired temperature after increasing interrupt gap. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.12	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.13	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>



## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.14	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.15	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count between 100,000 and 199,999.	The control code has been lost.	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.16	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.17	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.22	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.23	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.24	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.25	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count between 200,000 and 299,999.	The control code has been lost.	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.26	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.27	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.32	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.33	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.34	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.35	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count between 300,000 and 399,999.	The control code has been lost.	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.36	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.37	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.42	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.43	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.44	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.45	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count between 400,000 and 499,999.	The control code has been lost.	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.46	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.47	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Excessive load on the fuser.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.52	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.53	Hot roll reached final lamp detection temperature but took longer than largest time in lookup table. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.54	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.55	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count stopped at 500,000 to preserve data.	The control code has been lost.	POR the MFP and retry. If the error message remains, go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.56	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.57	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Excessive load on the fuser.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.92	Hot roll took too long to reach the beginning lamp detection temperature. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.93	Hot roll reached ‘final lamp detection temperature’ but took longer than largest time in lookup table. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
922	.94	Hot roll timed out in trying to reach the final lamp detection temperature. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.95	After hot roll lamp detection, did not roll over to steady state control in time. Fuser page count not available.	Control code has been lost.	POR and retry. If the error message remains, go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.96	Hot roll did not reach operating temperature in time (new enhanced control). Fuser page count not available.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Bad thermistor, circuit, or cabling.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
922	.97	Fuser has taken too long to reach desired temperature after increasing interpage gap. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Low wattage or incorrect lamp.</li> <li>• Excessive load on the fuser.</li> <li>• Fuser not receiving sufficient AC power.</li> <li>• Poor supply line voltage.</li> </ul>	Go to <b>“922.xx—Cold fuser check” on page 2-134.</b>
923	.01	Fuser over temperature. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
923	.11	Fuser over temperature. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
923	.21	Fuser over temperature. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
923	.31	Fuser over temperature. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
923	.41	Fuser over temperature. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
923	.51	Fuser over temperature. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
923	.91	Fuser over temperature. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Short in the thermistor circuit.</li> <li>• Noisy thermistor signal</li> <li>• Fuser is actually overheating due to hardware faults.</li> </ul>	Go to <b>“923.xx—Hot fuser service check” on page 2-135.</b>
924	.01	Open thermistor check failure. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.11	Open thermistor check failure. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.21	Open thermistor check failure. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.31	Open thermistor check failure. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.41	Open thermistor check failure. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.51	Open thermistor check failure. Fuser page count over 500,000.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
924	.91	Open thermistor check failure. Fuser page count not available.	<ul style="list-style-type: none"> <li>• Noisy thermistor signal.</li> <li>• Intermittent connection.</li> <li>• Thermistor cable not connected or thermistor actually open.</li> </ul>	Go to <b>“924.xx—Hot fuser service check” on page 2-136.</b>
925	.01	Lamp detection performed and found error. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.02	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count between 0 and 99,999.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>

## Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
925	.11	Lamp detection performed and found error. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.12	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count between 100,000 and 199,999.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.21	Lamp detection performed and found error. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.22	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count between 200,000 and 299,999.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.31	Lamp detection performed and found error. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.32	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count between 300,000 and 399,999.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.41	Lamp detection performed and found error. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.42	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count between 400,000 and 499,999.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.51	Lamp detection performed and found error. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>



### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
925	.52	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Fuser page count stopped at 500,000 to preserve data.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.91	Lamp detection performed and found error. Writes to the fuser information chip have been disabled due to a previous write failure.	<ul style="list-style-type: none"> <li>• 115 V lamp in 220 V printer.</li> <li>• Lamp has excessive wattage.</li> </ul>	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
925	.92	Too hot to do lamp detection and NVRAM bit indicates previous wrong lamp detected. Writes to the fuser information chip have been disabled due to a previous write failure.	Attempting to POR machine after receiving a 925.01.	Go to <b>“925.xx—Hot fuser service check” on page 2-137.</b>
927	.00	Service fan error.	<ul style="list-style-type: none"> <li>• Loose connector.</li> <li>• External blockage of the fan, preventing it from turning.</li> <li>• Bad fan.</li> </ul>	Go to <b>“Main fan service check” on page 2-119.</b>
927	.01	Main fan stalled.	<ul style="list-style-type: none"> <li>• External blockage of fan</li> <li>• Fan may not turn due to internal fan problem.</li> </ul>	Go to <b>“Main fan service check” on page 2-119.</b>
927	.02	Cartridge fan stalled.	<ul style="list-style-type: none"> <li>• Loose connector.</li> <li>• External blockage of the fan, preventing it from turning.</li> <li>• Bad fan.</li> </ul>	Go to <b>“Cartridge fan service check” on page 2-119.</b>
927	.03	Main fan took too long to ramp up.	<ul style="list-style-type: none"> <li>• Loose connector.</li> <li>• External blockage of the fan, preventing it from turning.</li> <li>• Bad fan.</li> </ul>	Go to <b>“Main fan service check” on page 2-119.</b>
927	.04	Main fan underspeed or stalled during speed adjustment state.	<ul style="list-style-type: none"> <li>• Corrupted feedback signal.</li> <li>• Fan input voltage may be too low.</li> </ul>	Go to <b>“Main fan service check” on page 2-119.</b>
927	.05	Main fan overspeed during speed adjustment state.	<ul style="list-style-type: none"> <li>• Corrupted feedback signal.</li> <li>• Fan input voltage may be too low.</li> </ul>	Go to <b>“Main fan service check” on page 2-119.</b>
927	.06	Main fan capture data is invalid and speed control is at maximum in fan control idle state.	Corrupted or non-existent feedback signal.	Go to <b>“Main fan service check” on page 2-119.</b>




### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
927	.07	Main fan capture data is invalid and speed control is at maximum in fan control adjustment state.	Corrupted feedback signal.	Go to <b>“Main fan service check” on page 2-119.</b>
929	.00	Toner sensor error—a problem has been detected with the toner sensor.	<ul style="list-style-type: none"> <li>• Check the toner sensor</li> <li>• Check cable</li> <li>• Check system board</li> </ul>	Go to <b>“Toner sensor service check” on page 2-171.</b>
929	.66	An error has been detected. No home windows has been detected.	<ul style="list-style-type: none"> <li>• Check toner cartridge.</li> <li>• Check toner sensor</li> </ul>	Go to <b>“Toner sensor service check” on page 2-171.</b>
929	.67	No toner sensor transition.	<ul style="list-style-type: none"> <li>• Check toner sensor</li> <li>• Check toner cartridge</li> </ul>	Go to <b>“Toner sensor service check” on page 2-171.</b>
930	.00	An incorrect printhead has been detected	Check the printhead	Go to <b>“Printhead service check” on page 2-165.</b>
932	.00	Printhead lost HSYNC.	<ul style="list-style-type: none"> <li>• Check printhead</li> <li>• Check cables and connections</li> <li>• Check system board</li> </ul>	Go to <b>“Printhead service check” on page 2-165.</b>
933	.00	Mirror motor locked, no first HSYNC received.	<ul style="list-style-type: none"> <li>• Check printhead</li> <li>• Check cables and connectors</li> <li>• Check system board.</li> </ul>	Go to <b>“Printhead service check” on page 2-165.</b>
934	.00	Mirror motor lost lock	<ul style="list-style-type: none"> <li>• Check printhead</li> <li>• Check cables and connections</li> <li>• Check system board</li> </ul>	Go to <b>“Printhead service check” on page 2-165.</b>
936	.00	Mirror motor not up to speed	<ul style="list-style-type: none"> <li>• Check printhead</li> <li>• Check system board</li> </ul>	Go to <b>“Printhead service check” on page 2-165.</b>
936	.10	No hall effect detected at motor start. Motor is type 0.	<ul style="list-style-type: none"> <li>• Check cable connections</li> <li>• Defective motor</li> <li>• Severe gear binds in gearbox assembly</li> <li>• System board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.11	No hall effect detected at motor start. Motor is type 1.	<ul style="list-style-type: none"> <li>• Check cable connections</li> <li>• Defective motor</li> <li>• Severe gear binds in gearbox assembly.</li> <li>• System board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.20	Failed to stop within timeout, motor is type 0.	<ul style="list-style-type: none"> <li>• Defective motor</li> <li>• Defective system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.21	Failed to stop within timeout, motor is type 1.	<ul style="list-style-type: none"> <li>• Defective motor</li> <li>• Defective system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>

### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
936	.30	No lock detected at motor start for motor ID. Motor is type 0.	<ul style="list-style-type: none"> <li>• Check for paper jams</li> <li>• Gear binds</li> <li>• Defective motor</li> <li>• Check motor cable and connections</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.31	No lock detected at motor start for motor ID. Motor is type 1.	<ul style="list-style-type: none"> <li>• Check for paper jams</li> <li>• Gear binds</li> <li>• Defective motor</li> <li>• Check motor cable and connections</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.60	No lock detected at normal motor start. Motor is type 0.	<ul style="list-style-type: none"> <li>• Check for paper jams</li> <li>• Gear binds</li> <li>• Defective motor</li> <li>• Check motor cable and connections</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.61	No lock detected at normal motor start. Motor is type 1.	<ul style="list-style-type: none"> <li>• Check for paper jams</li> <li>• Gear binds</li> <li>• Defective motor.</li> <li>• Defective motor cable</li> <li>• Cable connections</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.9	Stall detected during speed control. Motor is type 0.	<ul style="list-style-type: none"> <li>• Defective cable</li> <li>• Check cable connections</li> <li>• Defective motor</li> <li>• Paper jams</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
936	.91	Stall detected during speed control. Motor is type 1.	<ul style="list-style-type: none"> <li>• Defective cable</li> <li>• Check cable connections</li> <li>• Defective motor</li> <li>• Paper jams</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.4	Overspeed detected during speed control. Motor is type 0.	<ul style="list-style-type: none"> <li>• Faulty motor sensor</li> <li>• Faulty system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.41	Overspeed detected during speed control. Motor is type 1.	<ul style="list-style-type: none"> <li>• Faulty motor sensor</li> <li>• Faulty system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.5	Overspeed detected during position control. Motor is type 0.	<ul style="list-style-type: none"> <li>• Faulty motor sensor</li> <li>• Faulty system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.51	Overspeed detected during position control. Motor is type 1.	<ul style="list-style-type: none"> <li>• Faulty motor sensor</li> <li>• Faulty system board</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.7	Loss of lock detected by higher level code. Motor is type 0.	<ul style="list-style-type: none"> <li>• Defective motor cable</li> <li>• Defective main drive motor</li> <li>• Paper jams</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>

### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
937	.71	Loss of lock detected by higher level code. Motor is type 1.	<ul style="list-style-type: none"> <li>Defective motor cable</li> <li>Defective main drive motor</li> <li>Paper jams</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
937	.80	Driver over temperature detection. Motor is type 0.	<ul style="list-style-type: none"> <li>Excessive gear loading in gearbox assembly</li> </ul>	Go to <b>“Main drive service check” on page 2-153.</b>
939	.00	RIP–engine communications lost.	System board	POR the printer several times, if the error code continues to be displayed, replace the system board. See <b>“System board and inner shield removal —model 500s on page 4-131.</b>
940	.00	LVPS zero-crossing test failed. 	<ul style="list-style-type: none"> <li>Incorrect LVPS installed</li> <li>Noisy AC power source</li> <li>LVPS to system board cable loose</li> </ul>	Check to make sure the correct LVPS assembly has been installed. If the correct supply is installed, check to make sure the LVPS to system board cable is installed correctly. If correct, replace the LVPS assembly. See <b>“Low voltage power supply removal” on page 4-109.</b>
947	.00	PQET RAM test incomplete, PQET RAM test did not complete, PQET RAM test failed MARCH0 PQET RAM test failed MARCH1 PQET RAM test busy failure	PQET failed to pass RAM tests on the system board	Replace the system board. See <b>“System board and inner shield removal —model 500S” on page 4-131.</b>
948	.00	PeI clock check failed	System board	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
949	.00	Delay line calibration failure	System board	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
950	.00	NVRAM mismatch		Go to <b>“950.00 through 950.29 EPROM mismatch failure” on page 2-120.</b> or go to <b>“950.30 through 950.60 EPROM mismatch failure” on page 2-121.</b>

**Service error codes (9xx.xx) (continued)**

Error code	Sub codes	Display text	Description	Action
951	.00			<p>Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131</b>.</p> <p><b>Warning:</b> When replacing any one of the following components:</p> <ul style="list-style-type: none"> <li>• Flatbed interconnect card</li> <li>• System board assembly</li> <li>• Interface card assembly</li> </ul> <p>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.</p> <p><b>Warning:</b> 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.</p>

Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
950	.30— .60	Service NVRAM mismatch	EPROM mismatch failure	<p>This error code indicates a mismatch between the System Board assembly and the interface card assembly.</p> <p><b>Warning:</b> In the event of replacement of any one of the following components:</p> <ul style="list-style-type: none"> <li>• Flatbed interconnect card</li> <li>• System board assembly</li> <li>• Interface card assembly</li> </ul> <p>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.</p> <p><b>Warning:</b> Never install and remove components listed above as a method of troubleshooting components. Once a component has been installed in a machine, it cannot be used in another machine. It must be returned to the manufacturer.</p> <p>Go to <b>“950.30 through 950.60 EPROM mismatch failure” on page 2-121.</b></p>
952	.00	NV failure:n	CRC error has occurred. This is recoverable.	Perform POR to clear the error.
953	.00			Replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>

**Service error codes (9xx.xx) (continued)**

<b>Error code</b>	<b>Sub codes</b>	<b>Display text</b>	<b>Description</b>	<b>Action</b>
954	.00			<p>Replace the interface card. See <b>“Interface card assembly removal” on page 4-107.</b></p> <p><b>Warning:</b> When replacing any one of the following components:</p> <ul style="list-style-type: none"> <li>• Flatbed interconnect card</li> <li>• System board assembly</li> <li>• Interface card assembly</li> </ul> <p>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.</p> <p><b>Warning:</b> 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.</p>
955	.00	Code CRC	CRC failure or ECC code failure on the system board.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
956	.00	System board	This error indicates a system board processor failure.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
957	.00	System board	This error indicates a system board processor failure.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>
958	.00	Nand failure	Printer has performed more than 100 “shift and replace” operations as a result of EC bit corrections.	Replace the system board. See <b>“System board and inner shield removal — model 500S” on page 4-131.</b>

### Service error codes (9xx.xx) (continued)

Error code	Sub codes	Display text	Description	Action
980	.00	Unreliable communications to Paperport device	The engine is experiencing unreliable communications to the specified device.	Service errors 980 thru 984 <device> can be one of the following: system board, duplex, tray x (1, 2, 3, 4, or 5), envelope feeder or output bin.
981	.00	Interface protocol violation by engine	The engine protocol violation detected by the specified device.	
982	.xx	Paperport communication error	Communications error detected by the specified device.	
983	.00	Invalid command received by device	Invalid command received by the specified device.	
984	.00	Invalid command parameter received by device	Invalid command parameter received by the specified device.	
990	.00	General device equipment check	Indicates an equipment check condition has occurred in the specified device, but the device is unable to identify the exact component failure.	Service errors 980 thru 984 <device> can be one of the following: system board, duplex, tray x (1, 2, 3, 4, or 5), envelope feeder or output bin.
991	.00	Device system card failed basic assurance test	The specified device has detected an equipment check in its system card.	

## User status displays.

### User status displays

Code	Sub code	Display text	Description/action
		Bin [x] Full	x represents the number of the output bin that is full when the MFP bins are linked. Remove print media from the bins. The message clears once the output level of the linked bins is no longer full.
		Busy	The MFP is busy receiving, processing, or printing data. Press <b>Stop</b> to access the job queue.
		Deleting selected job(s)	The Delete button is touched after jobs have been selected.
		Flushing Buffer	The MFP flushes corrupted data and discards the current print job.
		Hex Trace	The MFP is in Hex Trace mode. Hex Trace isolates the source of a print job problem. When Hex Trace is active, all data sent to the MFP prints in hexadecimal and character representation. Exit Hex Trace to print jobs normally. To exit Hex Trace, unplug the MFP.
		Insufficient resources. Try again when the system is idle.	There are not enough system resources at this time. Try again after the current job is complete.
		Invalid or incorrect password.	An incorrect password is entered. Touch <b>Continue</b> to return to the screen to enter a correct password.
		Invalid PIN.	An incorrect Personal Identification Number (PIN) is entered. Touch <b>Continue</b> to return to the screen to enter a correct PIN.
		Job cannot be deleted	A job in the job list is touched, but it cannot be canceled.
		Maintenance	The MFP maintenance counter has exceeded its limit, so the MFP requires maintenance. Replace the maintenance items. If necessary, reset the MFP maintenance counter.
		Network Network [x] Network [x], [y]	A network interface is the active communication link. Wait for the message to clear. <b>Notes:</b> <ul style="list-style-type: none"> <li>The current interface appears on the Menu Settings Page. Interfaces shown without an x or y means the active host interface is a standard interface.</li> <li>x indicates the active interface is connected to the MFP through PCI connector x.</li> <li>x, y indicates the active interface is connected to the MFP through channel y on PCI connector x, or that x equals 0 on the standard network interface.</li> </ul>
		No jobs selected	The Delete button is touched when no jobs are selected.



## User status displays (continued)

Code	Sub code	Display text	Description/action
		Parallel Parallel [x]	A parallel interface is the active communication link. <b>Notes:</b> <ul style="list-style-type: none"> <li>The current interface appears on the Menu Settings Page. Interfaces shown without an x or y means the active host interface is a standard interface.</li> <li>x indicates the active interface is connected to the MFP through PCI connector x.</li> <li>x, y indicates the active interface is connected to the MFP through channel y on PCI connector x, or that x equals 0 on the standard network interface.</li> </ul>
		Serial [x]	A serial interface is the active communication link. <b>Notes:</b> <ul style="list-style-type: none"> <li>The current interface appears on the Menu Settings Page. Interfaces shown without an x or y means the active host interface is a standard interface.</li> <li>x indicates the active interface is connected to the MFP through PCI connector x.</li> <li>x, y indicates the active interface is connected to the MFP through channel y on PCI connector x, or that x equals 0 on the standard network interface.</li> </ul>
		USB USB [x]	The MFP is processing data through the specified USB port.
		[P <sub>J</sub> L R <sub>D</sub> YMSG]	This is the Printer Job Language (P <sub>J</sub> L) Ready message.
		Power Saver	The MFP is ready to receive and process data. It is reducing its electricity consumption while idle. If the MFP remains inactive for the period of time specified in the Power Saver menu item (60 minutes is the factory default), the Power Saver message replaces the Ready message. Send a job to print. Press any operator panel button.
		Printing	The MFP is printing a job.
		Printing page [x]	A sheet of print media moves through the MFP to be printed. x represents the number of the sheet being printed. Even though a duplex (two-sided) sheet has two sides, called pages, it only counts as one sheet.
		Printing page [x], copy [a] / [b]	A sheet of print media moves through the MFP to be printed. x represents the number of the sheet being printed. Even though a duplex sheet has two sides, called pages, it only counts as one sheet. So, pages are not counted, only sheets passing through the MFP. The total number of sheets in a set is not known, but the number of sets is known. For example, a user may have requested that three copies print, so there are three sets of sheets, but the number of sheets is unknown.
		Printing page [x]/ [y], copy [a]/[b]	A sheet of print media moves through the MFP to be printed. x represents the number of the sheet being printed. A sheet is considered a front and back page of one piece of print media. A group of sheets is called a set. y represents the total number of sheets in a set. a is the number of the current set printing. b is the total number of sets to be printed. For example, a user may send a 6-page duplex print job and select three copies to print. So, there are three sheets to print for each job. This makes one set. Three sets must print before the user has the complete job.

## User status displays (continued)

Code	Sub code	Display text	Description/action
		Ready	The MFP is ready to receive and process jobs. Print, fax, scan, e-mail, copy, or use FTP.
		Scanner automatic document feeder cover open	The automatic document feeder (ADF) cover is open. Close the cover.
		Standard Bin Full Bin [x] Full [bin name] Full	The standard bin is full. x represents the number of the bin that is full. [bin name] specifies a previously defined name for the bin, such as Mary's bin, and it is full. Remove the stack of print media from the standard output bin or from the specified bin to clear the message.
		System busy, preparing resources for job.	Not all resources needed for the job are available. Wait for the message to clear.
		System busy, preparing resources for job. Deleting held job(s).	Not all resources needed for the job are available. Some held jobs are deleted to free system memory. Wait for the message to clear.
		Toner Low	The toner cartridge is low on toner. The Menu Settings Page shows the level. It takes an unspecified amount of time for the MFP to read the level of toner. Until the level is read, the MFP does not show the message. <ul style="list-style-type: none"> <li>The message clears automatically when the cover or door over the toner cartridge is opened or if the MFP power is turned off and then on.</li> <li>Replace the toner cartridge. If it is not replaced, the MFP issues the message again when the door or cover is closed.</li> </ul>
		Tray [x] Empty	x represents the number of the tray. The tray has no print media installed. <ol style="list-style-type: none"> <li>Remove the tray. The message clears.</li> <li>Install print media in the tray according to the <i>User's Guide</i>.</li> <li>Insert the tray.</li> </ol>
		Tray [x] Low	x specifies the number of the tray that is low. Load print media into the specified tray to clear the message.
		Tray [x] Missing	x represents the number of the tray missing from the MFP. The message is on the Menu Settings Page also. Insert the tray to clear the message. If the Tray 1 Missing message does not clear when tray 1 is inserted, go to <b>"Parallel port service check" on page 2-159</b> . If Tray 2 through 5 Missing message does not clear by inserting the tray, go to <b>"Input tray(s) service check" on page 2-147</b> .
		Waiting	The MFP receives a page of data to print but waits for an End of Job command, a Form Feed command, or additional data. Press <b>Stop</b> . Touch <b>Continue</b> to print the contents of the buffer. Cancel the current job. Wait for the message to clear.

### Fax status displays

### User status displays (continued)

Code	Sub code	Display text	Description/action
		Answering	The MFP is answering a fax call.
		Call complete	A fax call is completed.
		Connect <x>bps	The fax is connected. <x> is the baud rate per second.
		Dialing	A fax number is dialed. If the number is too long to fit on the screen only the word <i>Dialing</i> appears.
		Fax failed	The fax failed to send.
		Job stored for delayed transmission.	The scanning completes for a delayed send fax job.
		Line busy	A fax number is dialed, but the fax line is busy.
		No answer	A fax number is dialed, but no connection is made.
		No dial tone	The MFP does not have a dial tone.
		Queued for sending	The scanning process of a fax job completed, but it is not sent yet because another fax job is being sent or received. As this one job waits for its turn, this message appears for three seconds.
		Receive complete	The MFP has received an entire fax job.
		Receiving page [n]	The MFP receives page [n] of the fax job, where n is the number of the page received.
		Sending page [n]	The MFP sends page [n] of the fax job, where n is the number of the page sent.
		Set clock	The Real Time Clock is not set. This message appears if no other fax status message appears. It remains until the clock is set. Set the clock.
		Waiting for redial	The MFP is waiting to redial the fax number.

## User attendance messages

### User attendance messages

Code	Sub code	Primary message	Description/action
		Change Cartridge Invalid Refill	Select one of the following actions: Remove the toner cartridge and install a new cartridge.
		Change [src] to [Custom String]	Lets the user override the current print media source for the remainder of the print job. The formatted page prints as is on the print media installed in the tray. This may cause clipping of text or images. Touch <b>Use current [src]</b> to ignore the message and print on the print media loaded in the tray. Touch <b>Continue:</b> <ul style="list-style-type: none"> <li>• which continues the job if the correct size and type are loaded in the tray, and this size and type are specified in the <b>Paper Menu</b> using the operator panel.</li> <li>• which is ignored if there is no print media in the tray.</li> </ul> Touch <b>Cancel job</b> to cancel the current job if needed.
		Change <src> to <Custom Type Name>	New print media is required to finish a print job. Load the indicated source with the requested size and type of print media. Touch <b>Continue</b> to print with print media currently in the tray.
		Change [src] to [size]	Lets the user override the current print media source for the remainder of the print job. The formatted page prints as is on the print media installed in the tray. This may cause clipping of text or images. Touch <b>Use current [src]</b> to ignore the message and print on the print media loaded in the tray. Touch <b>Continue:</b> <ul style="list-style-type: none"> <li>• which continues the job if the correct size and type are loaded in the tray, and this size and type are specified in the Paper Menu using the operator panel.</li> <li>• which is ignored if there is no print media in the tray.</li> </ul> Touch <b>Cancel job</b> to cancel the current job if needed.
		Change [src] to [size] [type]	Lets the user override the current print media source for the remainder of the print job. The formatted page prints as is on the print media installed in the tray. This may cause clipping of text or images. Touch <b>Use current [src]</b> to ignore the message and print on the print media loaded in the tray. Touch <b>Continue:</b> <ul style="list-style-type: none"> <li>• which continues the job if the correct size and type are loaded in the tray, and this size and type are specified in the Paper Menu using the operator panel.</li> <li>• which is ignored if there is no print media in the tray.</li> </ul> Touch <b>Cancel job</b> to cancel the current job if needed.

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Check Duplex Connection	<p>This messages displays for the following conditions:</p> <ul style="list-style-type: none"> <li>The duplex option may have been removed from the printer, possibly to clear a paper jam or to remove the option.</li> <li>The duplex option may be attached to the printer but a communications problem may prevent the printer from detection. For example, there may be a poor connection or a hardware failure.</li> </ul> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>If the option was temporarily removed or not connected properly, reattach or reconnect it.</li> <li>Accept the configuration change which notifies the printer the option has been hot unplugged (removed with the power on).</li> </ul> <p><b>Note:</b> This action is not available if the printer is in Diagnostics Mode or running diagnostics.</p> <ul style="list-style-type: none"> <li>If the device is experiencing a hardware problem, turn the printer off and on. If the message continues to be displayed, go to <b>“Duplex option service check” on page 2-127.</b></li> </ul>
		Check Tray x Connection	<p>Tray x=Tray 2, Tray 3, Tray 4, or Tray 5</p> <p>This messages displays for the following conditions:</p> <ul style="list-style-type: none"> <li>The specified device may have been removed from the printer, possibly to clear a paper jam or to uninstall the option.</li> <li>The option may be attached to the printer but a communications problem may prevent the printer from detecting the option. For example, there may be a poor connection or a hardware failure.</li> </ul> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>If the option was temporarily removed or not connected properly, reattach or reconnect it.</li> <li>Accept the configuration change which notifies the printer the option has been hot unplugged (removed with the power on).</li> </ul> <p><b>Note:</b> This action is not available if the printer is in Diagnostics Mode or running diagnostics.</p> <ul style="list-style-type: none"> <li>If the device is experiencing a hardware problem, turn the printer off and on. If the message continues to be displayed, go to <b>“Input tray(s) service check” on page 2-147.</b></li> </ul>
		Clean scanner backing strip	<p>During a scanner calibration, the firmware detects that the scanner backing strip for the backside of scan jobs may be dirty.</p> <p>Touch <b>Cancel Job</b> if a scan job is processing when the attendance message appears. This cancels the job and clears the message.</p> <p>Touch <b>Scan from Automatic Document Feeder</b> if the page jam recovery is active. Scanning resumes from the ADF immediately after the last successfully scanned page.</p> <p>Touch <b>Scan from flatbed</b> if page jam recovery is active. Scanning resumes from the flatbed immediately after the last successfully scanned page.</p> <p>Touch <b>Finish job without further scanning</b> if page jam recovery is active. The job ends at the last successfully scanned page, but the job is not canceled. Successfully scanned pages go to their destination: copy, fax, e-mail, or FTP.</p> <p>Touch <b>Restart job</b> if job recovery is active and the job can be restarted. The message clears. A new scan job containing the same parameters as the previous job starts.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Clean scanner glass	<p>During a scanner calibration, the firmware detects that the scanner ADF or flatbed glass may be dirty.</p> <p>Touch <b>Cancel Job</b> if a scan job is processing when the attendance message appears. This cancels the job and clears the message.</p> <p>Touch <b>Scan from Automatic Document Feeder</b> if the page jam recovery is active. Scanning resumes from the ADF immediately after the last successfully scanned page.</p> <p>Touch <b>Scan from flatbed</b> if page jam recovery is active. Scanning resumes from the flatbed immediately after the last successfully scanned page.</p> <p>Touch <b>Finish job without further scanning</b> if page jam recovery is active. The job ends at the last successfully scanned page, but the job is not canceled. Successfully scanned pages go to their destination: copy, fax, e-mail, or FTP.</p> <p>Touch <b>Restart job</b> if job recovery is active and the job can be restarted. The message clears. A new scan job containing the same parameters as the previous job starts.</p>
		Disk corrupted	<p>model 500S only. Occurs when the MFP attempts a hard disk recovery on a corrupted hard disk, and the hard disk cannot be repaired. The hard disk must be reformatted.</p> <p>Touch <b>Reformat disk</b> to reformat the hard disk and clear the message.</p> <p><b>Warning:</b> All files stored on the hard disk are deleted.</p>
		Disk Full - Scan Job Canceled	<p>Model 500S only. The scan job cancels or stops due to insufficient hard disk space.</p> <p><b>Note:</b> The scanner finishes scanning currently committed pages in the ADF, but data is lost when the job cancels itself.</p> <p>Touch <b>Continue</b> to clear the message.</p>
		Insert Cartridge or Close Door	<p>This message displays when the printer front door is open or the print cartridge is missing.</p> <p>If this message cannot be cleared, go to <b>“Cover closed switch/cable service check—printer” on page 2-125</b>.</p>
		Insert tray [x]	<p>Occurs when the MFP detects a missing tray. x can be 1, 2, 3, 4, or 5. Insert the specified tray to clear the message.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p> <p>If the message cannot be cleared, go to <b>“Paper size sensing service check” on page 2-158</b> or <b>“Input tray(s) service check” on page 2-147</b>.</p>
		Install Bin x or Cancel Job	<p>Bin x=Bin 1, Bin 2, or Bin 3.</p> <p>This message is displayed when a paper handling option has been hot unplugged. The printer requires the reinstallation of the option to print a page which has been formatted by the interpreter before the option was removed.</p> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>• Install the option.</li> <li>• Select one of the following: <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> </ul> </li> </ul> <p>If the message cannot be cleared, go to <b>“Input tray(s) service check” on page 2-147</b>.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Install Duplex or Cancel Job	<p>This message is displayed when a duplex option has been hot unplugged. The printer requires the reinstallation of the option to print a page which has been formatted by the interpreter before the option was removed.</p> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>• Install the duplex option.</li> <li>• Select one of the following: <ul style="list-style-type: none"> <li>- Cancel Job</li> <li>- Reset Printer</li> <li>- Reset Active Bin</li> </ul> </li> </ul> <p>If the message cannot be cleared, go to <b>“Duplex option service check” on page 2-127.</b></p>
		Install envelope feeder	<p>The MFP detects that the optional envelope feeder is missing between the time the job processes, but before the job prints. Sometime during processing, the optional envelope feeder is removed.</p> <p>Install the optional envelope feeder. The message clears.</p> <p>Touch <b>Cancel Job</b> if needed.</p> <p>Touch <b>Reset Active Bin</b> to reset the active bin for a linked set of bins.</p> <p>If the message cannot be cleared, go to <b>“Envelope feeder service check” on page 2-129.</b></p>
		Install tray [x]	<p>The MFP detects that optional Tray [x], where x is the number of the tray, is missing while the job processes, but before the job prints. Sometime during processing, the optional tray is removed.</p> <p>Install the optional tray specified by x. The message clears.</p> <p>Touch <b>Cancel Job</b> if needed.</p> <p>Touch <b>Reset Active Bin</b> to reset the active bin for a linked set of bins.</p> <p>If the message cannot be cleared, go to <b>“Input tray(s) service check” on page 2-147.</b></p>
		Load manual feeder with [Custom String]	<p>Occurs when the MFP receives a manual feed request that a specific print media be loaded into the multipurpose feeder. The print media is previously defined as a custom string which appears on the operator panel.</p> <p>Touch <b>Continue.</b></p> <ul style="list-style-type: none"> <li>• If print media is in the multipurpose feeder, the job continues to print.</li> <li>• If there is no print media in the multipurpose feeder, all requests for additional pages are automatically overridden, and print media is selected from an automatic source.</li> </ul> <p>Touch <b>Automatically select media</b> to override manual requests for Manual Paper and Manual Env for the rest of the print job. All requests for additional pages are automatically overridden, and print media is selected from an automatic source.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Load manual feeder with [Custom Type Name]	<p>Occurs when the MFP receives a manual feed request that specific print media be loaded into the multipurpose feeder. The print media is previously defined as a custom type from Custom 1 through Custom 6. The custom type name appears on the operator panel.</p> <p>Touch <b>Continue</b>.</p> <ul style="list-style-type: none"> <li>• If print media is in the multipurpose feeder, the job continues to print.</li> <li>• If there is no print media in the multipurpose feeder, all requests for additional pages are automatically overridden, and print media is selected from an automatic source.</li> </ul> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Load manual feeder with [size]	<p>Occurs when the MFP receives a manual feed request for a specific size of print media when none is loaded into the multipurpose feeder.</p> <p>Feed a sheet of print media into the multipurpose feeder to clear the message and continue the job.</p> <p>Touch <b>Continue</b> if print media is in the multipurpose feeder. The job continues.</p> <p>Touch <b>Continue</b> if there is no print media in the multipurpose feeder. All requests for additional pages are automatically overridden, and print media is selected from an automatic source.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Load manual feeder with [type] [size]	<p>Occurs when the MFP receives a manual feed request for a specific size and type of print media when none is loaded into the multipurpose feeder.</p> <p>Touch <b>Continue</b> if print media is in the multipurpose feeder. The job continues.</p> <p>Touch <b>Continue</b> if there is no print media in the multipurpose feeder. All requests for additional pages are automatically overridden, and print media is selected from an automatic source.</p> <p>Touch <b>Automatically select media</b> to override manual requests for Manual Paper and Manual Env for the rest of the print job. All requests for additional pages are automatically overridden and print media is selected from an automatic source.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Load [src] with [Custom String]	<p>Occurs when a source is loaded with an incorrect print media size and type as specified in the Paper Menu.</p> <p>Touch <b>Continue</b>. Load the specified source that is set for the requested size and type.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Load [src] with [Custom Type Name]	<p>Occurs when a source is loaded with an incorrect print media size and type as specified in the Paper Menu.</p> <p>Touch <b>Continue</b>. Load the specified source that is set for the requested size and type.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>



## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Load [src] with [size]	<p>Occurs when a source is loaded with an incorrect print media size as specified in the Paper Menu.</p> <p>Touch <b>Continue</b>. Load the specified source that is set for the requested size.</p> <p>Touch <b>Automatically select media</b> to override manual requests for Manual Paper and Manual Env for the rest of the print job. All requests for additional pages are automatically overridden, and print media is selected from an automatic source.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Load [src] with [type] [size]	<p>Occurs when the MFP requests that a specific media source be loaded with a specific type and size as specified in the Paper Menu, but the current source contains an incorrect media size and type.</p> <p>Touch <b>Continue</b>. Load the specified source that is set for the requested size and type.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
		Reattach envelope feeder	<p>The MFP detects that the optional envelope feeder is missing between the time the job processes, and when it prints. Sometime during processing, the optional envelope feeder is removed.</p> <p>Touch <b>Cancel Job</b> to clear the message and continue without using the optional envelope feeder.</p> <p>Install the optional envelope feeder.</p>
		Reattach Bins x-y	<p>Bins x-y=Bins 1 to 5, Bins 2 to 6, or Bins 6 to 10</p> <p>This messages displays for the following conditions:</p> <ul style="list-style-type: none"> <li>• The specified output bins may have been removed from the printer, possibly to clear a paper jam or to remove the option.</li> <li>• The option(s) may be attached to the printer but a communications problem may prevent the printer from detecting the option. For example, there may be a poor connection or a hardware failure.</li> </ul> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>• If the option was temporarily removed or not connected properly, reattach or reconnect it.</li> <li>• Accept the configuration change which notifies the printer the option has been hot unplugged (removed with the power on).</li> </ul> <p><b>Note:</b> This action is not available if the printer is in Diagnostics Mode or running diagnostics.</p> <ul style="list-style-type: none"> <li>• If the device is experiencing a hardware problem, turn the printer off and on. If the message continues to be displayed, go to <b>“Input tray(s) service check” on page 2-147</b>.</li> </ul>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Reattach Envelope Feeder	<p>This messages displays for the following conditions:</p> <ul style="list-style-type: none"> <li>• The feeder may have been removed from the printer, possibly to clear a paper jam or to remove the option.</li> <li>• The feeder may be attached to the printer but a communications problem may prevent the printer from detecting the option. For example, there may be a poor connection or a hardware failure.</li> </ul> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>• If the option was temporarily removed or not connected properly, reattach or reconnect it.</li> <li>• Accept the configuration change which notifies the printer the option has been hot unplugged (removed with the power on).</li> </ul> <p><b>Note:</b> This action is not available if the printer is in Diagnostics Mode or running diagnostics.</p> <ul style="list-style-type: none"> <li>• If the device is experiencing a hardware problem, turn the printer off and on. If the message continues to be displayed, go to <b>“Envelope feeder service check” on page 2-129.</b></li> </ul>
		Reattach Output Bin x	<p>Bin x=Bin 1, Bin 2, or Bin 3</p> <p>This messages displays for the following conditions:</p> <ul style="list-style-type: none"> <li>• The specified output bin may have been removed from the printer, possibly to clear a paper jam or to remove the option.</li> <li>• The option may be attached to the printer but a communications problem may prevent the printer from detecting the option. For example, there may be a poor connection or a hardware failure.</li> </ul> <p>The following actions may be taken:</p> <ul style="list-style-type: none"> <li>• If the option was temporarily removed or not connected properly, reattach or reconnect it.</li> <li>• Accept the configuration change which notifies the printer the option has been hot unplugged (removed with the power on).</li> </ul> <p><b>Note:</b> This action is not available if the printer is in Diagnostics Mode or running diagnostics.</p> <ul style="list-style-type: none"> <li>• If the device is experiencing a hardware problem, turn the printer off and on.</li> </ul>
		Remove paper from standard output bin	<p>The standard output bin is full of print media.</p> <p>Remove the stack of print media from the bin to clear the message and resume printing.</p> <p>Touch <b>Continue</b> to make the MFP recheck the output level in the standard output bin.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Replace all originals if restarting job.	<p>One or more messages which interrupted a scan job are now cleared. Replace the original documents in the scanner to restart the scan job.</p> <p>Touch <b>Cancel Job</b> if a scan job is processing when the attendance message appears. This cancels the job and clears the message.</p> <p>Touch <b>Scan from Automatic Document Feeder</b> if the page jam recovery is active. Scanning resumes from the ADF immediately after the last successfully scanned page.</p> <p>Touch <b>Scan from flatbed</b> if page jam recovery is active. Scanning resumes from the flatbed immediately after the last successfully scanned page.</p> <p>Touch <b>Finish job without further scanning</b> if page jam recovery is active. The job ends at the last successfully scanned page, but the job is not canceled. Successfully scanned pages go to their destination: copy, fax, e-mail or FTP.</p> <p>Touch <b>Restart job</b> if job recovery is active and the job can be restarted. The message clears. A new scan job containing the same parameters as the previous job starts.</p>
		Replace wiper	<p>The MFP detects that the fuser wiper needs replacing.</p> <ol style="list-style-type: none"> <li>1. Replace the fuser wiper.</li> <li>2. Touch <b>Continue</b> to clear the message.</li> </ol> <p>Touch <b>Ignore</b> to clear the message, but at the next power-on, the message appears again.</p>
		Restore held jobs?	<p>Model 500S only Held jobs are found on the hard disk after a power-on reset of the MFP.</p> <p>Touch <b>Yes</b> to restore the held jobs to the hard disk and make them available. The jobs data remains on the hard disk; however, the job control information is stored in the MFP memory. Touch <b>Quit</b> to stop restoring held jobs before all jobs are restored. Unrestored jobs remain on the hard disk and are retrievable again only at the next power-on reset.</p> <p><b>Note:</b> A pop-up screen appears to indicate Restoring held jobs(s) xxx/yyy, where xxx indicates the number of the current job being restored, and yyy is the total number of jobs to be restored.</p> <p>Touch <b>Do not restore</b> to have the held jobs remain on the hard disk until they are deleted.</p>
		Scan Document Too Long	<p>The scan job exceeds the maximum number of pages.</p> <p><b>Note:</b> The scanner finishes scanning current pages in the ADF, but data is lost when the job cancels itself after reaching the maximum number of pages.</p> <p>Touch <b>Continue</b> to clear the message.</p> <p>Touch <b>Cancel Job</b> to clear the message if the job can be restarted.</p> <p>Touch <b>Restart job</b> if the job can be restarted. The message clears, and a new scan job containing the same parameters as the previous job starts.</p>
		Scanner ADF Cover Open	<p>The scanner automatic document feed cover is open.</p> <p>The message clears when the cover is closed.</p>
		Scanner Jam Access Cover Open	<p>The scanner jam access cover is open.</p> <p>Close the cover to clear the message.</p>
		Scanner registration successfully completed	<p>Scanner registration is successful.</p> <p>Touch <b>Continue</b> to clear the message.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
		Some held jobs were lost	Model 500S only. Occurs when the MFP tries to restore all jobs on a hard disk regardless of the number of held jobs not restored. The message appears once. Touch <b>Continue</b> to clear the message. Some held jobs are not restored. They stay on the hard disk and are inaccessible.
30	.xx	Invalid refill, change cartridge	The MFP detects a refilled Cartridge Return Program print cartridge. Install a new print cartridge to clear the message.
31	.00	Defective cartridge	<ul style="list-style-type: none"> <li>Smart chip cabling loose on controller card. Reseat smart chip cabling inside printer.</li> <li>Replace cartridge.</li> </ul>
31	.xx	Defective Print Cartridge	Error code 31 displays when the top front cover is closed and a defective print cartridge is detected. It may take the printer 10-20 seconds to determine if the print cartridge is defective. Depending on the setting of the Machine Class ID the printer may be allowed to print pages during this 10-20 second interval. If pages are allowed to print, they are not reprinted once a good print cartridge is inserted. <b>Note:</b> This error indicates the printer was able to read the cartridge ID, but the ID did not pass the verification test. To pass the verification test, the ID read from the print cartridge must match the ID from the last "good" print cartridge or the same ID must be read from the print cartridge twice. The last "good" print cartridge ID is stored in NVRAM.
32	.00	Unsupported cartridge	Unsupported cartridge installed. Replace cartridge.
32	.xx	Unsupported Print Cartridge	Error 32 displays when the top cover is closed and an unsupported print cartridge is detected. It may take the printer 10-20 seconds to determine if the print cartridge is supported. Depending on the setting of the Machine Class ID the printer may be allowed to print pages during this 10-20 second interval. If pages are allowed to print, then they are not reprinted once a good print cartridge is inserted. If this does not fix the problem, go to <b>"Signature button assembly service check" on page 2-170.</b>
34	.xx	Short paper	The length of the print media is too short to print the formatted data. Touch <b>Continue</b> to clear the message and continue printing. The MFP does not automatically reprint the page that prompted the message. Make sure the Paper Size setting in the Paper Menu is correct for the size of print media used. If MP Feeder Size is set to Universal, make sure the print media is large enough for the formatted data. Touch <b>Cancel Job</b> to cancel the current job if needed.
35	.xx	Insufficient memory to support Resource Save feature	The MFP lacks the memory needed to enable Resource Save. This message usually indicates too much memory is allocated for one or more of the MFP link buffers. Touch <b>Continue</b> to disable Resource Save and continue printing. Install additional memory.
36	.xx	Resolution Reduced	The resolution of the page has been reduced from 600 dpi to 300 dpi to prevent a Memory Full error. This message can only occur if the Resolution Reduction setting is turned on. <b>Note:</b> 1200 dpi pages are not resolution reduced. If a 1200 dpi job runs out of memory, a Memory Full error displays.

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
37	.xx	Insufficient memory for Flash Memory Defragment operation	<p>The MFP cannot defragment flash memory because the memory used to store undeleted flash resources is full.</p> <p>Touch <b>Continue</b> to clear the message.</p> <p>To perform the defragment operation, install additional memory, or delete fonts, macros, and other data to free some memory space.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
37	.xx	Insufficient memory to collate job	<p>The MFP cannot collate the job because the memory is full.</p> <p>Touch <b>Continue</b> to print the pages processed before the memory became full. Some memory frees up, so collating begins for the remainder of the print job.</p> <p>For example, if a 50-page print job is sent, and 10 copies are requested, and the MFP runs out of memory at page 30, pages 1–30 would collate and print 10 copies. The MFP would then print and collate pages 31–50 and print 10 copies of these pages.</p>
37	.xx	Insufficient memory, some held jobs were lost	<p>Model 500S only. The MFP depletes its memory while it attempts to restore held jobs. The message appears once.</p> <p>Some held jobs are not restored. They stay on the hard disk and are inaccessible.</p>
37	.xx	Insufficient memory, some Held Jobs were lost	<p>Held jobs are deleted in order to process the current job.</p> <p>The message appears once per job.</p> <p>Touch <b>Continue</b> to clear the message and continue printing.</p> <p>To avoid this error in the future for other jobs, install more memory.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p>
38	.xx	Memory full	<p>The MFP is processing data, but the memory used to store pages is full.</p> <p>To avoid this error in the future:</p> <p>Simplify the print job by reducing the amount of text or graphics on a page and deleting unnecessary downloaded fonts or macros.</p> <p>Install additional memory.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
39	.xx	Page is too complex to print	<p>The page may not print correctly because the print information on the page is too complex.</p> <p>To avoid this error in the future:</p> <p>Reduce the complexity of the page by reducing the amount of text or graphics on the page and deleting unnecessary downloaded fonts or macros.</p> <p>Set Page Protect to On in the Setup Menu in the Settings menu.</p> <p>Install additional memory.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action														
42	.xy	Printer/cartridge mismatch	<p>Cartridge region code does not match MFP region code. x=printer region and y=cartridge region. The following regions may be listed:</p> <table border="1"> <thead> <tr> <th>Code</th> <th>Region</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Worldwide</td> </tr> <tr> <td>1</td> <td>USA and Canada</td> </tr> <tr> <td>2</td> <td>Europe, Middle East, and Africa</td> </tr> <tr> <td>3</td> <td>Asia</td> </tr> <tr> <td>4</td> <td>Latin America</td> </tr> <tr> <td>9</td> <td>Undefined region</td> </tr> </tbody> </table>	Code	Region	0	Worldwide	1	USA and Canada	2	Europe, Middle East, and Africa	3	Asia	4	Latin America	9	Undefined region
Code	Region																
0	Worldwide																
1	USA and Canada																
2	Europe, Middle East, and Africa																
3	Asia																
4	Latin America																
9	Undefined region																
50	.xx	PPDS font error	<p>The MFP has received a request for a font that is not installed when formatting PPDS print data.</p> <p>Touch <b>Continue</b> to clear the message and continue printing the current job.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>														
51	.xx	Defective flash detected	<p>The MFP detects a defective flash memory during power-on or during flash format and write operations.</p> <p>Touch <b>Continue</b> to clear the message and continue printing the current job.</p> <p>At power-on reset, touch <b>Continue</b> to clear the message and the MFP continues with normal operations except for flash operations.</p> <p>Install different flash memory to be able to download any resources to flash.</p>														
52	.xx	Not enough free space in flash memory for resources	<p>There is not enough space in the flash memory to store the data currently being downloaded.</p> <p>Touch <b>Continue</b> to clear the message and continue the print job.</p> <p>Install flash memory with more storage capacity.</p> <p>Download the data.</p> <p>Touch <b>Cancel Job</b> to cancel the current job if needed.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>														
53	.xx	Unformatted flash detected	<p>The MFP detects unformatted flash memory.</p> <p>Touch <b>Continue</b> to clear the message and continue printing. The MFP continues with normal operations except for flash operations.</p> <p>Reformat the flash to allow flash operations.</p> <p>If the error message reappears, the flash memory may be defective and require replacing.</p>														
54	.xx	Network [x] software error	<p>The MFP cannot establish communications with a specified installed network port. x indicates the number of the specified port.</p> <ul style="list-style-type: none"> <li>• Touch <b>Continue</b> to clear the message and continue printing. The job may not print correctly.</li> <li>• The MFP disables attempts to communicate through the network interface. No data may be sent or received.</li> <li>• Reset the MFP.</li> <li>• Program new firmware for the network interface.</li> </ul>														

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
54	.xx	Serial option [x] error	<p>The MFP detects a serial error, such as framing, parity, or overrun on the specified optional serial port. x is the number of the optional serial port.</p> <ul style="list-style-type: none"> <li>• Make sure the serial link is set up correctly, and the appropriate cable is in use.</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>• Touch <b>Continue</b> to clear the message and continue processing the print job; however the print job may not print correctly.</li> <li>• Turn the MFP off and then on to reset it.</li> </ul>
54	.xx	Standard network software error	<p>The MFP firmware detects an installed network port, but cannot establish communication with it.</p> <ul style="list-style-type: none"> <li>• Touch <b>Continue</b> to clear the message and continue printing. The job may not print correctly.</li> <li>• The MFP disables attempts to communicate through the network interface. No data may be sent or received.</li> <li>• Reset the MFP.</li> <li>• Program new firmware for the network interface.</li> </ul>
55	.xx	Unsupported option in slot [x]	<p>The MFP detects an unsupported option in the specified slot. x indicates the number of the specified slot.</p> <ol style="list-style-type: none"> <li>1. Turn the MFP off.</li> <li>2. Unplug the power cord from the wall outlet.</li> <li>3. Remove the unsupported option.</li> <li>4. Connect the power cord to a properly grounded outlet.</li> <li>5. Turn the MFP on.</li> </ol>
56	.xx	Parallel port [x] disabled	<p>A status request occurs over the parallel port, but the parallel port is disabled.</p> <p>Touch <b>Continue</b>. The MFP discards any data received on the parallel port.</p> <p>Touch <b>Reset Active Bin</b> to reset the active bin for a linked set of bins.</p>
56	.xx	Serial port [x] disabled	<p>The MFP receives data across a serial port, but the port is disabled.</p> <p>Touch <b>Continue</b>. The MFP discards any data received on the serial port.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
56	.xx	Standard USB port disabled	<p>The MFP receives data through a USB port, but the USB port is disabled.</p> <p>Touch <b>Continue</b>. The printer discards any data received through the USB port.</p> <p>Make sure the USB Buffer menu item is not set to Disabled.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
56	.xx	USB port [x] disabled	<p>The MFP receives data through a specified USB port, but this USB port is disabled. x is the number of the USB port.</p> <p>Touch <b>Continue</b>. The MFP discards any data received through the specified USB port.</p> <p>Make sure the USB Buffer menu item is not set to Disabled.</p> <p>Touch <b>Reset Active Bin</b> to change to another linked bin.</p>
57	.xx	Configuration change, some held jobs were lost	<p>Model 500S only The MFP fails to restore held jobs due to configuration changes. The message appears once.</p> <p>Some held jobs are not restored. They stay on the hard disk and are inaccessible.</p>

## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
58		Too many disks installed	Model 500S only. The MFP detects an excess of hard disks installed. <ol style="list-style-type: none"> <li>1. Turn the MFP off.</li> <li>2. Unplug the power cord from the wall outlet.</li> <li>3. Remove the excess hard disks.</li> <li>4. Connect the power cord to a properly grounded outlet.</li> <li>5. Turn the MFP on.</li> </ol>
58		Too many flash options installed	The MFP detects an excess of optional flash memory cards installed. Touch <b>Continue</b> to clear the message and ignore the extra optional flash memory cards. The message occurs again unless the excess optional flash memory cards are removed. <ol style="list-style-type: none"> <li>1. Turn the MFP off.</li> <li>2. Unplug the power cord from the wall outlet.</li> <li>3. Remove the excess flash memory.</li> <li>4. Connect the power cord to a properly grounded outlet.</li> <li>5. Turn the MFP on.</li> </ol>
58	.xx	Too many trays attached	The MFP detects that too many optional drawers and their matching trays are installed. <ol style="list-style-type: none"> <li>1. Turn the MFP off.</li> <li>2. Unplug the power cord from the wall outlet.</li> <li>3. Remove the additional drawers.</li> <li>4. Connect the power cord to a properly grounded outlet.</li> <li>5. Turn the MFP on.</li> </ol>
59	.xx	Incompatible duplex	An unsupported optional duplex unit is attached to the MFP. Remove the optional duplex unit. The MFP ceases normal functions until the optional duplex unit is removed. Touch <b>Continue</b> to clear the message once the optional duplex unit is removed.
59	.xx	Incompatible envelope feeder	An unsupported optional envelope feeder is attached to the MFP. Remove the optional envelope feeder. The MFP ceases normal functions until the optional envelope feeder is removed. Touch <b>Continue</b> to clear the message once the optional envelope feeder is removed.
59	.xx	Incompatible tray [x]	An unsupported optional drawer and its matching tray are attached to the MFP. Remove the optional drawer. The MFP ceases normal functions until the optional drawer is removed. Touch <b>Continue</b> to clear the message once the optional drawer is removed.
61	.xx	Remove defective disk	Model 500S only. The MFP detects a defective hard disk. <ol style="list-style-type: none"> <li>1. Turn the MFP off.</li> <li>2. Unplug the power cord from the wall outlet.</li> <li>3. Remove the defective hard disk.</li> <li>4. Install a new hard disk.</li> <li>5. Connect the power cord to a properly grounded outlet.</li> <li>6. Turn the MFP on.</li> </ol>



## User attendance messages (continued)

Code	Sub code	Primary message	Description/action
62	.xx	Disk full	<p>Model 500S only. The MFP detects that there is not enough memory or space on the hard disk to store the data of the print job.</p> <p>Touch <b>Continue</b> to clear the message and continue processing the current print job. Any information not previously stored on the hard disk is deleted.</p> <ul style="list-style-type: none"> <li>• Delete fonts, macros, and other data stored on the hard disk.</li> <li>• Install a hard disk with a larger memory capacity.</li> </ul>
63	.xx	Unformatted disk	<p>Model 500S only The hard disk is not formatted.</p> <p>Format the hard disk prior to performing operations that require the hard disk.</p> <p>If the message remains, the hard disk may be defective and require replacing.</p>
64	.xx	Unsupported disk format	<p>Model 500s. The hard disk format is not supported.</p> <p>Format the hard disk prior to performing operations that require the hard disk.</p> <p>If the message remains, the hard disk may be defective and require replacing.</p>
80	.xx	Scheduled maintenance advised	<p>Service is required to maintain printer performance.</p> <p>Replace the maintenance items and if necessary, reset the printer maintenance counter. For more information, go to <b>“Scheduled maintenance” on page 6-1</b>.</p>
81	.xx	Engine Code CRC Failure	<p>This error displays when the microcode to be programmed in the engine flash code module has failed a CRC check. POR the MFP to clear the message. The microcode data is discarded and must be re-transmitted from the host computer.</p>
88	.xx	Toner is low	<p>The toner cartridge is running low on toner.</p> <p>Replace the toner cartridge if the toner low alarm sounds.</p> <p>Touch <b>Continue</b> to clear the message if the toner low alarm does not sound.</p>
1565	1565	Emul error, load emulation option	<p>The download emulator contained in the firmware card does not function with the MFP firmware.</p> <p><b>Note:</b> The MFP automatically clears the message in 30 seconds and then disables the download emulator on the firmware card.</p> <p>For help downloading the correct download emulator version, contact the place where you bought your printer.</p>

## User line 2 link messages

If the printer is locked on a particular link, the link indication displays. If the printer is ready to process any link, no messages display. Link messages are listed in the following table.

User message	Explanation
Parallel	Standard Parallel Port, if available.
Serial	Standard Serial Port, if available.
Serial x	Serial Port is attached to PCI connector x, where x=1, 2, or 3.
Network x	Network card x is attached to PCI connector x, where x=1, 2, or 3.
LocalTalk x	LocalTalk Card x is attached to PCI connector x, where x=1, 2, or 3.
Infrared	Standard Infrared port, if available.
Infrared x	Infrared Port x is attached to PCI connector x, x=1, 2, or 3.

## Check device connection messages

The messages in the following table display when the printer loses communications with one of the following devices.

User status message	Explanation
Check Env Feeder Connection	Check envelope feeder connection.
Check Tray x Connection	Check tray x, where x=1, 2, 3, 4, or 5.
Check Duplex Connection	Check duplex option connection.

The messages in the following table can occur in two ways. The specified device could have been removed from the printer, for instance to clear a paper jam. Otherwise, the device can still be attached to the printer, but is experiencing a communications problem, not fully connected, or having a hardware failure.

If the device is temporarily removed or not connected properly, then the user is advised to reattach it. When the option is recognized, the printer automatically clears the error and continues. If the option is experiencing a hardware problem, turn the printer off and back on. If the error occurs again, the user is advised to turn the printer off, remove the option, and call for service.

User status message	Explanation
Turn Printer OFF to Enable Option	A printer option, Input Tray, or Envelope Feeder has been attached while the printer is powered on. To use the option, the printer must first be powered off and back on again. Data loss results if print jobs are active when the printer is power cycled. If a print job is active, then remove the option and finish the job. The printer automatically clears the message once the option is removed. Once the job is complete, turn off the printer and attach the option again.
Insert Duplex Front Cover	The duplex front access cover is not installed.
Close Duplex Rear Door	The duplex rear door is open.

## User attendance messages—paper jams and paper handling errors (2xx.xx)

When 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.

### User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
200	.00	Paper jam around input sensor.	<ul style="list-style-type: none"> <li>Multi-sheet feed that is shingled.</li> <li>Tray size sensing wrong size</li> <li>Paper jam leaving page over sensor</li> </ul>	<ul style="list-style-type: none"> <li>Fan media and stack flat in tray or multipurpose feeder.</li> <li>Check for anything in the paper path that might cause the paper to jam.</li> <li>If clearing a paper jam does not fix the problem, go to <b>“Input sensor service check” on page 2-146.</b></li> </ul>
200	.01	Input sensor covered too long.	<ul style="list-style-type: none"> <li>Multi-sheet feed that is shingled.</li> <li>Tray size sensing wrong size.</li> <li>Paper jam leaving page over sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Fan media and stack flat in tray or MPF.</li> <li>Check for anything in the paper path that might cause the paper to jam.</li> <li>Check cartridge for obstructions.</li> <li>If clearing a paper jam does not fix the problem, go to <b>“Input sensor service check” on page 2-146.</b></li> </ul>
200	.02	Input sensor covered too long.	<ul style="list-style-type: none"> <li>Multi-sheet feed that is shingled.</li> <li>Tray size sensing wrong size.</li> <li>Paper jam leaving page over sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Fan media and stack flat in tray or MPF.</li> <li>Check for anything in the paper path that might cause the paper to jam.</li> <li>Check cartridge for obstructions.</li> <li>If clearing a paper jam does not fix the problem, go to <b>“Input sensor service check” on page 2-146.</b></li> </ul>
200	.04	Input sensor covered too quickly	<ul style="list-style-type: none"> <li>Paper pre-staged in paper path.</li> <li>Wrong configuration ID causes engine to assume 500-sheet paper path on 250-sheet model.</li> <li>Bouncy input sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Check MPF and friction pad.</li> <li>Fan media and stack flat in tray or MPF.</li> <li>Use different media.</li> <li>Check config ID.</li> </ul>
200	.06	Imaged page not expected page.	Bouncy pass thru sensor.	Perform a sensor test to check the sensor for the tray. See <b>“Sensor Test (input tray)” on page 3-14.</b>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
200	.07	Option tray never picked a page.	Fail to feed from option. Possible causes may include media edge locking, worn or contaminated pick tires, stacking tray beyond recommended fill line.	<ul style="list-style-type: none"> <li>Fan media and stack flat in tray or MPF.</li> <li>Turn media over.</li> <li>Reduce amount of media loaded to fill line.</li> <li>Replace pick tires.</li> </ul> <p>Go to <b>“Input sensor service check” on page 2-146.</b></p>
200	.08	Input sensor covered too quickly	<ul style="list-style-type: none"> <li>Paper pre-staged in path.</li> <li>Bouncy input sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Check MPF and friction pad.</li> <li>Fan media and stack flat in tray or MPF.</li> <li>Use different media.</li> </ul>
200	.09	Did not receive proper motor feedback to start laser servo.	Motor connections	<p>Check the main drive motor cable connections.</p> <p>If no problem is found with motor connections, go to <b>“Main drive service check” on page 2-153.</b></p>
200	.10	Printhead motor not locked when page crosses input sensor	<ul style="list-style-type: none"> <li>Printhead lock signal not working.</li> <li>Printhead control not working.</li> </ul>	<ul style="list-style-type: none"> <li>Check printhead to system card connections.</li> <li>Check printhead motor system.</li> </ul> <p>Go to <b>“Printhead service check” on page 2-165.</b></p>
200	.11	Printhead motor fell out of lock after page arrives at input sensor	<ul style="list-style-type: none"> <li>Paper pre-staged in path.</li> <li>Lock signal went away.</li> </ul>	<ul style="list-style-type: none"> <li>Check printhead to system card connections.</li> <li>Check printhead motor system.</li> </ul> <p>Go to <b>“Printhead service check” on page 2-165.</b></p>
200	.12	Timeout while waiting for laser power adjustment.		
200	.13	Input sensor covered during warm-up sequence.	Page still covering input sensor.	<p>Remove cartridge and make sure input sensor is not covered and is in upright position.</p> <p>Go to <b>“Input sensor service check” on page 2-146.</b></p>
200	.14	Gap too small	<ul style="list-style-type: none"> <li>Paper pre-staged in path.</li> <li>Bouncy input sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Check MFP mechanism and friction pad.</li> <li>Fan media and stack flat in tray or MPF.</li> <li>Use different media.</li> </ul>
200	.15	Laser power did not settle		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
200	.16	Main drive motor error possibly due to mechanical load.	Main drive motor not working. High mechanical load due to paper jam or bind.	<ul style="list-style-type: none"> <li>• Make sure paper path is clear</li> <li>• Check motor to system card connections.</li> <li>• Replace transport motor.</li> </ul> Go to <b>“Main drive service check” on page 2-153.</b>
200	.32	Detected cover switch bounce.	<ul style="list-style-type: none"> <li>• Upper cover not fully closed.</li> <li>• Cover switch not functioning correctly.</li> </ul>	Check cover switch for proper function. Go to <b>“Cover closed switch/cable service check—printer” on page 2-125.</b>
201	.00	Page did not reach exit sensor. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Page jammed on fuser input guide.</li> <li>• Page did not enter or exit fuser nip cleanly.</li> <li>• Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Check fuser entry guide for toner build up.</li> <li>• Check fuser for wear or contamination. If problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.01	Main motor identification failed. Main drive motor identification failed. Fuser page count between 0 and 99,999.	Main motor not working.	Check motor connections to motor and system board. If no problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.02	Page did not reach exit sensor. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>• Page jammed on fuser input guide.</li> <li>• Page did not enter or exit fuser nip cleanly.</li> <li>• Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Check fuser entry guide for toner build up.</li> <li>• Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• If no problem with wear or contamination is found, go to <b>“Fuser exit sensor service check” on page 2-138</b></li> </ul>
201	.03	Video never started with page two inches past the input sensor. Fuser page count between 0 and 99,999.		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.04	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count between 0 and 99,999.	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/16 inch requirement.</li> <li>Check the fuser for wear or contamination. If found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be operating properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.10	Page did not reach exit sensor. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check fuser entry guide for toner build up.</li> <li>Check fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.11	Main drive motor identification failed. Fuser page count between 100,000 and 199,999.	Main drive motor not working.	<ul style="list-style-type: none"> <li>Check motor to system board connections.</li> <li>Replace the main drive motor. <b>“Main drive assembly removal” on page 4-113.</b></li> </ul>
201	.12	Page did not reach exit sensor. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check fuser entry guide for toner build up.</li> <li>Check fuser for wear or contamination. if a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning correctly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.13	Video never started with page two inches past the input sensor. Fuser page count between 100,000 and 199,999.		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.14	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/8 inch requirement.</li> <li>Check fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be operating properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.20	Page did not reach exit sensor. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check fuser entry guide for toner build up.</li> <li>Check fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.21	Main drive motor identification failed. Fuser page count between 200,000 and 299,999.	Main drive motor not working.	Check motor connections to motor and system board. If no problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.22	Page did not reach exit sensor. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check fuser entry guide for toner build up.</li> <li>Check fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.23	Video never started with page two inches past the input sensor. Fuser page count between 200,000 and 299,999.		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.24	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count between 200,000 and 299,999	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/8 inch requirement.</li> <li>Check fuser for wear or contamination. If problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be functioning properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.30	Page did not reach exit sensor. Fuser page count between 300,000 and 399,999	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.31	Main drive motor identification failed. Fuser page count between 300,000 and 399,999.	Main drive motor not working.	Check the motor connections to motor and system board. If no problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.32	Page did not reach exit sensor. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.33	Video never started with page two inches past the input sensor. Fuser page count between 300,000 and 399,999.		



## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.34	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/8 inch requirement.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be functioning properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.40	Page did not reach exit sensor. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.41	Main drive motor identification failed. Fuser page count between 400,000 and 499,999.	Main drive motor not working.	Check the motor connections to motor and system board. If no problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.42	Page did not reach exit sensor. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.43	Video never started with page two inches past the input sensor. Fuser page count between 400,000 and 499,999.		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.44	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/8 inch requirement.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be functioning properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.50	Page did not reach exit sensor. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.51	Main drive motor identification failed. Fuser page count more than 500,000.	Main drive motor not working.	Check the connections to the motor and system board. If not problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.52	Page did not reach exit sensor. Fuser page count more than 500,000.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor is not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.53	Video never started two inches past the input sensor. Fuser pager count more than 500,000.		

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
201	.54	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Narrow media sensor not functioning correctly.</li> <li>Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>If label media, ensure front edge meets 1/8 inch requirement.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>The fuser narrow media sensor may not be functioning properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
201	.90	Page did not reach exit sensor. Fuser page count is not available.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.91	Main drive motor identification failed. Fuser page count is not available.	Main drive motor not working.	Check the connections to the motor and system board. If not problem is found, go to <b>“Main drive service check” on page 2-153.</b>
201	.92	Page did not reach exit sensor. Fuser page count is not available.	<ul style="list-style-type: none"> <li>Page jammed on fuser input guide.</li> <li>Page did not enter or exit fuser nip cleanly.</li> <li>Exit sensor not functioning correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Check the fuser entry guide for toner build up.</li> <li>Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
201	.93	Video never started two inches past the input sensor. Fuser page count is not available.		

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

Code	Sub code	Description	Possible causes	Action
201	.94	Expected wide page not detected by narrow media sensor, possible accordion jam. Fuser page count is not available.	<ul style="list-style-type: none"> <li>• Page did not enter or exit fuser nip cleanly.</li> <li>• Narrow media sensor not functioning correctly.</li> <li>• Actual page is narrow when wide page was expected.</li> </ul>	<ul style="list-style-type: none"> <li>• If label media, ensure front edge meets 1/8 inch requirement.</li> <li>• Check the fuser for wear or contamination. If a problem is found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• If media is narrow, then turn off first sheet detection (In Diagnostics Menu, PRINTER SETUP, Engine Settings 3. Select 16 and touch <b>Submit</b>).</li> <li>• The fuser narrow media sensor may not be functioning properly. Go to <b>“Fuser narrow media sensor service check” on page 2-139.</b></li> </ul>
202	.00	Paper jam at fuser exit or redrive area. Fuser page count between 0 and 99,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output option(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.01	Page did not cleanly exit fuser or redrive area. Fuser page count between 0 and 99,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output option(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.02	Exit sensor covered too long. Fuser page count between 0 and 99,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output option(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.03	Page is covering narrow media sensor during warm up. Fuser page count between 0 and 99,999.	If page is not visible from front or rear of machine, partial piece of page may be torn off in fuser covering narrow media sensor. Narrow media sensor or flag may be dislodged/damaged.	<p>Check the fuser for any signs of a piece of media stuck in the fuser.</p> <p>If the problem recurs, go to <b>“202.03 Error code service check” on page 2-95.</b></p>

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.04	Exit sensor bounced. Fuser page count between 0 and 99,999.	Exit sensor assembly.	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.05	Never sent the divert command to the stacker. Fuser page count between 0 and 99,999.		
202	.06	Page is covering exit sensor during warm up. Fuser page count between 0 and 99,999.	Something is keeping the exit sensor in a covered position. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media. If the problem recurs, go to <b>“202.06 Error code service check” on page 2-95.</b>
202	.07	Timeout waiting for the page ahead. Fuser page count between 0 and 99,999.		
202	.08	Divert media command issued too soon. Fuser page count between 0 and 99,999.		
202	.09	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count between		
202	.10	Paper jam around fuser or redrive area. Fuser page count between 100,000 and 199,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.11	Page did not cleanly exit fuser or redrive area. Fuser page count between 100,000 and 199,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.12	Exit sensor covered too long. Fuser page count between 100,000 and 199,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.13	Page is covering narrow media sensor during warm up. Fuser page count between 100,000 and 199,999.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the machine, partial piece may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.14	Exit sensor bounced. Fuser page count between 100,000 and 199,999.	Exit sensor assembly.	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.15	Never sent the divert command to the stacker. Fuser page count between 100,000 and 199,999.		
202	.16	Page is covering exit sensor during warm up. Fuser page count between 100,000 and 199,999.	Something is keeping the exit sensor in a covered position. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.17	Timeout waiting for the page ahead. Fuser page count between 100,000 and 199,999.		
202	.18	Divert media command issued too soon. Fuser page count between 100,000 and 199,999.		
202	.19	Virtual page timed out waiting for the last page of the job to be safe in the stapler accumulator. Fuser page count between 100,000 and 199,999.		
202	.20	Paper jam around fuser exit or redrive area. Fuser page count between 200,000 and 299,999.	Paper may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>



## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.21	Page did not cleanly exit fuser or redrive area. Fuser page count between 200,000 and 299,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.22	Exit sensor covered too long. Fuser page count between 200,000 and 299,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.23	Page is covering narrow media sensor during warm up. Fuser page count between 200,000 and 299,999.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the printer, a partial piece of page may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.24	Exit sensor may have bounced. Fuser page count between 200,000 and 299,999.	Exit sensor assembly	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.25	Never sent the divert command to the stacker. Fuser page count between 200,000 and 299,999.		
202	.26	Page is covering the exit sensor during warm up. Fuser page count between 200,000 and 299,999.	Something is keeping the exit sensor covered. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.27	Timeout waiting for the page ahead. Fuser page counter between 200,000 and 299,999.		
202	.28	Divert media command issued too soon. Fuser page count between 200,000 and 299,999.		
202	.29	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count between 200,000 and 299,999.		
202	.30	Paper jam around the fuser exit or redrive area. Fuser page count between 300,000 and 399,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.31	Page did not cleanly exit fuser or redrive area. Fuser page count between 300,000 and 399,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.32	Exit sensor covered too long. Fuser page count between 300,000 and 399,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.33	Page is covering the narrow media sensor during warm up. Fuser page count between 300,000 and 399,999.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the printer, a partial piece of a page may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.34	Exit sensor may have bounced. Fuser page count between 300,000 and 399,999.	Exit sensor assembly.	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.35	Never sent the divert command to the stacker. Fuser page count between 300,000 and 399,999.		
202	.36	Page is covering the exit sensor during warm up. Fuser page count between 300,000 and 399,999.	Something is keeping the exit sensor covered. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.37	Timeout waiting for the page ahead. Fuser page count between 300,000 and 399,999.		
202	.38	Divert media command issued too soon. Fuser page count between 300,000 and 399,999.		
202	.39	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count between 300,000 and 399,999.		
202	.40	Paper jam around the fuser exit or redrive area. Fuser page count between 400,000 and 499,999.	Page may be jammed in fuser exit or redrive.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.41	Page did not cleanly exit fuser or redrive area. Fuser page count between 400,000 and 499,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.42	Exit sensor covered too long. Fuser page count between 400,000 and 499,999.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.43	Page is covering narrow media sensor during warm up. Fuser page count between 400,000 and 499,999.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the printer, a partial piece of a page may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.44	Exit sensor may have bounced. Fuser page count between 400,000 and 499,999.	Exit sensor assembly	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.45	Never sent the divert command to the stacker. Fuser page count between 400,000 and 499,999.		
202	.46	Page is covering the exit sensor during warm up. Fuser page count between 400,000 and 499,999.	Something is keeping the exit sensor in a covered position. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.47	Timeout waiting for the page ahead. Fuser page count between 400,000 and 499,999.		
202	.48	Divert media command issued too soon. Fuser page count between 400,000 and 499,999.		
202	.49	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count between 400,000 and 499,999.		
202	.50	Paper jam around the fuser exit or redrive area. Fuser page count stopped at 500,000 to preserve data	Page may be jammed in the fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.51	Page did not cleanly exit fuser or redrive area. Fuser page count stopped at 500,000 to preserve data.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.52	Exit sensor covered too long. Fuser page count stopped at 500,000 to preserve data.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.53	Page is covering narrow media sensor during warm up. Fuser page count stopped at 500,000 to preserve data.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the printer, a partial piece of a page may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.54	Exit sensor may have bounced. Fuser page count stopped at 500,000 to preserve data.	Exit sensor assembly.	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.55	Never sent the divert command to the stacker. Fuser page count more than 500,000.		
202	.56	Page is covering the exit sensor during warm up. Fuser page count stopped at 500,000 to preserve data.	Something is keeping the exit sensor in a covered position. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.57	Timeout waiting for the page ahead. Fuser page count more than 500,000.		
202	.58	Divert media command issued too soon. Fuser page count more than 500,000.		
202	.59	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count more than 500,000.		
202	.90	Paper jam around the exit or redrive area. Fuser page count is not available.	Page may be jammed in fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>



## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
202	.91	Page did not cleanly exit fuser or redrive area. Fuser page count is not available.	Page may be jammed in the fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.92	Exit sensor covered too long. Fuser page count is not available.	Page may be jammed in the fuser exit or redrive area.	<ul style="list-style-type: none"> <li>• Make sure the redrive door is complete closed.</li> <li>• Check the fuser for any signs of wear or contamination. If any are found, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• Turn media over to reduce +W curl.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check any installed output options(s) that may be installed for correct installation and alignment.</li> <li>• The fuser exit sensor may not be functioning properly. Go to <b>“Fuser exit sensor service check” on page 2-138.</b></li> </ul>
202	.93	Page is covering narrow media sensor during warm up. Fuser count is not available.	<ul style="list-style-type: none"> <li>• If page is not visible from front or rear of the printer, a partial piece of a page may be torn off in the fuser covering the narrow media sensor.</li> <li>• The narrow media sensor or flag may be dislodged or damaged.</li> </ul>	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
202	.94	Exit sensor may have bounced. Fuser page count is not available.	Exit sensor assembly.	Go to <b>“Fuser exit sensor service check” on page 2-138.</b>
202	.95	Never sent the divert command to the stacker. Fuser page count is not available.		
202	.96	Page is covering the exit sensor during warm up. Fuser page count is not available.	Something is keeping the exit sensor in a covered position. A page may not have been cleared from a prior jam.	Check the fuser and area around the fuser assembly for any signs of debris or pieces of paper or media.
202	.97	Timeout waiting for the page ahead. Fuser page count is not available.		
202	.98	Divert media command issued too soon. Fuser page count is not available.		
202	.99	Virtual page timed out waiting for last page of job to be safe in the stapler accumulator. Fuser page count is not available.		
231	.00	Paper did not arrive at the duplex input sensor but did leave the printer exit sensor.	<ul style="list-style-type: none"> <li>• Duplex rear door not fully latched.</li> <li>• Printer diverter not functioning correctly.</li> <li>• Duplex feed system not working correctly.</li> <li>• Printer and duplex not aligned.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex assembly rear door is properly latched.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check duplex unit for correct installation and alignment to the printer.</li> <li>• If available, try another duplex unit. If none is available, go to <b>“231 . xx Jam displays” on page 2-128.</b></li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
232	.00	Paper did not clear the duplex input sensor but did leave the printer exit sensor.	<ul style="list-style-type: none"> <li>• Duplex rear door not fully latched.</li> <li>• Printer diverter not functioning correctly.</li> <li>• Duplex feed system not working correctly.</li> <li>• Printer and duplex not aligned.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex assembly rear door is properly latched.</li> <li>• Check upper redrive diverter and diverter spring for any signs of damage, a loose spring, or binding parts. Repair the redrive as necessary.</li> <li>• Check duplex unit for correct installation and alignment to the printer.</li> <li>• If available, try another duplex option. If none is available, go to <b>“232.xx Jam displays” on page 2-128.</b></li> </ul>
233	.00	Paper failed to make duplex doublefeed sensor during turnaround.	<ul style="list-style-type: none"> <li>• Duplex rear door not fully latched.</li> <li>• Duplex feed system not working correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex assembly rear door is properly latched.</li> <li>• If available, try another duplex option. If none is available, go to <b>“233.xx Jam displays” on page 2-128.</b></li> </ul>
234	.00	Paper did not arrive at duplex exit sensor.	<ul style="list-style-type: none"> <li>• Duplex rear door not fully latched.</li> <li>• Duplex feed system not working correctly.</li> <li>• Severely skewed media coming from the printer.</li> </ul>	Check the media coming from the printer to the duplex option is not damaged or skewed. If the media is not damaged or skewed, try another duplex option, if available. If not available, replace the duplex option.
235	.00	Paper reached the duplex exit sensor but another sheet is still detected over the doublefeed sensor.	Double feed separated in duplex.	<ul style="list-style-type: none"> <li>• Remove the two sheets from the duplex option and see if the duplex fails again. Remove the sheets if it fails again.</li> <li>• Run the duplex Feed 1 and Feed 2 Tests to see if they pass. See <b>“Duplex Feed 1 and “Duplex Feed 2” on page 3-13.</b> If the tests fail after several attempts, replace the duplex option. If the tests pass, retry to feed from the printer through the duplex option. If the problem is still present, replace the duplex option.</li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
236	00	Paper did not leave the duplex exit sensor.	<ul style="list-style-type: none"> <li>• Duplex jam access tray is not fully latched.</li> <li>• Printer PTO not driving duplex feed rolls.</li> <li>• Duplex feed system not working correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex jam access tray is installed correctly</li> <li>• Make sure the power takeoff shaft and spring are correctly installed and operating properly.</li> <li>• Try the duplex option again. If it fails try another duplex option, if available. If another one is not available, replace the duplex option.</li> </ul>
237	.00	Paper did not reach the printer input sensor from the duplex unit.	<ul style="list-style-type: none"> <li>• Duplex jam access tray is not fully latched.</li> <li>• Printer PTO not driving the duplex feed rolls. Duplex feed system not working correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex jam access tray is installed correctly</li> <li>• Make sure the power takeoff shaft and spring are correctly installed and operating properly.</li> <li>• Try the duplex option again. If it fails try another duplex option, if available. If another one is not available, replace the duplex option.</li> </ul>
237	.07	Duplex paper jam. There may be other jams in the paper path.	<ul style="list-style-type: none"> <li>• Duplex jam access tray is not fully latched.</li> <li>• Printer PTO not driving duplex feed rolls.</li> <li>• Duplex feed system not working correctly.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sure the duplex jam access tray is installed correctly</li> <li>• Make sure the power takeoff shaft and spring are correctly installed and operating properly.</li> <li>• Try the duplex option again. If it fails try another duplex option, if available. If another one is not available, replace the duplex option.</li> </ul>
238	.00	Paper is covering one of the duplex sensors during a reset.	<ul style="list-style-type: none"> <li>• Media left in the duplex and <i>Continue</i> selected.</li> <li>• Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Remove any sheets from the duplex option.</li> <li>• Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.01	Duplex input sensor covered.	<ul style="list-style-type: none"> <li>• Media left in the duplex and <i>Continue</i> selected.</li> <li>• Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>• Remove any sheets from the duplex option.</li> <li>• Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>

### User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
238	.02	Duplex exit sensor covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.03	Duplex input and exit sensors covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.04	Duplex doublefeed sensor covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.05	Duplex doublefeed sensor covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.06	Duplex doublefeed and exit sensors covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
238	.07	Duplex doublefeed, input, and exit sensors are covered.	<ul style="list-style-type: none"> <li>Media left in the duplex and <i>Continue</i> selected.</li> <li>Sensor is having mechanical or electrical problems.</li> </ul>	<ul style="list-style-type: none"> <li>Remove any sheets from the duplex option.</li> <li>Try the duplex option again. If it fails, try another duplex option, if available. If one is not available, replace the duplex option.</li> </ul>
239	.00	Feed error in duplex unit.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.01	Jam declared by a smart device. Immediate stop.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.02	Jam declared by a smart device. Homing allowed stop.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
239	.03	Duplex did not send Device Controls response.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.04	Duplex did not send Input Device Ready response.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.05	Duplex did not send Page In Output Device response.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.06	Failed the last page of a staple job.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace duplex option.
239	.07	Engine never sent Select OUtput Device to the duplex unit because the page leaving the duplex never sent Select Input Device.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.08	Engine never saw Input Source Read on a page to be picked from the duplex unit that is waiting on a page to pass the input sensor.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> </ul>	Replace the duplex option.
239	.11	Sheet picked from duplex never made it to the input sensor. Slow or delayed feed from the duplex unit.	<ul style="list-style-type: none"> <li>Mechanical feed error due to belt slipping.</li> <li>Timing error due to feed system.</li> <li>Input sensor not working correctly.</li> </ul>	Check duplex sensor cables for correct installation. If no problem is found with the cables, replace the duplex option.
241	.00	Paper jam near tray 1		
241	.04	Not applicable to tray 1		
241	.05	Not applicable to tray 1		
241	.06	Failed to pick from tray 1	Paper jam around autocompensator, faulty motor cable, faulty motor, autocompensator gear bind, failed controller card.	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check for overloaded tray.</li> <li>Check pick assembly and controller card.</li> </ul>
241	.07	DC feed autocompensator stalled on a pick	Paper jam around autocompensator, faulty motor cable, faulty motor, autocompensator gear bind, or failed controller card.	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check pick assembly and controller card.</li> </ul>
241	.08	Received lots of dc feed interrupts before losing them.	Paper jam around autocompensator, faulty motor cable, faulty motor, autocompensator gear bind, or failed controller card.	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check pick assembly and controller card.</li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
241	.09	Page did not reach input sensor.	If source is tray 1, possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor.</li> </ul>	<ul style="list-style-type: none"> <li>• Fan media.</li> <li>• Turn media over.</li> <li>• Reduce amount of media loaded in tray 1.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page A-105.</b></li> </ul>
241	.10	Page was not properly picked from tray 1.	Failure to feed possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past the fill line.</li> </ul>	<ul style="list-style-type: none"> <li>• Fan media.</li> <li>• Turn media over.</li> <li>• Reduce amount of media loaded in tray 1.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> </ul>
241	.11	Page was not properly picked from tray 1.	Failure to feed possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past the fill line.</li> </ul>	<ul style="list-style-type: none"> <li>• Fan media.</li> <li>• Turn media over.</li> <li>• Reduce amount of media loaded in tray 1.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> </ul>
241	.12	Page was not properly picked from tray 1.	Failure to feed possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past the fill line.</li> </ul>	<ul style="list-style-type: none"> <li>• Fan media.</li> <li>• Turn media over.</li> <li>• Reduce amount of media loaded in tray 1.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> </ul>
241	.13	Not applicable to tray 1		
241	.14	Page was not properly picked from MPT, tray 1, or feeder	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Fan media.</li> <li>• Turn media over.</li> <li>• Reduce amount of media loaded in tray 1.</li> <li>• Replace the pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> </ul>
241	.15	Late feed from a tray interfered with the pick retry	Staging of paper in tray 1.	<ul style="list-style-type: none"> <li>• Clear any paper jams.</li> <li>• Fan media.</li> </ul>

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

Code	Sub code	Description	Possible causes	Action
241	.16	Failed to feed from tray 1. Pages in the paper path have been flushed to the output bin.	<ul style="list-style-type: none"> <li>Paper jam</li> <li>Worn pick tires.</li> </ul>	
241	.17	Not applicable to tray 1.		
242	.00	Paper jam near tray 2.	<ul style="list-style-type: none"> <li>Paper jam.</li> <li>Failed pass thru sensor.</li> </ul>	<ul style="list-style-type: none"> <li>Clear paper jam.</li> <li>Check sensor.</li> </ul>
242	.02	Jam declared by a smart device. Immediate stop.	Fault reported by options tray 2: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor or motor cable failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all jams.</li> <li>Check motor cables.</li> <li>Check and/or replace tray motor.</li> <li>Check and/or replace sensor(s).</li> <li>Replace entire option.</li> </ul>
242	.03	Jam declared by a smart device. Homing allowed stop.	Fault reported by options tray 2: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all jams.</li> <li>Check motor cables.</li> <li>Check/replace tray motor.</li> <li>Check and/or replace sensor(s).</li> <li>Replace entire option.</li> </ul>
242	.04	Option tray pass thru sensor never became covered.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past fill line</li> <li>Failed sensor</li> </ul> If source is tray 3, possible cause include: <ul style="list-style-type: none"> <li>Paper path bind when feeding from tray 2 though tray 1</li> <li>Damaged PTO shaft</li> </ul>	<ul style="list-style-type: none"> <li>Clear all jams.</li> <li>Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>Check and/or replace input sensor.</li> </ul>
242	.05	Option tray pass thru sensor never became uncovered.	Paper jam or failed sensor.	<ul style="list-style-type: none"> <li>Clear all jams.</li> <li>Check/replace pass thru sensor.</li> </ul>
242	.06	Failed to pick from tray 2	<ul style="list-style-type: none"> <li>Paper jam around autocompensator</li> <li>Faulty motor cable</li> <li>Faulty motor</li> <li>Autocompensator gear bind</li> <li>Failed controller card.</li> </ul>	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check pick assembly and controller card.</li> </ul>
242	.10	Failed to feed from tray 2	Failed to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past fill line</li> <li>Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>Check/replace input sensor.</li> </ul>



### User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
242	.13	Paper over tray 2 pass thru sensor on warm-up.	<ul style="list-style-type: none"> <li>Paper left in path</li> <li>Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Check/replace pass thru sensor.</li> </ul>
242	.16	Failed to feed from tray 2. Pages in the paper path have been flushed to the output bin.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past the fill line</li> <li>Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Replace pick tires.</li> <li>Check/replace input sensor.</li> </ul>
242	.17	One or more trays located above the source tray as been removed.	<ul style="list-style-type: none"> <li>Tray removed</li> <li>Sensors faulty</li> </ul>	<ul style="list-style-type: none"> <li>Reinstall tray.</li> <li>Check sensors.</li> </ul>
243	.00	Paper jam near tray 3	<ul style="list-style-type: none"> <li>Paper jam</li> <li>Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jam.</li> <li>Check sensor.</li> </ul>
243	.02	Jam declared by smart device. Immediate stop.	Fault reported by options tray 3: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor or motor cable failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all media jams.</li> <li>Check motor cables.</li> <li>Check/replace tray motor.</li> <li>Check/replace sensor(s).</li> <li>Replace entire option.</li> </ul>
243	.03	Jam declared by smart device. Homing allowed to stop	Fault reported by options tray 3: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all media jams.</li> <li>Check/replace tray motor.</li> <li>Check/replace sensor(s).</li> <li>Replace entire option.</li> </ul>
243	.04	Option tray pass thru sensor never became covered.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past fill line</li> <li>Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>Check/replace input sensor.</li> <li>Check PTO shaft.</li> </ul>
243	.05	Option tray pass thru sensor never became uncovered.	<ul style="list-style-type: none"> <li>Paper jam</li> <li>Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>Check all media jams.</li> <li>Check/replace pass thru sensor.</li> </ul>
243	.6	Failed to pick from tray 3	<ul style="list-style-type: none"> <li>Paper jam around autocompensator</li> <li>Faulty motor cable</li> <li>Faulty motor</li> <li>Autocompensator gear bind</li> <li>Failed controller card</li> </ul>	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check pick assembly and controller card.</li> </ul>

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

Code	Sub code	Description	Possible causes	Action
243	.10	Fail to feed from tray 3	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> </ul>
243	.13	Paper over tray 3 pass thru sensor on warm-up.	<ul style="list-style-type: none"> <li>• Paper left in path</li> <li>• Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Check/replace pass thru sensor.</li> </ul>
243	.15	Late feed from a tray interfered with the pick retry.		
243	.16	Failed to feed from tray 3. Pages in the paper path have been flushed to the output bin.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> </ul>
243	.17	One or more trays located above the source tray have been removed.	<ul style="list-style-type: none"> <li>• Tray removed</li> <li>• Sensors faulty</li> </ul>	<ul style="list-style-type: none"> <li>• Reinstall tray.</li> <li>• Check sensors.</li> </ul>
244	.00	Paper jam near tray 4.	<ul style="list-style-type: none"> <li>• Tray removed</li> <li>• Sensors faulty</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Check sensor.</li> </ul>
244	.02	Jam declared by a smart device. Immediate stop.	Fault reported by options tray 4: <ul style="list-style-type: none"> <li>• Paper jam</li> <li>• Motor or motor cable failure</li> <li>• Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>• Clear all media jams.</li> <li>• Check motor cables.</li> <li>• Check/replace tray motor.</li> <li>• Check/replace sensor(s).</li> <li>• Replace entire option.</li> </ul>
244	.03	Jam declared by a smart device. Homing allowed to stop.	Fault reported by options tray 4: <ul style="list-style-type: none"> <li>• Paper jam</li> <li>• Motor failure</li> <li>• Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>• Clear all media jams.</li> <li>• Check motor cables.</li> <li>• Check/replace tray motor.</li> <li>• Check/replace sensor(s).</li> <li>• Replace entire option.</li> </ul>
244	.04	Option tray pass thru sensor never became covered.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor</li> </ul> If source is tray 5, possible causes include: <ul style="list-style-type: none"> <li>• Paper path bind when feeding from tray 2 through tray 1</li> <li>• Damaged PTO shaft.</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> <li>• Check PTO shaft.</li> </ul>

### User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
244	.05	Option tray pass thru sensor never became uncovered.	Paper jam Failed sensor	<ul style="list-style-type: none"> <li>Clear all jams.</li> <li>Check/replace pass thru sensor.</li> </ul>
244	.06	Failed to pick from tray 4	<ul style="list-style-type: none"> <li>Paper jam around autocompensator</li> <li>Faulty motor cable</li> <li>Faulty motor</li> <li>Autocompensator gear bind</li> <li>Failed controller card</li> </ul>	<ul style="list-style-type: none"> <li>Check for jam in tray.</li> <li>Check pick assembly and controller card.</li> </ul>
244	.10	Failure to feed from tray 4.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past fill line</li> <li>Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>Check/replace input sensor.</li> </ul>
244	.13	Paper over tray 4 pass thru sensor on warm-up.	<ul style="list-style-type: none"> <li>Paper left in path.</li> <li>Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Check/replace pass thru sensor.</li> </ul>
244	.15	Late feed from a tray interfered with the pick retry.	<ul style="list-style-type: none"> <li></li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
244	.16	Failed to feed from tray 4. Pages in the paper path have been flushed to the output bin.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>Edge locking</li> <li>Worn or contaminated pick tires</li> <li>Overfilling of tray past fill line</li> <li>Could also be a failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jams.</li> <li>Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>Check/replace input sensor.</li> </ul>
244	.17	One or more trays location above the source tray have been removed.	<ul style="list-style-type: none"> <li>Tray removed</li> <li>Sensors faulty</li> </ul>	<ul style="list-style-type: none"> <li>Reinstall the tray.</li> <li>Check sensors.</li> </ul>
245	.00	Paper jam near tray 5.	<ul style="list-style-type: none"> <li>Paper jam</li> <li>Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>Clear media jam.</li> <li>Check sensor.</li> </ul>
245	.02	Jam declared by a smart device. Immediate stop.	Fault reported by options tray 5: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor or motor cable failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all media jams.</li> <li>Check motor cables.</li> <li>Check/replace tray motor.</li> <li>Check/replace sensor(s).</li> <li>Replace entire option.</li> </ul>
245	.03	Jam declared by a smart device. Homing allowed to stop.	Fault reported by options tray 5: <ul style="list-style-type: none"> <li>Paper jam</li> <li>Motor failure</li> <li>Sensor failure</li> </ul>	<ul style="list-style-type: none"> <li>Clear all media jams.</li> <li>Check motor cables.</li> <li>Check/replace tray motor.</li> <li>Check/replace sensor(s).</li> <li>Replace entire option.</li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
245	.04	Option tray pass thru sensor never became covered.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> </ul>
245	.05	Option tray pass thru sensor never became uncovered.	Paper jam Failed sensor	<ul style="list-style-type: none"> <li>• Clear all jams.</li> <li>• Check/replace pass thru sensor.</li> </ul>
245	.06	Failed to pick from tray 5	<ul style="list-style-type: none"> <li>• Paper jam around autocompensator</li> <li>• Faulty motor cable</li> <li>• Faulty motor</li> <li>• Autocompensator gear bind</li> <li>• Failed controller card</li> </ul>	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check pick assembly and controller card.</li> </ul>
245	.10	Failure to feed from tray 5.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Failed sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> </ul>
245	.13	Paper over tray 5 pass thru sensor on warm-up.	<ul style="list-style-type: none"> <li>• Paper left in path.</li> <li>• Failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Check/replace pass thru sensor.</li> </ul>
245	.15	Late feed from a tray interfered with the pick retry.		
245.16	.16	Failed to feed from tray 5. Pages in the paper path have been flushed to the output bin.	Failure to feed. Possible causes include: <ul style="list-style-type: none"> <li>• Edge locking</li> <li>• Worn or contaminated pick tires</li> <li>• Overfilling of tray past fill line</li> <li>• Could also be a failed pass thru sensor</li> </ul>	<ul style="list-style-type: none"> <li>• Clear media jams.</li> <li>• Replace pick tires. See <b>“Integrated tray autocompensator pick roll assembly removal” on page 4-105.</b></li> <li>• Check/replace input sensor.</li> </ul>
245	.17	One or more trays location above the source tray have been removed.	<ul style="list-style-type: none"> <li>• Tray removed</li> <li>• Sensors faulty</li> </ul>	<ul style="list-style-type: none"> <li>• Reinstall the tray.</li> <li>• Check sensors.</li> </ul>
250	.00	Paper jam near the multipurpose feeder.		
250	.01	Option tray pass thru sensor never became covered.		
250	.02	Option tray pass thru sensor never became uncovered.		

### User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
250	.06	Page did not reach input sensor.	Paper jam around the multipurpose tray.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check pick assembly and controller card.</li> </ul>
250	.07	Page was not properly picked from multipurpose feeder.	Paper jam around the multipurpose feeder.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check pick assembly and controller card.</li> </ul>
250	.08	Page was not properly picked from multipurpose feeder.	Paper jam around the multipurpose feeder.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check pick assembly and controller card.</li> </ul>
250	.09	Page was not properly picked from multipurpose feeder.	Paper jam around the multipurpose feeder.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check the pick assembly and controller card.</li> </ul>
250	.10	Page was not properly picked from multipurpose feeder.	Paper jam around the multipurpose feeder.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check pick assembly and controller card.</li> </ul>
250	.11	Failed to feed from multipurpose feeder. Pages in the paper path have been flushed to the output bin.	Paper jam around the multipurpose feeder.	<ul style="list-style-type: none"> <li>• Check for jam in tray.</li> <li>• Check the pick assembly and controller card.</li> </ul>
260	.00	Paper jam near the envelope feeder.		
260	.01	Jam declared by a smart device. Immediate stop.		
260	.02	Jam declared by a smart device. Homing allowed stop.		
260	.05	Envelope feeder pass thru sensor never became uncovered.		
260	.06	Envelope feeder pass thru sensor never became covered.		
260	.07	Failed to pick from the envelope feeder.	Paper jam around the envelope feeder.	<ul style="list-style-type: none"> <li>• Remove feeder and clear jam.</li> <li>• Replace feeder.</li> </ul>
260	.10	Page did not reach input sensor from envelope feeder.	Paper jam around envelope feeder	<ul style="list-style-type: none"> <li>• Remove feeder and clear jam.</li> <li>• Replace feeder.</li> </ul>
260	.11	Page did not reach input sensor from envelope feeder.	Paper jam around envelope feeder	<ul style="list-style-type: none"> <li>• Remove feeder and clear jam.</li> <li>• Replace feeder.</li> </ul>
260	.12	Page did not reach input sensor from envelope feeder.	Paper jam around envelope feeder	<ul style="list-style-type: none"> <li>• Remove feeder and clear jam.</li> <li>• Replace feeder.</li> </ul>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
260	.13	Paper in envelope feeder on warm-up.		
260	.14	Page was not properly picked from envelope feeder.	Paper jam around envelope feeder.	<ul style="list-style-type: none"> <li>Remove feeder and clear jam.</li> <li>Replace feeder.</li> </ul>
260	.15	Page was not properly picked from envelope feeder.	Paper jam around envelope feeder.	<ul style="list-style-type: none"> <li>Remove feeder and clear jam.</li> <li>Replace feeder.</li> </ul>
260	.16	Failed to feed from envelope feeder. Pages in the paper path have been flushed to the output bin.	Paper jam around envelope feeder.	<ul style="list-style-type: none"> <li>Remove feeder and clear jam.</li> <li>Replace feeder.</li> </ul>
290	.00	Static jam—ADF Interval Sensor	<ul style="list-style-type: none"> <li>The paper may be stuck in the ADF at or over the interval sensor.</li> <li>Interval sensor may be malfunction.</li> </ul>	Go to <b>“290.00 Error code service check” on page 2-96.</b>
290	.01	ADF Pickup Jam.	The ADF attempted to stage a page but the leading edge of the page did not reach the interval sensor.	Go to <b>“290.01 Error code service check” on page 2-98.</b>
290	.02	ADF Feed Jam.	The leading edge of the page reached the interval sensor but did not reach the first scan sensor.	Check for proper operation of the first scan sensor. If the sensor is opening properly and no other problem is found, go to <b>“290.02 Error code service check” on page 2-100.</b>
290	.10	Static jam—First Scan Sensor.	Paper may be stuck in the ADF at the first scan sensor or the first scan sensor may be malfunctioning.	Check for any media or obstruction over the first scan sensor. If no problem is found, go to <b>“290.10 Error code service check” on page 2-102.</b>
291	.00	Static Jam—Second Scan Sensor.	Paper may be stuck in the ADF at the second scan sensor or the second scan sensor is not operating properly.	Check for any media or obstruction over the second scan sensor. If no problem is found, go to <b>“291.00 Error code service check” on page 2-104.</b>
291	.01	First ADF Scan Sensor Jam.	The second sensor detected the leading edge of the paper but never detected the trailing edge. The first scan sensor detected the trailing edge of the paper.	Go to <b>“291.01 Error code service check” on page 2-105.</b>
291	.02	Second ADF Scan Sensor	The first scan sensor has detected the trailing edge of the page, but the second scan sensor did not detect the leading edge of the page.	Clear any media from the ADF and close the cover. If this does not fix the problem, then go to <b>“291.02 Error code service check” on page 2-106.</b>
292	.00	ADF Cover Open Jam	The ADF cover was opened while the ADF was scanning.	Clear any paper from the ADF and close the cover. If this does not fix the problem, then go to <b>“292.00 Error code service check” on page 2-107.</b>

## User attendance messages—paper jams and paper handling errors (2xx.xx)

Code	Sub code	Description	Possible causes	Action
293	.00	Paper Missing Jam	An attempt was made to force an ADF scan, by a custom job, page level jam recovery, or so on, with no paper in the ADF input tray or the paper was removed from the ADF input tray just as it was being staged. The paper present sensor may be malfunctioning.	Make sure the media is loaded in the ADF when starting an ADF scan. If no problem is found, go to <b>“293 Error code service check” on page 2-108.</b>
294	.00	Static Jam—ADF Exit Sensor	The page is stuck in the ADF at the exit sensor or the exit sensor is malfunctioning.	Check for any jammed pages in the ADF and remove. If the problem persists, go to <b>“294.00 Error code service check” on page 2-109.</b>
294	.01	ADF Eject Jam	The exit sensor may not be operating properly or malfunctioning.	Verify that the exit sensor is operating properly. If the problem persists and the exit sensor seems to be operating properly, go to <b>“294.01 Error code service check” on page 2-110.</b>
294	.02	ADF Exit Jam Sensor Off	The exit sensor may not be operating properly or malfunctioning.	Verify the exit sensor is operating properly. If the problem persists and the exit sensor seems to be operating properly, go to <b>“294.02 Error code service check” on page 2-112.</b>
295	.03	ADF Exit Jam Sensor On	The exit sensor may not be operating properly or malfunctioning.	Verify that the exit sensor is operating properly. If the problem persists and the exit sensor seems to be operating properly, go to <b>“294.03 Error code service check” on page 2-113.</b>
287	.13	Clean Scanner Backing Strip	The flatbed white cushion inside the ADF is dirty.	Clean the flatbed white cushion. See <b>“Cleaning the scanner glass, cushions, and strips” on page 6-2.</b>
297	.14	Clean Scanner Glass	The scanner document glass is dirty.	Clean the scanner glass for both the flatbed and ADF. See <b>“Cleaning the scanner glass, cushions, and strips” on page 6-2.</b>
298	.01	Scanner Missing—Front Side Cable Unplugged	One of the cables on the rear of the scanner is unplugged or loose.	Check the cables on the rear of the scanner to make sure they are plugged in and fastened securely. If no problem is found with the cables, go to <b>“298.01 Error code service check—model 500S” on page 2-115.</b>

**User attendance messages—paper jams and paper handling errors (2xx.xx)**

<b>Code</b>	<b>Sub code</b>	<b>Description</b>	<b>Possible causes</b>	<b>Action</b>
298	.02	Scanner Missing—Rear Side Cable Unplugged	One of the cables on the rear of the scanner is unplugged or loose.	Check the cables on the rear of the scanner to make sure they are plugged in and fastened securely. If no problem is found with the cables, go to <b>“298.02 Error code service check” on page 2-115.</b>



## Service checks

Anytime the system board is replaced, the Configuration ID must be reset in NVRAM. Go to **“Configuration ID” on page 3-19**.

Review the following information before performing any service checks.

- Paper feed problems (especially paper jams): Go to **“Display Log” on page 3-21** and check the printer event log for indications of repetitive entries that help to isolate a problem to a particular area of the printer or option.
- Paper feed problems with error message: Use the **“Sub error codes for 8xx, 9xx, and 2xx error codes” on page 2-13** to help diagnose the problem.
- Print quality problems: Go to **“Printing Quality Pages” on page 3-7** and print a test page to help diagnose problems before changing any settings or working on the printer.
- Use the resident diagnostics test provided to help isolate a problem before taking the machine apart or removing any options.

### 202.03 Error code service check

The spring on the narrow media sensor flag may not be working correctly. When the sensor flag is made, it does not return to the correct position.

	FRU	Action
1	Fuser narrow media sensor flag and spring	Remove the fuser narrow media sensor. See <b>“Fuser narrow media sensor removal” on page 4-88</b> . Inspect the flag and spring. If there is damage or the flag and spring do not operator correctly, replace the fuser narrow media sensor flag and spring. See <b>“Fuser narrow media flag and spring removal” on page 4-90</b> . If this does not correct the problem, go to step 2.
2	Fuser assembly	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79</b> .

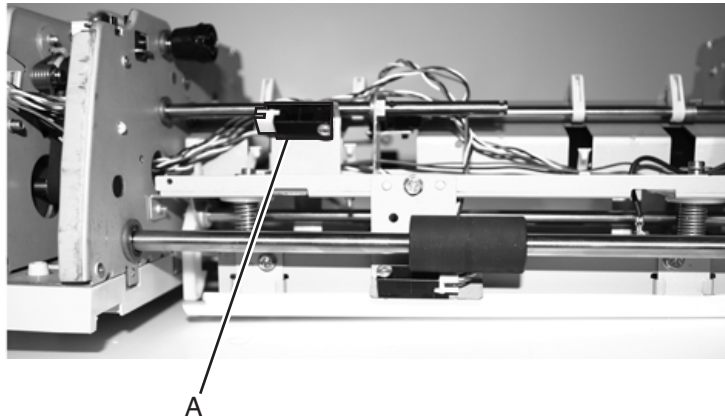
### 202.06 Error code service check

The spring on the fuser exit sensor flag may not be working correctly. When the sensor flag is made, it does not return to the correct position.

	FRU	Action
1	Fuser exit sensor flag and spring	Remove the fuser exit sensor . See ). Inspect the flag and spring. If there is damage or the flag and spring do not operator correctly, replace the fuser exit sensor flag and spring. See <b>“Fuser exit sensor flag and spring removal” on page 4-83</b> . If this does not correct the problem, go to step 2.
2	Fuser assembly	Replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79</b> .

## 290.00 Error code service check

Static jam—ADF interval sensor (A).



**Note:** Before starting this service check, make sure the interval sensor cable is correctly installed.

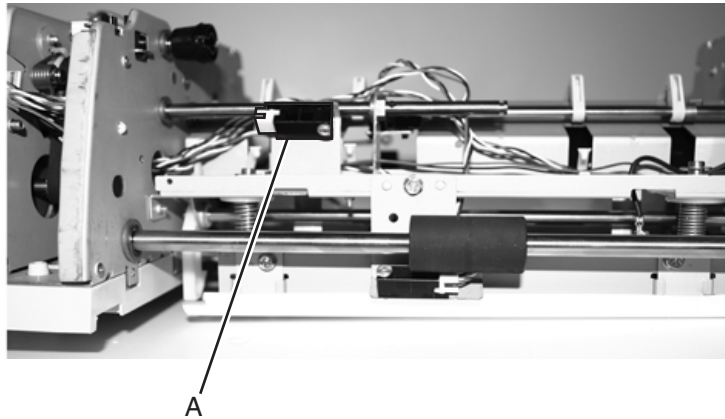
	FRU	Action												
1	ADF	Check for any signs of paper or other debris that might be present in the ADF assembly over the interval sensor. If nothing found, go to step 2.												
2	Interval sensor	Enter the Diagnostic Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> and then select <b>Sensor Tests</b> . Check the interval sensor for correct operation. <b>Note:</b> You can check the interval sensor by putting a sheet of paper over the sensor. This is easier to perform by first removing the pick arm assembly. If the sensor fails the test, go to step 3.												
3	Interval sensor cable (interval sensor to CN10 on the MDC card)	Check to make sure the interval sensor cable is correctly installed at the sensor and at CN10 on the motor driver card. If the cable is not installed correctly, reinstall the cable. If installed correctly, go to step 4.												
4	Motor driver card	Turn the power off and disconnect CN10 on the motor driver card. Measure the voltages at the board: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">Interval sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN10 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 7</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 8</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN10—Pin 9</td> <td>+5.0 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> If incorrect, replace the motor driver card. If correct go to step 5.	Interval sensor—reflective type (normally closed)		Connector CN10 (motor driver card)		CN10—Pin 7	0 V dc	CN10—Pin 8	+5.0 V dc	CN10—Pin 9	+5.0 V dc	<b>Note:</b> All voltages are approximate values.	
Interval sensor—reflective type (normally closed)														
Connector CN10 (motor driver card)														
CN10—Pin 7	0 V dc													
CN10—Pin 8	+5.0 V dc													
CN10—Pin 9	+5.0 V dc													
<b>Note:</b> All voltages are approximate values.														

	FRU	Action																		
5	Interval sensor—electrical checks	<p>Turn the power off and reconnect CN10 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (paper over the sensor).</p> <table border="1"> <thead> <tr> <th colspan="3"><b>Interval sensor—reflective type (normally closed)</b></th> </tr> <tr> <th colspan="3">Connector CN10 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed (uncovered)</th> <th>Sensor open (covered)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 7</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 8</td> <td>+0.03 V dc</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN10—Pin 9</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect replace the interval sensor. If this does not fix the problem, replace the complete ADF assembly.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	<b>Interval sensor—reflective type (normally closed)</b>			Connector CN10 (motor driver card)			Pin number	Sensor closed (uncovered)	Sensor open (covered)	CN10—Pin 7	0 V dc	0 V dc	CN10—Pin 8	+0.03 V dc	+5.0 V dc	CN10—Pin 9	+5.0 V dc	+5.0 V dc
<b>Interval sensor—reflective type (normally closed)</b>																				
Connector CN10 (motor driver card)																				
Pin number	Sensor closed (uncovered)	Sensor open (covered)																		
CN10—Pin 7	0 V dc	0 V dc																		
CN10—Pin 8	+0.03 V dc	+5.0 V dc																		
CN10—Pin 9	+5.0 V dc	+5.0 V dc																		

## 290.01 Error code service check

ADF pickup jam.

**Note:** Before starting this service check, make sure the interval sensor (A) cable is correctly installed.

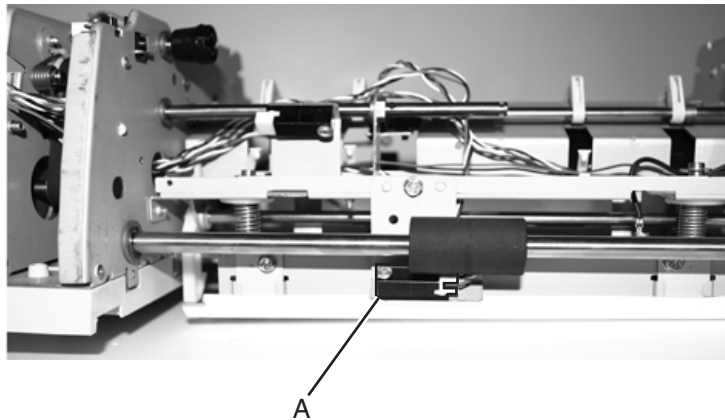


	FRU	Action
1	Pickup arm assembly	Check to make sure the pickup arm is correctly installed. If not installed correctly, reinstall properly. If installed correctly, check the pickup arm assembly for any signs of damage or broken parts. If a problem is found, replace the pickup arm assembly.
2	Pickup arm solenoid springs	Check the pickup arm solenoid springs to make sure they are correctly attached to the jam removal knob pulley. If not installed correctly, reinstall. If installed correctly, go to step 3.
3	Pickup arm solenoid springs	Check for any signs of broken or damaged pickup arm solenoid assembly springs. If either spring is broken or damaged, replace the solenoid assembly which contains both springs. See <b>“ADF pick assembly removal” on page 4-7.</b> If no problem is found, go to step 4.
4	Pickup arm solenoid	Turn the power off, disconnect CN5 on the motor driver card. Measure the resistance between C5-1 and CN5-2. The resistance should measure approximately 41.0 ohms. If correct, go to step 5. If incorrect, disconnect the solenoid from the solenoid cable on the front side of the ADF near the solenoid, and measure the resistance between pins 1 and 2 on the cable attached to the solenoid. The resistance should measure approximately 41.0 ohms. If incorrect, replace the solenoid assembly. If correct, replace the ADF assembly. <b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b>
5	Motor driver card	Reconnect CN5 to the motor driver card, and measure the voltage at CN5-1 and CN5-2. The voltage should measure approximately +25.0 V dc. If incorrect, replace the motor driver card. If correct, go to step 6.

	FRU	Action																											
6	ADF feed motor	<p>Check the ADF feed motor for proper operation.</p> <p>Turn the power off, disconnect CN2 on the motor driver card, and measure the voltages on CN2.</p> <table border="1"> <thead> <tr> <th colspan="3">ADF feed motor</th> </tr> <tr> <th colspan="3">Connector CN2 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Static</th> <th>Operating</th> </tr> </thead> <tbody> <tr> <td>CN2—Pin 1</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN2—Pin 2</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN2—Pin 3</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN2—Pin 4</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN2—Pin 5</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN2—Pin 6</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the motor driver card. If incorrect, turn the power off, reconnect the motor cable to CN2, and measure the voltages on the scan motor connector. If incorrect, replace the scan motor.</p> <p>If correct, go to step 7.</p>	ADF feed motor			Connector CN2 (motor driver card)			Pin number	Static	Operating	CN2—Pin 1	+1.5 V dc	+24 V dc	CN2—Pin 2	+1.5 V dc	+24 V dc	CN2—Pin 3	+1.5 V dc	+24 V dc	CN2—Pin 4	+1.5 V dc	+24 V dc	CN2—Pin 5	+1.5 V dc	+24 V dc	CN2—Pin 6	+1.5 V dc	+24 V dc
ADF feed motor																													
Connector CN2 (motor driver card)																													
Pin number	Static	Operating																											
CN2—Pin 1	+1.5 V dc	+24 V dc																											
CN2—Pin 2	+1.5 V dc	+24 V dc																											
CN2—Pin 3	+1.5 V dc	+24 V dc																											
CN2—Pin 4	+1.5 V dc	+24 V dc																											
CN2—Pin 5	+1.5 V dc	+24 V dc																											
CN2—Pin 6	+1.5 V dc	+24 V dc																											
7	Scan motor belt	<p>Check the scan motor drive belt for any signs of wear or damage or the belt off the gear. If the belt is off the gear, reinstall. If the belt is worn or damaged, replace the belt. If no problem is found replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>																											
8	Interval sensor—electrical checks	<p>Turn the power off and reconnect CN10 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (paper over the sensor).</p> <table border="1"> <thead> <tr> <th colspan="3">Interval sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN10 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed (uncovered)</th> <th>Sensor open (covered)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 7</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 8</td> <td>+0.03 V dc</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN10—Pin 9</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect replace the interval sensor. If this does not fix the problem, replace the complete ADF assembly.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	Interval sensor—reflective type (normally closed)			Connector CN10 (motor driver card)			Pin number	Sensor closed (uncovered)	Sensor open (covered)	CN10—Pin 7	0 V dc	0 V dc	CN10—Pin 8	+0.03 V dc	+5.0 V dc	CN10—Pin 9	+5.0 V dc	+5.0 V dc									
Interval sensor—reflective type (normally closed)																													
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CN10—Pin 8	+0.03 V dc	+5.0 V dc																											
CN10—Pin 9	+5.0 V dc	+5.0 V dc																											

## 290.02 Error code service check

ADF feed jam.



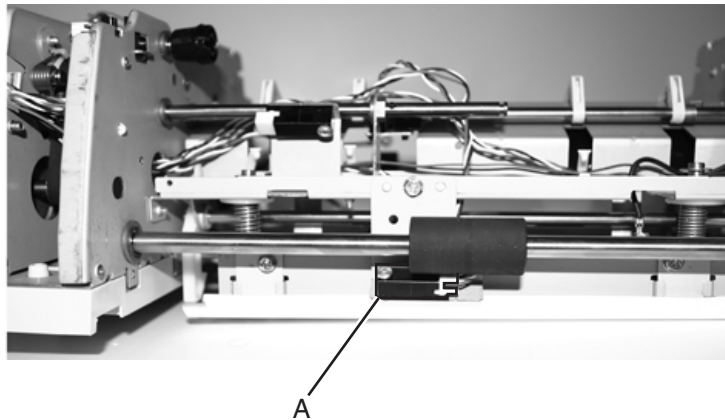
**Note:** Before starting this service check, make sure the first scan sensor (A) cable is correctly installed.

	FRU	Action												
1	ADF	Check for any signs of paper or other debris that might be present in the ADF assembly over the interval sensor but short of the first scan sensor. Remove any media found in the ADF, and retry by running the scanner feed tests. Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Feed Tests</b> . If the paper fails to reach the first scan sensor, go to step 2.												
2	First scan sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select Sensor Tests. Check the first scan sensor for correct operation.  <b>Note:</b> Check the first scan sensor by manually feeding a sheet of paper through the ADF and checking the sensor for correct operation.  If the sensor fails the test, go to step 3.												
3	First scan sensor cable (first scan sensor to CN10 on the MDC card)	Check to make sure the interval sensor cable is correctly installed at the sensor CN10 on the motor drive card. If the cable is not installed correctly, reinstall the cable. If installed correctly, go to step 4.												
4	Motor driver card	Turn the power off, and disconnect CN10 on the motor driver card. Measure the voltages in the table below: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">First scan sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN10 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 10</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 11</td> <td>+5 V dc</td> </tr> <tr> <td>CN10—Pin 12</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> If incorrect, replace the motor driver card. If correct, go to step 5.	First scan sensor—reflective type (normally closed)		Connector CN10 (motor driver card)		CN10—Pin 10	0 V dc	CN10—Pin 11	+5 V dc	CN10—Pin 12	+5 V dc	<b>Note:</b> All voltages are approximate values.	
First scan sensor—reflective type (normally closed)														
Connector CN10 (motor driver card)														
CN10—Pin 10	0 V dc													
CN10—Pin 11	+5 V dc													
CN10—Pin 12	+5 V dc													
<b>Note:</b> All voltages are approximate values.														

	FRU	Action																											
5	First scan sensor— electrical checks	<p>Turn the power off and reconnect CN10 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (paper over the sensor).</p> <table border="1"> <thead> <tr> <th colspan="3">First scan sensor</th> </tr> <tr> <th colspan="3">Connector CN10 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed (uncovered)</th> <th>Sensor open (covered)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 10</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 11</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN10—Pin 12</td> <td>+0.03 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the first scan sensor. If the voltages are correct, go to step 6.</p>	First scan sensor			Connector CN10 (motor driver card)			Pin number	Sensor closed (uncovered)	Sensor open (covered)	CN10—Pin 10	0 V dc	0 V dc	CN10—Pin 11	+5.0 V dc	+5.0 V dc	CN10—Pin 12	+0.03 V dc	+5.0 V dc									
First scan sensor																													
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CN10—Pin 10	0 V dc	0 V dc																											
CN10—Pin 11	+5.0 V dc	+5.0 V dc																											
CN10—Pin 12	+0.03 V dc	+5.0 V dc																											
6	ADF scan motor	<p>Check the ADF scan motor for proper operation. Turn the power off, disconnect CN3 on the motor driver card, and measure the voltages on CN3 on the card.</p> <table border="1"> <thead> <tr> <th colspan="3">ADF scan motor</th> </tr> <tr> <th colspan="3">Connector CN3 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Static</th> <th>Operating</th> </tr> </thead> <tbody> <tr> <td>CN3—Pin 1</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN3—Pin 2</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN3—Pin 3</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN3—Pin 4</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN3—Pin 5</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>CN3—Pin 6</td> <td>+1.5 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the motor driver card. If correct, turn the power off, reconnect the motor cable to CN3, and measure the voltages on the scan motor connector (see the table above). If correct, go to step 7.</p>	ADF scan motor			Connector CN3 (motor driver card)			Pin number	Static	Operating	CN3—Pin 1	+1.5 V dc	+24 V dc	CN3—Pin 2	+1.5 V dc	+24 V dc	CN3—Pin 3	+1.5 V dc	+24 V dc	CN3—Pin 4	+1.5 V dc	+24 V dc	CN3—Pin 5	+1.5 V dc	+24 V dc	CN3—Pin 6	+1.5 V dc	+24 V dc
ADF scan motor																													
Connector CN3 (motor driver card)																													
Pin number	Static	Operating																											
CN3—Pin 1	+1.5 V dc	+24 V dc																											
CN3—Pin 2	+1.5 V dc	+24 V dc																											
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CN3—Pin 5	+1.5 V dc	+24 V dc																											
CN3—Pin 6	+1.5 V dc	+24 V dc																											
7	Scan motor belt	<p>Check the scan motor drive belt for any signs of wear or damage or the belt is off the gear. If the belt is off the gear, reinstall. If the belt is worn or damaged, replace the belt. If no problem is found, Replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, is necessary to perform the scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>																											

## 290.10 Error code service check

Static jam—first scan sensor (A)



**Note:** Before starting this service check, make sure the first scan sensor cable is correctly installed.

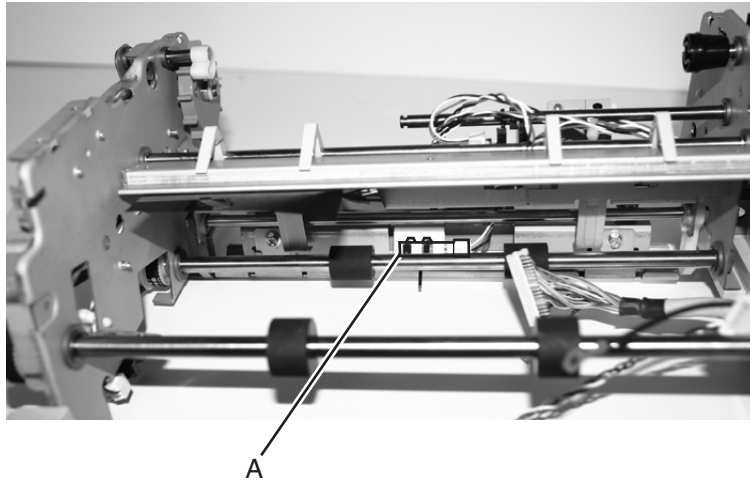
	FRU	Action												
1	ADF	Check for any signs of paper or other debris that might be present in the ADF assembly over the first scan sensor. Remove any media found over the sensor, and retry by running the scanner feed tests. Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Feed Tests</b> . If the media jams over the first scan sensor, go to step 2.												
2	First scan sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the first scan sensor for correct operation. <b>Note:</b> Check the first scan sensor by manually feeding a sheet of paper through the ADF and checking the sensor for correct operation. If the sensor fails the test, go to step 3.												
3	First scan sensor cable (first scan sensor to CN10 on the MDC card)	Check to make sure the first scan cable is correctly installed at the sensor CN10 on the motor drive card. If the cable is not installed correctly, reinstall the cable. If installed correctly, go to step 4.												
4	Motor driver card	Turn the power off, and disconnect CN10 on the motor driver card. Measure the voltages in the table below: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">First scan sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN10 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 10</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 11</td> <td>+5 V dc</td> </tr> <tr> <td>CN10—Pin 12</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> If incorrect, replace the motor driver card. If correct, go to step 5.	First scan sensor—reflective type (normally closed)		Connector CN10 (motor driver card)		CN10—Pin 10	0 V dc	CN10—Pin 11	+5 V dc	CN10—Pin 12	+5 V dc	<b>Note:</b> All voltages are approximate values.	
First scan sensor—reflective type (normally closed)														
Connector CN10 (motor driver card)														
CN10—Pin 10	0 V dc													
CN10—Pin 11	+5 V dc													
CN10—Pin 12	+5 V dc													
<b>Note:</b> All voltages are approximate values.														



	FRU	Action																		
5	First scan sensor— electrical checks	<p>Turn the power off, and reconnect CN10 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (paper over the sensor).</p> <table border="1"> <thead> <tr> <th colspan="3">First scan sensor</th> </tr> <tr> <th colspan="3">Connector CN10 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed (uncovered)</th> <th>Sensor open (covered)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 7</td> <td>+0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 8</td> <td>+0.03 V dc</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN10—Pin 9</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the first scan sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	First scan sensor			Connector CN10 (motor driver card)			Pin number	Sensor closed (uncovered)	Sensor open (covered)	CN10—Pin 7	+0 V dc	0 V dc	CN10—Pin 8	+0.03 V dc	+5.0 V dc	CN10—Pin 9	+5.0 V dc	+5.0 V dc
First scan sensor																				
Connector CN10 (motor driver card)																				
Pin number	Sensor closed (uncovered)	Sensor open (covered)																		
CN10—Pin 7	+0 V dc	0 V dc																		
CN10—Pin 8	+0.03 V dc	+5.0 V dc																		
CN10—Pin 9	+5.0 V dc	+5.0 V dc																		

## 291.00 Error code service check

Static jam—second scan sensor (A).



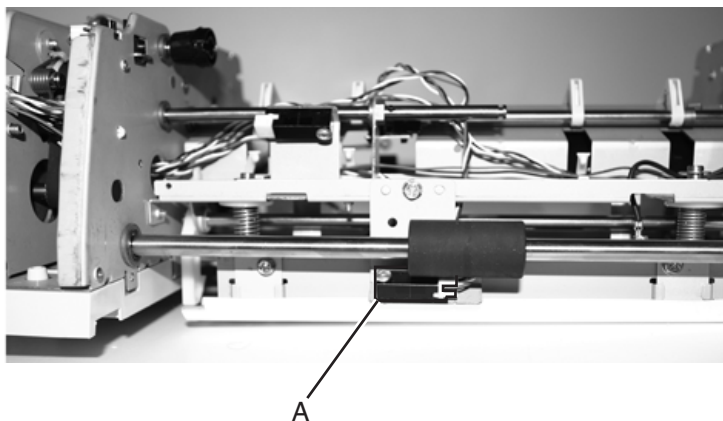
**Note:** Before starting this service check, make sure the second scan sensor cable is correctly installed.

	FRU	Action												
1	ADF	The media is jammed or stuck in the ADF at the second scan sensor. Check for any signs of paper or other debris that might be present or jammed in the ADF assembly around the second scan sensor.												
2	Second scan sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the second scan sensor for correct operation.  <b>Note:</b> To manually activate the sensor, you can either open the jam removal tray (it is necessary to defeat the jam tray sensor by placing a piece of paper in the sensor to turn off the jam tray message on the display), or you can manually feed a piece of paper through the ADF. If the sensor fails the test, go to step 3.												
3	Second scan sensor cable (second scan sensor to CN9 on the MDC card)	Check to make sure the first scan cable is correctly installed at the sensor CN9 on the SCC (scanner control card in the ADF). If the cable is not installed correctly, reinstall the cable. If installed correctly, go to step 4.												
4	Motor driver card	Turn the power off, and disconnect CN9 on the motor driver card. Measure the voltages in the table below: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th colspan="2">First scan sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 5</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 6</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If incorrect, replace the motor driver card. If correct, go to step 5.</p>	First scan sensor—reflective type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 4	0 V dc	CN9—Pin 5	+5 V dc	CN9—Pin 6	+5 V dc	<b>Note:</b> All voltages are approximate values.	
First scan sensor—reflective type (normally closed)														
Connector CN9 (motor driver card)														
CN9—Pin 4	0 V dc													
CN9—Pin 5	+5 V dc													
CN9—Pin 6	+5 V dc													
<b>Note:</b> All voltages are approximate values.														

	FRU	Action																		
5	Second scan sensor— electrical checks	<p>Turn the power off, and reconnect CN9 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (sensor flag activated).</p> <table border="1"> <thead> <tr> <th colspan="3">Second scan sensor</th> </tr> <tr> <th colspan="3">Connector CN9 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 4</td> <td>+0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 5</td> <td>+1.16 V dc</td> <td>+1.16 V dc</td> </tr> <tr> <td>CN9—Pin 6</td> <td>+5.0 V dc</td> <td>+0.15 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the second scan sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	Second scan sensor			Connector CN9 (motor driver card)			Pin number	Sensor closed	Sensor open	CN9—Pin 4	+0 V dc	0 V dc	CN9—Pin 5	+1.16 V dc	+1.16 V dc	CN9—Pin 6	+5.0 V dc	+0.15 V dc
Second scan sensor																				
Connector CN9 (motor driver card)																				
Pin number	Sensor closed	Sensor open																		
CN9—Pin 4	+0 V dc	0 V dc																		
CN9—Pin 5	+1.16 V dc	+1.16 V dc																		
CN9—Pin 6	+5.0 V dc	+0.15 V dc																		

### 291.01 Error code service check

First ADF scan sensor (A) jam.

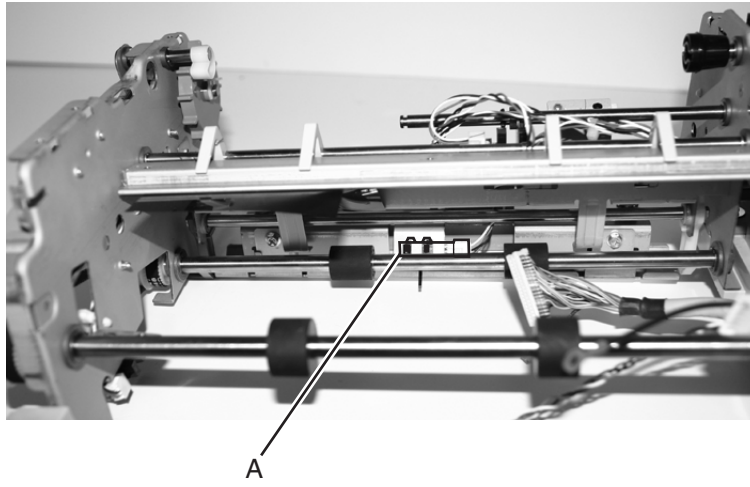


**Note:** Before starting this service check, make sure the first scan sensor cable is correctly installed.

	FRU	Action
1	ADF	<p>The leading edge of the media was detected by the first scan sensor, but never detected by the trailing edge.</p> <p>Clear any media that may be in the ADF. Enter Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b>), select <b>SCANNER TESTS</b>, load some sheets of paper in the ADF paper tray, and select <b>Feed Tests</b>. If the error continues at or near the same point, go to step 2.</p>
2	Area around the first scan sensor	<p>Check the area around the first scan sensor for anything that might cause the stop or jam prior to exiting the first scan sensor. If the problem continues and you cannot find anything causing this jam, replace the complete ADF assembly.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>

## 291.02 Error code service check

Second ADF scan sensor (A) jam.



**Note:** Before starting this service check, make sure the sensor cable is correctly installed.

	FRU	Action
1	ADF	The second scan sensor has detected the leading edge of the sheet but did not detect the training edge. The first scan sensor detected the leading edge. Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Feed Tests</b> . Load several sheets through the ADF to check for any jams prior to the second scan sensor. If the jam is persistent, go to Step 2.
2	ADF feed gears and hardware	<p>Check the ADF feed gears, pulleys, and hardware for any signs of binding, broken, or damaged parts. If any problems are found, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15</b>.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4</b>.</p> <p><b>Note:</b> To help isolate a problem with the ADF feed system you can run the Feed Test from the SCANNER TESTS in the Diagnostics Menu. Put several sheets of media in the ADF tray, and observe the gears, motor, belts, and other hardware for any signs of a malfunction that might cause the media not to reach the second scan sensor.</p>
3	Second scan sensor cable (second scan sensor to CN9 on the MDC card)	Check to make sure the second scan sensor cable is correctly installed at the sensor at CN9 on the MDC (motor driver card in the ADF). If the cable is not installed correctly, reinstall the cable. If installed correctly, go to step 4.

	FRU	Action																					
4	Motor driver card	<p>Turn the power off, and disconnect CN9 on the motor driver card. Measure the voltages in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Second scan sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 5</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 6</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If incorrect, replace the motor driver card. If correct, go to step 5.</p>	Second scan sensor—reflective type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 4	0 V dc	CN9—Pin 5	+5 V dc	CN9—Pin 6	+5 V dc	<b>Note:</b> All voltages are approximate values.										
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CN9—Pin 4	0 V dc																						
CN9—Pin 5	+5 V dc																						
CN9—Pin 6	+5 V dc																						
<b>Note:</b> All voltages are approximate values.																							
5	Second scan sensor—electrical checks	<p>Turn the power off and reconnect CN9 to the motor driver card. Measure the voltages in the table below with the sensor in normal operations (sensor closed) and with the sensor open (sensor flag activated).</p> <table border="1"> <thead> <tr> <th colspan="3">Second scan sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN9 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 4</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 5</td> <td>+1.16 V dc</td> <td>+1.16 V dc</td> </tr> <tr> <td>CN9—Pin 6</td> <td>+5.0 V dc</td> <td>+0.15 V dc</td> </tr> <tr> <td colspan="3"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If the voltages are incorrect, replace the second scan sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	Second scan sensor—interrupter type (normally closed)			Connector CN9 (motor driver card)			Pin number	Sensor closed	Sensor open	CN9—Pin 4	0 V dc	0 V dc	CN9—Pin 5	+1.16 V dc	+1.16 V dc	CN9—Pin 6	+5.0 V dc	+0.15 V dc	<b>Note:</b> All voltages are approximate values.		
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CN9—Pin 6	+5.0 V dc	+0.15 V dc																					
<b>Note:</b> All voltages are approximate values.																							

## 292.00 Error code service check

ADF cover open jam.

	FRU	Action
1	ADF upper top cover	Check the ADF upper top cover to make sure it closes properly and does not come loose or pop up while the ADF is scanning.

## 293 Error code service check

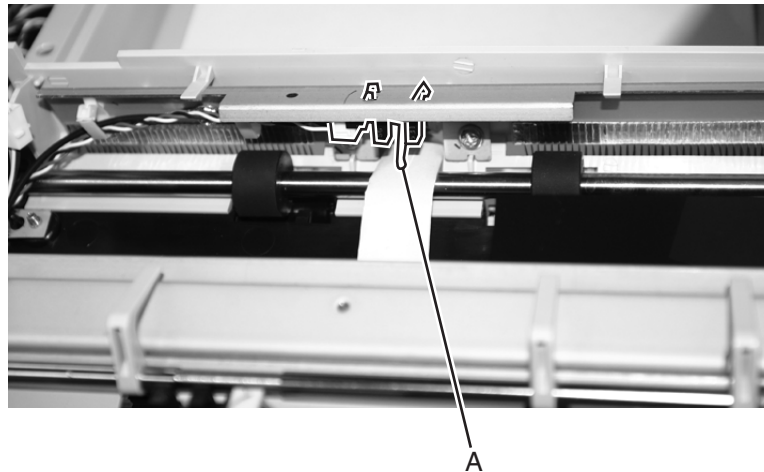
Paper missing jam.

**Note:** Before starting this service check, make sure the sensor cable is correctly installed.

	FRU	Action																												
1	ADF	Check the ADF for any media that might be jammed in the ADF. Turn the MFP off and then back on. Feed several sheets of media through the ADF. If the error still occurs, go to step 2.																												
2	Paper present sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the paper present sensor for correct operation by inserting a sheet of paper into the ADF paper tray to activate the paper present sensor. If the sensor does not operate properly, go to step 3.																												
3	Paper present cable Motor driver card	<p>Measure the voltages shown in the table below:</p> <table border="1"> <thead> <tr> <th colspan="3">Paper present sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN10 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 4</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 5</td> <td>+4.3 V dc</td> <td>+0.25 V dc</td> </tr> <tr> <td>CN10—Pin 6</td> <td>+1.6 V dc</td> <td>+1.6 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, turn the power off, disconnect the cable attached to CN10 on the motor driver card, and measure the voltages in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Paper present sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN10 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN10—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN10—Pin 5</td> <td>+4.3 V dc</td> </tr> <tr> <td>CN10—Pin 6</td> <td>+5 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the motor driver card. If the voltages are correct, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15</b>.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4</b>.</p>	Paper present sensor—interrupter type (normally closed)			Connector CN10 (motor driver card)			Pin number	Sensor closed	Sensor open	CN10—Pin 4	0 V dc	0 V dc	CN10—Pin 5	+4.3 V dc	+0.25 V dc	CN10—Pin 6	+1.6 V dc	+1.6 V dc	Paper present sensor—interrupter type (normally closed)		Connector CN10 (motor driver card)		CN10—Pin 4	0 V dc	CN10—Pin 5	+4.3 V dc	CN10—Pin 6	+5 V dc
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Connector CN10 (motor driver card)																														
CN10—Pin 4	0 V dc																													
CN10—Pin 5	+4.3 V dc																													
CN10—Pin 6	+5 V dc																													

## 294.00 Error code service check

Static jam—ADF exit sensor (A).



Before starting this service check, Check the ADF exit sensor cable for correct installation.

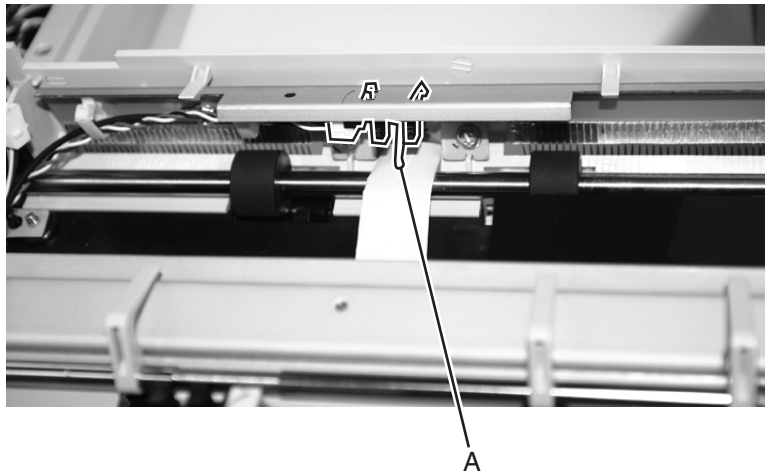
	FRU	Action												
1	ADF—jammed media	Check for any signs of media or other debris that might be present in the ADF assembly around the exit sensor flag. Remove any media or debris. If nothing is found, go to step 2.												
2	ADF exit sensor flag	Check the exit sensor flag to make sure it operates freely and does not hang or bind. If the flag does not operate correctly and cannot be made to operate correctly, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b> <b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b> If the flag operates correctly, go to step 3.												
3	ADF exit sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the ADF exit sensor for correct operation. <b>Note:</b> You can check the ADF exit sensor by moving the exit sensor flag or by manually feeding a sheet of paper through the ADF. If the sensor fails the test, go to step 4.												
4	Motor driver card	Turn the power off, and disconnect CN9 on the motor driver card. Measure the voltages in the table below: <table border="1"> <thead> <tr> <th colspan="2">Interval sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> If incorrect, replace the motor driver card. If correct, go to step 5.	Interval sensor—interrupter type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 1	0 V dc	CN9—Pin 2	+5 V dc	CN9—Pin 3	+5 V dc	<b>Note:</b> All voltages are approximate values.	
Interval sensor—interrupter type (normally closed)														
Connector CN9 (motor driver card)														
CN9—Pin 1	0 V dc													
CN9—Pin 2	+5 V dc													
CN9—Pin 3	+5 V dc													
<b>Note:</b> All voltages are approximate values.														

	FRU	Action																		
5	ADF exit sensor—electrical checks	<p>Turn the power off, and reconnect CN9 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and the sensor open (sensor flag activated).</p> <table border="1"> <thead> <tr> <th colspan="3">ADF exit sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN9 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+1.16 V dc</td> <td>+1.16 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5.0 V dc</td> <td>+0.15 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the ADF exit sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	ADF exit sensor—interrupter type (normally closed)			Connector CN9 (motor driver card)			Pin number	Sensor closed	Sensor open	CN9—Pin 1	0 V dc	0 V dc	CN9—Pin 2	+1.16 V dc	+1.16 V dc	CN9—Pin 3	+5.0 V dc	+0.15 V dc
ADF exit sensor—interrupter type (normally closed)																				
Connector CN9 (motor driver card)																				
Pin number	Sensor closed	Sensor open																		
CN9—Pin 1	0 V dc	0 V dc																		
CN9—Pin 2	+1.16 V dc	+1.16 V dc																		
CN9—Pin 3	+5.0 V dc	+0.15 V dc																		

### 294.01 Error code service check

ADF eject jam.

**Note:** Before starting this service check, make sure the ADF exit sensor (A) cable is installed correctly.



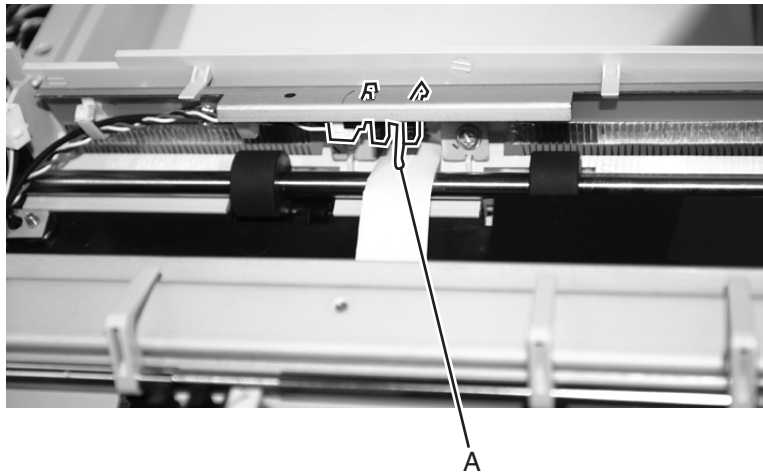
	FRU	Action
1	ADF—jammed media	Check for any signs of media or other debris that might be present in the ADF assembly around the exit sensor flag. Remove any media or debris. If nothing is found, go to step 2.



	FRU	Action												
2	ADF exit sensor flag	<p>Check the exit sensor flag to make sure it operates freely and does not hang or bind. If the flag does not operate correctly and cannot be made to operate correctly, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p> <p>If the flag operates correctly, go to step 3.</p>												
3	ADF exit sensor	<p>Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b>), select <b>SCANNER TESTS</b>, and select <b>Sensor Tests</b>. Check the ADF exit sensor for correct operation.</p> <p><b>Note:</b> You can check the ADF exit sensor by moving the exit sensor flag or by manually feeding a sheet of paper through the ADF.</p> <p>If the sensor fails the test, go to step 4.</p>												
4	Motor driver card	<p>Turn the power off, and disconnect CN9 on the motor driver card. Measure the voltages in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Exit sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If incorrect, replace the motor driver card.</p> <p>If the error persists, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	Exit sensor—interrupter type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 1	0 V dc	CN9—Pin 2	+5 V dc	CN9—Pin 3	+5 V dc	<b>Note:</b> All voltages are approximate values.	
Exit sensor—interrupter type (normally closed)														
Connector CN9 (motor driver card)														
CN9—Pin 1	0 V dc													
CN9—Pin 2	+5 V dc													
CN9—Pin 3	+5 V dc													
<b>Note:</b> All voltages are approximate values.														

## 294.02 Error code service check

ADF exit jam sensor (A) off.



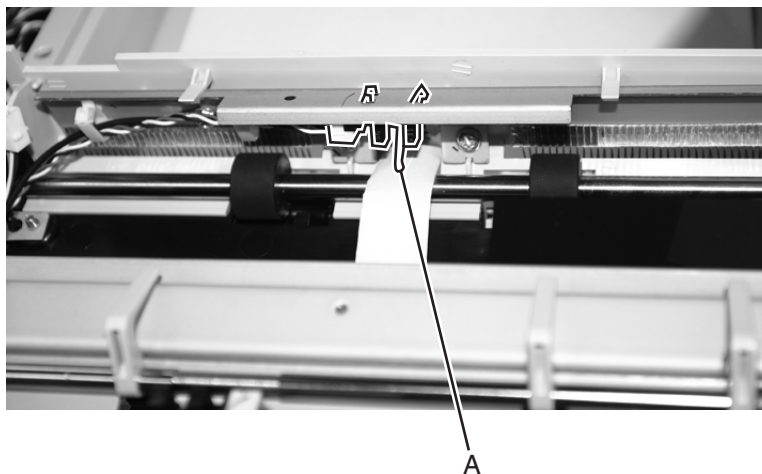
**Note:** Before starting this service check, make sure the sensor cable is installed correctly.

	FRU	Action												
1	ADF—jammed media	Check for any signs of media or other debris that might be present in the ADF assembly around the exit sensor flag. Remove any media or debris. If nothing is found, go to step 2.												
2	ADF exit sensor flag	Check the exit sensor flag to make sure it operates freely and does not hang or bind. If the flag does not operate correctly and cannot be made to operate correctly, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b> <b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b> If the flag operates correctly, go to step 3.												
3	ADF exit sensor	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the ADF exit sensor for correct operation. <b>Note:</b> You can check the ADF exit sensor by moving the exit sensor flag or by manually feeding a sheet of paper through the ADF. If the sensor fails the test, go to step 4.												
4	Motor driver card	Turn the power off and disconnect CN9 on the motor driver card. Measure the voltages in the table below: <table border="1"> <thead> <tr> <th colspan="2">Interval sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If incorrect, replace the motor driver card. If the voltage is correct, go to step 5.</p>	Interval sensor—interrupter type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 1	0 V dc	CN9—Pin 2	+5 V dc	CN9—Pin 3	+5 V dc	<b>Note:</b> All voltages are approximate values.	
Interval sensor—interrupter type (normally closed)														
Connector CN9 (motor driver card)														
CN9—Pin 1	0 V dc													
CN9—Pin 2	+5 V dc													
CN9—Pin 3	+5 V dc													
<b>Note:</b> All voltages are approximate values.														

	FRU	Action																		
5	ADF exit sensor—electrical checks	<p>Turn the power off, and reconnect CN9 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (sensor flag activated).</p> <table border="1"> <thead> <tr> <th colspan="3">ADF exit sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN9 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+1.16 V dc</td> <td>+1.16 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5.0 V dc</td> <td>+0.15 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the ADF exit sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	ADF exit sensor—interrupter type (normally closed)			Connector CN9 (motor driver card)			Pin number	Sensor closed	Sensor open	CN9—Pin 1	0 V dc	0 V dc	CN9—Pin 2	+1.16 V dc	+1.16 V dc	CN9—Pin 3	+5.0 V dc	+0.15 V dc
ADF exit sensor—interrupter type (normally closed)																				
Connector CN9 (motor driver card)																				
Pin number	Sensor closed	Sensor open																		
CN9—Pin 1	0 V dc	0 V dc																		
CN9—Pin 2	+1.16 V dc	+1.16 V dc																		
CN9—Pin 3	+5.0 V dc	+0.15 V dc																		

### 294.03 Error code service check

ADF exit jam sensor on. This error generally indicates that the ADF exit sensor (A) is defective, exit sensor cable is open, or the voltages on the motor driver card at pins 1, 2, or 3 are incorrect.



**Note:** Before starting this service check, make sure the sensor cable is installed correctly.

	FRU	Action
1	ADF—jammed media	Check for any signs of media or other debris that might be present in the ADF assembly around the exit sensor flag. Remove any media or debris. If nothing is found, go to step 2.

	FRU	Action																					
2	ADF exit sensor flag	<p>Check the exit sensor flag to make sure it operates freely and does not hang or bind. If the flag does not operate correctly and cannot be made to operate correctly, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p> <p>If the flag operates correctly, go to step 3.</p>																					
3	ADF exit sensor	<p>Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b>), select <b>SCANNER TESTS</b>, and select <b>Sensor Tests</b>. Check the ADF exit sensor for correct operation.</p> <p><b>Note:</b> You can check the ADF exit sensor by moving the exit sensor flag or by manually feeding a sheet of paper through the ADF.</p> <p>If the sensor fails the test, go to step 4.</p>																					
4	Motor driver card	<p>Turn the power off and disconnect CN9 on the motor driver card. Measure the voltages in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Interval sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN9 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+5 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If incorrect, replace the motor driver card.</p> <p>If the voltage is correct, go to step 5.</p>	Interval sensor—interrupter type (normally closed)		Connector CN9 (motor driver card)		CN9—Pin 1	0 V dc	CN9—Pin 2	+5 V dc	CN9—Pin 3	+5 V dc	<b>Note:</b> All voltages are approximate values.										
Interval sensor—interrupter type (normally closed)																							
Connector CN9 (motor driver card)																							
CN9—Pin 1	0 V dc																						
CN9—Pin 2	+5 V dc																						
CN9—Pin 3	+5 V dc																						
<b>Note:</b> All voltages are approximate values.																							
5	ADF exit sensor—electrical checks	<p>Turn the power off and reconnect CN9 to the motor driver card. Measure the voltages in the table below with the sensor in normal operation (sensor closed) and with the sensor open (sensor flag activated).</p> <table border="1"> <thead> <tr> <th colspan="3">ADF exit sensor—interrupter type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN9 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN9—Pin 1</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN9—Pin 2</td> <td>+1.16 V dc</td> <td>+1.16 V dc</td> </tr> <tr> <td>CN9—Pin 3</td> <td>+5.0 V dc</td> <td>+0.15 V dc</td> </tr> <tr> <td colspan="3"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If the voltages are incorrect, replace the ADF exit sensor. If this does not fix the problem, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p>	ADF exit sensor—interrupter type (normally closed)			Connector CN9 (motor driver card)			Pin number	Sensor closed	Sensor open	CN9—Pin 1	0 V dc	0 V dc	CN9—Pin 2	+1.16 V dc	+1.16 V dc	CN9—Pin 3	+5.0 V dc	+0.15 V dc	<b>Note:</b> All voltages are approximate values.		
ADF exit sensor—interrupter type (normally closed)																							
Connector CN9 (motor driver card)																							
Pin number	Sensor closed	Sensor open																					
CN9—Pin 1	0 V dc	0 V dc																					
CN9—Pin 2	+1.16 V dc	+1.16 V dc																					
CN9—Pin 3	+5.0 V dc	+0.15 V dc																					
<b>Note:</b> All voltages are approximate values.																							

## 298.01 Error code service check—model 500S

Scanner missing—front side cable unplugged. This is the ADF CCD 36 pin ICC cable connected to the ADF CCD.

	FRU	Action
1	ADF CCD cable	<p>Check the cable for correct connections to the flatbed interface connector on the rear of the flatbed scanner assembly and to the ADF CCD assembly. If incorrect, install the cable correctly. If correct, replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"><li>• ADF CCD cable.</li><li>• Flatbed interconnect card. See <b>“Flatbed interconnect card removal” on page 4-33</b></li><li>• ADF CCD assembly.</li><li>• If ADF CCD assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></li></ul>

## 298.02 Error code service check

Scanner missing—rear side cable unplugged. This is the MDC 36 pin ICC cable connected to the motor driver card.

	FRU	Action
1	MDC cable	<p>Check the cable for correct connections to the flatbed interface connector on the rear of the flatbed scanner assembly and to the motor driver card. If incorrect, install the cable correctly. If correct, replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"><li>• MDC cable.</li><li>• Flatbed interconnect card. See <b>“Flatbed interconnect card removal” on page 4-33</b></li><li>• Motor driver card.</li></ul>

## 842.xx Error code service check

Service Scanner—scanner communications failure.

	FRU	Action
1	Scanner control card to flatbed interconnect card cable	Check for correct installation of the scan control to flatbed interconnect card cable.
2	Motor drive card to flatbed interconnect card cable	Check for correct installation of the motor driver card to flatbed interconnect card cable.
3	Motor driver card Flatbed interconnect card	<p>If the cables are good and are properly connected, replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"><li>• Flatbed interconnect card assembly</li><li>• Motor driver card assembly</li></ul>



## 843.xx Error code service check

Service Scanner—flatbed mechanical failure

Other symptoms may include a loud noise from between the flatbed and the printer unit, or a blue screen on the display.

**Note:** Check for correct installation of the home sensor cable before proceeding with this service check.

	FRU	Action
1	Flatbed scanner CCD drive shafts	Check to make sure that both of the CCD drive shafts are correctly installed. If correct, go to step 2.
2	Flatbed CCD module assembly ribbon cable	Check to make sure that the flatbed CCD module assembly is connected correctly to both the CCD module and J2 on the scanner control card. If correct, go to step 3.
3	Flatbed CCD module assembly	Check the flatbed CCD assembly for any signs of damage and for proper mechanical operation. If any problems are found, replace the flatbed CCD assembly.  If the flatbed CCD assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b>
4	Flatbed CCD scan motor/ cable  Flatbed interface card	Check for correct installation of the CCD scan motor cable to both the motor and to the flatbed interface card at CN2.  Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Feed Tests</b> . If the motor does not turn during the scanner Feed Test, check for any signs of binds or mechanical problems. Repair as necessary. If no problem is found, go to step 5.
5	Flatbed home sensor cable  Flatbed home sensor  Flatbed interface card	Check to make sure that the home sensor cable is correctly installed to both the home sensor and to CN4 on the flatbed interface card. Check for correct operation of the home sensor. If it does not operate correctly, replace the FRUs in the following order: <ul style="list-style-type: none"> <li>• Flatbed interface card. See <b>“Flatbed interconnect card removal” on page 4-33.</b></li> <li>• Flatbed home sensor. See <b>“Home sensor removal” on page 4-46.</b></li> </ul> If the problem persists, go to step 6.

	FRU	Action
6	Mechanical interference with the flatbed CCD assembly	<p>Check for mechanical interference with the flatbed CCD assembly and the metal locating bracket. Remove the glass slit. See <b>“Scanner flatbed glass holder assembly removal” on page 4-50</b>. The bracket is located near the home position, to the left side of the flatbed.</p> <ol style="list-style-type: none"> <li>1. Move the flatbed CCD assembly a few inches to the right of home.</li> <li>2. Bend the bracket upwards 1–2 mm.</li> </ol>  <ol style="list-style-type: none"> <li>3. Move the flatbed CCD assembly back to the home position and check for clearance between the bracket and the edge of the flatbed CCD assembly.</li> </ol>  <p>If this does not fix the problem, got to step 7.</p>
7	Flatbed scanner assembly	<p>If the 843.00 error code continues to be displayed, replace the complete flatbed scanner assembly. See <b>“Flatbed scan assembly removal” on page 4-38</b>.</p> <p><b>Note:</b> If the flatbed scanner assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4</b>.</p>

### 845.00 Error code service check

Service Scanner—this error indicates a failure of the image processing ASIC on the scanner control card.

	FRU	Action
1	Scanner control card	Replace the scanner control card. See <b>“Scanner control card removal” on page 4-48</b> .

## 848.00 Error code service check

### Service scanner—Modem/Config ID mismatch

This error indicates that no modem is installed on a modem MFP.


	FRU	Action
1	Modem	Install a modem.

## 848.01 Error code service check

Service scanner—Modem/Config ID mismatch. This error indicates that a mode is present on an MFP not configured to support a modem.

	FRU	Action
1	Modem	Remove the modem installed in the printer.

## 900.xx Error code service check

	FRU	Action
1	Printer POR	Turn the printer off and on several times. If Error Code 900 continues to display, go to step 2.
2	System board	Turn the machine off and on several times, waiting a few minutes between power on and power off. If Error Code 900 continues to display, go to step 3.
3	Factory defaults	Restore factory defaults. See <b>“EP Defaults” on page 3-20</b> . This resets the non-critical areas of the user NVRAM. If Error Code 900 continues to display, go to step 4.
4	Sub error codes	With Error Code 900 displayed, press  and <b>2</b> . Record the complete list of Sub Error Codes on the display, then call your next level of support or call Toshiba.

## 900.90 Error code service check

Service scanner—This error indicates defective modem hardware.

	FRU	Action
1	Modem	Replace the modem.



## 927.xx Fan service check

927.xx can be used for the main fan or the cartridge fan.

- Main fan—927.00, 927.01, and 927.03 through 927.07.
- Cartridge fan—927.02

### Main fan service check

Service tip: The main fan runs at full speed at the end of POR or when the printer is printing. It will only run half speed when the printer is in the Ready state and not printing.

	FRU	Action
1	Main fan	Check the main fan to make sure it is plugged into J4 on the system board. If the fan cable is correctly connected to J4, check the cable and the cable connector for any signs of damage. If damaged, replace the main fan assembly. See <b>“Main fan removal” on page 4-111</b> . If undamaged, go to step 2.
2	Main fan	Turn the printer off and check the main fan for any signs of blockage of the fan blades. If there is any sign of blockage, remove the blockage.
3	Main fan blades turn during POR, then stop. Fan will not run when trying to print. Main fan System board	Measure the voltage at J4-1 on the system board. The voltage should measure approximately +2.5 V dc. If incorrect, replace the main fan. See <b>“Main fan removal” on page 4-111</b> . If that does not fix the problem, replace the system board. See <b>“System board and inner shield removal —model 500S” on page 4-131</b> .
4	Main fan blades do not turn	Measure the voltage at J4-3. The voltage should measure +14.4 V dc with the fan running full and approximately 7.0 V dc when running half speed. If incorrect, replace the main fan. See <b>“Main fan removal” on page 4-111</b> . If this does not fix the problem, replace the system board. See <b>“System board and inner shield removal —model 500S” on page 4-131</b> .

### Cartridge fan service check

Error code 927.02 indicates a problem with the cartridge fan.

	FRU	Action
1	Cartridge fan	Check to make sure the cartridge is plugged into J5 on the system board. If properly plugged in, go to step 2.
2	Cartridge fan	Check for any signs of blockage in the fan. If any is found, remove and retry the printer. If no problem is found, go to step 3.
3	Cartridge fan System board	Replace the following FRUs in the order shown: <ul style="list-style-type: none"><li>• Cartridge fan</li><li>• System board. See <b>“System board and inner shield removal —model 500S” on page 4-131</b>.</li></ul>

## 950.00 through 950.29 EPROM mismatch failure

**Warning:** When replacing any one of the following components:

- Flatbed interconnect card (ICC)
- System board assembly
- Interface card 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.

This error code indicates a mismatch between the operator panel board and the interface card.

	FRU	Action
1	Interface card	If the interface card been recently replaced, go to step 3. If the card has not been replaced go to step 2.
2	Operator panel board	If the operator panel board has been recently replaced, go to step 4. If the operator panel board has not been replaced, contact your next level of support.
3	Interface card	Replace the current interface card assembly with the original interface card assembly. See <b>“Interface card assembly removal” on page 4-107.</b> If the error remains, go to step 5.
4	Operator panel board	Replace the current operator panel board with the original operator panel board. See <b>“Operator panel right cover assembly removal” on page 4-64.</b> If the error persists, go to step 6.
5	Interface card	Replace the original interface card assembly with a new and not previously installed interface card assembly. If the error remains, contact your next level of support.
6	Operator panel	Replace the original operator panel board with a new and not previously installed interface card assembly. If the error remains, contact your next level of support.

## 950.30 through 950.60 EPROM mismatch failure

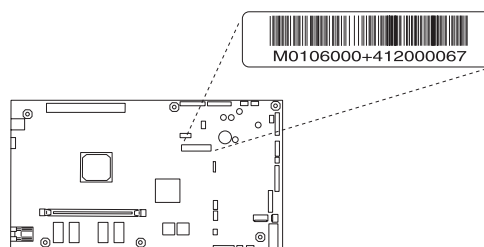
**Warning:** When replacing any one of the following components:

- Flatbed interconnect card (ICC)
- System board assembly
- Interface card 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.

**Note:** Before proceeding with this service check, make sure you have the correct system board installed in the printer. The system board has a label with an board ID and barcode. Use the first eight numbers to identify the board with the part number in the table below:



Model	Board bar code	Corresponds to P/N
500S (003, 004, 005, 006)	M010 6030	40X3310
500S (001, 002, 011, 012, 101, 102, 111, 112)	M010 6000	40X2722

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

	FRU	Action
1	Interface card assembly	If the interface card assembly has been recently replaced, go to step 3. If the interface card assembly has not been recently replaced, contact the next level of support.
2	System board	If the system board has been recently replaced, go to step 4. If the system board has not been replaced, contact the next level of support.
3	Interface card assembly	Replace the current interface card assembly with the original interface card assembly. See <b>“Interface card assembly removal” on page 4-107</b> . If the error remains, go to step 5.
4	System board	Replace the current system board with the original system board. See <b>“System board and inner shield removal —model500S” on page 4-131</b> . If the error remains, go to step 6.
5	Interface card assembly	Replace the original interface card assembly with a new and not previously installed interface card assembly. If the problem remains, contact the next level of support.

	FRU	Action
6	System board	Replace the original system board with a new and not previously installed system board. If the problem remains, contact the next level of support.

### ADF paper length sensor service check—model 500S

**Note:** There are two cables between the motor driver card and the paper length sensor. Check to make sure both cables are installed correctly.

	FRU	Action																		
1	ADF paper length sensor (in ADF paper tray)	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the ADF paper length sensor for correct operation by putting a sheet of paper in the tray over the sensor. If the sensor does not operate properly, go to step 2.																		
2	ADF paper length sensor Motor control card	<p>Turn the power off, and disconnect the cable to CN8, and measure the voltages at CN8 on the card. Measure the voltages shown in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Paper length sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN8 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN8—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN8—Pin 5</td> <td>+5 V dc</td> </tr> <tr> <td>CN8—Pin 6</td> <td>+5 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If incorrect, replace the motor driver card. If correct, go to step 3.</p>	Paper length sensor—reflective type (normally closed)		Connector CN8 (motor driver card)		CN8—Pin 4	0 V dc	CN8—Pin 5	+5 V dc	CN8—Pin 6	+5 V dc								
Paper length sensor—reflective type (normally closed)																				
Connector CN8 (motor driver card)																				
CN8—Pin 4	0 V dc																			
CN8—Pin 5	+5 V dc																			
CN8—Pin 6	+5 V dc																			
3	ADF paper length sensor	<p>Turn the power off and reconnect CN8 to the motor driver card. Measure the voltages in the table below:</p> <table border="1"> <thead> <tr> <th colspan="3">Interval sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="3">Connector CN8 (motor driver card)</th> </tr> <tr> <th>Pin number</th> <th>Sensor closed</th> <th>Sensor open</th> </tr> </thead> <tbody> <tr> <td>CN8—Pin 4</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN8—Pin 5</td> <td>+0.03 V dc</td> <td>+5.0 V dc</td> </tr> <tr> <td>CN8—Pin 6</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltages are incorrect, replace the paper length sensor. If this does not fix the problem, replace the ADF paper tray assembly.</p> <p>If the problem persists, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15</b>.</p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4</b>.</p>	Interval sensor—reflective type (normally closed)			Connector CN8 (motor driver card)			Pin number	Sensor closed	Sensor open	CN8—Pin 4	0 V dc	0 V dc	CN8—Pin 5	+0.03 V dc	+5.0 V dc	CN8—Pin 6	+5.0 V dc	+5.0 V dc
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CN8—Pin 6	+5.0 V dc	+5.0 V dc																		

## ADF paper width sensor service check—model 500S

**Note:** There are two cables between the motor driver card and the paper width sensor. Check to make sure both cables are installed correctly.

	FRU	Action
1	ADF paper tray	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check the ADF paper width sensor for correct operation by moving the paper width guides on the paper tray in and out. If only one or two of the sensor widths does not operate properly, replace the ADF paper tray assembly. If none of the sensors operate correctly, replace the ADF paper tray. If this does not fix the problem, replace the motor driver card.

## Charge roll service check

Service tip: Close and evenly spaced repetitive marks 47.19 mm (1.86 in.) apart, or spots on the page can be caused by a damaged or contaminated dual charge roll.

Service tip: Make sure the right charge roll arm bushing is correctly installed and operates correctly.

To remove the charge roll:

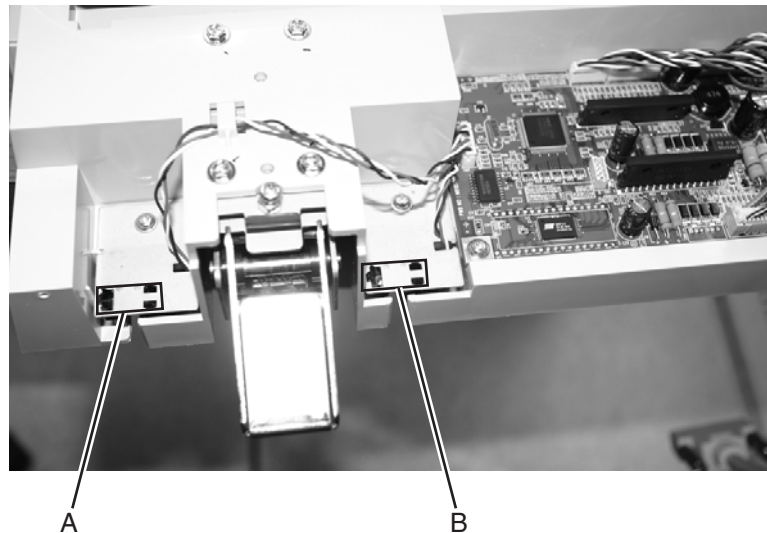
1. Wrap a piece of plain white paper around the charge roll to prevent contamination or damage.
2. Carefully remove the roll by pressing outward and to the right on the charge roll link arm, and remove the charge roll from the right side charge roll bearing.
3. Remove the charge roll from the left side charge roll bearing, and remove the roll from the printer. Leave the paper wrapped around the charge roll until it is reinstalled.

	FRU	Action
1	Charge roll assembly	Check the charge roll for correct installation, toner buildup, marks, cuts, or other signs of contamination or damage. Replace as necessary.
2	Left side charge roll link	Check the left side charge roll link assembly for correct assembly operation. Check for damage to the arm or bearing assembly.
3	Right side charge roll link Right charge roll bushing	Check the right side charge roll link assembly for correct assembly operation. If incorrect, replace the charge roll link assembly with the charge roll link assembly kit. If correct, check the right charge roll link assembly bearing for signs of wear or contamination. Excessive contamination could cause intermittent charging of the charge roll. If incorrect, replace the link assembly. Check for continuity of the right link assembly from the bearing to the charge roll high voltage contact on the right side frame. If incorrect, replace the link assembly.  Make sure the charge roll bushing is installed and operating correctly.  <b>Note:</b> The screw that attaches the charge roll lead to the contact must be secure.

## Cover closed sensors service check—flatbed

**Note:** Check for correct installation of the sensor cable before proceeding with this service check.

**Note:** Both the cover closing sensor (A) and the cover closed (B) sensor are located in the ADF assembly.



	FRU	Action																		
1	Flatbed cover closing and flatbed cover closed sensors	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check for correct operation of the sensors by opening and closing the ADF scanner assembly. If incorrect, go to step 2.																		
2	Flatbed closed and flatbed closing actuators	Check the flatbed actuators for any signs of a broken, damaged, or missing part. Replace either actuator if damaged or missing.																		
3	Flatbed cover closed and closing sensors	<p>Turn the power off, disconnect the cable to CN7, and measure the voltages at CN7 on the card. The voltages should measure as shown in the table below:</p> <table border="1"> <thead> <tr> <th colspan="2">Paper length sensor—reflective type (normally closed)</th> </tr> <tr> <th colspan="2">Connector CN7 (motor driver card)</th> </tr> </thead> <tbody> <tr> <td>CN7—Pin 1</td> <td>0 V dc</td> </tr> <tr> <td>CN7—Pin 2</td> <td>+5 V dc</td> </tr> <tr> <td>CN7—Pin 3</td> <td>+5 V dc</td> </tr> <tr> <td>CN7—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN7—Pin 5</td> <td>+5 V dc</td> </tr> <tr> <td>CN7—Pin 6</td> <td>+5 V dc</td> </tr> <tr> <td colspan="2"><b>Note:</b> All voltages are approximate values.</td> </tr> </tbody> </table> <p>If any of the voltages are incorrect, replace the motor driver card. If the voltages are correct, go to step 4.</p>	Paper length sensor—reflective type (normally closed)		Connector CN7 (motor driver card)		CN7—Pin 1	0 V dc	CN7—Pin 2	+5 V dc	CN7—Pin 3	+5 V dc	CN7—Pin 4	0 V dc	CN7—Pin 5	+5 V dc	CN7—Pin 6	+5 V dc	<b>Note:</b> All voltages are approximate values.	
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CN7—Pin 5	+5 V dc																			
CN7—Pin 6	+5 V dc																			
<b>Note:</b> All voltages are approximate values.																				
4	Flatbed cover closing/closed sensors cable	<p>Check continuity of the flatbed cover closing/closed sensor cable. If incorrect, replace the complete ADF assembly. <b>“ADF complete assembly removal” on page 4-15.</b></p> <p><b>Note:</b> Whenever the complete ADF assembly is replaced, it is necessary to perform scanner registration. See <b>“Scanner registration” on page 4-4.</b></p> <p>If correct, replace the failing sensor.</p>																		

## Cover closed switch/cable service check—printer


	FRU	Action												
1	Toner cartridge	Make sure the toner cartridge is correctly installed and that the right and left cartridge tracks are not loose or broken. Make sure the cover closed switch activation tab on the toner cartridge is not broken and that the tab correctly activates the cover closed switch spring.												
2	Cover closed switch/cable assembly	<p>Check the cover closed switch for proper mechanical operation. If incorrect, repair as necessary. Disconnect the cover closed switch cable from J8 at the system board and measure the voltage at J8-3. It measures approximately +5 V dc. If the voltage is incorrect, replace the system board. If the voltage is correct, check the voltage at J8-1. If the voltage measures greater than +1.0 V dc, replace the system board. If the voltage is correct, check the continuity between J8-1 and J8-3 on the cable. If no change in continuity occurs as the switch is activated, replace the hinge assembly. If the continuity changes as the switch is activated, replace the system board.</p> <p style="text-align: center;"><b>Cover closed switch table</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>J8</th> <th colspan="2">Switch status</th> </tr> <tr> <th>Pin number</th> <th>Cover open</th> <th>Cover closed</th> </tr> </thead> <tbody> <tr> <td>Pin 1-3</td> <td>Open</td> <td>Closed</td> </tr> <tr> <td>Pin 1-2</td> <td>Closed</td> <td>Open</td> </tr> </tbody> </table>	J8	Switch status		Pin number	Cover open	Cover closed	Pin 1-3	Open	Closed	Pin 1-2	Closed	Open
J8	Switch status													
Pin number	Cover open	Cover closed												
Pin 1-3	Open	Closed												
Pin 1-2	Closed	Open												

## Dead machine service check

A dead machine is a condition where the LCD touchscreen is blank, the LED on the operator panel right cover is off, no fans turn, no motors turn, and the fuser lamp does not come on.

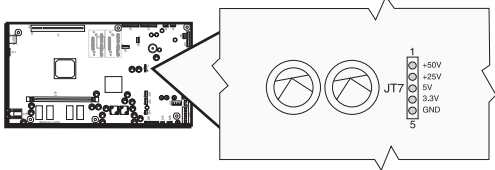

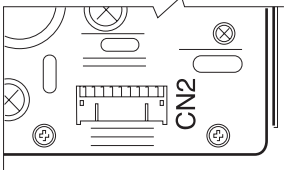

If a high-capacity input tray is installed, remove the option and check the printer for correct operation. If the printer operates correctly, go to **“High-capacity feeder input tray service check” on page 2-141**. If the printer continues to not operate correctly, remove any other attached paper handling options.

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

	<p><b>CAUTION</b></p> <p>When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.</p>
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Remove any input and output paper handling options from the printer.

	FRU	Action
1	Line voltage	Check the AC line voltage. If the line voltage is incorrect, inform the customer.
2	AC line cord	Unplug the line cord from the wall outlet and check the line cord for damage, such as, a damaged plug, or cut or damaged cord. If incorrect, replace the cord. If incorrect, check the continuity of the line cord and replace if necessary. If the cord is correct, go to step 3.

	FRU	Action
3	+5 V dc test point on the system board	<p>Check for approximately +5 V dc at the +5 V test point on the system board.</p> <p><b>Note:</b> Use care not to short adjacent voltage test points.</p>  <p>If the voltage is correct, Go to step 9. If the voltage is incorrect, go to step 4.</p>
4	System board	<p>Check to make sure the LVPS cable is correctly installed at J27 on the system board. If not, reseat and recheck the voltage at the +5 V dc test point on the system board.</p> <p>If test point does not measure +5 V dc, go to step 5.</p>
5	LVPS 	<p>Unplug the AC line cord from the LVPS and disconnect the LVPS cable to the system board. Reconnect the AC line cord and measure the voltage on CN2-1 on the LVPS. The voltage should measure approximately +5 V dc.</p>  <p>If the voltage is correct, go to step 6. If the voltage is incorrect, replace the LVPS assembly. See <b>“Low voltage power supply removal” on page 4-109</b></p>
6	Features or option installed on the interface card assembly	<p><b>Warning:</b> Observe all the ESD precautions and turn the printer off before any feature or option cards are removed or replaced.</p> <p>Remove one option/feature at a time to help isolate the failing part.</p> <p>Replace the faulty part.</p>
7	LVPS fuse F1 (primary power) 	<p>Unplug the AC line cord, remove the LVPS from the printer, and check the continuity of fuse F1. See <b>“Low voltage power supply removal” on page 4-109</b>.</p> <p>If continuity is correct, replace the LVPS assembly.</p>
8	Loads connected to the system board	<p>Turn the printer off and disconnect each cable connected to the system board and each option installed on the system board until the problem is located.</p> <p><b>Warning:</b> When removing any card installed on the system board observe all ESD precautions when handling these options.</p>
9	Interface card Scanner control card	<p>Check for the correct installation of the interface card to the printer system board and to the scanner control card. If correct, go to step 10.</p>



	FRU	Action
10	System board Scanner control card Interface card	<p>Replace the following FRUs in the order shown one at a time in until the problem is fixed:</p> <ul style="list-style-type: none"> <li>• Scanner control card. See <b>“Scanner control card removal” on page 4-48.</b></li> <li>• System board. See <b>“System board and inner shield removal—model 500S” on page 4-131.</b></li> <li>• Interface card. See <b>“Interface card assembly removal” on page 4-107.</b></li> </ul>

## Duplex option service check

### Duplex paper jams

23x.xx jam code	Jam location
231.xx	Media did not arrive at the duplex input sensor, but did leave the fuser exit sensor.
232.xx	Media did not clear the duplex input sensor, but did leave the printer fuser exit sensor.
233.xx	Media failed to make the duplex double feed sensor during turnaround.
234.xx	Media did not arrive at the duplex exit sensor.
235.xx	A piece of media is over the duplex double feed sensor.
236.xx	Media did not leave the duplex exit sensor.
237.xx	A duplexed sheet did not reach the printer input sensor.
238.xx r	A piece of media is over the duplex sensors during a reset.

### Duplex does not recognize that the option is installed, or other options below the duplex are installed

	FRU	Action
1	Autoconnect cables/ connections	Check the top and bottom autoconnect connectors for signs of damage. If damaged, replace the duplex option. If not damaged, check the cables are correctly connected to the duplex system board at J9, J10, J11, and J12. If no problem is found, replace the duplex option.

**Note:** Before proceeding with the following service checks, verify the media used in the duplex option meets specification and is not dog-eared or damaged in any way. See **“Media specifications” on page 1-9.**

231.xx Jam **displays**

	FRU	Action
1	Fuser exit sensor	Check the sheet of media is leaving the exit sensor in the fuser and feeding properly into the duplex option. Check the duplex link for correct operation and any signs of damage. If the problem is prior to the duplex input sensor and in the base machine, repair as necessary. If the jam occurs in the duplex option prior to the duplex input sensor, go to step 2.
2	Duplex input sensor	If the paper does not reach the duplex input sensor, make sure the sensor is connected to the duplex system board. If correct, check for any paper or other objects that might cause a paper jam. If none are found, replace the duplex option assembly.

232.xx Jam **displays**

	FRU	Action
1	Duplex input sensor	If the paper reaches the duplex input sensor, but does not clear the sensor, make sure the sensor is connected to the duplex system board. If connected correctly, check for correct operation of the sensor. If a problem is found and cannot be corrected, replace the duplex option assembly. If no problem is found, check for a piece of paper or other object in the paper path that might cause a paper jam over the input sensor. If no problem is found, replace the duplex option assembly.

233.xx Jam **displays**

	FRU	Action
1	Duplex double feed sensor	If a sheet of paper fails to reach the double feed sensor during turnaround, check for any signs of paper or other objects that might cause the paper to jam. If no problem is found, replace the duplex option assembly.

## Envelope feeder service check

Service tip: Check the envelope feeder paper path for any debris, pieces of envelope and so on. If any other options are installed make sure they are operating normally. If only the envelope feeder is failing to operate correctly, continue with this service check, otherwise verify the interconnect card is functioning properly.

Service tip: The envelope feeder receives its +5 V dc operating voltage from the +24 V dc bulk at J1-7. If +24 V dc is not present at J1-7, tray 1 is the only tray that is recognized.

### Printer does not recognize the envelope feeder as an attached input option

	FRU	Action
1	Envelope feeder	Make sure the envelope feeder is correctly installed and mated to the autoconnect at the front of the printer.
2	Front autoconnect on printer	Check the connector for signs of damage to the connector or contacts. If you find damage, replace the damaged cable/connector assembly. Remove the envelope feeder and check the voltages at the autoconnect on the front of the printer. If incorrect, check the system board. If correct, reinstall the envelope feeder and continue with step 3.
3	Autoconnect on the envelope feeder	<p>Check for damage to the connector or contacts. If you find damage, replace the damaged cable/connector assembly. Disconnect the autoconnect cable at J1 on the envelope system board and measure the following voltages:</p> <ul style="list-style-type: none"> <li>• J1-3 measures +5 V dc</li> <li>• J1-5 measures +5 V dc</li> <li>• J1-7 measures +24 V dc</li> </ul> <p>If any of the voltages are incorrect, replace the autoconnect cable/connector. If the voltages are correct, replace the envelope system board.</p>

### Touchscreen displays 260.xx Paper Jam immediately when envelope feed is requested—POST incomplete

	FRU	Action
1	Pass thru sensor	<p>Check for any debris or pieces of envelope over the pass thru sensor. Check for correct installation of the pass thru sensor flag. Make sure the sensor cable is attached to the envelope system board. Perform an envelope feeder sensor test to check both the sensor and sensor flag.</p> <p><b>Note:</b> It may be necessary to use a small tool to actuate the sensor flag because it is located under the front cover. Be careful not to damage the flag.</p> <p>If the test fails, check the flag for damage or binds. If incorrect, replace the flag. If the flag is operating correctly, check the voltage at J3-3. The voltage measures approximately +5 V dc. If incorrect, replace the envelope system board. If correct, check the voltage at J3-2. The voltage changes from 0 to +5 V dc when the flag is moved in and out of the sensor. If incorrect, replace the sensor assembly. If this does not fix the problem, replace the envelope system board.</p>

**Touchscreen displays 260.xx Paper Jam after attempted feed but before envelopes are put in the hopper OR the touchscreen continues to display Load Envelopes after envelopes are placed in the hopper**

Service tip: The kick rolls rotate during the attempted feed cycles.

	FRU	Action
1	Envelope out hopper sensor flag	Check the envelope out sensor flag for damage, correct installation and operation. If incorrect, repair or replace the envelope feeder option.

**990.xx Service Error, envelopes fail to feed from the hopper**

	FRU	Action
1	DC feed motor assembly	Check the motor and motor cable for loose wires or poor connections. Make sure the motor cable is connected to the envelope system board. If correct, replace the envelope feeder option.

**260.xx Paper Jam displays, unable to clear and envelopes fail to feed from the hopper—Kick rolls are not rotating**

	FRU	Action
1	Clutch latch assembly	Check the clutch latch assembly to make sure it moves freely. If correct, replace the envelope feeder option.

**260.xx Paper Jam displays, unable to clear and envelopes fail to feed from the hopper Kick rolls are rotating.**

Check the deflector gap adjustment before continuing this service check.

	FRU	Action
1	Deflector gap adjustment	Check the deflector gap adjustment. The adjustment may be too narrow.
2	Weight assembly	Check the weight assembly to make sure it moves up and down freely without any binds. Make sure the weight assembly rests on all the rear kick rollers when the hopper is empty. If the weight assembly is damaged or does not operate properly, replace the envelope feeder assembly.
3	Envelope edge guide	Check the envelope edge guide to make sure it is not warped or set too close to the envelopes in the hopper. If the edge guide is damaged or does not operate properly, replace the envelope feeder option.

## 260.xx Paper Jam displays, envelope stops in feeder paper path

	FRU	Action
1	Kick rolls/feed rolls/drive rolls	Check all the rolls for oil, grease, or other contamination. If you find a problem, clean the rolls. If this does not correct the problem, replace the envelope feeder.
2	Deflector gap adjustment	Check the deflector gap adjustment. The adjustment may be too narrow. If the adjustment is correct, replace the envelope feeder option.

## Envelope feeder multifeeds or may not display a 260.xx Paper Jam message

	FRU	Action
1	Envelopes	Check the envelopes being used in the feeder. Check for signs of the envelopes being stuck together or signs of glue. Make sure the flaps are not interleaved.  If the envelopes meet the guidelines and are properly loaded, go to step 2.
2	Deflector	Check the deflector gap adjustment. The adjustment may be too wide.  If the deflector gap adjustment is correct, go to step 3. If not, replace the envelope feeder option.
3	Restraint roll bias spring	Check for a missing, broken or incorrectly installed restraint roll bias spring. If incorrect, replace the envelope feeder option.

## 260.xx Paper Jam displays, an envelope stopped in the paper path of the feeder and an envelope also stopped in the printer paper path

	FRU	Action
1	Latch lever	Make sure the tip of the latch lever is centered in the opening in the floor of the paper path. The latch lever may not be detented on the latch. If no problem is found and the problem persists, replace the envelope feeder option.

### **Flatbed size sensor service check**

Check for correct installation of the sensor cable before proceeding with this service check.

**Note:** All three sensors and their cables come attached together as a unit.


	FRU	Action
1	Flatbed paper size sensor assembly Flatbed interface card assembly	Enter the Diagnostics Menu (turn on MFP while holding <b>3</b> and <b>6</b> ), select <b>SCANNER TESTS</b> , and select <b>Sensor Tests</b> . Check for correct operation of the sensors by placing a piece of paper on the contact glass over the sensor assembly. If any sensor fails the sensor test, replace the sensor assembly. If this does not fix the problem, replace the flatbed interface card. See <b>“Flatbed interconnect card removal” on page 4-33</b> .

## Fuser service checks

### 920.xx—Cold fuser service check

Error codes 920.x and 922.xx may display for a cold fuser failure.



Some 920.xx error codes may be cleared by turning the printer on and off and allowing it to complete POR.


	<p><b>CAUTION</b></p> <p>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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Service tip: Some 920.xx errors can be caused by multiple sheets of paper being fed up to the fuser.

Service tip: Set the Fuser Temperature to NORMAL before starting this service check. In Diagnostics mode, select **EP SETUP**, and **Fuser Temp**.

Service tip: It may take several minutes for the error codes 920.xx and 922.xx to be displayed after the printer is turned on.


	FRU	Action
1	Fuser lamp Fuser lamp AC cable	<p>Observe the lamp through the left near side of the printer. It may be necessary to remove the redrive assembly to observe the lamp turning on and off. If the lamp does not come on do the following:</p> <ul style="list-style-type: none"> <li>• If not previously removed, remove the redrive assembly. See <b>“Redrive assembly removal” on page 4-128</b>.</li> <li>• Remove the fuser assembly. See <b>“Fuser assembly removal” on page 4-79</b>.</li> <li>• Make sure the correct type of lamp is installed (voltage and wattage).</li> <li>• Verify that the fuser to fuser lamp cable is installed correctly to the fuser top cover assembly. If incorrect, install correctly; if correct, go to step 2.</li> </ul>
2	AC line voltage 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Check the AC line voltage to make sure it is within operating specification. If incorrect, inform the customer; if correct, go to step 3.</p>
3	LVPS 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Unplug the AC line cord from the printer and pull the LVPS out far enough to access CN1 on the LVPS board (see <b>“Low voltage power supply removal” on page 4-109</b>). Disconnect the LVPS to fuser AC cable, plug in the line cord, turn the printer on and measure the voltage between CN1-1 and CN1-3 on the connector (see the connector locations at <b>“Low voltage power supply” on page 5-11</b>).</p> <p>If incorrect, replace the LVPS assembly (see <b>“Low voltage power supply removal” on page 4-109</b>); if correct, go to step 4.</p>

	FRU	Action
4	Fuser lamp Fuser top cover assembly Fuser connect cable (fuser to fuser lamp cable)	<p>Check continuity of the fuser to fuser AC cable, fuser top cover assembly, and fuser lamp by checking the continuity between the two pins on the fuser lamp AC cable connector:</p> <ul style="list-style-type: none"> <li>• If there is continuity, go to step 5.</li> <li>• If there is no continuity, check the continuity of the fuser to fuser lamp AC cable. If incorrect, replace the lamp, if incorrect, replace the fuser top cover assembly.</li> </ul> <p><b>Note:</b> If the fuser lamp is replaced, allow the fuser assembly to cool or a 925.xx error may be displayed.</p>
5	LVPS LVPS to fuser AC cable 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Check the AC line voltage between the pins on the fuser end of the LPVS to fuser AC cable. If the voltage is correct, unplug the AC power cord from the LVPS cable. If the voltage is correct, unplug the AC power cord from the LVPS, pull the LVPS out far enough to be able to check the voltage between CN-1 and CN1-3 on the LVPS board. Plug in the power cord, turn the printer on and check the voltage. If correct, replace the LVPS to fuser AC cable; if incorrect, replace the LVPS assembly.</p> <p><b>Note:</b> If the fuses in the LVPS are blown, the LVPS assembly must be replaced.</p>
6	Fuser top cover assembly (thermistor, thermistor cable) Fuser to system board DC cable	<p>Check to make sure that the thermistor is installed correctly to J5 on the fuser control card. If installed correctly check the cable for any signs of damage. If any problems are found, replace the fuser top cover assembly. If no problem is found, check the fuser to system board DC cable for correct installation at J1 on the fuser control card. If no problem is found, check the fuser to system board cable for correct installation at J10 on the system board.</p>
7	Error code 920.06 displayed LVPS System board System board to LVPS cable	<p>Carefully check the installation of the LVPS to system board cable to J27 on the system board and to CN2 on the LVPS. If the cable is not seated or installed properly, reseal the cable and retry the printer. If the cable is installed correctly, replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"> <li>• LVPS assembly. See <b>“Low voltage power supply removal” on page 4-109.</b></li> <li>• System board assembly. See <b>“System board and inner shield removal —model 500S” on page 4-131.</b></li> <li>• LVPS to system board cable.</li> </ul>
8	Fuser assembly	<p>If no problem is found up to this point, then replace the following in the order shown:</p> <ul style="list-style-type: none"> <li>• Fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• System board assembly. See <b>“System board and inner shield removal —model 500S” on page 4-131.</b></li> <li>• LVPS. See <b>“Low voltage power supply removal” on page 4-109.</b></li> </ul>




## 922.xx—Cold fuser check

Error codes 920.xx and 922.xx may display for a cold fuser failure.

Some 920.xx error codes may be cleared by turning the printer on and off and allowing it to complete POR.

	<p><b>CAUTION</b></p> <p>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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Service tip: Set the Fuser Temperature to NORMAL before starting this service check. In Diagnostics mode, select **EP SETUP**, and **Fuser Temp**.


	FRU	Action
1	Fuser lamp	<p>Remove the fuser assembly and check to make sure the correct fuser lamp has been installed. If the correct lamp has been installed, go to step 2.</p> <p><b>Note:</b> If the fuser lamp is replaced, allow the fuser assembly to cool or a 925.xx error code could be displayed.</p>
2	AC line voltage 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Check the AC line voltage to make sure it is within operating specification. If incorrect, inform the customer; if correct, go to step 3.</p>
3	LVPS 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Unplug the AC line cord from the printer and pull the LVPS out far enough to access CN1 on the LVPS board (see <b>“Low voltage power supply removal” on page 4-109</b>). Disconnect the LVPS to fuser AC cable, plug in the line cord, turn the printer on and measure the voltage between CN1-1 and CN1-3 on the connector (see the connector locations at <b>“Low voltage power supply” on page 5-11</b>). If incorrect, replace the LVPS assembly (see <b>“Low voltage power supply removal” on page 4-109</b>); if correct, go to step 4.</p>
4	LVPS LVPS fuser AC cable 	<p><b>CAUTION:</b> When taking measurements for AC power, observe all safety precautions.</p> <p>Disconnect the AC line cord from the printer. Disconnect the LVPS to fuser cable from the fuser to fuser lamp cable. Plug the AC line cord into the printer and check the AC line voltage between the pins on the fuser end of the LVPS to fuser AC cable. If the voltage is correct, unplug the AC power cord from the LVPS cable and pull the LVPS out far enough to be able to check the voltage between CN-1 and CN-3 on the LVPS board. Plug in the power cord, turn the printer on and check the voltage. If correct, replace the LVPS to fuser AC cable; if incorrect, replace the LVPS assembly. See <b>“Low voltage power supply removal” on page 4-109</b>.</p> <p><b>Note:</b> If the fuses in the LVPS are blown, the LVPS assembly must be replaced.</p>




	FRU	Action
5	Fuser top cover assembly (thermistor, thermistor cable) Fuser to system board DC cable	Check to make sure that the thermistor is installed correctly to J5 on the fuser control card. If installed correctly check the cable for any signs of damage. If any problems are found, replace the fuser top cover assembly. <b>“Fuser narrow media sensor removal” on page 4-88.</b>  If no problem is found, check the fuser to system board DC cable for correct installation at J1 on the fuser control card. If no problem is found, check the fuser to system board cable for correct installation at J10 on the system board. If no problem is found, go to step 6.
6	Fuser assembly	If no problem is found up to this point, then replace the following in the order shown: <ul style="list-style-type: none"> <li>• Fuser assembly. See <b>“Fuser assembly removal” on page 4-79.</b></li> <li>• System board assembly. See <b>“System board and inner shield removal —model 500S” on page 4-131.</b></li> <li>• LVPS. See <b>“Low voltage power supply removal” on page 4-109.</b></li> </ul>

### 923.xx—Hot fuser service check

Error Code 923.xx, 924.xx, and 925.xx may display for a hot fuser failure.

	<b>CAUTION</b> The fuser may be hot, use caution before removing or servicing.
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	<b>CAUTION</b> 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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Service tip: Set the Fuser Temperature to NORMAL before starting this service check. In Diagnostics mode, In Diagnostics mode, select **EP SETUP**, and **Fuser Temp**.

	FRU	Action
1	Fuser assembly	Check for any signs of overheating in the fuser assembly. Check the hot roll, hot roll bearings, and the area around the thermistor for any signs of excessive heat. If a problem is found, replace the thermistor. If no problem is found, go to step 2.
2	Fuser top cover assembly (thermistor)	Turn the printer off and disconnect the fuser to system board cable from J10 on the system board. Check the resistance between pins J10-3 and J10-4. The resistance should be greater than 100K ohms. If correct, go to step 3; if incorrect, disconnect the thermistor cable from J5 on the fuser board and measure the resistance between the two pins on the thermistor cable. If incorrect, replace the fuser top cover assembly (see <b>“Fuser narrow media sensor removal” on page 4-88</b> ); if correct, replace the fuser to system board cable.
3	System board Fuser top cover assembly	Check the voltage on J10-3 ground on the system board. The voltage should measure approximately +3.3 V dc. If the voltage is correct, replace the fuser top cover assembly. See <b>“Fuser narrow media sensor removal” on page 4-88</b> . If incorrect, replace the system board. See <b>“System board and inner shield removal —model 500S” on page 4-131.</b>

## 924.xx—Hot fuser service check

Error Code 923.xx, 924.xx, and 925.xx may display for a hot fuser failure.

	<p><b>CAUTION</b></p> <p>The fuser may be hot, use caution before removing or servicing.</p>
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	<p><b>CAUTION</b></p> <p>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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Service tip: Set the Fuser Temperature to NORMAL before starting this service check. In Diagnostics mode, In Diagnostics mode, select **EP SETUP**, and **Fuser Temp**.

	FRU	Action
1	Fuser assembly Fuser to system board cable	Check the thermistor cable for correct installation to J5 on the fuser card. If installed correctly, check for correct installation of J10 on the system board. If all cables are installed correctly, go to step 2.
2	Fuser top cover assembly (thermistor/thermistor cable assembly)	Turn the printer off and disconnect the thermistor cable from J5 on the fuser board. Measure the resistance between the two pins on the thermistor cable, if the resistance measures infinity (open circuit), replace the fuser top cover assembly.
3	Fuser to system board cable. System board Fuser assembly	Reconnect the thermistor cable to J5 on the fuser board. Disconnect the fuser to system board cable from J10 on the system board and measure the resistance between J10-3 and J10-4 on the cable. If the resistance measures infinity (open circuit) check the continuity of pins 3 and 4 of the cable. If correct, replace the fuser assembly. See <b>“Fuser assembly removal” on page 4-79</b> . If incorrect, replace the fuser to system board cable. <b>Note:</b> If the error code still displays, replace the system board. See <b>“System board and inner shield removal —model 500S” on page 4-131</b> .


## 925.xx—Hot fuser service check

Error Code 923.xx, 924.xx, and 925.xx may display for a hot fuser failure.

	<p><b>CAUTION</b></p> <p>The fuser may be hot, use caution before removing or servicing.</p>
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	<p><b>CAUTION</b></p> <p>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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Service tip: Set the Fuser Temperature to NORMAL before starting this service check. In Diagnostics mode, In Diagnostics mode, select **EP SETUP**, and **Fuser Temp**.

	FRU	Action
1	Fuser lamp	<p>If the fuser is 220 V machine a 115 V fuser may be installed. If the printer is not a 115 V model, then go to step 2.</p> <p>If the printer is a 220 V model, then check to make sure that the correct lamp is installed.</p> <p><b>Note:</b> If the fuser lamp is replaced, allow the fuser to cool or a 925.xx error could be displayed.</p>
2	AC power source 	<p>Check the AC power source to make sure it meets specifications. If the AC power source does not meet specifications, inform the customer. If it meets specifications, go to step 3.</p>
3	Fuser lamp	<p>Turn the printer off and allow the fuser assembly to cool. After the fuser assembly cools down, turn the printer on. If you receive the same error code, replace the fuser lamp. See <b>“Fuser lamp removal” on page 4-86</b>.</p> <p><b>Note:</b> If the fuser lamp is replaced, allow the fuser to cool or a 925.xx error could be displayed.</p>

## Fuser exit sensor service check

If any of the following codes are displayed, there is a potential problem in the area of the exit sensor: 201.00, 201.02, 201.10, 201.12, 201.22, 201.30, 201.32, 201.40, 201.41, 201.42, 201.50, 201.52, 201.92, 202.00, 202.02, 202.04, 202.10, 202.11, 202.12, 202.14, 202.20, 202.21, 202.22, 202.24, 202.30, 202.31, 202.32, 202.34, 202.40, 202.41, 202.42, 202.44, 202.50, 202.51, 202.52, 202.54, 202.90, 202.91, 202.92, and 202.94.

### Fuser exit and fuser narrow media sensor status chart

Printer not printing— no media over sensors	Printer printing—media over sensor(s), non-narrow media fed through the printer	Printer printing—narrow media fed through the printer
Exit sensor open	Exit sensor closed	Exit sensor closed
Narrow media sensor open	Narrow media sensor closed	Narrow media sensor open

	FRU	Action
1	Fuser exit sensor (exit sensor test)	Enter the Diagnostic mode, select <b>BASE SENSOR TEST</b> , select the <b>Exit Sensor</b> to test for proper operation. If the exit sensor fails the test, go to step 2. If the exit sensor passes, go to step 5.
2	Fuser exit sensor cable	Check the fuser exit sensor cable for correct installation or for any signs of damage to the cable or connectors. If no problem is found, go to step 3. If a problem with the installation is found, install the cable correctly. If damage to the cable or connectors is found, replace the cable.
3	Fuser exit sensor flag	Make sure the sensor flag is not binding and is operating properly. If the sensor is operating properly, go to step 4. If it is not operating properly, repair or replace the sensor assembly. See <b>"Fuser exit sensor removal" on page 4-82</b> .
4	Fuser assembly Fuser exit sensor cable Fuser board Fuser to system board cable System board	Check the continuity of the fuser exit sensor cable. If incorrect, replace the cable; if correct check the continuity of the fuser to system board cable. If incorrect, replace the cable; in correct, replace the following FRUs in the order shown: <ul style="list-style-type: none"> <li>• Fuser board.</li> <li>• Fuser assembly. See <b>"Fuser assembly removal" on page 4-79</b>.</li> <li>• System board. See <b>"System board and inner shield removal—model 500S" on page 4-131</b>.</li> </ul>
5		With the redrive assembly removed from the printer, enter the Diagnostics mode and run the print test from tray 1 (for example, select <b>PRINT TESTS, Tray 1, and Continuous</b> ) and observe the media as it passes over the exit and narrow media sensors. Check that the sensor flags are operating correctly. If the sensor flags and hardware are operating incorrectly, repair or replace the failing sensor assembly. If no problem is found, check the fuser for any signs of media in the fuser or any signs of toner or other contamination. If a problem is found, clean or remove the debris or contamination.

## Fuser narrow media sensor service check


If any of the following error codes are displayed, a problem may exist in the area of the narrow media sensor assembly: 201.04, 201.14, 201.24, 201.34, 201.44, 201.54, and 201.94.

### Fuser exit and fuser narrow media sensor status check

Printer not printing— no media over sensors	Printer printing—media over sensor(s), non-narrow media fed through the printer	Printer printing—narrow media fed through the printer
Exit sensor open	Exit sensor closed	Exit sensor closed
Narrow media sensor open	Narrow media sensor closed	Narrow media sensor open

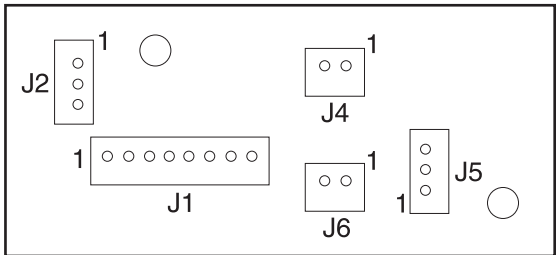

	FRU	Action
1	Fuser narrow media sensor (sensor test)	Enter the Diagnostics mode, select <b>BASE SENSOR TEST</b> , and select the <b>NM Sensor</b> to test it for proper operation. If the narrow media sensor fails the test, go to step 2; if the narrow media sensor does not pass the test, go to step 5.
2	Fuser narrow media sensor cable	Check the fuser narrow media sensor cable for correct installation or any signs of damage to the cable or to the connectors. If no problem is found, go to step 3; if a problem with the installation is found, install the cable correctly. If damage to the cable or the connectors is found, replace the cable.
3	Fuser narrow media sensor flag	Make sure the sensor flag is not binding and is operating properly. If the sensor is operating properly, go to step 4. If the sensor is not operating properly, repair or replace the sensor assembly. See <b>“Fuser narrow media sensor removal” on page 4-88</b> .
4	Fuser assembly Fuser narrow media sensor cable Fuser board Fuser to system board cable System board	Check the continuity of the fuser narrow media sensor cable. If incorrect, replace the cable; if correct, check the continuity of the fuser to system board cable. If incorrect, replace the cable; if correct, replace the following FRUs in the order shown: <ul style="list-style-type: none"> <li>Fuser board</li> <li>Fuser assembly. See <b>“Fuser assembly removal” on page 4-79</b>.</li> <li>System board. See <b>“System board and inner shield removal—model 500S” on page 4-131</b>.</li> </ul>
5		With the redrive assembly removed from the printer, enter Diagnostics mode and run the printer test from tray 1 and observe the media as it passes over the exit sensor. Check to see that the sensor flag is operating correctly. If the sensor flag and hardware are operating incorrectly, repair or replace the failing sensor assembly. If no problem is found, check the fuser for any signs of media in the fuser or any signs of toner or other contamination. If a problem is found, clean or remove the debris or contamination.

## Fuser solenoid service check

	<p><b>CAUTION</b></p> <p>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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Service tip: Try changing the envelope enhance level setting. A different setting may correct the problem.

**Note:** Check the fuser envelope conditioner solenoid adjustment as described in the adjustment section **“Fuser solenoid adjustment”** on page 4-2.

	FRU	Action
1	Fuser envelope conditioner solenoid	<p>Observe the operation of the fuser solenoid by removing the redrive assembly. Check for proper mechanical operation of the solenoid and associated hardware, link, and so on. If correct, check the resistance of the solenoid between J4-1 and J4-2 on the fuser control board.</p> <div style="text-align: center;">  </div> <p>The resistance measures between 5 ohms and 10 ohms. If incorrect, replace the fuser assembly. If correct, go to step 2.</p>
2	System board	<p>Measure the voltage at the +50 V dc test point on the system board. The voltage should measure approximately +50 V dc. If incorrect, go to step 3. If incorrect, go to step 4.</p>
3	LVPS	<div style="text-align: center;">  </div> <p>Measure the voltage at CN2-18 on the LVPS. The voltage should measure approximately +50 V dc. If incorrect, replace the LVPS assembly. See <b>“Low voltage power supply removal”</b> on page 4-109. If correct, replace the system board. See <b>“System board and inner shield removal—model 450S”</b> on page 4-130 or <b>“System board and inner shield removal —model 500S”</b> on page 4-131.</p>
4	Fuser board to system board cable	<p>Make sure the cable is connected properly to the system board and fuser control board. Reconnect the cable, if necessary. If the cable is connected correctly, go to step 5.</p>
5	Fuser assembly	<p>If no problems were found in steps 1 through 4, replace the fuser assembly. See <b>“Fuser assembly removal”</b> on page 4-79.</p>


## High-capacity feeder input tray service check

**Note:** Voltage measurements in the high-capacity feeder input tray service checks must be made with the high-capacity feeder attached to the printer to obtain accurate results.


Service tip: Be sure the paper size switch is set to the correct paper size setting and the rear paper guides are in the correct locations for the size of paper installed in the high-capacity feeder tray.


Service tip: Check the other paper sources to be sure they are operating correctly.

### The printer indicates a dead machine condition when the high-capacity input tray is installed

	FRU	Action
1	AC line cord AC jumper (HCIT to printer) AC input and output receptacles AC wiring harness 	If the printer works normally using the AC line cord from the AC wall outlet and does not work when using the AC jumper from the HCIT, check the AC jumper cord. If defective, replace the cord. If not defective, check the AC input and output receptacles and wiring harness in the HCIT. Repair or replace the receptacles or AC wiring harness as required.  <b>Note:</b> Make sure the ground wire is installed correctly from the AC wiring harness to the frame of the HCIT and the nut and lock washer are tightened.

### The MFP does not recognize that the high-capacity input tray is installed

	FRU	Action
1	high-capacity feeder autoconnect mechanical check	Check the high-capacity feeder input tray to make sure it is mounted correctly and is not pushed down into the frame assembly or damaged. Be sure the high-capacity feeder input tray autoconnect is properly connected to the high-capacity feeder tray option board assembly.
2	Printer or option mounted above	Check the option or printer autoconnect for signs of damage. Repair the high-capacity option autoconnect as necessary.
3	LVPS Option system board 	Check the voltages at J11-2 and J11-4. The voltage measures +24 V dc. If the voltage is correct, replace the high-capacity system board assembly. If the voltage is incorrect, check the continuity of the AC input cable to the LVPS. If correct, replace the LVPS assembly. If incorrect, replace the AC cable to the input of the LVPS.

	FRU	Action
4	High-capacity feeder option control board 	<p>Check the voltage on J8-1 (green). The voltage measures +24 V dc. If incorrect, check the autoconnect system for any problems. +24 V dc must come from the printer through the autoconnect system to the high-capacity input for the high-capacity feeder to be recognized. If the voltage is correct, check the voltages at J11-3(red) and J11-4(red). The voltages measure +24 V dc. If correct, replace the high-capacity feeder option system board. If incorrect, disconnect J8 from the system board and measure the voltages again. If incorrect, check the LVPS cable and the AC internal wiring from the input appliance receptacle. If incorrect, replace as necessary. If correct, replace the LVPS. If the voltages are correct, check the stepper motor for shorts from the motor housing to each pin on the motor connector. If you find a short between any pin and the motor housing, replace the motor assembly. If no shorts are found, replace the high-capacity feeder option control board.</p> <p>Check the voltage at J9-1 (light blue). The voltage measures approximately +24 V dc. If incorrect, disconnect the cable at J9 and check the voltage again. If the voltage continues to be incorrect, replace the high-capacity feeder option system board. If the voltage measures correctly, check the cable. If the cable is damaged, replace as necessary. If no problem is found with the cable, replace the high-capacity feeder option control board.</p>

24x.xx Paper Jam **displays, paper jammed over the pass thru sensor**

Where x=the printer displays the value of x for the paper tray where the error occurs. For example: 242.xx is a Paper Jam Tray 2

	FRU	Action
1	Pass thru sensor and flag assembly	The tray x option system board did not detect a piece of paper actuating the pass thru sensor. Remove any jammed sheets of paper from the printer and check the pass thru sensor and flag for proper operation by running the appropriate Tray Sensor Test from the diagnostics menu. If the test fails, check the sensor for correct installation and the flag for proper operation. Also check the sensor cable to make sure it is correctly connected to the option system board. If incorrect, replace the tray x option pass thru sensor assembly.
2	Power takeoff shaft and spring, bevel gear, feed roll gear, drive roll assembly, wear plate, drive shaft bearings, and skewed backup roller	Check these parts for signs of broken or damaged parts, contamination on the drive rollers or wear plate and wear or damage to the drive shaft bearings. Check the drive roll assembly and skewed backup roller for wear, slick spots, material buildup, and oil or grease on the rollers. Also check for proper operation of the paper aligning assembly. Repair or replace parts as necessary.

Tray x Paper Low **displays when tray x is full or has adequate paper in the tray**

	FRU	Action
1	Paper low switch Paper low switch cable High-capacity feeder Input system board	Run the sensor diagnostics for tray x (x=the number that represents the high-capacity input tray). If the test fails, disconnect the paper low switch cable from J3 on the high-capacity system board. Short pins 1 and 2 together while observing the sensor test on the display. If the display does not change, replace the high-capacity feeder system board. If the display changes check the continuity of the switch. If incorrect, replace the switch. If correct, replace the switch cable.



Tray x Empty **displays when there is paper in the high-capacity feeder input tray**

	FRU	Action
1	Paper out sensor flag	Check the paper out sensor flag for correct operation and installation. If correct, replace the high-capacity feeder system board. (The paper out sensor is mounted on the high-capacity feeder system board.)
2	Paper out sensor (on option system board)	

**The elevator tray fails to stop at the correct position and continues to drive into the bottom frame**

	FRU	Action
1	Lower limit switch Lower limit switch cable	Check continuity of the lower limit switch. If incorrect, replace the switch. If correct, check the switch cable. If incorrect, replace the cable. If correct, replace the high-capacity feeder option control board.
2	High-capacity feeder control board	Disconnect the lower limit switch cable and check the voltage at J2-1 (orange). The voltage measures approximately +5 V dc. If incorrect, replace the high-capacity feeder option control board.

**The elevator tray down button does not operate. The tray moves to the upper position**

Service tip: Open the high-capacity feeder front door and check the black rubber bumper attached to the door switch spring. Be sure the rubber button is centered and not touching the sides of the hole or the switch will not function properly.

	FRU	Action
1	Lower limit switch Lower limit switch cable High-capacity feeder control board	Check the lower limit switch to make sure it is not closed (normally open). If incorrect, replace the switch. Check the lower limit switch cable for a short between pins 1 and 2. If incorrect, replace the cable. If correct, replace the high-capacity feeder control board.

**Paper from the high-capacity feeder input tray does not reach the pass thru sensor**

Service tip: Be sure the paper in tray is within specifications.

	FRU	Action
1	Autocompensator assembly	Check the autocompensator pick arm rollers for sign of glazing, toner or other buildup. Replace as necessary.
2	Wear strips	Check the wear strips for glazing or contamination. Replace as required. It is advisable to replace all four wear strips at the same time.

**The elevator tray does not move up or down; the printer recognizes that the option is installed**

	FRU	Action
1	DC drive motor high-capacity feeder option system board	<p>Be sure the motor cable is correctly installed at J1 on the board. Check the cables, damaged or loose wires. Disconnect the motor. Check for a short between each pin and the motor housing. If a problem is found, replace the motor assembly. If no problem is found, measure the resistance between the following pins on the motor cable connector:</p> <p>Pins 1 (brown) and pin 2 (Yellow)</p> <p>The resistance measures between approximately 7.5 and 10.5 ohms. If incorrect, replace the motor assembly. If correct, replace the high-capacity feeder option system board.</p>

**The elevator moves in one direction only**

	FRU	Action																														
1	DC drive motor assembly high-capacity feeder system board	<p>Check the voltages at J1 on the high-capacity system board. The voltages measure approximately as follows:</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Color</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td colspan="3"><b>Static (motor not running)</b></td> </tr> <tr> <td>J1-1</td> <td>Brown</td> <td>0 V dc</td> </tr> <tr> <td>J1-2</td> <td>Yellow</td> <td>0 V dc</td> </tr> <tr> <td colspan="3"><b>Motor running forward</b></td> </tr> <tr> <td>J1-1</td> <td>Brown</td> <td>0 V dc</td> </tr> <tr> <td>J1-2</td> <td>Yellow</td> <td>+24 V dc</td> </tr> <tr> <td colspan="3"><b>Motor running in reverse</b></td> </tr> <tr> <td>J1-1</td> <td>Brown</td> <td>+24 V dc</td> </tr> <tr> <td>J1-2</td> <td>Yellow</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If any of the voltages are incorrect, disconnect the motor and measure the resistance between J-1 and J-2. The resistance measures between 7.5 and 10.5 ohms. If incorrect, replace the motor. If correct, replace the system board.</p>	Pin	Color	Voltage	<b>Static (motor not running)</b>			J1-1	Brown	0 V dc	J1-2	Yellow	0 V dc	<b>Motor running forward</b>			J1-1	Brown	0 V dc	J1-2	Yellow	+24 V dc	<b>Motor running in reverse</b>			J1-1	Brown	+24 V dc	J1-2	Yellow	0 V dc
Pin	Color	Voltage																														
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J1-2	Yellow	+24 V dc																														
<b>Motor running in reverse</b>																																
J1-1	Brown	+24 V dc																														
J1-2	Yellow	0 V dc																														

## Paper size switch not selecting paper size that is selected

	FRU	Action																								
1	Paper size switch High-capacity feeder option control board	<p>Check for continuity between the common pin (J5-1) and the pin of the paper size selected.</p> <table border="1"> <thead> <tr> <th>Pin</th> <th>Color</th> <th>Paper size</th> </tr> </thead> <tbody> <tr> <td>J5-1</td> <td>Black</td> <td>Common lead</td> </tr> <tr> <td>J5-2</td> <td>Blue</td> <td>B5</td> </tr> <tr> <td>J5-3</td> <td>Green</td> <td>Executive</td> </tr> <tr> <td>J5-4</td> <td>Yellow</td> <td>A4</td> </tr> <tr> <td>J5-5</td> <td>Orange</td> <td>Letter</td> </tr> <tr> <td>J5-6</td> <td>Red</td> <td>Legal</td> </tr> <tr> <td>J5-7</td> <td>Brown</td> <td>A5</td> </tr> </tbody> </table> <p>If any position does not measure continuity when selected, replace the paper size switch assembly. If the switch assembly is operating correctly, replace the high-capacity feeder option control board.</p>	Pin	Color	Paper size	J5-1	Black	Common lead	J5-2	Blue	B5	J5-3	Green	Executive	J5-4	Yellow	A4	J5-5	Orange	Letter	J5-6	Red	Legal	J5-7	Brown	A5
Pin	Color	Paper size																								
J5-1	Black	Common lead																								
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J5-3	Green	Executive																								
J5-4	Yellow	A4																								
J5-5	Orange	Letter																								
J5-6	Red	Legal																								
J5-7	Brown	A5																								

24x.xx Paper Jam Check Tray x **displays when tray x is empty; tray x does not display**

	FRU	Action
1	High-capacity feeder option control board	Check the voltages on the board at J4-1 (red) and J4-3 (blue). The voltages measure approximately +5 V dc. If incorrect, disconnect J4 from the board and measure the voltages again. If incorrect, replace the high-capacity feeder option control board.
2	Elevator top optical sensor cable Elevator top optical sensor	Check the continuity of the sensor cable. If incorrect, replace the cable. If correct, replace the top optical sensor assembly.

Tray x Empty **displays; tray does not respond to loading paper; no response from the front door switch**

	FRU	Action
1	High-capacity feeder option control board	Check the voltage on the board at J4-2 (green). The voltage measures approximately +5 V dc. If incorrect, disconnect the cable at J4 and check the voltage again. If incorrect, replace the high-capacity feeder option control board.
2	Elevator top optical sensor cable Elevator top optical sensor	Check the continuity of the sensor cable. If incorrect, replace the cable. If correct, replace the top optical sensor assembly.

Tray x Paper Low **displays when the high-capacity feeder input tray is full or has adequate paper in the tray**

	FRU	Action
1	Paper low switch Paper low switch cable High-capacity feeder option control board	Run the sensor diagnostics for tray x (x=the number that represents the high-capacity input tray).  If the test fails, check the voltage at J3-1 (gray). The voltage measures approximately +24 V dc. If incorrect, disconnect the paper low switch cable from J3 and measure the voltage again on J3-1. If incorrect, replace the high-capacity feeder option control board. If correct, check the cable for a short between pins 1 and 2 on the cable. If incorrect, replace the cable. If correct, check the switch for a bent or deformed actuator lever or defective switch. If incorrect, replace the switch.

**Excessive noise or vibration**

	FRU	Action
1	DC motor assembly	Make sure all the motor plate mounting screws are tight.
2	Idler pulley DC motor assembly	Make sure the idler pulley is not binding on the pulley shaft. Check the pulley for wear. Check the idler pulley shaft on the motor mounting plate for damage or contamination.
3	Drive pulley	Check the drive pulley for wear, binds or damage to the pulley or pulley shaft. Make sure the pulley turns freely on the pulley shaft.
4	Motor drive belt tray drive belt	Check the DC motor drive belt for damage. Make sure the belt is tracking correctly on the drive pulley, idler pulley, and motor pulley. Check the tray drive belt for damage. Make sure the belt is tracking correctly on the lower section of the drive pulley and lead screw pulleys.

***Input sensor service check***

Service tip: Run the Base Sensor Test. Check the input sensor for proper operation. The display changes from open to closed as the sensor flag is manually moved in and out of the sensor.

	FRU	Action
1	Input sensor flag	Check the input sensor flag for damage and proper operation. If a problem is found, repair as necessary.
2	System board	Check for approximately +5 V dc at J15-10 on the system board. If incorrect, replace the system board.
3	Input sensor cable	Check the continuity of the input sensor cable section of the front wiring harness. If incorrect, replace the harness. If correct, replace the input sensor assembly.

## Input tray(s) service check

### Optional 250-sheet and 500-sheet trays

Service tip: Try all the other input paper sources to make sure they are properly feeding paper.

For 990 Error Code- Service Tray x, x= displays the number of the tray that has a problem or needs service.

	FRU	Action
1	Tray x Option system board or compensator assembly or autoconnect cable	Check the autoconnect cables and connectors for damage. If the cables, connectors, and connections are good, replace the FRUs in the following order: <ul style="list-style-type: none"><li>• Autocompensator assembly option</li><li>• Replace the option.</li></ul>

### 24x.xx Paper Jam displays, paper jammed over the pass thru sensor

(The printer displays the value of x for the paper tray where the error occurs. Example: 241 is a Paper Jam Tray 1)

	FRU	Action
1	Pass thru sensor and flag assembly	The tray x option system board did not detect a piece of paper actuating the pass thru sensor. Remove any jammed sheets of paper from the printer and check the pass thru sensor and flag for proper operation by running the appropriate Tray Sensor Test from the diagnostics menu. If the test fails, check the sensor for correct installation and the flag for proper operation. Also check the sensor cable to make sure it is correctly connected to the option system board. If incorrect, replace the tray x option pass thru sensor assembly.
2	Power takeoff shaft and spring, bevel gear, feed roll gear, drive roll assembly, wear plate, drive shaft bearings, and skewed backup roller	Check these parts for broken or damaged parts, contamination on the drive rollers or wear plate, and wear or damage to the drive shaft bearings. Check the drive roll assembly and skewed backup roller for signs of wear, slick spots, material buildup, and oil or grease on the rollers. Also check for proper operation of the paper aligning assembly. Repair or replace parts as necessary.

### Tray x Low displays when tray x is full or has adequate paper in the tray

	FRU	Action
1	Paper low sensor assembly Paper low sensor flag tray x option system board	Run the Tray x Sensor Test and check the sensor for proper operation. If incorrect, check the following: <ul style="list-style-type: none"><li>• Paper low sensor flag for smooth and correct operation.</li><li>• Paper low sensor for correct installation on the autocompensator housing.</li><li>• Paper low sensor cable for signs of cuts, pinched wiring, or other damage especially at connector J26 on the system board.</li></ul> If no problem is found, replace the paper low sensor assembly. If this does not correct the problem, replace the option system board.

Tray x Empty **displays when tray x has paper in the tray**

	FRU	Action
1	Paper out sensor flag	Check the paper out sensor flag for correct operation and installation. If correct, replace the option system board. (The paper out sensor is mounted on the system board).
2	Paper out sensor (on option system board)	

**Printer does not recognize Tray x is installed**

	FRU	Action
1	Autoconnect cables Tray x system board	Check the autoconnect from the printer or option above tray x. Check for cuts, pinched wiring, or damage to the contacts in the connector. Check the autoconnect cable(s) for correct installation at the tray x system board. If correct, replace the tray option.

**Paper from Tray x does not reach the pass thru sensor**

Service tip: Check the media in tray x to make sure it is within specifications. Some types of labels, foil material, and slick papers can cause misfeeds and slippage of the rollers.

	FRU	Action
1	Autocompensator assembly	Check the autocompensator pick arm rollers for any sign of glazing, toner or other buildup. Clean or replace as necessary.

**Interface card service check**

**Warning:** When replacing any one of the following components:

- Flatbed interconnect card (ICC)
- System board assembly
- Interface card 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.

Check the interface card for correct installation and for any signs of damage. If the card is damaged, replace the interface card. See **“Interface card assembly removal” on page 4-107.**


## LCD touchscreen contrast control service check—model 500S

**Note:** If the contrast control only works over part of its travel, replace the left operator panel cover assembly. See **“Operator panel left cover assembly removal” on page 4-61**.



	FRU	Action
1	UICC card #1 to UICC card #3 cable (UICC 8-pin cable)	Check the cable for correct installation to J1 on UICC card #3 and to J14 on UICC card #1 (operator panel card).
2	UICC card #1 to UICC card #3 cable (UICC 8-pin cable)	Check continuity of the UICC 8-pin cable. If correct, go to step 3. If incorrect, replace the cable.
3	Operator panel left cover assembly	Replace the operator panel left cover assembly. See <b>“Operator panel left cover assembly removal” on page 4-61</b> . If this does not fix the problem, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64</b> .


## LCD touchscreen display service check—model 500S

### LCD touchscreen display complete dark operator panel LED on

	<p><b>CAUTION</b></p> <p>When you see this symbol, there is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.</p>
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**Note:** The LCD touchscreen display can be checked by entering the Diagnostics Menu, selecting **HARDWARE TESTS**, and running the Panel Test.





	FRU	Action
1	LCD inverter 8-pin cable 	Check the inverter 8-pin cable for correct installation to the operator panel card (J13) and to the LCD inverter card (CN1) assemblies. If no problem is found, go to step 2.
2	LCD inverter 8-pin cable 	Check continuity of the inverter 8-pin cable. If incorrect, replace the cable. If correct, go to step 3.

	FRU	Action																																	
3	<p>LCD inverter card</p>  <p>Operator panel right cover assembly LCD touchscreen display</p>	<p>Check the voltages at CN1-1 and CN1-2.</p> <table border="1"> <thead> <tr> <th colspan="3"><b>LCD Touchscreen display</b></th> </tr> <tr> <th colspan="3">Connector CN1 (LCD inverter card)</th> </tr> <tr> <th></th> <th>Display dark</th> <th>Display lit</th> </tr> </thead> <tbody> <tr> <td>CN1-1 Power</td> <td>+12 V dc</td> <td>+12 V dc</td> </tr> <tr> <td>CN1-2 Power</td> <td>+12 V dc</td> <td>+12 V dc</td> </tr> <tr> <td>CN1-3 Ground</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN1-4 Ground</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN1-5 Lamp Off</td> <td>0 V dc</td> <td>+4 V dc</td> </tr> <tr> <td>CN1-6 Vbright adj</td> <td>0 V dc</td> <td>+4 V dc*</td> </tr> <tr> <td>CN1-7 Ground</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>CN1-8 Ground</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values. *approximate, depending on brightness.</p> <p>If the voltages at CN1-1 and CN1-2 are incorrect, replace the LCD inverter card. See <b>“LCD inverter card assembly removal” on page 4-108</b>.</p> <p>If this does not fix the problem, replace the operator panel right side cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64</b>. If the voltages at CN1-1 and CN1-2 are correct, replace the inverter card. If this does not fix the problem replace the touchscreen display. See <b>“LCD touchscreen removal—model 500S” on page 4-67</b>.</p>	<b>LCD Touchscreen display</b>			Connector CN1 (LCD inverter card)				Display dark	Display lit	CN1-1 Power	+12 V dc	+12 V dc	CN1-2 Power	+12 V dc	+12 V dc	CN1-3 Ground	0 V dc	0 V dc	CN1-4 Ground	0 V dc	0 V dc	CN1-5 Lamp Off	0 V dc	+4 V dc	CN1-6 Vbright adj	0 V dc	+4 V dc*	CN1-7 Ground	0 V dc	0 V dc	CN1-8 Ground	0 V dc	0 V dc
<b>LCD Touchscreen display</b>																																			
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CN1-6 Vbright adj	0 V dc	+4 V dc*																																	
CN1-7 Ground	0 V dc	0 V dc																																	
CN1-8 Ground	0 V dc	0 V dc																																	





## LCD touchscreen backlight—model 500S

Unable to change LCD touchscreen backlight.

	FRU	Action																						
1	Inverter card 8-pin cable 	Check to make sure the cable is installed correctly to the inverter card and to the operator panel card.																						
2	Inverter card 8-pin cable 	Check continuity of the 8-pin inverter card cable. If correct, go to step 3. If incorrect, replace the cable.																						
3	Inverter card 	<p>Check the voltages on CN1-1 and CN1-2. They should measure approximately +12 V dc.</p> <table border="1"> <thead> <tr> <th colspan="2">Inverter card</th> </tr> <tr> <th colspan="2">Connector Cn1 (to operator panel card)</th> </tr> <tr> <th>Pin number</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>CN1—Pin 1</td> <td>+12 V dc</td> </tr> <tr> <td>CN1—Pin 2</td> <td>+125 V dc</td> </tr> <tr> <td>CN1—Pin 3</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 5</td> <td>0 V dc (screen light Z) +4–5 V dc (screen dark)</td> </tr> <tr> <td>CN1—Pin 6</td> <td>0–5 V dc BRIGHTNESS ADJUST</td> </tr> <tr> <td>CN1—Pin 7</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 8</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If incorrect, replace the operator panel card assembly. If correct, go to step 4.</p>	Inverter card		Connector Cn1 (to operator panel card)		Pin number	Voltage	CN1—Pin 1	+12 V dc	CN1—Pin 2	+125 V dc	CN1—Pin 3	0 V dc	CN1—Pin 4	0 V dc	CN1—Pin 5	0 V dc (screen light Z) +4–5 V dc (screen dark)	CN1—Pin 6	0–5 V dc BRIGHTNESS ADJUST	CN1—Pin 7	0 V dc	CN1—Pin 8	0 V dc
Inverter card																								
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CN1—Pin 6	0–5 V dc BRIGHTNESS ADJUST																							
CN1—Pin 7	0 V dc																							
CN1—Pin 8	0 V dc																							
4	Inverter card assembly  Operator panel right cover assembly	<p>Enter the following Menus, Settings, General Settings, and Screen Brightness on the touchscreen display.</p> <ul style="list-style-type: none"> <li>Enter <b>22</b> on the touchscreen display, and <b>Submit</b> the new setting. Measure the voltage at CN1-5. The voltage should measure approximately 0 to +1.5 V dc.</li> <li>Enter <b>50</b> on the touchscreen display, and <b>Submit</b>. Measure the voltage at CN1-5. The voltage should measure approximately +2.7 V dc.</li> <li>Enter <b>100</b> on the touchscreen display, and <b>Submit</b>. Measure the voltage at CN1-5. The voltage should measure approximately +5.0 V dc.</li> </ul> <p>If the voltages do not change when going from 22 to 100 on the display, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64</b>.</p> <p>If this does not fix the problem, replace the LCD inverter card assembly. See <b>“LCD inverter card assembly removal” on page 4-108</b>.</p>																						

**LCD touchscreen display lights up, icons displayed, but it does not work when touched.**

	FRU	Action																						
1	LCD touchscreen display/ 4-pin cable	<p>Check the 4-pin display to operator panel card cable for correct installation to J3 on the operator panel card.</p> <p><b>Note:</b> This cable is a short ribbon cable that can easily become disconnected from J3 on the operator panel card.</p> <p>If the cable is properly installed, go to step 2.</p>																						
2	LCD touchscreen display Operator panel right cover assembly	<p>If the cable is connected properly to J3, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64</b>. If this does not fix the problem, replace the LCD touchscreen display assembly. See <b>“LCD touchscreen removal—model 500s ” on page 4-67</b>.</p>																						
3	Inverter card  	<p>Check the voltages on CN1-1 and CN1-2. They should measure approximately +12 V dc.</p> <table border="1"> <thead> <tr> <th colspan="2">Inverter card</th> </tr> <tr> <th colspan="2">Connector Cn1 (to operator panel card)</th> </tr> <tr> <th>Pin number</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>CN1—Pin 1</td> <td>+12 V dc</td> </tr> <tr> <td>CN1—Pin 2</td> <td>+125 V dc</td> </tr> <tr> <td>CN1—Pin 3</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 4</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 5</td> <td>0 V dc (screen light Z) +4–5 V dc (screen dark)</td> </tr> <tr> <td>CN1—Pin 6</td> <td>0–+5 V dc BRIGHTNESS ADJUST</td> </tr> <tr> <td>CN1—Pin 7</td> <td>0 V dc</td> </tr> <tr> <td>CN1—Pin 8</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If incorrect, replace the operator panel card assembly. If correct, go to step 4.</p>	Inverter card		Connector Cn1 (to operator panel card)		Pin number	Voltage	CN1—Pin 1	+12 V dc	CN1—Pin 2	+125 V dc	CN1—Pin 3	0 V dc	CN1—Pin 4	0 V dc	CN1—Pin 5	0 V dc (screen light Z) +4–5 V dc (screen dark)	CN1—Pin 6	0–+5 V dc BRIGHTNESS ADJUST	CN1—Pin 7	0 V dc	CN1—Pin 8	0 V dc
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CN1—Pin 7	0 V dc																							
CN1—Pin 8	0 V dc																							
4	Inverter card assembly    Operator panel right cover assembly	<p>Enter the following Menus, Settings, General Settings, and Screen Brightness on the touchscreen display.</p> <ul style="list-style-type: none"> <li>• Enter <b>22</b> on the touchscreen display, and <b>Submit</b> the new setting. Measure the voltage at CN1-5. The voltage should measure approximately 0 to +1.5 V dc.</li> <li>• Enter <b>50</b> on the touchscreen display, and <b>Submit</b>. Measure the voltage at CN1-5. The voltage should measure approximately +2.7 V dc.</li> <li>• Enter <b>100</b> on the touchscreen display, and <b>Submit</b>. Measure the voltage at CN1-5. The voltage should measure approximately +5.0 V dc.</li> </ul> <p>If the voltages do not change when going from 22 to 100 on the display, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64</b>.</p> <p>If this does not fix the problem, replace the LCD inverter card assembly. See <b>“LCD inverter card assembly removal” on page 4-108</b>.</p>																						

## Main drive service check

Service tip: Excessive gear or main drive assembly noise is usually caused by a defective motor assembly or system board.

**Warning:** Whenever the gearbox assembly is removed from the machine it must be handled very carefully. Do not allow any of the gears to come in contact with any metal or other hard surface to avoid gear damage. It is also very important not to let any dirt, paper, staples, or other material come intact with the grease in the gearbox assembly.

	FRU	Action																										
1	Main drive assembly (excessive noise or vibration)	Remove the controller board and run a Diagnostic Print Test in the continuous mode. Check the main drive assembly for any excessive noise or vibration. Determine if the noise is in the main drive, toner cartridge, fuser, or main drive gearbox. Look for any loose or worn parts in the developer drive assembly, main drive gearbox, or fuser. Repair as necessary.																										
2	Main drive motor assembly (excessive noise, gears ratcheting and so on)	A service error code 936 - Transport Motor may be displayed. Check the voltage at J20-6 on the system board. It measures approximately +5 V dc when the motor is not running and goes to 0 V dc when the motor is running. If incorrect, replace the system board. If this does not fix the problem, replace the main drive motor.																										
3	Main drive motor cable	Check the continuity of the main drive motor cable. If incorrect, replace the cable.																										
4	Motor gear does not turn, no 936 error code or 201.xx Paper Jam user message displays.	<p>Check the voltages at J20 on the system board.</p> <table border="1"> <thead> <tr> <th rowspan="2">Pin</th> <th colspan="2">Voltage</th> </tr> <tr> <th>Static</th> <th>When main drive motor is running</th> </tr> </thead> <tbody> <tr> <td>J20-11</td> <td></td> <td>+24 V dc</td> </tr> <tr> <td>J20-8</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>J20-7</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>J20-6</td> <td>+5 V dc</td> <td>+2.5 V dc</td> </tr> <tr> <td>J20-5</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>J20-4</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>J20-1</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If the voltage is incorrect, replace the FRUs in the following order:</p> <ul style="list-style-type: none"> <li>• Main drive motor assembly</li> <li>• System board</li> </ul>	Pin	Voltage		Static	When main drive motor is running	J20-11		+24 V dc	J20-8	+5 V dc	0 V dc	J20-7	+5 V dc	0 V dc	J20-6	+5 V dc	+2.5 V dc	J20-5	+5 V dc	0 V dc	J20-4	+5 V dc	+5 V dc	J20-1	+5 V dc	0 V dc
Pin	Voltage																											
	Static	When main drive motor is running																										
J20-11		+24 V dc																										
J20-8	+5 V dc	0 V dc																										
J20-7	+5 V dc	0 V dc																										
J20-6	+5 V dc	+2.5 V dc																										
J20-5	+5 V dc	0 V dc																										
J20-4	+5 V dc	+5 V dc																										
J20-1	+5 V dc	0 V dc																										

## Operator panel Help and Home buttons service check—model 500s

**Note:** Run the Button Test from the Diagnostics Menu to determine if the buttons are operating properly. See **“Button Test” on page 3-8.**

	FRU	Action
1	UICC card #1 to UICC card #2 cable (UICC 4-pin cable)	Check the UICC 4-pin cable for correct installation to J15 on UICC card #1 and to J1 on UICC card #2. If installed correctly, go to step 2.
2	UICC card #1 to UICC card #2 cable (UICC 4-pin cable)	Check continuity of the UICC 4-pin cable. If correct, go to step 3. If incorrect, replace the cable.
3	Bezel assembly	Replace the bezel assembly which has UICC card #2 attached. If this does not fix the problem, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>

## Operator panel Menu button service check—model 450S

**Note:** Run the Button Test from the Diagnostics Menu and check the button for proper operation. See **“Button Test” on page 3-8.**

	FRU	Action
1	UICC card # 1 to UICC card #3 cable (UICC 8-pin cable)	Check the cable for correct installation to J1 on UICC card #3 and to J14 on UICC card # 1 (operator panel card). If installed correctly, go to step 2.
2	UICC card #1 to UICC card #3 cable (UICC 8-pin cable)	Check continuity of the UICC 8-pin cable. If correct, go to step 3. If incorrect, replace the cable.
3	Operator panel left cover assembly	Replace the operator panel left cover assembly. See <b>“Operator panel left cover assembly removal” on page 4-61.</b> If this does not fix the problem replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>

## Operator panel right cover assembly service check

Operator panel LED off.

	FRU	Action
1	UICC 18-pin operator panel to scanner control card cable	Check to make sure the cable is correctly connected to J10 on the operator panel card and to J15 on the scanner control card. If the cable is correctly connected, go to step 2.
2	UICC 18-pin operator panel to scanner control card cable Scanner control card	Check the cable for any signs of damaged or bent pins. If incorrect, replace the cable. If correct, go to step 3.
3	Scanner control card	Measure the voltage at J15-17 and J15-18. The voltage should measure approximately +24 V dc. If incorrect, replace the scanner control card. See <b>“Scanner control card removal” on page 4-48.</b> If correct, replace the operator panel right cover assembly. See <b>“Operator panel right cover assembly removal” on page 4-64.</b>

## Options service check

Service tip: When you have a problem with any of the options installed in the options slots on the system board, switch the non operating option to one of the other option slots to isolate the failure.

### Flash memory option(s)

Run a copy of the test page and check to see if the option you are checking is listed. The printer does not recognize the option being installed if the option is not listed. Make sure the memory card is installed correctly and is not broken or damaged. If the memory card is correctly installed and not broken or damaged then run the **“Flash Test” on page 3-17**. If the test fails, replace the Flash card. If the problem continues, replace the controller board.

### DRAM memory option(s)

This service check is the same as the flash memory option service check with the following exception:

Run the **“DRAM Test” on page 3-9** from the menu if the SDRAM Memory card is correctly installed and not broken or damaged. If the test fails, replace the SDRAM card. If the problem continues, replace the controller board.

### Hard disk option

Service tip: model 500S supports one hard disk option. Make sure only one hard disk option is installed.

Make sure the fixed disk and the fixed disk board are correctly installed. Run the **“Quick Disk Test” on page 3-16** from the Device Test on the Diagnostics menu when a problem is suspected either with the hard disk system board or with the hard disk.

**Note:** The Quick Disk Test is a non-destructive test and indicates Pass or Fail. If the test fails, replace the hard disk. If a problem still exists, replace the hard disk board.

The **“Disk Test/Clean” on page 3-16** is used to help restore the disk if the disk contains bad data and is unusable. This test is divided into a cleaning and a verifying or testing section.

**Warning:** This can be a very lengthy test depending on the disk size. This test leaves the hard disk unformatted. The servicer or user must reformat the disk using the Format Disk Menu operation. This is a destructive type of test. All the data on the disk is destroyed and should not be performed on a known good disk.

### Error Code 976.xx - Network Card x (x=Network card 1, 2, or 3)

A 976 error code indicates an unrecoverable software error in network card x. Verify that network card x is correctly installed in the socket on the interconnect card and is properly grounded. If you find no problem, contact your next level of support before replacing the network card.

### Error Code 977.xx - Network Card x

A 977 error displays when the RIP software detects that a network card is installed in slot x on the interconnect card but cannot establish communications with the network card.

## Output bin sensor standard tray service check

Service tip: If the output bin standard tray fills up and the bin full sensor fails to post the Remove Paper Standard Bin message:

1. Enter the Diagnostics Mode.
2. Select **Output Bin Tests**.
3. Select **Sensor Tests**.
4. Select **Standard Bin**.
5. Check the sensor and flag for proper operation.

If you find no problem with the sensor and flag, continue with the service check.

Service tip: Be sure the flag is correctly installed. The output bin sensor is a normally closed sensor with the sensor flag down. Therefore, unless the flag is in the up position or out of the sensor slot, a Remove Paper Standard Bin message does not display.

	FRU	Action
1	System board Printer fails to display Remove Paper Standard Bin message. Output Bin Sensor Test fails.	Check the voltage at J6-1. It measures +5 V dc when the flag is in the sensor, and 0 V dc when the flag is out of the sensor. If the voltage does not change, replace the sensor cable assembly. If this does not fix the problem, replace the system board.
2	Output bin sensor flag	Make sure the correct flag is installed. Check the flag for damage or improper operation. If incorrect, replace the flag. <b>Note:</b> A broken or improper operating sensor flag causes a Remove Paper Standard Bin message to display before POST completes and cannot be cleared.

## Paper feed service check—printer

If you have a 936 Transport Motor Error go to **“Main drive assembly removal” on page 4-113**.

	FRU	Action
1	Alignment assembly	Check to ensure the alignment assembly is correctly attached to the left side frame and the mounting screws are tight. Check the alignment assembly for worn rollers, contaminated rollers, or binds. Replace the alignment assembly if any problem is found.
2	Inner deflector	Check the inner paper deflector for correct installation. If the deflector is bowed or not fitting correctly, replace the deflector.

## Autocompensator fails to feed paper. Failures occur randomly throughout the stack of paper

	FRU	Action
1	Pass thru sensor	Check the pass thru sensor for correct installation and operation.
2	Autocompensator assembly	The autocompensator pick roll shaft assembly is not providing enough torque if the pick rollers are not picking the paper correctly. Replace the autocompensator assembly.
3	Wear strips in tray x problem is found.	Check the wear strips for excessive wear, scratches, or rough spots. Replace the wear strips if a problem is found.

## Paper feed failures occur only near the top of the stack of paper

The most common cause of this problem is paper curl. Remove the paper from tray x and check for the natural curvature in the paper. Reinstall the paper in the correct manner. If the problem persists, it may be necessary to reduce the stack height. Replace both pick rolls if the paper appears to be flat in the tray but there is still a problem.

## Failures occur mainly near the bottom of the stack of paper

The autocompensator pick arm may not be coming down far enough to allow the pick rolls to properly contact the paper. Also the autocompensator motor may be failing. If this problem continues replace the autocompensator assembly.

## Double feeding paper

**Note:** If double feeding paper occurs mostly from the bottom of the stack, check for missing or damaged restraint pads in the tray.

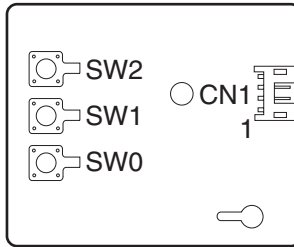
	FRU	Action
1	Paper	Paper is usually the primary cause of a double feeding paper problem. Flex the paper before placing the paper in the tray. Edge-welded paper is the most common cause of double feeding. Loading the paper in the tray in different locations and directions and using rough paper and short grain paper also causes double feeding.
2	Autocompensator	Make sure the counterbalance spring is not missing, loose, or broken at the top of the autocompensator arm assembly. If you find a problem, replace the autocompensator assembly.

## Paper fails to feed from the multipurpose tray

The pick roll should make one complete revolution and stop with the flat side down. If the pick roll turns but does not pick paper, check the roll for signs of wear, oil or grease on the surface of the pick roll or slick spots. If you find a problem, replace the pick roll assembly. Check to ensure the media that is being fed through the multipurpose tray assembly meets recommended paper specifications.

## Paper size sensing service check

Before proceeding, check for the correct paper size loaded in the tray and that the tray has been set to accept the size paper loaded in the tray.



### Paper size sensing switch chart

ITC CN1 pin	Signal	ITC switch	Paper tray size selection (X is activated)						System board J34 pin
			Letter	Legal	A4	Exec	B5	A5	
1	PSIZE2	SW1	X	X			X		1
2	Ground	Ground							2
3	PSIZE1	SW0			X	X	X		3
4	PSIZE3	SW2	X			X		X	4

### Tray 1 not recognized as being installed; unable to clear Tray 1 Missing message

	FRU	Action
1	Tray 1	<p>Check Tray 1 for damaged or broken autosize fingers. Check for anything that would prevent the autosize fingers from activating the paper activate springs and ITC switches.</p> <p>If a problem is found, repair or replace the tray assembly. If no problem is found, go to step 2.</p>
2	Integrated card/ autocompensator cable	<p>Check for correct installation of the cable at J26 on the system board. If installed correctly, go to step 3. If incorrectly installed, install and recheck the printer.</p>
3	System board	<p>Check the continuity between J26-2 on the system board and ground. It should measure approximately 0 ohms.</p>



## The printer does not recognize the paper size selected

	FRU	Action																																																																																																									
1	Back restraint Side restraint Snap-in plate Autosize slider Autosize finger	Check all the paper size parts for damage or broken parts. make sure the parts operate correctly. If a problem is found, repair as necessary. If no problem is found, go to step 2.																																																																																																									
2	Switch activate spring Paper size sending board	Make sure the switch activate spring is not bent or broken. Replace the spring if damaged. If the spring is not damaged, go to step 3.																																																																																																									
3	System board ITC cable	<p>Set the tray for the paper size that is not recognized and install the tray in the printer. Select the paper size and corresponding paper switch from table, below.</p> <table border="1"> <thead> <tr> <th rowspan="2">Pin J26</th> <th rowspan="2">Signal</th> <th rowspan="2">Static tray out (V dc)</th> <th colspan="6">Static with paper tray in and set to: (V dc)</th> </tr> <tr> <th>Letter</th> <th>Legal</th> <th>A4</th> <th>Exec</th> <th>B5</th> <th>A5</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PSIZE2</td> <td>+3.3</td> <td>0</td> <td>0</td> <td>+3.3</td> <td>+3.3</td> <td>0</td> <td>+3.3</td> </tr> <tr> <td>2</td> <td>Ground</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>3</td> <td>PSIZE1</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>0</td> <td>0</td> <td>0</td> <td>+3.3</td> </tr> <tr> <td>4</td> <td>PSIZE3</td> <td>+3.3</td> <td>0</td> <td>+3.3</td> <td>+3.3</td> <td>0</td> <td>+3.3</td> <td>0</td> </tr> <tr> <td>5</td> <td colspan="8">N/A</td> </tr> <tr> <td>6</td> <td colspan="8">N/A</td> </tr> <tr> <td>7</td> <td colspan="8">N/A</td> </tr> <tr> <td>8</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> <td>+3.3</td> </tr> <tr> <td>9</td> <td colspan="8">N/A</td> </tr> <tr> <td>10</td> <td colspan="8">N/A</td> </tr> </tbody> </table> <p>If the voltage on J26 does not change, go to step 4. If the voltage changes, recheck the printer. If Tray 1 Missing is still displayed, replace the system board assembly.</p>	Pin J26	Signal	Static tray out (V dc)	Static with paper tray in and set to: (V dc)						Letter	Legal	A4	Exec	B5	A5	1	PSIZE2	+3.3	0	0	+3.3	+3.3	0	+3.3	2	Ground	0	0	0	0	0	0	0	3	PSIZE1	+3.3	+3.3	+3.3	0	0	0	+3.3	4	PSIZE3	+3.3	0	+3.3	+3.3	0	+3.3	0	5	N/A								6	N/A								7	N/A								8	+3.3	+3.3	+3.3	+3.3	+3.3	+3.3	+3.3	+3.3	9	N/A								10	N/A							
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2	Ground	0	0	0	0	0	0	0																																																																																																			
3	PSIZE1	+3.3	+3.3	+3.3	0	0	0	+3.3																																																																																																			
4	PSIZE3	+3.3	0	+3.3	+3.3	0	+3.3	0																																																																																																			
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9	N/A																																																																																																										
10	N/A																																																																																																										
4	System board	Ground the appropriate pin on connector J26 on the system board. Tray 1 Missing should not be displayed. If it is not displayed, go to step 5. If it still displays, replace the system board assembly.																																																																																																									
5	Autocomp cable	Check continuity of the autocomp cable. If correct, replace the ITC assembly. If incorrect, replace the autocomp cable.																																																																																																									

### Parallel port service check

Run the **"Parallel Wrap test"** on page 3-10.

**Note:** The Parallel Wrap Test is designed to check the parallel port hardware by using a wrap plug (P/N 1319128) and invoking the Parallel Diagnostic Test. This test helps isolate the printer from the parallel cable and host. The test provides failure information on the display for approximately three seconds. If the test indicates that a problem is detected, replace the controller board.

## Print quality service check

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

- Install another print cartridge if available before proceeding with the service checks.
- Use Tray 1 to test for print quality of the printer.
- Replace the charge roll if it is damaged or contaminated.
- Replace the transfer roll if it is damaged or contaminated.
- Make sure the fuser assembly is installed correctly.
- Verify proper paper type, texture, and weight settings for the media being used.
- Test the printer using plain paper (20 lb).

Select the following menu settings as indicated. Be sure and note the original settings so you can return the printer to the original customer printer setup.


- Print Resolution: Set to 300 dpi (print quality problems should be checked at different resolution settings).
- Print Darkness: Set to NORMAL.
- Toner Saver: Set to OFF.
- PQET: Set to OFF.
- Fuser Temperature: Set to NORMAL.
- Test the printer using plain paper (20 lb).

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


Measure all voltages from the connector to printer ground. All voltages measured during the print cycle are measured with the controller board removed while running the print test.

### Print quality—all black page

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

	FRU	Action
1	High voltage contacts	Check the high voltage contacts on the right side frame to ensure they fit securely and are not pitted, contaminated, or damaged. If incorrect, replace the contact with one from the HV contact kit. Screws and plastic blocks are included to attach the contacts to the right side frame in the HV contact kit.
2	Charge roll conductive bushing	Make sure the charge roll bushing is correctly installed in the right charge roll arm.
3	HVPS 	Check the voltages on J15-1 thru J15-8. If incorrect, replace the system board.
4	HVPS cable (part of front harness cable) System board	Check the continuity of the HVPS cable. If incorrect, replace the cable assembly. If correct, replace the system board.

## Print quality—blank page

	FRU	Action
1	Print cartridge	Check the print cartridge for damage, especially the PC drum contact on the cartridge.
2	High voltage contact	Check the PC drum contact on the right side frame for damage, PC drum contact wear or contamination. If the contact is bent or damaged, replace the contact. <b>Note:</b> Inspect the HVPS PC drum contact on the board for damage or contamination.
3	HVPS 	Check the fuse on the HVPS. If open, replace the HVPS. Check the voltages at J22 on the system board. Measure the following voltages from connector J22 to printer ground: <ul style="list-style-type: none"> <li>• Printer Idle J15-5 measures +24 V dc</li> <li>• Printer Printing J15-5 measures +24 V dc</li> </ul> If the voltages at J10-5 are incorrect, replace the system board.
4	Front cable harness HVPS section	Check the front cable harness at J15 on the system board and at CN1 on the HVPS to make sure the harness is connected properly. If connected properly, check the continuity of the cable harness. If there is no continuity, replace the front cable harness.
5	Printhead assembly	Generally a 93x service error is posted if the printhead assembly fails and the printer does not give a blank copy symptom. The printhead used in the printer does not have a mechanical shutter as previous laser printers. The printer is interlocked through the front top cover interlock switch.

## Print quality—random marks

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

	Symptom	Action
1	Random marks	Check the print cartridge for loose or foreign material that might be on the photoconductor. Check the transfer roll and charge roll for any pieces of material that are stuck to the rolls.

## Print quality—blurred or fuzzy print

Blurred or fuzzy print is usually caused by a problem in the main drive gearbox assembly, alignment assembly, any feed roller, or in the transfer roll bearings or transfer roll. Check the gearbox assembly for correct operation. Check the transfer roll for binds or a contaminated shaft or bearings.

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


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

## Print quality—background

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

Some slick or coated papers may also cause background problems. Some problems occur with printers that run a large amount of graphics in a humid environment. The customer may try to improve the print quality by increasing the transfer setting.

Check the charge roll to make sure it is not at the end of life.

	FRU	Action																		
1	Printhead	The printhead on this printer cannot be cleaned. Try another printhead if all other attempts fail to correct a background problem.																		
2	Transfer roll assembly	Check the high voltage contact from the HVPS to the transfer roll. Check the transfer arm assembly right side bearing for contamination, pitting, or a loose cable to the bearing. If any problems are found, replace the defective part. Check the transfer roll shaft for contamination, wear, or pitting on the ends of the shaft that go into the bearings. If a problem is found, clean the ends of the shaft or replace the transfer roll assembly.																		
3	High voltage contacts	Check the high voltage contacts on the right side frame to ensure they are clean and not bent, deformed, or pitted. If incorrect, replace the contact.																		
4	System board HVPS connector  	<p>Check the following voltages at J15 on the system board. Measure the voltages from J15 to printer ground.</p> <table border="1"> <thead> <tr> <th>Pin J15</th> <th>Voltage (approximate)</th> </tr> </thead> <tbody> <tr> <td colspan="2"><b>Printer idle</b></td> </tr> <tr> <td>J15-1</td> <td>0 V dc</td> </tr> <tr> <td>J15-2</td> <td>+4 V dc</td> </tr> <tr> <td>J15-4</td> <td>0 V dc</td> </tr> <tr> <td colspan="2"><b>Printer printing</b></td> </tr> <tr> <td>J15-1</td> <td>0 V dc to +5 V dc</td> </tr> <tr> <td>J15-2</td> <td>0 V dc to +4 V dc</td> </tr> <tr> <td>J15-4</td> <td>0 V dc to +1.9 V dc</td> </tr> </tbody> </table> <p>If J15-1 voltage is incorrect, check the continuity of the front harness cable (J15-1 line). If there is no continuity, replace the harness cable. If there is continuity, replace the HVPS. If this does not correct the problem, replace the system board.</p> <p>If J15-2 voltage is incorrect or if the voltage remains at 0 V dc, check the continuity of the front harness cable (J15-2 line). If there is no continuity, replace the harness cable. If there is continuity, replace the HVPS. If this does not correct the problem, replace the system board.</p> <p>If J15-4 voltage is incorrect, check the front harness cable (J15-3 line). If there is not continuity, replace the harness cable. If correct, replace the system board. If this does not correct the problem, replace the HVPS.</p>	Pin J15	Voltage (approximate)	<b>Printer idle</b>		J15-1	0 V dc	J15-2	+4 V dc	J15-4	0 V dc	<b>Printer printing</b>		J15-1	0 V dc to +5 V dc	J15-2	0 V dc to +4 V dc	J15-4	0 V dc to +1.9 V dc
Pin J15	Voltage (approximate)																			
<b>Printer idle</b>																				
J15-1	0 V dc																			
J15-2	+4 V dc																			
J15-4	0 V dc																			
<b>Printer printing</b>																				
J15-1	0 V dc to +5 V dc																			
J15-2	0 V dc to +4 V dc																			
J15-4	0 V dc to +1.9 V dc																			


## Print quality—banding

Service tip: Banding is difficult to detect, except on a page with a uniform gray or a large amount of graphics printed on the page. Banding is primarily due to a variation in the speed of the paper as it feeds through the printer, especially in the development and transfer process. Inspect the alignment assembly, main drive assembly, and all other paper feed components for signs of wear, dirt, binds, or damage, especially the drive gears. Banding appears as light or dark horizontal lines on a uniformly gray page.

Banding can also be caused by a defective charge roll brush contact or HVPS. Check the charge roll contact for damage and for proper connection to the HVPS and print cartridge.

## Print quality—black bands on outer edges of the page

This print quality problem appears as vertical black bands on one or both sides of the copy and can be wide, narrow, light, or dark.

	FRU	Action
1	Charge roll counterbalance springs	If the problem is just on one side of the page, check the charge roll counterbalance spring on that side. You can check to see if enough force is being applied to the charge roll by applying slight downward pressure with your finger to the charge roll link arm that the spring is attached to while you run a print test sample. See if the problem changes or goes away. If this fixes or changes the problem, then check the springs and charge roll link arm assemblies for binds or defective parts. Replace as necessary.
2	Charge roll assembly Charge roll link arm	Check the charge roll for toner buildup or other contamination on the outer edges that correspond to the bands on the page. Check the charge links and arms for proper operation, binds or incorrectly mounted counterbalance springs. Repair or replace as necessary.
3	HVPS 	<p>Check the following voltages at J15-8 on the system board:</p> <ul style="list-style-type: none"> <li>• Printer Idle J15-8 measures 0 V dc</li> <li>• Printer Printing Test Page J15-8 voltage changes from 0 V dc to +4 V dc</li> </ul> <p>If the voltage does not vary, check the continuity of line J15-8 in the front cable harness. If there is no continuity, replace the cable harness. If there is continuity, replace the HVPS. If this does not correct the problem, replace the system board.</p> <p>Turn the printer off, and check the resistance between J15-7 and printer ground. The resistance measures approximately 0 ohms. If incorrect, make sure the system board is mounted correctly and securely grounded. If correct, replace the system board.</p>

## Print quality—residual image

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

	FRU	Action
1	Hot roll fuser assembly	Check the fuser assembly for toner contamination. The hot roll especially might cause toner to be retained and deposited on the page.

## Print quality—light print

Service tip: Check the toner saver and print darkness settings first if the print is light.


	FRU	Action
1	Transfer roll	Check the right end of the transfer roll shaft for signs of wear or contamination. If incorrect, replace the transfer roll.
2	Right side transfer roll arm assembly HVPS	Check the right side transfer roll arm assembly bearing for wear or contamination. Also make sure the transfer cable is firmly attached to the bearing. If incorrect, replace the right side transfer arm assembly. Check the connection of the transfer roll assembly cable to the transformer on the HVPS board. Check the continuity of the cable from the bearing to the spade terminal on the cable. If incorrect, replace the right side transfer arm assembly. If correct, replace the HVPS.
3	Printhead cable	<p>If the printer is not already at 1200 dpi, change the Print Resolution setting to 1200 dpi and see if the darkness level changes:</p> <ol style="list-style-type: none"> <li>1. In Ready state, press <b>Menu</b>.</li> <li>2. Select <b>Settings</b>, and press <b>Select</b>.</li> <li>3. Select <b>Quality Menu</b>, and press <b>Select</b>.</li> <li>4. Select <b>Print Resolution</b>, and press <b>Select</b>.</li> <li>5. Select <b>1200 dpi</b>.</li> <li>6. Press <b>Back</b> until Ready appears.</li> <li>7. Print a test page (if you want to print an internal test page, Print Fonts is the only internal 1200 dpi document). If printing in 1200 dpi is correct and not light, but other printing at other dpi settings print light, there may be damage to the printhead cables.</li> </ol> <p>Check the printhead cables for any signs of damage. Check the area of the wire tie on the printhead laser cable for damage. If damaged, replace the cable. If not damaged, go to step 3</p>
4	Printhead	A contaminated printhead may be the cause of light print. If no other cause is found, install a new printhead. See <b>“Printhead removal” on page 4-127</b> .

## Print quality—toner on backside of printed page

Service tip: This is generally caused by loose toner in the machine in the paper path being carried through the printer on the backside of the paper.

	FRU	Action
1	Hot roll fuser assembly	Toner is being carried out on the backside of the media. This problem is generally caused by a toner buildup on the fuser hot roll or backup roll. Check the fuser hot roll and backup roll for any noticeable buildup of toner. Repair as necessary.
2	Transfer roll transfer plate assembly	<p>Check the transfer roll for toner buildup or loose toner around the area of the transfer plate assembly. Clean the area and run another copy. If the problem continues, replace the FRUs in the following order:</p> <ul style="list-style-type: none"> <li>• HVPS</li> <li>• System board</li> </ul>

## Printhead service check

	<p><b>CAUTION</b></p> <p>The printhead is not a serviceable FRU. Do not disassemble the printhead.</p>
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The printhead assembly does not contain any service replaceable parts or components. If service error code 930.xx displays, the wrong printhead is installed in the printer. See **“Printhead” on page 7-24**.

**Note:** A 201.xx paper jam may also indicate a failing printhead. The paper may have jammed prior to or at the input sensor. Print the event log and see if 201 or 931 errors are logged.

	Service error code	Explanation
1	Error code 931.xx No first HYSNC Signal Error Code 932 Lost HYSNC	These errors usually indicate a failure in the HYSNC signal to the printhead. Check the continuity of the cables connected to J2 and J4 on the system board. If incorrect, replace the defective cable. The voltage at J4-1 measures approximately +5 V dc. If incorrect, replace the system board. The voltage at J2-7 measures approximately +24 V dc. If incorrect, replace the system board. If correct, replace the printhead assembly. See <b>“Printhead removal” on page 4-127</b> .
2	Error Code 934.xx Mirror motor lost lock Error Code 935 Mirror motor unable to reach operating speed	These error codes indicate a problem with the mirror motor circuit in the printhead assembly or the mirror motor cable to the system board cable or system board assembly. The voltage at J5-2 measures approximately +24 V dc. If incorrect, replace the system board. If correct, replace the FRUs in the following order: <ul style="list-style-type: none"> <li>• System board. See <b>“System board and inner shield removal—model 450S” on page 4-130</b> or <b>“System board and inner shield removal —model 500S” on page 4-131</b>.</li> <li>• Printhead assembly See <b>“Printhead removal” on page 4-127</b>.</li> </ul>

## Scan quality service check

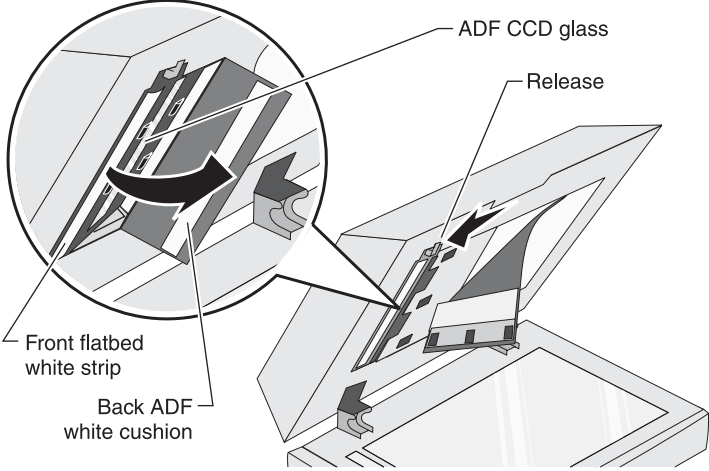
Determine if the problem is in the scanner assembly or in the base printer. Enter the Diagnostic Menu and select Print Quality Test Pages. Make sure the printer is set to specifications before using the test pages on the scanner. Check the test pages to help determine if the problem is in the base printer or the scanner. If the problem is in the scanner, ADF, or flatbed use the test pages to help isolate the problem in the appropriate scanner assembly and continue with this service check. If the problem is in the base printer, see **“Print quality service check” on page 2-160**.

### Vertical streaks or lines on image

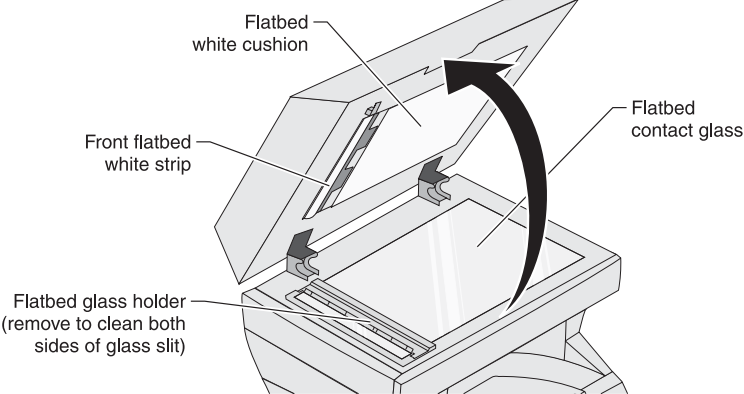
**Note:** Perform the **“Cleaning the scanner glass, cushions, and strips” on page 6-2** before proceeding with this service check.

**Note:** Vertical streaks can be caused by debris in the optical path of the CCD module(s). Check for any signs of pieces of media or other debris in or around the ADF CCD, flatbed contact glass, or flatbed CCD.

	FRU	Action
1	Models X644e, X646e	If you do not have one of these models, to step 2. If the vertical streaks only occur with the ADF scanner assembly, go to step 3. If the streaks are in the flatbed scanner assembly, go to step 7.
2	Model X642e	Go to step 7.

	FRU	Action
3	ADF CCD module glass (model 500S)	<p>Check for any signs of contamination on the ADF CCD module glass. Use a clean, soft lint-free cloth with isopropyl alcohol (if available) to clean the glass if any contamination is found.</p> <p><b>Note:</b> The ADF module glass can be accessed by removing the flatbed white cushion from the ADF and lower the exit guide assembly.</p> <p>If the problem persists go to step 4.</p>
4	Lower exit guide assembly (model 500S)	<p>Check the lower exit guide backside assembly for any signs of damage to the back ADF white cushion or hardware.</p> <p style="text-align: center;"><b>Model 500S</b></p>  <p>If the back ADF white cushion cannot be cleaned properly, is damaged, or is missing, replace the lower exit guide assembly. See <b>“Lower exit guide assembly removal” on page 4-47.</b></p> <p>If no problem is found with the lower exit guide assembly, go to step 5.</p>
5	ADF frontside bracket assembly strip	<p>Check the ADF frontside bracket assembly for any signs of damage to the front flatbed white strip. If damaged, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p>If no problem is found, check the front flatbed white strip for any signs of dirt, debris, or contamination. If any problem is found, clean the strip with a clean, soft, lint-free cloth with isopropyl alcohol (if available).</p> <p>If this does not fix the problem, or no problem is found, go to step 6.</p>
6	ADF CCD module assembly	<p>Replace the ADF CCD module assembly. See <b>“ADF CCD module assembly removal (model 500S)” on page 4-14.</b></p>



	FRU	Action
7	Flatbed contact glass (both models)	<p>Check for any signs of contamination on the flatbed contact glass.</p>  <p>Use a clean, soft, lint-free cloth with isopropyl alcohol (if available) to clean the glass of any contamination.</p> <p>If the problem still persists, go to step 8.</p> <p><b>Note:</b> It is recommended that you remove the glass and clean both sides.</p>
8	Flatbed glass holder assembly (models X642e/X644e/X646e)	<p>Check for any signs of contamination of the flatbed glass holder. Use a clean, soft, lint-free cloth with isopropyl alcohol (if available) to clean the glass if any contamination is found on the glass.</p> <p>If after cleaning, the problem persists, go to step 9.</p>
9	ADF frontside bracket assembly strip	<p>Check the ADF frontside bracket assembly for any signs of damage to the front flatbed white strip. If damaged, replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p> <p>If no problem is found, check the front flatbed white strip for any signs of dirt, debris, or contamination. If any problem is found, clean the strip with a clean, soft, lint-free cloth with isopropyl alcohol.</p> <p>If this does not fix the problem, or no problem is found, go to step 10.</p>
10	Flatbed CCD module (models X642e/X644e/X646e)	<p>Replace the flatbed CCD module. See <b>“Flatbed CCD module assembly removal” on page 4-28.</b></p>

## All black or blank image

This symptom may be caused by insufficient illumination from the lamps in the CCD, a defective CCD, or an electrical problem.

	FRU	Action
1	Determine which portion of the scanner has the problem.	If the problem is with the ADF portion of the scanner assembly, go to step 2. If the problem is with the flatbed scanner assembly, go to step 6.
2	ADF CCD module to the interconnect board cable (model 500S)	Check the 36-pin flatbed interconnect board to ADF CCD module cable to make sure it is connected properly to both the CCD module and the flatbed interconnect board.  If it is not connected properly, reconnect and recheck the MFP. If the problem is still present, go to step 3.
3	ADF CCD module to the interconnect board cable (model 500S)	Check the cable to make sure it is properly connected to both the flatbed interconnect card and to the scanner control card. If it is properly installed, check the cable for any signs of damage, bent pins, or so forth. If any damage is found, replace the complete ADF scanner assembly. See <b>“ADF complete assembly removal” on page 4-15.</b>  If no problem is found, go to step 4.
4	Flatbed interconnect board (CN5) to scanner control card (J28) cable. (model 500S)	Check the cable to make sure it is properly connected to both the flatbed interconnect card and to the scanner control card. If it is properly installed, check the cable for any signs of damage, bent pins, or so forth. If any damage is found, replace the complete ADF scanner assembly. See <b>“ADF complete assembly removal” on page 4-15.</b>  If no problem is found, go to step 5.
5	ADF CCD module (model 500S) Flatbed interconnect card Scanner control card	Replace the ADF CCD module. See <b>“ADF CCD module assembly removal (mode I500S)” on page 4-14.</b> If this does not fix the problem, replace the following FRUs in the order listed: <ul style="list-style-type: none"> <li>• Flatbed interconnect card</li> <li>• Scanner control card</li> </ul>
6	Flatbed CCD module to flatbed interconnect board (J2) cable	Check the cable to make sure it is properly connected to both the flatbed CCD module and to the flatbed interconnect card. If properly installed, check the cable for any signs of damage, bent pins, and so forth. If any damage is found, replace the cable.  If no problem is found, go to step 7.
7	Flatbed CCD module	Replace the flatbed CCD module. See <b>“Flatbed CCD module assembly removal” on page 4-28.</b> If does not fix the problem, replace the scanner control card. See <b>“Scanner control card removal” on page 4-48.</b>

## Line compression

**Note:** This problem is usually caused by “shocks” of media entering or exiting any roller pairs.

	FRU	Action
1	Media	<p>Measure the distance from the leading or training edge of the media to the compression.</p> <ul style="list-style-type: none"> <li>• If the distance is approximately 53mm from the leading edge, go to step 2.</li> <li>• If the distance is approximately 57mm from the leading edge of the media, go to step 3.</li> <li>• If the distance is approximately 137mm from the training edge of the media, go to step 4.</li> </ul>
2	Lower exit guide assembly	<p>This can be caused by the impact of the media entering the second scan area. Replace the lower exit guide assembly. See <b>“Lower exit guide assembly removal” on page 4-47.</b></p>
3	ADF assembly	<p>This can be caused by the shock of the media being released from the first scan roller. Replace the complete ADF assembly. See <b>“ADF complete assembly removal” on page 4-15.</b></p>
4	Pick mechanism Separator arm	<p>This can be caused by the shock of paper release from the feed/separator roller. Replace the following FRUs in the order listed:</p> <ul style="list-style-type: none"> <li>• Pick mechanism. See <b>“ADF pick assembly removal” on page 4-7.</b></li> <li>• Separator assembly. See <b>“Separator assembly torque limiter removal” on page 4-52.</b></li> </ul>
5	Flatbed CCD module	<p>This problem can be caused by flatbed motor vibration and will usually appear at the left or right edges of a scan.</p> <p>Replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"> <li>• Flatbed CCD module</li> <li>• Flatbed scan motor</li> </ul>

## Wavy lines

Wavy lines seen only on flatbed text or mixed mode up to 300 dpi scans.

	FRU	Action
1	Flatbed CCD module assembly	<ul style="list-style-type: none"> <li>• Replace the flatbed CCD module assembly. See <b>“Flatbed CCD module assembly removal” on page 4-28.</b> If the problems continue, replace the flatbed scan motor. See <b>“Flatbed scan motor assembly removal” on page 4-41.</b></li> </ul>

## Signature button assembly service check

**Note:** If you are unable to clear a 32.xx-Unsupported Cartridge User Error message, be sure a Lexmark T64x print cartridge is correctly installed in the printer. The cartridge is easily identified by the contact board on the right side rear of the cartridge. Install another print cartridge before attempting to troubleshoot the printer. Make sure the signature button cable is properly connected to J14 on the system board. Check the print cartridge for damage or improper installation of the chip. Also, be sure there is proper contact between the chip on the cartridge and the signature button contact assembly.

**Service tip:** An intermittent 32.xx-Unsupported Cartridge User Error message can be caused by poor contact between the signature button cartridge contacts in the upper front cover and the chip. Also check for proper seating of the signature button cartridge cable to the system board.

	FRU	Action
1	Signature button contact assembly System board	Check the voltage on the signature button cartridge contact. The voltage measures approximately +3.8 V dc when not writing data to the system board. If data is being written, the voltage measures approximately 0 V dc. If incorrect, disconnect the cable from J19 on the system board, and check the voltage on J19-1. The voltage measures approximately +5 V dc. <ul style="list-style-type: none"><li>• If incorrect, replace the system board.</li><li>• If correct, replace the signature button cartridge contact assembly.</li></ul>

## System board service check

**Warning:** When replacing any one of the following components:

- Flatbed interconnect card (ICC)
- System board assembly
- Interface card 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.

## **Toner sensor service check**

Service tip: Check the print darkness menu setting before checking the toner sensor.


This service check is intended to be used when a 929.xx Service Error displays.

	<b>FRU</b>	<b>Action</b>
<b>1</b>	Developer drive assembly	Incorrect operation of the developer drive assembly can cause the printer to display a 929.xx error code (Toner Sensor). Check the developer drive assembly for correct installation or, any sign of worn, loose, or broken parts.
<b>2</b>	Front harness cable	Check the toner sensor portion of the front harness cable to make sure it is properly seated into the toner sensor. If correct at both the sensor and system board (J15), check the continuity of the cable. If incorrect, replace the cable.
<b>3</b>	Toner sensor	The toner sensor cable is part of the front harness and part of connector J15 on the system board. Check the voltage at J15-11. It reads approximately +5 V dc. If incorrect, replace the system board. If correct, check the voltage at J15-12. It reads approximately +5 V dc with the system board removed from the printer. If incorrect, replace the system board. If correct, replace the toner sensor assembly. A bad ground connection between J15-13 on the system board and pin 3 on the toner sensor results in a 929 service error.

## Transfer roll service check

Service tip: The transfer roll is 51.02 mm (2.009 inch) circumference. Any print quality problems such as lines that are spaced 51.02 mm apart indicate you should check the transfer roll for damage and check for toner or foreign material buildup.

Service tip: The transfer roll assembly is part of the maintenance kit and is replaced when an 80 Scheduled Maintenance displays. Ask the customer if they have replaced the transfer roll recently.

	<p><b>CAUTION</b></p> <p>Make sure the printer is unplugged before making any checks on the transfer roll or associated parts for personal safety and to prevent damage to the printer.</p>
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	FRU	Action
1	Transfer roll assembly	Check the transfer roll for toner buildup, surface damage to the roll, oil, or other contaminants on the surface of the roll. Replace the transfer roll as necessary.
2	Left transfer arm assembly	Check the left transfer roll arm assembly to make sure it is fastened and locked in the down position. If the arm is not locked down, make sure the arm is not broken and locks into the EP frame correctly. Check the left transfer arm assembly spring for proper operation.
3	Right transfer arm assembly	Check the right transfer arm assembly to make sure it is fastened and locked in the down position. If the arm is not locked down, make sure the arm is not broken and locks into the EP frame correctly. Check the right transfer arm assembly spring for proper operation. For any background problems, ensure the contact to the HVPS board is correct and that there is approximately 0 ohms resistance between the transfer roll shaft and the HVPS contact. If correct, go to <b>“Print quality—background” on page 2-162</b>
4	HVPS—917 Error code	Check the voltage at J15-3. The voltage changes from +24 V dc with the printer idle to 0 V dc when the printer runs the print test. If the voltage is incorrect, check the continuity of line J15-3 in the front cable harness to the HVPS. If there is no continuity, replace the cable harness. If there is continuity, replace the HVPS. If the problem continues, replace the system board.

### 3. Diagnostic aids

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

#### Accessing service menus

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

<p>Diagnosics Menu</p> 	<ol style="list-style-type: none"> <li>1. Turn off the printer.</li> <li>2. Press and hold the <b>3</b> and <b>6</b> buttons simultaneously for about 10 seconds.</li> <li>3. Turn on the printer.</li> <li>4. Release the buttons after 10 seconds.</li> </ol>	<p>The Diagnostics Menu group consists of menus, settings, and operations that are used to diagnose various printer problems.</p> <p><b>Note:</b> While the Diagnostics menu group is active, all host interfaces are offline.</p> <p>See <b>“Diagnostics Menu” on page 3-2</b> for more information.</p>
<p>Configuration Menu</p> 	<ol style="list-style-type: none"> <li>1. Turn off the printer.</li> <li>2. Press and hold the <b>2</b> and <b>6</b> buttons simultaneously for about 10 seconds.</li> <li>3. Turn on the printer.</li> <li>4. Release the buttons after 10 seconds.</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 (CONFIG MENU)” on page 3-24</b> for more information.</p>

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## Diagnostics Menu

### Entering Diagnostics Menu

1. Turn off the printer.
2. Press and hold **3** and **6** buttons simultaneously.
3. Turn on the printer.
4. Release the buttons after 10 seconds.

### Available tests

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

**Note:** Some menus are not available, depending on the configuration of the printer.

#### Diagnostics Menu tests

<b>REGISTRATION</b>	See <b>“Registration (printer)” on page 3-5</b>
Top Margin	
Bottom Margin	
Left Margin	
Right Margin	
Quick Test	See <b>“Quick Test” on page 3-6</b>
<b>PRINT TESTS</b>	
Tray 1	See <b>“Input source tests” on page 3-7</b>
Tray 2 (if installed)	
Tray 3 (if installed)	
Tray 4 (if installed)	
Tray 5 (if installed)	
MP Feeder	
Envelope Feeder (if installed)	
Printing Print Quality Test Pages	See <b>“Printing Quality Pages” on page 3-7</b>
<b>HARDWARE TESTS</b>	
Panel Test	See <b>“Panel Test” on page 3-8</b>
Button Test	See <b>“Button Test” on page 3-8</b>
DRAM Test	See <b>“DRAM Test” on page 3-9</b>
CACHE Test	
Parallel 1 Wrap (if installed) ( <b>Note:</b> This setting only appears if a parallel port is available through the PCI slot 1)	See <b>“Parallel Wrap test” on page 3-10</b>
Serial 1 Wrap (if installed) ( <b>Note:</b> This setting only appears if a serial port is available through the PCI slot 1)	See <b>“Serial Wrap test” on page 3-10</b>



## Diagnosics Menu tests (continued)

<b>DUPLEX TESTS</b> (if installed)	
Quick Test	See <b>“Quick Test (duplex)”</b> on page 3-11
Top Margin	See <b>“Top Margin (duplex)”</b> on page 3-11
Sensor Test	See <b>“Sensor Test (duplex)”</b> on page 3-12
Motor Test	See <b>“Motor Test (duplex)”</b> on page 3-12
Duplex Feed 1	See <b>“Duplex Feed 1”</b> on page 3-13
Duplex Feed 2	See <b>“Duplex Feed 2”</b> on page 3-13
<b>INPUT TRAY TESTS</b>	
Feed Tests	See <b>“Feed Tests (input tray)”</b> on page 3-13
Tray 1	
Tray 2 (if installed)	
Tray 3 (if installed)	
Tray 4 (if installed)	
Tray 5 (if installed)	
Envelope Feeder	
MP Feeder	
Sensor Tests	See <b>“Sensor Test (input tray)”</b> on page 3-14
Tray 1	
Tray 2 (if installed)	
Tray 3 (if installed)	
Tray 4 (if installed)	
Tray 5 (if installed)	
Envelope Feeder	
MP Feeder	
<b>OUTPUT BIN TESTS</b>	See <b>“OUTPUT BIN TESTS”</b> on page 3-14
Feed Tests	
Standard Bin	
Sensor Tests	
Standard Bin	
<b>BASE SENSOR TEST</b>	See <b>“BASE SENSOR TEST”</b> on page 3-15
Toner Sensor	
Input Sensor	
Standard Bin Sensor	
Upper Front Cover	
Narrow Media	
<b>DEVICE TESTS</b>	
Quick Disk Test (model 500S)	See <b>“Quick Disk Test”</b> on page 3-16
Disk Test/Clean (model 500S)	See <b>“Disk Test/Clean”</b> on page 3-16
Flash Test (if flash is installed)	See <b>“Flash Test”</b> on page 3-17

## Diagnostics Menu tests (continued)

<b>PRINTER SETUP</b>	
Defaults	See <b>“Defaults” on page 3-17</b>
Printed Page Count	See <b>“Printed Page Count” on page 3-18</b>
Perm Page Count	See <b>“Permanent Page Count” on page 3-18</b>
Serial Number	See <b>“Serial Number” on page 3-18</b>
Envelope Enhance	See <b>“Envelope Enhance” on page 3-18</b>
Engine Setting 1 to 4	See <b>“Engine Setting 1 through 4” on page 3-18</b>
Model Name	See <b>“Model Name” on page 3-18</b>
Configuration ID	See <b>“Configuration ID” on page 3-19</b>
Edge To Edge	See <b>“Edge to Edge” on page 3-19</b>
Par S Strobe Adj	See <b>“Parallel strobe adjustment (Par x Strobe Adj)” on page 3-19</b>
PAR 1 STROBE ADJ (if additional parallel options are installed)	
<b>EP SETUP</b>	
EP Defaults	See <b>“EP Defaults” on page 3-20</b>
Fuser Temp	See <b>“Fuser Temperature (Fuser Temp)” on page 3-20</b>
Fuser Page Count	See <b>“Fuser Page Count” on page 3-20</b>
Warm Up Time	See <b>“Warm Up Time” on page 3-20</b>
Transfer	See <b>“Transfer” on page 3-21</b>
Print Contrast	See <b>“Print Contrast” on page 3-21</b>
Charge Roll	See <b>“Charge Roll” on page 3-21</b>
Gap Adjust	See <b>“Gap Adjust” on page 3-21</b>
<b>EVENT LOG</b>	
Display Log	See <b>“Display Log” on page 3-21</b>
Print Log	See <b>“Print Log” on page 3-22</b>
Clear Log	See <b>“Clear Log” on page 3-22</b>
<b>SCANNER TESTS</b>	
ASIC Test	See <b>“ASIC Test” on page 3-23</b>
Feed test	See <b>“Feed Test” on page 3-23</b>
Manual Registration	See <b>“Scanner Manual Registration” on page 3-23</b>
Sensor Tests	See <b>“Sensor Tests” on page 3-23</b>

Touch **Exit Diag Menu** to exit the Diagnostics Menu and Resetting the Printer displays. The printer performs a POR, and the printer returns to normal mode.



## Registration (printer)

Print registration makes sure the printing is properly aligned on the page.

**Models X644e/X646e**

**REGISTRATION**

Top Margin      ◀ 0 ▶

Bottom Margin    ▶ 0 ▶

Left Margin       ▶ 0 ▶

Right Margin     ▶ 0 ▶

Quick Test      ▶

**Model X642e**

**REGISTRATION**

Top Margin 0 ▶

Top Margin 0 ▶


Top Margin 0 ▶

Top Margin 0 ▶ ▼

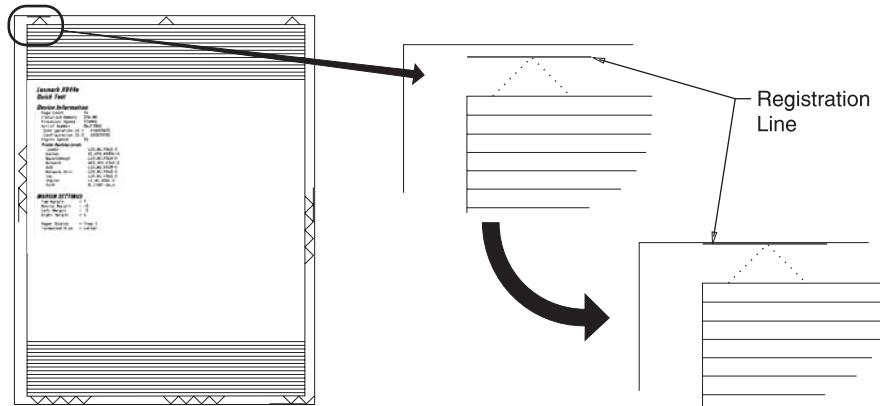
The settings available are:






Description	Value	Direction of change
Bottom Margin	-20 to +20 Each increment causes approximately 0.55 mm shift in the bottom margin.	A positive change compresses the image so it appears to move down the page, and a negative change moves the image up.
Top Margin	-25 to +25 Each increment causes approximately 4 pels shift (at 600 dpi).	A positive change moves the image down the page and increases the top margin. A negative change moves the image up and decreases the top margin.
Left Margin	-25 to +25	A positive change moves the image right, and a negative change moves the image left. No compression occurs.
Right Margin	-10 to +10	A positive change moves the image right, and a negative change moves the image left.

To set print registration:

1. Print the Quick Test page.
  - a. Touch **REGISTRATION** from the Diagnostics Menu.
  - b. Touch  to select Quick Test. You may need to scroll to the next page.

Retain this page to determine the changes you need to make to the margins settings. The diamonds in the margins should touch the margins of the page.



2. To change the value of any of the margin settings:
  - Touch  to the right of the appropriate margin setting. The panel displays the setting's name in the header and  [setting's current value]  in a menu below the header row.
  - Touch  to decrease the value or  to increase the value.
  - Touch **Submit** to save the change, or Touch **Back** to cancel and return to the Diagnostics Menu.
  - For model X642e, touch **Submit** to save all changed values.

The device prints a Quick Test page from the appropriate paper tray. While the Quick Test page prints, *Printing Alignment Page* appears on the LCD.


## Quick Test

The Quick Test contains the following information:

- Margin settings
- Alignment diamonds at the top, bottom, and each side.
- Horizontal lines for skew adjustment
- General printer information, including current page count, installed memory, serial number, and code level.

To print the Quick Test page:

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

1. Touch **REGISTRATION** from the Diagnostics Menu.
2. Touch  to select Quick Test.

The message *Quick Test Printing...* appears on the display.

Once the Quick Test Page completes printing, the Registration screen displays again.
3. Touch **Back** to return to the Diagnostics Menu.

## PRINT TESTS

Selections on the screen vary since only installed input sources are listed, followed by Printing Quality Test Pages.

### Input source tests

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

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

To run the Print Test Page:

1. Select **PRINT TESTS** from the Diagnostics menu.

2. Select the media source to test:

Tray 1

Tray 2 (if installed)

Tray 3 (if installed)

Tray 4 (if installed)

Tray 5 (if installed)

MP Feeder (if installed)

Envelope Feeder (if installed)

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

- If **Single** is selected, a single page is printed.
- If **Continuous** is selected, printing continues until **Stop** is pressed to cancel the test.


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

**Note:** The Print Test Page always prints on one side of the paper, regardless of the duplex setting or the presence of a duplex option.

Touch **Back** to return to PRINT TESTS.

### Printing Quality Pages

The purpose of this diagnostic function is to allow printing of the print quality test pages with the toner cartridge lockout function disabled. The print quality pages consist of four pages. Page one contains a mixture of graphics and text. Pages two and three only contain graphics. The last page is blank. If duplex is turned on, the pages are duplexed. The Print Quality Test pages are printed in English and must always be printed on letter, legal, or A4 paper.

To run the Print Quality Test Pages, touch  beside Printing Quality Test Pages from PRINT TESTS. The message *Printing Quality Test Pages* is displayed.

**Note:** The print quality test pages can also be printed from the Configuration menu (CONFIG MENU), however, a cartridge must be installed with a machine class ID matching the machine class ID stored in NVRAM. Additional diagnostic information may be printed on the pages when printing from DIAGNOSTICS.

The following is included in the DIAGNOSTICS version of the print quality pages:

- Values from EP SETUP in DIAGNOSTICS, including:  
Fuser temperature, warm up time, transfer, print contrast, and charge roll settings.
- Contents of the EVENT LOG from DIAGNOSTICS.
- Configuration information, including printer serial number, controller code level, engine code level, operator panel code level, font versions, and cartridge information.
- Default values for the QUALITY MENU settings used to print the pages.

## HARDWARE TESTS

Select the following Hardware Tests from this menu:

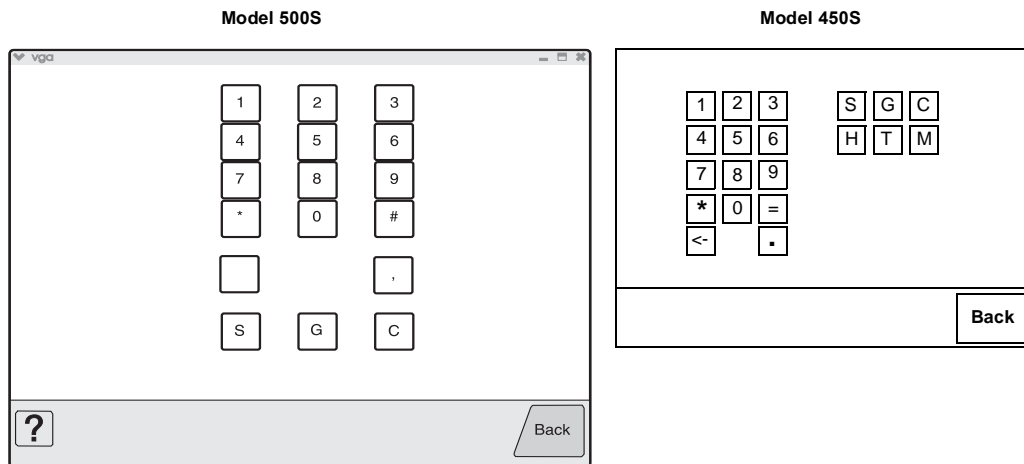
- Panel Test
- Button Test
- DRAM Test
- CACHE Test
- Parallel 1 Wrap (if available)—model 500S
- Serial Wrap (if available)—model 500S

### Panel Test

This test automatically toggles each pixel of the touchscreen through every contrast level beginning with the darkest and on to the brightest. This test continues until you press **Stop** (⊗).

### Button Test

The Button Test verifies the operation of the buttons on the operator panel. When you select Button Test, a diagram of the operator panel appears on the panel. When you press a button on the operator panel, the corresponding touchscreen key is emphasized. Touch **Back** to cancel the test.



## DRAM Test

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

To run the DRAM Test:

1. Touch  to select DRAM Test from the menu.

The message `DRAM Test Testing...` displays. Then the message `Resetting Printer` appears, and the power indicator light *blinks* red.

2. Turn the printer off and on. While the DRAM test executes, the power indicator *blinks* green.

The following type of message appears:

```
DRAM Test <### P:##### F:###
```

- xxx represents the installed DRAM size.
- P:##### represents the number of times the memory test has passed and finished successfully. Initially 000000 displays with the maximum pass count being 999,999.
- F:##### represents the number of times the memory test has failed and finished with errors. Initially 0000 displays with the maximum fail count being 99,999. Initially only four digits appear, but additional digits appear as needed.

Each time a test is completed, the number of pass and failures increments. If the test fails, the message `Failure` displays for approximately three seconds, and the failure count increases by one.

The test continues until all standard and optional DRAM is tested. Once the maximum pass count or fail count is reached, the test is stopped, the power indicator is turned on solid, and the final results display.

To stop the test before completion, turn the MFP off.

## CACHE Test

This test is used to verify the printer processor cache.

To run the CACHE Test:

1. Touch  to select **CACHE TEST** from HARDWARE TESTS.

The message `CACHE Test Testing...` displays. Then the message `Resetting Printer` appears.

2. The printer automatically performs a Power On Reset (POR). While the CACHE test executes, the power indicator *blinks* green.

The following type of message appears:

```
CACHE Test <### P:##### F:###
```

- P:##### represents the number of times the cache has passed and finished successfully. Initially 000000 displays with the maximum pass count being 999,999.
- F:##### represents the number of times the cache has failed and finished with errors. Initially 0000 displays with the maximum fail count being 99,999. Initially only four digits appear, but additional digits appear as needed.

Each time a test is completed, the number of passes and failures increments. If the test fails, the message `Failure` displays for approximately three seconds, and the failure count increases by one.

The test continues until all of the printer processor's cache has been tested. Once the maximum pass count or fail count is reached, the test is stopped, the power indicator is turned on solid, and the final results display.

To stop this test before completion, turn the MFP off.

## Parallel Wrap test

This test is used with a wrap plug to check operation of the parallel port hardware. Each parallel signal is tested. Use **Parallel Wrap** for the standard parallel port, **Parallel 1 Wrap** if a parallel port is available by PCI slot 1, or **Parallel 2 Wrap** if a parallel port is available by PCI slot 2.

To run the Parallel Wrap tests:

1. Disconnect the parallel interface cable, and install the wrap plug (P/N 1319128).
2. Select **Parallel Wrap, Parallel 1 Wrap, or Parallel 2 Wrap** from the HARDWARE TESTS menu.

The power indicator *blinks* green indicating the test is in progress. The test runs continuously until a maximum number of tests is reached.

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 999,999.
- F:##### represents the number of times the memory test has failed and finished with errors. Initially 0000 displays with the maximum fail count being 999,999. Initially only four digits appear, but additional digits appear as needed.

Each time the test finishes, the screen updates. If the test passes, the pass counter increases by 1, however if the test fails, a message displays for approximately three seconds. Once the maximum count is reached, the test stops. The power indicator goes on solid, and the final results display.

To stop the test before completion, press **Stop** (⊗).

## Serial Wrap test

The serial wrap tests are used to check the operation of the serial port hardware using a wrap plug. Use Serial 1 Wrap if a serial port is available through PCI slot 1 and Serial 2 Wrap if the serial port is available through PCI slot 2.

To perform the Serial Wrap tests:

1. Disconnect the serial interface cable, and install the serial wrap plug.
2. Select Serial 1 Wrap or Serial 2 Wrap from HARDWARE TESTS.

The power indicator *blinks* green indicating the test is in progress. The test runs continuously until a maximum number of tests is reached.

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 999,999.
- F:##### represents the number of times the memory test has failed and finished with errors. Initially 0000 displays with the maximum fail count being 999,999. Initially only four digits appear, but additional digits appear as needed.

Each time the test finishes, the screen updates. If the test passes, the pass counter increases by 1, however if the test fails, a message displays for approximately three seconds. Once the maximum count is reached, the test stops. The power indicator goes on solid, and the final results display.

To stop the test before completion, press **Stop** (⊗). The message Serial Wrap x Test Canceled displays, and the printer returns to the HARDWARE TESTS menu.



## DUPLEX TESTS

### Quick Test (duplex)

This test prints a duplex version of the Quick Test that can be used to verify that the correct placement of the top margin on the back side of a duplex page. You can run one duplexed page (**Single**), or continue printing duplexed pages (**Continuous**) until **Stop** (⊗) is pressed. For information about changing the margin, see “**Top Margin (duplex)**” on page 3-11.

**Note:** Before you set the duplex top margin, be sure to set the registration. See “**Registration (printer)**” on page 3-5.

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

To run the Quick Test (duplex):

1. Touch ⇨ to select **Quick Test** from DUPLEX TESTS.
2. Touch ⇨ to 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.

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

### Top Margin (duplex)

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

To set the Top Margin (duplex):

1. Print the Quick Test (duplex):
  - a. Touch ⇨ to select **Quick Test** from DUPLEX TESTS.
  - b. Select **Single**.
  - c. Hold the page to the light to see the whether the top margin of the backside aligns with the top margin of the frontside.
2. Select **Top Margin** from DUPLEX TESTS.
3. Use the arrows to increase or decrease the current setting displayed on the touchscreen to select the margin setting:

◀ [setting's current value] ▶.

  - Each increment shifts the duplex top margin by 1/100 of an inch.
  - The Top Margin (duplex) range is -20 to +20, and the default value is 0.
  - An increase moves the top margin down and widens the top margin. A decrease moves the top margin upward and narrows the top margin.
4. Touch **Submit**.
5. Print the Quick Test (duplex) again to verify the adjustment. Repeat if necessary.

## Sensor Test (duplex)

This test is used to determine whether or not the duplex sensors and switches are working correctly. The test allows you to actuate the duplex input sensor located in the back part of the duplex unit and the duplex exit sensor located in the return paper path.

1. Select **Sensor Test** from DUPLEX TESTS.

The message `Sensor Test Testing` displays.

2. Manually actuate each of the duplex sensors. When the sensor/switch is closed, `CL` (closed) displays, and when the sensor/switch is open, `OP` (open) displays.

- Duplex input sensor
- Duplex exit sensor

3. Press **Stop** (⊗) to exit the test.

## Motor Test (duplex)

This test lets you test the duplex option paper feed drive system, and verify that the power and velocity values are acceptable. The duplex runs the DC motor at high speed and low speed, taking an average of the power (PWM) required for each speed and calculating the KE value.

To run the Motor Test (duplex):

1. Select **Motor Test** from DUPLEX TESTS.

The power indicator light *blinks*, and the message `Motor Test Testing` displays.

2. When the motor stops, the results are displayed.

DUPLEX MOTOR AA BB CC DD EE FF
--------------------------------

- AA—00 indicates success, and any other value indicates failure.
- BB—average PWM for the high speed portion of the test. The results should be in the range of 20 through 3F inclusively (hex)
- CC—average PWM for the low speed portion of the test. The results should be in the range of 3A through 5D inclusively (hex)
- DD—minimum PWM for the low speed portion of the test. The results should be in the range of 11 through 1F inclusively (hex)
- Ignore bytes *EE* and *FF*.

If the test fails, remove the drive belt from the duplex DC motor, and run the motor test again. For the duplex DC motor to pass the test, the following results must display:

- AA = 00
- BB = in the range of 29 through 3E inclusively (hex)
- CC = in the range of 35 through 51 inclusively (hex)
- DD = in the range of 0C through 13 inclusively (hex)

For the duplex drive system to pass the test, the following results must display:



- AA = 00
- BB = in the range of 29 through 3F inclusively (hex)
- CC = in the range of 3A through 5D inclusively (hex)
- DD = in the range of 11 through 1F inclusively (hex)

3. Touch **Back** or press **Stop** (⊗) to exit the test.

## Duplex Feed 1

This test feeds a blank sheet of paper to the duplex paper stop position 1. This test can be run using any of the supported paper sizes.



To run the Duplex Feed 1 Test:

1. Touch  to select **Duplex Feed 1** from DUPLEX TESTS.  
The power indicator blinks while the paper is feeding, and the message `Duplex Feed 1 Feeding...` displays.  
The message `Duplex Feed 1 Clear Paper` displays when the paper reaches paper stop position 1, and the power indicator turns on solid.
2. Remove the media from the duplex unit, and clear the message on the operator panel by touching **Back** or pressing **Stop** (.

## Duplex Feed 2

This test feeds a blank sheet of paper to the duplex paper stop position 2. This test can be run using any of the supported paper sizes.

To run the Duplex Feed 2 Test:





1. Touch  to select **Duplex Feed 2** from DUPLEX TESTS.  
The power indicator blinks while the paper is feeding, and the message `Duplex Feed 2 Feeding...` displays.  
The message `Duplex Feed 2 Clear Paper` displays when the paper reaches the duplex paper stop position 2, and the power indicator turns on solid.
2. Remove the media from the duplex unit, and clear the message on the operator panel by touching **Back** or pressing **Stop** (.

## INPUT TRAY TESTS

### Feed Tests (input tray)



This test lets the servicer observe the paper path as media is feeding through the printer. A blank sheet of paper feeds through the printer as the laser turns off during this test. The only way to observe the paper path is to open the lower front door that is used to access the envelope or multipurpose feeder. The paper is placed in the output bin.

To run the Input Tray Feed Tests:

1. Touch  to select **Feed Tests** from INPUT TRAY TESTS.
2. Touch  to select the input source from the sources displayed on the Feed Tests menu. All installed sources are listed.
3. Touch  to select either Single or Continuous.
  - **Single**—feeds one sheet of media from the selected source.
  - **Continuous**—media continues feeding from the selected source until **Stop** () is pressed.

## Sensor Test (input tray)


This test is used to determine if the input tray sensors are working correctly. To run the Input Tray Sensor Test:

1. Touch  to select the **Sensor Test** from INPUT TRAY TESTS.
2. Touch  to select the input source from the sources displayed on the Sensor Test menu. All installed sources are listed.
3. Select the sensor to test. Various sources have different combinations of sensors. See the table below:

### Tray sensor support by source

Source	Empty (Input tray empty sensor)	Low (Input tray paper low sensor)	passThru (Input tray pass thru sensor)
Tray 1	✓	✓	
Tray 2	✓	✓	✓
Tray 3	✓	✓	✓
Tray 4	✓	✓	✓
Tray 5	✓	✓	✓
Multipurpose tray	✓		
Envelope feeder	✓		✓

[*sensor selected*]=Open displays.



- Empty—Input tray empty sensor
  - Low—Input tray paper low sensor
  - passThru—Input tray pass thru sensor
4. Once this message displays, the servicer can 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, *C*losed displays; when the sensor is open, *O*pen displays.
  5. Press **Stop** () to exit the test.



## OUTPUT BIN TESTS

### Feed Tests (output bins)

Use these tests to verify that media can be fed to a the standard output bin. No information is printed on the media fed to the output bin because the printhead is not engaged during this test. These tests can use any media size or envelope supported by the printer.

To run the Feed Tests for the output bins:

1. Touch  to select **Feed Tests** from the OUTPUT BIN TESTS.
2. Touch  to select the output bin you want the paper to exit into.




3. Touch  to select either Single or Continuous.
  - **Single**—feeds one sheet of media from the selected source.
  - **Continuous**—media continues feeding from the selected source until **Stop** () is pressed.

Touch **Back** to return to OUTPUT BIN TESTS.

### **Sensor Test (standard output bin)**

This test is used to verify if the standard bin sensor is working correctly.


To run the Sensor Test for the standard bin:

1. Touch  to select **Sensor Test** from OUTPUT BIN TESTS.
2. Touch  to select **Standard Bin** from Sensor Tests.
3. Manually actuate the bin sensor by moving the flag in and out of the sensor and the display changes.  
The following screen is displayed:  
Bin Empty: empty or Bin Empty: full.
4. Press **Stop** () to exit the test.

### **BASE SENSOR TEST**

This test is used to determine if the sensors located inside the printer are working correctly.

To run the Base Sensor Test:

1. Select **BASE SENSOR TEST** from the DIAGNOSTICS menu.  
The following sensors are listed:
  - Exit—Exit sensor
  - Front Door—Front door sensor
  - Input—Input sensor
  - NarrowMedia—Output (exit) sensor
  - Toner Level—Toner level sensor (remove the cartridge and replace to actuate the sensor)
2. Manually actuate the sensors to verify that each sensor switches from Open to Closed.
3. Press **Stop** () to exit the test.

## 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. Touch  to select **Quick Disk Test** from DEVICE TESTS.

The power indicator blinks while the test is in progress, and quick Disk Test Testing... displays.

- Quick Disk Test/Test Passed message displays if the test passes, and the power indicator turns on solid.
- Quick Disk Test/Test Failed message displays if the test failed, and the power indicator turns on solid.

2. Press **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. Also note that this test may run approximately 1½ hours depending on the disk size.

To run the Disk Test/Clean Test:

1. Touch  to select **Disk Test/Clean** from the Device Tests menu.

Contents will be lost. Continue? message displays to warn the user that all contents on the disk will be lost.

2. Touch **Yes** to continue and **No** to exit.

If **Yes** is selected, the following screen displays and updates periodically indicating the percentage of test completed.

```
Formatting Disk
1/1           0%
┌───────────┐
DO NOT POWER OFF
```

The power indicator blinks during the test.

**Note:** The test can NOT be canceled.



3. Once the test is complete, the power indicator turns on solid, and either the message Disk Test/Clean Test Passed or Disk Test/Clean Failed appears. If the message indicates failure, the disk is unusable.

## Flash Test


















This test verifies the functioning of the flash device by writing and reading data on the flash to test the flash.

**Warning:** This test destroys all data on the flash because the flash is unformatted at the end of the test. To reformat the flash, the servicer or the user must use **FORMAT FLASH** from the **UTILITIES MENU**.

To run the Flash Test:

1. Touch  to select **Flash Test** from **DEVICE TESTS**.  
The message `Contents will be lost. Continue?` displays to warn the user that all contents on the flash device will be lost.
2. To exit the test immediately and return to the Device Tests menu, touch **No**. To continue, touch **Yes**.  
The power indicator blinks while the test is running, and the message `Flash Test Testing...` displays.  
Once the test is complete, the power indicator turns on solid, and either the message `Flash Test Test Passed` or `Flash Test Test Failed` displays.
3. Touch **Back** or press **Stop** () to return to **DEVICE TESTS**.

## PRINTER SETUP

Models X644e/X646e	Model X642e
<p><b>PRINTER SETUP</b></p> <p>Defaults  US  </p> <p>Printed Page Count 127</p> <p>Permanent Page Count 127</p> <p>Serial Number <input type="text" value="xxxxxxx"/> </p> <p>Envelope Enhance  Medium </p> <p>Engine Setting 1  0  </p> <p>  </p>	<p><b>PRINTER SETUP</b></p> <p>Defaults U.S. </p> <p>Printed Page Count 127</p> <p>Perm Page Count 127</p> <p>Serial Number <input type="text" value="xxxxxxx"/>  </p> <p> </p>

The triangles pointing up or down indicate whether there are additional menus. Touch the up or down arrows to display these additional menus.

**Note:** If you make changes, touch **Submit** to make the change effective.

### Defaults

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

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

## Printed Page Count

The page count can only be viewed and cannot be changed.

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

## Permanent Page Count

The permanent page count can only be viewed and cannot be changed.

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

## Serial Number

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

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

## Envelope Enhance

This setting affects the level of the fuser solenoid.

To set Envelope Enhance:

1. The current value is displayed:

◀ [setting's current value] ▶

The values are **Low**, **Medium**, and **High**. The default is Medium.

2. Touch ◀ or ▶ to change the value.

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

## Engine Setting 1 through 4

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

## Model Name

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





## Configuration ID

The two configuration IDs are used to communicate information about certain areas of the printer that cannot be determined using hardware sensors. The configuration IDs are originally set at the factory when the printer is manufactured, however, the servicer may need to reset Configuration ID 1 or Configuration ID 2 whenever 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. Touch  to select **PRINTER SETUP** from the Diagnostics Menu.
2. Touch  to select **Configuration ID**.
3. Touch the keyboard icon to display a keyboard with 1 through 0 and a through f. The current values for Configuration ID 1 and Configuration ID 2 are displayed.
  - Use keys to type the numbers for the two configuration IDs.
  - Use the left arrow to move over a digit from the right of the number toward the left.
  - When the numbers are correct, touch **Submit**.
  - If you have a question, touch the question mark icon.
  - To exit without changing the numbers, touch **Back**.

**Note:** Be sure to touch **Submit**, or the number will not be changed.

*Submitting Selection* displays, followed by the value for Configuration ID 1.

**Note:** 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. Restart the printer.

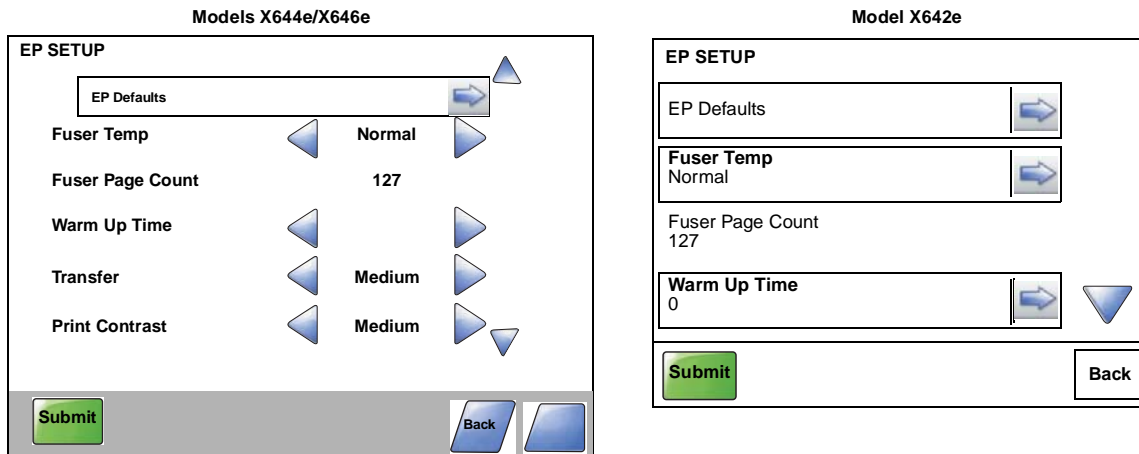
## Edge to Edge

When this setting is On, the text and graphics are shifted to the physical edges of the paper for all margins. When the setting is Off, the normal margins are restored.

## Parallel strobe adjustment (Par x Strobe Adj)

This setting adjusts the amount of time the strobe is sampled in order to determine if the valid data is available on the parallel port. The range of values are from -4 to 6, and the default is 0 for **Par S Strobe Adj**, **Par 1 Strobe Adj**, and **Par 2 Strobe Adj**. After adjustment of 1 increment, the strobe samples 50 ns longer.

## EP SETUP



The triangles pointing up or down indicate whether there are additional menus. Touch the up or down arrows to display these additional menus.

**Note:** If you make changes, touch **Submit** to make the change effective.

### EP Defaults

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

To restore EP Defaults:

1. Touch  $\Rightarrow$  to select **EP Defaults** from EP SETUP.
2. Touch  $\Rightarrow$  to select **Restore** to reset the values to the factory settings, and touch  $\Rightarrow$  to select **Do Not Restore** to exit without changing the settings.

Touch **Back** to exit without changing the settings.

### Fuser Temperature (Fuser Temp)

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

The fuser temperature can be adjusted to: Normal, Lower, Lowest. The default is Normal.

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

### Fuser Page Count

The fuser page count can only be viewed and cannot be changed.

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

### Warm Up Time

You can change the amount of time the printer warms up before allowing pages to print by changing this setting from 0 to 5. The factory sets the warm up at 0 or no warm up time. This time period lets the backup roll heat up and helps reduce curl in some environments.

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

### **Transfer**

The transfer can be adjusted to Low, Medium, or High. The default setting is Medium.

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

### **Print Contrast**

The print contrast setting controls the developer voltage offset.

The print contrast can be adjusted to Low, Medium, or High. The default setting is Medium.

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

### **Charge Roll**

The charge roll can be adjusted to Low, Medium, or High. The default setting is Medium.

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

### **Gap Adjust**

The setting adjusts the minimum gap between sheets. Increasing this value may reduce curl of some printed media and eliminate some output bin stacking problems. However, increasing this value also results in slower overall performance, measured in pages per minute. The range of values is 0 to 255, and the default value is 0.

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

## ***EVENT LOG***

### **Display Log**

The event log provides a history of printer errors. It contains the 12 most recent errors that have occurred on the printer. The most recent error displays in position 1, and the oldest error displays 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, so there may be repetitions. All 2xx and 9xx error messages are stored in the event log.

To view the event log:

1. Touch  to select **Display Log** from EVENT LOG.

Up to three error codes display at a time. Touch  to display additional information, if available.

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



## SCANNER TESTS


### ASIC Test

A pattern appears and ASIC Test Passed displays. If xxxxxx displays, the test was unsuccessful.

Press **Stop** (✖) to return to the SCANNER TESTS menu.

### Feed Test

To run the Scanner Feed test:

1. Touch  to select Feed Test from the SCANNER TESTS menu.
2. The panel displays the setting's current value ◀ [setting's current value] ▶. Use the arrows to select from Letter, Legal, or A4.
3. Touch **START** to begin.  
Feed Test Testing... displays.  
Press **4** to exit the test.
4. Touch **Back** to return to the Diagnostics Menu.

### Scanner Manual Registration

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

### Sensor Tests

The following tests are available:

ADF cover Open  
ADF Exit Sensor  
ADF Interval  
ADF Jam Removal  
ADF Paper Present  
FB Cover Open  
Home Sensor  
SCAN\_QRY\_PAPER\_SIZE\_ADF\_LONG  
SCAN\_QRY\_PAPER\_SIZE\_ADF\_WIDTH1  
SCAN\_QRY\_PAPER\_SIZE\_ADF\_WIDTH2  
SCAN\_QRY\_PAPER\_SIZE\_ADF\_WIDTH3  
SCAN\_QRY\_PAPER\_SIZE\_FB\_LONG  
SCAN\_QRY\_PAPER\_SIZE\_FB\_MEDIUM  
SCAN\_QRY\_PAPER\_SIZE\_FB\_SHORT  
SCAN\_SENSOR\_FIRST\_SCAN\_BIT  
SCAN\_SENSOR\_SECOND\_SCAN\_BIT

---

## Configuration menu (CONFIG MENU)

### Entering Configuration Menu

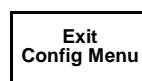
1. Turn off the printer.
2. Press and hold **2** and **6** buttons simultaneously.
3. Turn on the printer.
4. Release the buttons after 10 seconds.

### Available menus

**Note:** Some menus are not available, depending on the configuration of the printer.

Maintenance Page Counter	See <b>“Maintenance Page Count”</b> on page 3-25
Reset Maintenance Counter	See <b>“Reset Maintenance Counter”</b> on page 3-25
Print Quality Pages	See <b>“Print Quality Pages”</b> on page 3-26
SIZE SENSING	See <b>“SIZE SENSING”</b> on page 3-26
Panel Menus	See <b>“Panel Menus”</b> on page 3-27
PPDS Emulation	See <b>“PPDS Emulation”</b> on page 3-27
Factory Defaults	See <b>“Factory Defaults”</b> on page 3-28
Energy Conserve	See <b>“Energy Conserve”</b> on page 3-28
Min Copy Memory	See <b>“Min Copy Memory”</b> on page 3-29
Format Fax Storage	See <b>“Format Fax Storage”</b> on page 3-29
ADF Edge Erase	See <b>“ADF Edge Erase”</b> on page 3-29
FB Edge Erase	See <b>“FB Edge Erase”</b> on page 3-30
Automatic Scanner Registration	See <b>“Automatic Scanner Registration”</b> on page 3-30
EVENT LOG (print log only)	See <b>“EVENT LOG”</b> on page 3-31
Paper Prompts	See <b>“Paper Prompts”</b> on page 3-31
Env Prompts	See <b>“Envelope Prompts”</b> on page 3-32
Jobs On Disk	See <b>“Jobs On Disk”</b> on page 3-32
Disk Encryption	See <b>“Disk Encryption”</b> on page 3-32
Wipe Disk	See <b>“Wipe Disk”</b> on page 3-33
Font Sharpening	See <b>“Font Sharpening”</b> on page 3-34
Require Standby	See <b>“Require Standby”</b> on page 3-34
LES Applications	See <b>“LES Applications”</b> on page 3-34
Key Repeat Initial Delay	See <b>“Key Repeat Initial Delay”</b> on page 3-35
Key Repeat Rate	See <b>“Key Repeat Rate”</b> on page 3-35
Wiper Message	See <b>“Wiper Message”</b> on page 3-35

Touch **Exit Config Menu** to exit the Configuration Menu and Resetting the Printer displays. The printer performs a POR, and the printer returns to normal mode.



## ***Maintenance Page Count***

The current value for the maintenance page counter is displayed. This counter tracks printer usage. A print job containing a single page increments the counter by one and a duplex page by two. At 300,000, the customer is reminded that the printer requires scheduled maintenance. This counter is reset by the servicer after a 80 Scheduled Maintenance message displays and a maintenance kit is installed. See “**Maintenance kit**” on **page 6-1** for the part number.

To view the maintenance page count touch **⇒** to select **Maint Cnt Value** from the Configuration Menu. The value is displayed and cannot be changed.

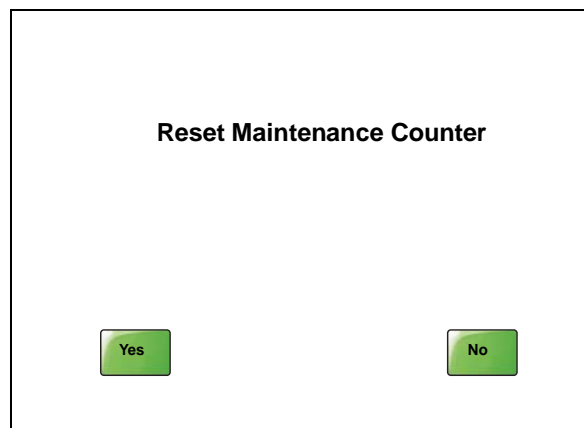
Touch **Back** to return to the main Configuration Menu.

## ***Reset Maintenance Counter***

After scheduled maintenance, the servicer needs to reset the page counter.

To reset the maintenance page count to zero:


1. Touch **⇒** to select Reset Maintenance Counter from the Configuration Menu.
2. Touch **Yes** to reset the counter or touch **No** to exit without resetting the counter.



The message `Reset Maint Cnt=Reset` displays momentarily. When the reset operation is complete, the menu returns to the main Configuration Menu.

## Print Quality Pages

The print quality test pages can be printed from either the Diagnostics Menu or Configuration Menu (CONFIG MENU). When printed from the Diagnostics Menu, additional information is included, and the print cartridge lockout is bypassed. See “**Print Quality Pages**” on page 3-26. Additional configuration information may be included on the print quality pages which is not included on the print menu page.

To print the Print Quality Test Pages, touch  to select **Prt Quality Pgs** from Configuration Menu. The message Printing Quality Test Pages is displayed.

The following is printed:

- Settings from EP SETUP from the Diagnostics Menu:  
Fuser temperature, warm up time, transfer, print contrast, and charge roll settings.
- Contents of the EVENT LOG from the Diagnostics Menu.
- Printer configuration information:  
Printer serial number, controller code level, engine code level, operator panel code level, smart option code levels, font versions, and so on.  
Values for the QUALITY MENU settings used to print the pages.

The print quality test consists of four pages. Page one contains a mixture of graphics and text. Pages two and three only contain graphics. Page four is blank. If duplex is turned on, the pages are duplexed. The Print Quality Test pages are printed in English and must always be printed on letter, legal, or A4 paper.

## SIZE SENSING






This setting controls whether the printer automatically registers the size of paper installed in an input source with size sensing.

Paper source	Size sensing
Tray 1 (integrated)	✓
Multipurpose feeder	
250-sheet drawer	✓
500-sheet drawer	✓
2000-sheet drawer	✓
250-sheet duplex	
500-sheet duplex	
Envelope feeder	

When the setting is Auto, every input option equipped with size sensing hardware automatically registers what size media it contains. When the setting is Off, the media size detected by hardware is ignored. The media size can be set by the operator panel or the data stream.








To change the size sensing setting:

1. Touch  to select **SIZE SENSING** from the Configuration Menu.
2. The panel displays the setting's name in the header and  [setting's current value]  below the header row. Touch  or  to change the setting. The selections are Auto and Off.
3. Touch **Submit** to save your change.

Touch **Back** to exit without changing the value.

## ***Panel Menus***

To change the Panel Menu setting:

1. Touch  to select **Panel Menu** from the Configuration Menu.
2. The panel displays the setting's name in the header and  [setting's current value]  below the header row. Touch  or  to change the setting. The selections are Disable and Enable. The default is Enable.
3. Touch **Submit** to save your change.

Touch **Back** to exit without changing the value.






## ***PPDS Emulation***

This menu item allows the user to enable or disable PPDS emulation data stream. When this setting is enabled, the following settings are also changed:

- SmartSwitch settings for each port are turned off.
- The printer language is changed to PPDS Emulation.

Users can still switch languages on the operator panel and through the PJI data stream.

To change the PPDS Emulation setting:

1. Touch  to select **PPDS Emulation** from the Configuration Menu.
2. The panel displays the setting's name in the header and  [setting's current value]  below the header row. Touch  or  to change the setting. The selections are Activate and Deactivate. The default is Deactivate.
3. Touch **Submit** to save your change.

Touch **Back** to exit without changing the value.



## Factory Defaults

This setting enables a user to restore all the printer settings to the original factory settings. Selections are **Restore Base**, **Restore Network**, or **Restore LES**. Restore LES enables you to remove all Lexmark Embedded Solutions applications (LES).

Network does not appear unless you have a network printer. The following settings are not changed:

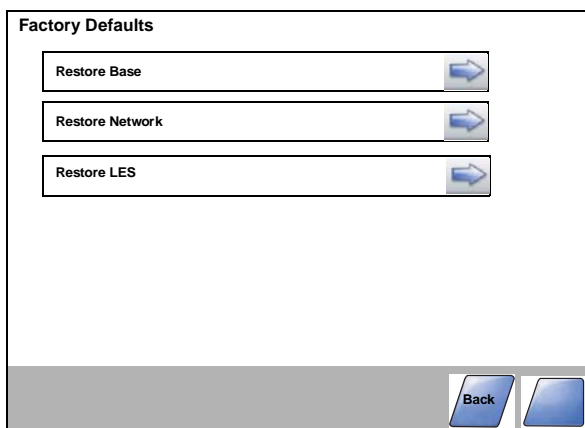
- Display language
- Settings in the NETWORK/PORTS MENU group.

To reset factory defaults:

1. Touch  to select Factory Defaults from the Configuration Menu.
2. Touch  to select either Restore Base, Restore Network, or Restore LES.






**Note:** There is no confirmation, and selecting one of these settings immediately takes effect. The MFP restarts and returns to Ready state.

Restoring Factory Defaults and then Resetting the Device are displayed.



## Energy Conserve



This menu controls what values appear on the Power Saver menu. If **Off** is selected in Energy Conserve menu, then Disabled appears in the Power Saver menu, and Power Saver can be turned off. If **On** is set in Energy Conserve, the Power Saver feature cannot be disabled.



1. Touch  to select **Energy Conserve** from the Configuration Menu.
2. The panel displays the setting's name in the header and  [setting's current value]  below the header row. Touch  or  to change the setting. The selections are On and Off. The default is On.
3. Touch **Submit** to save your change.

Touch **Back** to exit without changing the value.

## Min Copy Memory

1. Touch  to select **Min Copy Memory** from the Configuration Menu.

The panel displays the setting's name in the header and  [setting's current value]  below the header row.

2. Touch  or  to change the setting.


For example, the values may be 25 MB, 35 MB, 50 MB, and 100 MB. The default is 25 MB. Values will only be displayed if the amount of installed DRAM is at least twice the amount of the value, that is, at least 200 MB of installed DRAM is required to display the 100 MB selection.

3. Touch **Submit** to save your change.

Touch **Back** to exit without changing the value.

## Format Fax Storage

This setting enables you to format the non-volatile storage used for storing faxes.

To change this setting, touch  to select **Format Fax Storage** from the Configuration Menu. *Formatting Fax Flash DO NOT POWER OFF* appears on the LCD while the format operation is active.



**Note:** If an advanced password has been established, you must enter this password in order to change the setting.

## ADF Edge Erase

The ADF Edge Erase and FB Edge Erase settings specify, in millimeters, the size of a border around the scanned image that will be erased. For copies, the printed page will have a 2 mm no-print border. The larger of the 2 mm no-print border and the Edge Erase setting will be used in this situation.

To change this setting:

1. Touch  to select ADF Edge Erase from the Configuration Menu.

The panel displays the setting's name in the header and  [setting's current value]  below the header row.

2. Touch  to increase the value or  to decrease the value.

The values are 0 through 6. The default is 3.

3. Touch **Submit** to save the change.



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



## FB Edge Erase

The ADF Edge Erase and FB Edge Erase settings specify, in millimeters, the size of a border around the scanned image that will be erased. For copies, the printed page will have a 2 mm no-print border. The larger of the 2 mm no-print border and the Edge Erase setting will be used in this situation.

To change this setting:

1. Touch  to select **FB Edge Erase** from the Configuration Menu.

The panel displays the setting's name in the header and  [setting's current value]  below the header row.

2. Touch  to increase the value or  to decrease the value.

The values are 0 through 6. The default is 3.

3. Touch **Submit** to save the change.

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

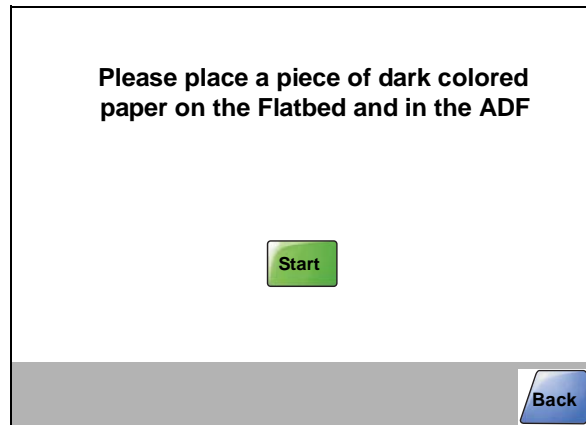
## Automatic Scanner Registration

To perform the Automatic Scanner Registration:

1. Obtain two pieces of colored paper (A4 or letter) for the automatic registration. Use a light blue sheet or other solid color paper.

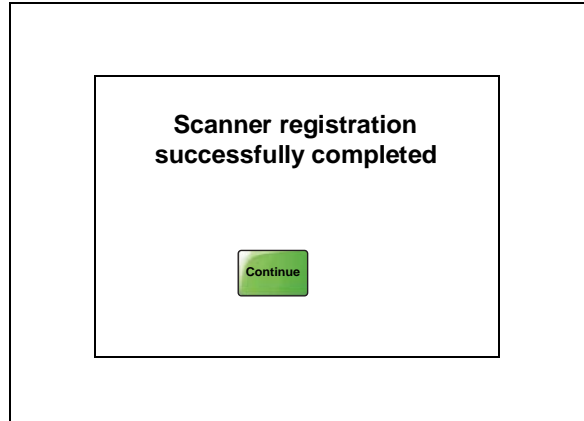
**Note:** Always store the colored sheets so they do not become creased or torn. The sheets can be used if you need to run Automatic Scanner Registration at another time.

2. Scroll through the menus using the down arrow, and select **Automatic Scanner Registration** from the Configuration Menu.



3. Place a colored piece of paper in the ADF, making sure the edge guides are properly adjusted. Place another piece of paper (A4 or letter) on the flatbed. Touch **Start**.

4. The touchscreen displays DO NOT POWER OFF Scanner Registration. When complete, a screen similar to the following should appear:



5. Touch **Continue**.

**Note:** If the Automatic Scanner Registration displays a failure, repeat the process making sure the paper is aligned as correctly as possible. If the process fails again, contact the next level of support.

## **EVENT LOG**

The event log provides a history of printer errors. The event log can only be printed in CONFIG MENU. Additional options are available in DIAGNOSTICS. See **“EVENT LOG” on page 3-21**.

To print the event log:

1. Touch **⇒** to select **Event Log** from Configuration Menu.
2. Touch **⇒** to print the log. **Printing Event Log.** displays on the touchscreen.
3. Touch **Back** to return to EVENT LOG.

**Note:** An event log printed from the CONFIG MENU will not contain debug information or secondary codes for 900 service errors. However, the event log printed from DIAGNOSTICS mode does include this information.

## **Paper Prompts**

When a tray is out of the indicated paper size, a prompt is sent to the user to load paper in a tray. This setting controls the tray the user is directed to fill.

1. Touch **⇒** to select **Paper Prompts** from the Configuration Menu.

The panel displays the setting's name in the header and **◀ [setting's current value] ▶** below the header row.

2. Touch **▶** or **◀** to change the value.



The values are Auto (default), MP Feeder, and Manual Paper.

3. Touch **Submit** to save the change.

## Envelope Prompts

This setting controls the tray the user is directed to refill when a specific envelope size is out. The selections are **Auto** (default), **MP Feeder**, and **Manual Env**.

1. Touch  to select **Envelope Prompts** from the Configuration Menu.

The panel displays the setting's name in the header and  [setting's current value]  below the header row.

2. Touch  or  to change the value.





The values are Auto (default), MP Feeder, and Manual Envelope.

3. Touch **Submit** to save the change.

## Jobs On Disk

Model X646e only. If the hard disk is installed, Jobs On Disk allows the user to delete buffered jobs saved on the disk. The values are **Delete** and **Do Not Delete**.

To delete jobs saved on the disk:

1. Touch  to select Jobs On Disk from the Configuration Menu.
2. Touch  to select **Delete** to decrease the setting's value.
3. Touch  or  to change the value.

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

## Disk Encryption

Model 500S only. If a hard disk is installed, Disk Encryption selects whether the data on the disk is encrypted or not. The values are **Disable** and **Enable**.

This setting determines if the printer encrypts the information that it writes to the hard disk. The values are Disable and Enable.

**Warning:** If the value is changed from Enable to Disable or from Disable to Enable, then the printer completely formats the hard disk. All information on the disk will be unrecoverable.

To change this setting:

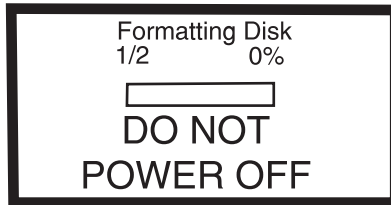
1. Touch  to select **Disk Encryption** from the Configuration Menu.

**Note:** If an advanced password has been established, you must enter this password in order to change the setting. If no advanced password exists, you can establish one by using the keyboard that appears on the LCD.

2. Touch  next to either **Enable** or **Disable**.

If you remove an encrypted disk from a device and then try to install another disk, *Disk Corrupted. Reformat?* appears on the LCD. You can format the newly installed disk or remove it from the device.

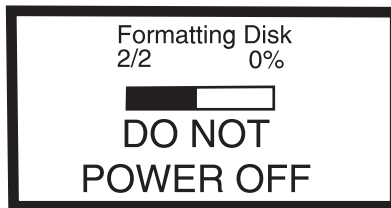
3. Contents will be lost. Continue? appears on the touchscreen. Touch **No** to cancel or **Yes** to proceed. If you select Yes, the printer performs the selected action on the hard disk. The following graphic appears when the encryption process is selected:



The panel provides many progress indicators during the two-stage process.

- 1/2 indicates that the process is currently in the first stage.
- 0% indicates the progress of the current stage of the process.
- The progress bar indicates the overall completion of the entire process by filling in throughout each separate stage.

When the first stage of either process completes, the printer displays either of the following graphics depending on the process selected and then begins the second stage of the process:



The entire process is complete when the progress bar appears completely shaded and the percentage indicator shows 100%. After completion, the panel returns to Disk Encryption.

## **Wipe Disk**

This setting provides you with a tool for erasing the contents of a disk.

**Warning:** Wipe Disk removes a disk's data in such a way that it cannot be recovered.




To change this setting:

1. Touch  $\Rightarrow$  to select **Wipe Disk** from Configuration Menu.  
**Note:** If an advanced password has been established, you must enter this password in order to change the setting. If no advanced password exists, you can establish one by using the keyboard that appears on the LCD.
2. Touch  $\Rightarrow$  to select **Wipe disk now**.  
Contents will be lost. Continue? appears on the touchscreen.
3. Touch **Back** to return to EVENT LOG.
4. Touch **Yes** to continue, or touch **No** to exit.

## **Font Sharpening**

This setting allows a user to set a text point size below which the high frequency screens are used when printing font data. For example, at the default 24, all text in font sizes 24 and less will use the high frequency screens. The values for this setting range from 0 to 150, and the default value is 24. This setting affects PostScript, PCL, and XL.

To change this setting:

1. Touch  to select **Font Sharpening** from the Configuration Menu.
2. Touch  to increase the value or  to decrease the value.
3. Touch **Back** to cancel and return to the Configuration Menu.
4. Touch **Submit** to save the change.

This function is not supported when the device generates output at 600 dpi resolution.


## **Require Standby**

This setting determines if the Standby Mode is On or Off. The default is On.

If Standby Mode is on, the printer begins functioning in Standby Mode when it remains idle for an amount of time. The Standby Mode enables the printer:

- To consume less energy than when operating in normal mode but not as little as when operating in Power Saver
- To return to the Ready state more quickly than when operating in Power Saver


To change this setting:

1. Touch  to select **Require Standby** from the Configuration Menu.
2. Touch **Back** to cancel and return to the Configuration Menu.
3. Touch **Submit** to save the change.

## **LES Applications**

This disables all installed OEM Embedded Solution applications. The default is Enabled.

To change this setting:




1. Touch  to select **LES Applications** from the Configuration Menu.  
**Note:** If an advanced password has been established, you must enter this password in order to change the setting. If no advanced password exists, you can establish one by using the keyboard that appears on the LCD.
2. Touch **Back** to cancel and return to the Configuration Menu.
3. Touch **Submit** to save the change.



## ***Key Repeat Initial Delay***

When a key is touched repeatedly, this is the delay before the key begins repeating. The delay ranges from 0.25 seconds to 5 seconds. The default is 1 second. Values are given in increments of 0.25 seconds.

To change this setting:




1. Touch  to select **Key Repeat Initial Delay** from the Configuration Menu.
2. Touch  to increase the value or  to decrease the value.
3. Touch **Submit** to save the change.

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

## ***Key Repeat Rate***

This is the number of times per second that a repeating key will repeat. The range is 1–100, with a default of 15 times per second.




To change this setting:

1. Touch  to select **Key Repeat Initial Delay** from the Configuration Menu.
2. Touch  to increase the value or  to decrease the value.
3. Touch **Submit** to save the change.

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

## ***Wiper Message***

To change this setting:

1. Touch  to select **Wiper Message** from the Configuration Menu.
2. Touch  or  to change the value. The values are On (default) and Off.
3. Touch **Submit** to save the change.

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

## ***Exit Configuration Menu***

Touch **Exit Config Menu** to exit the Diagnostics Menu and `Resetting the Printer` displays. The printer performs a POR, and the printer returns to normal mode.



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## Theory

### ***Autocompensator operation***

The autocompensator is a paper pick device that generates its own normal force. This force generation is inherent in the fundamental design of the pick arm. If light media is used, it picks very gently. If a heavy media is used, it picks very aggressively. No customer adjustments are necessary, therefore no special trays are needed for card stock or labels. The gearing in the arm is designed so the input torque from the motor produces a movement about the pivot of the arm. This movement produces a downward force at the pick rolls. The friction between the pick roll and the paper produces a frictional locking condition. If the paper is physically held and not allowed to feed, then the motor stalls. Slippage between the roll and the paper is theoretically impossible. When the motor is energized, the pick rolls are driven down into the stack, increasing the normal force and drive force until the bending strength of the paper is overcome and the paper bends and moves up the dam.

Once this critical threshold is achieved, the normal force remains at a level just high enough to reliably feed the paper. Rather than having a fixed spring force for feeding all weights of paper like the D-roll, this device has its own mechanical logic for producing only enough pick energy to feed a single sheet of paper regardless of its stiffness. High normal force is one of the most significant contributors to double feeding paper. The pick arm is counterbalanced by an extension spring located on the pick arm to reduce weight in the rest state. This spring is factory set to exert no more than ten to fifteen grams on the stack. This is as light as can be realistically set and always guarantee there is some force to start the autocompensating phenomena. This spring is not to be considered an adjustment for feeding problems unless it is obvious that the pick arm cannot fall all the way down to the bottom of the tray or has come loose. Poor gear efficiency can cause the arm to generate higher than normal forces. If the pick assembly is noisy, replacement may be required. The arm must pivot freely through its full range of motion. On 500-sheet trays, there are wrap springs located on the pivot arbors of the arm. These springs help prevent the arm from bouncing. If the arm appears to be binding or sticky near the bottom of the tray, these springs may be the problem. Reducing the tension on the counterbalance spring may be used as a temporary fix to get additional weight at the bottom, until the pick assembly can be replaced. However, the counterbalance spring is not to be considered an adjustment for feeding problems.

## ***Autoconnect system, paper tray options, envelope feeder—electrical***

### **Autoconnect cabling and connectors**

The printer options make electrical connection automatically, requiring no external cables when the option is mechanically installed under the printer. Communication between the option and the printer stops when you remove an option. The printer no longer recognizes the option and deletes associated messages. Each installed option below the printer provides an electrical autoconnect to the option attached below it. We do not recommend to attach or “Hot Plug” any options with the printer power turned on.

### **Duplex Option**

The duplex option interface is a six pin autoconnector that provides a +24 V dc, +24 V dc return, serial interface transmit signal, serial interface receive signal, and two ground pins. The duplex option receives the +24 V dc from the printer for the duplex motors and also converts the voltage to +5 V dc for duplex electronics.

Duplex chassis grounding is provided from the printer to the duplex option through a ground spring attached to the frame and base of the printer. The ground connection is automatically made when the option is installed below the printer.

The paper input sensor is located in the rear of the duplex option under the input paper guide. The paper exit sensor is located on the left frame assembly.

### **Option microcode**

The options are “Smart Options” or options that have a system board. The option system board has a microprocessor that controls the option mechanism. A software architecture is provided that controls the option and communicates information such as paper path status, sensor status, motor status, and so on to the printer.

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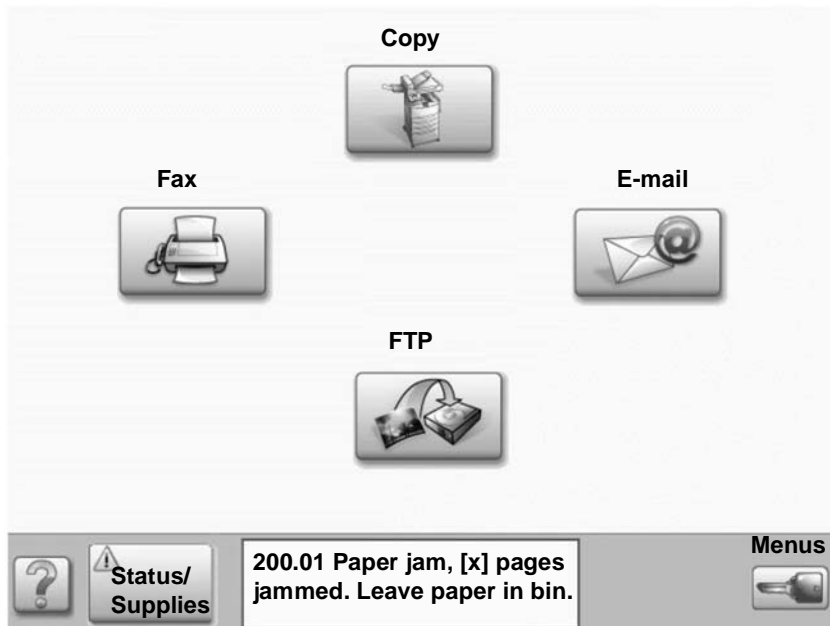
## Paper feed jams

By carefully selecting print media and loading it properly, you should be able to avoid most paper jams. For more information on avoiding paper jams, see **“Avoiding jams” on page 1-16**. If jams do occur, follow the steps outlined in this section.

To resolve the paper jam messages, you must clear the entire paper path, and then touch **Continue** to clear the message and resume printing. The MFP prints a new copy of the page that jammed if Jam Recovery is set to On or Auto; however, the Auto setting does not guarantee the page will print.

### Identifying jams

If the MFP jams, the appropriate jam message will be displayed on the touch screen Print status message bar.

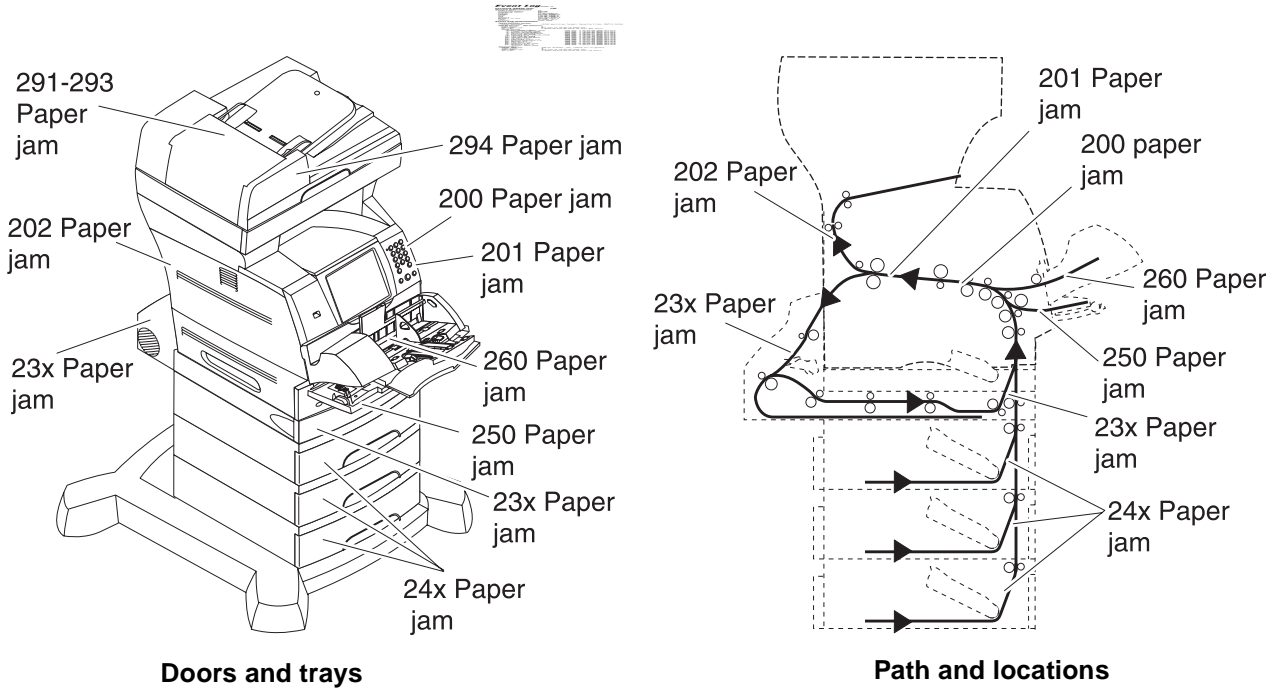


See the diagram on **“Access doors and trays” on page 3-39** for an overview of the paper path and areas where jams may occur. The path varies depending on the MFP paper sources.

## Access doors and trays

The following illustration shows the path that print media travels through the MFP. The path varies depending on the input source (trays, multipurpose feeder, envelope feeder) you are using.

The numbers in following the illustration indicate the numbers that can appear on the operator panel and designate the general area of a paper jam.



	<p><b>CAUTION</b></p> <p>Floor-mounted configurations require additional furniture for stability. You must use either a printer stand or printer base if you are using a 2000-sheet drawer. Certain other configurations also must have a printer stand or printer base.</p>
--	--

## Understanding jam messages

The following table lists the jam messages that can occur and the action necessary to clear the message. The jam message indicates the area where the jam occurred. However, it is best to clear the entire paper path to ensure you have cleared all possible jams.

Message	What to do*
<b>200 and 201 Paper Jam Remove Cartridge</b>	Open the bottom then top front covers, remove the print cartridge, and then remove the jam.
<b>202 Paper Jam Open Rear Door</b>	Open the rear door on the MFP, and remove the jam.
<b>23x Paper Jam Open Duplex Rear Door</b>	Remove the duplex tray from the duplex unit, raise the duplex deflector, and remove the jam. Open the rear duplex door, and remove the jam.
<b>250 Paper Jam Check MP Feeder</b>	Remove all media from the multipurpose feeder, flex and stack the media, reload the multipurpose feeder, and adjust the guide.
<b>260 Paper Jam Check Env Feeder</b>	Lift the envelope weight, remove all envelopes, flex and stack the envelopes, reload the envelope feeder, and adjust the guide.
<b>290, 291, 292, and 294 Scanner Jams</b>	Remove all original documents from the ADF. Open the ADF cover, and remove any jammed pages. Open the document cover, and remove any jammed pages. Open the lower exit guide, and remove any jammed pages.

## Clearing jams

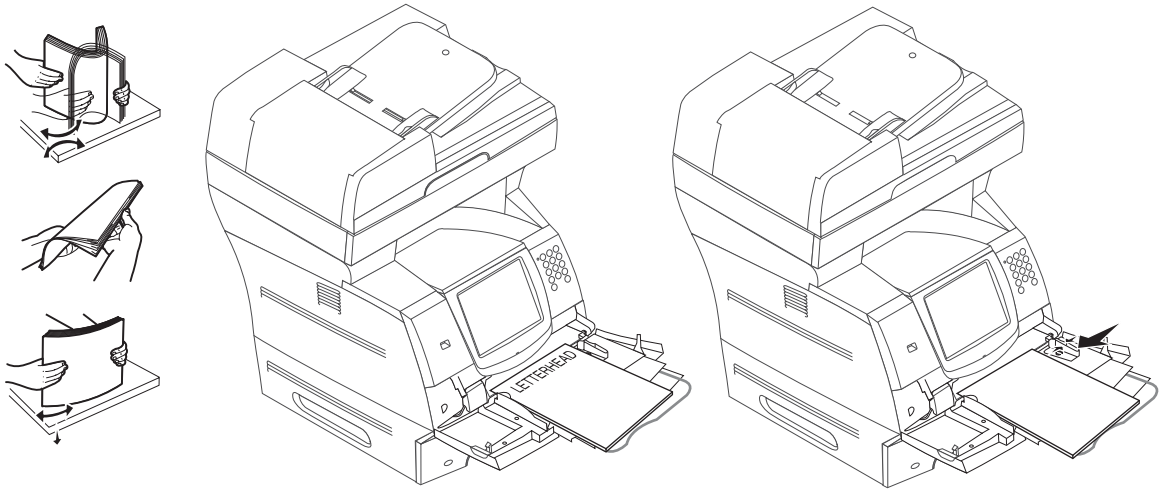
Although there are several places a jam can occur, clearing the paper path is fairly easy. Paper jams can occur in three areas: the front of the MFP, inside the MFP, and at the rear of the MFP. Jams in the front of the MFP occur in the input options or the duplex tray. Jams inside the MFP occur in two locations and require the removal of the print cartridge. Jams can also occur at the rear of the MFP or duplex unit.

**Note:** The following clearing jam instructions may seem out of numerical sequence. However, they have been grouped to help you quickly clear the print path. To go to a specific jam, see **“Understanding jam messages” on page 3-40**.

### 250 Paper Jam Check MP Feeder

1. Remove the paper from the multipurpose feeder.
2. Flex, fan, and restack the media, and place it into the multipurpose feeder.
3. Load the print media.
4. Slide the side guide toward the inside of the tray until it lightly rests against the edge of the media.

**5. Touch Continue.**



**260 Paper Jam Check Env Feeder**

The envelope feeder feeds envelopes from the bottom of the stack; the bottom envelope will be the one that is jammed.

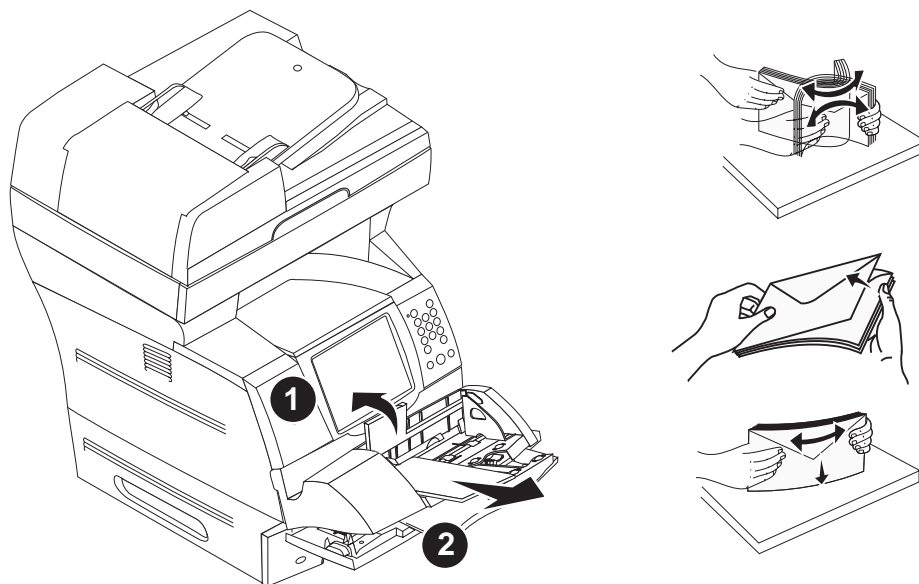
1. Lift the envelope weight.
2. Remove all envelopes.

If the jammed envelope has entered the MFP and cannot be pulled out, remove the envelope feeder.

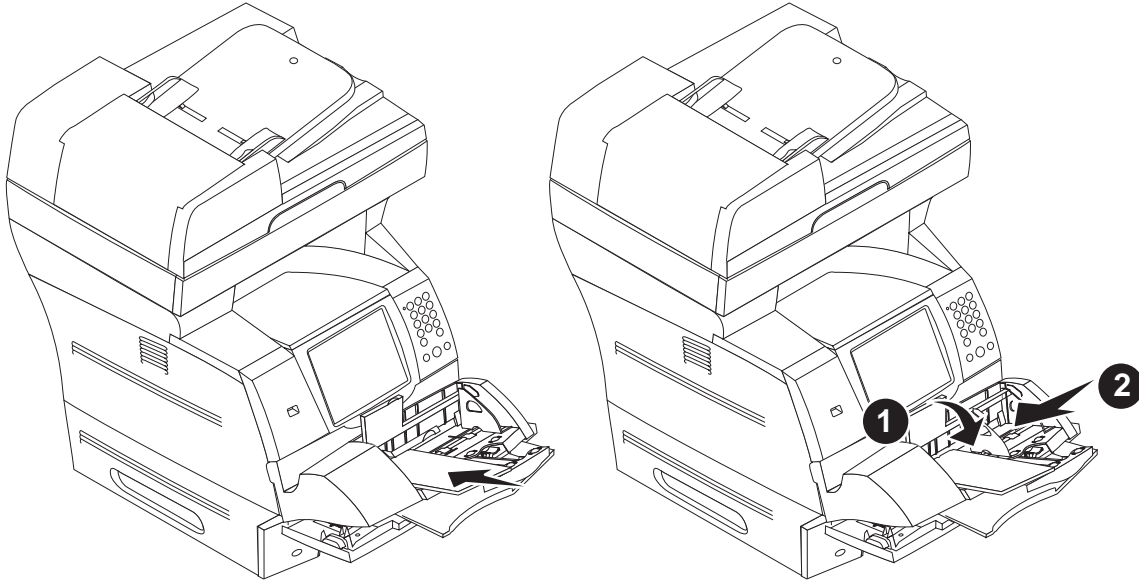
- a. Lift the envelope feeder out of the MFP, and then set it aside.
- b. Remove the envelope from the MFP.

**Note:** If you cannot remove the envelope, the print cartridge will have to be removed. See **“200 and 201 Paper Jam Remove Cartridge”** on page 3-46 for more information.

- c. Reinstall the envelope feeder. Make sure it *snaps* into place.
3. Flex and stack the envelopes.



4. Load the envelope feeder.
5. Adjust the guide.
6. Lower the envelope weight.
7. Touch **Continue**.

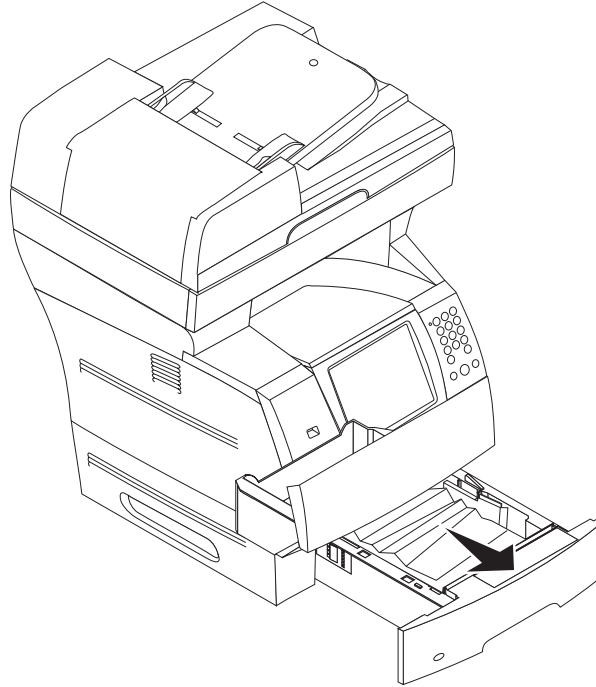




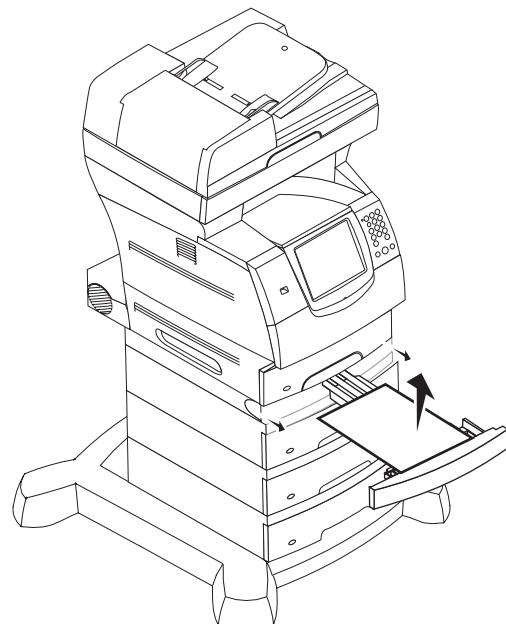
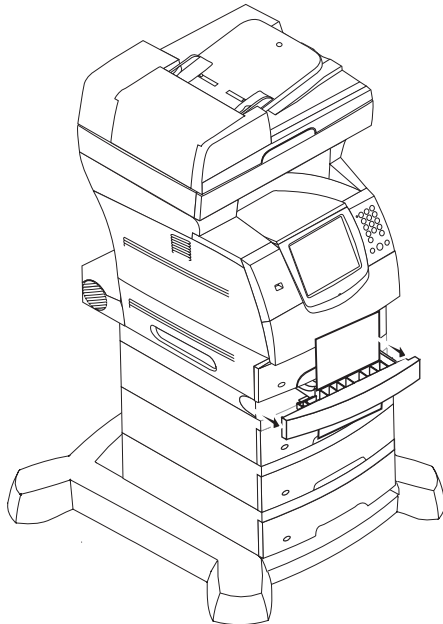
## 23x and 24x jams

Paper jams in these areas can occur on the incline surface of a tray or across more than one tray. To clear these areas:

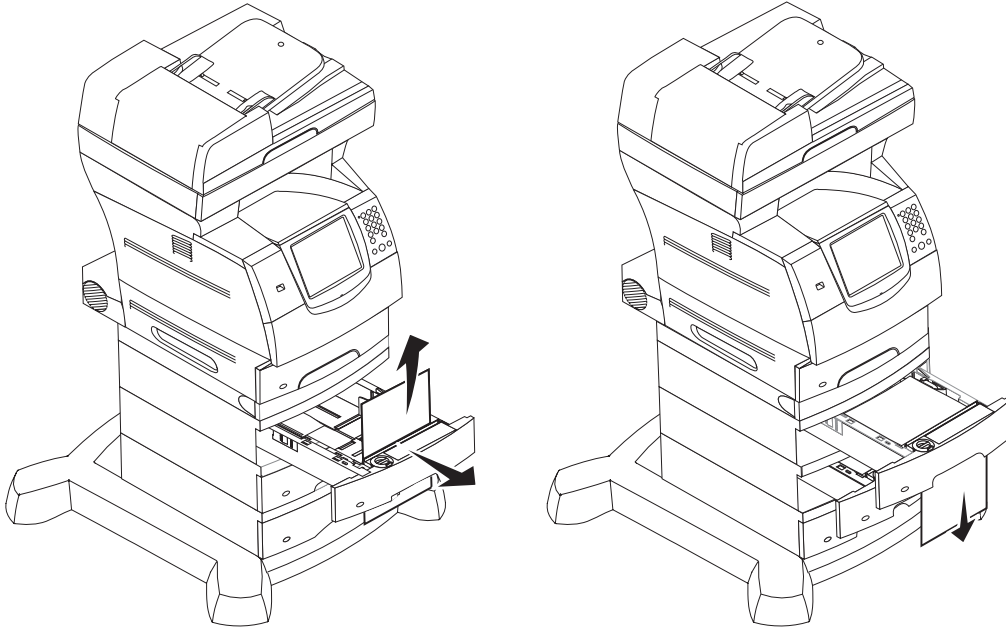
1. Open the MFP paper tray, and remove any jammed media.



2. Open the duplex tray.  
To remove the media, pull up.



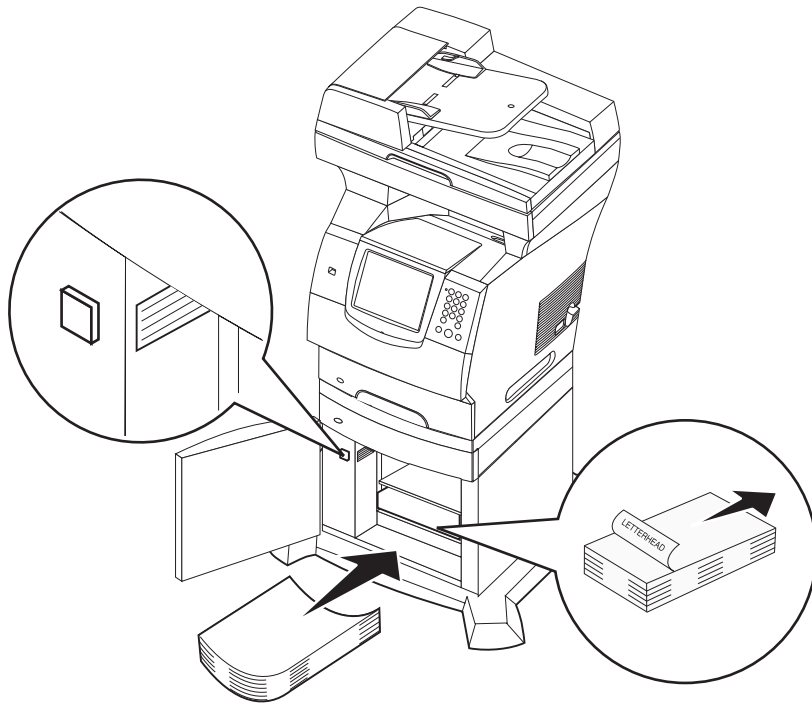
3. Open any optional trays beginning at the top, and remove any jammed media.  
Pull the print media either up or down. If it does not pull easily one way, try the other way.



**CAUTION**

Floor-mounted configurations require additional furniture for stability. You must use either a printer stand or printer base if you are using a 2000-sheet drawer. Certain other configurations also must have a printer stand or printer base.

4. If you have an optional 2000-sheet feeder, open the front door, press the elevator button to lower the tray, remove the jam, and make sure the stack of print media is neat and aligned.
5. Touch **Continue**.



**CAUTION**

Floor-mounted configurations require additional furniture for stability. You must use either a printer stand or printer base if you are using a 2000-sheet drawer. Certain other configurations also must have a printer stand or printer base.

## 200 and 201 Paper Jam Remove Cartridge

1. Push the release latch, and lower the multipurpose feeder.
2. Push the release latch, and open the top front cover.



### CAUTION

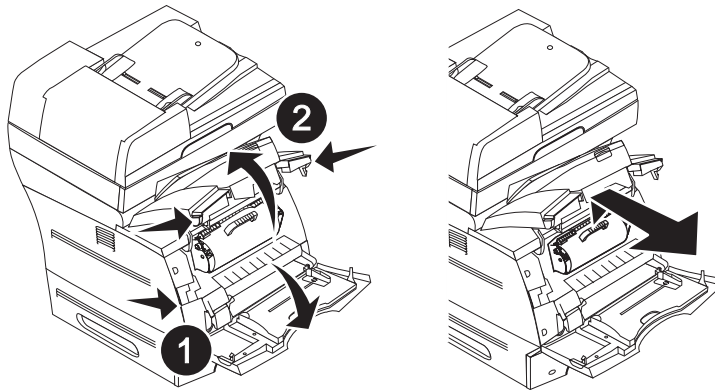
The inside of the MFP may be hot. Allow the MFP to cool before touching any internal components.

3. Lift and pull the print cartridge out of the MFP.

**Warning:** Do not touch the photoconductor drum on the underside of the cartridge. Use the cartridge handle whenever you are holding the cartridge.

4. Place the print cartridge aside.

**Note:** Do not leave the cartridge exposed to light for extended periods.



**Note:** The print media may be covered with unfused toner, which can stain garments and skin.

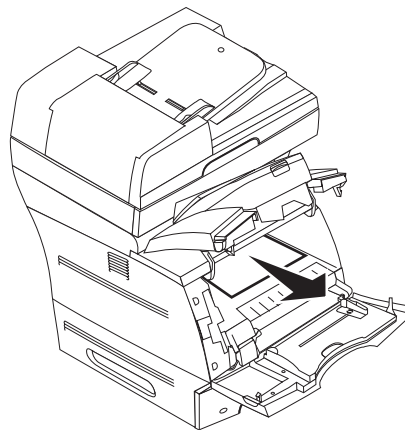
5. Pull the print media up and toward you.



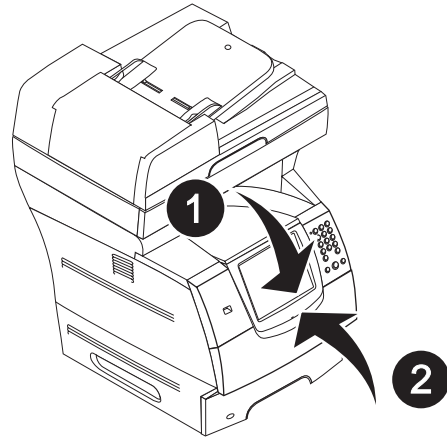
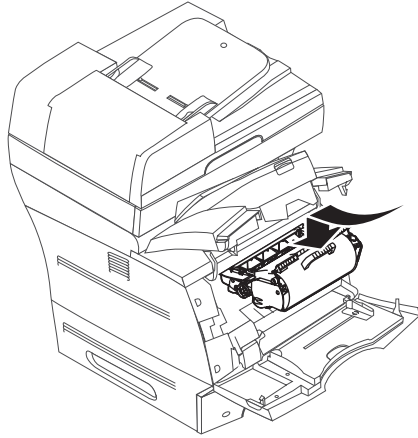
### CAUTION

Do not use any pointed objects to remove the paper. This could cause personal injury or damage to the MFP.

**Warning:** If the print media does not move immediately when you pull, stop pulling. You need to access the print media from the MFP rear door.



6. Align and reinstall the toner cartridge.
7. Close the top front cover.
8. Close the multipurpose feeder.
9. Touch **Continue**.



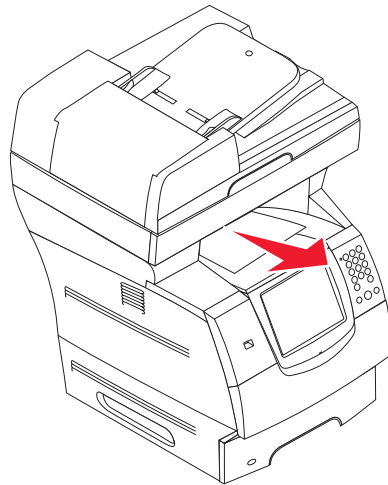
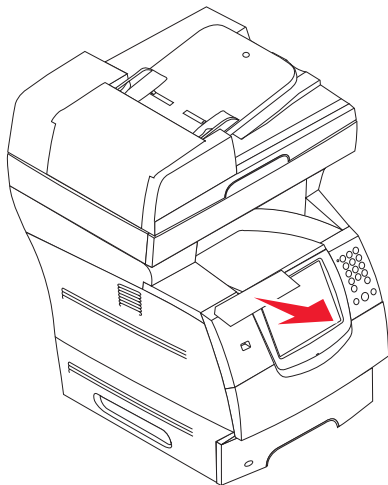
## 202 Paper Jam Open Rear Door

1. If the paper is exiting the MFP, pull the media straight out, and then touch **Continue**. Otherwise, continue with step 2.
2. Open the MFP rear door.



### CAUTION

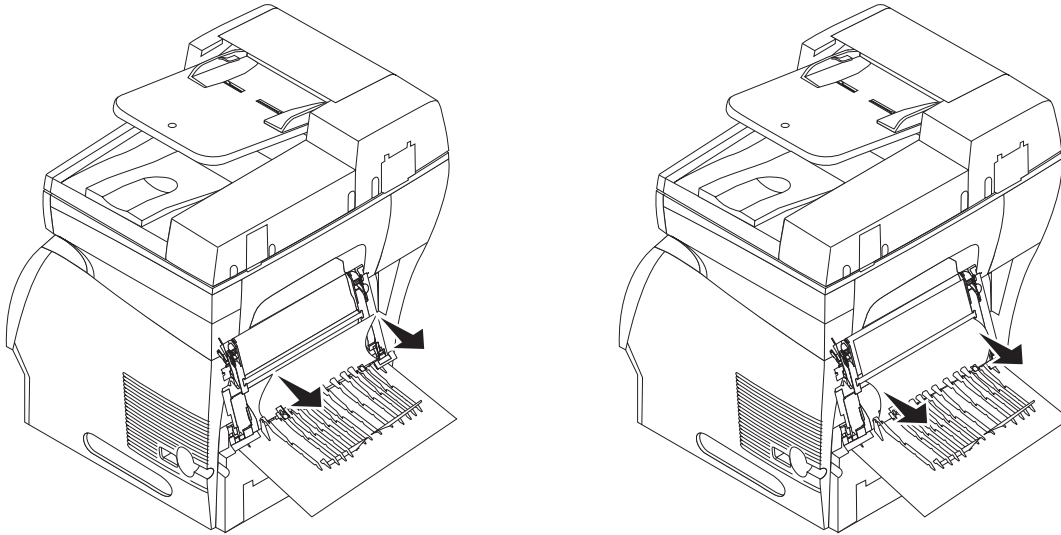
The inside of the MFP may be hot. Allow the MFP to cool before touching any internal components.



### CAUTION

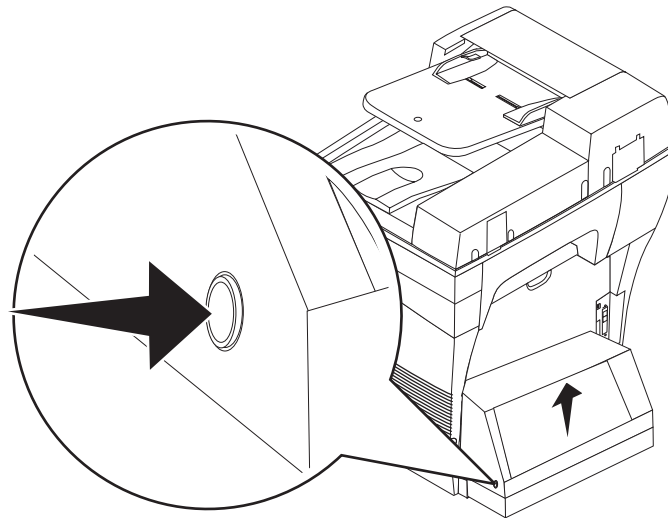
Do not use any pointed objects to remove the paper. This could cause personal injury or damage to the MFP.

3. Remove the jammed media.
4. Close the rear door.
5. Touch **Continue**.



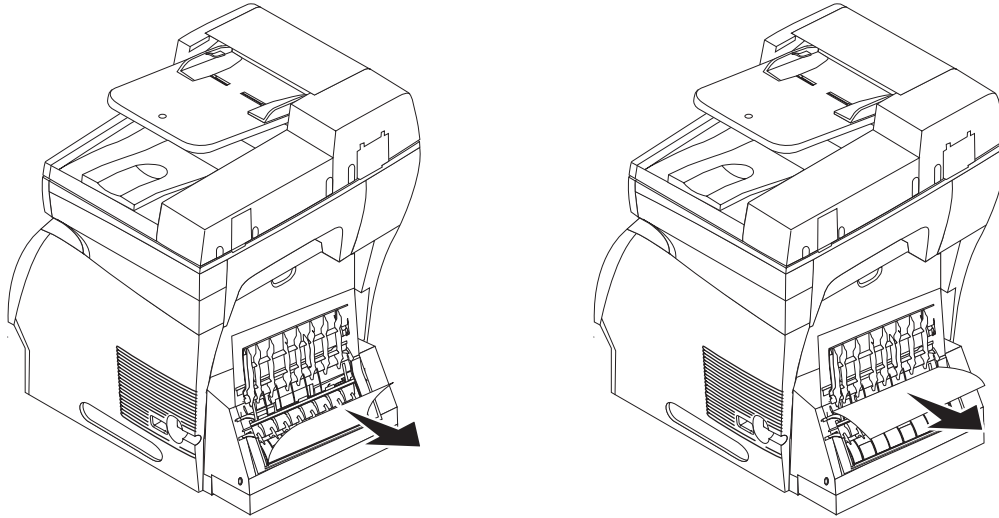
### 23x Paper Jam Open Duplex Rear Door

1. Open the duplex rear door.



2. Remove the jammed media.  
Depending on the media location, pull the media either up or down.
3. Close the duplex rear door. Make sure it *snaps* into place.

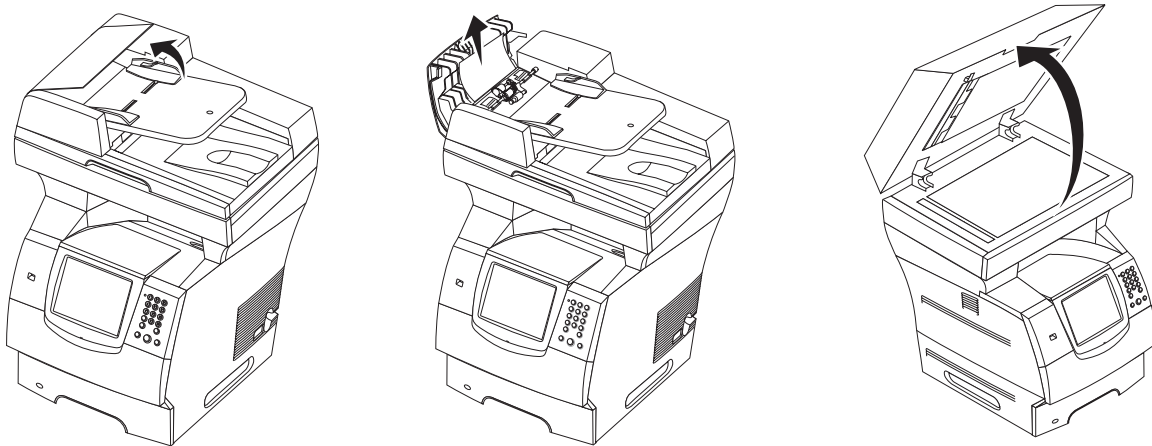
4. Touch **Continue**.



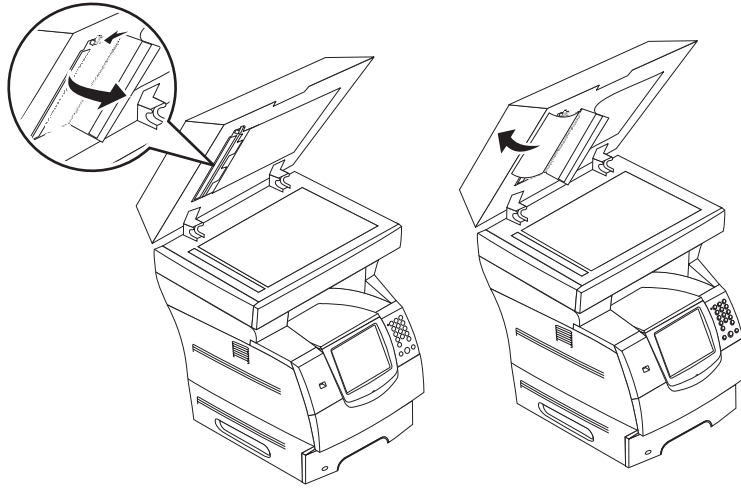
## **Clearing ADF jams**

### **290, 291, 292, and 294 Scanner Jams**

1. Remove all original documents from the ADF.
2. Open the ADF top cover, and remove any jammed pages.
3. Open the ADF cover, and remove any jammed pages.



4. Open the lower entrance guide, and remove any jammed pages.



5. Close the lower exit guide.
6. Close the ADF cover.



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## 4. Repair information

**Warning:** Read the following before handling electronic parts.

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### 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, follow the instructions below 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.

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## Adjustment procedures

### *Fuser solenoid adjustment*

Perform the fuser solenoid adjustment whenever you replace the fuser solenoid. Adjust the fuser solenoid while installed in the MFP. Adjust the screw on the eccentric mounted on the solenoid housing to provide an air gap between the rear of the solenoid stator and the solenoid armature. The solenoid air gap for all models is 4.5 mm  $\pm$  0.1 mm.

### *Gap adjustment*

The gap adjustment allows you to increase the minimum gap between sheets of paper as they are fed through the MFP. This adjustment reduces the MFP overall performance, such as pages per minute, but can help in reducing the amount of curl of some printed media, thus improving media stacking in the output bin.

1. Enter the Diagnostic Menu.
2. Select **EP SETUP** from the Diagnostic Menu.
3. Select **Gap Adjust**.
4. The range of the GAP adjustment is 0 to 255. Adjust the gap setting by using arrows to select the value and press **Submit**. If GAP=0 displays, it indicates a factory setting to minimum gap. Select a value, and run several copies of the media that displays a curl problem. It may take several tries before improvement is noticed.

**Note:** This setting has no effect when duplexing.

### *Printhead assembly adjustment—printer*

Do the printhead assembly adjustment whenever you remove or replace the printhead assembly or loosen the mounting screws.

Install the new printhead with the three mounting screws centered in the slots in the printhead frame assembly. Leave the screws loose enough to allow the printhead assembly to move from side to side within the slots. It is necessary to perform a registration adjustment before locking down the three printhead mounting screws.

To perform the registration adjustment:

1. Turn off the MFP.
2. Press and hold the **3** and **6** buttons simultaneously, and turn on the MFP.
3. Release the buttons after 10 seconds.
4. Select **Registration** from the menu.
5. Select **Quick Test Page**. The test page should only be printed on letter or A4 paper from Tray 1. The Quick Test Page consists of alignment diamonds, horizontal lines that can be used for skew adjustment, page count setting, MFP serial number code levels, and print registration settings.
6. Check the Quick Test Page for any sign of skew by checking the diamonds at the top left and top right of the test page for equal distance from the top of the page. If necessary, adjust the left or right printhead mounting screws, and check the skew again by running another Quick Test Page. This procedure may take two or three attempts before you get satisfactory results.
7. When you have the correct adjustment, gently tighten the printhead mounting screws, being careful not to move the printhead assembly.

## Paper alignment assembly adjustment

Do the alignment assembly adjustment whenever you replace the alignment assembly. Always print a copy of the Quick Test Page before making any adjustments to the alignment assembly reference adjustment screw. When replacing the alignment assembly, it is necessary to back the reference adjustment screw out far enough to remove the old assembly and install the new one.

- If you are replacing the alignment assembly, go to step A.
- If you are only adjusting the reference adjustment screw, go to step B.

### Step A

Print a copy of the Quick Test Page, and check the margin adjustments printed on the test page. These settings should be within the range specified in **“Registration (printer)” on page 3-5**.

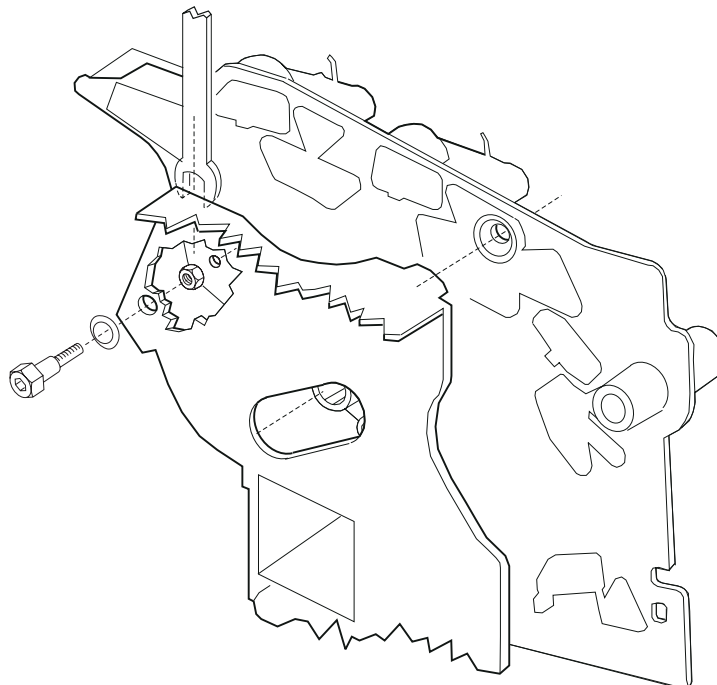
Do the reference adjustment if you are sure the margins are set correctly.

1. Loosen the locknut on the inside rear of the alignment assembly.
2. Remove the two screws holding the alignment assembly to the left side frame.
3. Back the reference adjustment screw out far enough to allow the alignment assembly to be removed from the MFP. It is not necessary to completely remove the screw.
4. Install the new alignment assembly. Turn the reference screw clockwise with a 7 mm nut driver or M3 Allen wrench until it touches the back of the reference plate, and tighten the nut with a 5.5 mm wrench.

The reference adjustment screw can be adjusted without loosening the nut. Turn the screw clockwise a few turns, and print a copy of the Quick Test Page as you check the diamonds on the left margin. Continue adjusting the screw as you check the results of each adjustment on a new test page until you obtain the results you want.

### Step B

Print a copy of the Quick Test Page, and check the margin adjustments printed on the test page. These settings should be within the range specified in **“Registration (printer)” on page 3-5**. The reference screw can be adjusted without loosening the locknut. Turn the screw a few turns, and print a copy of the Quick Test Page as you check the diamonds on the left margin. Continue adjusting the screw as you check the results of each adjustment on a new test page until you obtain the results you want.



## Scanner registration

Perform the Automatic Scanner Registration when:

- The ADF assembly, CCD, RIP card or SCU card is replaced.
- NVRAM is reset.
- The operator panel is replaced.

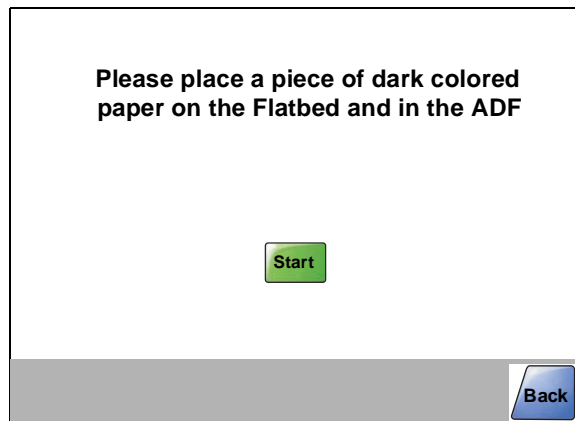
### Automatic Scanner Registration

**Note:** Before performing scanner registration, ensure MFP registration and alignment is properly set. See **“Registration (printer)” on page 3-5** and **“Printhead assembly adjustment—printer” on page 4-2** for more information.

**Note:** Always store the colored sheets so they do not become creased or torn.

To perform the Automatic Scanner Registration:

1. Enter the Configuration menu:
  - a. Turn off the printer.
  - b. Press and hold the **2** and **6** buttons simultaneously.
  - c. Turn on the printer.
  - d. Release the buttons after 10 seconds.
2. Scroll through the menus using the down arrow, and select **Automatic Scanner Registration** from the Configuration menu.

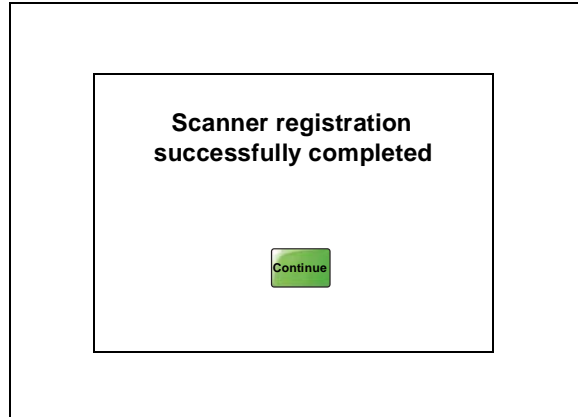


3. Place a colored piece of paper in the ADF, making sure the edge guides are properly adjusted. Place another piece of paper (A4 or letter) on the flatbed.

**Note:** Use a light blue sheet of paper for the ADF registration. The best results were obtained using Cascade MP Colors Blue 20 lb. paper (Boise Cascade part P1-MP-2201-BE). A moderate density blue paper should work if this paper cannot be found.

**4. Touch Start.**

The touchscreen displays DO NOT POWER OFF Scanner Registration. When complete, a screen similar to the following appears:



**5. Touch Continue.**

**Note:** After the registration test is complete, success or failure is indicated on the touchscreen.

**Note:** If the Automatic Scanner Registration displays a failure, repeat the process making sure the paper is aligned as correctly as possible. If the process fails again, contact the next level of support.

**6. Verify the results by running a copy of a quick test page created during MFP registration. See “Print tests” on page 3-6 for more information.**

### **Manual registration**

**Note:** Manual registration should be performed only after automatic registration is performed. The primary purpose of manual registration is to fine-tune the automatic adjustments already made. Contact your next level of support for assistance in performing the Manual Scanner Registration.

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## Removal procedures



### CAUTION

Remove the power cord from the MFP or wall outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the MFP.



### CAUTION

Use the handholds on the side of the MFP. Make sure your fingers are not under the MFP when you lift or set the MFP down.

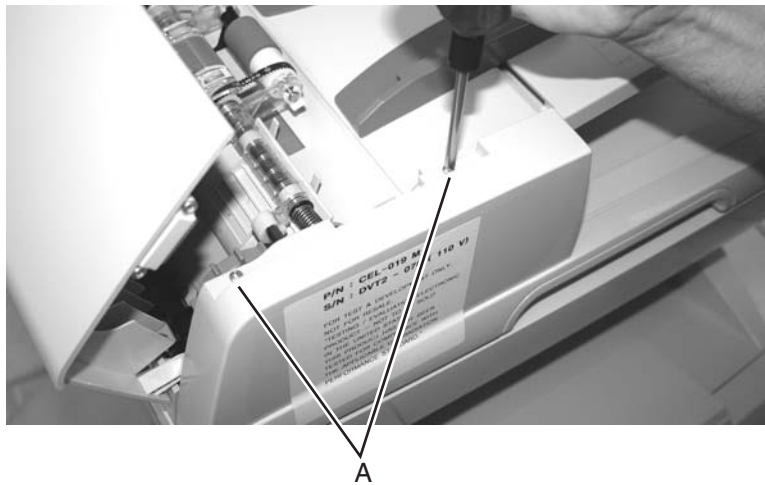
**Note:** Some removal procedures require removing cable ties. You must replace cable ties during reassembly to avoid pinching wires, obstructing the paper path, or restricting mechanical movement.

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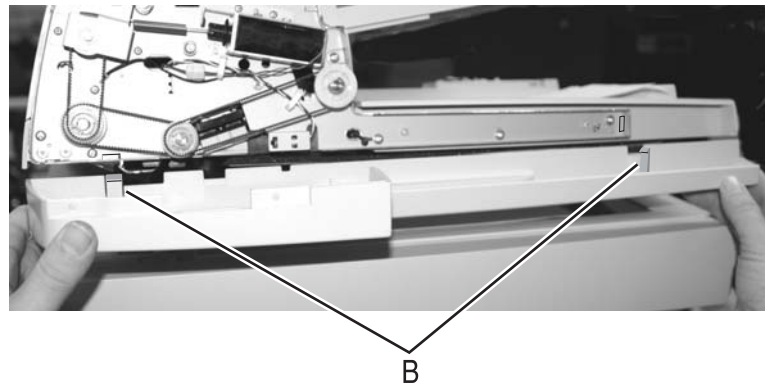
## Scanner ADF and flatbed removals

### *ADF front cover removal*

1. Open the ADF top cover.
2. Remove the two screws (A).

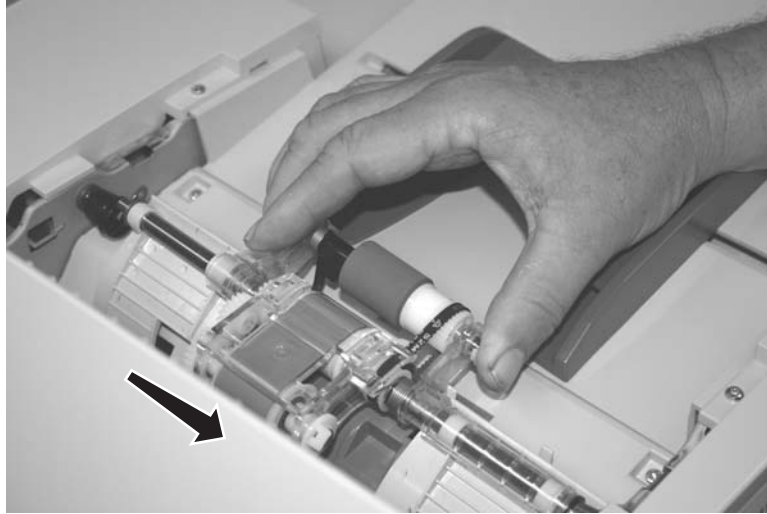


3. Release the ADF front cover latch (B) on the right side under the scanner, and then release the latch (B) on the left side.



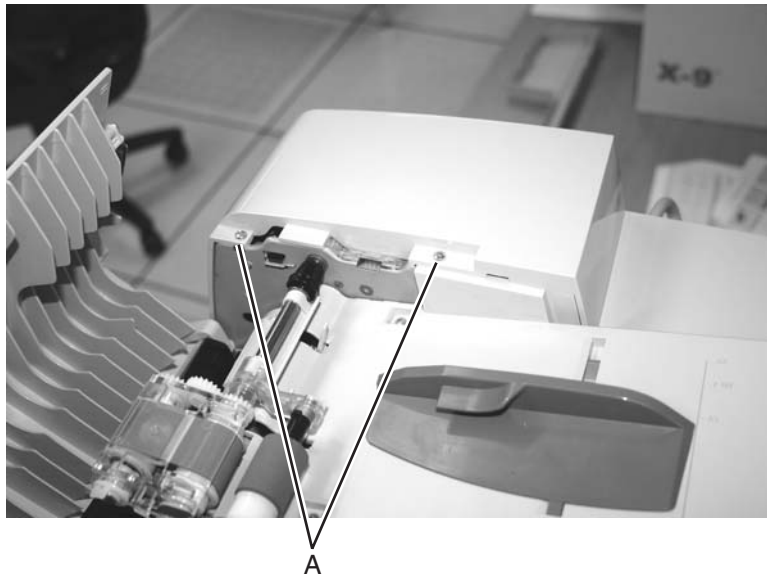
### ***ADF pick assembly removal***

1. Grasp the pick assembly, and gently push the shaft to the right to free the left side.

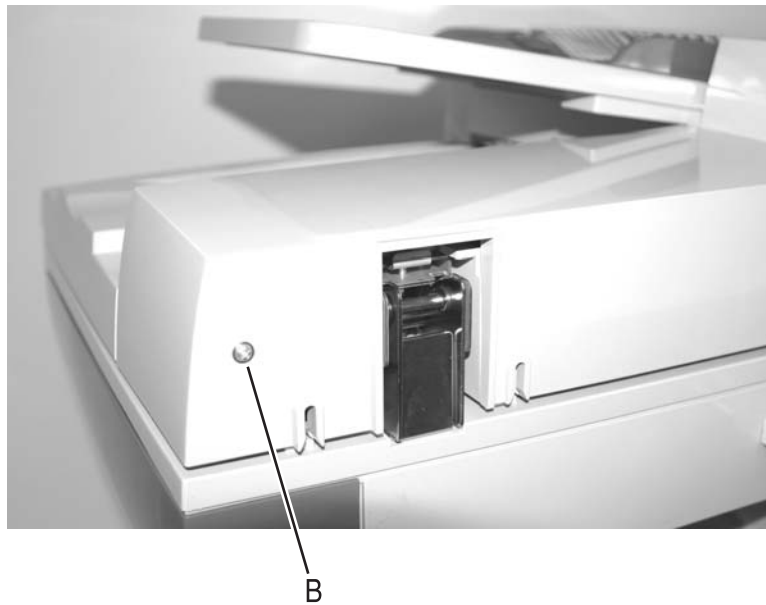


### ***ADF rear cover removal***

1. Remove the two screws (A).

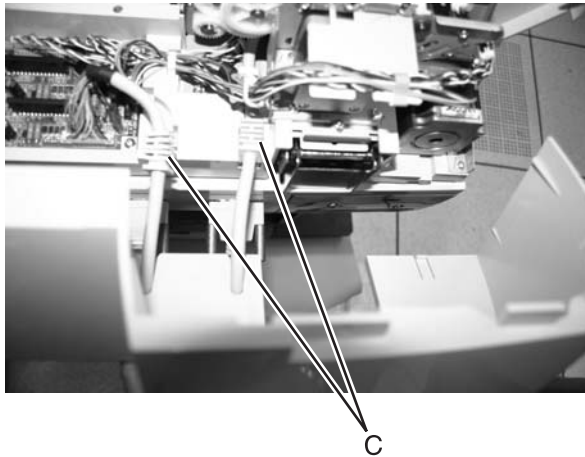


2. Remove the screw (B) on the right side.

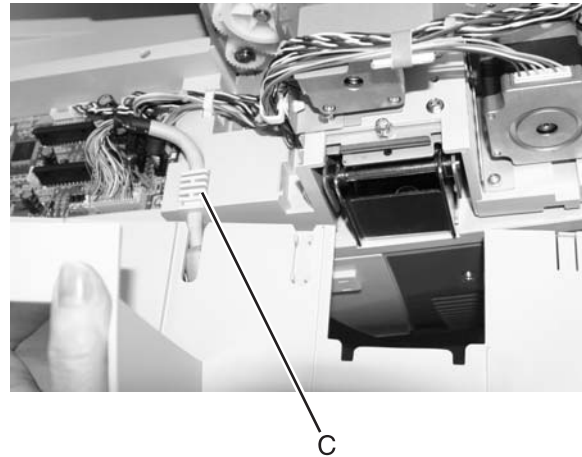


3. Remove the cable blocks (C) from the square notches. For model 500S, there are two cables and notches and for model 450S, there is a single cable.

**Model 500S**



**Model 450S**

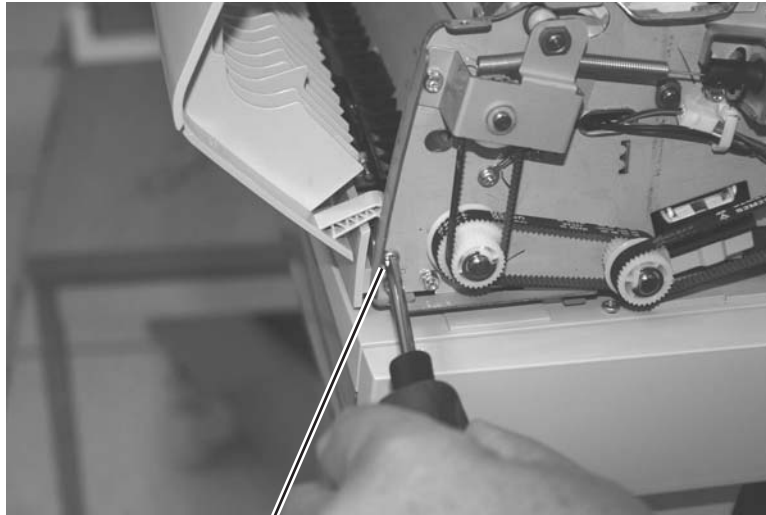


**Replacement note:** When replacing the ADF rear cover, be sure to align the cables (C) in the notches and press the square portions of the cables into the holes.



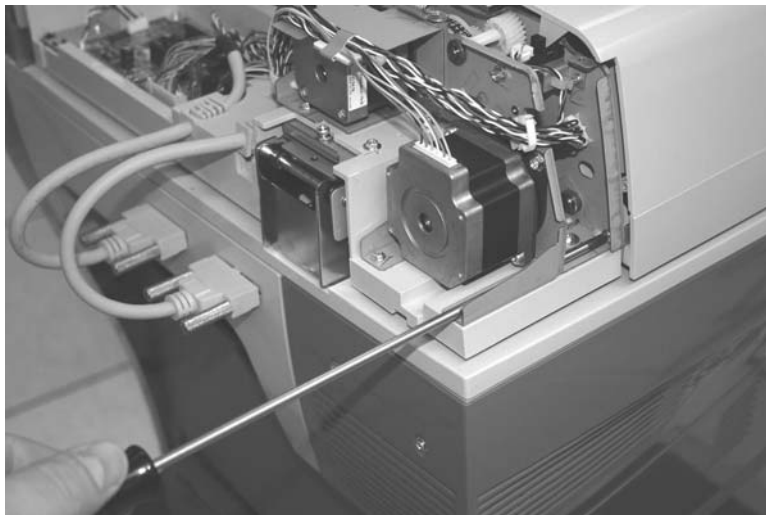
## ***ADF top cover removal***

1. Remove the ADF front cover. See **“ADF front cover removal”** on page 4-6.
2. Remove the ADF rear cover. See **“ADF rear cover removal”** on page 4-7.
3. Open the ADF top cover.
4. Remove the shoulder screw (A) on the front.



A

5. Remove the shoulder screw (B) on the rear with a long shank screwdriver. Model 500S shown.



6. Remove the ADF top cover.

## Scanner left side cover removal

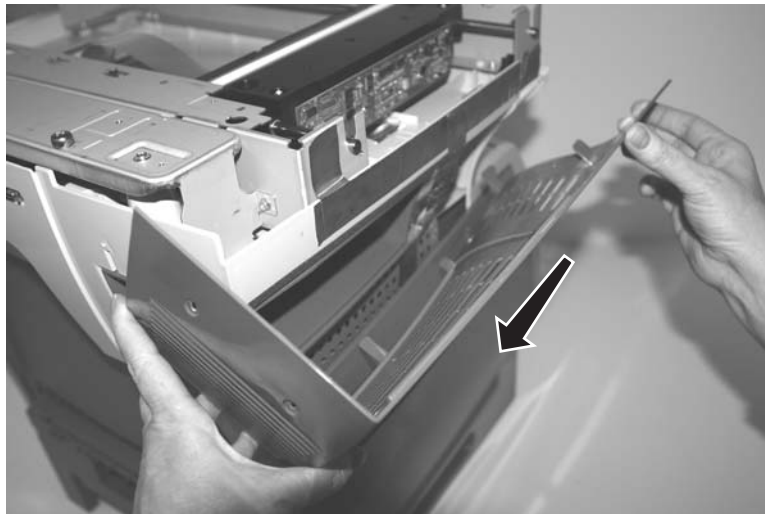
1. Remove the two screws (A).



A

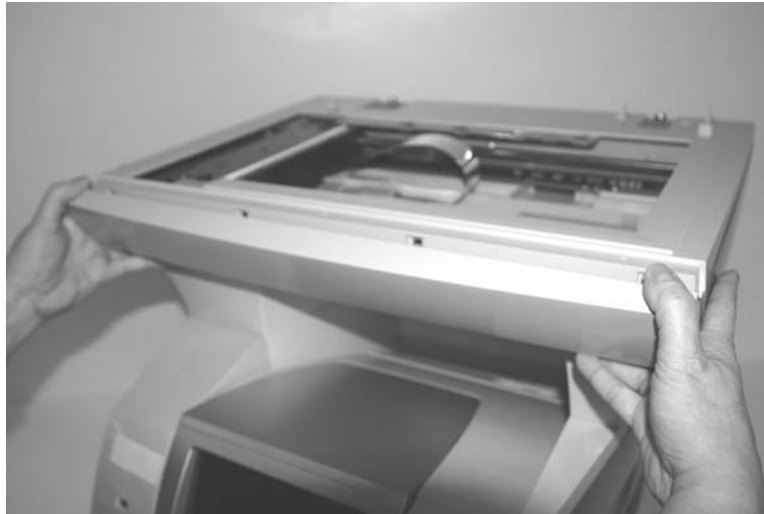
2. Slide the cover toward the rear to unlatch the cover, and remove.

**Note:** Model 500S shown.



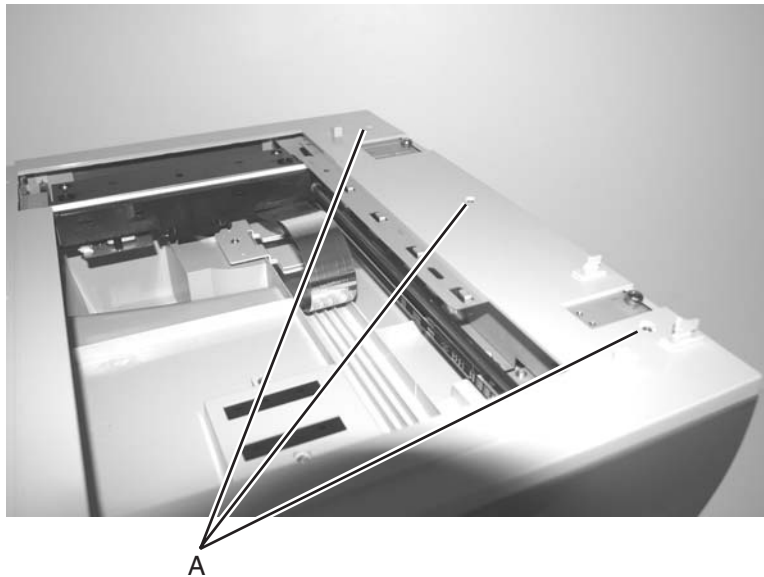
## ***Front flatbed cover removal***

Pull the top of the cover out first, and lift away to remove.

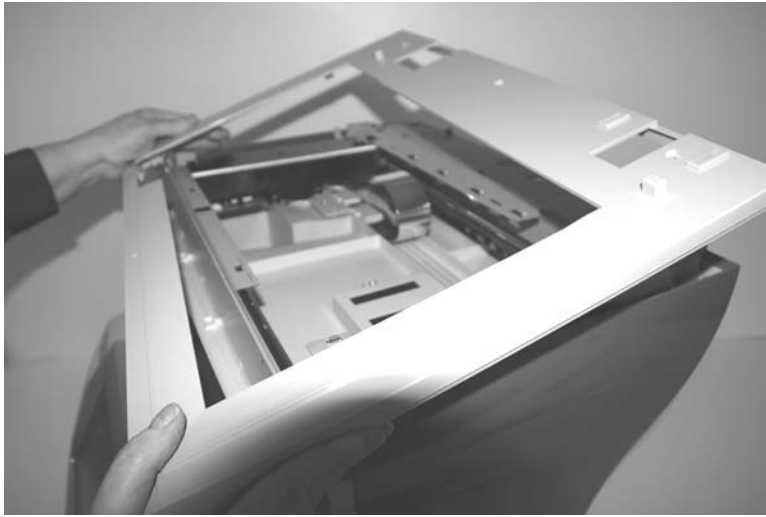


## ***Scan cover (flatbed) removal***

1. Remove the glass holder assembly. See **“Scanner flatbed glass holder assembly removal”** on **page 4-50**.
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal”** on **page 4-31**.
3. Remove the three screws (A).



4. Lift the scan cover (flatbed). Scanner right side cover removal



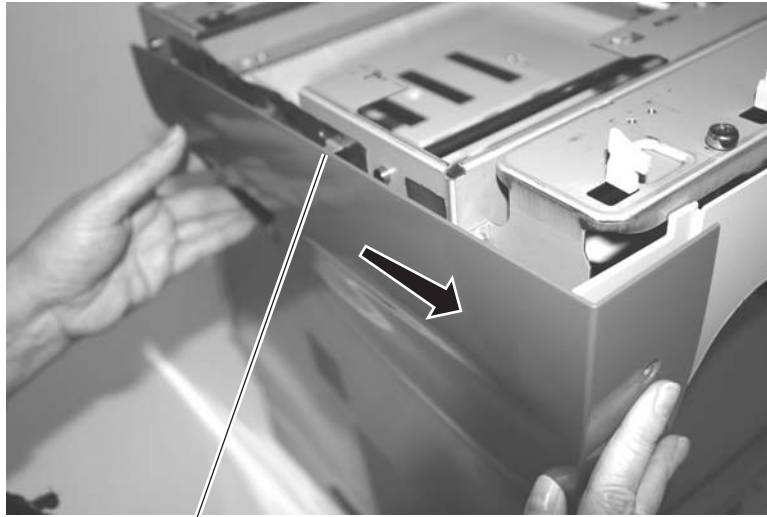
### ***Scanner right side cover removal***

1. Remove the screw (A).



A

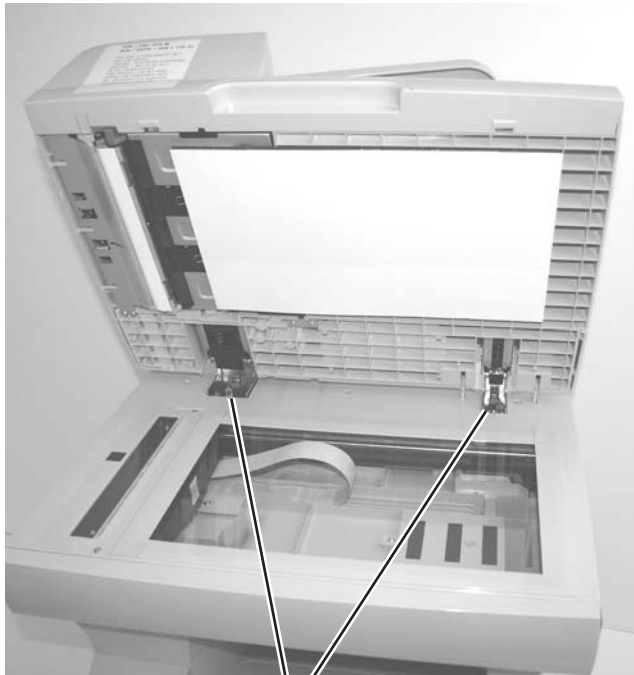
2. Slide cover back to release tab (B).



B

### ***ADF attach screws removal***

1. Open the document cover.
2. Remove the two ADF attach screws (A) by turning them by hand.



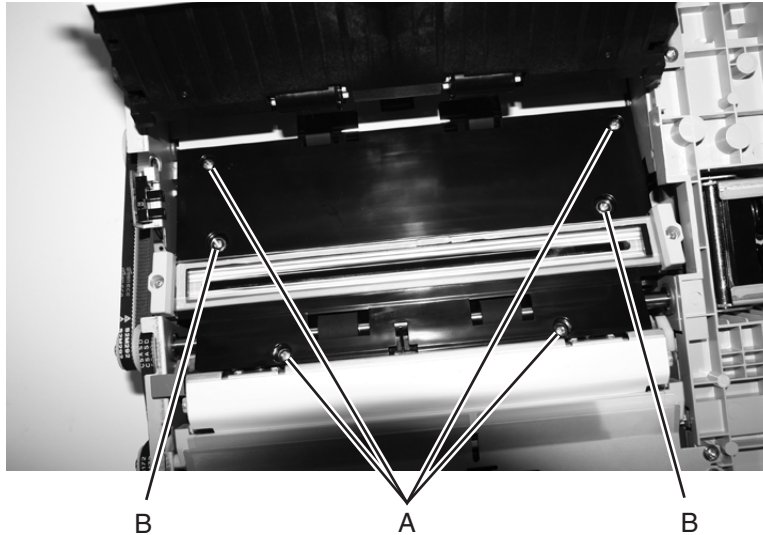
A



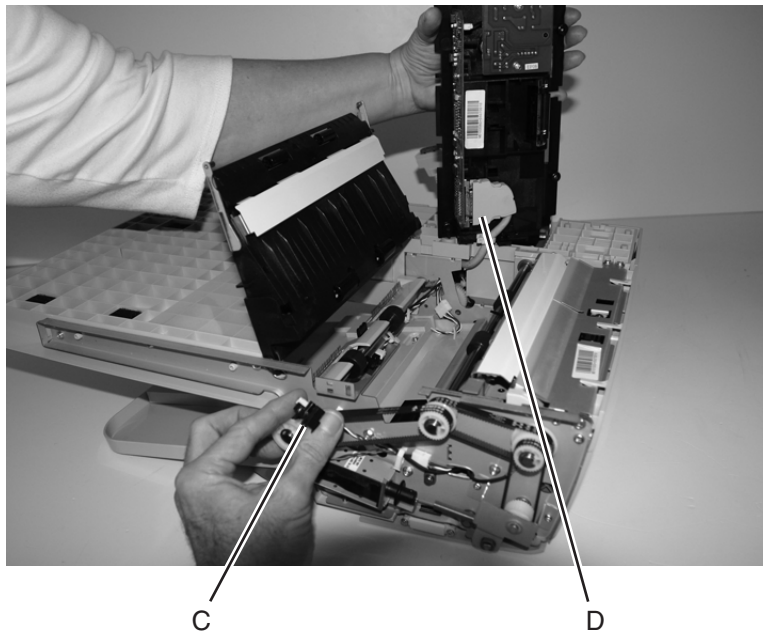
**Note:** Do not remove the screws toward the rear.

## ADF CCD module assembly removal (model 500S)

1. Remove the ADF assembly. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the ADF front cover. See **“ADF front cover removal”** on page 4-6.
3. Remove the flatbed white cushion. See **“Flatbed white cushion removal”** on page 4-32.
4. Turn the ADF assembly upside down, carefully supporting the unit.
5. Open the lower exit guide assembly.
6. Remove the four screws (A) and the two small screws (B) securing the ADF CCD module assembly.



7. Remove the ADF jam tray sensor (C) from the mounting bracket to protect it from being bumped or damaged during removal of the ADF CCD module assembly.
8. Remove the ADF CCD module assembly, and disconnect the ADF CCD to scan control cable (D).



### Reinstallation notes:

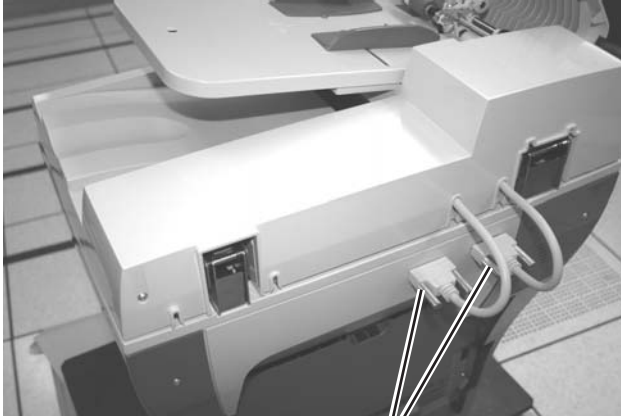
- Be sure to avoid touching the glass of the new FRU during installation.
- Be sure to reinstall the ADF jam tray sensor.

## ADF complete assembly removal

1. Twist the thumbscrews to disconnect the cable(s) (A) at the back of the ADF assembly.

**Note:** Model 450S has a single cable.

**Model 500S**



**Model 450S**



2. Remove the ADF attach screws. See **“ADF attach screws removal”** on page 4-13.  
**Note:** Do not remove the two screws in the back.
3. Lift the ADF up, and make sure you clear the two rear screws. The hinge is slotted to allow the ADF to come off and leave the screws in place.

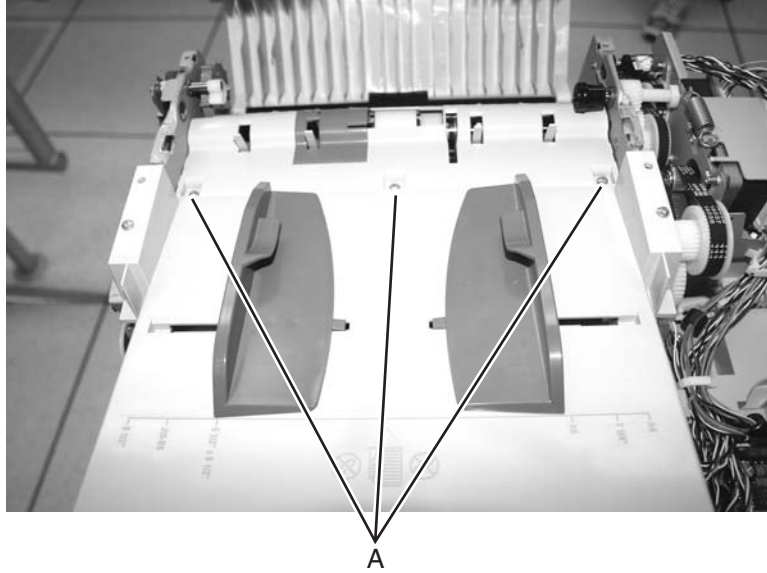


**Note:** Whenever the complete ADF assembly is replaced, it is necessary to perform the scanner registration. See **“Scanner registration”** on page 4-4.



## ***ADF upper entrance guide assembly removal***

1. Remove the ADF pick assembly. See **“ADF pick assembly removal”** on page 4-7.
2. Remove the document tray assembly. See **“Document tray assembly removal”** on page 4-23.
3. Remove the three screws (A).



4. Lift the cover.

**Replacement note:** Be sure to align the tabs.

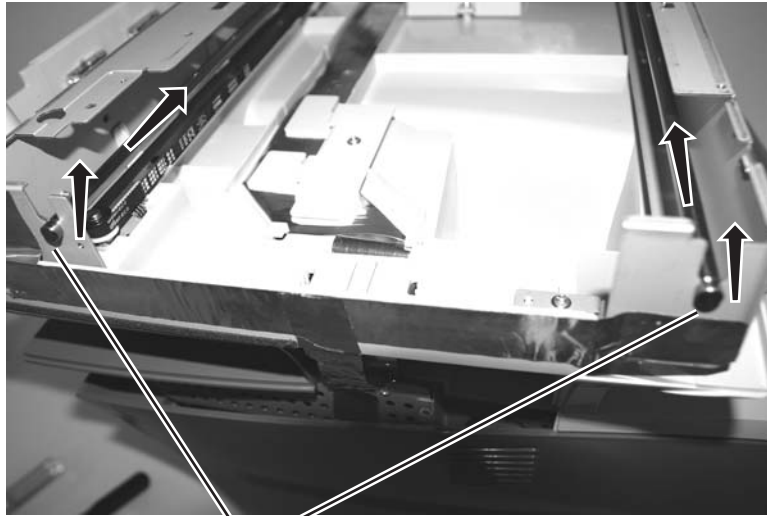


## **CCD belt removal**

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal”** on page 4-11.
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal”** on page 4-31
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal”** on page 4-12.
4. Remove the scanner left side cover. See **“Scanner left side cover removal”** on page 4-10.
5. Push the CCD belt tension spring to take tension from the belt.
6. Unhook the belt from the motor shaft.



7. Push the flatbed CCD all the way to the left.
8. Unhook the main CCD guide shafts (E) from the holes in the right side. This allows you to remove the flatbed CCD module from the shafts.



E

9. Carefully lay the flatbed CCD module on the scan frame, being careful not to touch the card, lamp, or mirrors.
10. Disconnect the CCD belt from the retainer (F) in the flatbed CCD module assembly.



F

11. Remove the CCD belt.

## ***CCD belt tension spring removal***

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Push the CCD belt tension spring toward the motor to take tension from the belt.
6. Unhook the belt from the motor shaft.

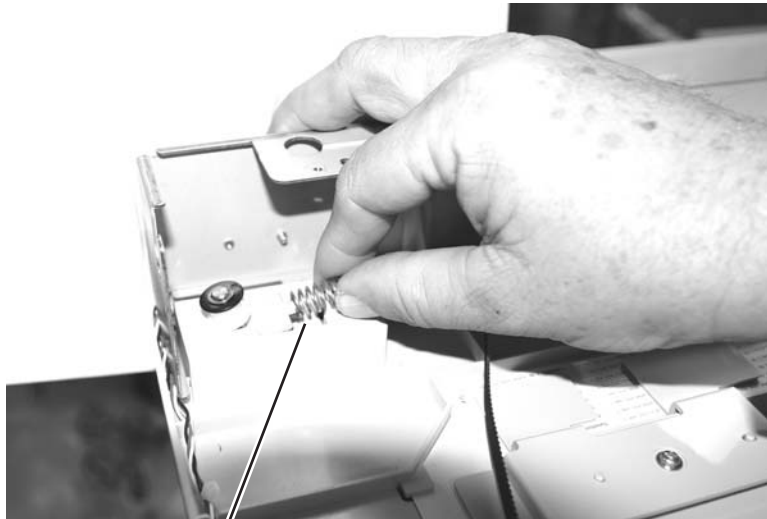


7. Unhook the main CCD guide shaft (A) from the hole in the right side, and slide it out of the way. This allows you to access the spring.



A

8. Remove the CCD belt tension spring (A).



B

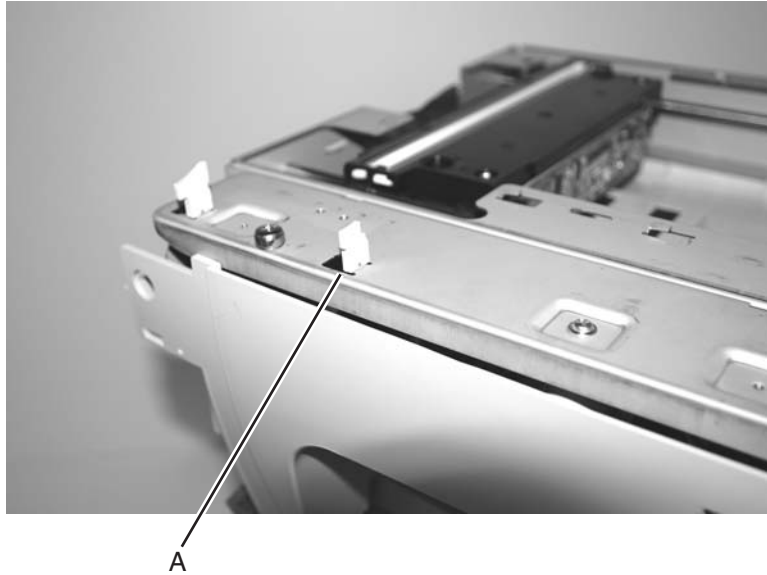
### ***Cover closing actuator removal***

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal”** on page 4-11.
2. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal”** on page 4-12.
3. Remove the scanner left side cover. See **“Scanner left side cover removal”** on page 4-10.
4. With pliers, pull firmly to remove the actuator (A).



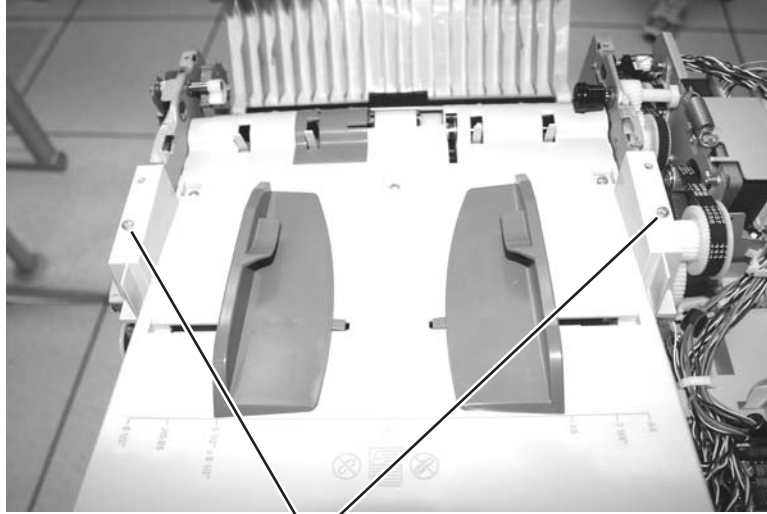
### ***Cover closed actuator removal***

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
3. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
4. With pliers, pull firmly to remove the actuator (A).



## Document tray assembly removal

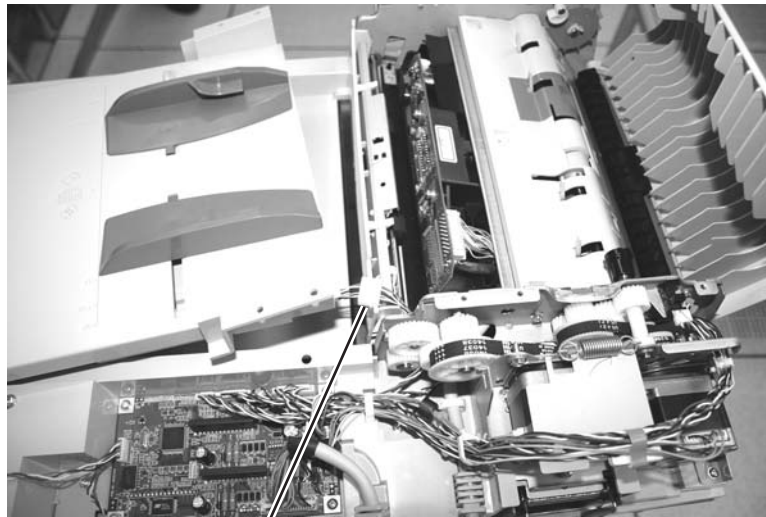
1. Remove the ADF front cover. See **“ADF front cover removal”** on page 4-6.
2. Remove the ADF rear cover. See **“ADF rear cover removal”** on page 4-7.
3. Remove the two screws (A).



A

4. For model 500S, disconnect the connector (B).

### Models 500S



B

## ***Flatbed CCD ribbon cable removal***

Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

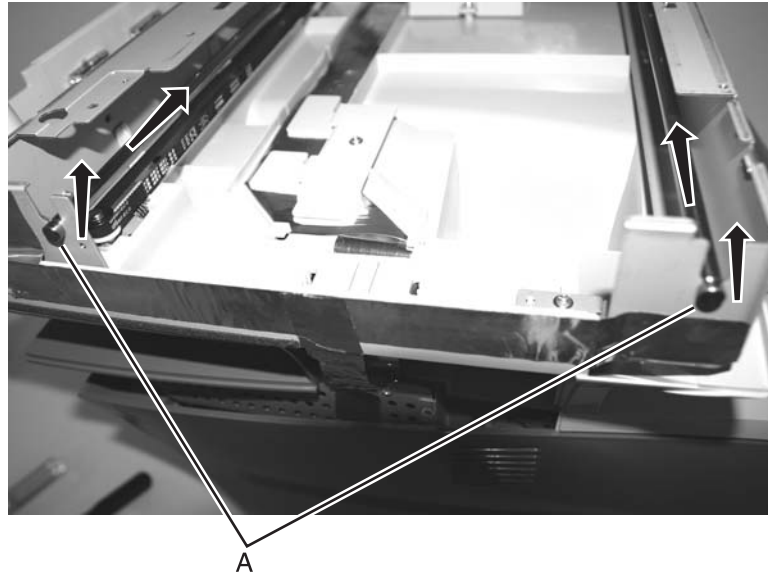
1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Push the flatbed CCD toward the motor to take tension from the belt.
6. Unhook the belt from the motor shaft.



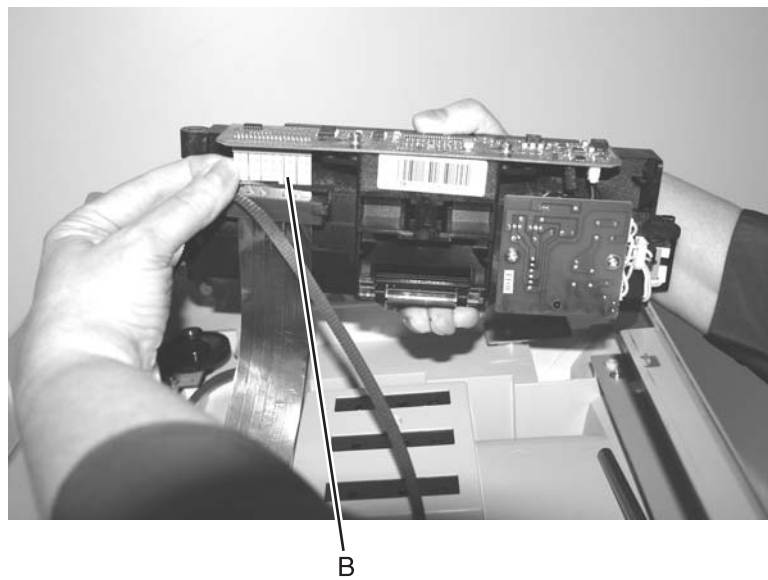
7. Push the flatbed CCD all the way to the left.



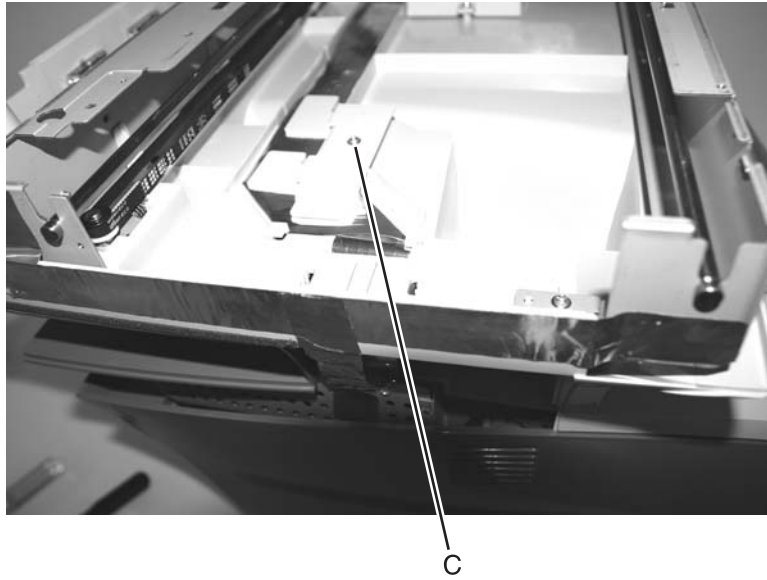
- Unhook the main CCD guide shafts (A) from the holes in the right side. This allows you to remove the flatbed CCD module from the shafts.



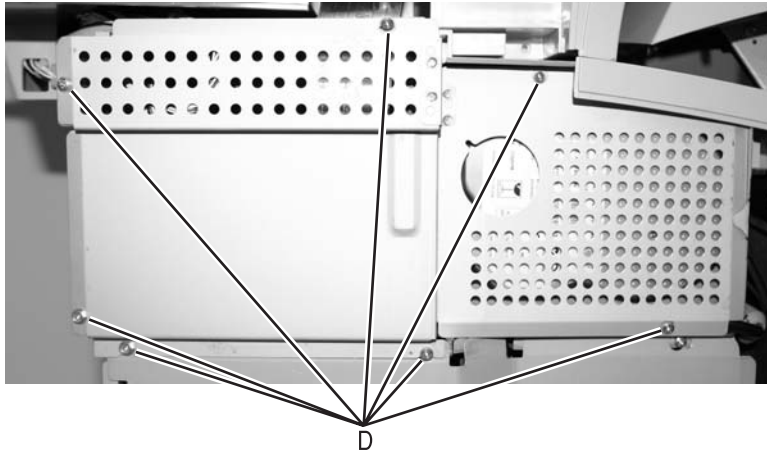
- Carefully lay the flatbed CCD module on the scan frame, being careful not to touch the card, lamp, or mirrors.
- Disconnect the flatbed CCD ribbon cable (B) from the flatbed CCD module.



11. Remove the screw (C) from the flatbed CCD ribbon cable clamp.



12. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
13. Remove the seven screws (D) from the SCC and HDD shield. (Model 500S)

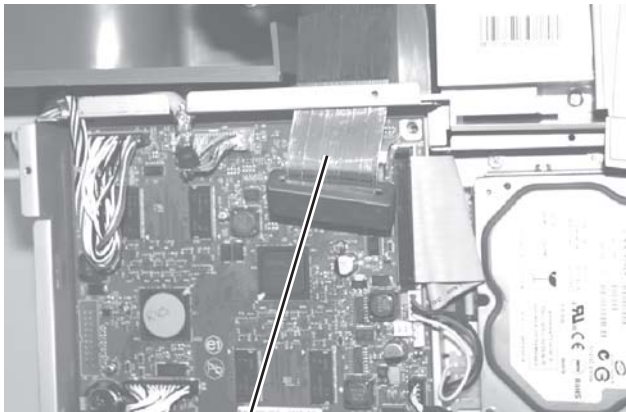


14. Loosen the screws for the printer outer shield, and slide shield to the left to allow enough room to remove the scanner control card shield and the hard disk shields.



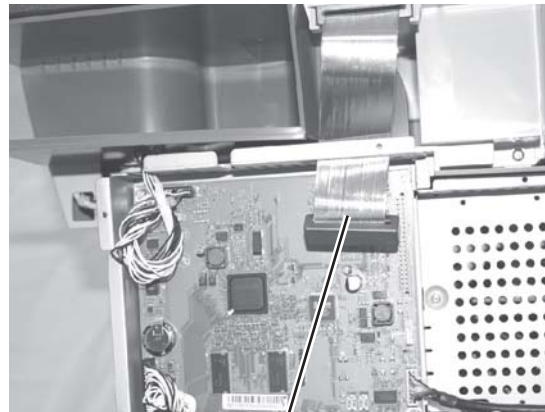
15. Disconnect the flatbed CCD ribbon cable from the scanner control card (E).

**Model 500S**



E

**Model 450S**



E

16. Remove the toroid from the cable, and set aside for reinstallation.
17. Disconnect the flatbed CCD ribbon cable from the IF interface card.

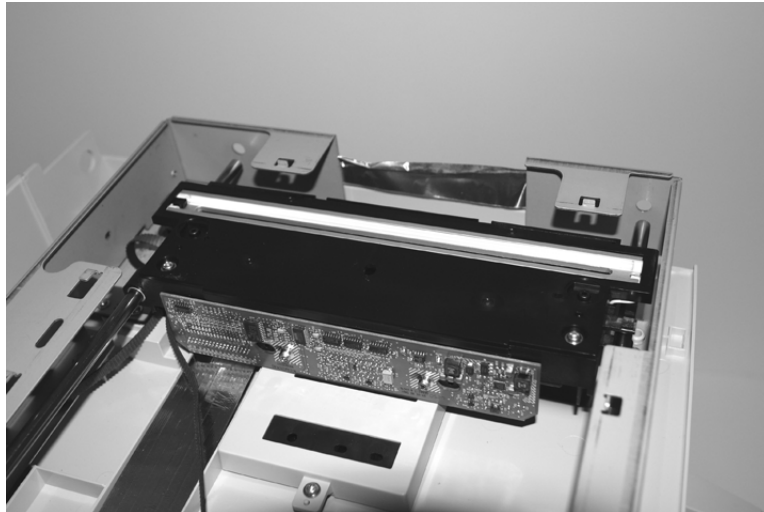
## ***Flatbed CCD module assembly removal***

Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

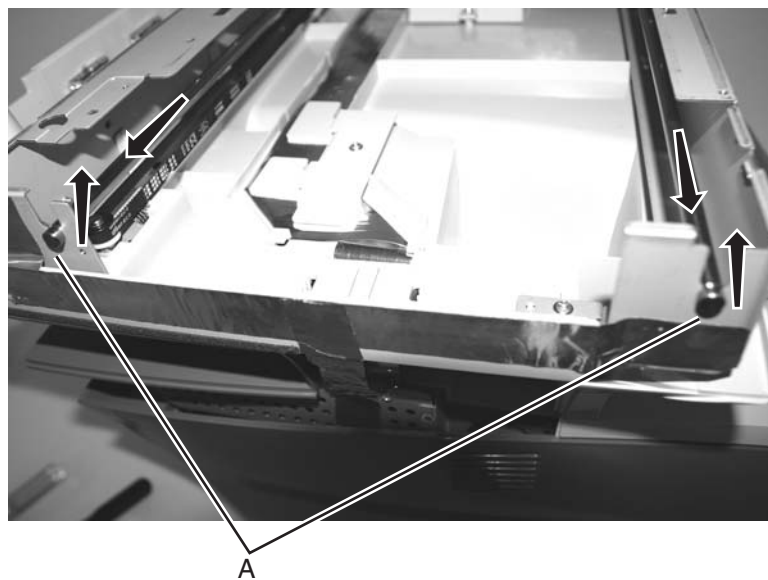
1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Push the CCD belt tension spring to take tension from the belt.
6. Unhook the belt from the motor shaft.



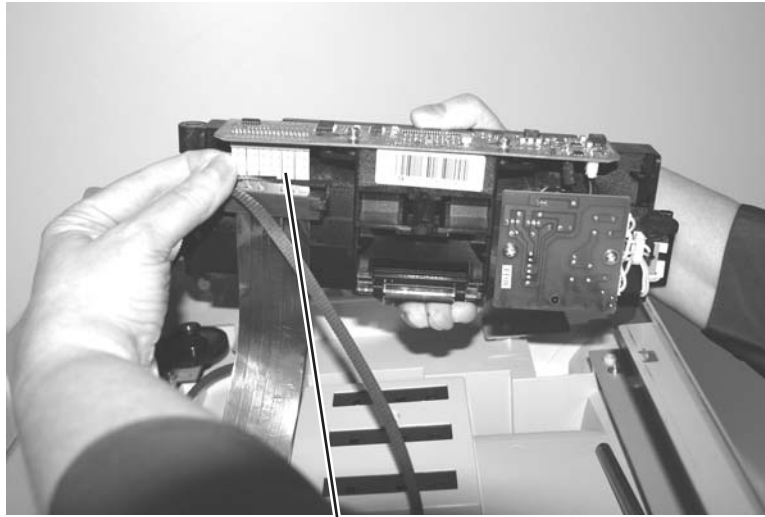
7. Push the flatbed CCD all the way to the left. There is a slot in the frame to allow the flatbed CCD module assembly to be lifted out.



8. Unhook the main CCD guide shafts (E) from the holes in the right side. This allows you to remove the flatbed CCD module assembly from the shafts.



9. Disconnect the flatbed CCD ribbon cable (B) from the flatbed CCD module.



B

10. Disconnect the CCD belt from the retainer (C) in the flatbed CCD module assembly



C

11. Remove the flatbed CCD module assembly.



## ***Flatbed contact glass removal***

1. Open the document cover.
2. Remove the scanner flatbed glass holder assembly. See **“Scanner flatbed glass holder assembly removal” on page 4-50.**
3. Remove the upper glass holder. See **“Upper glass holder removal” on page 4-53.**
4. Slide the glass to the left, and lift it.

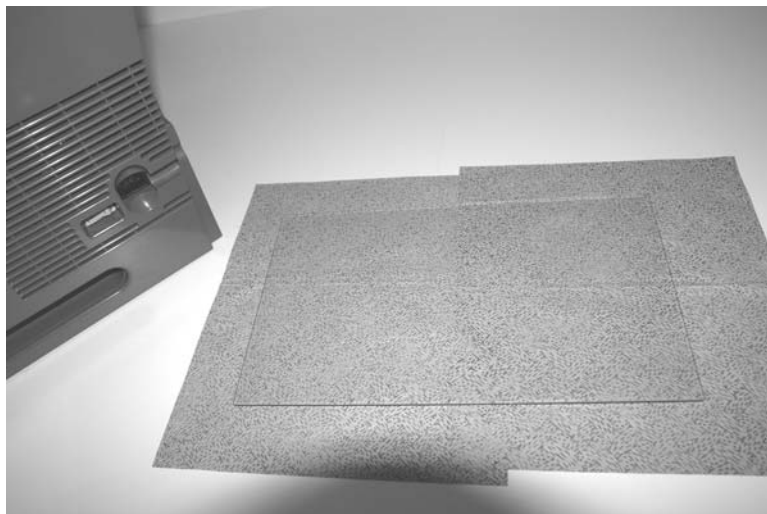


### **CAUTION**

While the glass edge is beveled, handle it carefully to avoid cutting your hand.

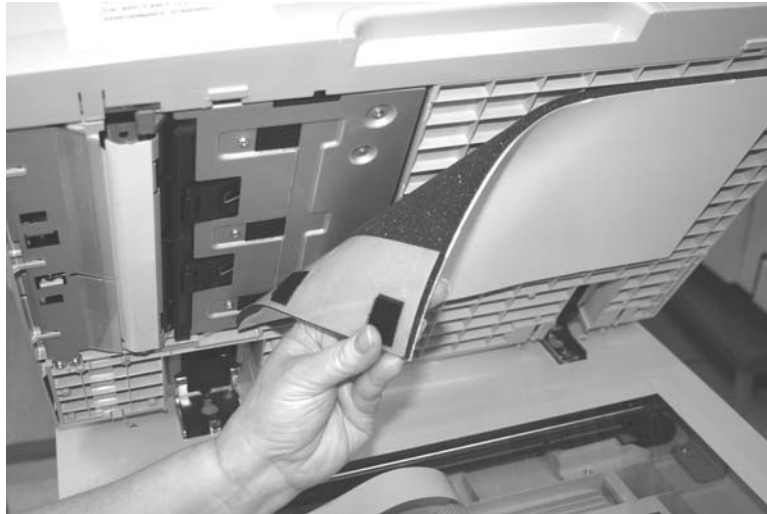


5. Lift the glass, and place it on a clean, dry cloth.

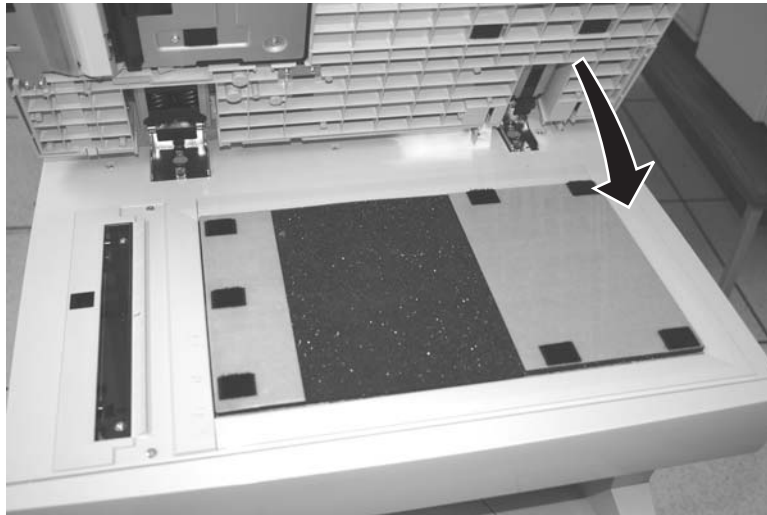


### ***Flatbed white cushion removal***

1. Open the document cover.
2. Peel the Velcro attached pad from one corner.



To replace the flatbed white cushion, place the cushion on the document glass, and close the document cover.





## Flatbed interconnect card removal

**Warning:** When replacing any one of the following components:

- Flatbed Interconnect card (ICC)
- System board assembly
- Interface card assembly

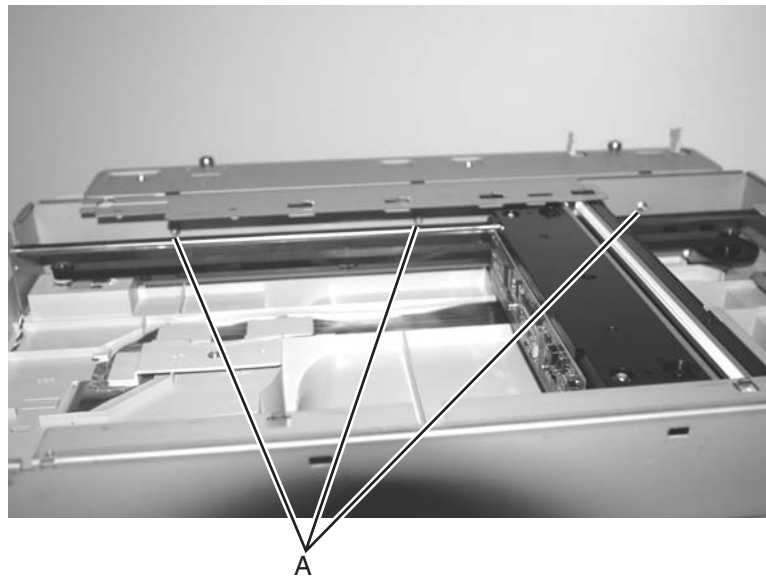
Only replace one component at a time. Replace the required component and perform a POR before replacing a second component listed above. If this procedure is not followed, the printer will be rendered inoperable. Never replace two or more of the components listed above without a POR after installing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

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

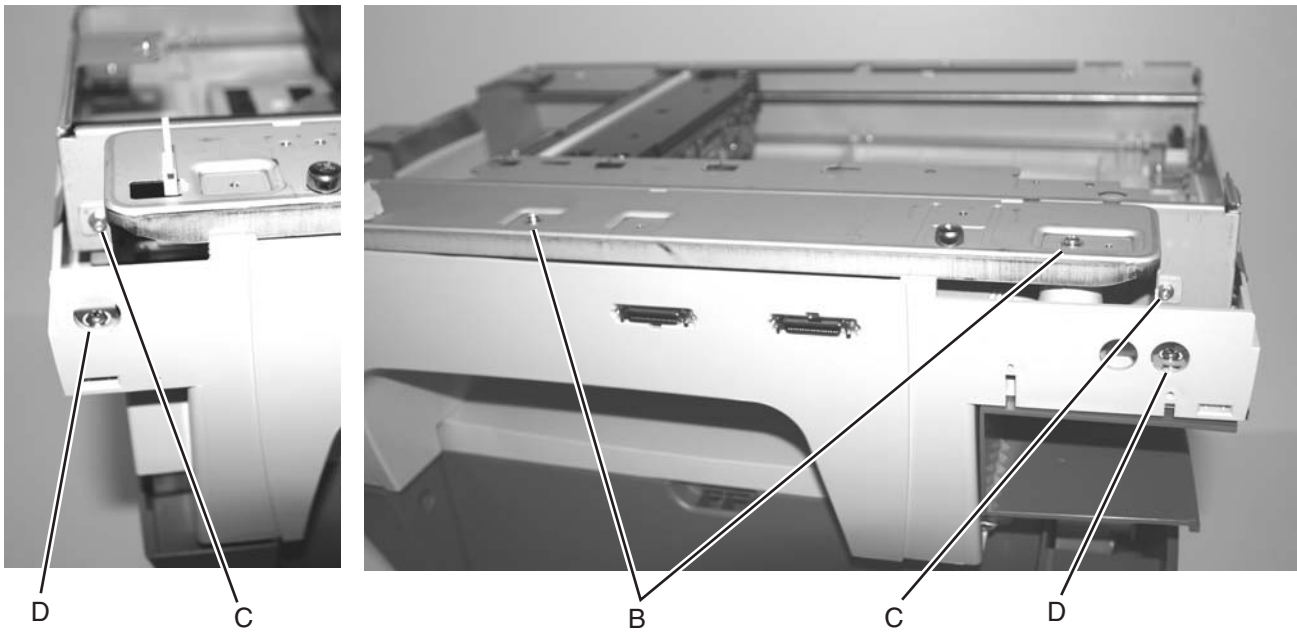
Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Remove the three screws (A) that attach the hinge support bracket to the rear scan bracket.



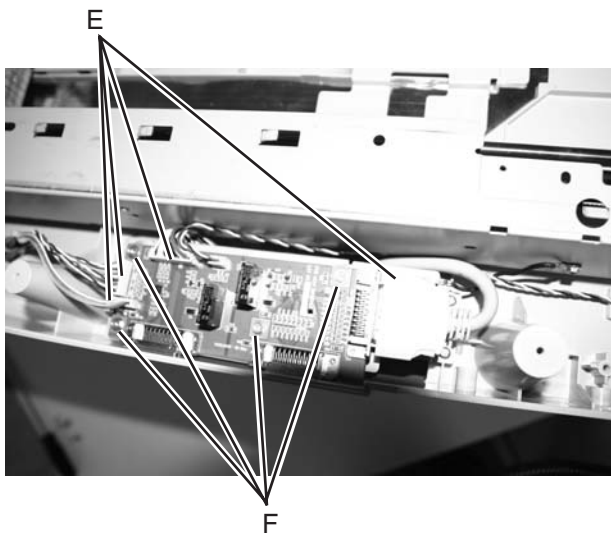
6. Remove the two screws (B) from the top.
7. Remove the two screws (C) from the left side and right side.

8. Remove the two screws (D) from the left bottom and right bottom.

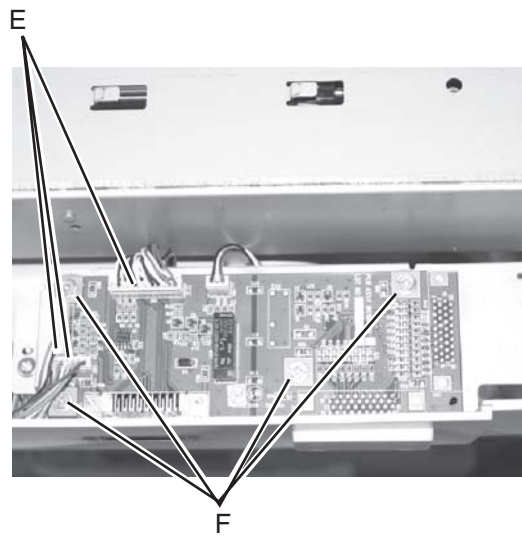


9. Disconnect all connectors (E). There are either four or three, depending on model.  
10. Remove the four screws (F).

**Model 500S**



**Model 450S**

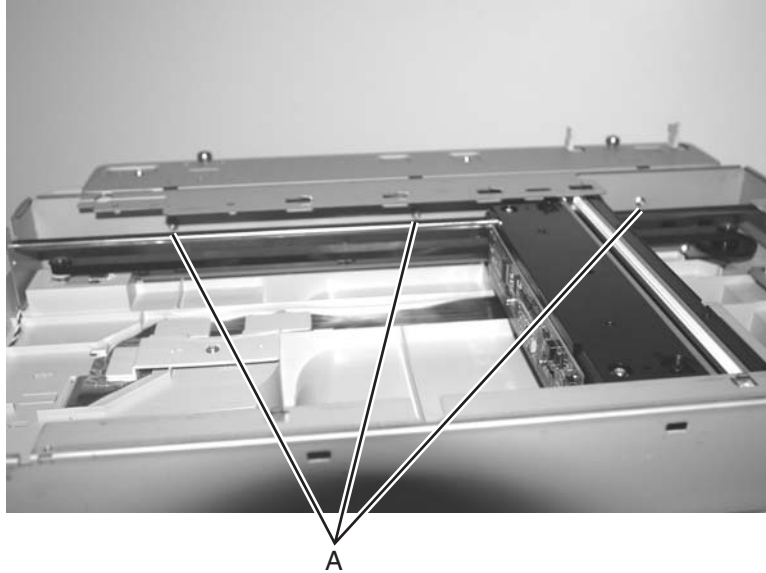


11. Remove the card.

## ***Flatbed paper length sensor assembly removal***

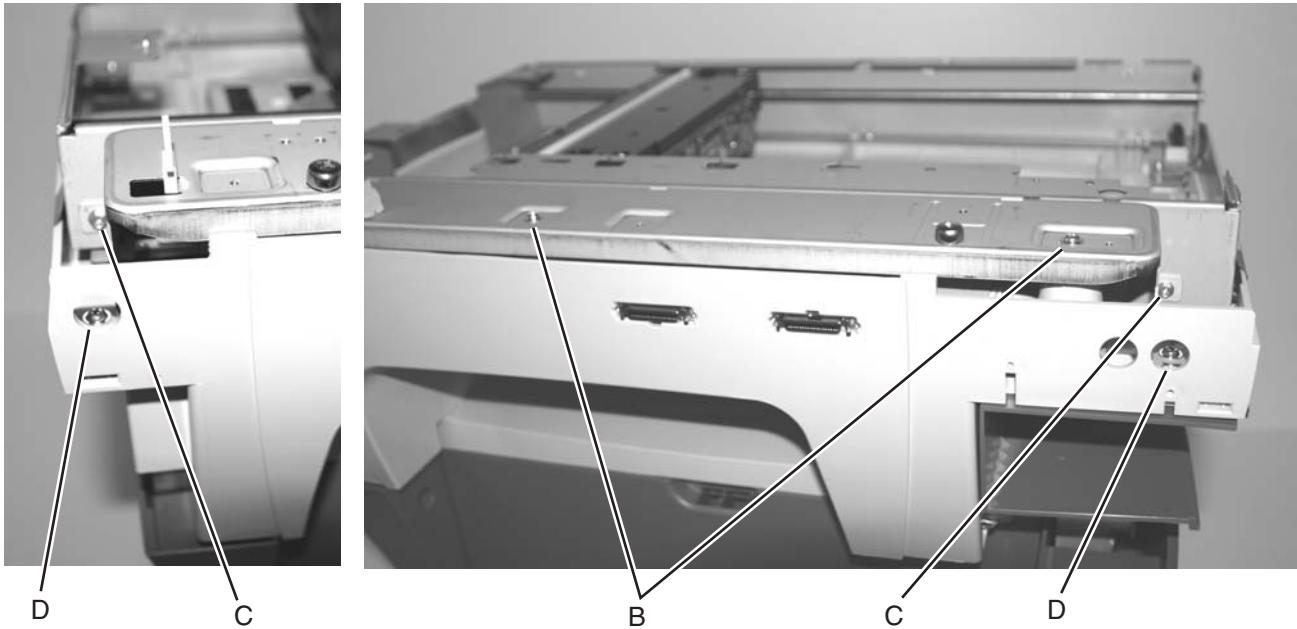
Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Remove the three screws (A) that attach the hinge support bracket to the rear scan bracket.



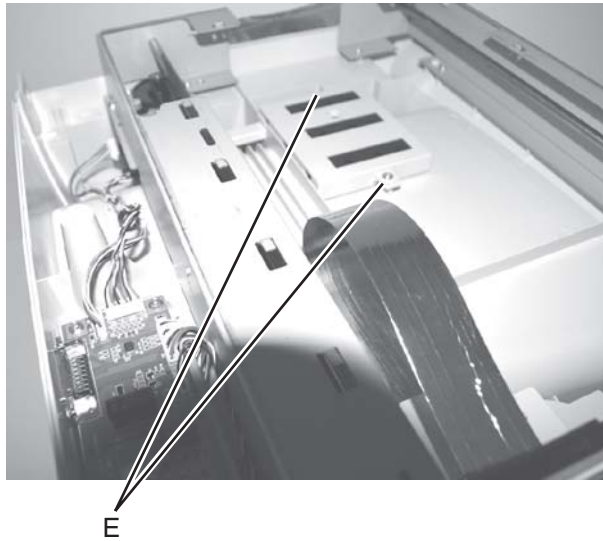
6. Remove the two screws (B) from the top.
7. Remove the two screws (C) from the left side and right side.
8. Remove the two screws (D) from the left bottom and right bottom.

**Note:** Some models may look different. Model 500S is shown.

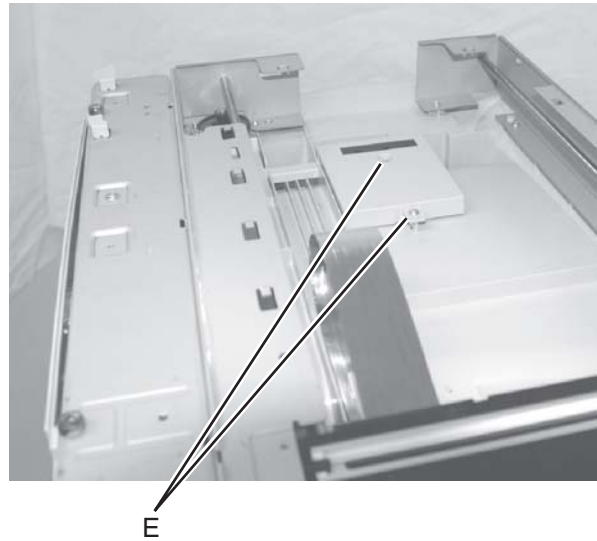


9. Remove the two screws (E) from the sensor assembly cover.

**Model 500S**



**Model 450S**



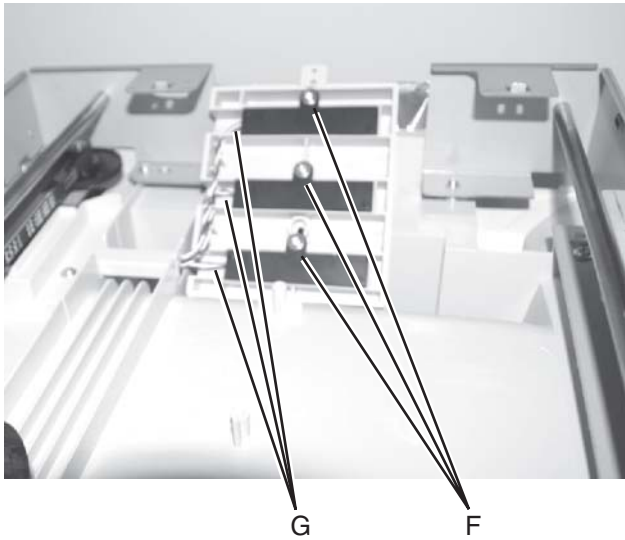
**10.** Turn over the sensor cover, and remove the screw (F) for the sensor you need to replace.

**Note:** There are three sensors in model 500S. There is only one in model 450S

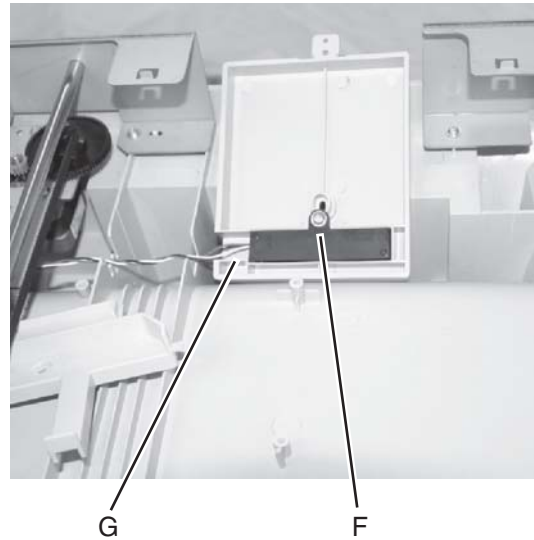
**11.** Disconnect the sensor cable (G) at the sensor and remove the sensor.

**Note:** Only remove one sensor at a time to make it easier to reinstall the right cable.

**Model 500S**



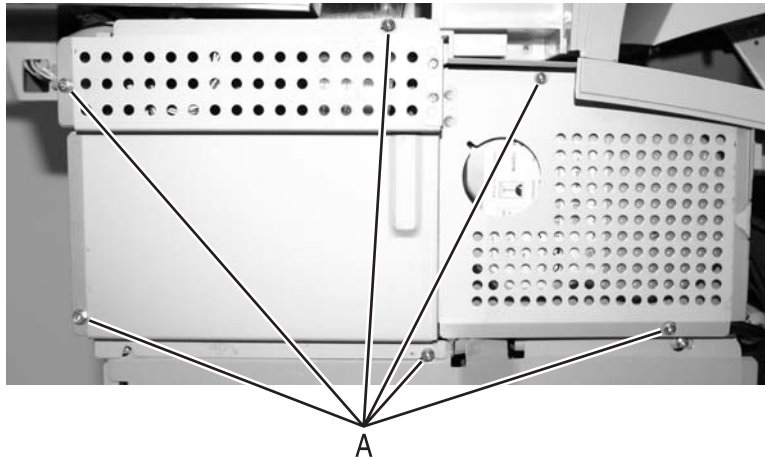
**Model 450S**



## Flatbed scan assembly removal

Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the ADF assembly. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
3. Remove the scanner left side cover. See **“Scanner left side cover removal”** on page 4-10.
4. Remove the seven screws (A) from the SCC and HDD shield.



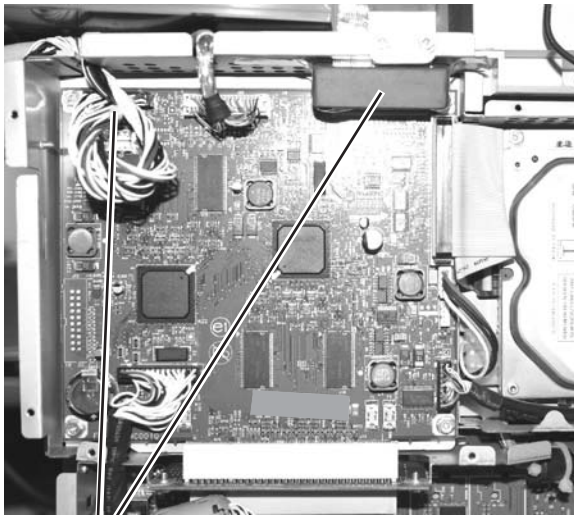
5. Loosen the screws for the printer outer shield and slide shield to the left to allow enough room to remove the scanner control card shield and the hard disk shield.



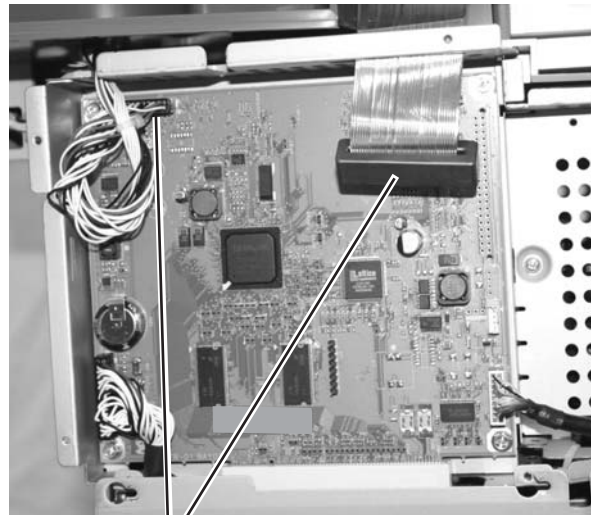


6. Disconnect the two cables (B).

**Model 500S**



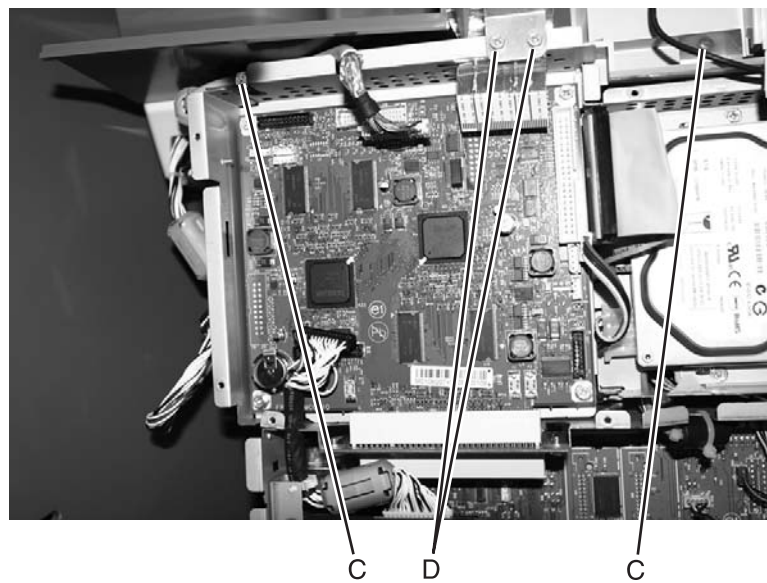
**Model 450**



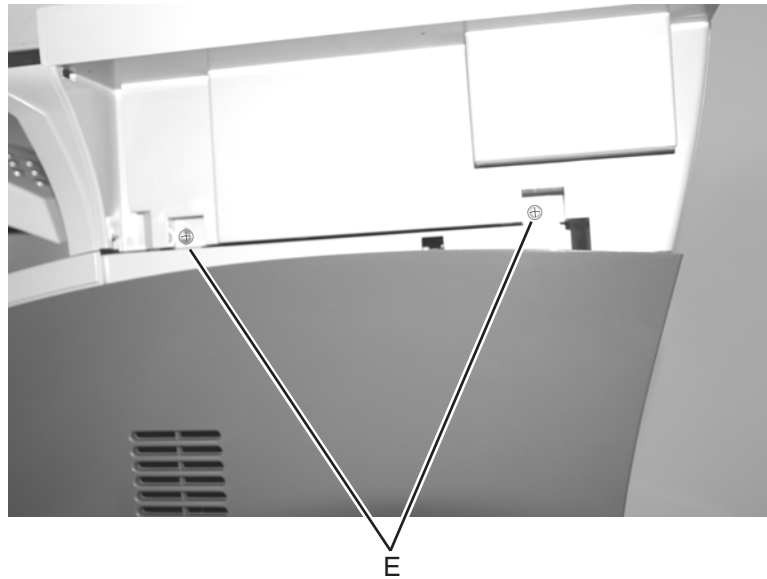
7. Remove the two screws (C) from the left side.
8. Remove the two screws (D) that attaches the ground bracket to the SCC/HDD shield.

**Note:** The ground bracket is only on model 500S.

**Model 500S**



9. Remove the scanner right side cover. **"Lift the scan cover (flatbed). Scanner right side cover removal" on page 4-12.**
10. Remove the two screws from the right side (E).

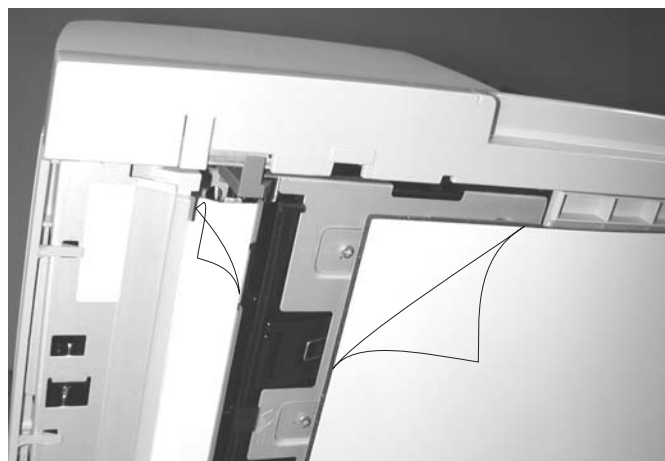


11. Pull the scan unit forward to unhook the unit from the printer, and lift the scan unit from the printer.



**Installation note:**

Remove any clear protective covers from the scanner registration strip and the flatbed white cushion after installation.

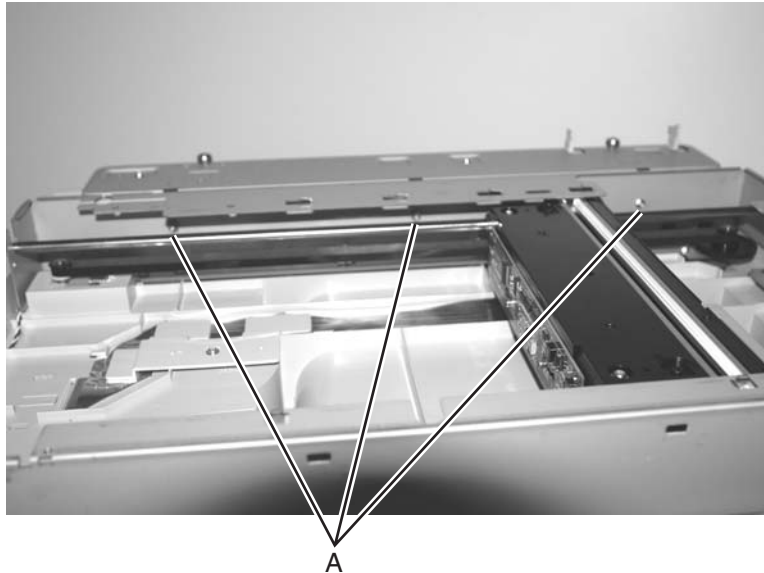




## ***Flatbed scan motor assembly removal***

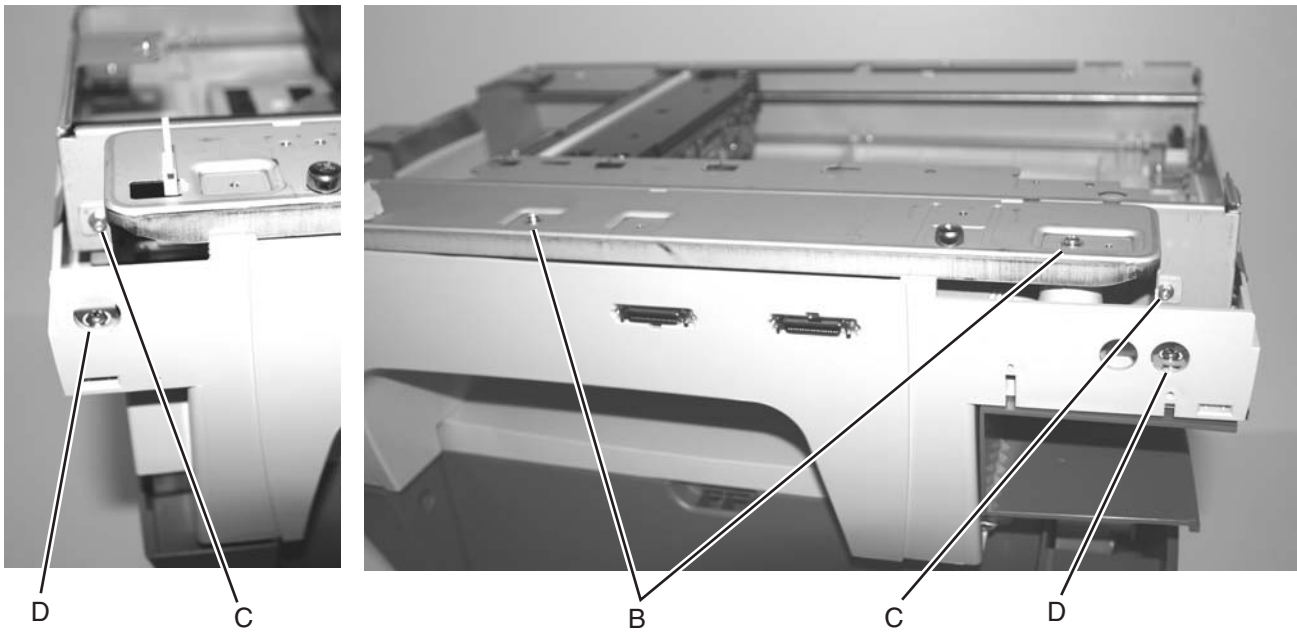
Illustrations represent models 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Remove the three screws (A) that attach the hinge support bracket to the rear scan bracket.



6. Remove the two screws (B) from the top.
7. Remove the two screws (C) from the left side and right side.

- 8.** Remove the two screws (D) from the left bottom and right bottom.



- 9.** Push the flatbed CCD toward the motor to take tension from the CCD belt.

- 10.** Unhook the CCD belt from the motor shaft.



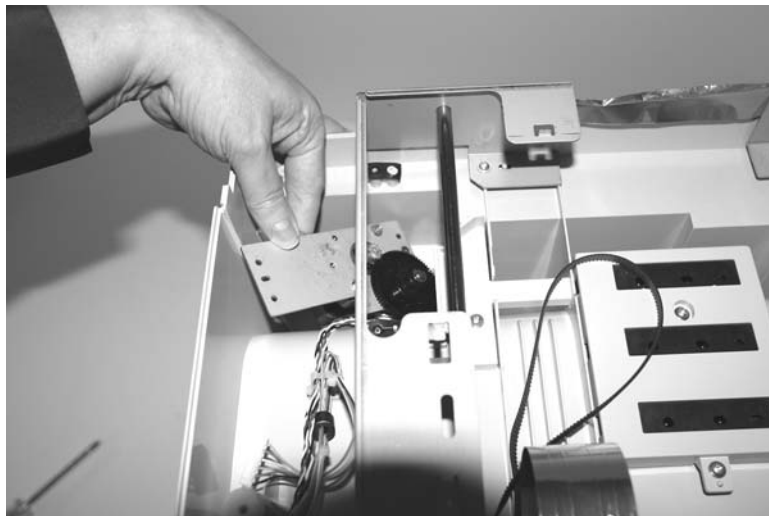
- 11.** Carefully lay the flatbed CCD module on the scan frame, being careful not to touch the card, lamp, or mirrors.

- 12.** Remove the three screws (E) that attach the FB scan motor assembly to the frame.



E

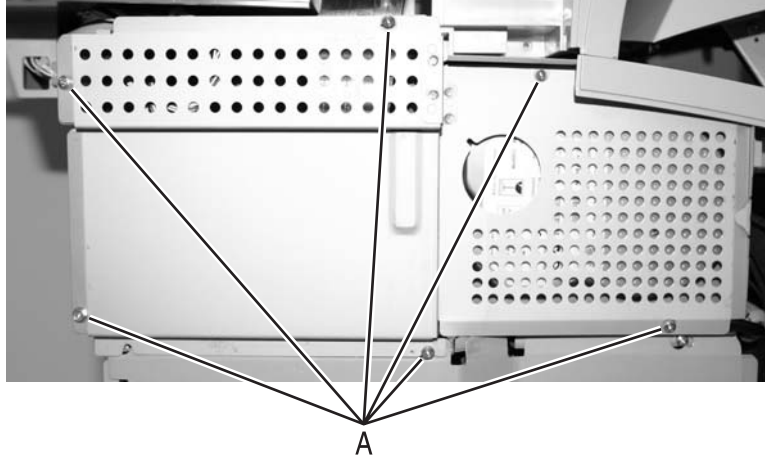
- 13.** Remove the flatbed scan motor assembly.



## Hard disk removal

**Note:** This procedure applies to model 500S only.

1. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
2. Remove the six screws (A) from the SCC and HDD shield.

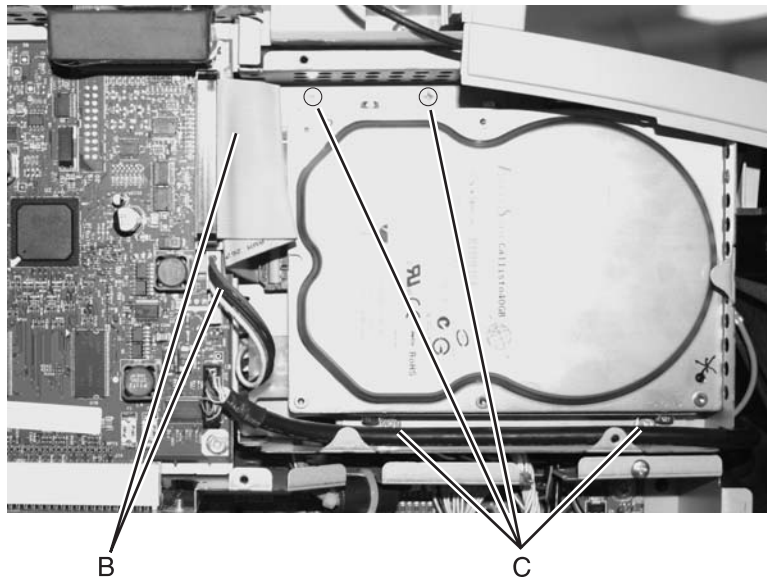


3. Loosen the screws for the printer outer shield, and slide the shield to the left to allow enough room to remove the scanner control card shield and the hard disk shield.



4. Disconnect the two cables (B).

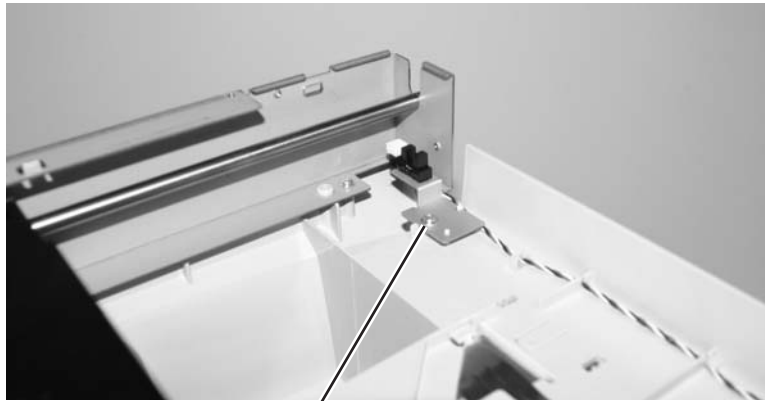
5. Remove the four screws (C).



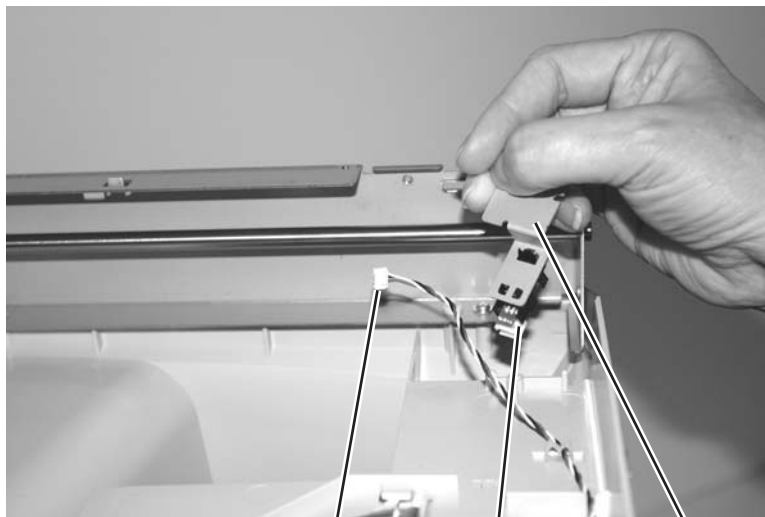
6. Remove the hard disk.

## Home sensor removal

1. Remove the scan cover (flatbed). See **“Scan cover (flatbed) removal” on page 4-11.**
2. Remove the flatbed contact glass. See **“Flatbed contact glass removal” on page 4-31.**
3. Remove the scanner right side cover. See **“Lift the scan cover (flatbed). Scanner right side cover removal” on page 4-12.**
4. Remove the scanner left side cover. See **“Scanner left side cover removal” on page 4-10.**
5. Remove the screw (A).



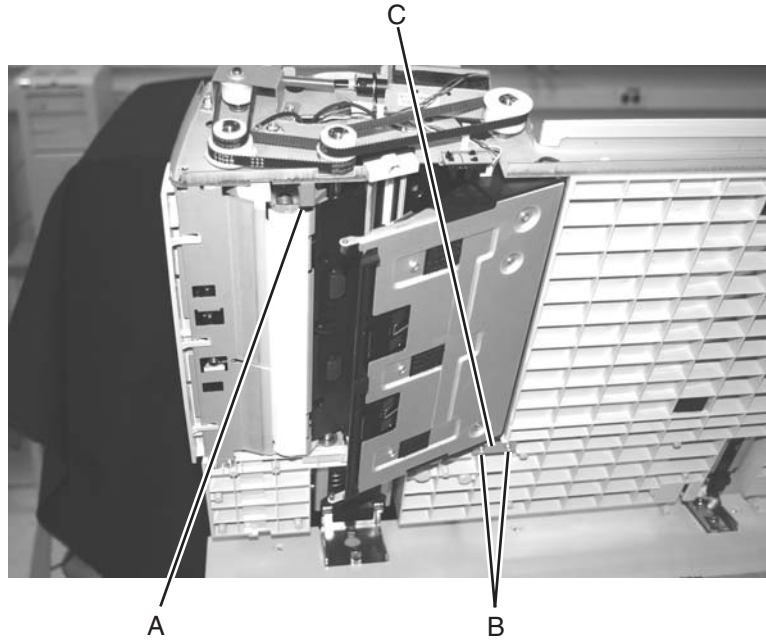
6. Remove the sensor and bracket (B).
7. Disconnect the cable (C) from the sensor.
8. Unclip the home sensor (D) from the bracket.



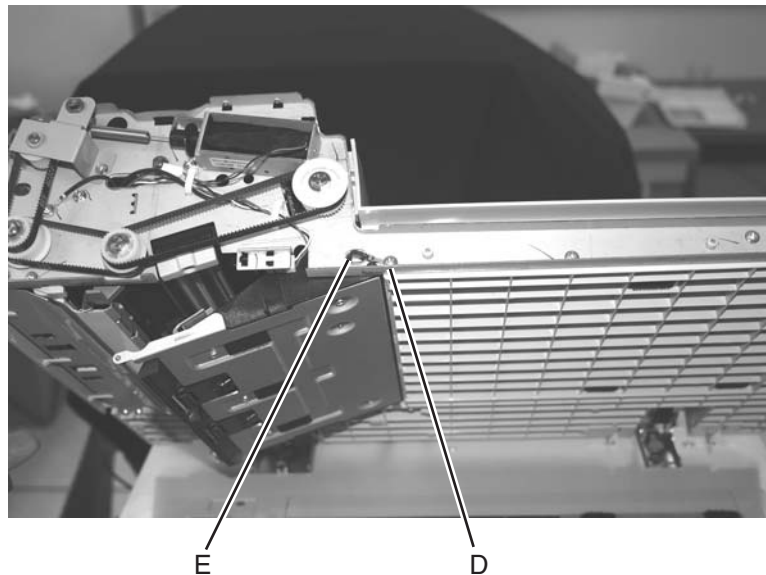
## Lower exit guide assembly removal

Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the ADF front cover. See **“ADF front cover removal”** on page 4-6.
2. Remove the flatbed white cushion. See **“Flatbed white cushion removal”** on page 4-32.
3. Open the document cover.
4. Press the latch (A) to open the lower exit guide assembly.
5. Remove the two screws (B), and remove the metal plate (C). Set the plate aside.



6. Remove the screw (D) on the ADF frame.



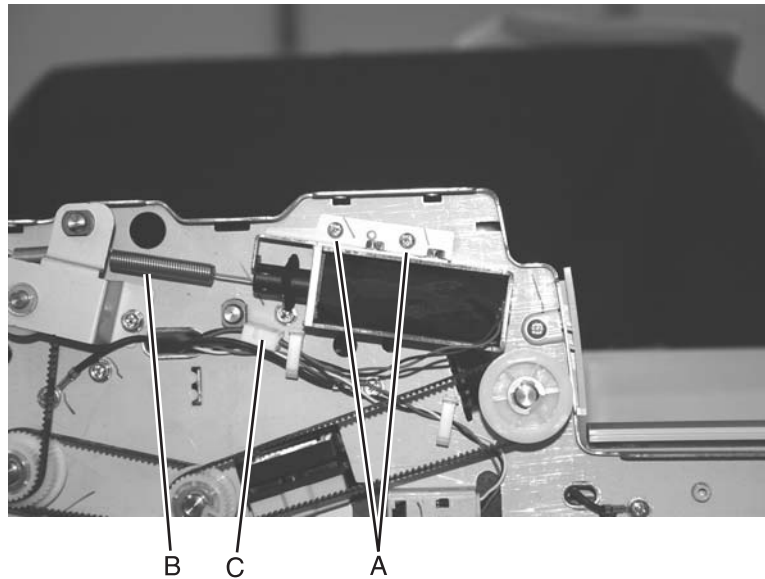
7. Remove the lower exit guide assembly.

**Installation note:** Be sure to route the cable through the hole (E) in the front ADF frame.



### ***Pickup solenoid assembly removal***

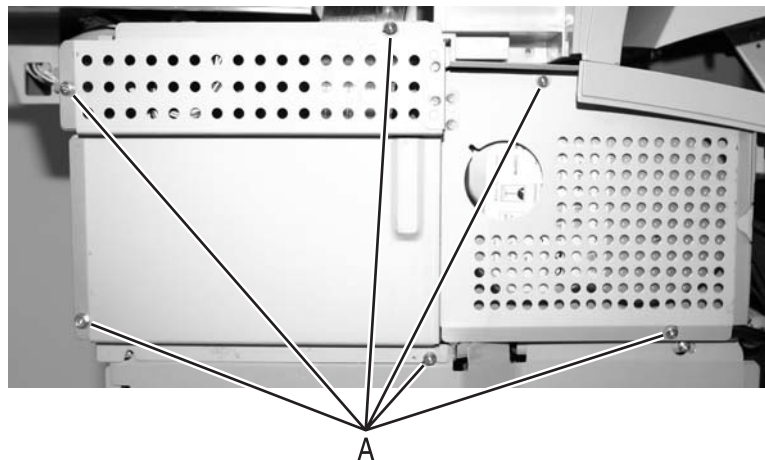
1. Remove the two screws (A).
2. Unhook the spring (B).  
**Note:** Two springs attach to the same post. The other spring should be hooked on first, and spring (B) should be attached on the outside or in front of the other spring.
3. Remove the cable from the cable guide.
4. Disconnect the connector (C), and remove the pickup solenoid assembly.



### ***Scanner control card removal***

Illustrations represent model 500S. Unless there is an indication, the procedure is the same. Differences are shown side by side.

1. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
2. Remove the six screws (A) from the SCC and HDD shield.



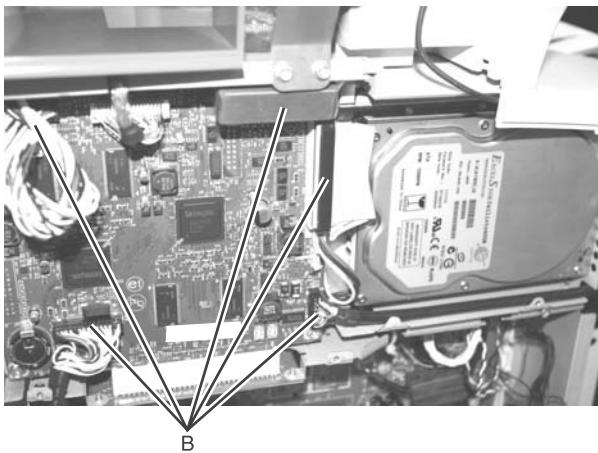


3. Loosen the screws for the printer outer shield, and slide the shield to the left to allow enough room to remove the scanner control card shield and the hard disk shield.

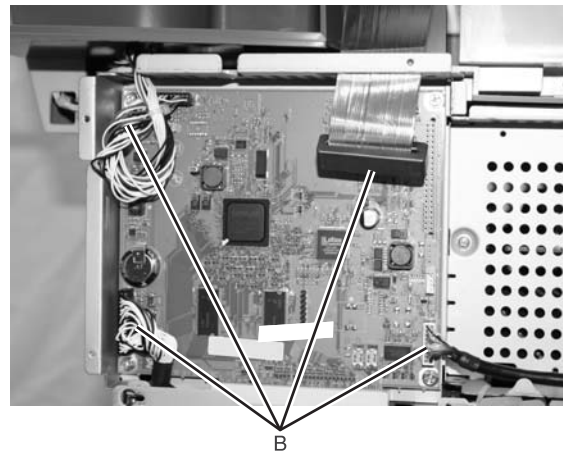


4. Disconnect all the cables (B).

**Model 500S shown)**



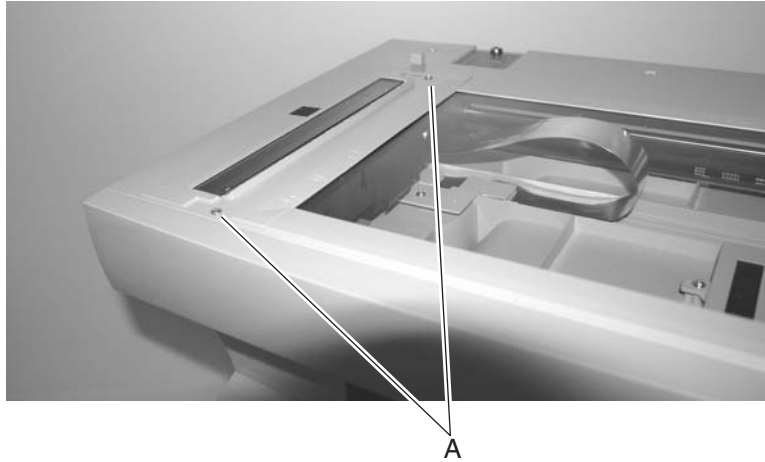
**Model 450S**



5. Remove the four screws (B).
6. Tilt the card to remove the scanner control card.

## Scanner flatbed glass holder assembly removal

1. Open the document cover.
2. Remove the two screws (A).

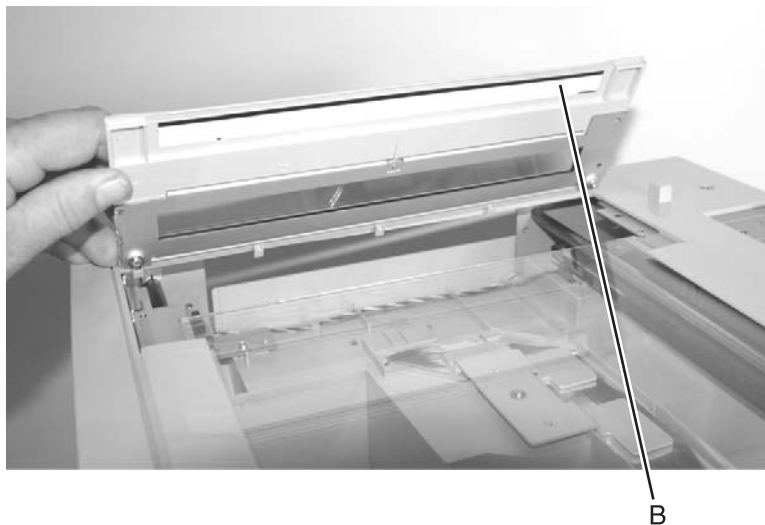


3. Carefully pry up the inner edge.

**Warning:** Do not use tools that can scratch the glass.



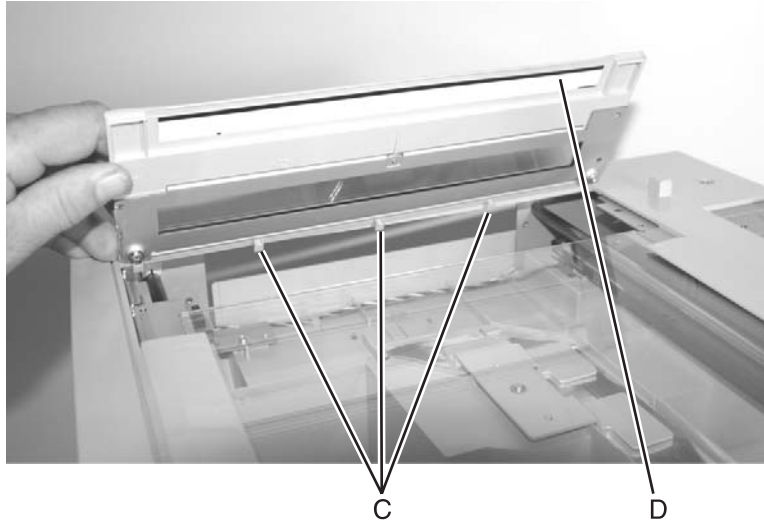
**Warning:** Be careful not to touch the calibration strip (A) on the underside of the scanner flatbed glass holder.



4. Lift to release the three tabs (C).

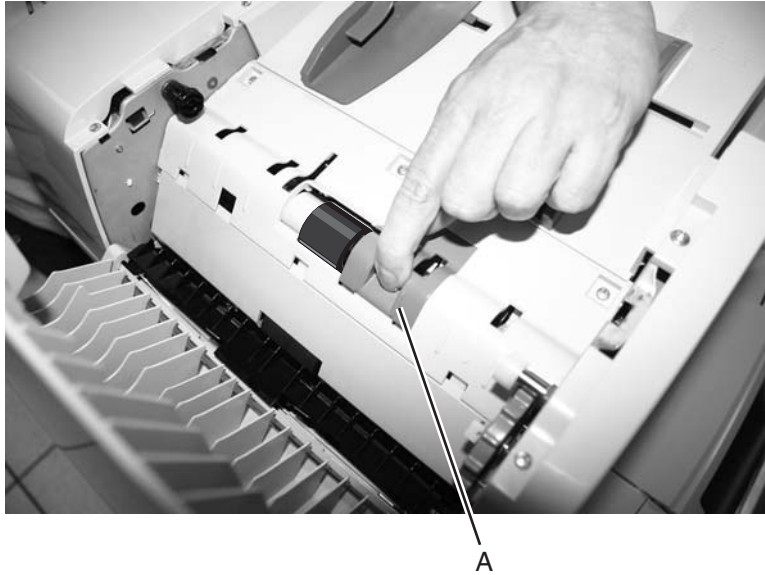
**Warning:** Place the scanner flatbed glass holder assembly on a clean, dry cloth to protect the glass from scratches.

**Warning:** Do not touch the calibration strip (D.)

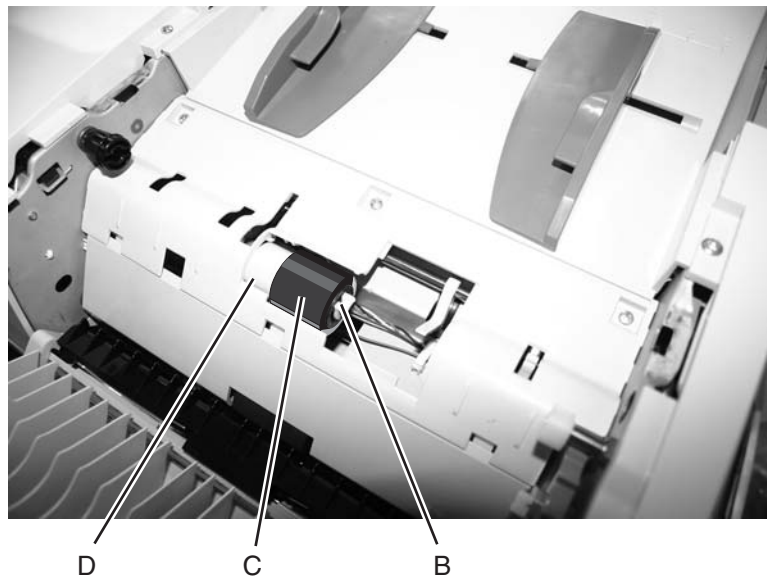


## Separator assembly torque limiter removal

1. Open the ADF top cover.
2. Remove the ADF pick arm assembly. See **“Document tray assembly removal”** on page 4-23.
3. *Unsnap* and remove the paper guide (A).



4. Remove the clip (B).
5. Remove the reverse roller (C).
6. Slide the separator assembly torque limiter (D) off the shaft.



## ***Upper glass holder removal***

1. Open the document cover.
2. Slide the upper glass holder to the left to unlatch.



3. Lift the upper glass holder to remove.

---

## Printer removals



### CAUTION

Remove the power cord from the printer or wall outlet before you connect or disconnect any cable or electronic board or assembly for personal safety and to prevent damage to the printer.



### CAUTION

Use the handholds on the side of 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.

### *Fuser wiper cover assembly removal*

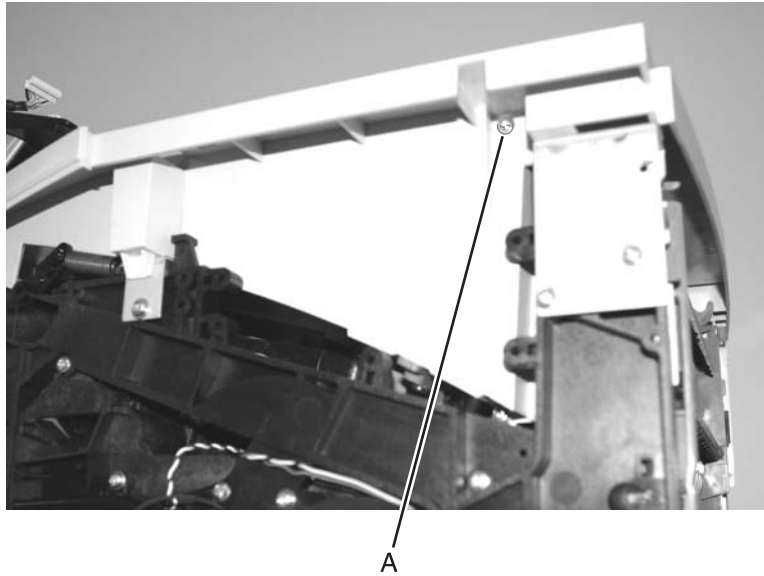
1. Squeeze the two latches together, and pull up.



2. Remove the fuser wiper cover assembly.
3. Remove the fuser wiper cover assembly.

## ***Upper sub cover removal***

1. Remove flatbed scanner assembly. See **“Flatbed scan assembly removal”** on page 4-38.
2. Remove screw (A) from right side frame holding upper sub cover.



3. Pull up on the right side of the upper sub cover.
4. Remove the upper sub cover.



### ***Upper tray cover removal (paper support)***

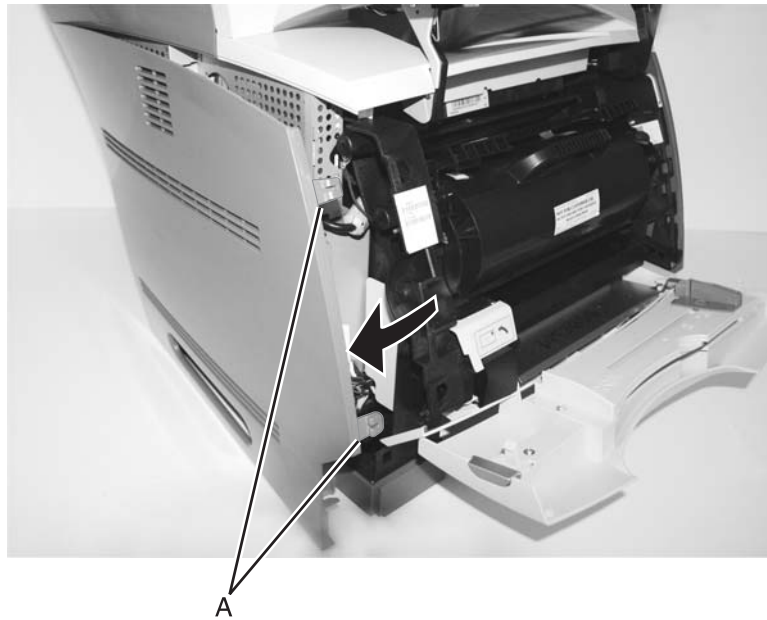
1. Remove the flatbed scan assembly. See **“Flatbed scan assembly removal”** on page 4-38.
2. Raise the upper tray cover, and lift to release the latches.



3. Remove the upper tray cover.

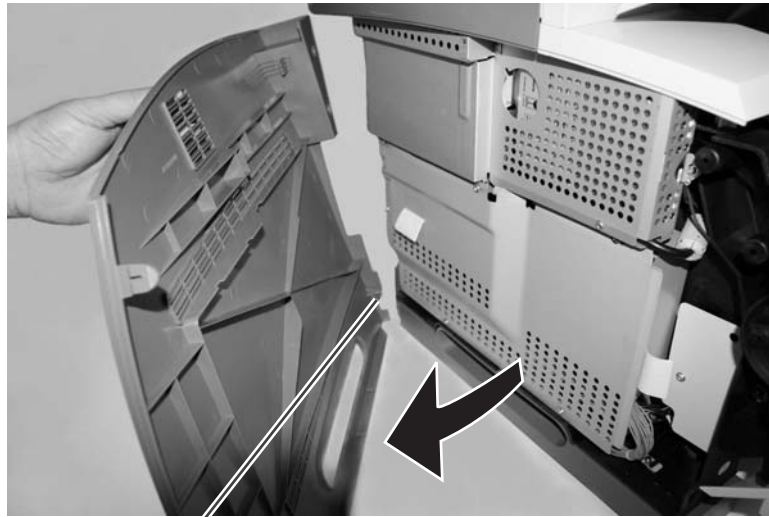
### ***Printer left side cover removal***

1. Open the upper and lower front covers.
2. Press the two left door latch buttons (A), and open the left door.





3. Release the top hinge from the latch (B).



B

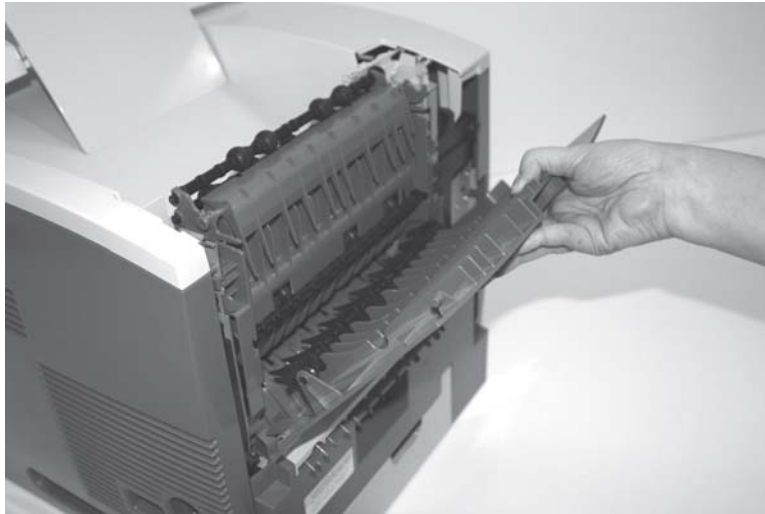
4. Lift the door to release the bottom from the pin (B), and remove the door.



B

## ***Redrive door***

1. With the redrive door partially open, lift and free the left side.



2. Remove the redrive door.

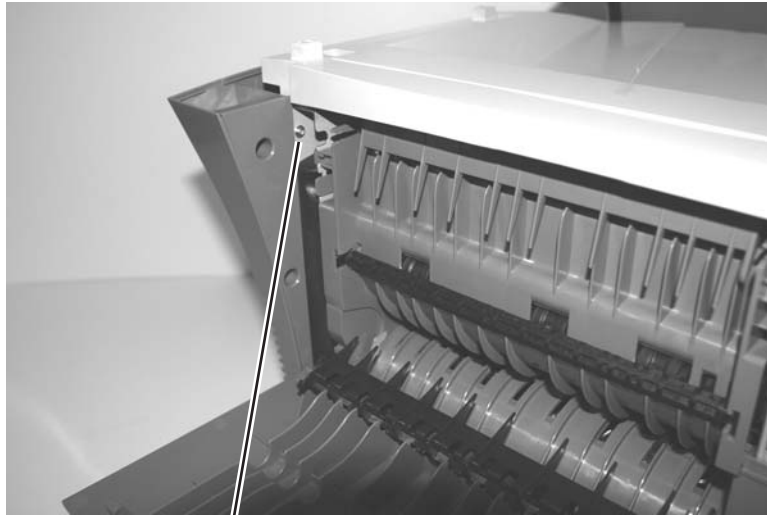
## ***Printer right cover removal***

1. Remove the upper sub cover. See **“Upper sub cover removal”** on page 4-55.
2. Open the upper and lower front covers.
3. Remove the print cartridge.
4. Remove the right front cover mounting screw (A).



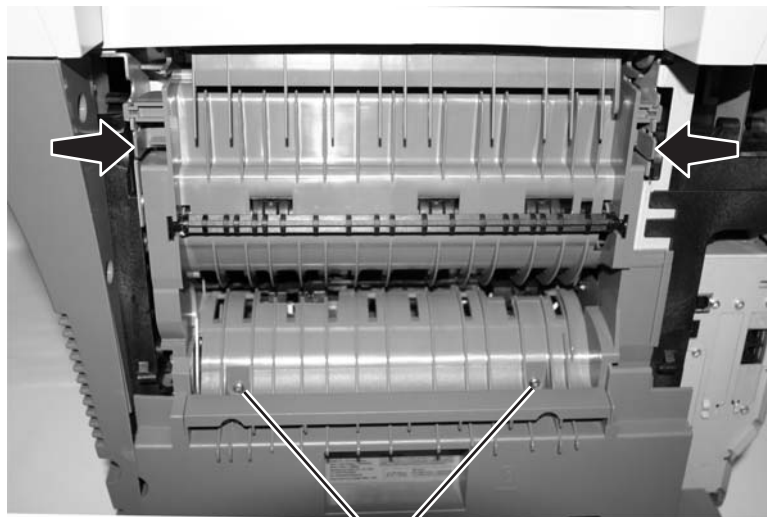
A

5. Remove the redrive door. See **“Redrive door”** on page 4-58.
6. Remove the right rear cover mounting screw (C).



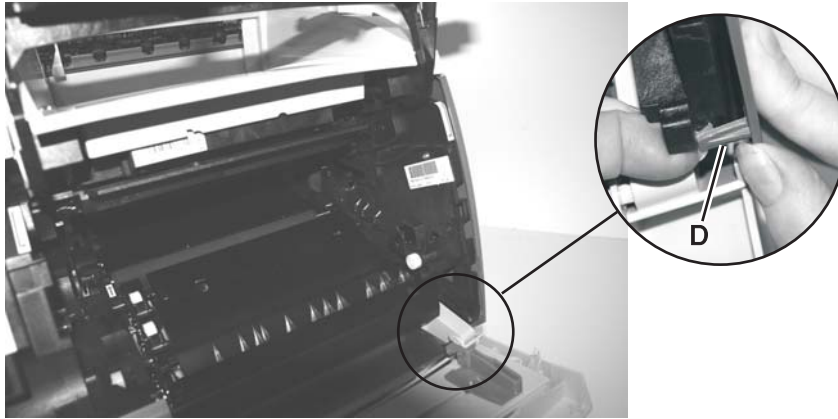
C

7. Remove the two redrive screws (D).
8. Press the two latches to remove the redrive assembly.

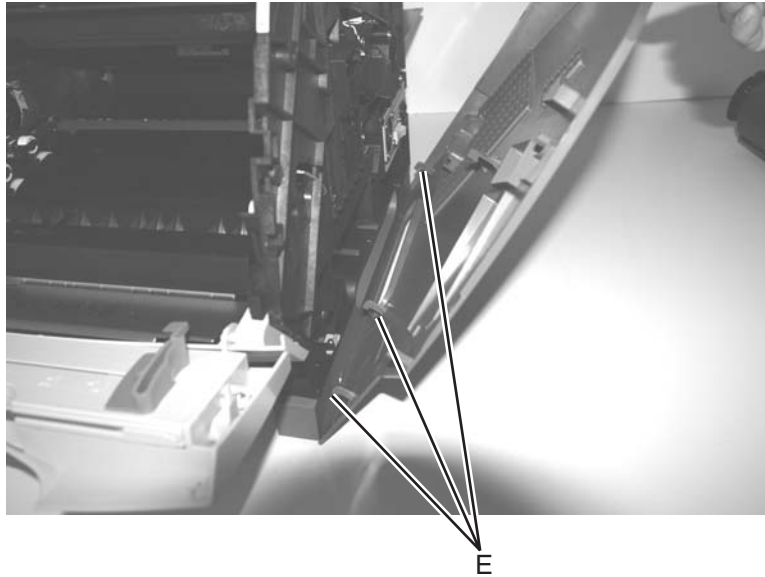


D

9. Press the latch (D) firmly to release the front of the right cover.



10. Pull up and out on the right cover to release the three cover retainers (E) at the bottom.



**Note:** When replacing the right side cover, make sure the three cover retainers (E) are correctly located in the appropriate slots in the right side frame.

## ***Operator panel left cover assembly removal***

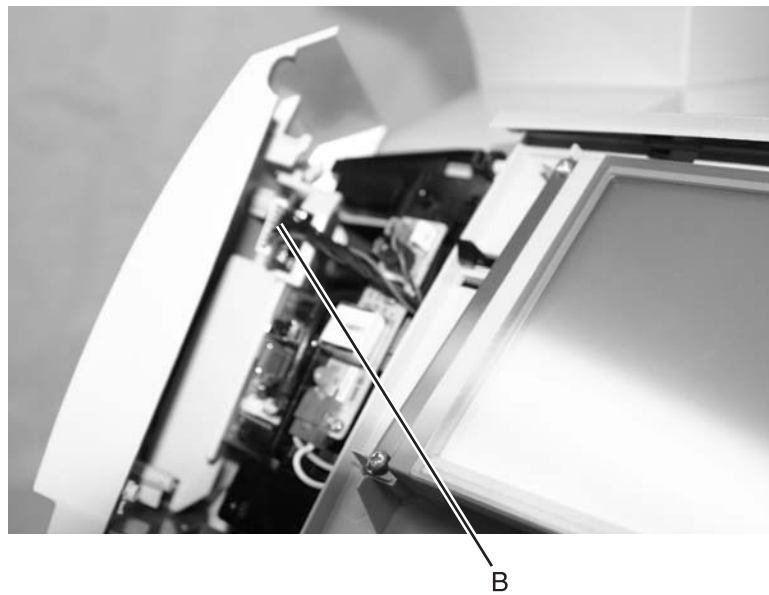
Illustrations represent model 500S. Unless there is an indication, the procedure is the same.

1. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
2. Open the printer upper front cover.
3. Remove the two screws (A).

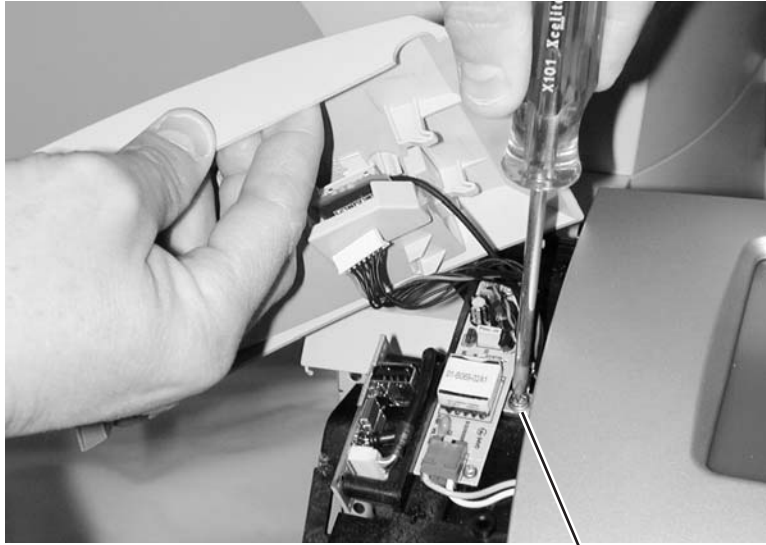


4. For model 450S, disconnect the cable (B).

**Model 450S**

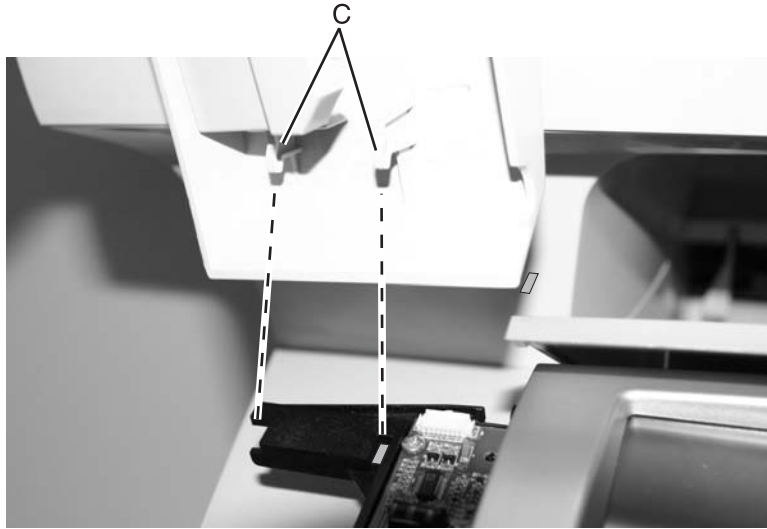


5. For model 450S, remove the screw (C) that attaches the ground cable.



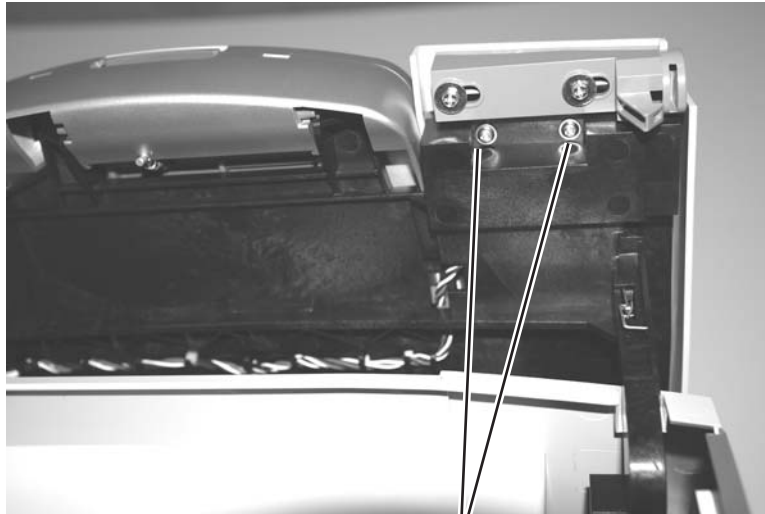
6. Remove the operator panel left cover assembly.

**Installation note:** Be sure the latches (C) on the back of the operator panel left cover are fastened into the upper front cover hinge slots.



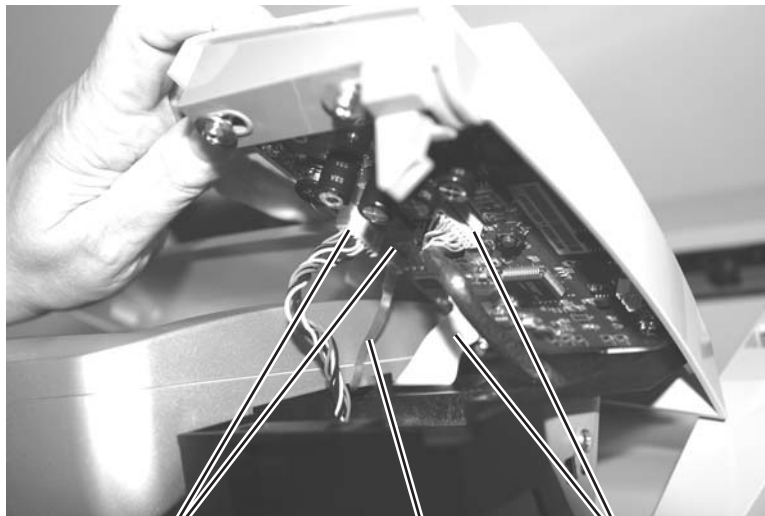
## Operator panel right cover assembly removal

1. Open the printer upper front cover.
2. Remove the two screws (A).



A

3. Lift the operator panel right cover assembly carefully to access the cables.  
**Warning:** Be careful not to tear or break the small ribbon cable from its connector (B).
4. Disconnect the four cables (C) from the UI control card.



C

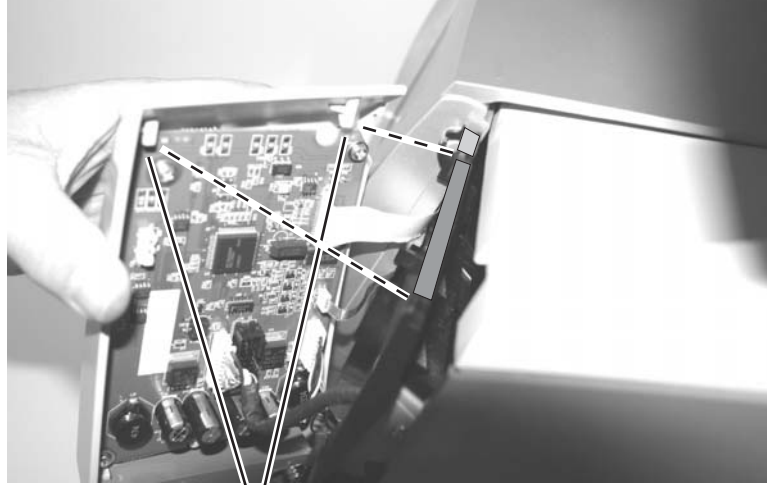
B

C

5. Remove the operator panel right cover assembly.



**Installation note:** Be sure the latches (D) on the top of the operator panel right cover are fastened into the upper front cover hinge slots.



D

## ***Touchscreen bezel removal***

1. Open the printer upper front cover.
2. Use a small screwdriver or other small tool to carefully release the two tabs (A) under the touchscreen bezel.

**Warning:** Be careful not to scratch or mar the touchscreen bezel.

**Model 500S**



A

**Model 450S**



A


3. For model 450S, disconnect the UICC#3 cable (B).



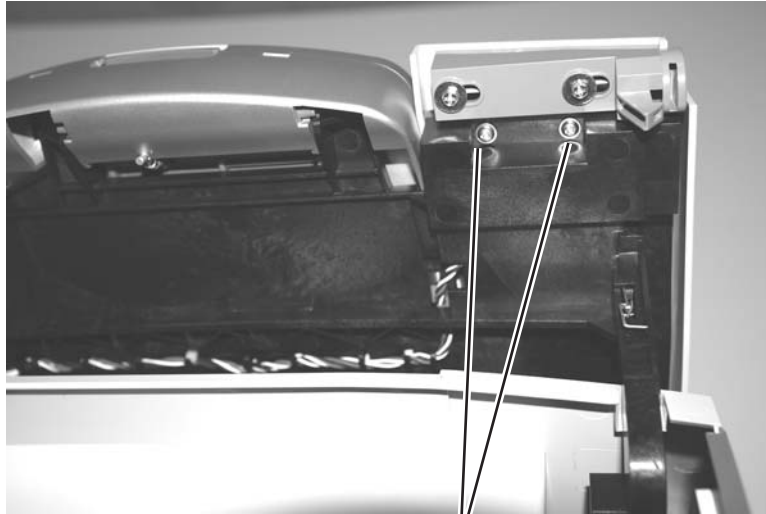
B

4. Remove the touchscreen bezel.

## LCD touchscreen removal—model 500S

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

1. Remove the operator panel left front cover. See **“Operator panel left cover assembly removal”** on **page 4-61**.
2. Remove the two screws (A) on the operator panel right front cover.



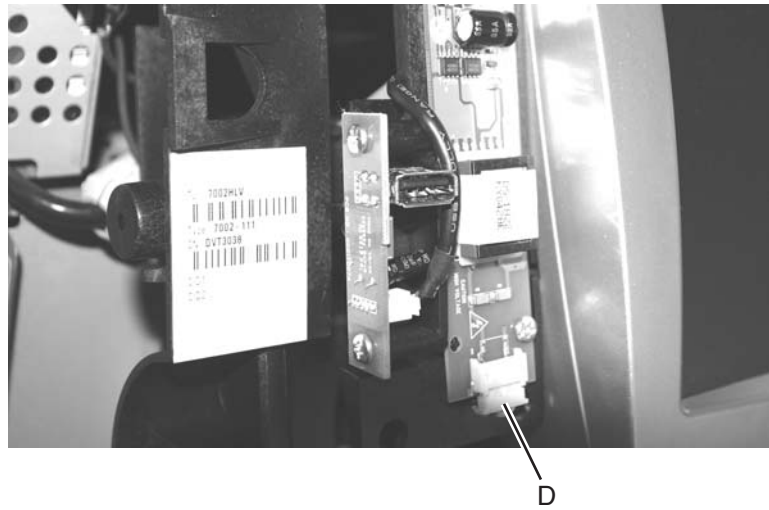
A

3. Lift the operator panel right cover assembly carefully to access the cables.  
**Warning:** Be careful not to tear or break the small ribbon cable from its connector (B).
4. Disconnect the cables (C) from the UI control card.

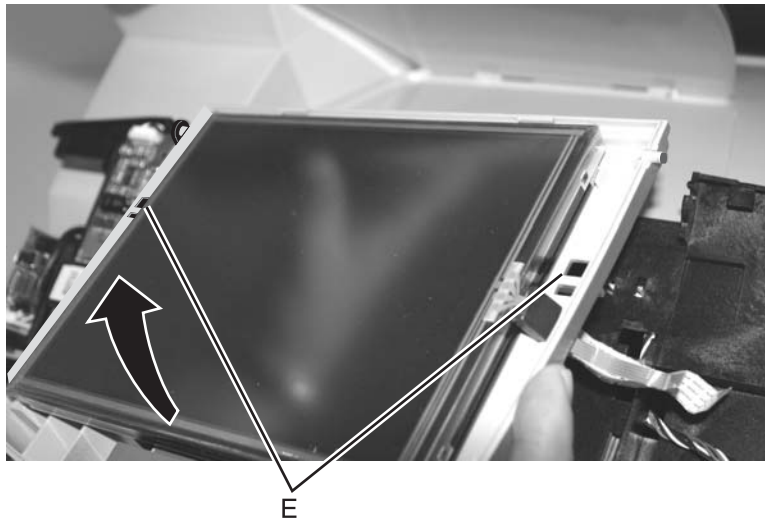


C

5. Remove the operator panel left side cover. See **“Operator panel left cover assembly removal”** on **page 4-61**.
6. Disconnect the cable (D) from the LCD inverter card assembly.



7. Remove the touchscreen bezel. See **“Touchscreen bezel removal”** on **page 4-66**.
8. Press the two tabs (E) that limit range of motion, and rotate the LCD touchscreen up until it disconnects.



9. Set the LCD touchscreen aside.

**Warning:** Avoid touching or placing pressure on the touchscreen. Do not handle roughly or drop.

10. Disconnect the ground cable. You might want to use a pair of pliers and a small flat blade screwdriver.



### ***LCD touchscreen removal—model 450S***

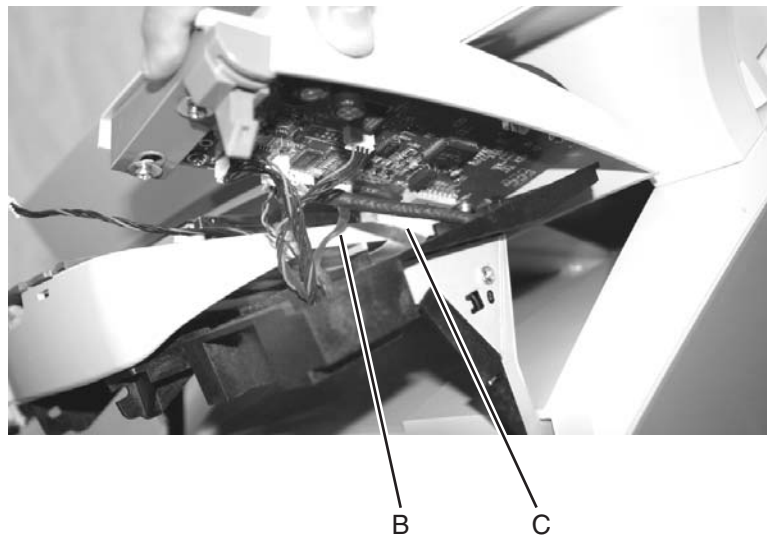
1. Remove the bezel. See **“Touchscreen bezel removal”** on page 4-66.
2. Remove the two screws (A) from the right side cover.



3. Lift the operator panel right cover assembly carefully to access the cables.

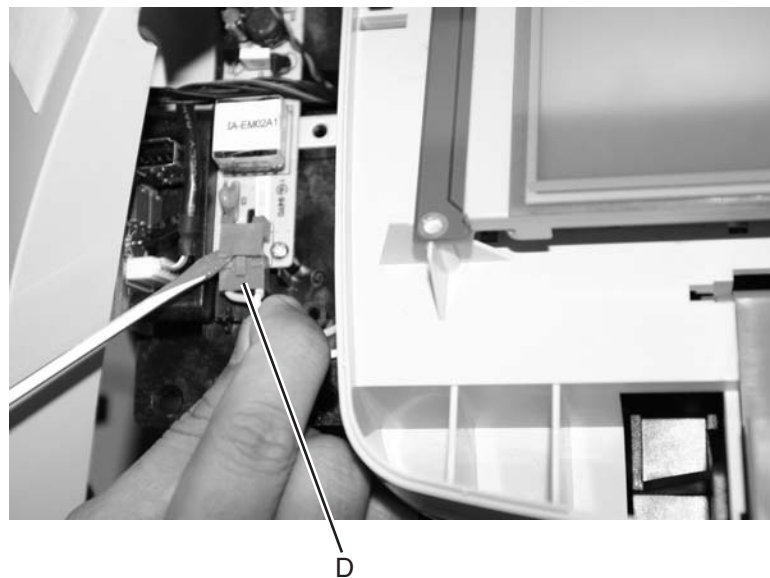
**Warning:** Be careful not to tear or break the small ribbon cable (B) from its connector.

4. Disconnect the cables (C) from the UI CC#.

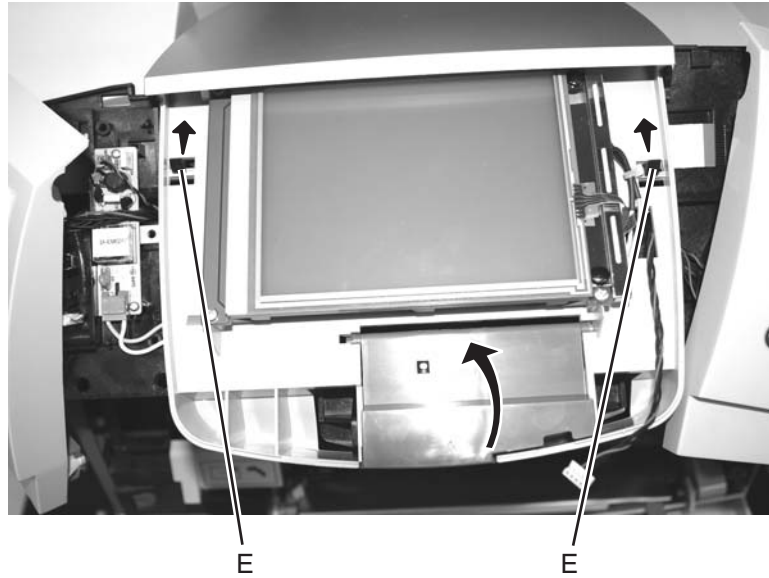


5. Remove the operator panel left side cover. See **“Operator panel left cover assembly removal” on page 4-61.**

6. Use a screwdriver to lift the lock and disconnect the cable (D) from the LCD inverter card assembly.



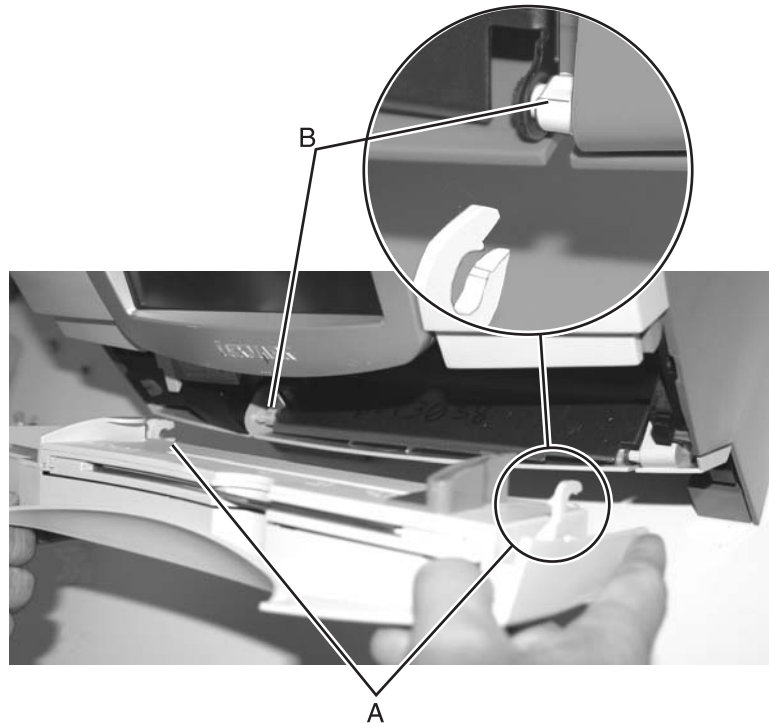
7. Press the two tabs (E) that limit range of motion, and rotate the LCD touchscreen up until it disconnects.



### ***Multipurpose feeder/lower front cover assembly removal***

1. Open the multipurpose tray to a position that allows the left and right tray hinge slots (A) to align with the D-shape mounting posts (B). Pull upward on each tray hinge to remove the tray from the two mounting posts.

**Warning:** Be careful not to break or stress the hinges.

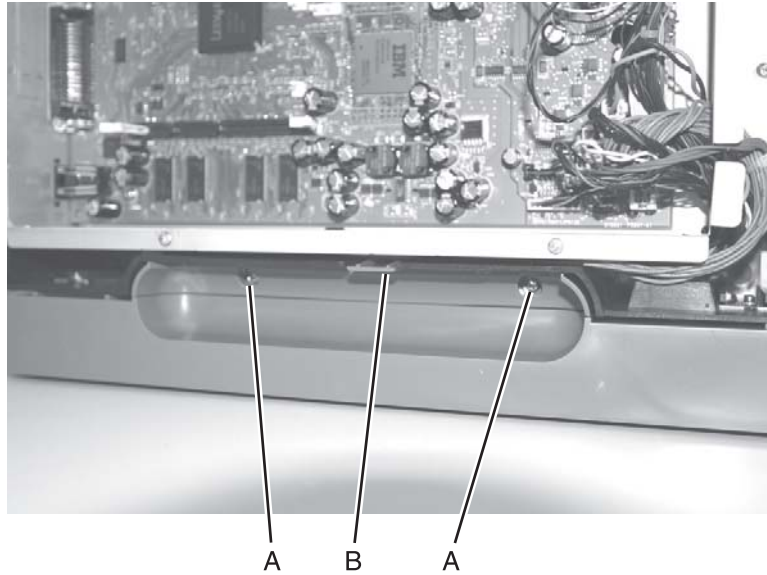


2. Remove the multipurpose tray/lower front cover assembly.



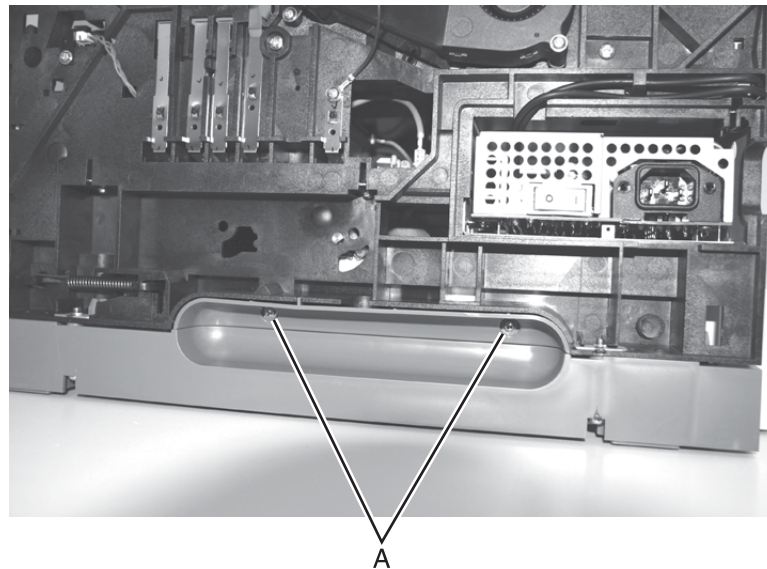
### ***Left cover handle holder removal***

1. Open the left side cover.
2. Remove the outer system board shield. See **“Printer outer shield removal”** on page 4-126.
3. Remove the two screws (A) holding the top of the left handle holder in place.
4. Use the tab (B) to lift out the left handle holder.



### ***Right cover handle holder removal***

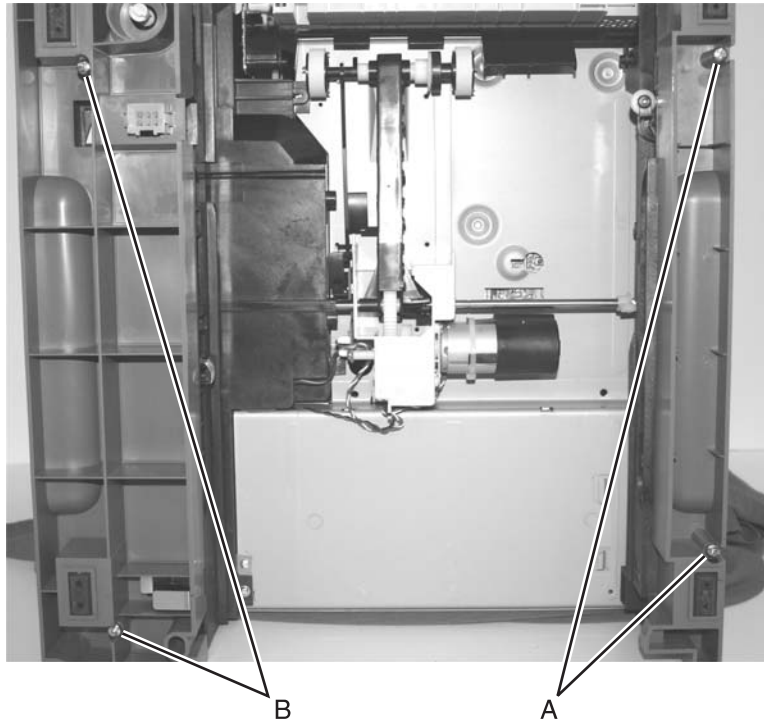
1. Remove the right side cover. See **“Printer right cover removal”** on page 4-58.
2. Remove the two screws (A) holding the top of the right handle holder in place.
3. Lift out the right handle holder.





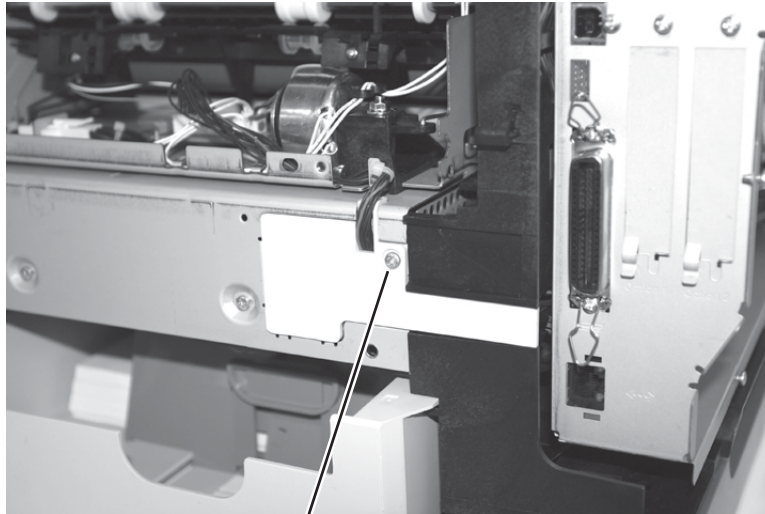
### ***Left and right frame extensions***

1. Remove the ADF and flatbed scanner assemblies. See **“Flatbed scan assembly removal” on page 4-38.**
2. Remove the toner cartridge.
3. Turn the printer on its back.
4. Remove the two screws (A) holding the right frame extension.
5. Remove the two screws (B) securing the left frame extension.



## Pass thru plate

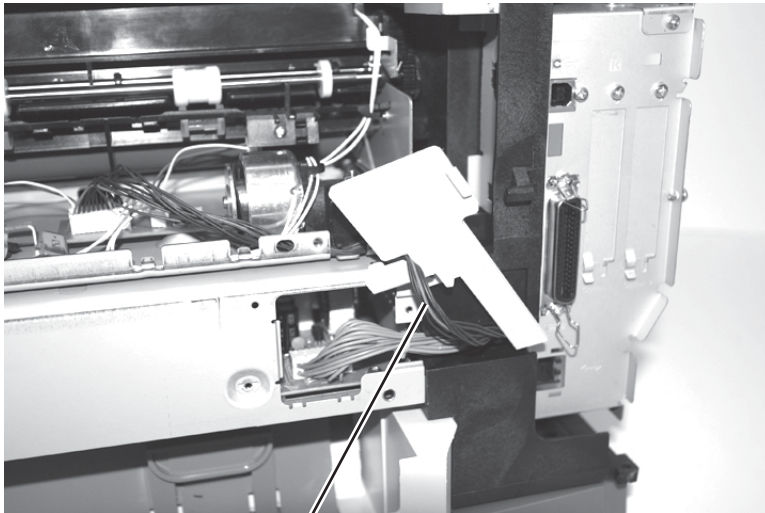
1. Remove the redrive assembly. See **“Redrive assembly removal”** on page 4-128.
2. Remove the screw (A) securing the pass thru plate.



A

3. Carefully remove the plate until it is loose.
4. Remove the fuser to system board DC cable (B) secured through the plate.

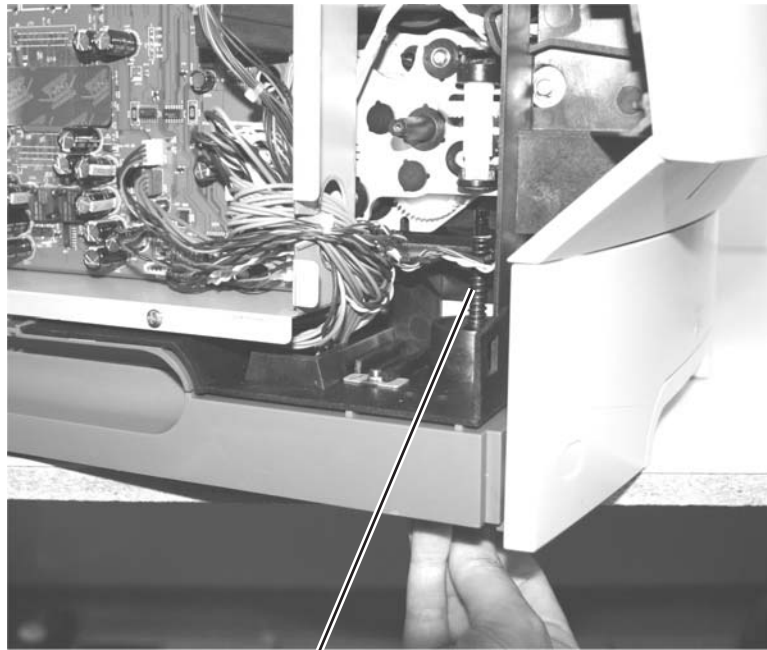
**Note:** Note the routing of the fuser card to system board DC cable.



B

## ***Bevel gear removal***

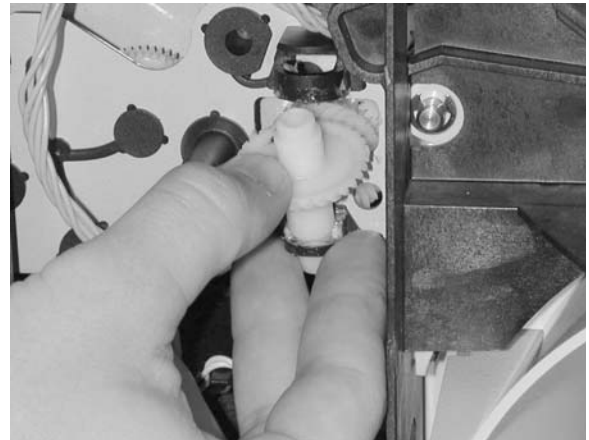
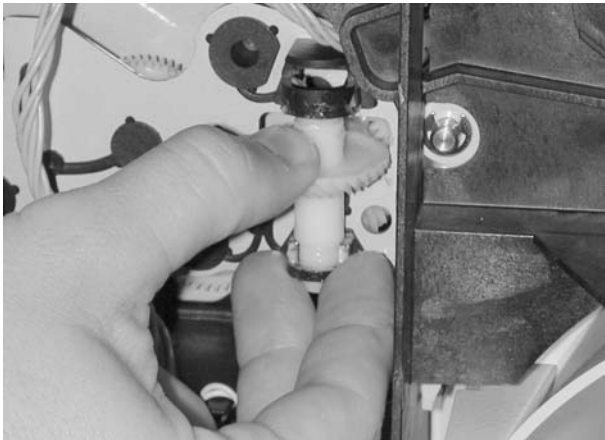
1. Open the left door.
2. Remove the inner shield.
3. Remove the gear guard.
4. Remove the power takeoff shaft and spring (A) through the bottom of the printer.



A

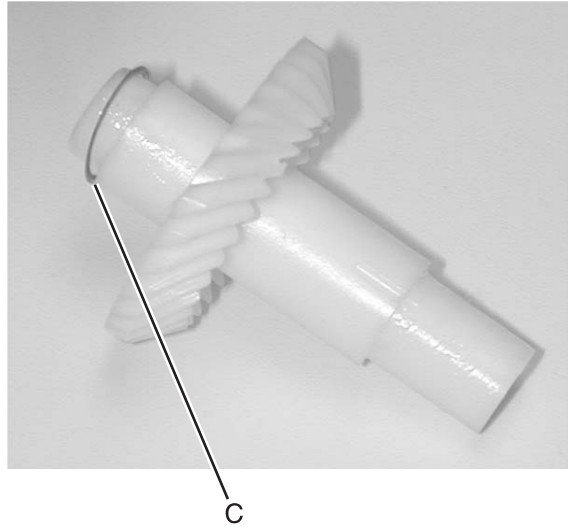
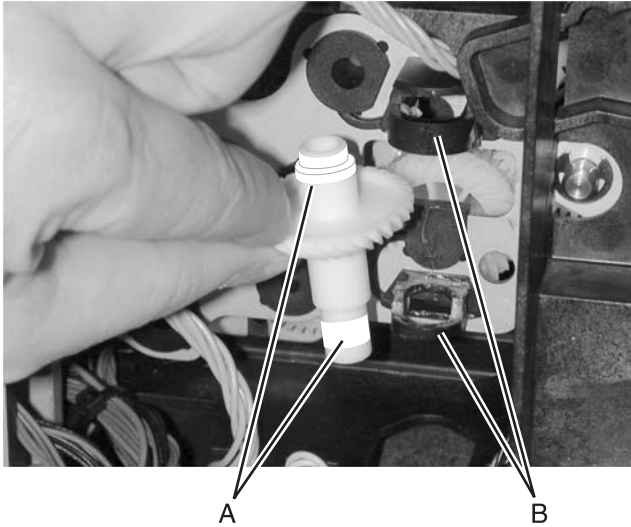
5. Place your thumb on the top of the gear, and press firmly down and away.

**Note:** You need to exert firm pressure to *snap* the bevel gear out.



## Installation

1. Remove any washer that may be present (A) and discard.
2. Lubricate areas (A) that engage the journal (B) with grease from the provided packet.
3. Place the new washer (C) on the bevel gear shaft.



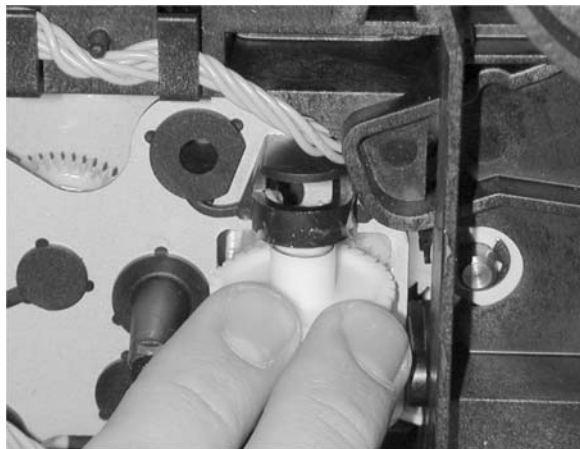
4. Insert the bottom portion and press or pull into position.

**Note:** You should hear two distinct *snaps*. If you only hear one, the bevel gear is only partially engaged and you should continue to press until the second *snap* is heard. Very firm pressure is required.



### CAUTION

Do not brace your hands below the bevel gear itself. When the gear double-*snaps* into place, it may pinch your hand.

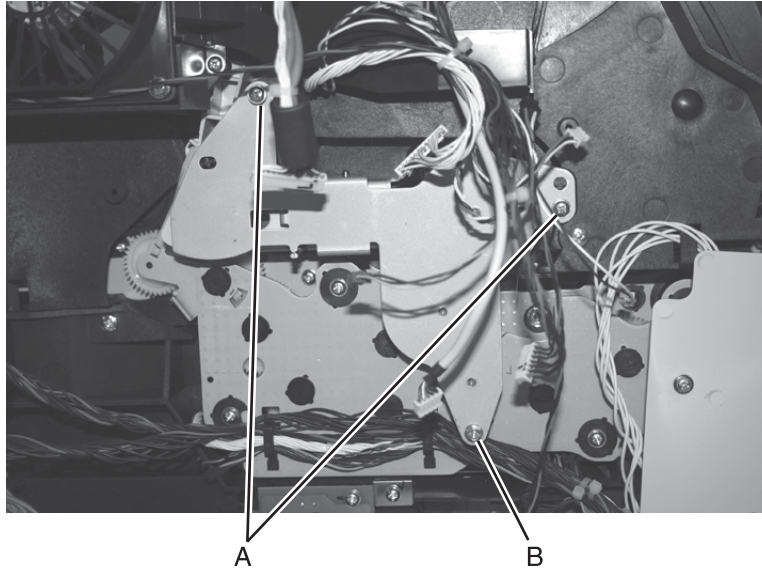


5. Install the power takeoff shaft and spring.
6. Install the gear guard.
7. Install the inner shield.



## Developer drive assembly removal

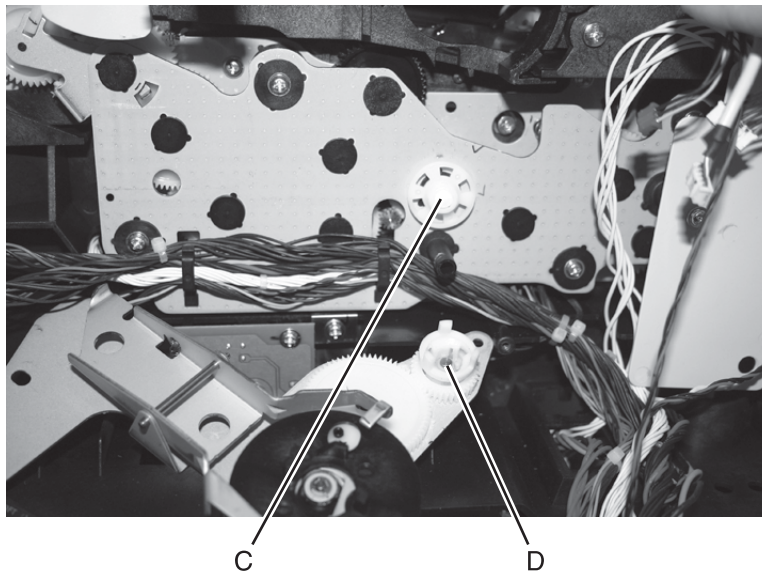
1. Remove the system board and inner shield. See **“System board and inner shield removal —model 500S”** on page 4-131.
2. Remove the two short screws (A) and the one long screw (B) securing the developer drive assembly.



3. Remove the developer drive assembly.
4. Remove the developer drive coupler kit. See **“Developer drive coupler kit removal”** on page 4-78.

## Installation

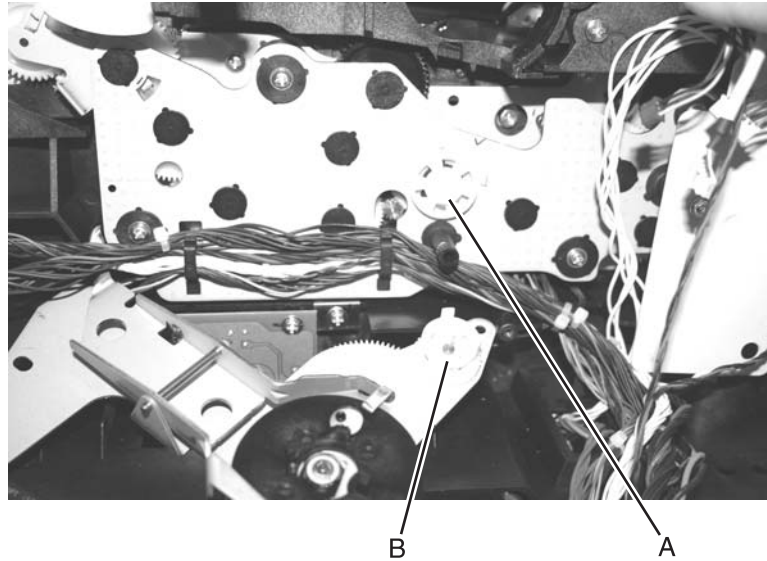
1. Place the developer coupler into the main motor drive shaft.
2. Place the developer drive shaft on the developer drive.
3. Align the developer drive shaft with the coupler.



4. Be sure to replace the screws in the same positions.

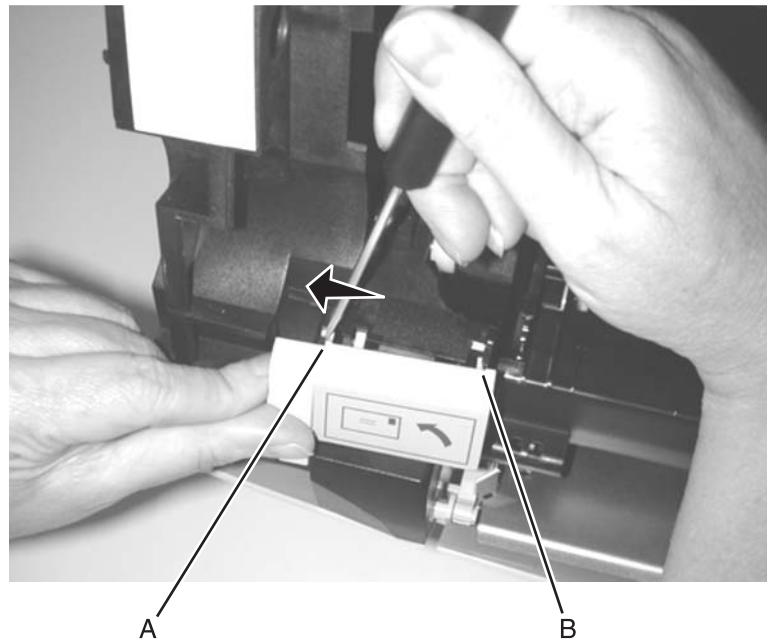
### ***Developer drive coupler kit removal***

1. Remove the developer drive. See **“Developer drive assembly removal” on page 4-77.**
2. Remove the shaft drive and coupler.



### ***ESD cover removal***

1. Open the multipurpose tray, and remove the tray from the two mounting posts. See **“Multipurpose feeder/ lower front cover assembly removal” on page 4-71.**
2. Carefully lift the latch on the left (A), and remove the ESD cover.  
**Note:** Be careful not to stress the hinge on the right (B).



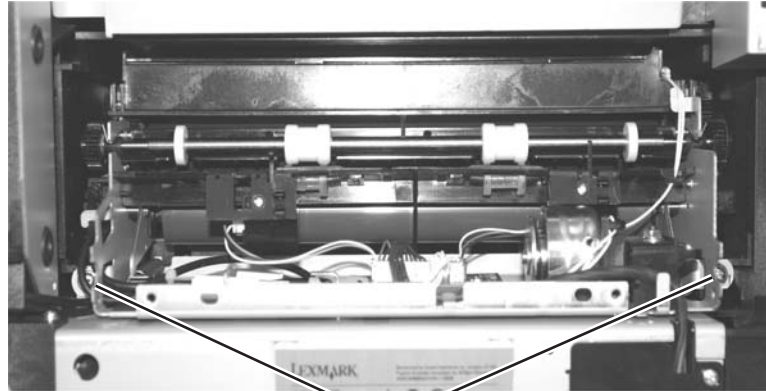
## Fuser assembly removal



### CAUTION

Unplug the printer before you begin.

1. Remove the fuser wick assembly cover. See **“Fuser wiper cover assembly removal”** on page 4-54.
2. Remove the redrive assembly. See **“Redrive assembly removal”** on page 4-128.
3. Remove the fuser mounting screws (A).



A

4. Disconnect the fuser to LVPS AC cable (B) from the fuser lamp connector (C).

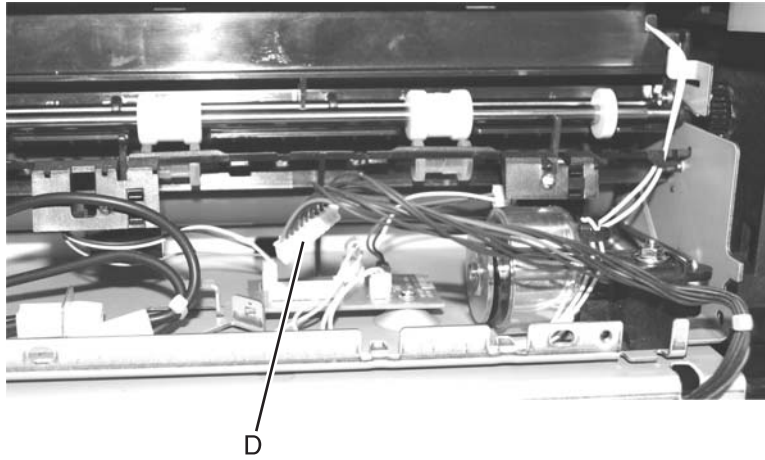


C

B

5. Disconnect the fuser to system board DC cable (D) from the fuser board.

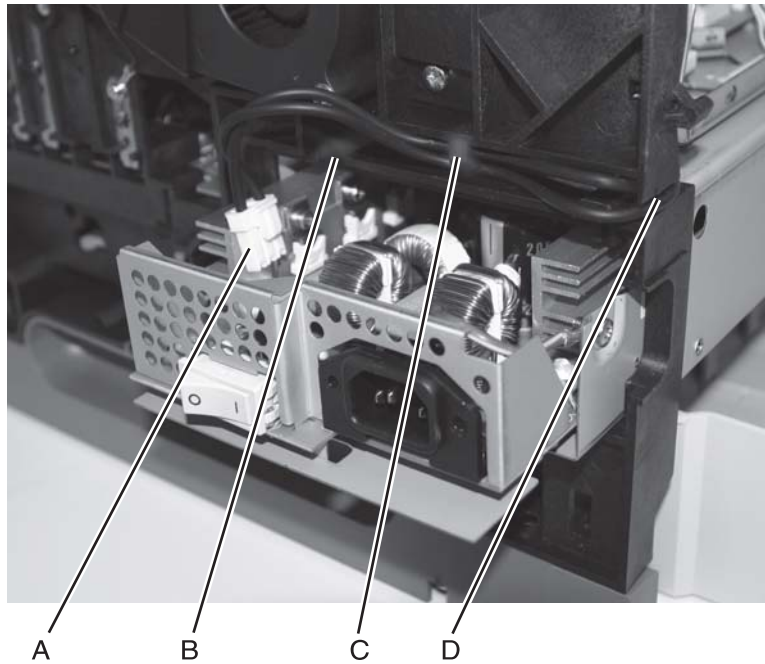
**Note:** Be sure to observe the routing of the LVPS to fuser lamp AC and the DC cable.



6. Pull the cables free and remove the fuser.

### Installation notes

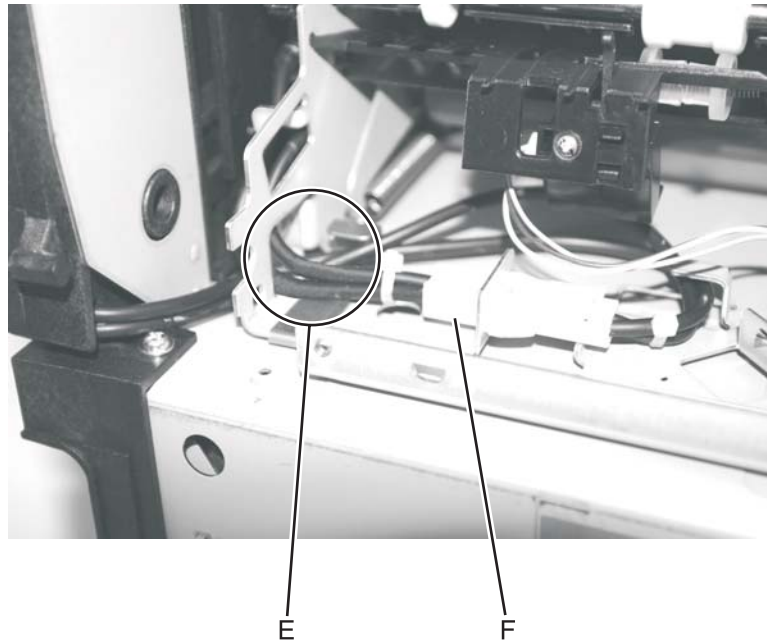
1. When you reinstall the fuser, be sure to route the fuser to LVPS AC cable (A) through the channel (B) on the right side frame above the LVPS, under the clip (C) over the LVPS, and through the notch in the frame (D).



2. Route the fuser lamp cable through the opening in the fuser (E).

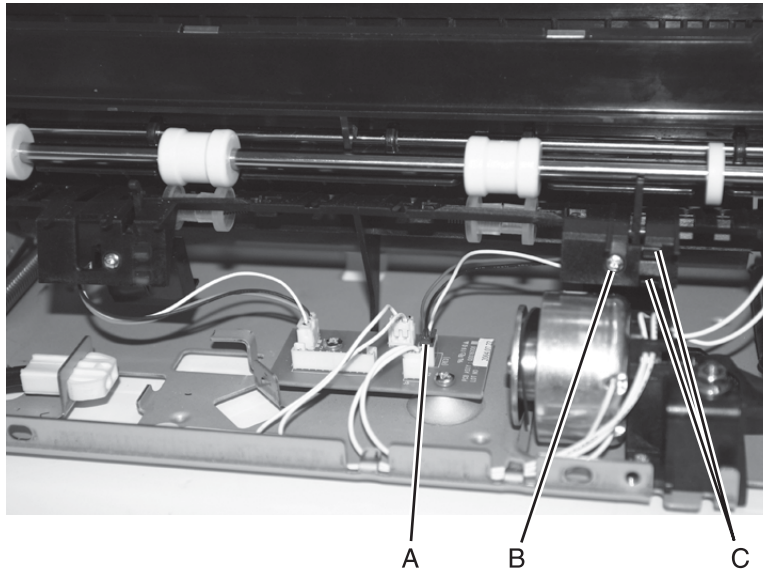


- 3.** Connect the fuser to LVPS AC cable to the fuser lamp connector (F) at the LVPS.  
**Note:** Be sure to connect the fuser to system board DC cable after replacing the LVPS.



## ***Fuser exit sensor removal***

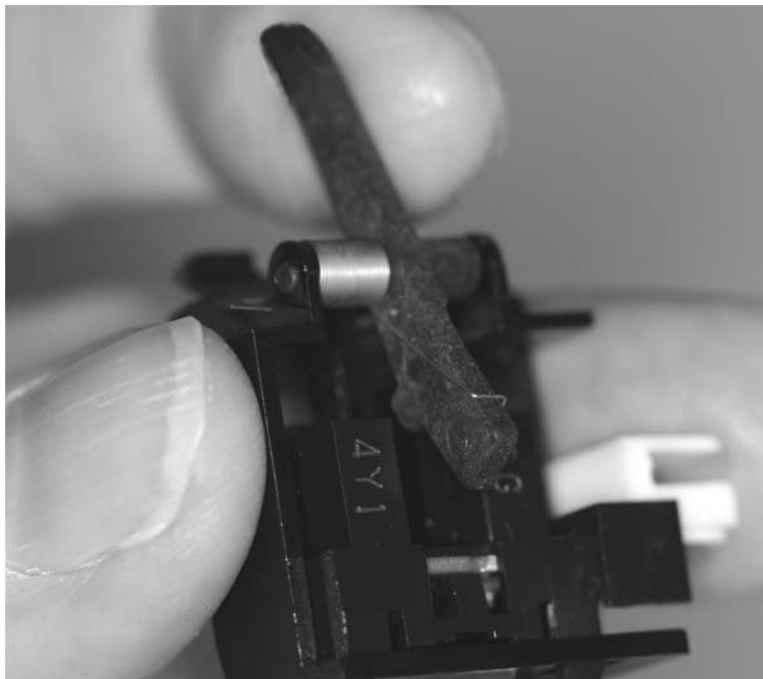
1. Remove the fuser. See **“Fuser assembly removal”** on page 4-79.
2. Disconnect the fuser exit cable (A) from the fuser control board.
3. Remove the screw (B) securing the cover containing the fuser exit sensor, flag, and spring.
4. Release the two clips (C) holding the sensor in the bracket.



5. Unplug the fuser exit sensor cable from the sensor.

## **Installation**

1. Move the fuser exit sensor flag out of the way to clip the sensor securely into the cover.



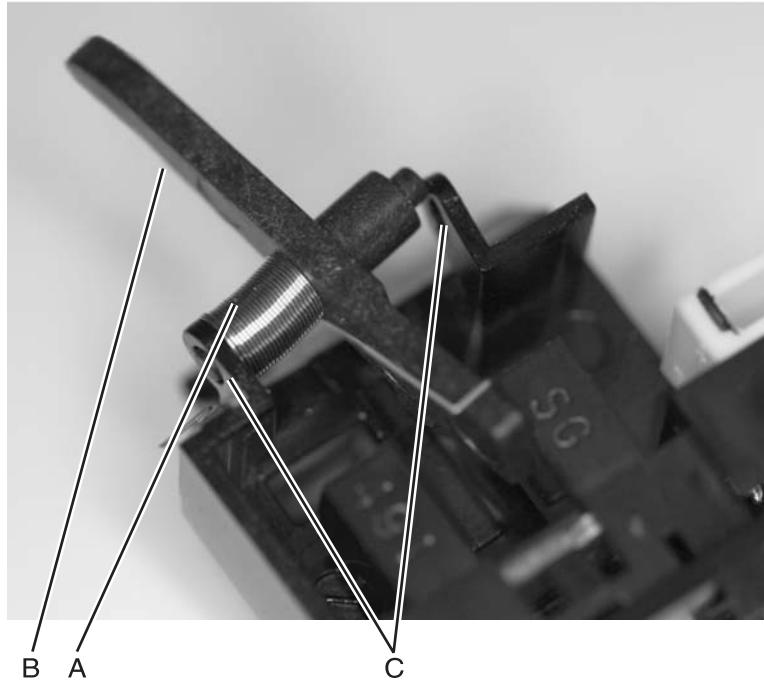
2. Connect the fuser exit sensor cable.

3. *Snap* the bottom fastener of the sensor cover into place in the lower exit guide assembly, and use a small flat bladed screwdriver to ease the sensor cover into the clips.
4. Replace the screw securing the sensor cover.

**Note:** Make sure the flag moves properly.

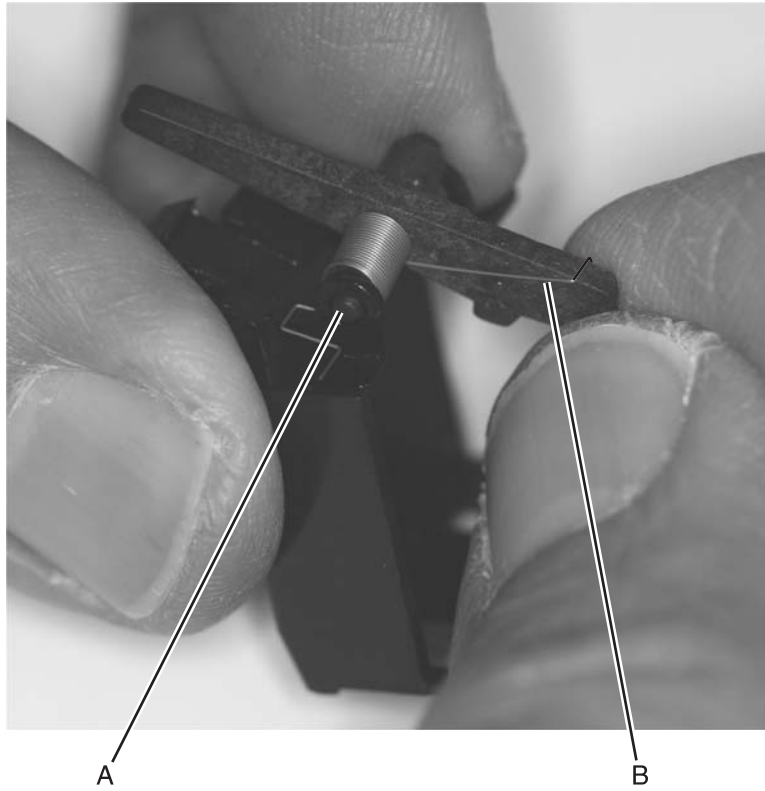
### ***Fuser exit sensor flag and spring removal***

1. Remove the fuser exit sensor. See **“Fuser exit sensor removal”** on page 4-82.
2. Note the position of the spring (A) in relation to the flag (B).
3. Carefully ease the right arm (C) until the fuser exit sensor cover releases the flag and spring.

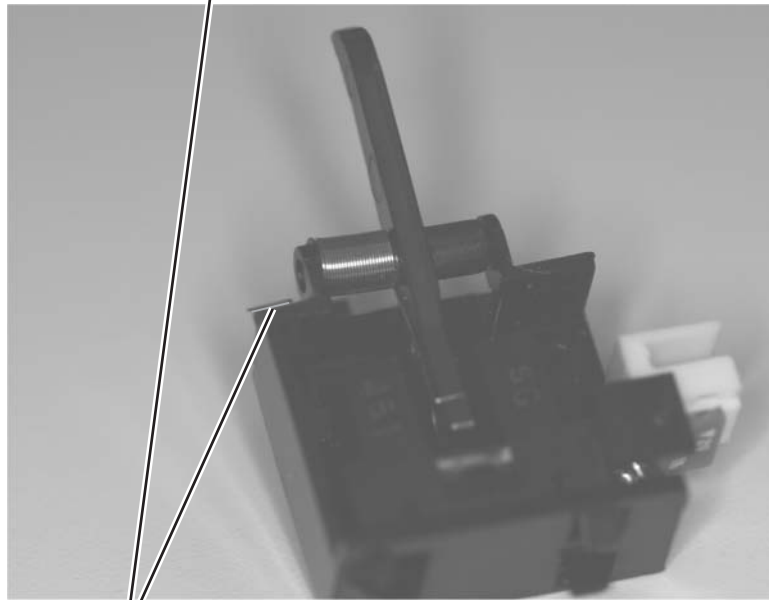
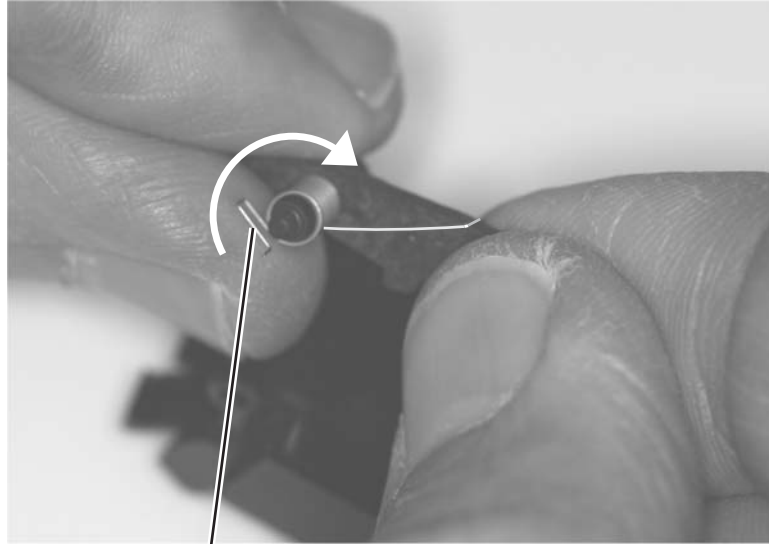


## Spring replacement

1. Place the spring on the left pin (A).
2. Set the tang (B) on the flag.




3. Rotate the bent end (C) of the spring to add tension, place the pins between the sensor cover arms, and rest the bent end against the sensor cover frame.



C

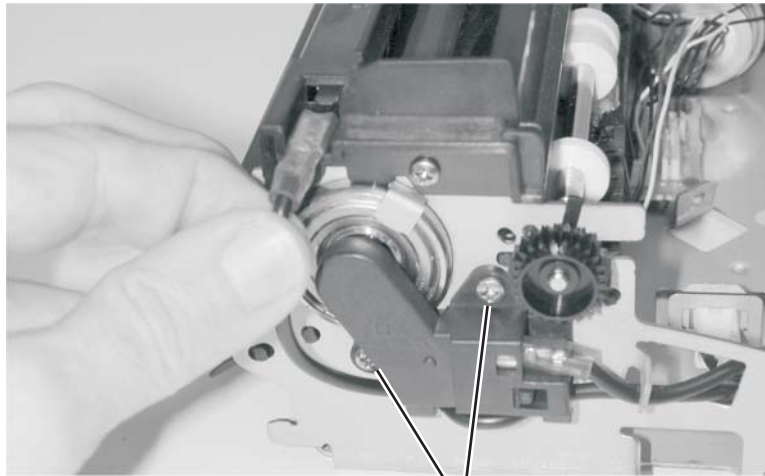
**Note:** After replacing the sensor, flag, and spring, make sure the flag moves freely and returns.

## Fuser lamp removal

	<p><b>CAUTION</b></p> <p>The fuser and the fuser lamp may be hot. You may need to allow them to cool before handling them.</p>
---	--

1. Remove the fuser assembly. See **“Fuser assembly removal” on page 4-79.**
2. Disconnect the fuser lamp AC cable from the right side of the top cover assembly.
3. Remove the two screws (A) from the right side fuser lamp contact cover.

**Warning:** Take care when removing the screw, as the lamp is under spring tension. When the contact is released, damage to the lamp or contact may occur.

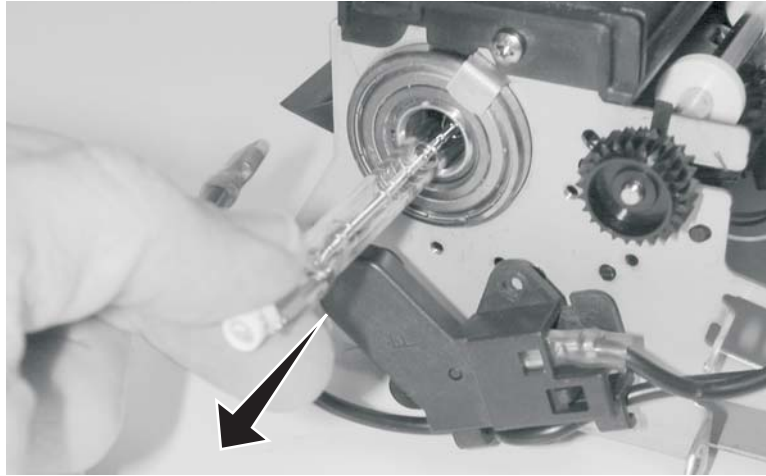


A(202)

4. Remove the left lamp contact assembly.

**5.** Remove the fuser lamp.

**Warning:** The lamp is under spring tension, and care must be used when removing the lamp from the fuser. Grip the lamp by the ceramic end piece, and remove it from the fuser assembly. Be careful not to touch the glass, as skin oils and acids can reduce the life of the lamp.



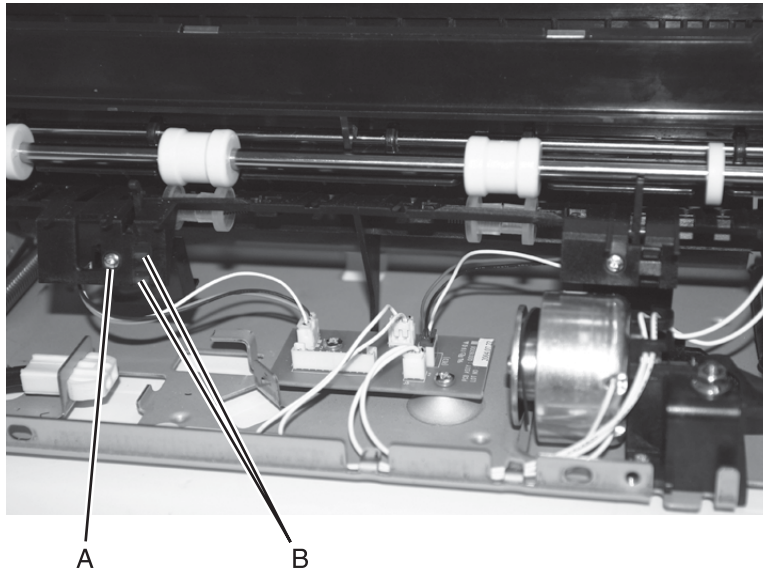
Use the following table to identify and install the correct lamp.

Description	P/N
Fuser Lamp 115 V	<b>40X0122</b>
Fuser Lamp 220 V	<b>40X0123</b>

## Fuser narrow media sensor removal

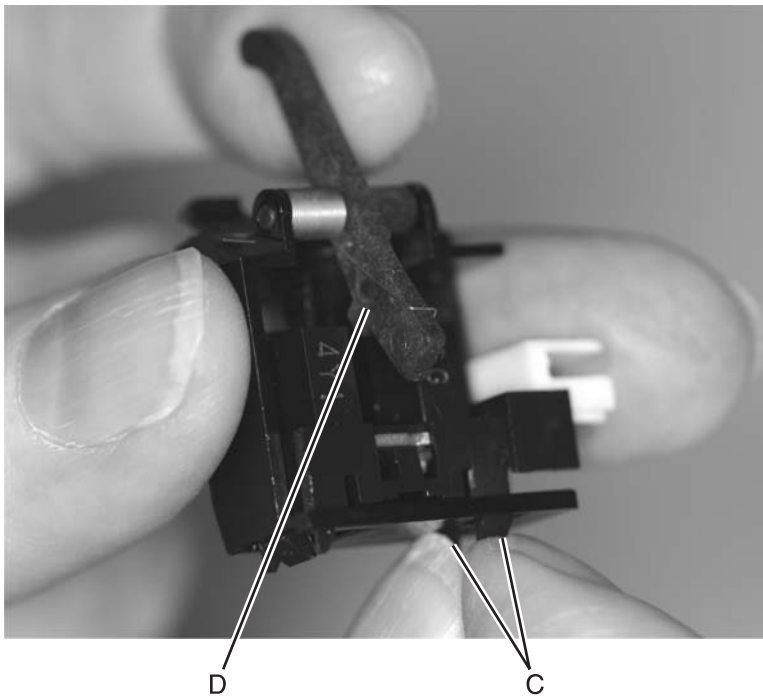
1. Remove the redrive assembly. See **“Redrive assembly removal”** on page 4-128.
2. Remove the screw (A) securing the narrow media sensor cover to the fuser.
3. With a thumbnail, release the catches (B) holding the sensor cover to the lower exit guide assembly (C) in place.

**Note:** You may need to move the narrow media flag out of the way to remove the sensor.



4. Disconnect the fuser narrow media cable at the sensor.
5. Release the catches holding the sensor in the cover.

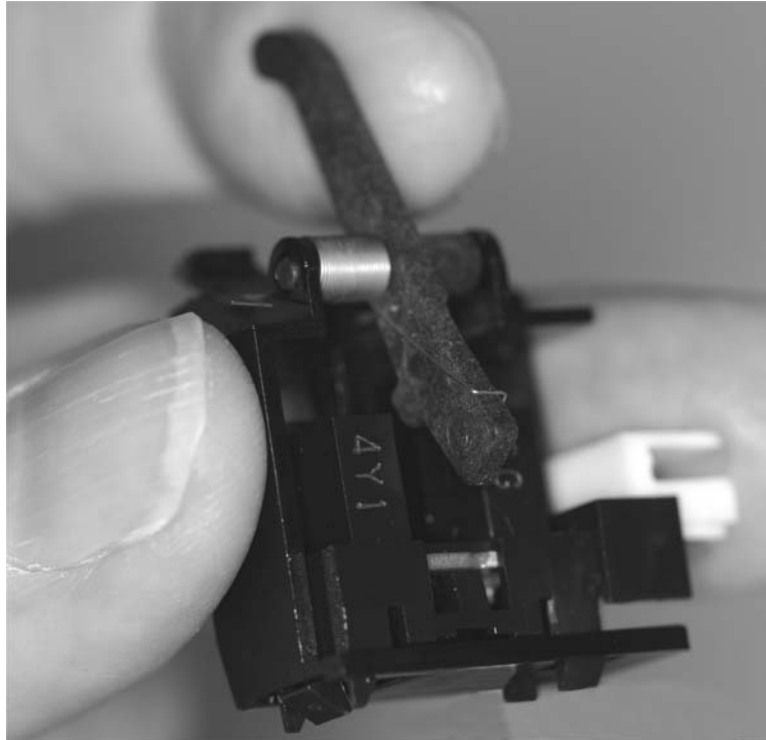
**Note:** Hold the narrow media flag out of the way to remove the sensor from the cover.





## Replacement

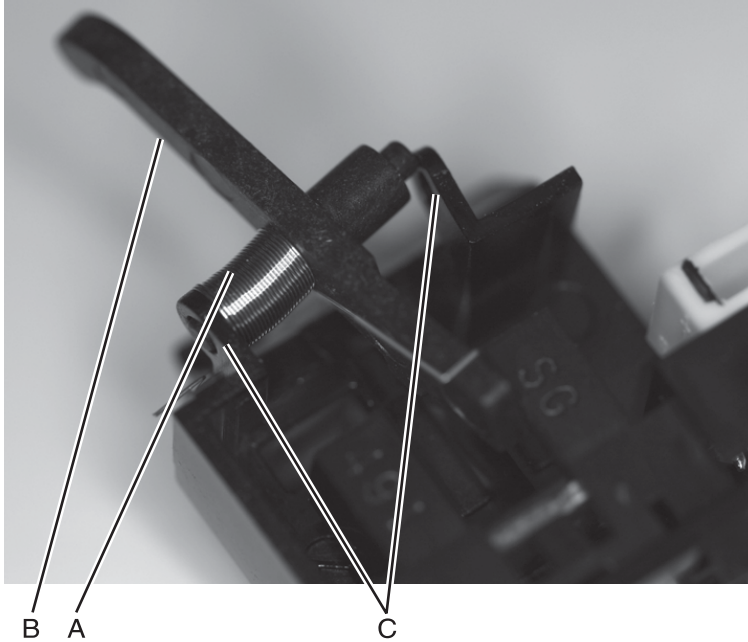
1. Move the narrow media flag out of the way to clip the sensor securely into the cover.



2. Connect the fuser narrow media cable.
3. *Snap* the bottom fastener of the sensor cover into place in the lower exit guide assembly, and rock the cover up until the top fastener *snaps* securely.
4. Replace the screw securing the sensor cover.

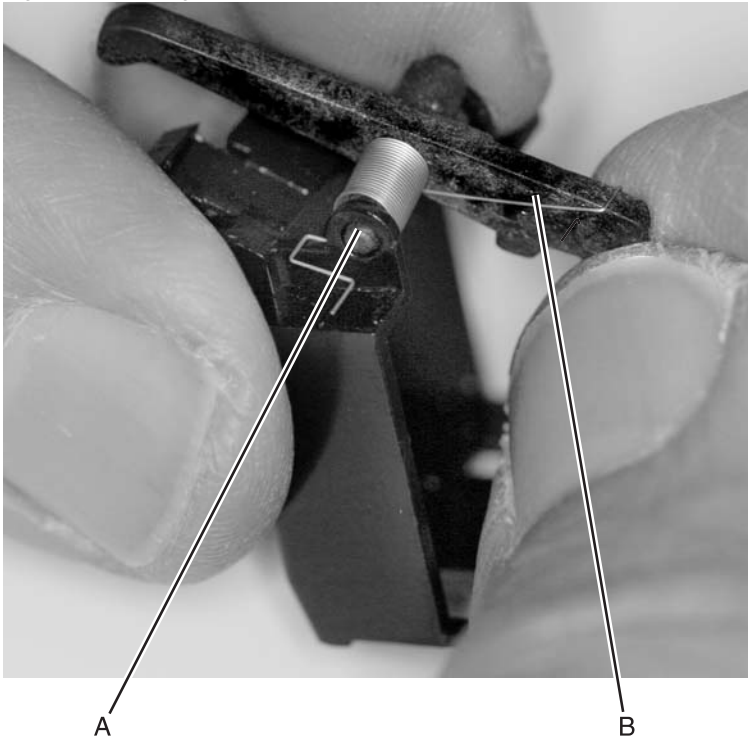
## ***Fuser narrow media flag and spring removal***

1. Remove the fuser narrow media sensor. See **“Fuser narrow media sensor removal”** on page 4-88.
2. Note the position of the spring (A) in relation to the flag (B).
3. Carefully ease the right arm (C) of the sensor cover just far enough apart to release the flag and spring.

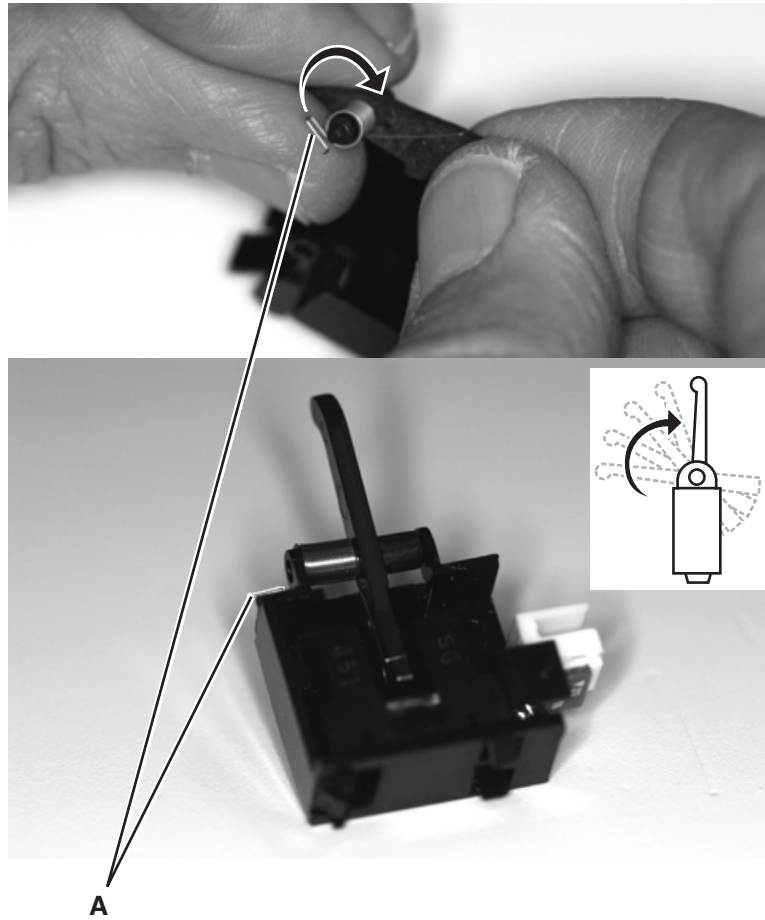


## **Spring replacement**

1. Place the spring on the left pin (A).
2. Set the tang (B) on the flag.



3. Rotate the bent end (C) of the spring to add tension, place the pins between the sensor cover arms, and rest the bent end against the sensor cover frame.



**Note:** After replacing the sensor, flag, and spring, make sure the flag moves properly.

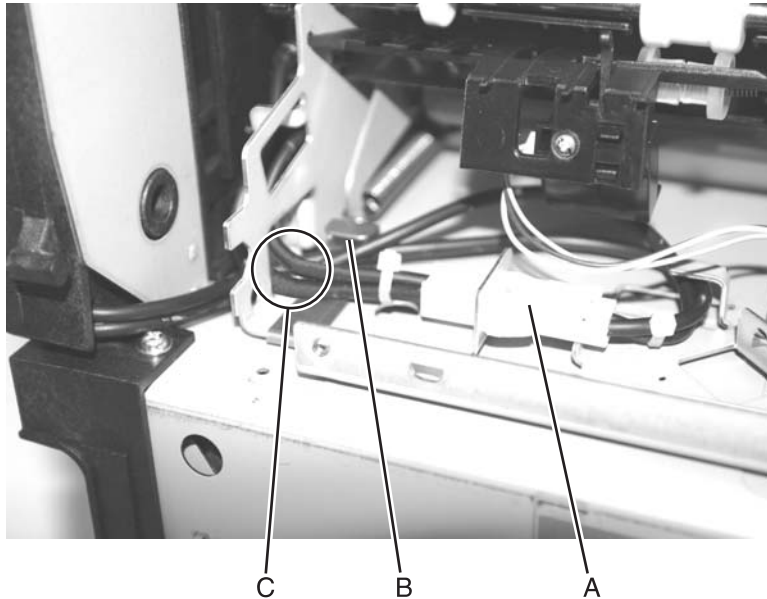
## Fuser to LVPS AC cable removal



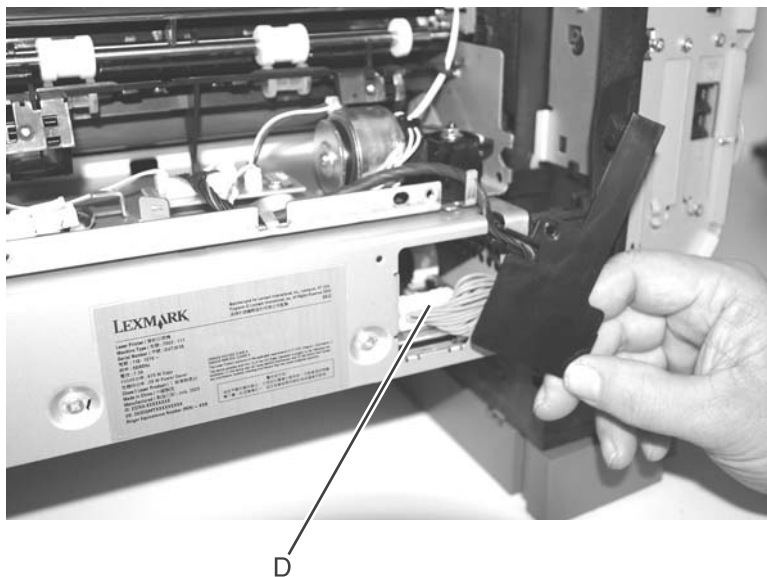
### CAUTION

Unplug the printer before you begin.

1. Remove the fuser wiper assembly cover. See **“Fuser wiper cover assembly removal”** on page 4-54.
2. Remove the redrive assembly. See **“Redrive assembly removal”** on page 4-128.
3. Remove the right side cover. See **“Printer right cover removal”** on page 4-58.
4. Disconnect the fuser to LVPS AC cable (A) from the fuser lamp connector on the fuser, and remove the cable through the cable retainer (B) and the lower rectangular opening (C) in the fuser frame.

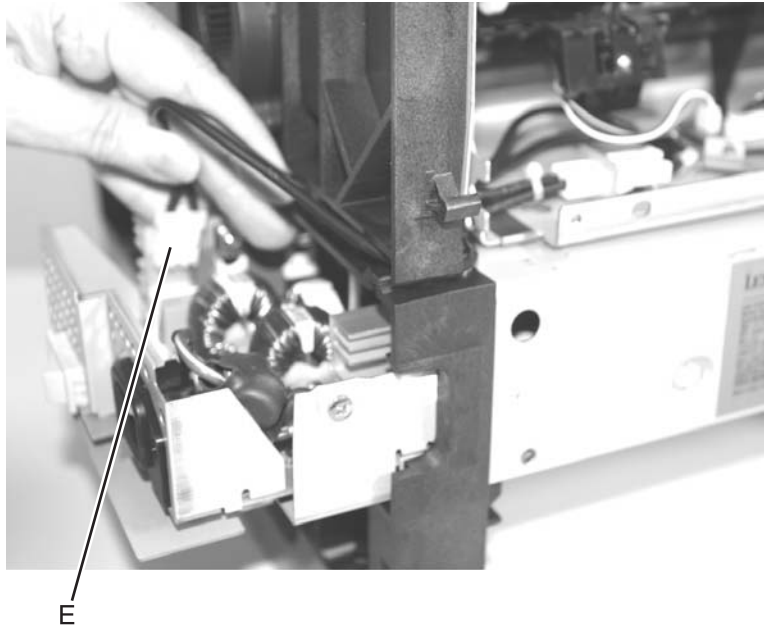


5. Remove the pass thru plate. See **“Pass thru plate”** on page 4-74.
6. Disconnect the LVPS to system board DC cable (D) from the LVPS.



7. <sup>106</sup>Pull the LVPS assembly far enough out from the right side of the printer to disconnect the fuser to LVPS AC cable from the LVPS (E).

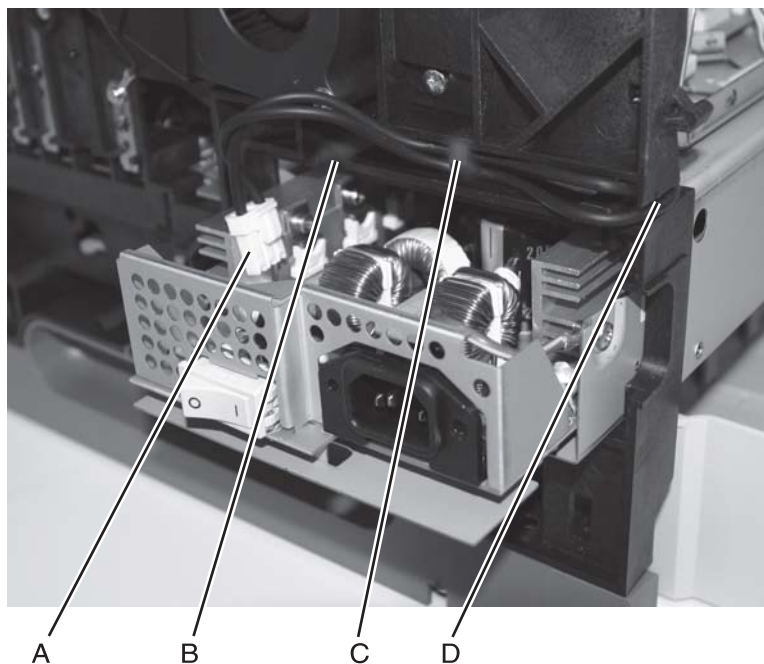
**Note:** The LVPS assembly may be difficult to remove from the printer. Do not use excessive force in the removal.



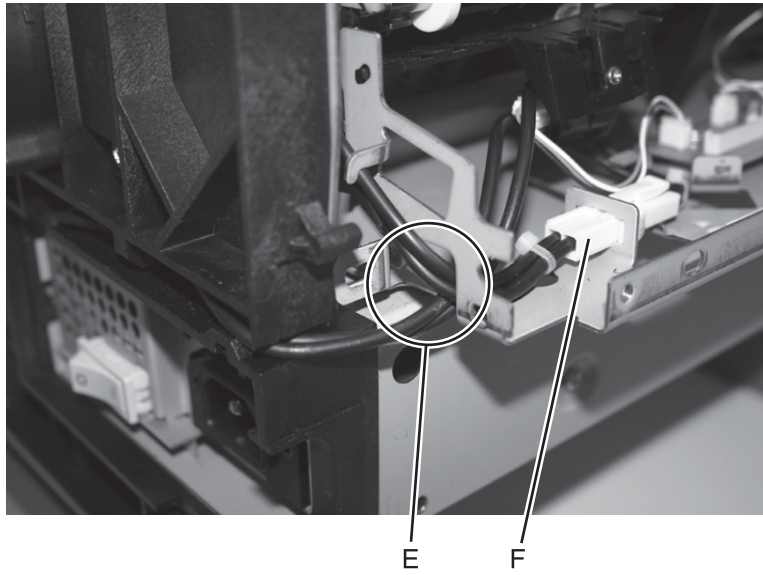
8. Remove the fuser to LVPS AC cable.

## Installation

1. Plug in the fuser to LVPS AC cable (A) into the LVPS.
2. Route the cable through the channel (B) on the right side frame above the LVPS, under the clip (C) over the LVPS, and through the notch in the frame (D).



3. Route the cable through the lower rectangular opening (E).
4. Connect the fuser to LVPS AC cable to the fuser lamp connector (F).



**Note:** Be sure to connect the fuser to system board DC cable after replacing the LVPS.

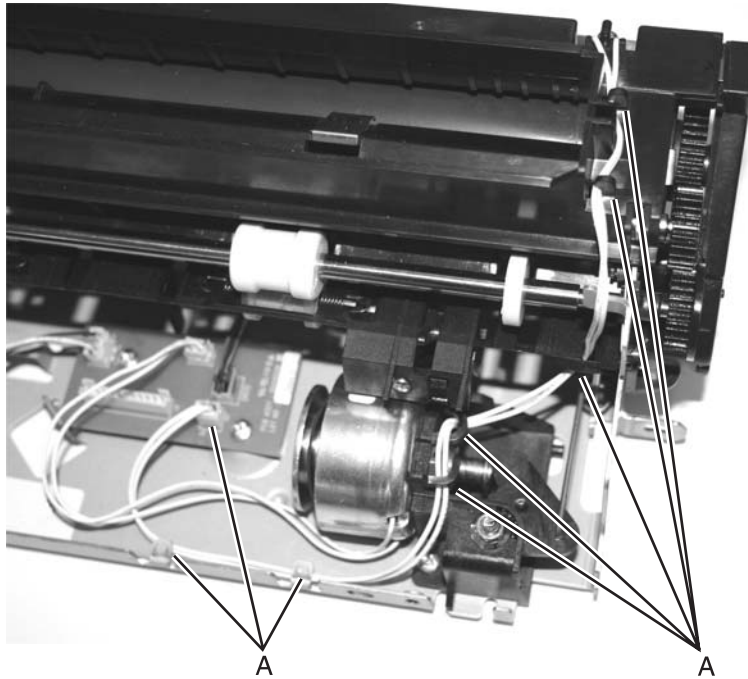
## Fuser top cover removal



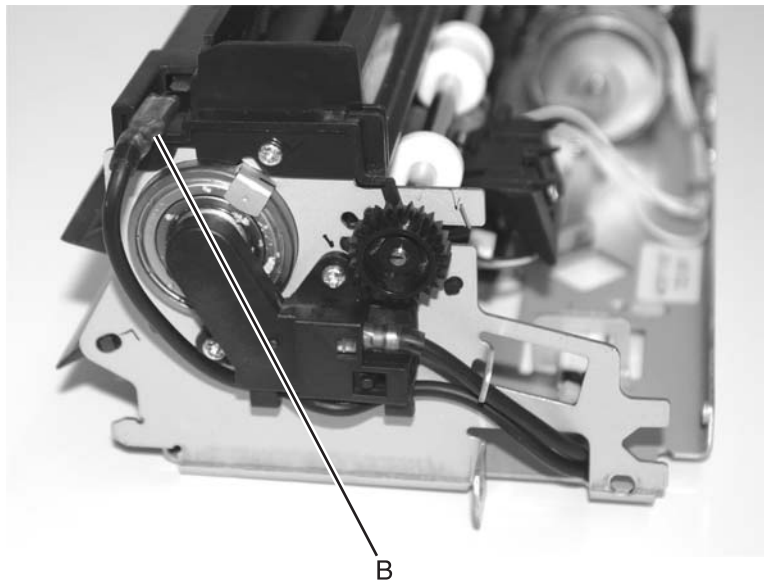
### CAUTION

Unplug the printer before you begin.

1. Remove the fuser assembly. See **“Fuser assembly removal”** on page 4-79.
2. Note the thermistor cable routing (A) and disconnect the thermistor cable at the fuser control board.

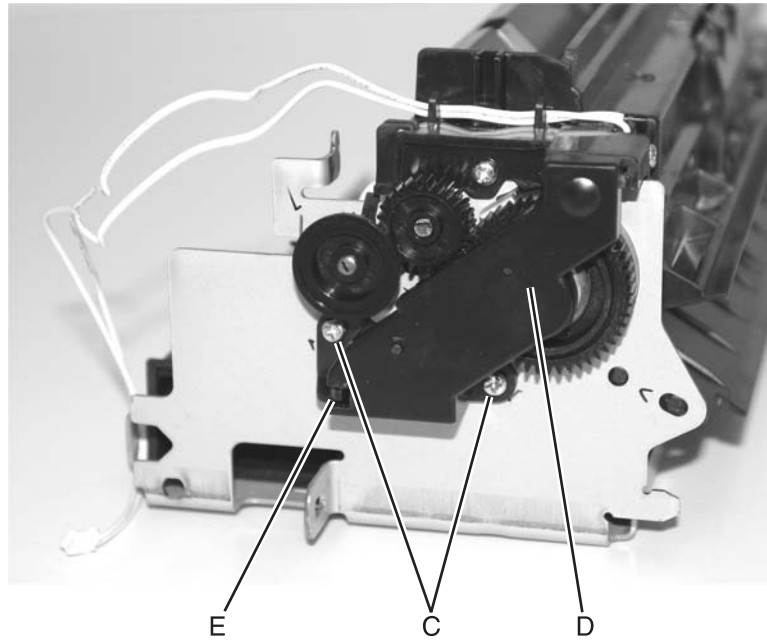


3. Disconnect the AC fuser lamp cable (B) from the top right side of the fuser cover.

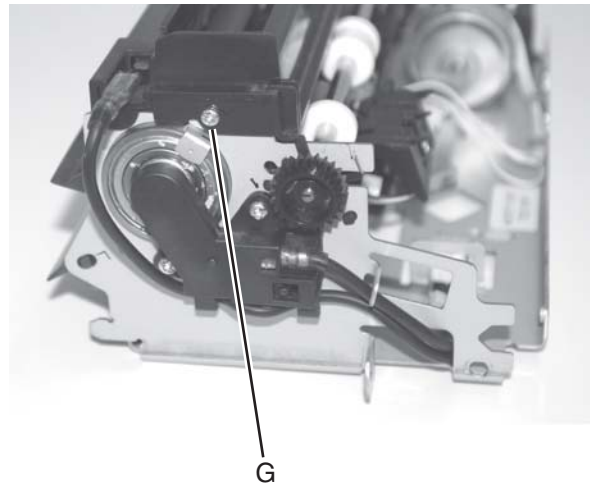
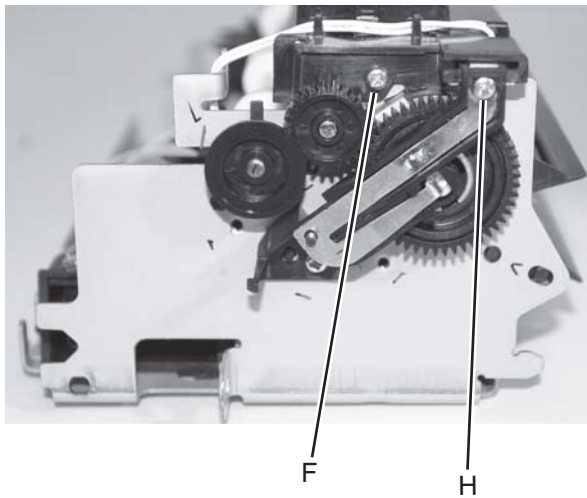




- Carefully remove the two screws (C) from the right side of the fuser lamp contact cover (D).
- Release the latch (E) and remove the cover.

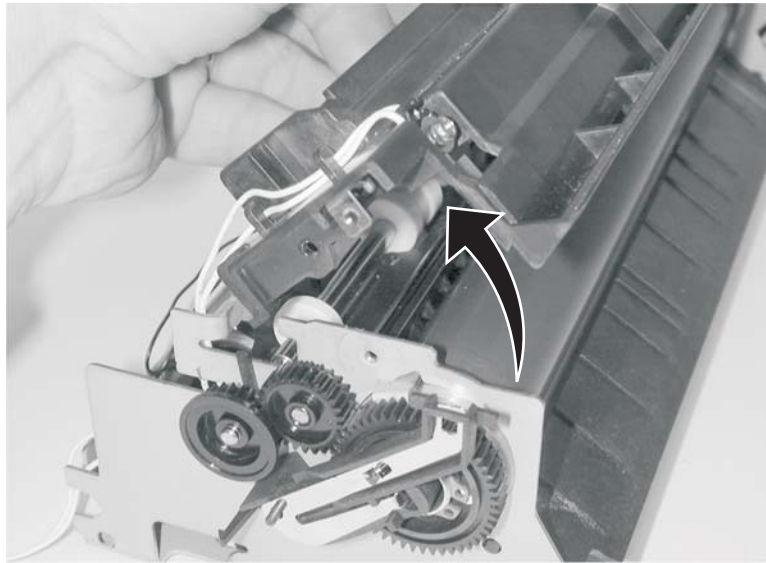


- Remove the screw (F) on the left side and the screw (G) on the right side that attach the fuser upper cover assembly to the fuser frame.
- Remove screw (H) that attaches the side fuser lamp contact to the fuser top cover.



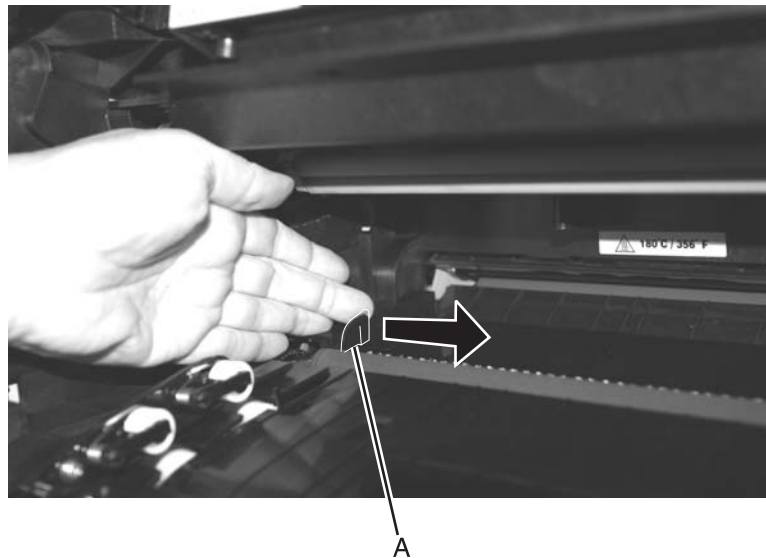


8. Remove the fuser cover.



### ***Fuser transfer plate removal***

1. Remove the upper paper deflector. See **“Upper paper deflector assembly removal”** on page 4-138.
2. Remove the transfer roll. See **“Transfer roll assembly removal”** on page 4-132.
3. Remove the inner paper deflector. See **“Inner paper deflector assembly removal”** on page 4-101.
4. Lift the left side of the fuser transfer plate (A), and move the plate to the left to clear the right side from its mounting.

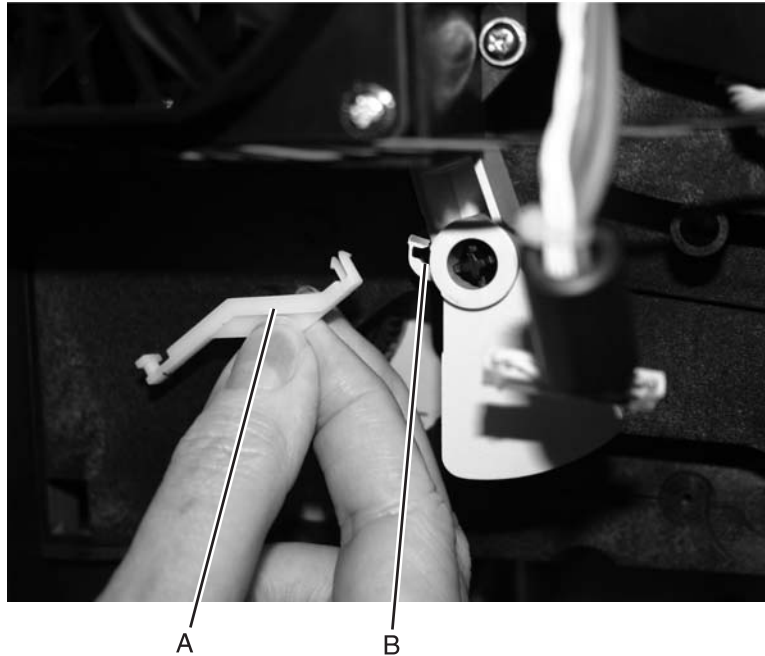


5. Remove the screw that attaches the transfer plate ground wire to the center pan.
6. Remove the fuser transfer plate.
7. Remove the screw that attaches the deflector cable to the transfer plate.

## ***Gear release link removal***

1. Remove the system board and inner shield. See **“System board and inner shield removal —model 500S” on page 4-131.**
2. Remove the developer drive.
3. Disconnect the gear release link (A) from the hole in charge roll link (B).

**Note:** Lift the upper front cover to make it easier to remove the link.




4. Rotate the link to disconnect the link from the main drive assembly.

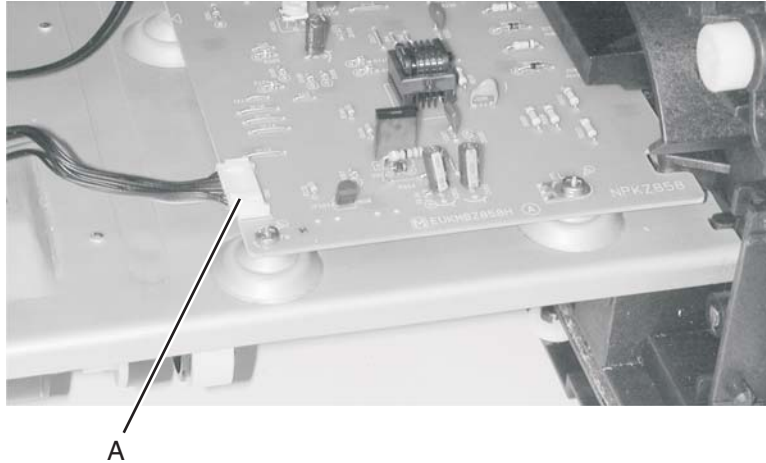


5. Remove the gear release link.

## High voltage power supply removal

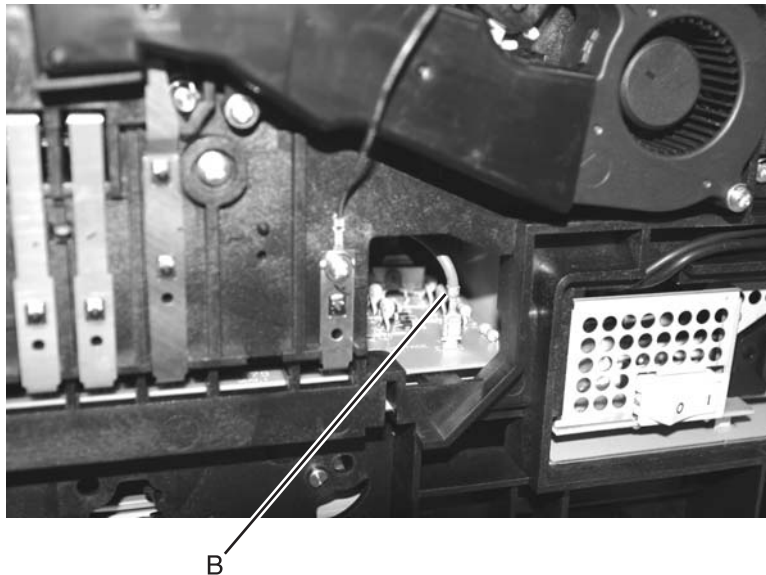
	<p><b>CAUTION</b></p> <p>There is a danger from hazardous voltage in the area of the product where you are working. Unplug the product before you begin, or use caution if the product must receive power in order to perform the task.</p>
---	---

1. Remove the inner paper deflector. See **“Inner paper deflector assembly removal”** on page 4-101.
2. Remove the right side cover. See **“Printer right cover removal”** on page 4-58.
3. Disconnect the HVPS cable from the HVPS at connector (A).

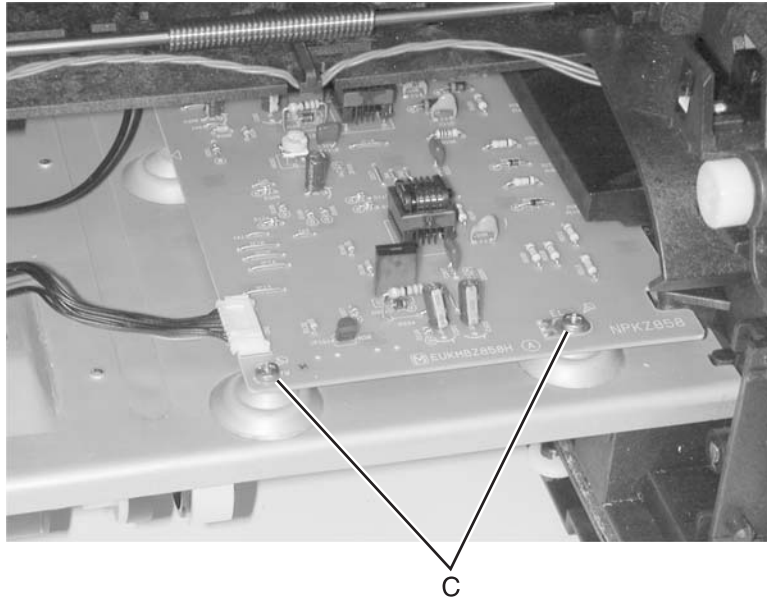


4. Disconnect the transfer roll cable (B) from the HVPS board.

**Warning:** Use care when disconnecting the cable from the transformer on the HVPS. The cable and connector can be easily damaged.



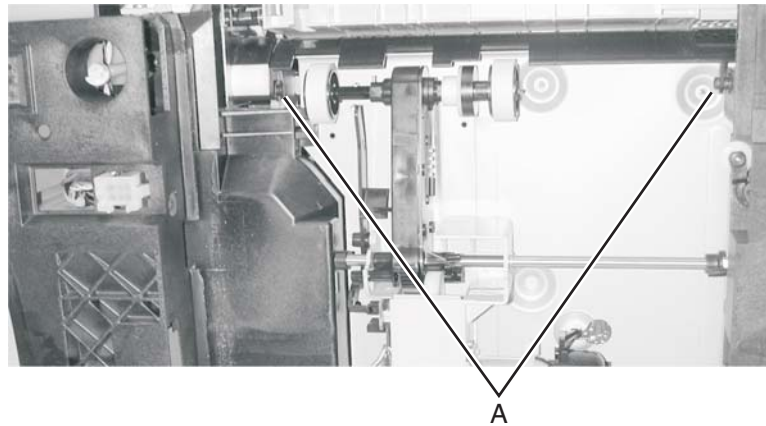
5. Remove the HVPS mounting screws (C).



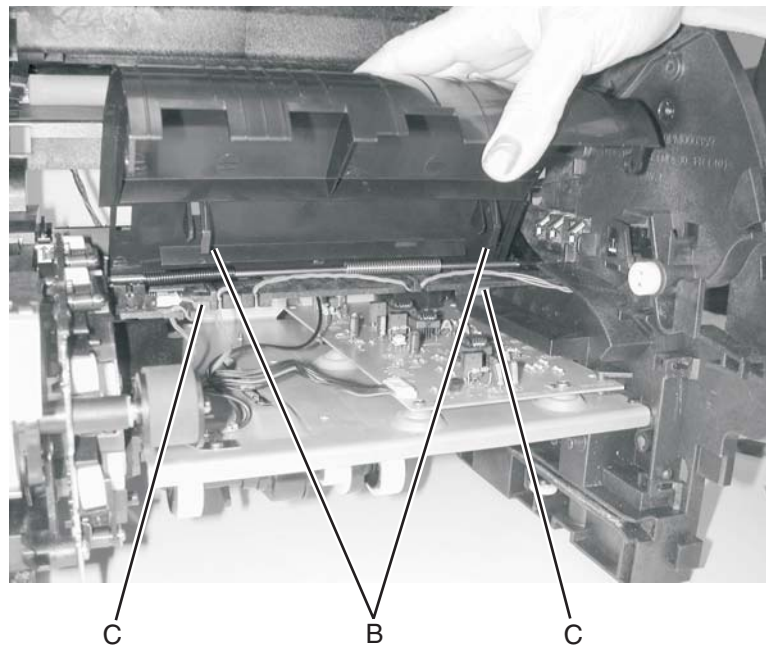
6. Slide the HVPS to the left to release the mounting tab from the center pan, and remove the HVPS.

## Inner paper deflector assembly removal

1. Remove the paper tray.
2. Remove the upper paper deflector assembly. See **“Upper paper deflector assembly removal” on page 4-138.**
3. Remove the MPF lower deflector assembly. See **“MPF lower paper deflector” on page 4-117.**
4. Place the printer on its side.
5. Gently pry the inner paper deflector from the left and right mounting posts (A) located on the bottom of the printer, and remove the deflector.

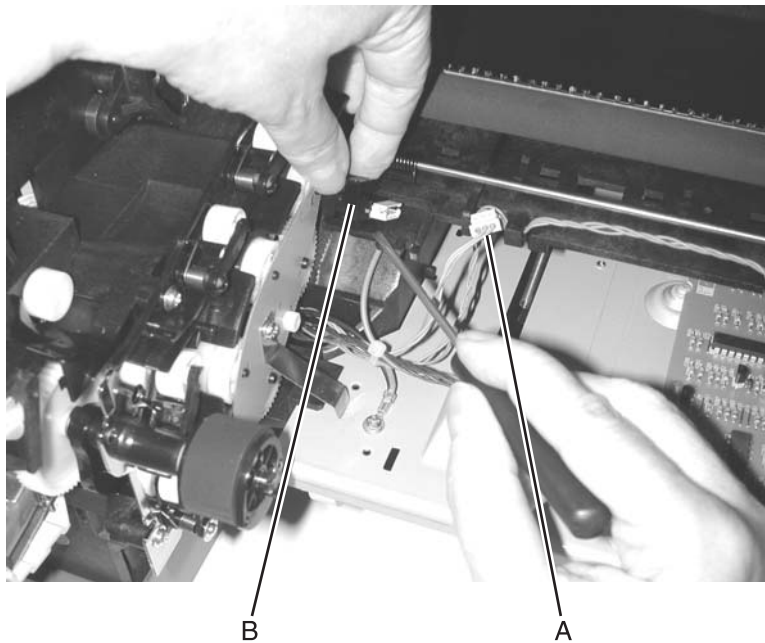


6. Disengage the two latches (B) on the upper part of the deflector from the upper edge of the frame (C), and lift to remove.



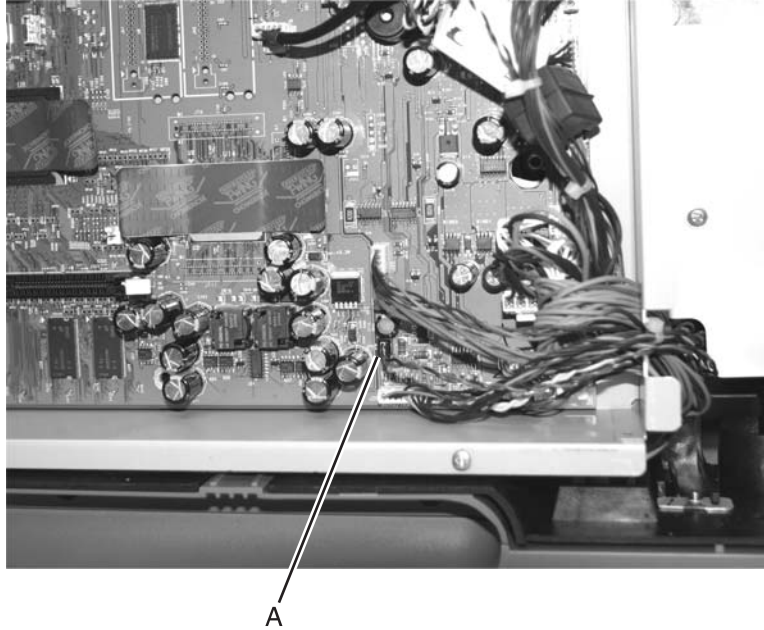
## ***Input sensor removal***

1. Remove the upper paper deflector. **“Upper paper deflector assembly removal” on page 4-138.**
2. Loosen the MPF lower front cover. See **“Multipurpose feeder/lower front cover assembly removal” on page 4-71.**
3. Remove the inner paper deflector. **“Inner paper deflector assembly removal” on page 4-101.**
4. Disconnect the input sensor cable (A) from the input sensor (B).
5. Release the input sensor from its mounting, and remove.



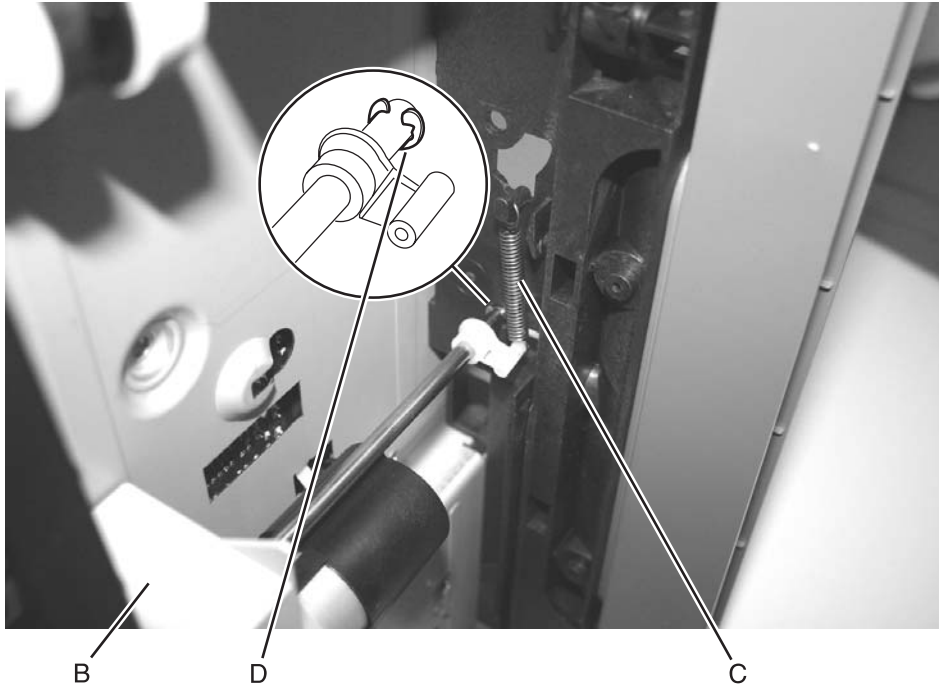
## ***Integrated tray autocompensator assembly removal***

1. Remove the ADF scanner assembly. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the flatbed scanner assembly. See **“Flatbed scan assembly removal”** on page 4-38.
3. Remove the paper tray.
4. Remove the left door. See **“Printer left side cover removal”** on page 4-56.
5. Remove the outer shield. See **“Printer outer shield removal”** on page 4-126.
6. Place the printer on its back.
7. Disconnect the cannot motor cable (A) from the system board (J24).

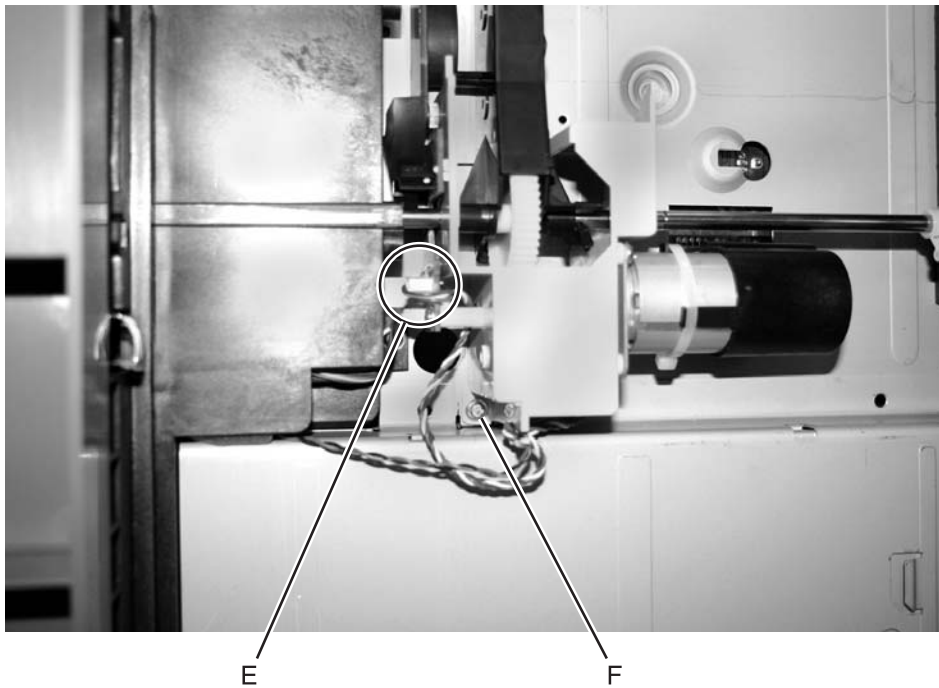




8. Locate the integrated tray autocompensator assembly (B) on the bottom of the printer, and disconnect the autocompensator arm bias spring (C).
- Note:** When you remove the spring, note the larger loop attaches to the side frame.
9. Remove the C-clip (D) that rests against the right side frame from the autocompensator pivot shaft.



10. Disconnect the autocompensator sensor cable (E) from the assembly.
11. Remove the autocompensator assembly mounting screw (F).

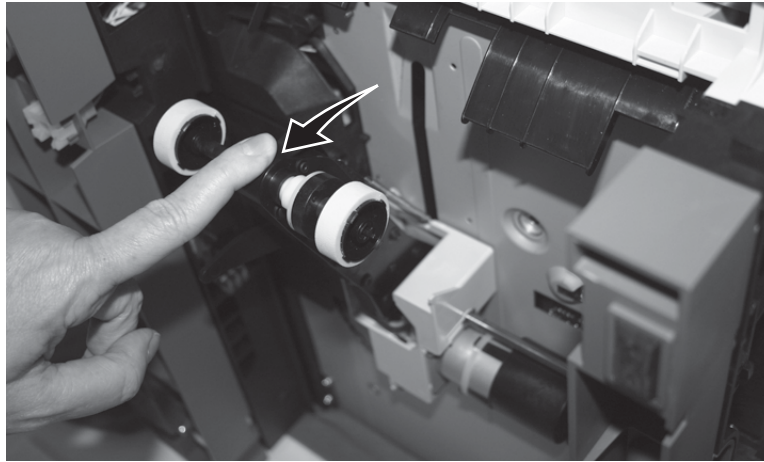


12. Slide the shaft to the right, and push the shaft from the outside of the frame.
13. Remove the integrated tray autocompensator assembly.



## ***Integrated tray autocompensator pick roll assembly removal***

- 1.** Remove the integrated tray, and look underneath the printer for the autocompensator arm. Pull the arm down.



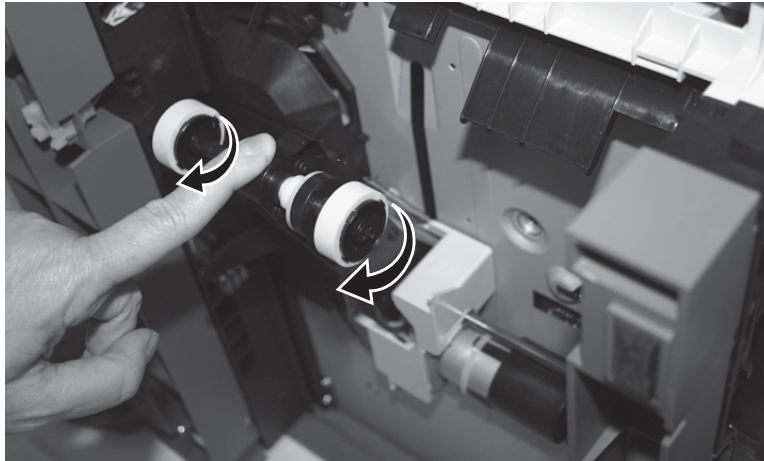
- 2.** Press on the end of the tab (A) and pull the pick roll off the arm. Repeat this step for the pick roll on the other side. Next, gently release the autocompensator arm. Discard the used pick rolls.



**A**

## Installation

1. Remove the new pick rolls from their packaging.
2. Pull the autocompensator arm down. Locate the recessed area on the pick roll, and align it with the tab on the arm. There are two arrows on each pick roll. Make sure the bottom arrow faces you as you align the recessed area with the tab.



3. Push the pick roll onto the arm with the tab aligned. Repeat this step on the other side to install the other pick roll.



4. Gently release the autocompensator arm. Insert, integrated tray.

## Interface card assembly removal



### CAUTION

Unplug the printer before you begin.

**Warning:** When replacing any one of the following components:

- Flatbed Interconnect card (ICC)
- System board assembly
- Interface card assembly

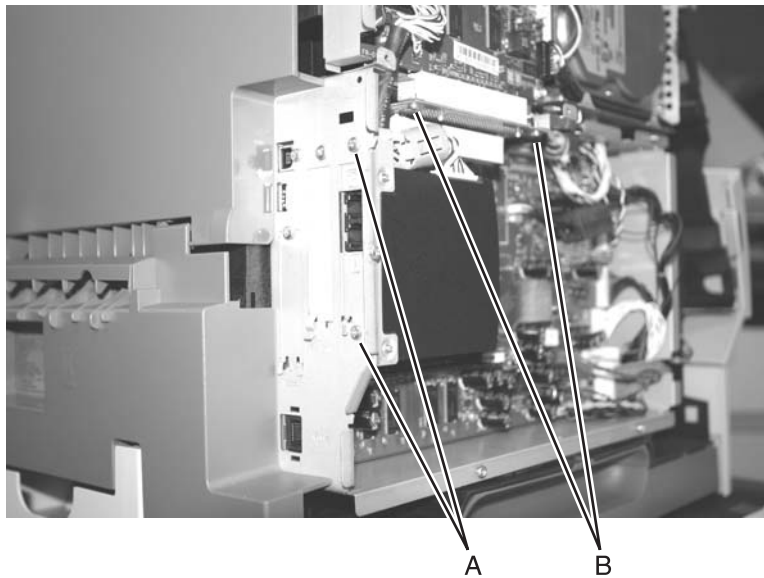
Only replace one component at a time. Replace the required component and perform a POR before replacing a second component listed above. If this procedure is not followed, the printer will be rendered inoperable. Never replace two or more of the components listed above without a POR after installing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

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

**Note:** Any time the interface card assembly is replaced, the Configuration ID must be reset in NVRAM on the new interface card. Go to **“Configuration ID” on page 3-19.**

1. Remove any feature or option cards from the interface card.
2. Remove modem card (A) if installed.
3. Remove the two screws securing the interface card (B).



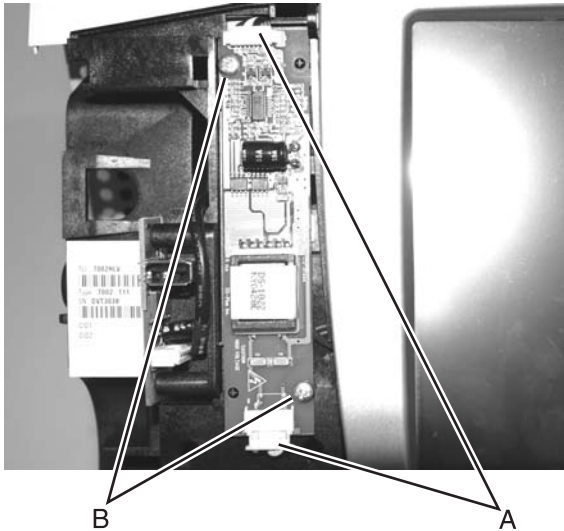
4. Remove the interface card assembly.

## LCD inverter card assembly removal

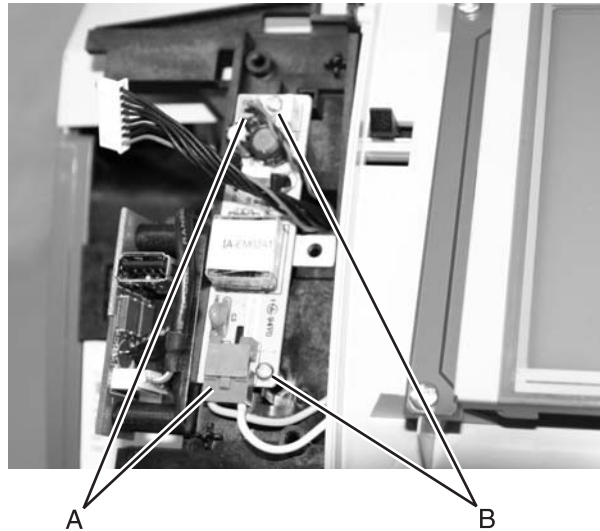


1. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
2. Remove the operator panel left side cover. See **“Operator panel left cover assembly removal”** on page 4-61.
3. Remove the two cables (A).
4. Remove the two screws (B).

**Model 500S**

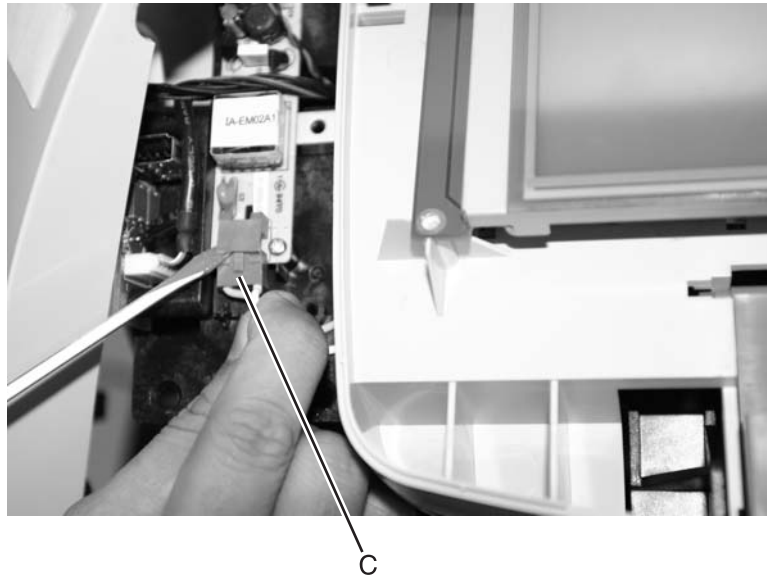


**Model 450S**



**Note:** For model 450S, you may need to carefully use a screw to disconnect the LCD display HV cable (C).

**Model 450S**



## Low voltage power supply removal

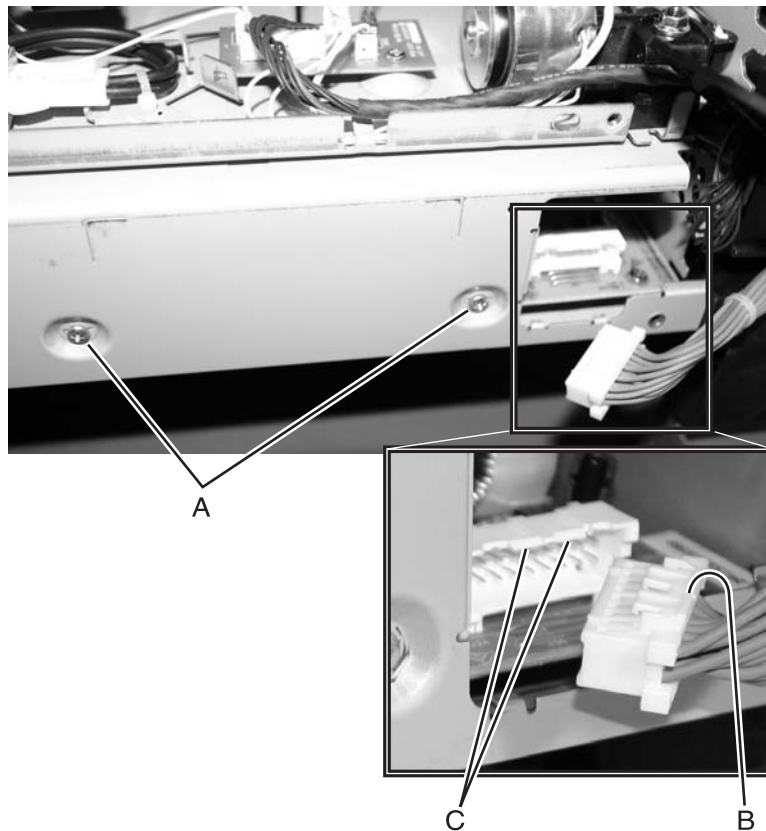


### CAUTION

Unplug the printer before you begin.

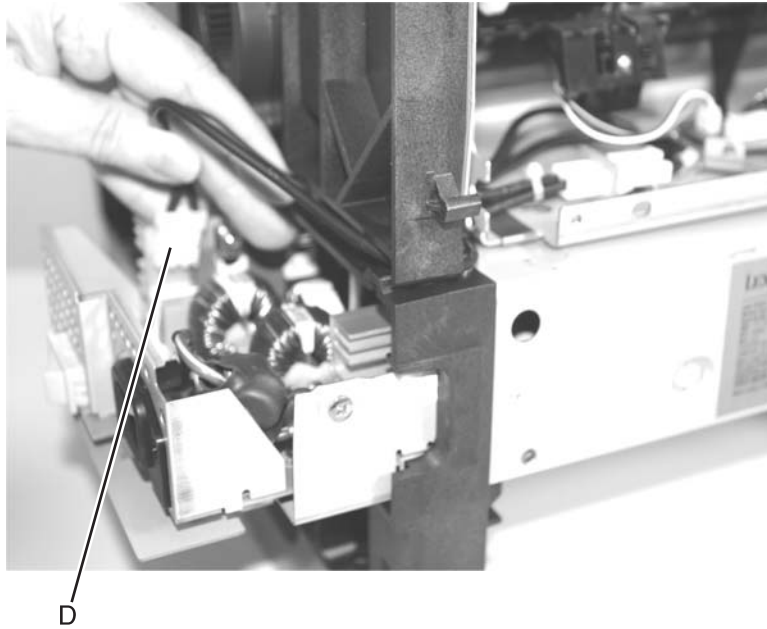
1. Remove the redrive assembly. See **“Redrive assembly removal”** on page 4-128.
2. Remove the right side cover. See **“Printer right cover removal”** on page 4-58.
3. Remove the pass thru plate. See **“Pass thru plate”** on page 4-74.
4. Remove the LVPS mounting screws (A) from the rear of the center pan.
5. Disconnect the LVPS to system board cable.

The cable is difficult to disconnect. There are catches (B) that firmly hold latches on the LVPS card connector (C).



6. Pull the LVPS assembly far enough out from the right side of the printer to disconnect the fuser to LVPS AC lamp cable (D).

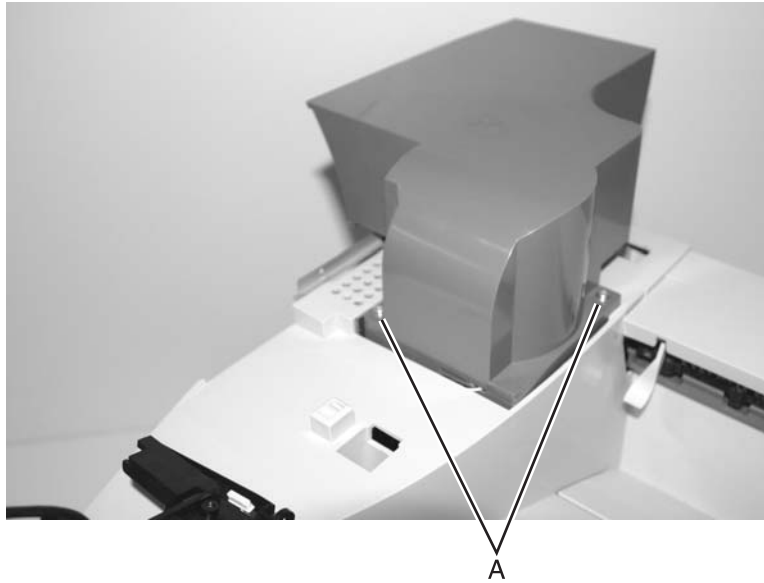
**Warning:** The LVPS assembly may be difficult to remove from the printer. Do not use excessive force in the removal.



7. Remove the low voltage power supply.

## **Main fan removal**

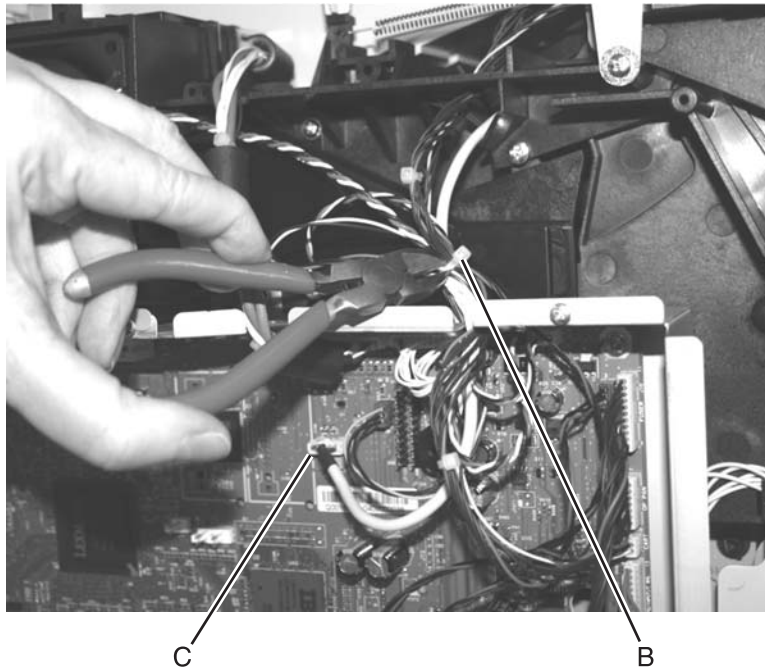
1. Remove the ADF scanner assembly. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the flatbed scanner assembly. See **“Flatbed scan assembly removal”** on page 4-38.
3. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56
4. Open the left side cover.
5. Remove the outer shield. See **“Printer outer shield removal”** on page 4-126.
6. Remove the two screws (A) securing the upper plenum.



7. Remove the upper plenum.



8. Clip the cable tie (B).
- Note:** Be careful not to damage any of the cables. Note the location of the cable tie for later replacement.
9. Disconnect the main fan to the system board (C) at J4.



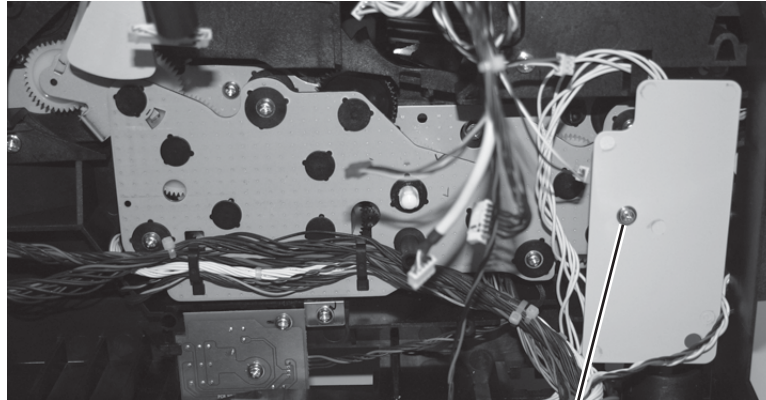
10. Remove the main fan.





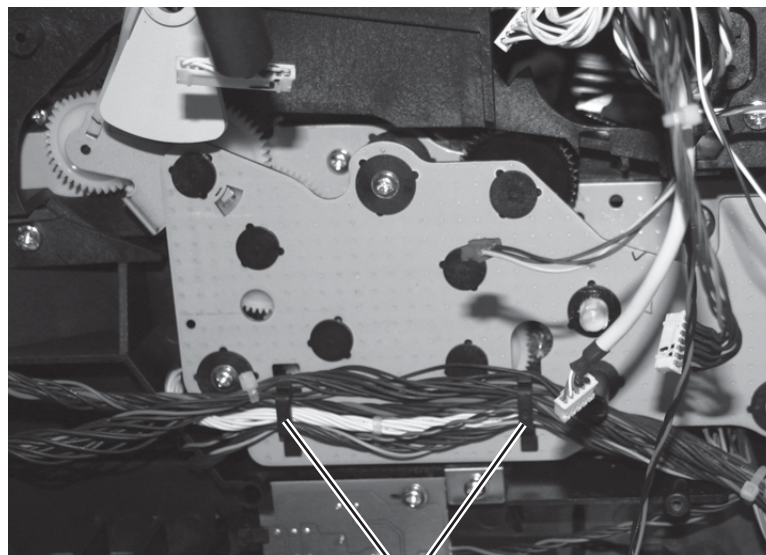
## Main drive assembly removal

1. Remove the system board and inner shield. See **“System board and inner shield removal —model 500S” on page 4-131.**
2. Remove the screw securing the gear guard (A).



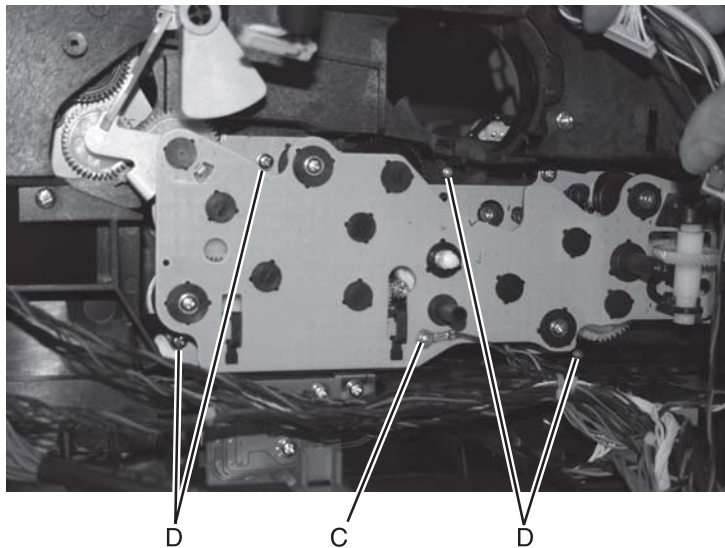
A

3. Remove the power take off shaft and spring. See **“Power takeoff shaft and spring removal” on page 4-126.**
4. Remove the developer drive assembly. See **“Developer drive assembly removal” on page 4-77.**
5. Lift and remove the cables from the cable hooks (B).

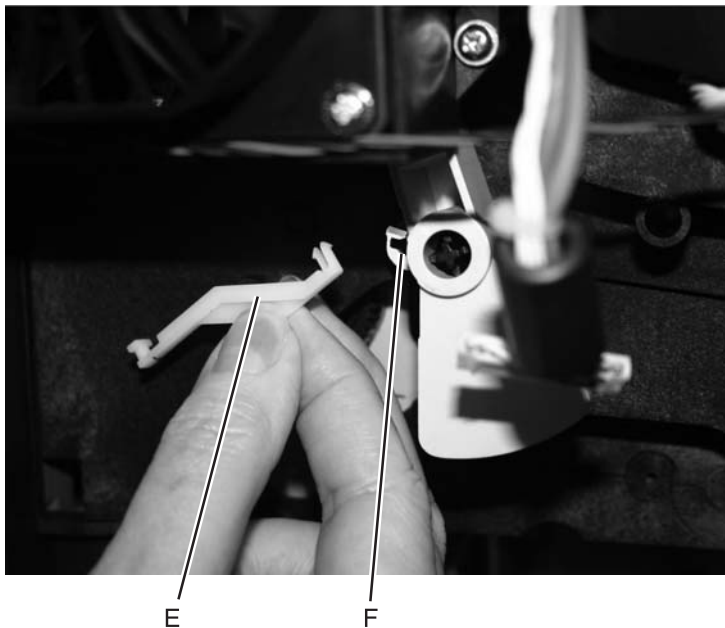


B

6. Remove the ground cable screw (C).
7. Remove the main drive assembly mounting screws (D).



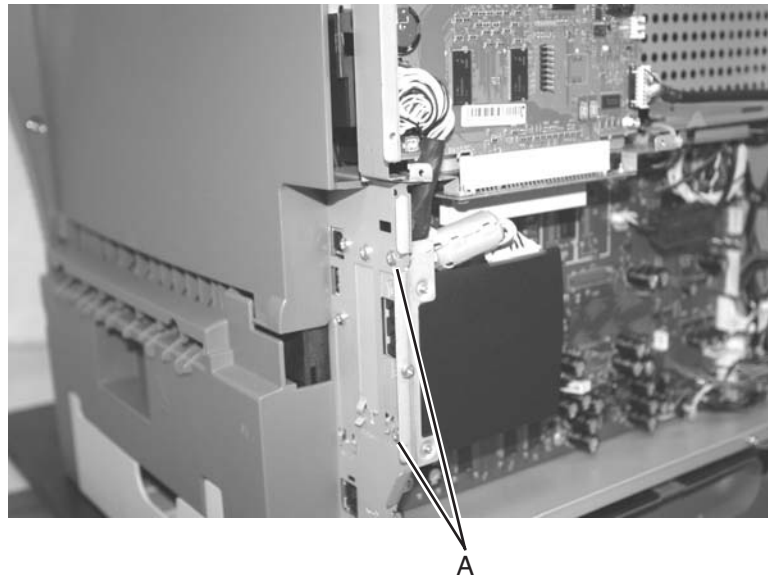
8. Disconnect the gear release link (E) from the hole in the charge roll link (F).  
**Note:** Lift the upper front cover to make it easier to remove the link.



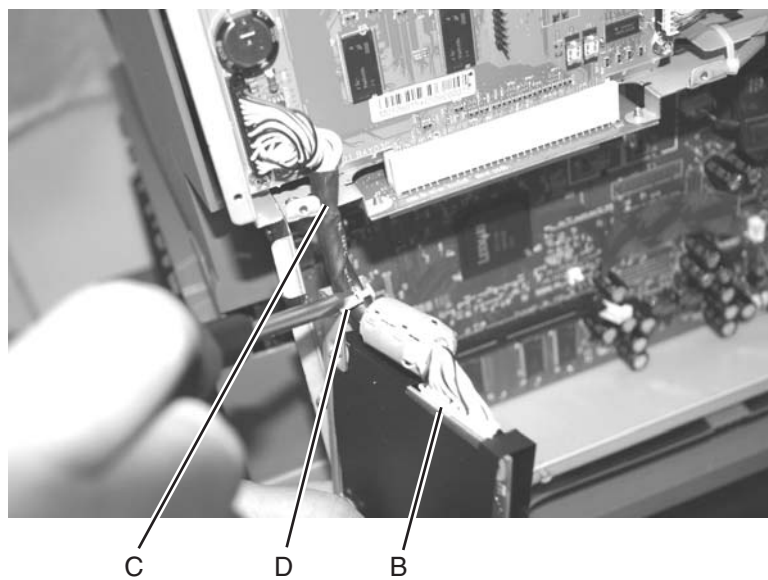
9. Disconnect the main drive motor cable from the main drive assembly.
10. Remove the main drive assembly.  
**Warning:** Whenever the main drive assembly is removed from the printer it must be handled very carefully. Do not allow any of the gears to come in contact with any metal or other hard surface to avoid gear damage. It is also very important not to let any dirt, paper, staples, or other material come in contact with the grease in the gears.  
**Note:** Be sure the main drive assembly gear shaft aligns with the hub on the left side frame when reinstalling the main drive assembly.

## Modem removal

1. Remove the two screws (A) on the rear of the MFP.

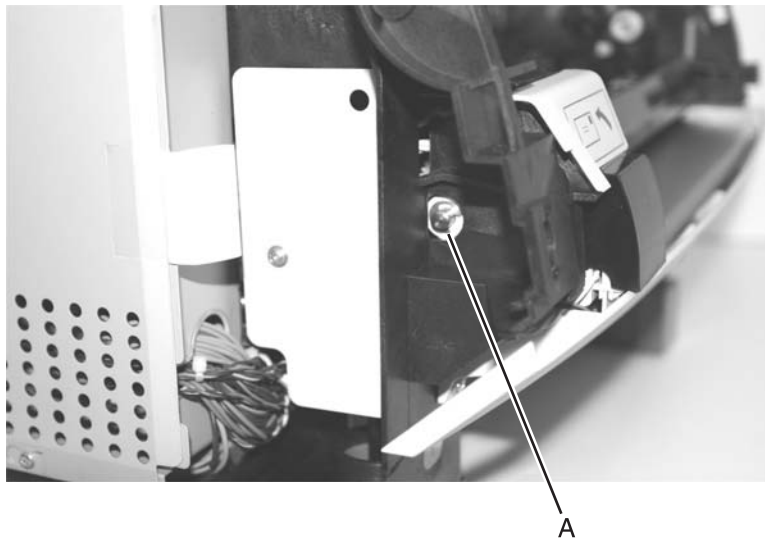


2. Disconnect the cable (B) from the scanner control card.
3. Remove the cable from the slot in the frame (C).
4. With a flathead screwdriver open the cable clamp (D), and remove the cable and the modem.

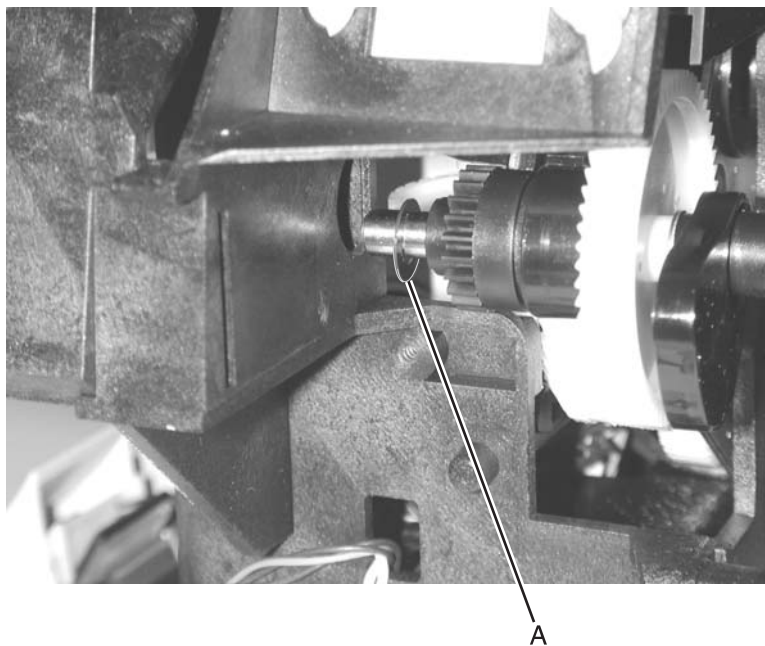


## ***MPF arm assembly removal***

1. Open the left door.
2. Remove the MPF lower front cover. See **“Multipurpose feeder/lower front cover assembly removal” on page 4-71.**
3. Remove the MPF lower paper deflector. See **“MPF lower paper deflector” on page 4-117.**
4. Remove the upper paper deflector. See **“Upper paper deflector assembly removal” on page 4-138.**
5. Remove the inner paper deflector. See **“Inner paper deflector assembly removal” on page 4-101.**
6. Remove the MPF solenoid assembly. See **“MPF solenoid assembly removal” on page 4-119.**
7. Remove the C-clip (A).



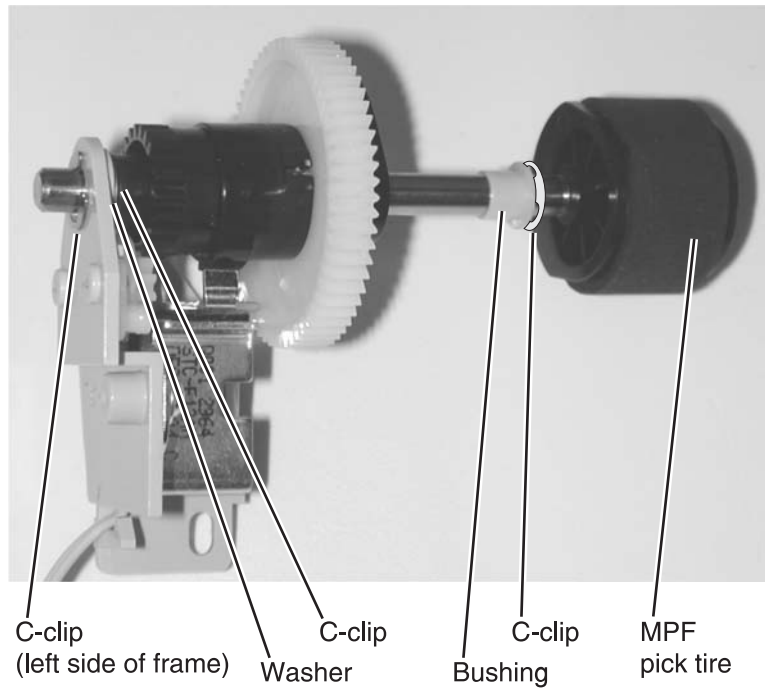
8. Remove the washer, and set it aside.



9. Remove the MPF arm assembly.

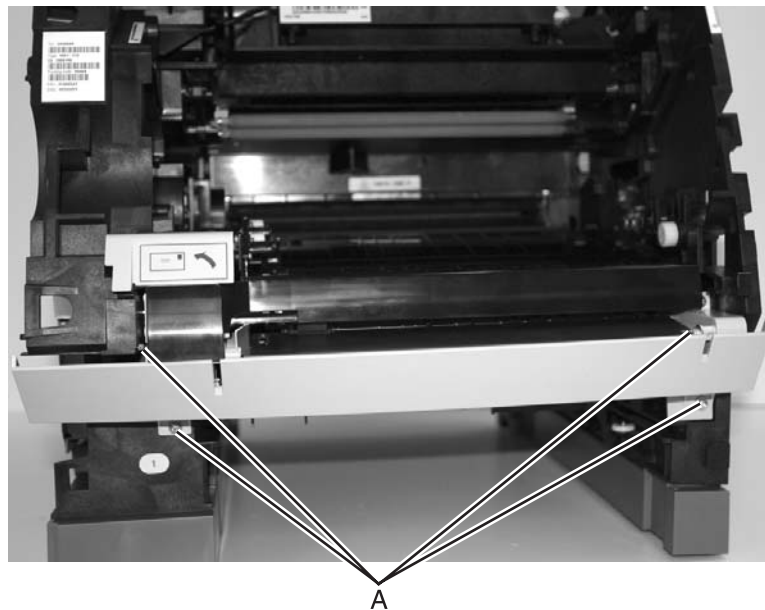
**Installation note:**

Note the order of C-clips, bushing, and washer when you reinstall.



***MPF lower paper deflector***

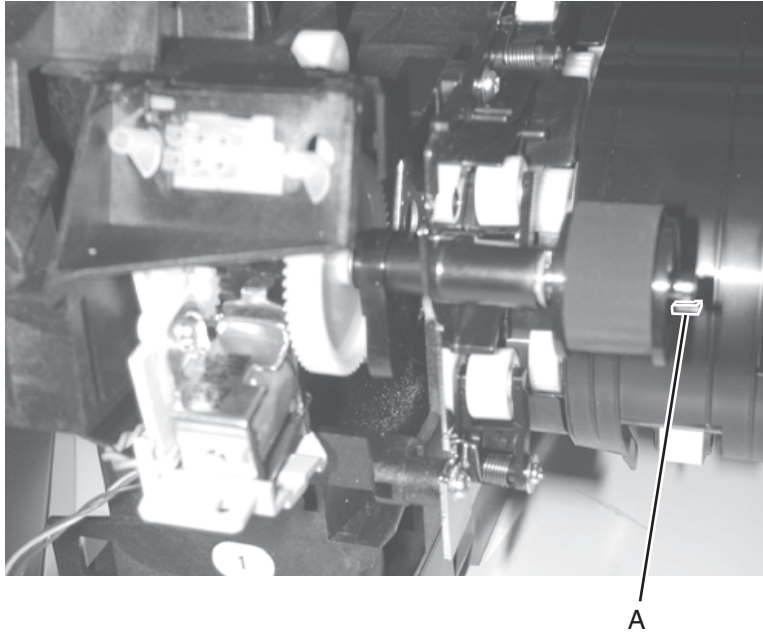
1. Remove the MPF lower cover.
2. Remove the four screws securing the MPF lower paper deflector.



3. Remove the deflector.

### ***MPF pick tire removal***

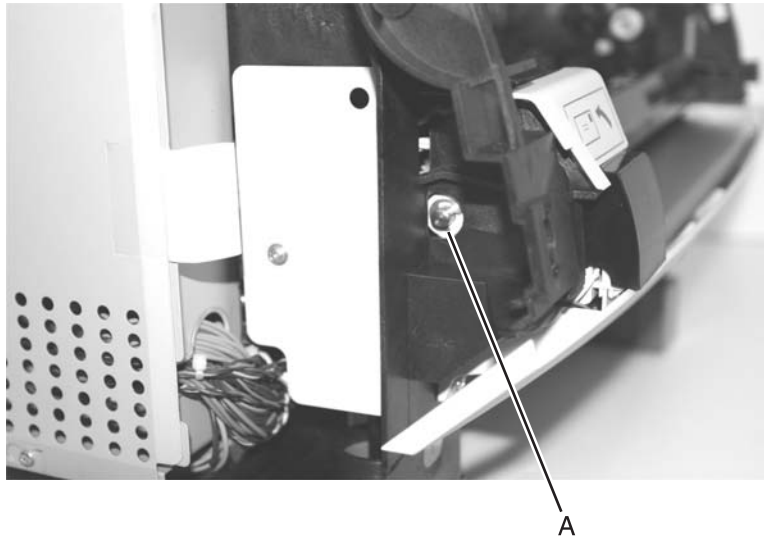
1. Remove the upper paper deflector. See **“Upper paper deflector assembly removal”** on page 4-138.
2. Release the pick roll retaining tab (A), and slide the pick roll off the shaft.



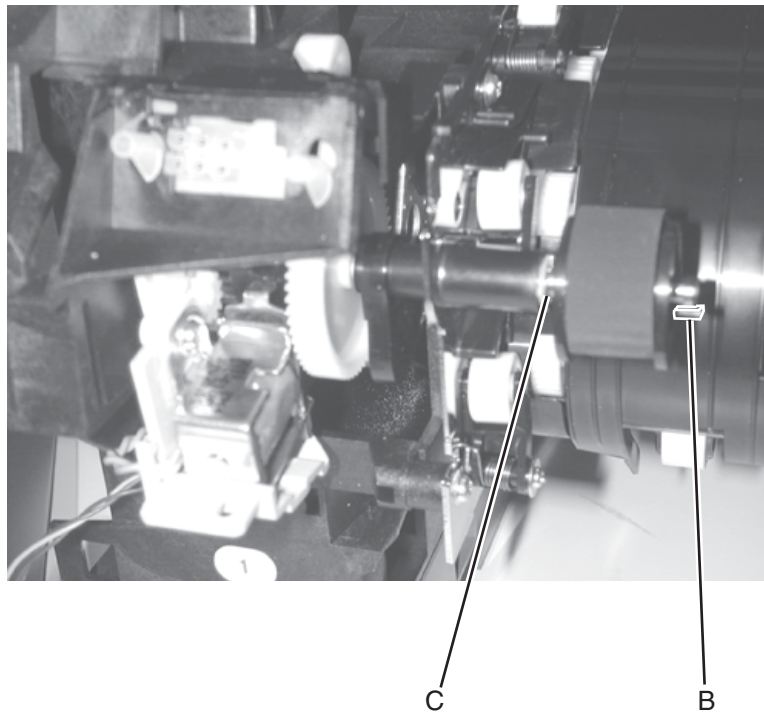


## ***MPF solenoid assembly removal***

1. Open the left door.
2. Remove the MPF lower front cover. See **“Multipurpose feeder/lower front cover assembly removal” on page 4-71.**
3. Remove the MPF lower paper deflector. See **“MPF lower paper deflector” on page 4-117.**
4. Remove the upper paper deflector. See **“Upper paper deflector assembly removal” on page 4-138.**
5. Remove the C-clip (A) on the left side.

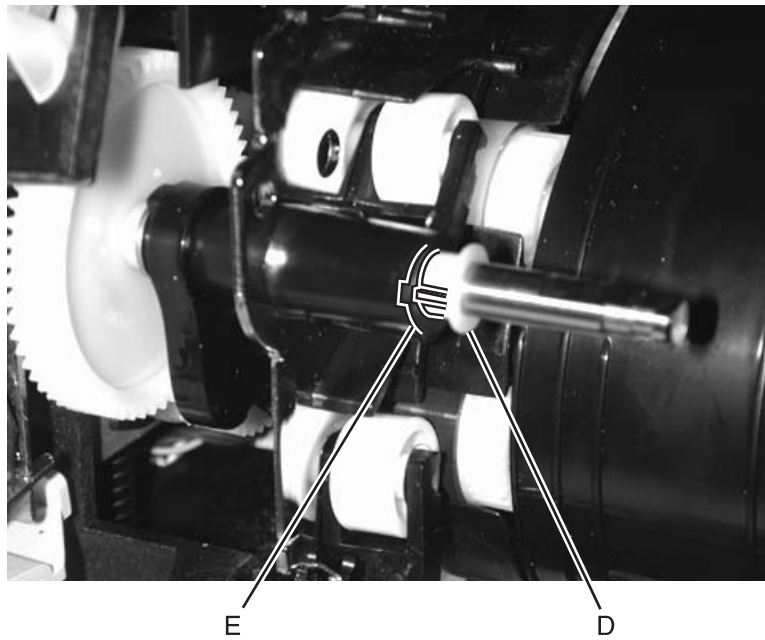


6. Press the clips on the end of the shaft to remove the MPF tires (B).
7. Remove the C-clip (C) on the shaft.

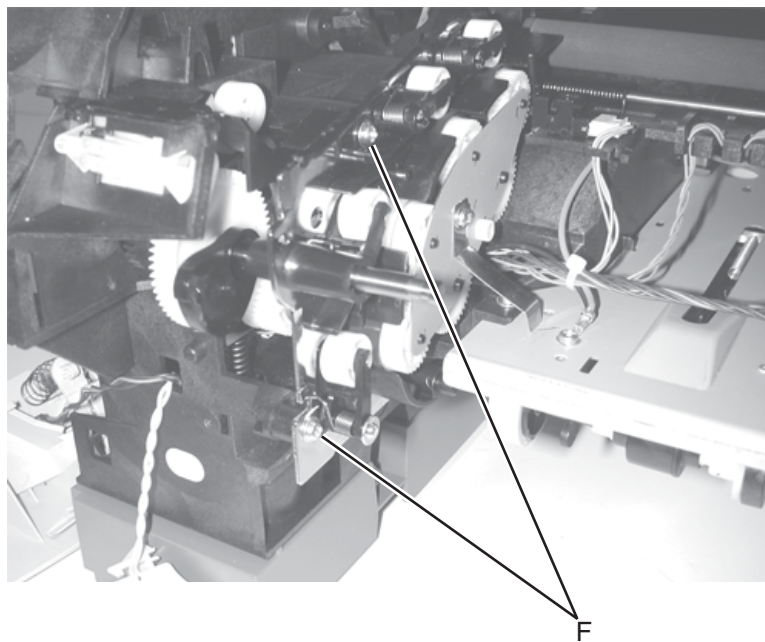


8. Remove the bushing (D).

**Note:** The bushing fits into a detent (E) in the frame of the MPF arm assembly.



9. Loosen the paper alignment screws (F).

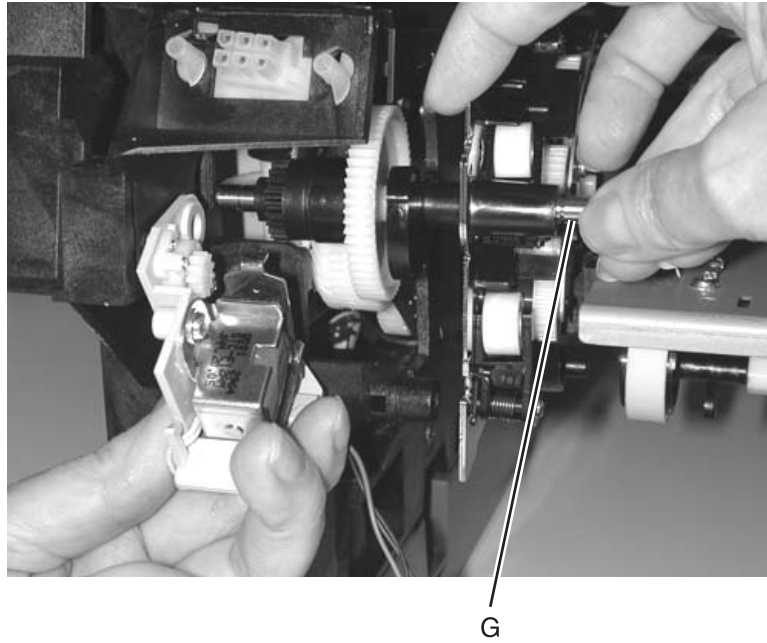


10. Remove the C-clip securing the MPF solenoid assembly on the shaft.

**Note:** This C-clip is very difficult to locate and remove.

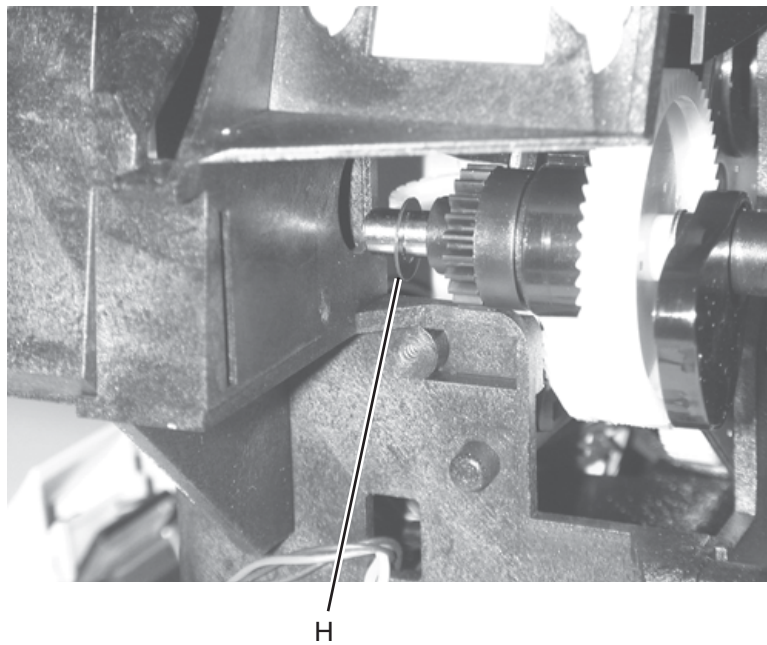


11. Pull the shaft assembly (G) to the right until the left end of the shaft is clear of the frame, and slide the MPF solenoid assembly from the shaft.



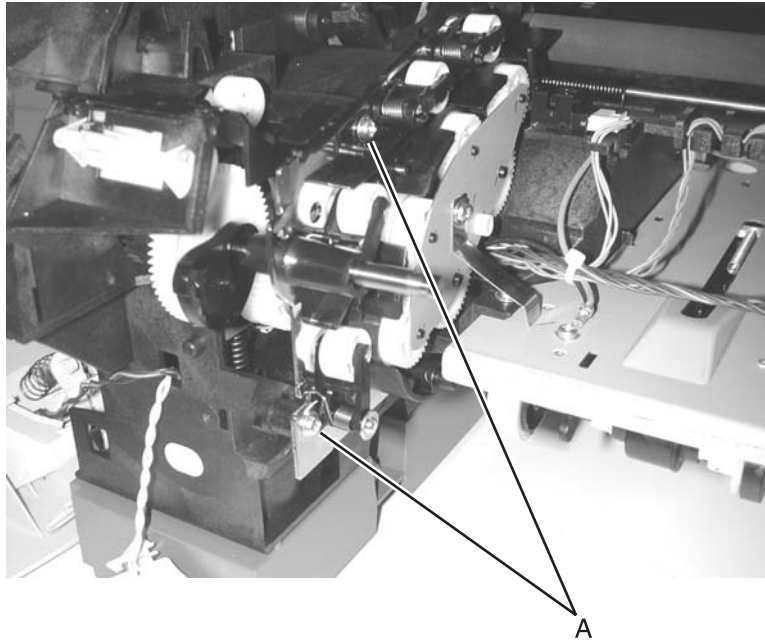
**Installation note:**

Be careful not to lose the washer (H) that is between the MPF solenoid assembly and the C-clip. It belongs to the MPF arm assembly.

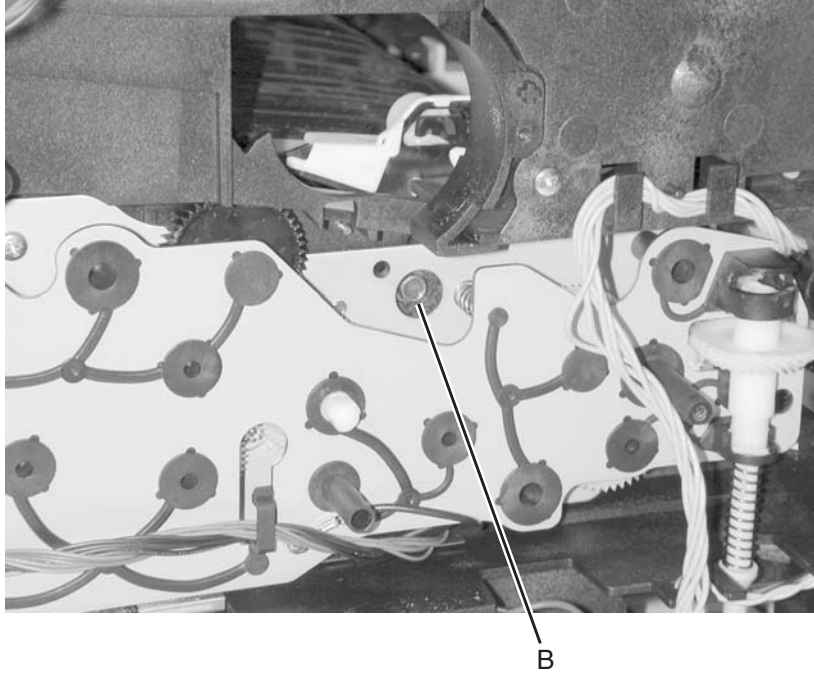


## ***Paper alignment assembly removal***

1. Remove the upper paper deflector assembly. See **“Upper paper deflector assembly removal”** on **page 4-138**.
2. Remove the inner paper deflector assembly. See **“Inner paper deflector assembly removal”** on **page 4-101**.
3. Release the input paper sensor from its mounting, and remove.
4. Remove the left door.
5. Remove the paper alignment assembly mounting screws (A).



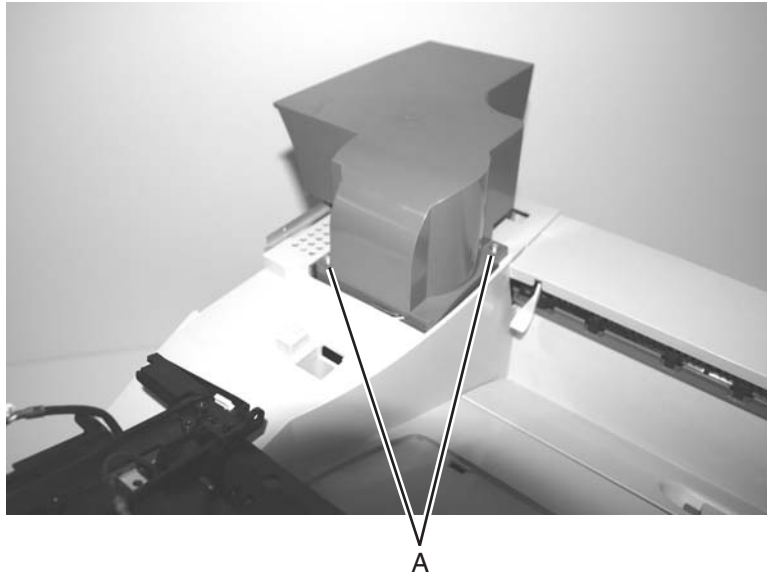
6. Locate the paper alignment assembly reference adjustment screw (B) through the left frame, and remove the screw.



7. Remove the paper alignment assembly.
- Note:** Do the **“Paper alignment assembly adjustment”** on **page 4-3** when you reinstall the assembly.

## Paper bin full sensor flag removal

1. Remove the left door. See **“Printer left side cover removal”** on page 4-56.
2. Remove the upper sub cover. See **“Upper sub cover removal”** on page 4-55.
3. Remove the fuser wiper cover assembly. See **“Fuser wiper cover assembly removal”** on page 4-54
4. Remove the two screws (A) attaching the upper plenum and remove the upper plenum.

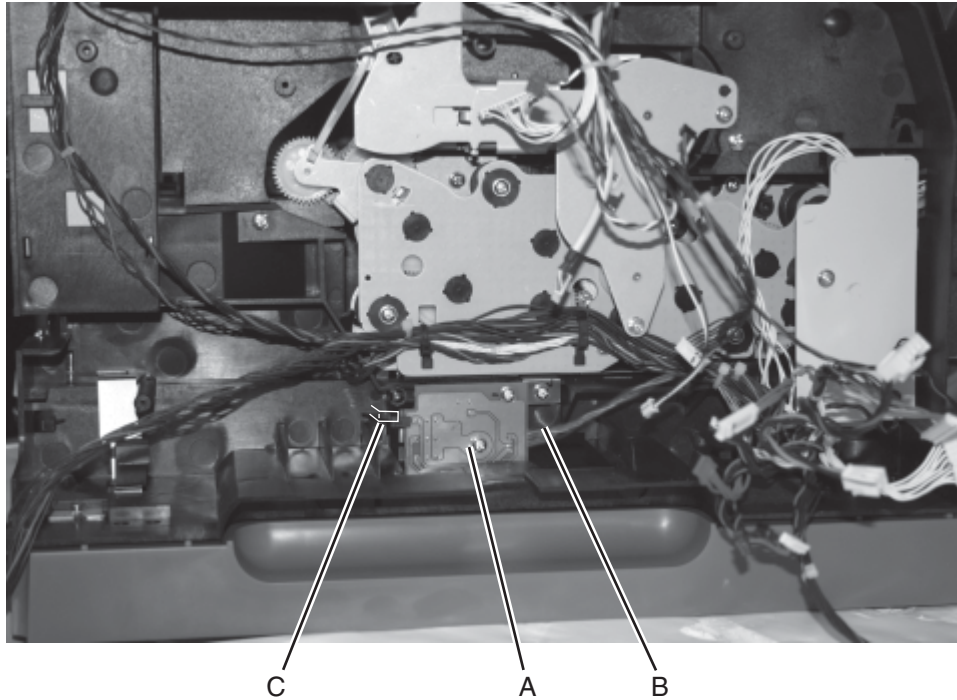


5. Remove the screws from the upper cover. See **“Upper cover removal (printer)”** on page 4-133.  
**Note:** It is not necessary to remove the cover from the printer.
6. Lift the left rear corner of the printer upper top cover to access the flag (B) and remove the flag from the mounting bracket.



## ***Paper size sensing board removal***

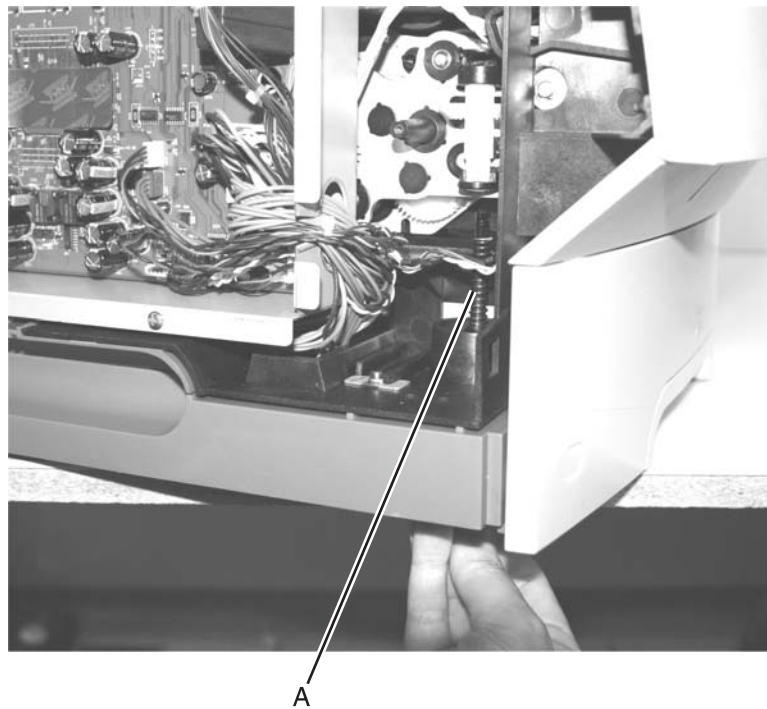
1. Remove the system board and inner shield. See **“System board and inner shield removal —models X644e/X646e”** on page 4-131.
2. Remove the paper size sensing board mounting screw (A).
3. Disconnect the paper size sensing board cable (B) from the board.
4. Remove the paper size sensing board from the latch (C).



5. Remove the paper size sensing board.

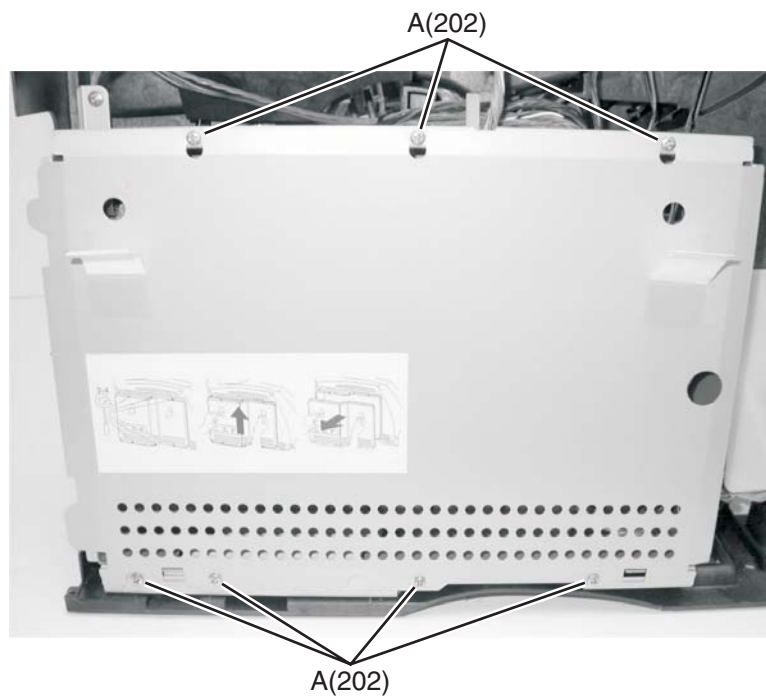
## ***Power takeoff shaft and spring removal***

Remove the power takeoff shaft and spring (A) through the bottom of the printer.



## ***Printer outer shield removal***

1. Remove the printer left door. See **“Printer left side cover removal” on page 4-56.**
2. Loosen the outer shield mounting screws (A), and remove the shield by sliding up.





## Printhead removal

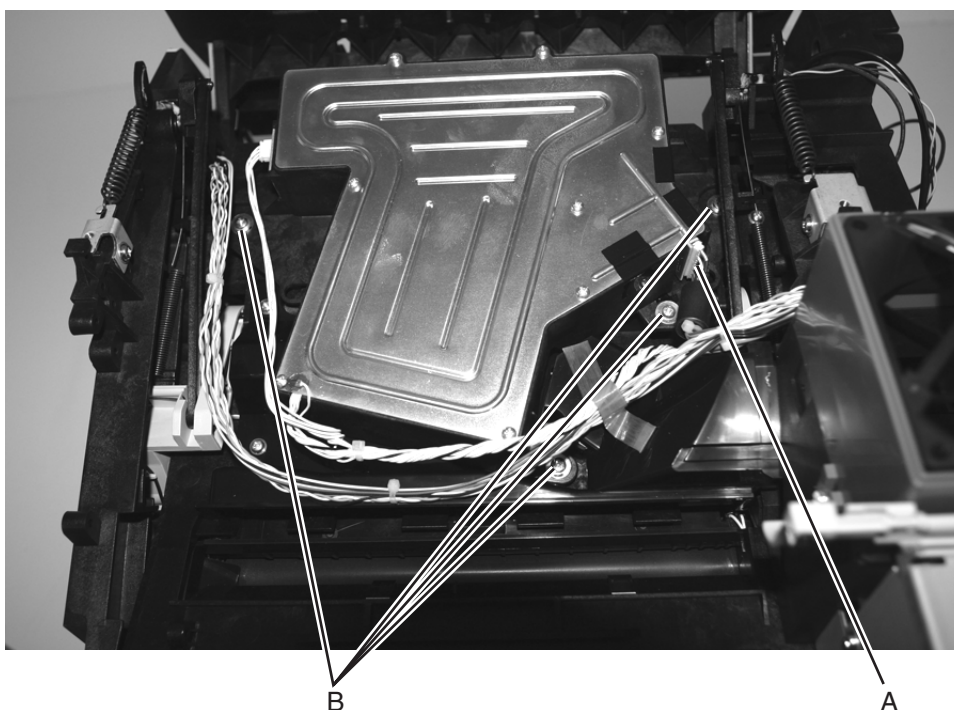


### CAUTION

The laser scanning unit is not a serviceable FRU. Replace the entire unit when service is required.

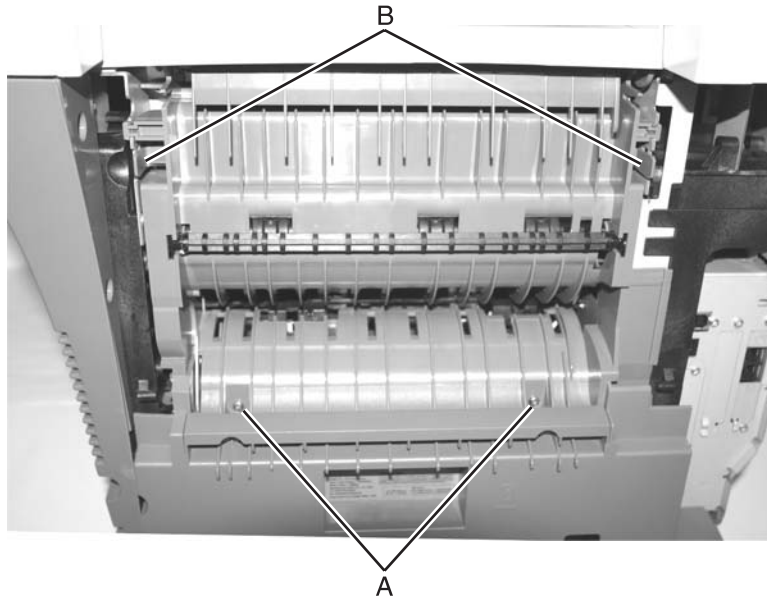
1. Remove the ADF scanner. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the flatbed scanner. See **“Flatbed scan assembly removal”** on page 4-38.
3. Remove the printer upper cover. See **“Upper cover removal (printer)”** on page 4-133.
4. Disconnect the printhead cable (A) from the printhead assembly.
5. Remove the four printhead mounting screws (B), and remove the printhead.

**Note:** Do the **“Printhead assembly adjustment—printer”** on page 4-2 whenever you remove or replace the printhead assembly or loosen the mounting screws.



## ***Redrive assembly removal***

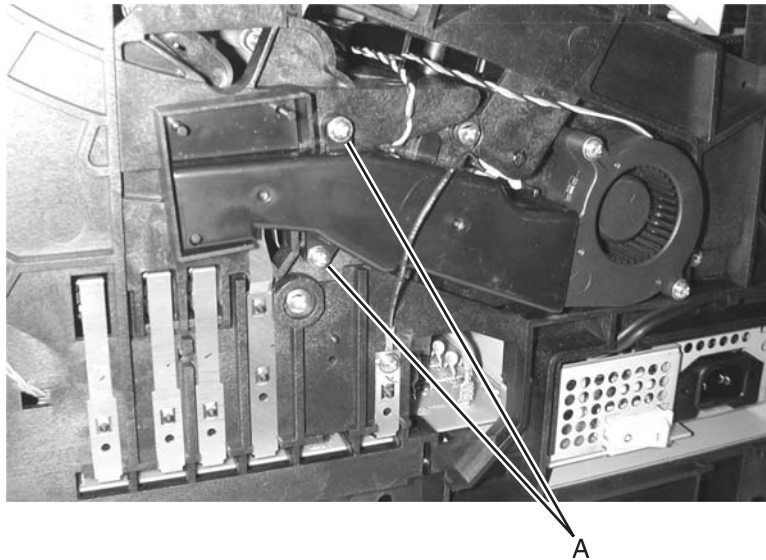
1. Remove the redrive door assembly.
2. Remove the redrive exit cover.
3. Remove the redrive assembly mounting screws (A).
4. Release the redrive assembly mounting latches (B), and remove the redrive assembly.





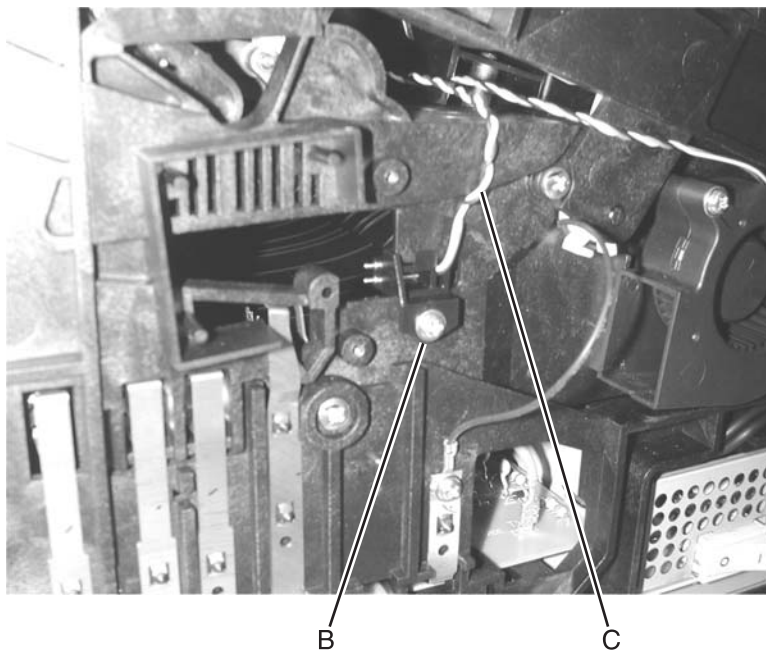
## Signature button contact assembly removal

1. Remove the print cartridge.
2. Remove the left side door. See **“Printer left side cover removal”** on page 4-56.
3. Remove the right cover. See **“Printer right cover removal”** on page 4-58.
4. Remove outer system board shield. See **“Printer outer shield removal”** on page 4-126.
5. Disconnect signature button cable from connector J14 on the system board.
6. On models 200/210/400/410, remove the two screws (A) securing the blower duct.



7. Remove the signature button contact assembly mounting screw (B).
8. Remove the assembly signature button contact assembly.

**Note:** Be sure to route the cable in the same location, as shown (C), when replacing the assembly.



## System board and inner shield removal—model 450S

**Warning:** When replacing any one of the following components:

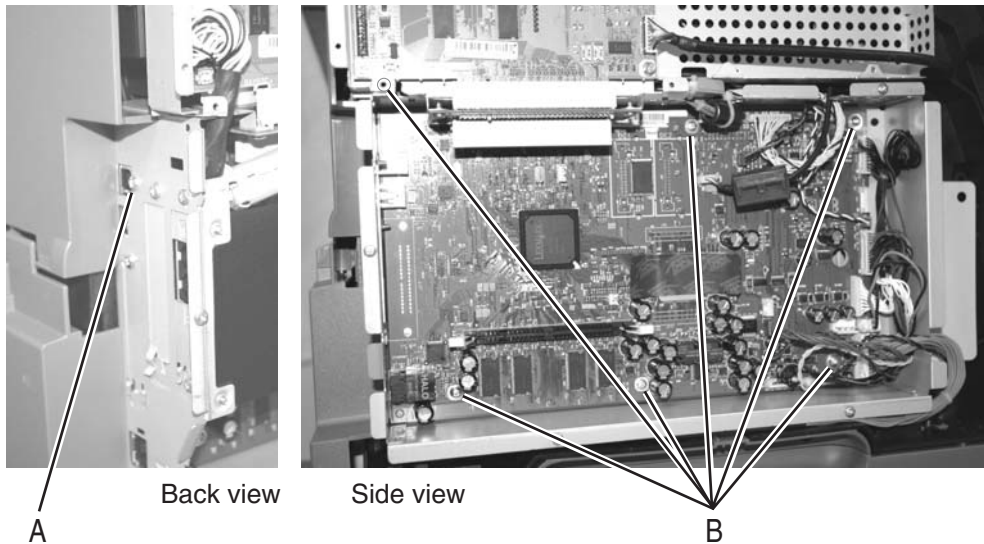
- Flatbed interconnect card (ICC)
- System board assembly
- Interface card assembly

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.

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

1. Remove the outer shield. See **“Printer outer shield removal”** on page 4-126.
2. Disconnect all cables from the system board.  
**Note:** Sometimes cables may be difficult to remove. Be careful not to damage the connectors.
3. Remove all features and options from the interface card.
4. Depending on your printer model, remove the small USB port mounting screw (A).  
**Note:** You may have additional screws in various models.
5. Depending on your printer model, remove the modem. See **“Modem removal”** on page 4-115.
6. Remove the six system board mounting screws (B).



7. Remove the system board and inner shield.

## System board and inner shield removal —model 500S

**Warning:** When replacing any one of the following components:

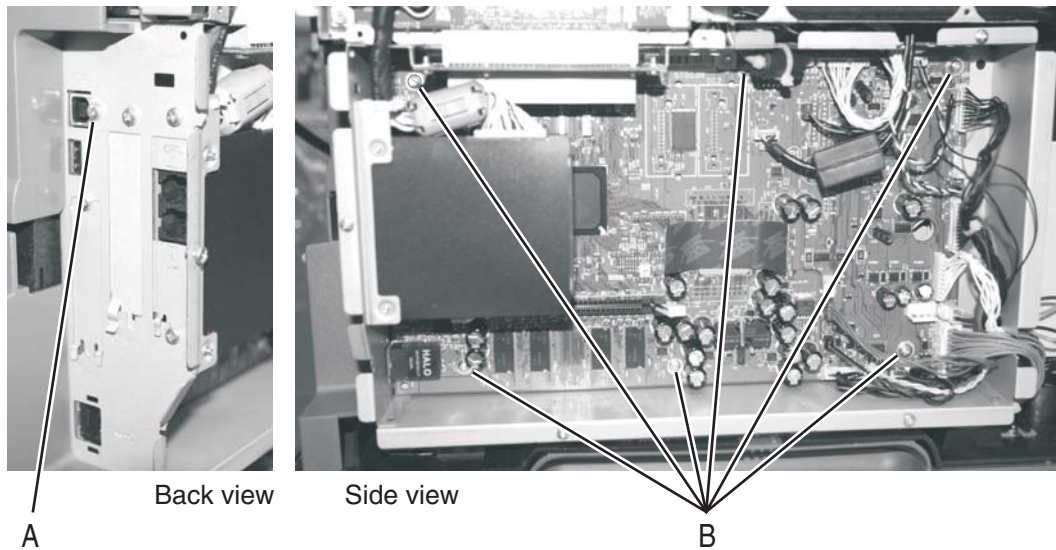
- Flatbed interconnect card (ICC)
- System board assembly
- Interface card assembly

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.

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

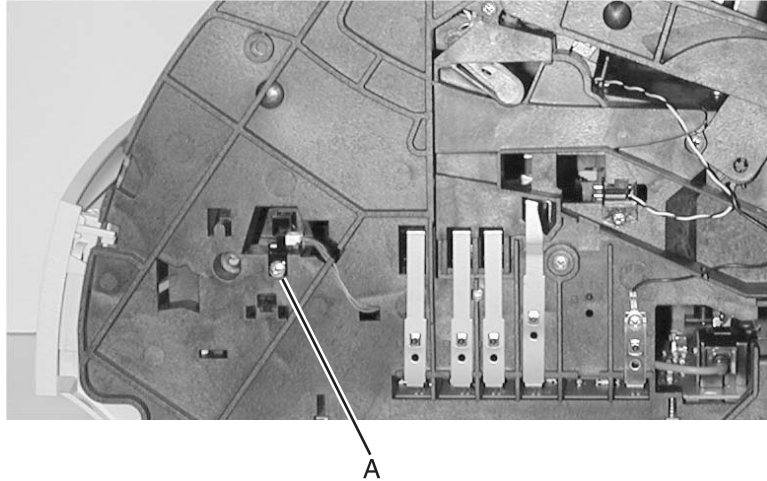
1. Remove the outer shield. See **“Printer outer shield removal” on page 4-126.**
2. Disconnect all cables from the system board.  
**Note:** Sometimes cables may be difficult to remove. Be careful not to damage the connectors.
3. Remove all features and options from the interface card.
4. Depending on your printer model, remove the small USB port mounting screw (A).  
**Note:** You may have additional screws in various models.
5. Depending on your printer model, remove the modem. See **“Modem removal” on page 4-115.**
6. Remove the six system board mounting screws (B).



7. Remove the system board and inner shield.

## ***Toner sensor removal***

1. Remove the right side cover. See **“Printer right cover removal”** on page 4-58.
2. Remove the toner sensor mounting screw (A).
3. Disconnect the toner sensor cable, and remove the toner sensor.



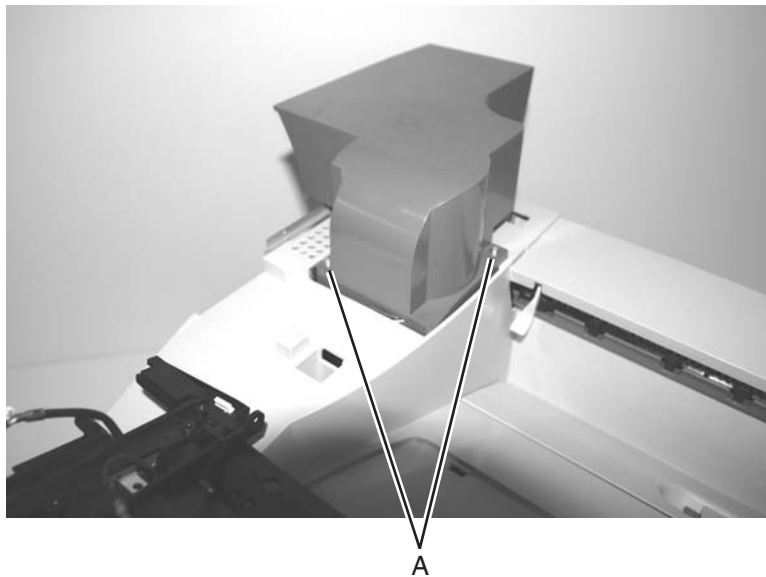
## ***Transfer roll assembly removal***

**Warning:** Be careful when handling the transfer roll. Wrap a piece of plain white paper around the charge roll to prevent contamination or damage.

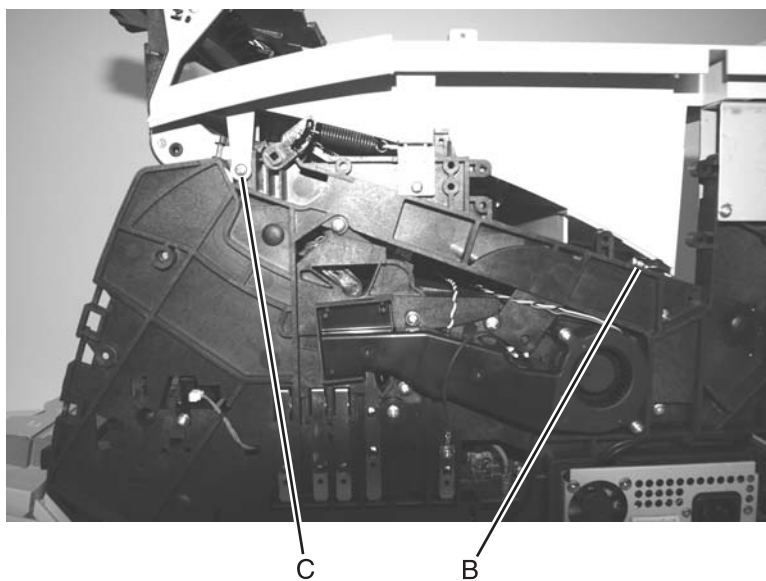
1. Open the upper front cover, and remove the print cartridge.
2. Unsnap the transfer roll assembly from the left pivot arm.
3. Lift the transfer roll assembly toward the left, and remove it from the printer.

## Upper cover removal (printer)

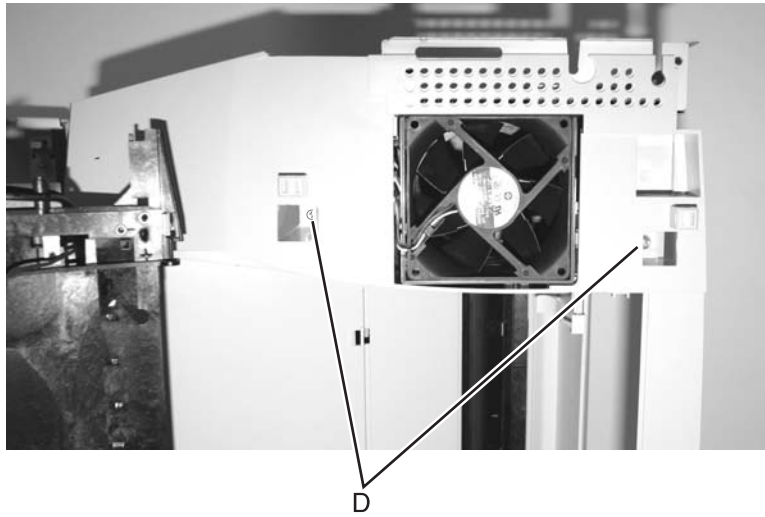
1. Remove the ADF scan assembly. See **“ADF complete assembly removal”** on page 4-15
2. Remove the flatbed scan assembly. See **“Flatbed scan assembly removal”** on page 4-38.
3. Remove the left door. See **“Printer left side cover removal”** on page 4-56.
4. Remove the right cover. See **“Printer right cover removal”** on page 4-58.
5. Remove the upper tray cover. See **“Upper tray cover removal (paper support)”** on page 4-56.
6. Remove the upper sub cover. See **“Upper sub cover removal”** on page 4-55.
7. Remove the fuser wiper cover. See **“Fuser wiper cover assembly removal”** on page 4-54.
8. Remove the two screws (A) attaching the upper plenum and remove the upper plenum.



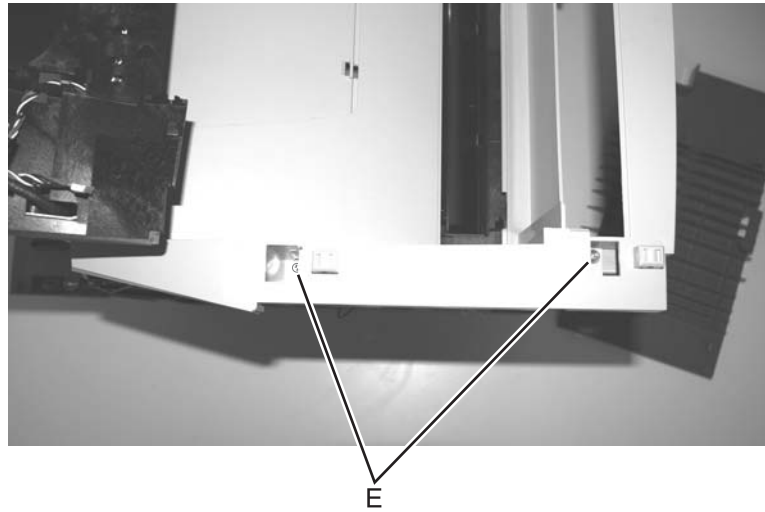
9. Remove the screw (B) at the rear of the printer and the larger screw (C) at the front on the right side.



10. Remove the two screws (D) from the top of the right side.



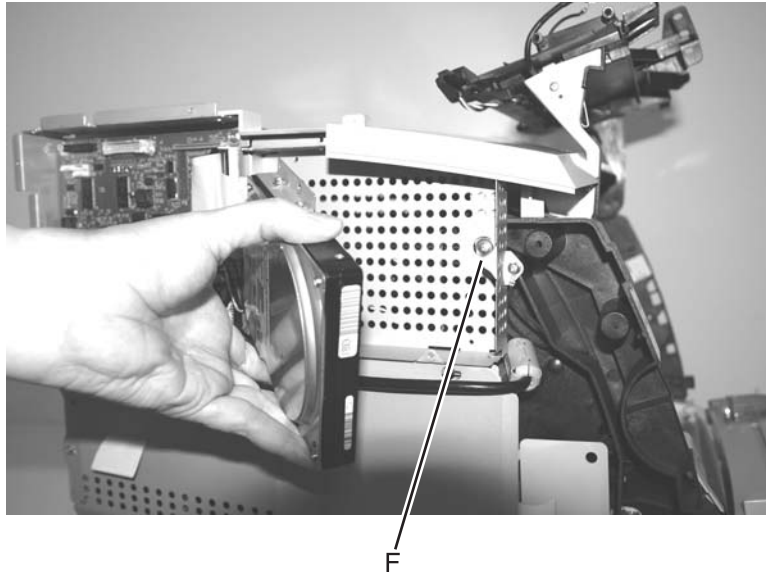
11. Remove the two screws (E) from the top of the left side.



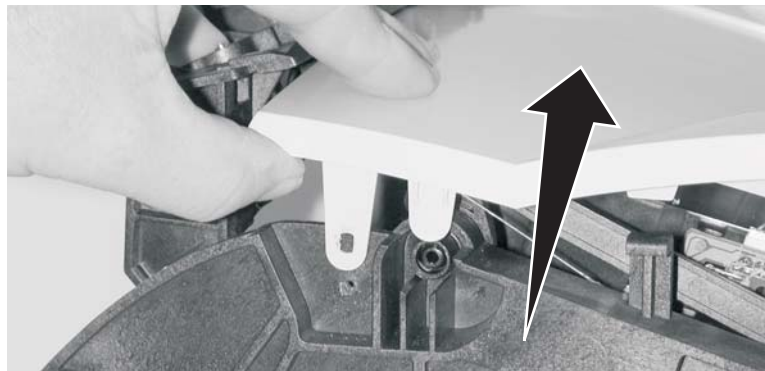
12. For those models with a hard disk (500S), remove the hard disk. See **“Hard disk removal”** on **page 4-44**.



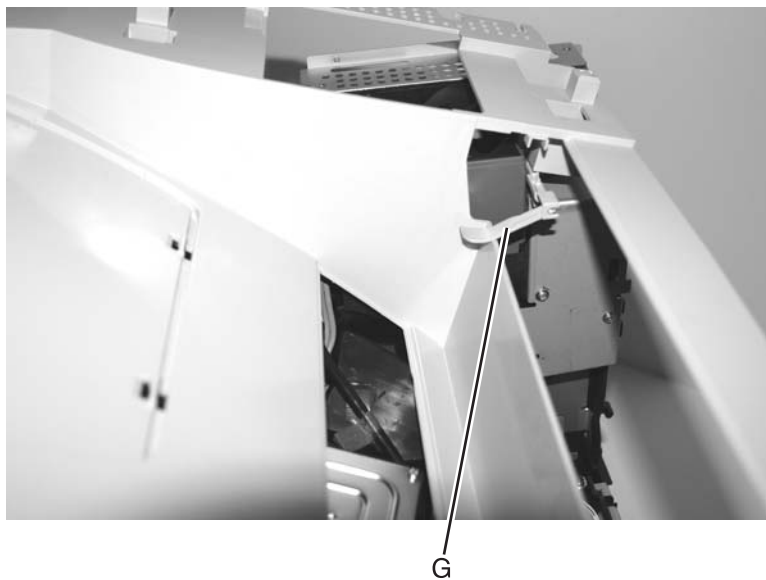
13. Remove the screw (F) through the back of the shield or from the position shown.



14. Unlatch the front right and front left cover posts, and remove the upper cover.

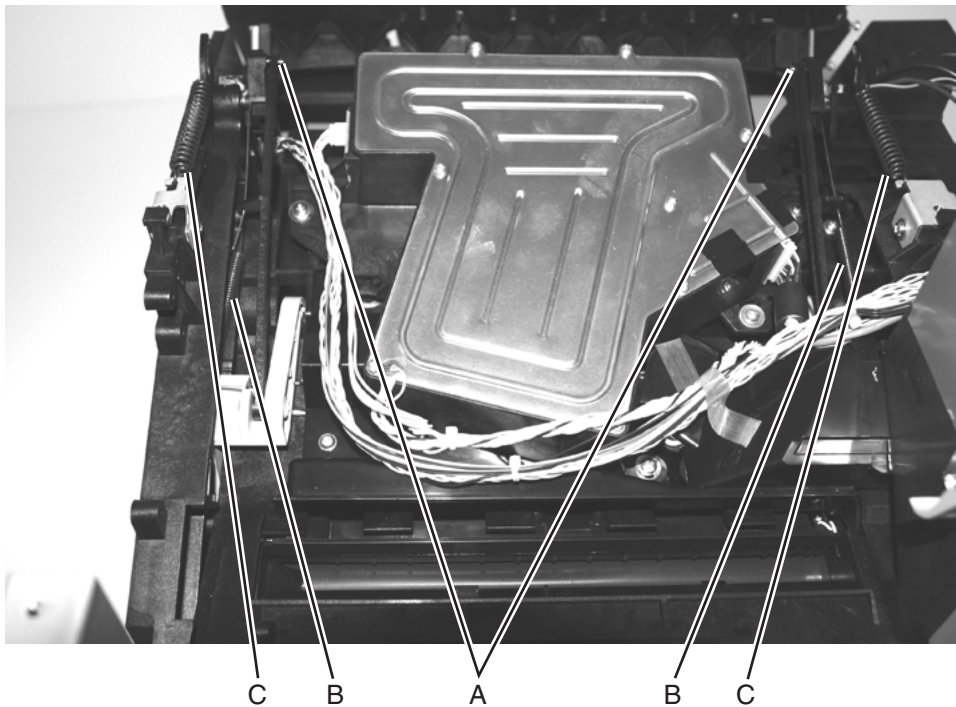


**Note:** Make sure the paper bin full sensor (G) clears the opening will lifting the upper cover.



## Upper front cover hinge assembly removal

1. Remove the ADF scan assembly. See **“ADF complete assembly removal”** on page 4-15.
2. Remove the flatbed scan assembly. See **“Flatbed scan assembly removal”** on page 4-38.
3. Remove the operator panel left cover assembly. See **“Operator panel left cover assembly removal”** on page 4-61.
4. Remove the operator panel right cover assembly. See **“Operator panel right cover assembly removal”** on page 4-64.
5. Remove the touchscreen bezel. See **“Touchscreen bezel removal”** on page 4-66.
6. Remove the LCD touchscreen. See **“LCD touchscreen removal—model 500S”** on page 4-67.
7. Remove printer left side cover. See **“Printer left side cover removal”** on page 4-56.
8. Remove printer right side cover. See **“Printer right cover removal”** on page 4-58.
9. Remove the printer upper cover. See **“Upper cover removal (printer)”** on page 4-133.
10. Remove the C-clips (A) from the upper front cover hinge assembly left and right hinge pins, and remove the pins. Note the pin orientation and the C-clip location on the inside of each hinge.
11. Detach the two springs (B) from the upper front cover hinges.
12. Detach two springs (C) from the left and right side of the hinge assembly.



13. Disconnect the USB cable and cover open switch cable from the system board and UICC (18-pin) to scanner control card cable from the scanner control card.



14. Remove the screw (D) attaching the hinge right side cable retainer and removal the UICC (18-pin) to scanner control card cable from the hinge arm.



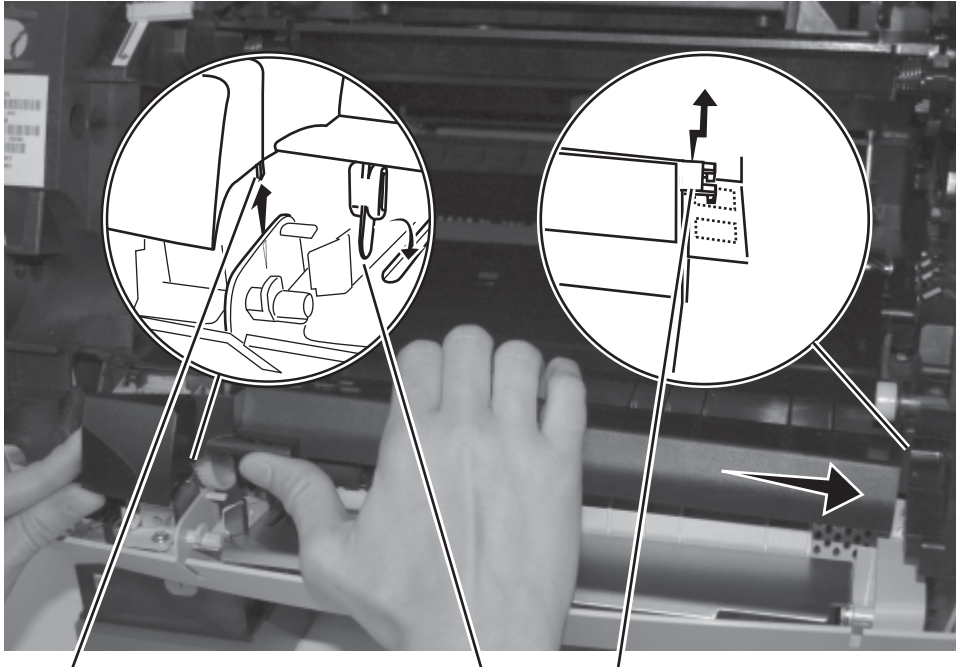
D

15. Raise the upper front cover hinge assembly to a position that lets you lift the left pivot arm from the mounting bracket.
16. Lift the left pivot arm from the bracket, and move the upper cover hinge assembly toward the left to clear the right upper cover pivot arm from the mounting bracket.
17. Remove the upper front cover hinge assembly.

## Upper paper deflector assembly removal

1. Either lift the ESD cover out of the way or remove it. See **“ESD cover removal”** on page 4-78.  
**Note:** The tabs holding the ESD cover are easily stressed or broken.
2. Lift the left side to release the small tab (A) on the left and the MPF flag (B) and slide the upper paper deflector assembly to the right to unlatch the hooks (C) on the right.

**Note:** Be careful not to put too much stress on the small tab (A) on the right.



3. Lift to remove the upper paper deflector assembly.

**Installation note:** Make sure the MPF flag (B) is in place.

## USB card

1. Remove the printer left side cover. See **“Printer left side cover removal”** on page 4-56.
2. Remove the operator panel left cover. See **“Operator panel left cover assembly removal”** on page 4-61.
3. Remove the USB cable (A) from the USB board assembly.
4. Remove the two screws (B) securing the USB board assembly.

**Note:** Model 500S shown.



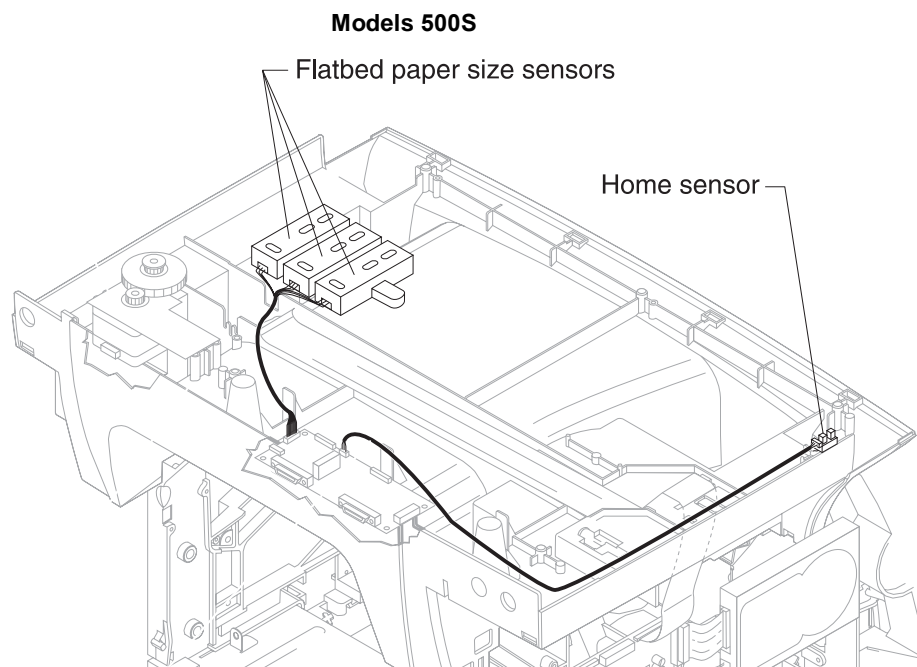
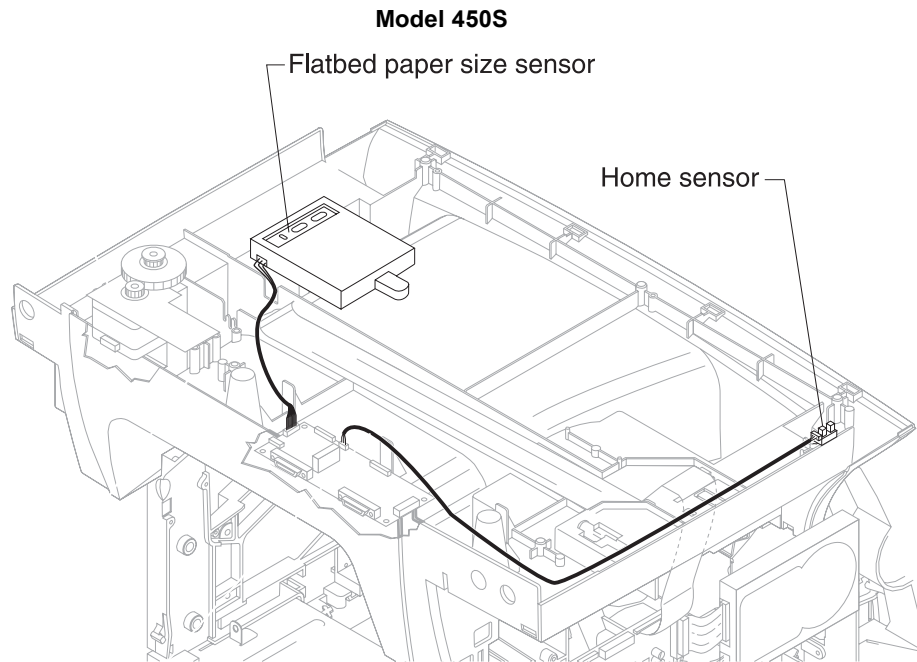
5. Remove the USB card.



## 5. Locations and connections

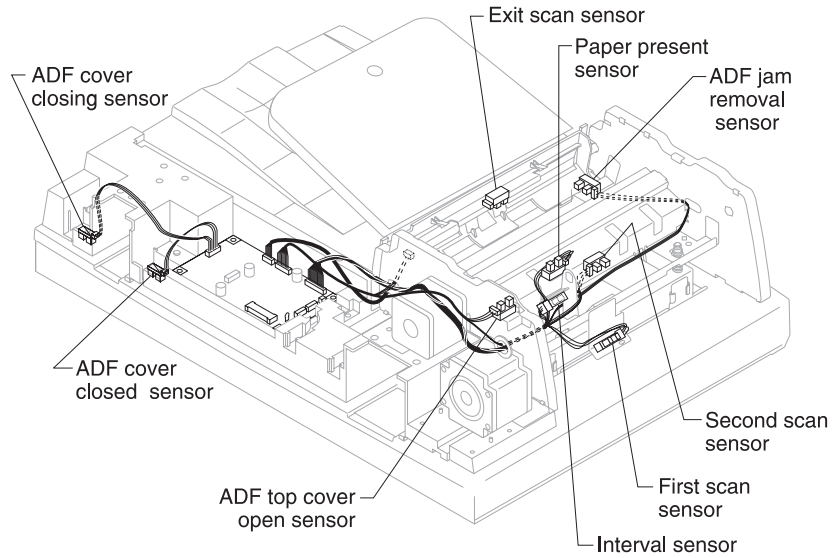
### Locations

#### *Sensors—flatbed*

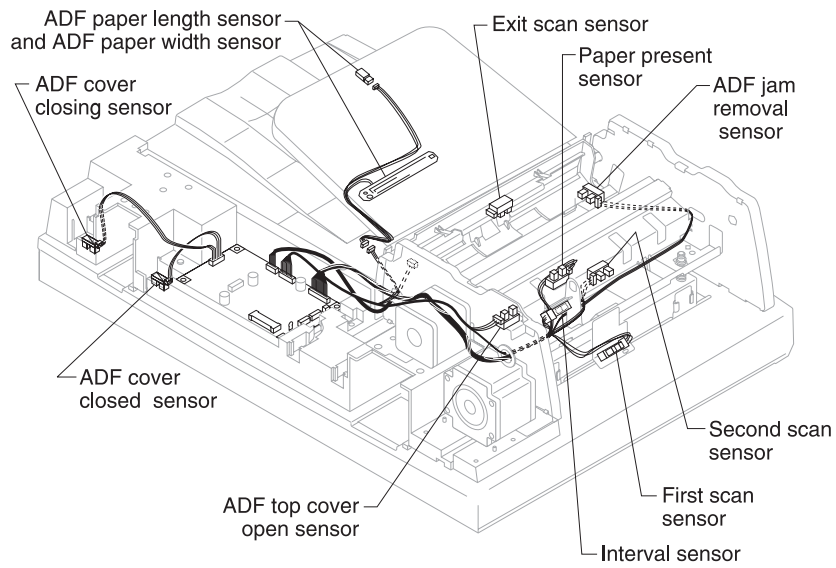


## Sensors—ADF

### Model 450S



### Models 500S





System board (see “System board” on page 5-3) connector pins

Connector	Pin no.	Signal
J1 Interconnect card		
J2 Printhead (laser cable)	1	VIDEO 1+ CN
	2	VIDEO 1- CN
	3	Ground
	4	LADJ2*
	5	VIDEO 0- CN
	6	VIDEO 0+ CN
	7	Ground
	8	+5PHEAD
	9	LPOW
	10	Ground
	11	LADJ* CN
	12	LPOW FB
	13	LENA*
J3 Printhead (HSYNC)/mirror motor	1	Ground
	2	HSYNC CN*
	3	HSYNC ID
	4	+5 V dc
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
J4 Main fan	1	FANSTALL
	2	Ground
	3	MAINFAN
J5 Cartridge fan	1	CARTFANSTAIL
	2	Ground
	3	CARTFAN
J6 Hopper full (output bin sensor)	1	HOP FULL*
	2	Ground
	3	HOP LED



**System board (see “System board” on page 5-3) connector pins**

Connector	Pin no.	Signal
J7 USB port	1	
	2	
	3	
	4	
	5	
	6	
	7	
J8 Cover closed switch	1	Cov Closed
	2	Ground
	3	+5 V dc
J10 Fuser DC	1	NARMEDIA*
	2	Ground
	3	THERM
	4	Ground
	5	THUMP
	6	+5V dc
	7	THUMPRET
	8	EXIT SNS*
	9	+3.3 V dc
	10	I2C CLK L5
	11	I2C DAT L5
J14 Signature button	1	SM Cart
	2	Ground
J15 HVPS  input sensor  Cartridge toner wheel sensor	1	ATSERVO
	2	TXENABLE
	3	XFR
	4	24 V dc switched
	5	CHARGE
	6	Ground
	7	DEV
	8	Ground
	9	INPUTSENSX
	10	+5 V dc switched
	11	+5 V dc
	12	TONER WHEELX
	13	Ground

**System board (see “System board” on page 5-3) connector pins**

Connector	Pin no.	Signal
J16 Ethernet port	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
J17 Parallel port		
J18 Front/bottom options	1	Ground
	2	+24 V dc OTC OPT
J20 Transport motor	1	BLDC_HALL 0
	2	BLDC_HALL 1
	3	BLDC_HALL 2
	4	BLDC FG
	5	Ground
	6	+5 V dc switched
	7	BLDC WIND
	8	BLDC WIND 1
	9	BLDC WIND 2
J21 Autoconnect—front/bottom	1	Ground
	2	+5 V dc fused
	3	Ground
	4	+24 V dc PTC OPT
J23 MPF pick solenoid	1	MPFPick*
	2	+24V dc
J24 Autocomp motor	1	+24 V dc
	2	AUTOCOMP*
J25 Autoconnect—bottom/front	1	Ground
	2	+24VPTCOPT

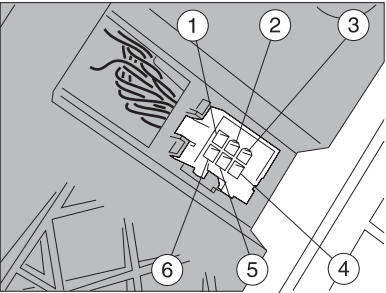
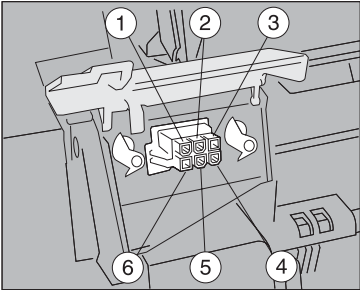
**System board (see “System board” on page 5-3) connector pins**

Connector	Pin no.	Signal
J26 Paper size sensor/autocomp motor	1	PSIZE2
	2	Ground
	3	PSIZE1
	4	PSIZE3
	5	Ground
	6	TRAY1 POUT
	7	TRAY1 PLOW*
	8	+3.3V dc
	9	ENCODER
	10	+5V dc
J27 LVPS	1	+5 V dc
	2	+5 V dc
	3	+5 V dc
	4	Ground
	5	Ground
	6	Ground
	7	Ground
	8	Ground
	9	Ground
	10	Ground
	11	+24 V dc RAW
	12	Ground
	13	+24 V dc RAW
	14	+24 V dc RAW
	15	ZEROXING R+
	16	+24 V dc RAW
	17	HEAT
	18	HEAT
	19	Ground
	20	L FAN DRV*
J28 MPF paper out	1	MPF POUT
	2	Ground
	3	MPF LED

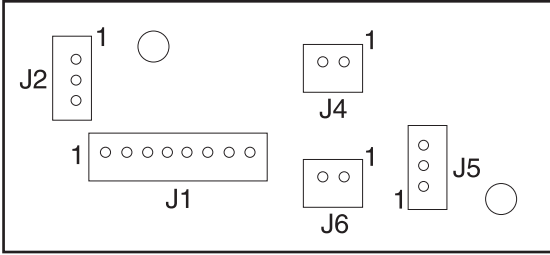
**System board (see “System board” on page 5-3) connector pins**

Connector	Pin no.	Signal
J30 USB host-back	1	
	2	
	3	
	4	
	5	
	6	
	7	
USB host—front connection	1	+5 V USBICN
	2	USB DI-
	3	USB DI+
	4	Ground
	5	Ground
Printhead fan	1	+24V dc
	2	PH FAN*

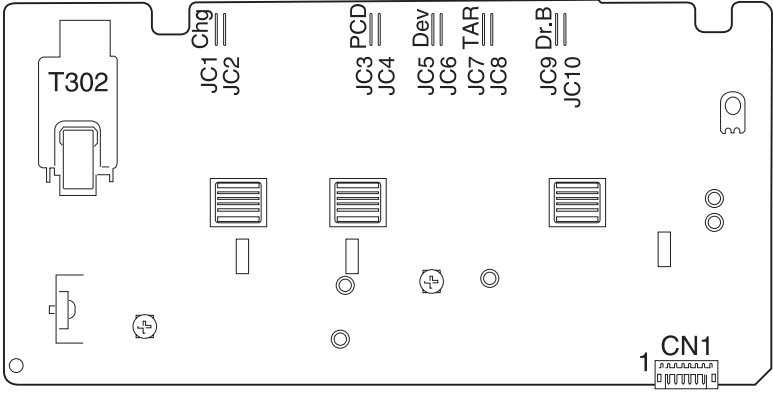
**Autoconnect**

Connector	Pin no.	Signal (static)
Bottom autoconnect 	1	+24 V dc
	2	0 V dc
	3	+5 V dc
	4	0 V dc
	5	0 V dc
	6	0 V dc
Front autoconnect 	1	0 V dc
	2	0 V dc
	3	0 V dc
	4	+5 V dc
	5	0 V dc
	6	+24 V dc

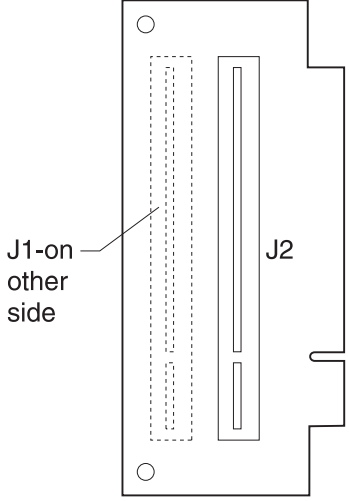
## Fuser board

Fuser Board (not a FRU)	Connectors
	J1—System board
	J2—Narrow media sensor
	J3—N/A
	J4—Solenoid
	J5—Exit sensor
	J6—Thermistor

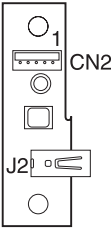
## High voltage power supply

Connector	CN no.	Signal
<p>CN1 System board</p> 	1	Developer PWM
	2	+24 V dc Return
	3	Charge PWM
	4	+24 V dc IN
	5	TX PWM
	6	TX Enable
	7	TX CUR PWM
	8	SVRO OUT

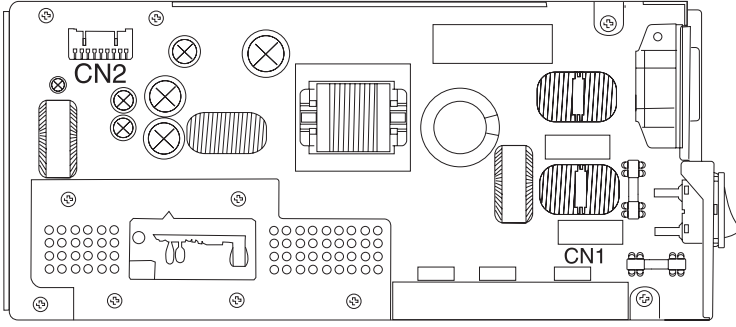
**Interface card**

	Connector	Pin no.	Signal
 <p>J1-on other side</p> <p>J2</p>	J1	A1 to B62	N/A
	J2	A1 to B62	N/A

**USB card**

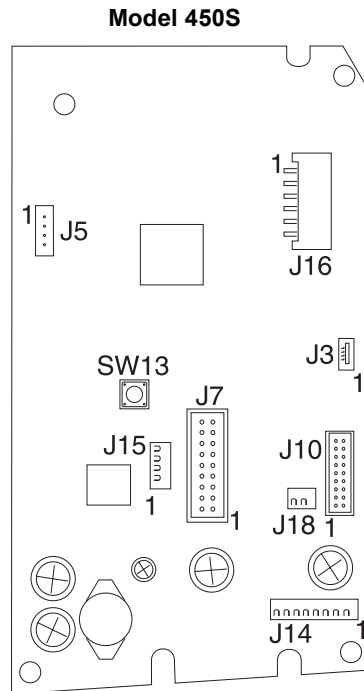
	Connector	Pin no.	Signal
 <p>CN2</p> <p>J2</p>	CN2	1-5	Signals
	J2		USB signals

## Low voltage power supply

Connector	CN pin no.	Signal
CN1 Fuser lamp AC 	1	AC fuser lamp
	2	Not used
	3	AC fuser lamp
CN2 DC output	1	+5 V dc
	2	+5 V dc
	3	Ground
	4	Ground
	5	Ground
	6	Ground
	7	+24 V dc
	8	+24 V dc
	9	Heat on
	10	+5 V dc
	11	+5 V dc
	12	Ground
	13	Ground
	14	Ground
	15	Ground
16	+24 V dc	
17	ZC Out*	
18	+42 V dc	

## Operator panel card (UICC #1)—model 450S

**Note:** Part of operator panel right cover assembly.



### Operator panel card connector pins—model 450S

Connector	CN pin no.	Signal
J3 to touchscreen display	1	X-DRIVE +5 V dc IN
	2	X+/Y +DRIVE
	3	Y+/X +DRIVE
	4	Y-/X +5 V dc IN
J5 Not used		
J7 Not used		
J10 to J15 on scanner control card	1	+24 V dc
	2	+24 V dc
	3	Ground
	4	Ground
	5	TXD-
	6	TXD+
	7	TXD232 N
	8	RXD232 N
	9	Ground
	10	Ground
	11	CLKTX-
	12	CLKTX+

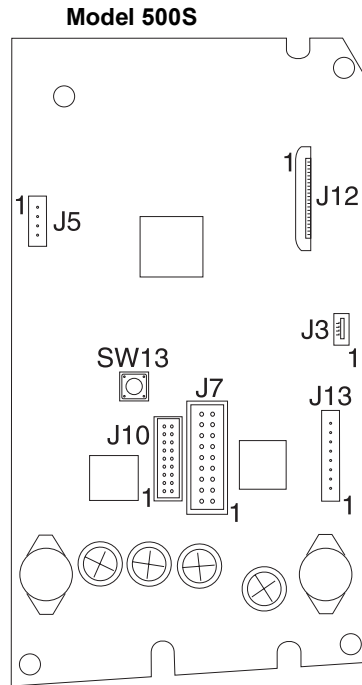


**Operator panel card connector pins—model 450S (continued)**

Connector	CN pin no.	Signal
J10 to J15 on scanner control card (continued)	13	NC TX2-
	14	NC TX2+
	15	NC TXI-
	16	NC TXI+
	17	MASTER RESET N
	18	Ground
J12 to touchscreen display	1–32	Signal
J14	1	+5 V dc IN
	2	BUTTON ADMIN (+5 V dc default, ground when pushed)
	3	Ground
	4	$V_o$ (contrast wheel output)
	5	$V_o$ (contrast wheel output)
	6	Ground
	7	$V_{EE} \pm 24$ V dc
	8	$V_{EE} \pm 24$ V dc
J15	1	+5 V dc IN
	2	BUTTON HOME
	3	BUTTON HELP (+5 V dc default, ground when push Go)
	4	Ground
J18 to CN1 on LCD inverter card	1	+5 V dc BACKLIGHT CONTROL
	2	Ground

## Operator panel card (UICC #1)—model 500S

**Note:** Part of operator panel right cover assembly.



### Operator panel card connector (UICC #1) pins—model 500S

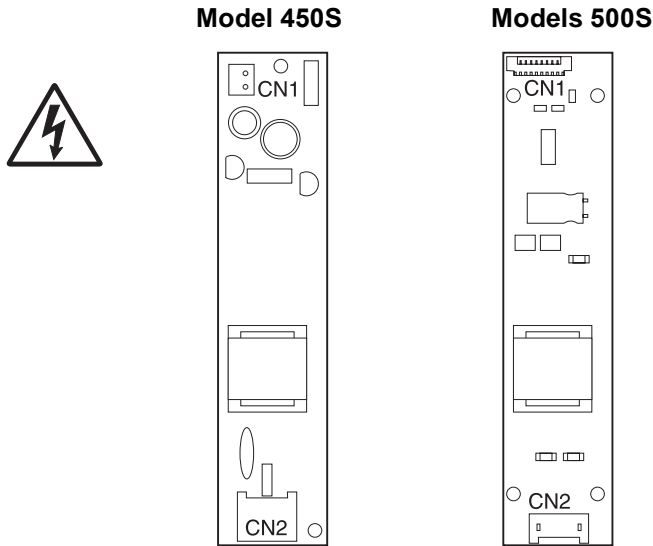
Connector	CN pin no.	Signal
J3 to touchscreen display	1	X-DRIVE +5 V dc IN
	2	X+/Y +DRIVE
	3	Y+/X +DRIVE
	4	Y-/X +5 V dc IN
J5 Not used	1-4	Signal
J7 Not used	1-14	Signal


**Operator panel card connector (UICC #1) pins—model 500S (continued)**

Connector	CN pin no.	Signal
J10 to J15 on scanner control card	1	+24 V dc
	2	+24 V dc
	3	Ground
	4	Ground
	5	TXD-
	6	TXD+
	7	TXD232 N
	8	RXD232 N
	9	Ground
	10	Ground
	11	CLKTX-
	12	CLKTX+
	13	NC TX2-
	14	NC TX2+
	15	NC TXI-
	16	NC TXI+
	17	MASTER RESET N
	18	Ground
J12 to touchscreen display	1–32	Signal
J13 to CN1 on inverter card	1	+12 V dc
	2	+12 V dc
	3	Ground
	4	Ground
	5	BACKLITE CONTROL
	6	PWM DIM
	7	Ground
	8	Ground

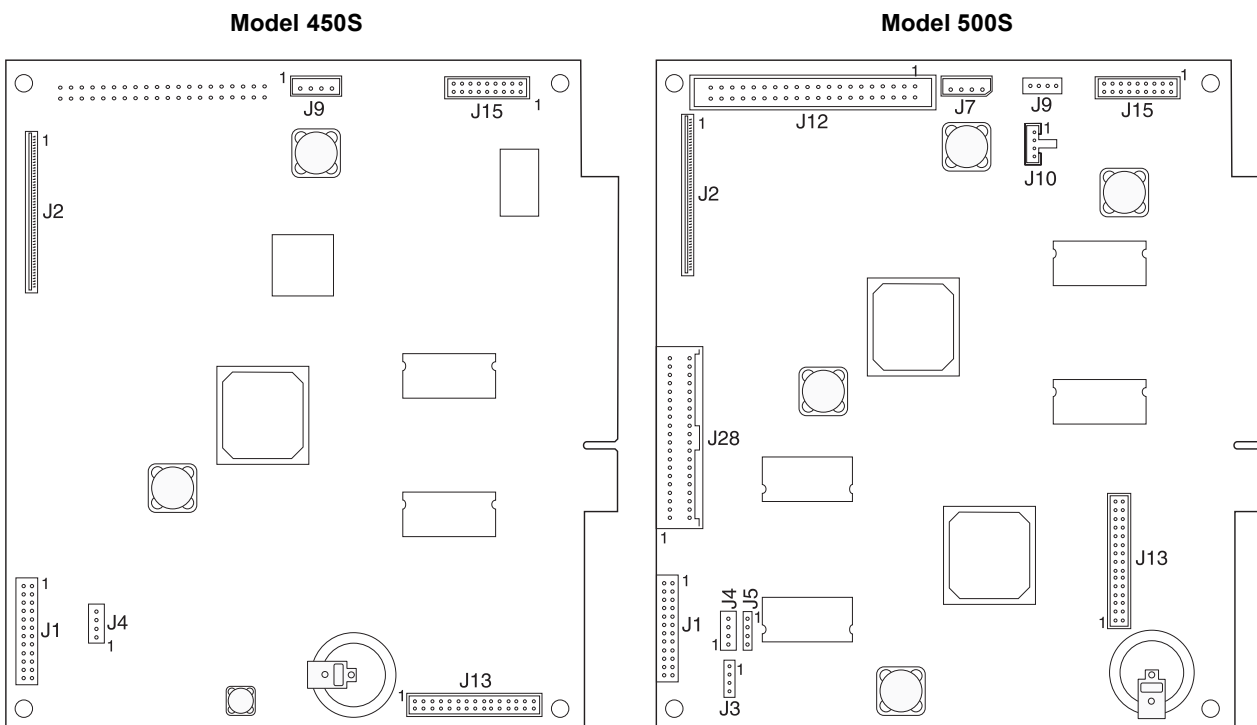
## LCD inverter board (IUCC #2)

**Note:** Part of operator panel left cover.)



Connector	CN pin no.	Signal
CN1 to J13 on operator panel card (Model 450S)	1	+5 V dc BL
	2	Ground
CN1 to J13 on operator panel card (Model 500S)	1	+12 V dc
	2	+12 V dc
	3	Ground
	4	Ground
	5	BACKLITE CONTROL—Lamp on/ off control
	6	PWM DIM—Bright adjust
	7	Ground
CN2 to touchscreen display 	1	HV DO NOT MEASURE
	2	Not used
	3	Not used
	4	Not used
	6	HV DO NOT MEASURE

## Scanner control card



### Scanner control card connector pins

Connector	CN pin no.	Signal
J1 to CN1 on flatbed interface card	1	MDC DET
	2	+25 V dc IN
	3	+25 V dc IN
	4	+25 V dc IN
	5	Ground
	6	nTOP FB
	7	nTOP ADF
	8	Ground
	9	nSTART LINE
	10	Ground
	11	MDC TXD
	12	MDC RXD
	13	Ground
	14	nADF Present
	15	nCOVER CLOSED
	16	Ground
	17	FAN ON
	18	FAN BACK
	19	Ground

**Scanner control card connector pins (continued)**

Connector	CN pin no.	Signal
J1 to CN1 on flatbed interface card (continued)	20	nRESET
	21	+3.3 V dc
	22	Ground
	23	Signal
	24	Signal
J2 FB CCD ribbon cable	1-36	Signal
J3 Not used	1	Ground
	2	VXADF RXD2
	3	VXADF TXD2
	4	+5 V dc
J4 Not used	1	Ground
	2	MDC RXD
	3	MDC TXD
	4	+5 V dc
J5 Not used	1	Ground
	2	VXADF RXD1
	3	VXADF TXD1
	4	+5 V dc
J7 To hard disk assembly (model 500S only)	1	+12 V dc
	2	Ground
	3	Ground
	4	+5 V dc
J12 to hard disk (model 500S only)	1	+5 V dc
	2	Ground
	3	Signal
	4	Signal
	5	Signal
	6	Signal
	7	Signal
	8	Signal
	9	Signal
	10	Signal
	11	Signal
	12	Signal
	13	Signal
	14	Signal
	15	Signal
	16	Signal

**Scanner control card connector pins (continued)**

Connector	CN pin no.	Signal
J12 to hard disk (model 500S only) (continued)	17	Signal
	18	Signal
	19	Ground
	20	HARD KEY
	21	Signal
	22	Signal
	23	Signal
	24	Signal
	25	Signal
	26	Signal
	27	Signal
	28	Signal
	29	Signal
	30	Ground
	31	Signal
	33	+5 V dc
	34	Ground
	35	Signal
	36	Signal
	37	Signal
38	Signal	
39	Signal	
40	Ground	
J13 to J59 on modem card	1	+5 V dc
	2	Ground
	3	+3.3 V dc
	4	+3.3 V dc
	5	Signal
	6	Signal
	7	Signal
	8	Signal
	9	Ground
	10	Signal
	11	Signal
	12	Signal
	13	Signal
	14	Signal
	15	Signal

**Scanner control card connector pins (continued)**

Connector	CN pin no.	Signal
J13 to J59 on modem card (continued)	16	Signal
	17	Signal
	18	Signal
	19	Signal
	20	Signal
	21	Signal
	22	Ground
	23	DSP-IRQ
	24	IO-WRITE
	25	IO-READ
	26	MOD CS
	27	Ground
	28	MOD RDY
	29	MOD PRES
30	RESET N	
J15 to operator panel card	1	MASTER RESET N
	2	Ground
	3	TX1-
	4	TX1+
	5	TX2-
	6	TX2+
	7	CLKTX-
	8	CLKTX+
	9	Ground
	10	Ground
	11	UITXD
	12	UIRXD
	13	TX0-
	14	TX0+
	15	Ground
	16	Ground
	17	+24 V dc
	18	+24 V dc



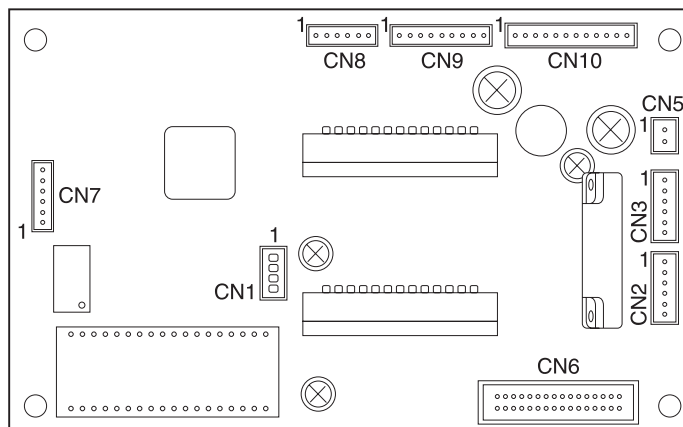
**Scanner control card connector pins (continued)**

Connector	CN pin no.	Signal
J23 to CN5 on flatbed interconnect card	C1	Ground
	C2	Ground
	1	CCD ON
	2	POWER SAVER
	3	+24 V dc IN
	4	Ground
	5	Ground
	6	Ground
	7	Ground
	8	Ground
	9	Ground
	10	Ground
	11	Ground
	12	Signal
	13	Signal
	14	Ground
	15	Signal
	16	Signal
	17	Ground
	18	Signal
	19	SDI
	20	SEN
	21	Signal
	22	Ground
	23	Signal
	24	Signal
	25	Ground
	26	Signal
	27	Signal
	28	Signal
	29	Signal
	30	CCD CLAMP
	31	CCD RESET
	32	CCD PHRASE
	33	CCD TRANSFER
	34	CCD BW SELECT
35	+24 V dc IN	
36	Ground	

**Scanner control card connector pins (continued)**

Connector	CN pin no.	Signal
J28—ADF CCD (500S)	1	CCD DET R
	2	ADF HOME ON
	3	ADF POWER SAVER
	4	+24 V dc LAMP
	5	+24 V dc LAMP
	6	ADF CCD BW SEL
	7	Ground
	8	ADFR CCD TRANS
	9	Ground
	10	ADFR CCD PHASE 1
	11	Ground
	12	ADFR CCD RESET
	13	Ground
	14	ADFR CCD CLAMP
	15	Ground
	16	ADFR CCD CLK
	17	Ground
	18	ADFR AFE RSAMP
	19	Ground
	20	ADFR AFE VSAMP
	21	Ground
	22	ADFR AFE D
	23	ADFR AFE D
	24	Ground
	25	ADFR AFE D
	26	ADFR AFE D
	27	Ground
	28	ADFR AFE D
	29	ADFR AFE D
	30	Ground
	31	ADFR AFE D
	32	ADFR AFE D
	33	Ground
	34	ADFR AFE SEN
	35	ADFR AFE SCK
	36	ADFR AFE SD1

## Motor driver board



### Motor drive board connector pins

Connector	CN pin no.	Signal
CN2 to ADF feed motor	1	A
	2	+25 V dc
	3	Na
	4	B
	5	+25 V dc
	6	VBB
CN3 to ADF scan motor	1	OUT A
	2	+25 V dc
	3	OUT nA
	4	OUT B
	5	OUT nB
	6	+25 V dc
CN5 to pick arm solenoid	1	SOL ON
	2	+25 V dc
CN6 to flatbed interconnect card	C1	Ground
	C2	Ground
	1	MDC ON
	2	+25 V dc
	3	+25 V dc
	4	nTOP ADF
	5	nSTART LINE
	6	MDC TXD
	7	Ground
	8	nCOVER CLOSED
	9	OUT A
	10	OUT A

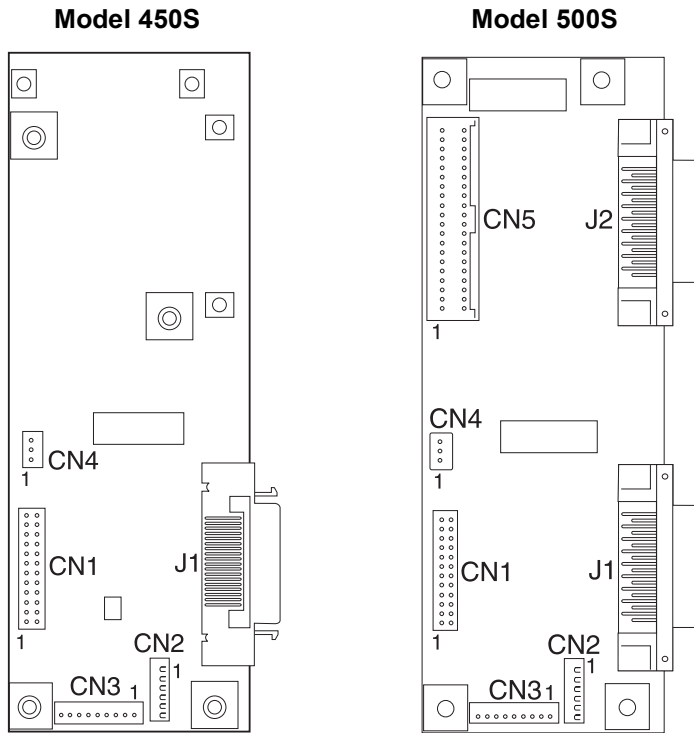
**Motor drive board connector pins (continued)**

Connector	CN pin no.	Signal	
CN6 to flatbed interface card (continued)	11	OUT B	
	12	OUT B	
	13	Ground	
	14	nFLAT LENGTH1	
	15	nFLAT LENGTH3	
	16	Ground	
	17	FAN BACK	
	18	nRESET	
	19	+25 V dc	
	20	+25 V dc	
	21	nTOP FB	
	22	Ground	
	23	Ground	
	24	MDC RXD	
	25	nADF PRESENT	
	26	Ground	
	27	OUT nA	
	28	OUT nA	
	29	OUT nB	
	30	OUT nB	
	31	Ground	
	32	nFLAT LENGTH2	
	33	nHOME	
	34	FAN ON	
	35	+5 V dc	
	36	Ground	
	CN7 to cover closed and cover closing sensors	1	+5 V dc IN
		2	nCOVER CLOSING
		3	Ground
		4	+5 V dc IN
		5	nCOVER CLOSED
		6	Ground
	CN8 to paper tray sensor	1	Ground
		2	ADF WIDTH1
		3	ADF WIDTH2
		4	Ground
5		nADF LENGTH	
6		+5 V dc IN	

### Motor drive board connector pins (continued)

Connector	CN pin no.	Signal
CN9 to ADF exit sensor, ADF second scan sensor	1	Ground
	2	nADF EXIT
	3	+5 V dc IN
	4	Ground
	5	+5 V dc IN
	6	n2ND SCAN
	7	Ground
	8	nADF COVER
	9	+5 V dc IN
CN10 to jam remove sensor, ADF paper present sensor, interval sensor, first scan sensor	1	Ground
	2	nJAM REMOVE
	3	+5 V dc IN
	4	Ground
	5	nADF PRESENT
	6	+5 V dc IN
	7	Ground
	8	nADF INTERVAL
	9	+5 V dc IN
	10	Ground
	11	+5 V dc IN
	12	n1ST SCAN

## Flatbed interconnect card



### Flatbed interconnect card connector pins

Connector	Pin no.	Signal
J1 to CN6 on ADF motor drive card	C1	Ground
	C2	Ground
	1	MDC ON
	2	+25 V dc
	3	+25 V dc
	4	nTOP ADF
	5	nSTART LINE
	6	MDC TXD
	7	Ground
	8	nCOVER CLOSED
	9	OUT A
	10	OUT A
	11	OUT B
	12	OUT B
	13	Ground
	14	nFLAT LENGTH1
	15	nFLAT LENGTH3
16	Ground	
17	FAN BACK	

**Flatbed interconnect card connector pins (continued)**

Connector	Pin no.	Signal
J1 to CN6 on ADF motor drive card	18	nRESET
	19	+25 V dc
	20	+25 V dc
	21	nTOP FB
	22	Ground
	23	Ground
	24	MDC RXD
	25	nADF PRESENT
	26	Ground
	27	OUT nA
	28	OUT nA
	29	OUT nB
	30	OUT nB
	31	Ground
	32	nFLAT LENGTH2
	33	nHOME
34	FAN ON	
J1 to CN6 on ADF motor drive card (continued)	35	+5 V dc
	36	Ground
J2 to CN2 on ADF CCD module (model 500S)	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	

**Flatbed interconnect card connector pins (continued)**

Connector	Pin no.	Signal
CN1 to J1 on scanner control card	1	MOC DET
	2	+25 V dc IN
	3	+25 V dc IN
	4	+25 V dc IN
	5	Ground
	6	nTOP FB
	7	nTOP ADF
	8	Ground
	9	nSTART LINE
	10	Ground
	11	MDC TXD
	12	MDC RXD
	13	Ground
	14	nADF PRESENT
	15	nCOVER CLOSED
	16	Ground
	17	FAN ON
	18	FAN BACK
	19	Ground
	20	nRESET
	21	+3.3 V dc
	22	Ground
	23	Signal
	24	Signal
CN2 Flatbed scan motor	1	OUT A
	2	+25 V dc
	3	out nA
	4	OUT B
	5	+25 V dc
	6	OUT nB



**Flatbed interconnect card connector pins (continued)**

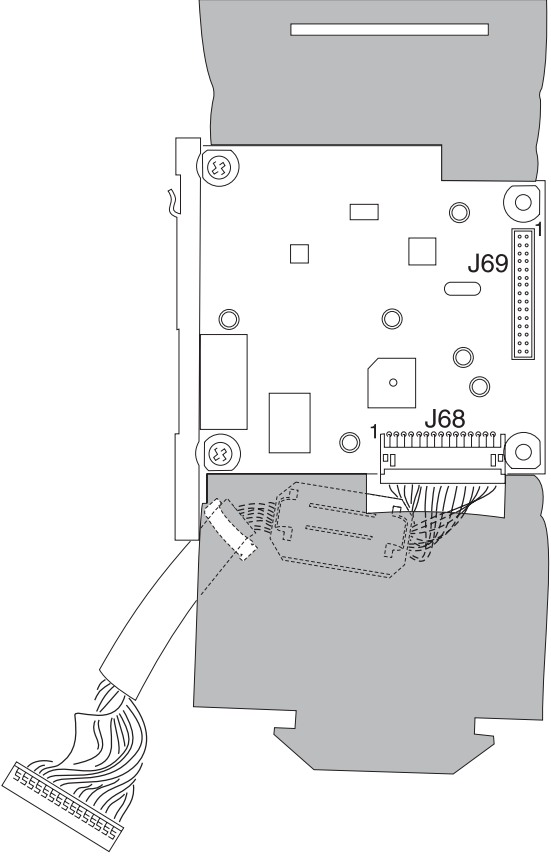
Connector	Pin no.	Signal
CN3 Flatbed paper length sensor assembly	1	Ground
	2	nFLAT LENGTH1
	3	+5 V dc IN
	4	Ground
	5	nFLAT LENGTH2
	6	+5 V dc IN
	7	Ground
	8	nFLAT LENGTH3
	9	+5 V dc IN
CN4 home sensor	1	Ground
	2	nHOME
	3	+5 V dc IN
CN5	C1	Ground
	C2	Ground
	1	CCD ON
	2	POWER SAVER
	3	+24 V dc IN
	4	Ground
	5	Ground
	6	Ground
	7	Ground
	8	Ground
	9	Ground
	10	Ground
	11	Ground
	12	Signal
13	Signal	
14	Ground	

**Flatbed interconnect card connector pins (continued)**

Connector	Pin no.	Signal
CN5 (continued)	15	Signal
	16	Signal
	17	Ground
	18	Signal
	19	SDI
	20	SEN
	21	Signal
	22	Ground
	23	Signal
	24	Signal
	25	Ground
	26	Signal
	27	Signal
	28	Signal
	29	Signal
	30	CCD CLAMP
	31	CCD RESET
	32	CCD PHASE
	33	CCD TRANSFER
	34	CCD BW SE:LECT
35	+24 V dc IN	
36	Ground	

## Modem card

### Modem card connector pins

Connector	Pin no.	Signal
<p>J68 on modem card</p> 	1	+5 V dc
	2	Ground
	3	+3.3 V dc
	4	+3.3 V dc
	5	Signal
	6	Signal
	7	Signal
	8	Signal
	9	Ground
	10	Signal
	11	Signal
	12	Signal
	13	Signal
	14	Ground
	15	Signal
	16	Signal
	17	Signal
	18	Signal
	19	Signal
	20	Signal
	21	Signal
	22	Ground
	23	DSP-IRQ
	24	IO-WRITE
	25	IO-READ
	26	MOD CS
	27	Ground
	28	MOD RDY
	29	MOD PRES
	30	RESET N



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## 6. Preventive maintenance

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

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### 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.

---

### Lubrication specifications

No requirements for this printer.

---

### Scheduled maintenance

#### Maintenance kit

The operator panel displays the message 80 Scheduled Maintenance at each 300K page count interval. It is necessary to replace the fuser assembly, transfer roller, charge roll, and pick tires at this interval to maintain the print quality and reliability of the printer. The parts are available as a maintenance kit with the following part numbers:

#### Maintenance kits

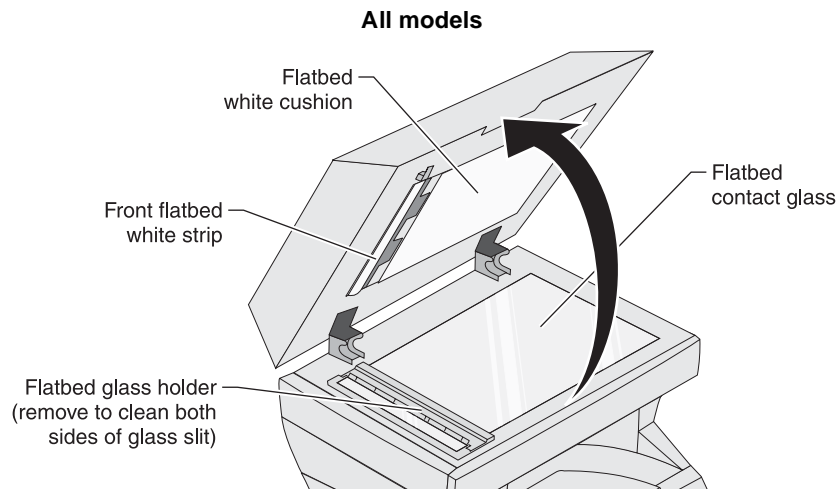
Description	Part number
115 V Maintenance kit	40X0100
220 V Maintenance kit	40X0101
100 V Maintenance kit	40X0197

After replacing the kit, the maintenance count must be reset to zero to clear the "80 Scheduled Maintenance" message. See **"Maintenance Page Count" on page 3-25**.

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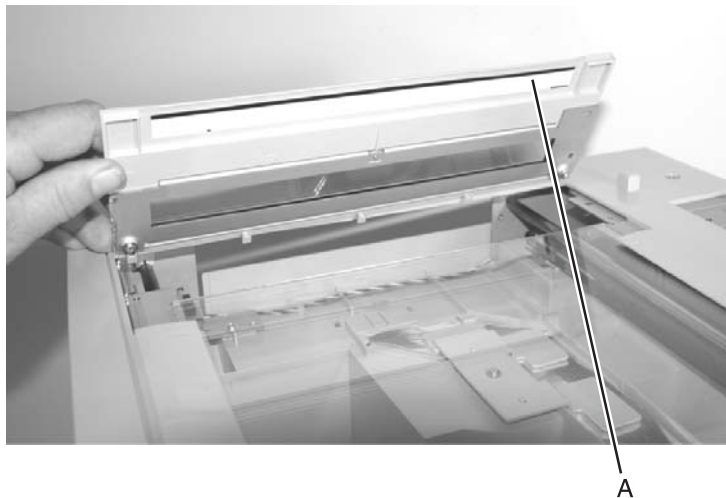
## Cleaning the scanner glass, cushions, and strips

1. Open the document cover.
2. Dampen a clean, lint-free cloth or cotton swab with isopropyl alcohol.
3. Clean the following with the cloth or swab:
  - Flatbed contact glass
  - Flatbed white cushion
  - Front flatbed white strip
  - Glass slit in flatbed glass holder (see step 4).



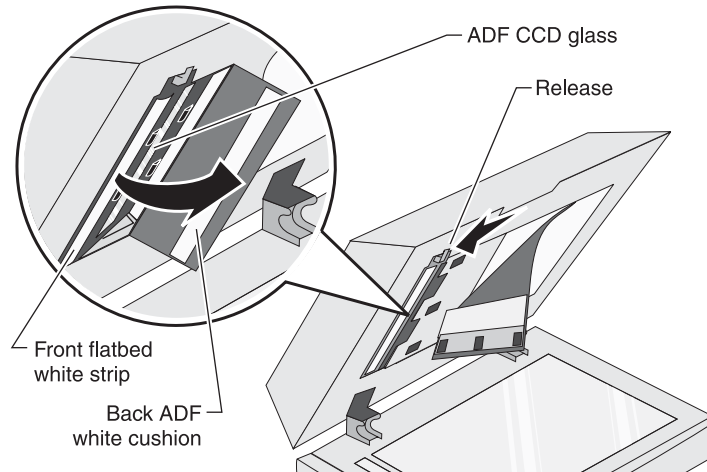
4. Remove the flatbed glass holder and clean both sides of the glass slit. See **“Upper glass holder removal” on page 4-53.**

**Warning:** Be careful not to touch the white calibration strip (A) on the underside of the scanner flatbed glass holder.



5. For model 500S, remove the flatbed white cushion. See **“Flatbed white cushion removal”** on **page 4-32**.
6. Press the release lever to open the lower exit guide
7. Use the cloth or swab to clean the ADF CCD glass and back ADF white strip with the cloth or swab.

**Model 500S**



8. Close the lower exit guide.
9. Close the document cover.





## 7. Parts catalog

### How to use this parts catalog

The following legend is used in the parts catalog:

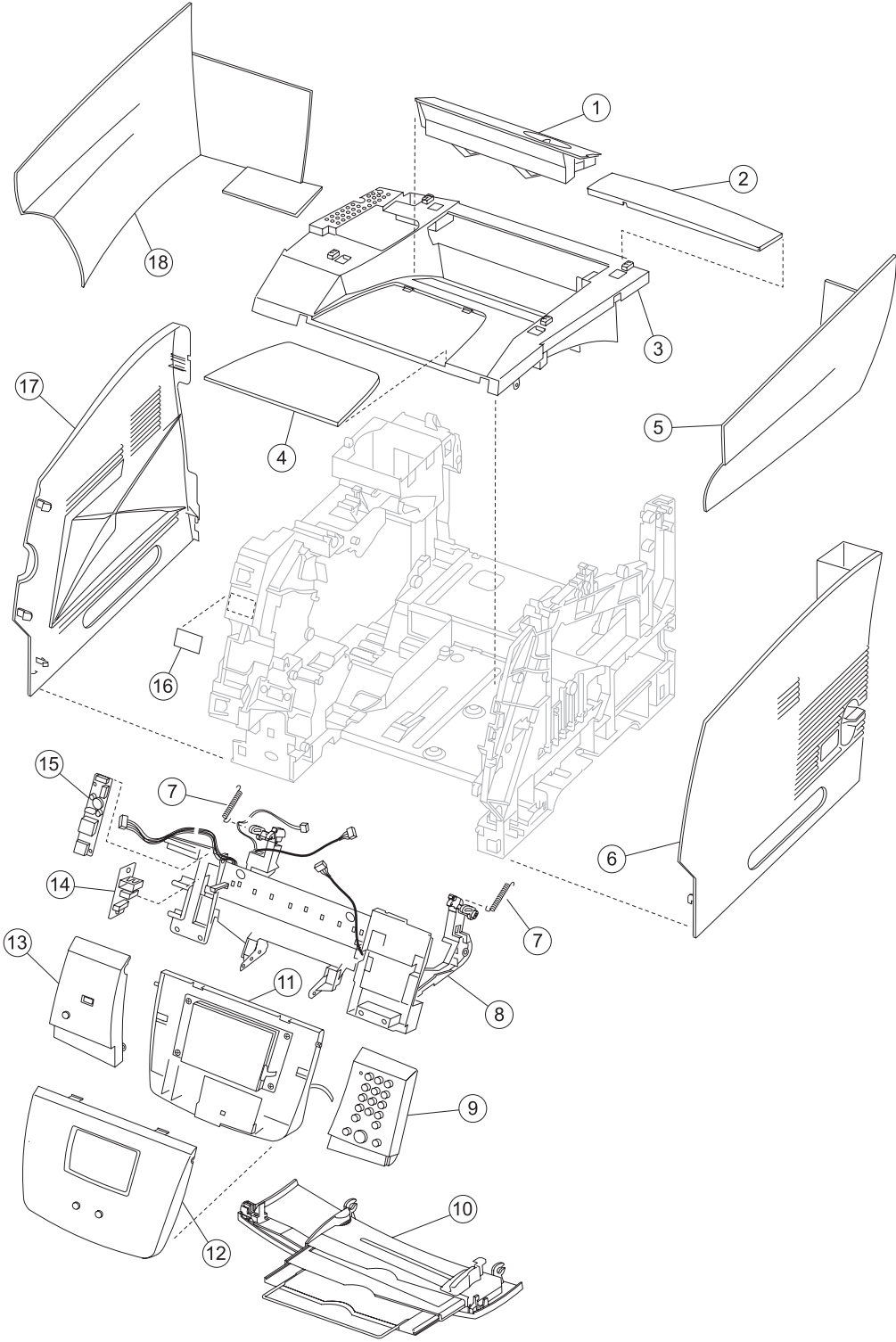
Asm-Index	Part number	Units/mach - OR - Units/option	Units/ kit or pkg	Description
-----------	-------------	--------------------------------------	-------------------------	-------------

- **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.
- **PP:** (Parts Packet) in the parts description column indicates the part is contained in a parts packet.
- **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.

Model information used in the parts catalog.

Model name	Configuration	Machine type	Parts catalog
e-Studio 450S	Network, modem	7002-005	005
e-Studio 500S	Network, modem, hard disk	7002-111	111

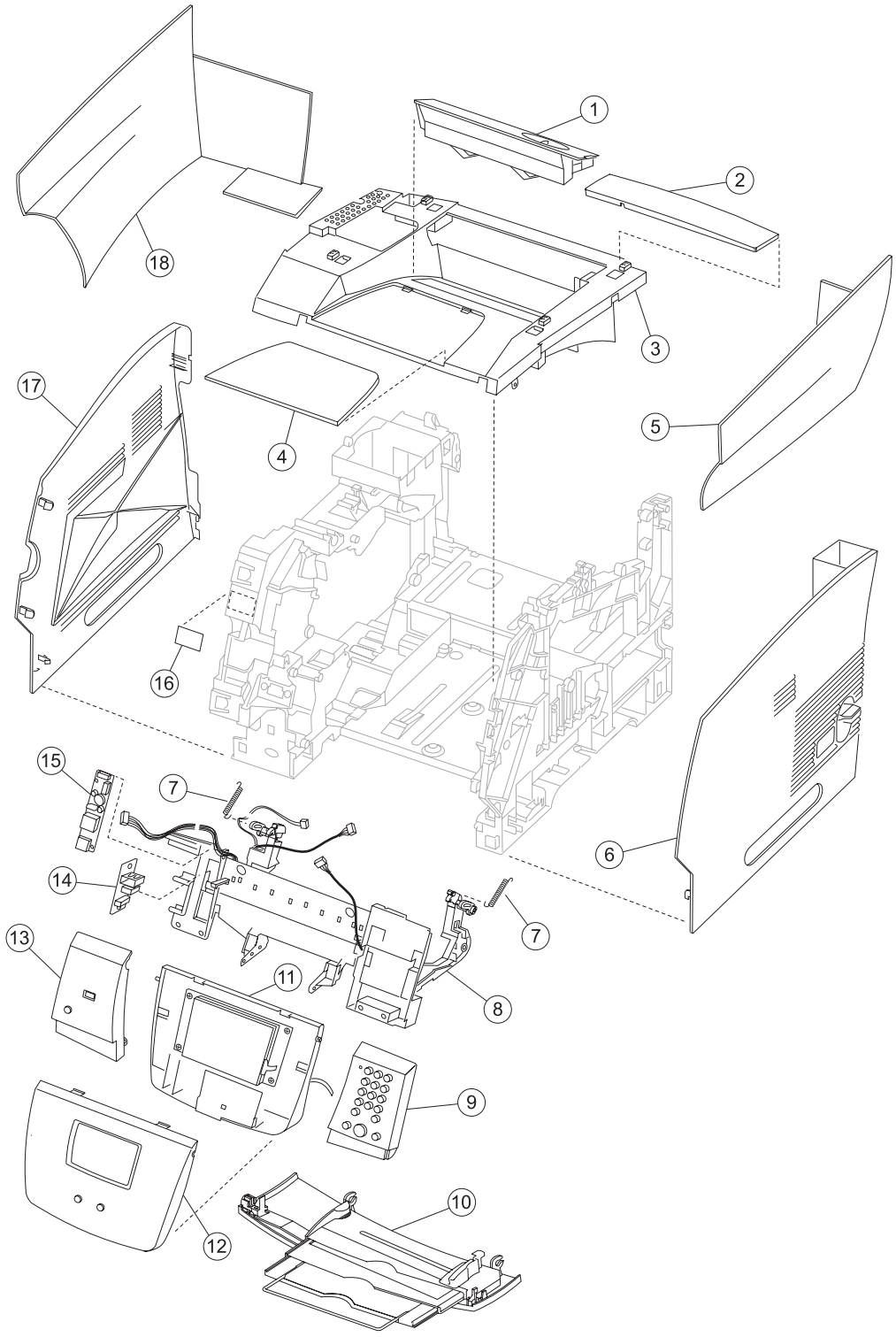
# Assembly 1: Covers—printer (model 450S)



## Assembly 1: Covers—printer (model 450S)

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
1—1	40X0001	1	1	Fuser wiper cover assembly
2	40X0469	1	1	Upper sub cover assembly
3	40X0467	1	1	Upper cover assembly
4	40X0468	1	1	Upper tray cover (paper support)
5	40X0473	1	1	Right side cover
6	40X0471	1	1	Right cover assembly
7	40X0516	2	1	Counterbalance spring
8	40X3309	1	1	Upper front cover hinge assembly—450S, includes: <ul style="list-style-type: none"> <li>• Operator panel frame (hinge)</li> <li>• UICC 18-pin cable</li> <li>• USB cable</li> <li>• Cover open sensor</li> <li>• Left hinge cable retainer</li> <li>• Right hinge cable retainer</li> <li>• Left hinge spring</li> <li>• Right hinge spring</li> <li>• Ground cable</li> <li>• Screw, M3x10 (3)</li> <li>• Screw, Sunk head (1)</li> </ul>
9	40X3303	1	1	Operator panel right cover assembly—450S, includes: <ul style="list-style-type: none"> <li>• Operator panel right cover</li> <li>• Dial numeric pad key</li> <li>• Control 1—Stop key</li> <li>• Control 2—Go key</li> <li>• Control 3—Clear key</li> <li>• Hook, operator panel right assembly</li> <li>• Compression spring</li> <li>• LCD operator panel cap</li> <li>• UICC #1 card assembly</li> <li>• Screw, M3x8 (2)</li> <li>• Screw, M3x8 (2)</li> </ul>
10	40X0493	1	1	Multipurpose tray assembly
11	40X3301	1	1	LCD mono touchscreen display assembly—450S, includes: <ul style="list-style-type: none"> <li>• LCD lower cover</li> <li>• Mono LCD assembly</li> <li>• LCD frame lever</li> <li>• LCD lever spring</li> <li>• Core</li> <li>• Screw, M3x8 (4)</li> </ul>
12	40X3299	1	1	Cover bezel — 450S, includes <ul style="list-style-type: none"> <li>• Bezel</li> <li>• UICC #3</li> <li>• Home key</li> <li>• M3x8 screws (2)</li> </ul>
13	40X3302	1	1	Operator panel left cover assembly—450S, includes <ul style="list-style-type: none"> <li>• Operator left cover</li> <li>• Operator panel left hook</li> <li>• Admin key</li> <li>• UICC #2 card assembly</li> <li>• Compression spring</li> <li>• M3x18 screws (2)</li> <li>• M3x18 screws (2)</li> </ul>
14	40X0151	1	1	USB board assembly

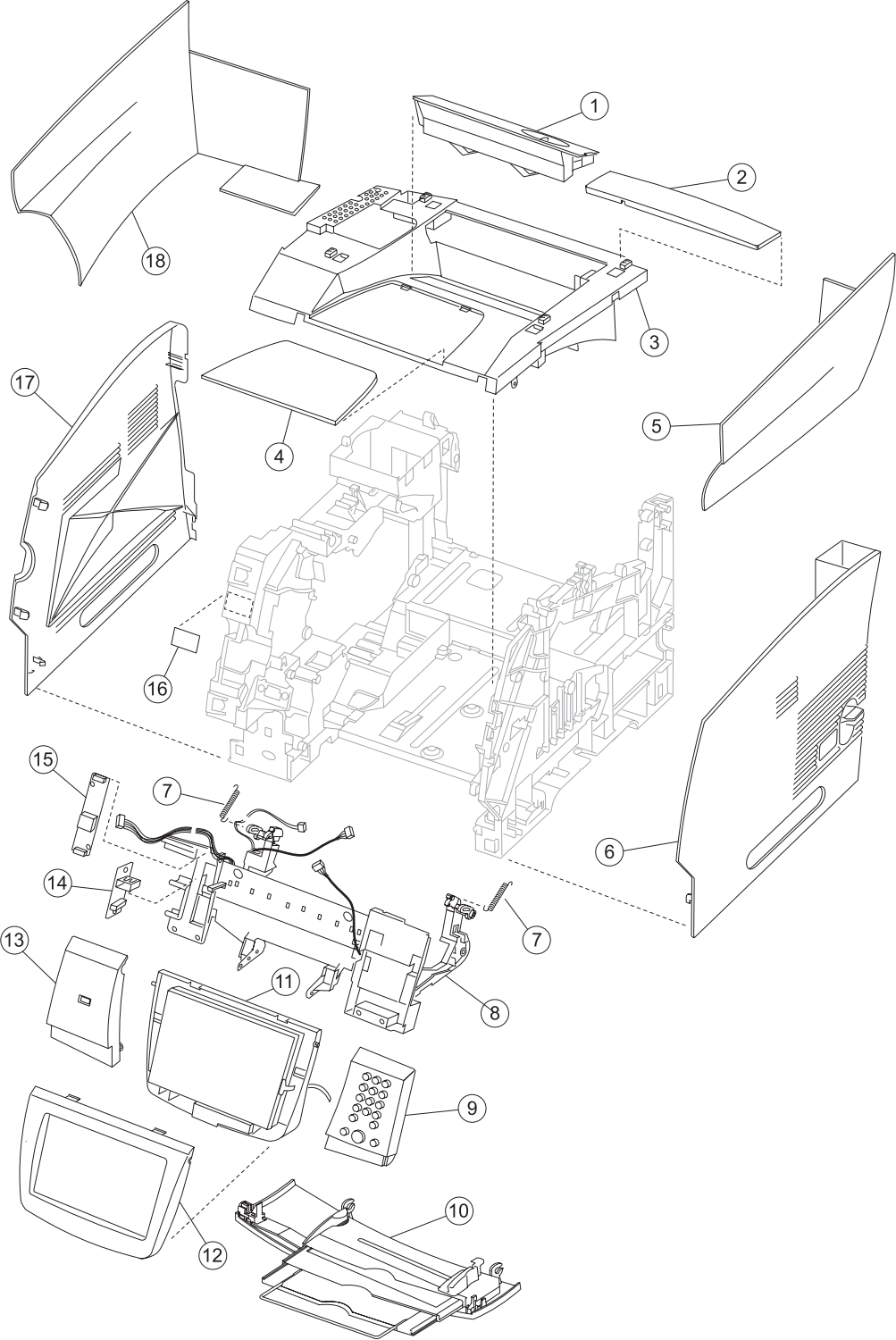
# Assembly 1 (continued): Covers—printer (model 450S)



## Assembly 1: Covers—printer (model 450S)

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
1—15	40X3304	1	1	LCD (mono) touchscreen inverter card—450S
16	40X0009	1	1	TLI/ID/serial number label—blank
17	40X0470	1	1	Left cover assembly
18	40X0472	1	1	Left side cover
NS		5	10	Parts packet (cable ties) (PP 40X0174)
NS	40X0050	2	1	Counterbalance spring
NS	40X5651	1	1	Vent cover

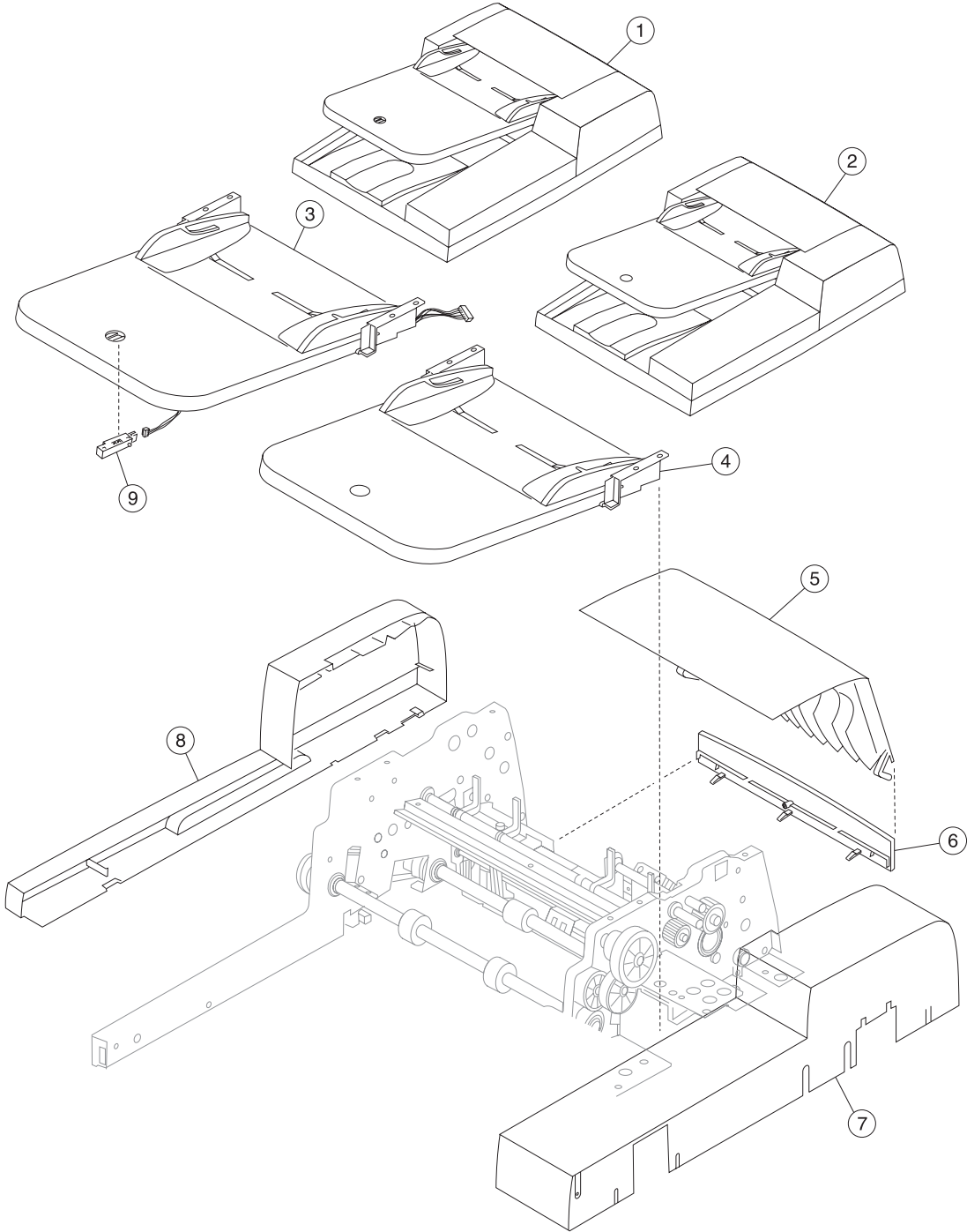
# Assembly 2: Cover—printer (model 500S)



## Assembly 2: Covers—printer (model 500S)

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
2—1	40X0001	1	1	Fuser wiper cover assembly
2	40X0469	1	1	Upper sub cover assembly
3	40X0467	1	1	Upper cover assembly
4	40X0468	1	1	Upper tray cover (paper support)
5	40X0473	1	1	Right side cover
6	40X0471	1	1	Right cover assembly
7	40X0516	2	1	Counterbalance spring
8	40X0515	1	1	Upper front cover hinge assembly—500S, includes: <ul style="list-style-type: none"> <li>• Cable, VICC 18-pin</li> <li>• Hinge, operator panel</li> <li>• USB cable (1)</li> <li>• Cover open switch and cable (1)</li> <li>• Left cable retainer (1)</li> <li>• Right cable retainer (1)</li> <li>• Left hinge spring (1)</li> <li>• Right hinge spring (1)</li> </ul>
9	40X0496	1	1	Operator panel right cover assembly—500S, includes: <ul style="list-style-type: none"> <li>• Stop button (1)</li> <li>• Go button (1)</li> <li>• Clear button (1)</li> <li>• LED cap (1)</li> <li>• Dial number pad</li> <li>• User interface control card assembly</li> <li>• Compression spring</li> <li>• Operator panel right cover</li> <li>• Operator panel right side hook</li> </ul>
10	40X0493	1	1	Multipurpose tray assembly
11	40X0494	1	1	LCD touchscreen display assembly—500S
12	40X0476	1	1	Cover bezel 500S
13	40X0495	1	1	Operator panel left cover assembly—500S
14	40X0151	1	1	USB board assembly
15	40X0497	1	1	LCD touchscreen inverter card
16	40X0009	1	1	TLI/ID/serial number label—blank
17	40X0470	1	1	Left cover assembly
18	40X0472	1	1	Left side cover
NS		5	10	Parts packet (cable ties) (PP 40X0174)
NS	40X0050	2	1	Counterbalance spring

# Assembly 3: Covers—ADF scanner

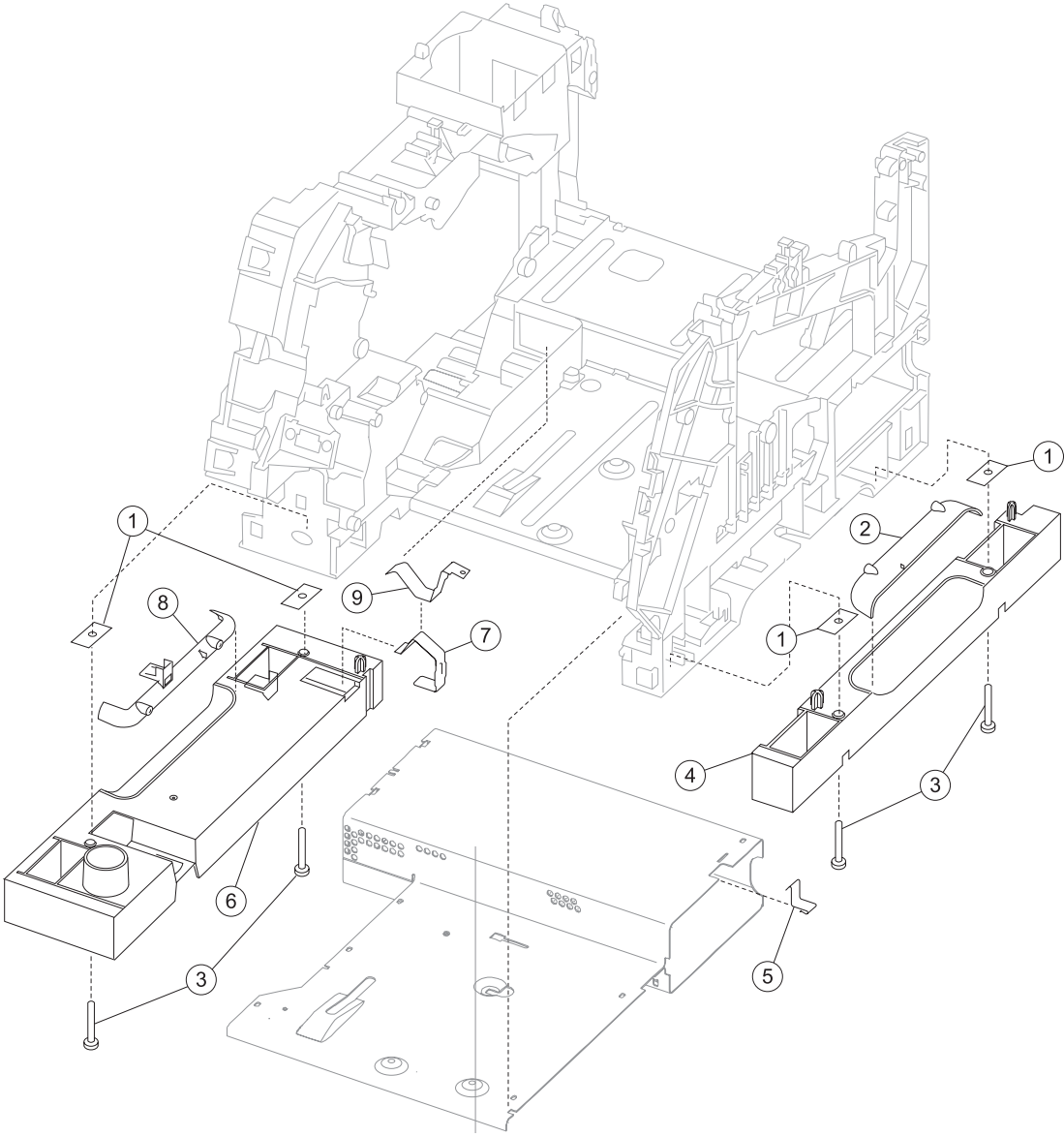




### Assembly 3: Covers—ADF scanner

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
3—1	40X0450	1	1	Complete ADF assembly—500S
2	40X3296	1	1	Complete ADF assembly—450S
3	40X0451	1	1	Document tray assembly—500S
4	40X3297	1	1	Document tray assembly—450S
5	40X0452	1	1	ADF top cover assembly
6	40X0463	1	1	ADF scan cover
7	40X0465	1	1	ADF rear cover
8	40X0464	1	1	ADF front cover
9		1	1	Parts packet, sensors (PP 40X0481)

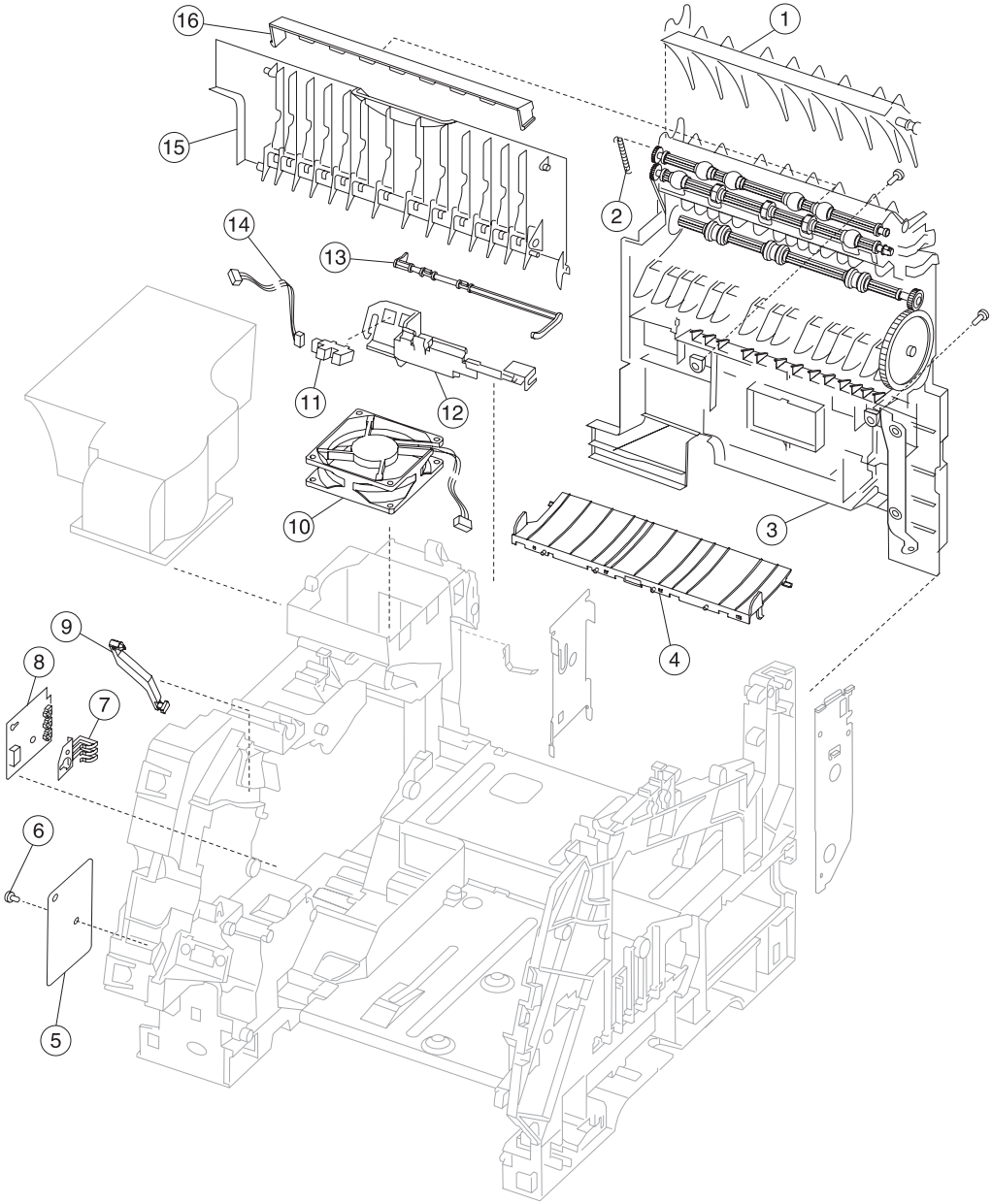
# Assembly 4: Frame 1



## Assembly 4: Frame 1

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
4—1	40X0065	4	1	Frame extension, nut plate
2	40X0225	1	1	Right side hand holder
3		4	4	Parts packet (PP 40X0165)
4	40X0024	1	1	Right frame extension
5	40X0026	1	1	Right side frame ground contact
6	40X0025	1	1	Left frame extension
7	40X0060	1	1	External ground clip
8	40X0231	1	1	Left side hand holder
9	40X0285	1	1	Frame clip

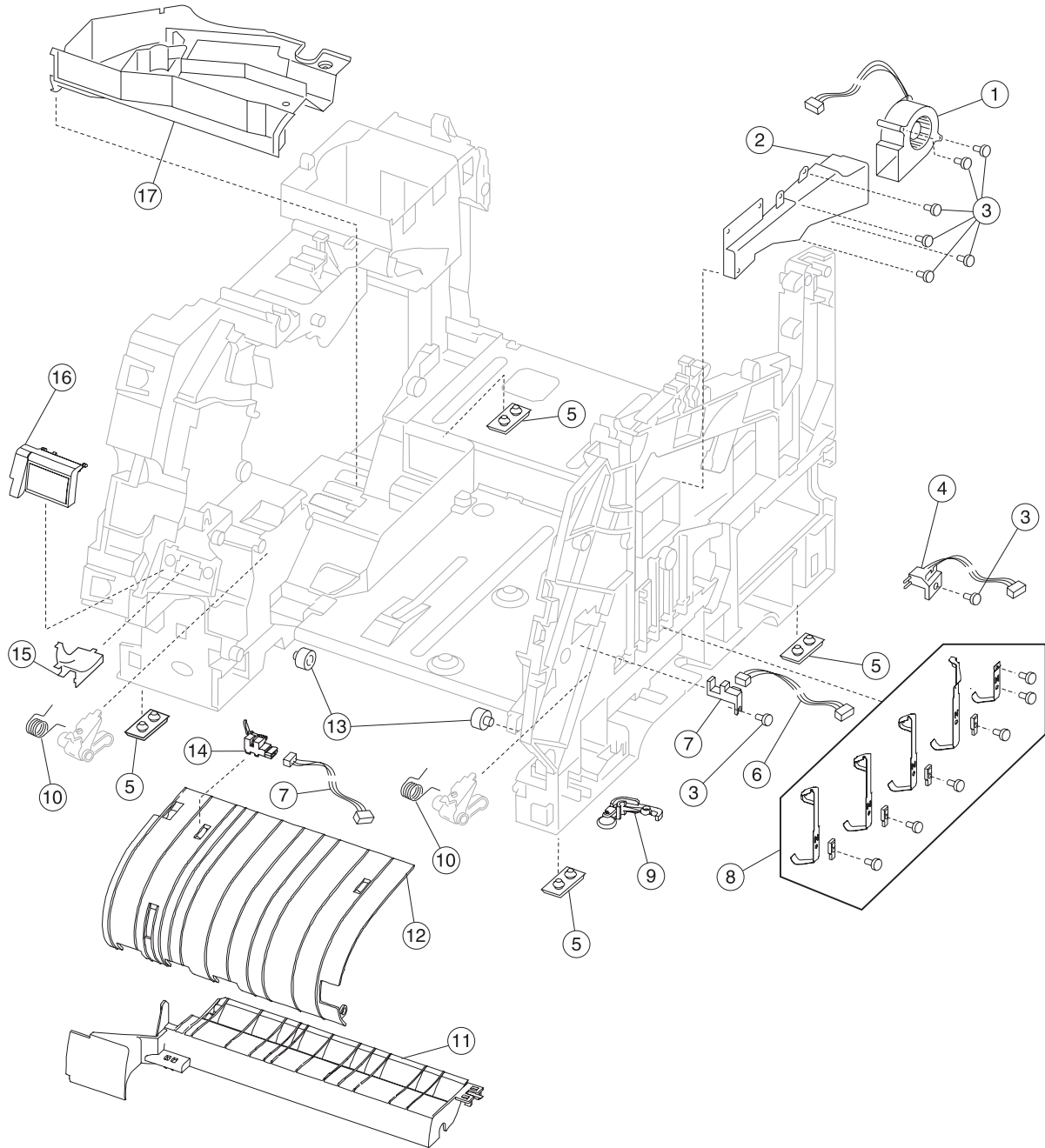
# Assembly 5: Frame 2



## Assembly 5: Frame 2

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
5—1	40X0027	1	1	Upper redrive deflector
2	40X0028	1	1	Upper diverter spring
3	40X0030	1	1	Redrive assembly—500-sheet in/500 out
4	40X0032	1	1	Transfer deflector with brush
5	40X0044	1	1	Gear guard
6			1	Parts packet (PP 40X0165)
7	40X0048	1	1	Paper switch activate spring
8	40X0046	1	1	Paper size sensing board assembly
9	40X0049	1	1	Gear release link
10	40X0054	1	1	Main fan with cable—500-sheet output
11	40X0051	1	1	Standard bin level sensor
12	40X0052	1	1	Standard bin level sensor bracket
13	40X0058	1	1	Output paper level flag
14	40X0264	1	1	Standard bin level sensor cable
15	40X0232	1	1	Redrive door assembly 500 sheet
16	40X0059	1	1	Extension guide
NS		2	2	Parts packet, redrive mounting screws (P/N 40X0254)

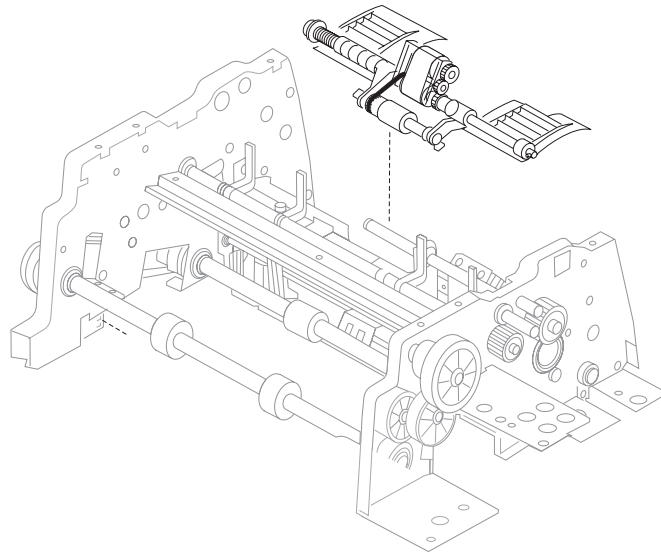
# Assembly 6: Frame 3



## Assembly 6: Frame 3

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
6—1	40X0249	1	1	EP DC fan assembly
2	40X0208	1	1	Blower duct
3		1	1	Parts packet (PP 40X0165)
3		1	1	Parts packet (PP 40X0165)
4	40X0034	1	1	Signature button contact assembly with cable
5	40X0033	4	1	Machine mounting pad
6	40X0223	1	1	HVPS/input sensor/toner sensor cable assembly
7	40X0036	1	1	Toner sensor assembly
8	40X0306	1	1	High voltage contact kit, including: <ul style="list-style-type: none"> <li>• Charge roll contact (1)</li> <li>• Doc/TAR/Dev contact (3)</li> <li>• PC drum contact (1)</li> <li>• Screw (5)</li> <li>• Screw block (4)</li> </ul>
9	40X0213	1	1	Tray bias assembly
10	40X0021	2	1	Cartridge holddown assembly
11	40X0040	1	1	Upper paper feed deflector
12	40X0042	1	1	Inner paper feed deflector
13	40X0039	2	1	Developer support roller
14	40X0043	1	1	Input sensor
15	40X0209	1	1	Gear #60 MPF shield
16	40X0045	1	1	ESD shield with label
17	40X0207	1	1	EP duct

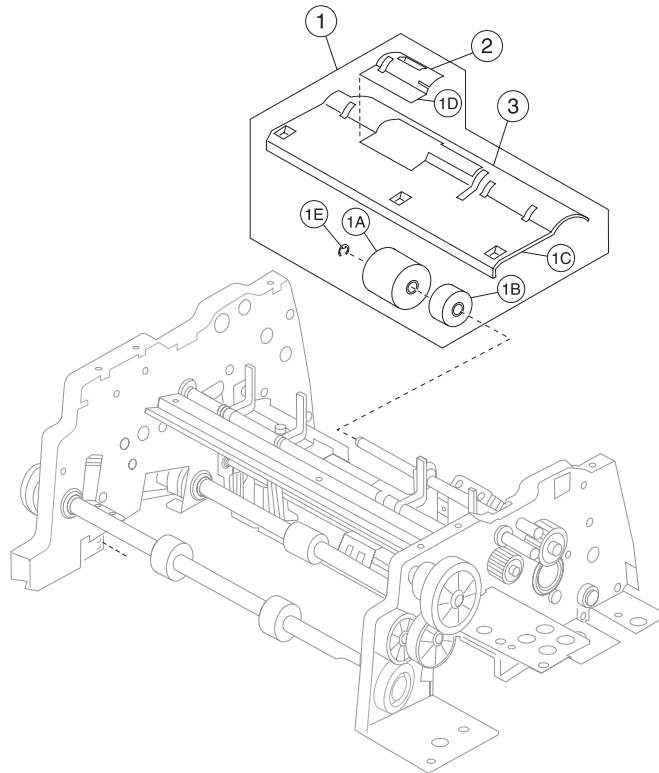
## Assembly 7: Scanner automatic document feeder (ADF)—pickup



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
7—1	40X0453	1		Pickup assembly

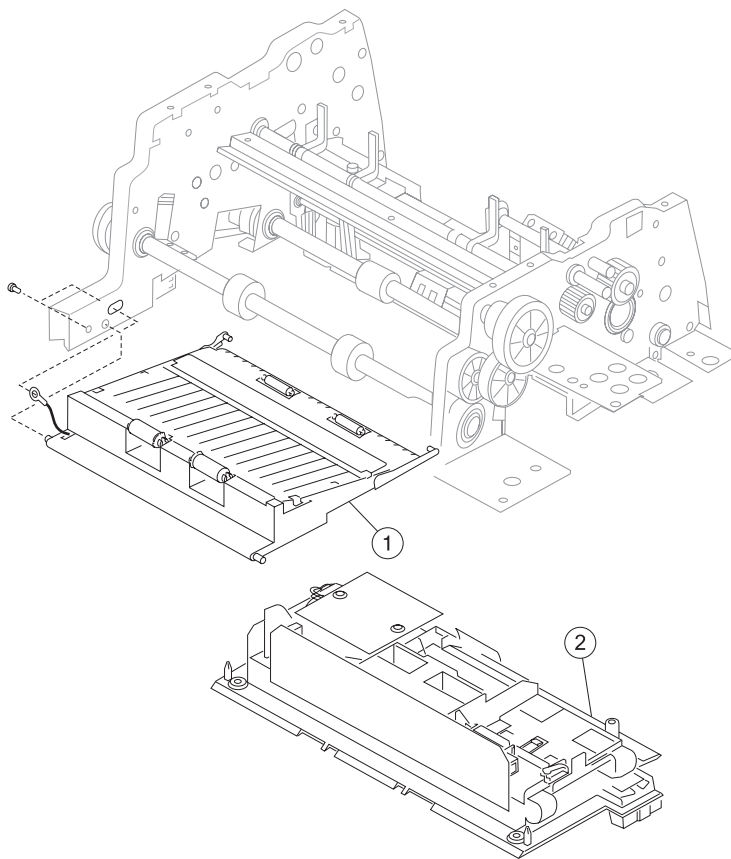


## Assembly 8: Scanner ADF—paper feed



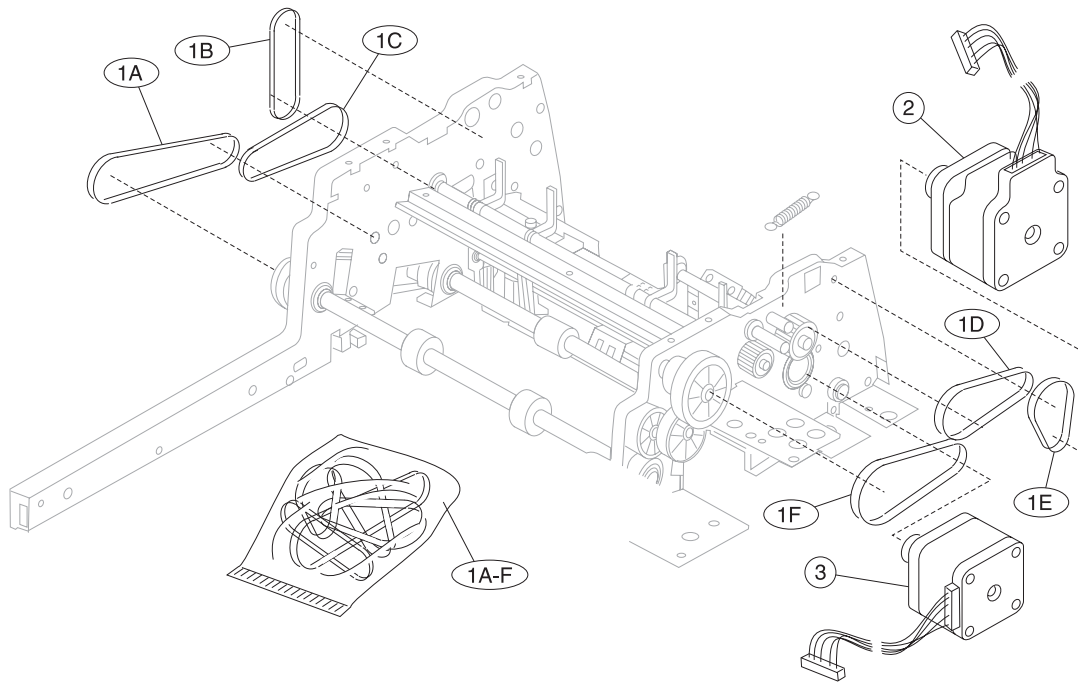
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
8—1	40X4656	1	1	Upper entrance guide kit, including: <ul style="list-style-type: none"> <li>• A—Separator roller with hub</li> <li>• B—Torque limiter</li> <li>• C—Upper entrance guide</li> <li>• D—Sub ADF separator guide</li> <li>• E—Snap ring</li> </ul>
2	40X4658	1	1	Sub ADF separator guide
3	40X4657	1	1	Entrance guide

## Assembly 9: Scanner ADF—lower exit guide assembly



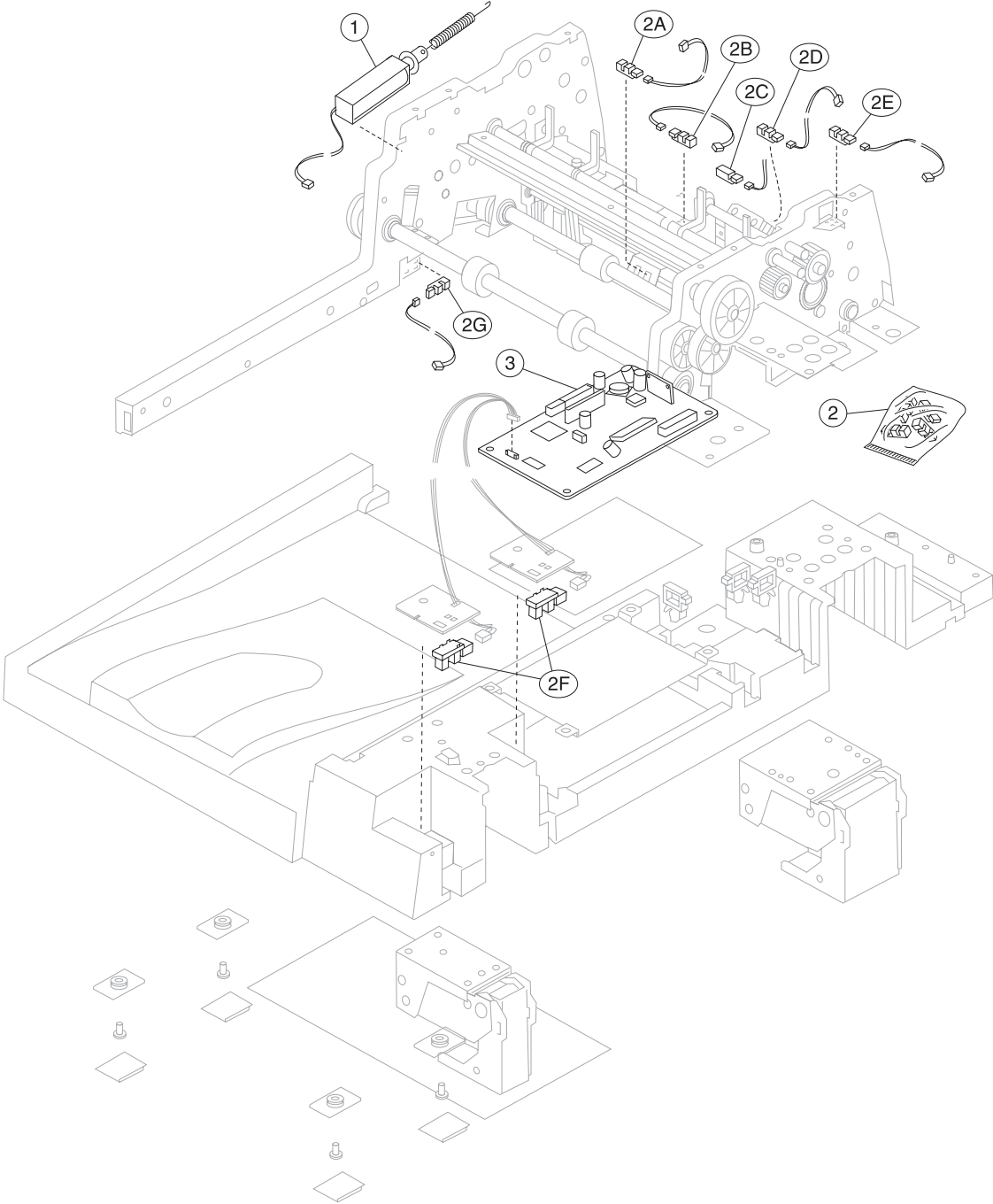
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
9—1	40X0460	1	1	Lower exit guide assembly—500S
1	40X3311	1	1	Lower exit guide assembly—450S
2	40X0458	1	1	ADF CCD module assembly—500S only

## Assembly 10: Scanner ADF—motors and belts



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
10—1	40X0482	1	1	Belts, including: <ul style="list-style-type: none"> <li>• A—Timing belt 52M194</li> <li>• B—Timing belt 52M172</li> <li>• C—Timing belt motor 52M292</li> <li>• D—Timing belt second transport 52M152</li> <li>• E—Timing belt first transport 52M132</li> </ul> <b>Note:</b> Belt P/N stamped on belt. <ul style="list-style-type: none"> <li>• F—Timing belt knob 52M172</li> </ul>
2	40X0461	1	1	Feed motor (ADF feed)
3	40X0462	1	1	ADF scan motor assembly

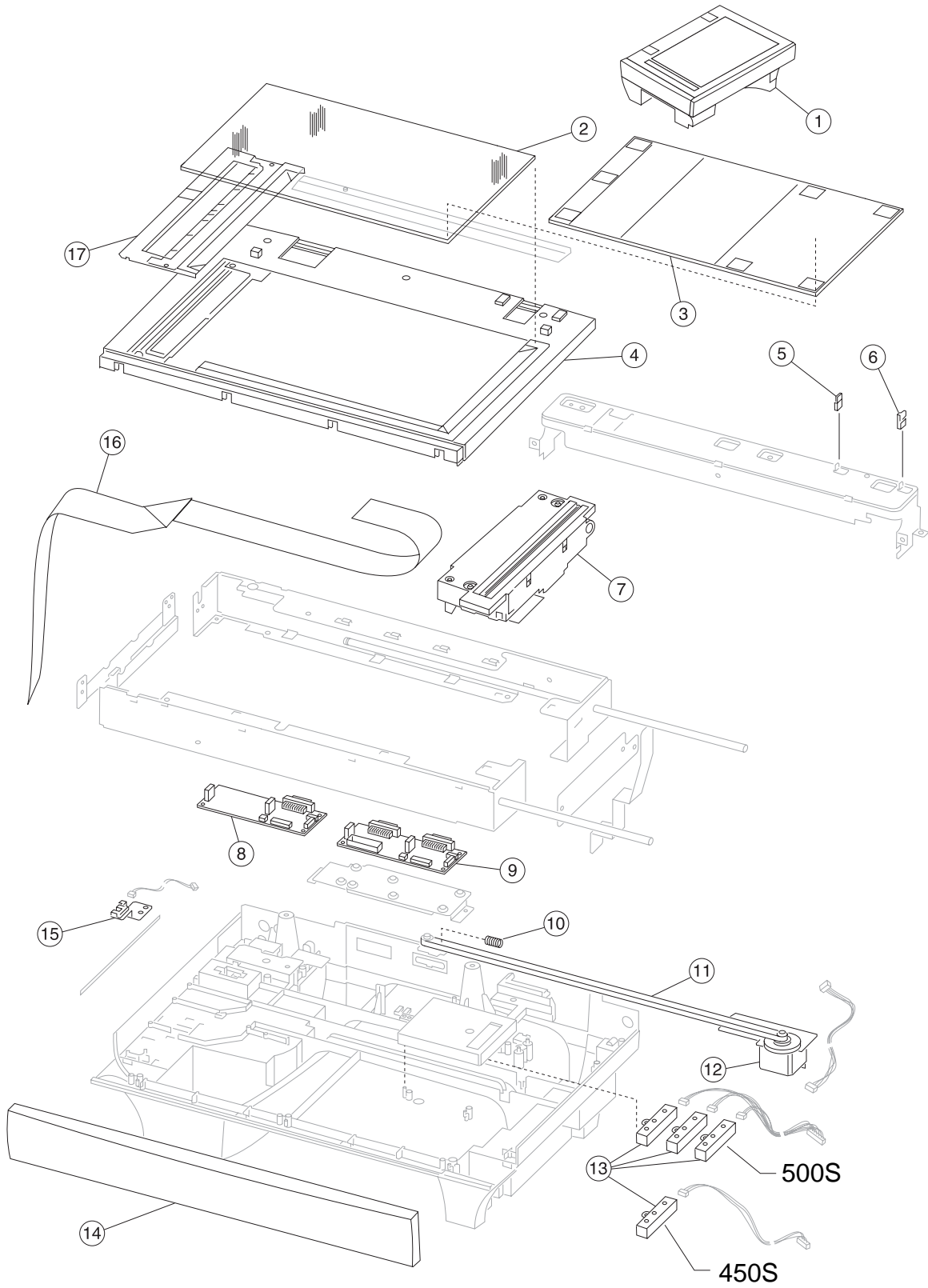
# Assembly 11: Scanner ADF—sensors



## Assembly 11: ADF—sensors

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
11—1	40X0456	1	1	Pickup arm assembly solenoid
2	40X0481	1	4	Parts packet, sensors <ul style="list-style-type: none"> <li>• A—Second scan sensor</li> <li>• B—Paper present</li> <li>• C—Interval sensor</li> <li>• D—First scan sensor</li> <li>• E—ADF top cover open</li> <li>• F—Flatbed cover open</li> <li>• G—Jam access door</li> </ul> <p><b>Note:</b> There are four different sensors in the parts packet, some of the same sensors are used in different locations.</p>
3	40X0486	1	1	Motor driver card

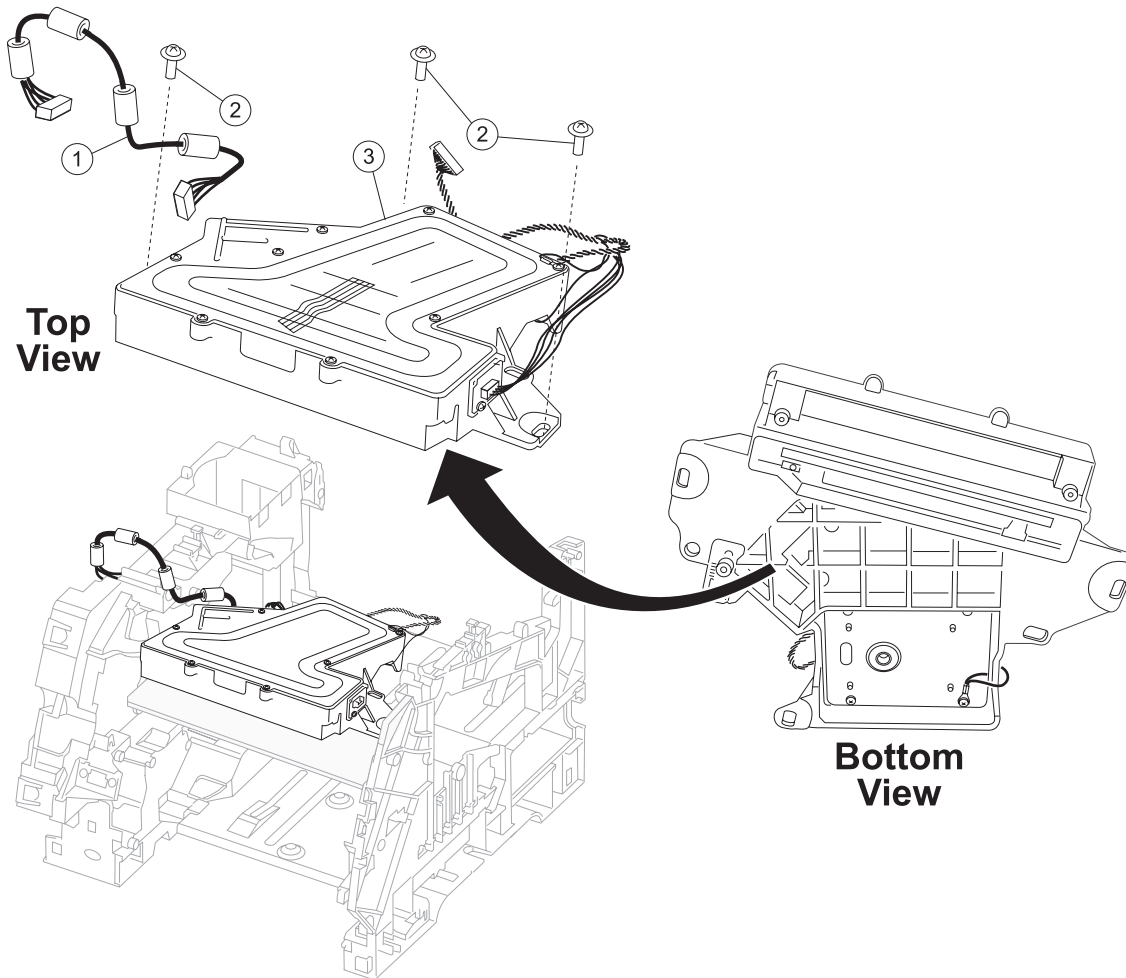
# Assembly 12: Scanner—flatbed




## Assembly 12: Scanner—flatbed

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
12—1	40X3298	1	1	Complete flatbed scanner assembly—450S
1	40X0457	1	1	Complete flatbed scanner assembly—500S
2	40X0483	1	1	Flatbed contact glass
3	40X0466	1	1	Flatbed white cushion
4	40X0475	1	1	Scan cover
5	40X0513	1	1	Flatbed cover closed actuator
6	40X0514	1	1	Flatbed cover closing actuator
7	40X0478	1	1	Flatbed CCD module assembly
8	40X3312	1	1	Flatbed interconnect card assembly—450S
9	40X0485	1	1	Flatbed interconnect card assembly—500S
10	40X0490	1	1	Belt tension spring
11	40X0479	1	1	Flatbed CCD drive belt
12	40X0480	1	1	Flatbed scan motor, including flatbed scan motor to flatbed interconnect card cable
13	40X0491	1	1	Flatbed paper size sensor assembly (assembly includes 3 sensors)—500S
13	40X0491	1	1	Flatbed paper size sensor assembly (assembly includes 3 sensors but only one sensor is required)—450S
14	40X0474	1	1	Front cover
15	40X0481	1	1	Parts packet, sensors (home sensor)
16	40X0487	1	1	Flatbed CCD ribbon cable
17	40X0484	1	1	Glass holder assembly

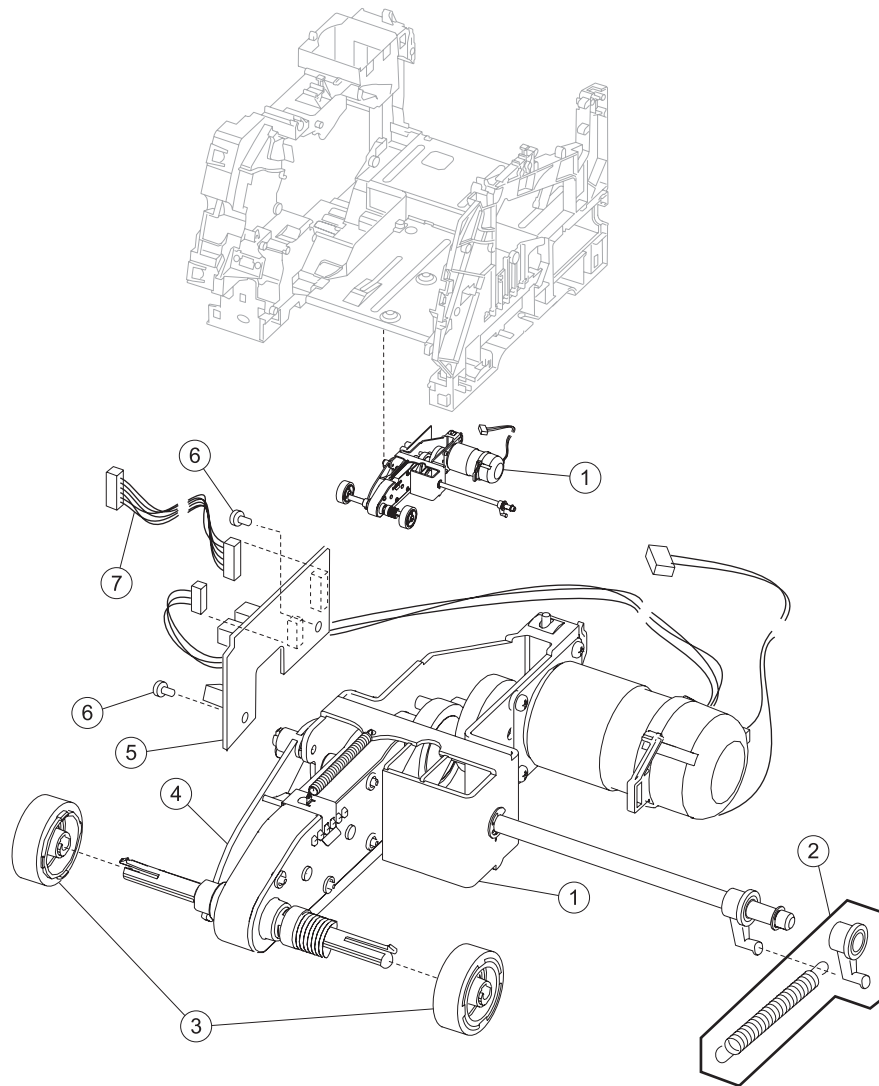
## Assembly 13: Printhead



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
13—1	40X0061	1	1	Laser printhead cable assembly
2				Parts packet (PP 40X0165) (printhead mounting screw)
3	40X0062	1	1	Printhead assembly (includes all cables)
				<div style="display: flex; align-items: center;">  <p><b>CAUTION</b> The printhead is not a serviceable FRU. Do not disassemble the printhead.</p> </div>

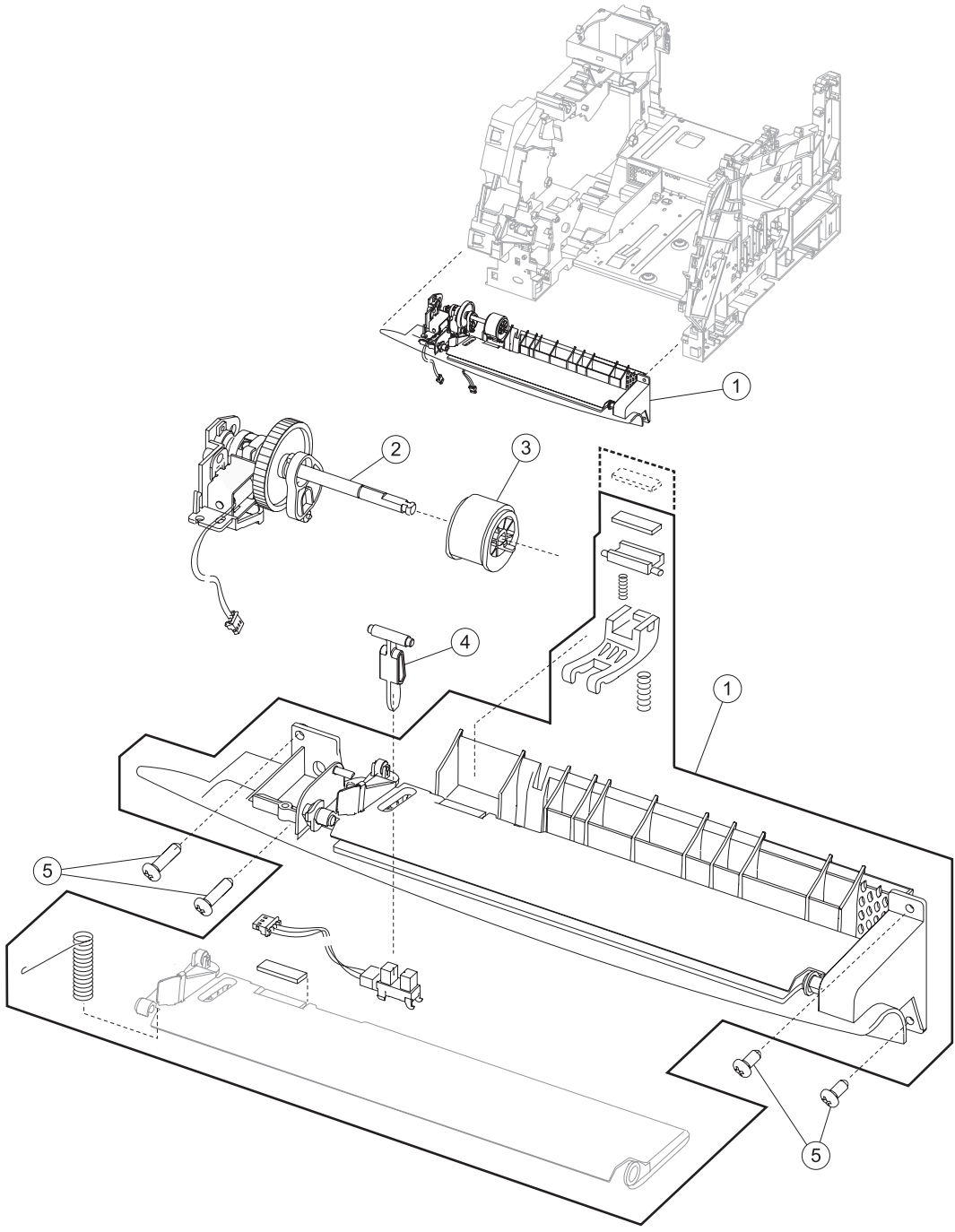


## Assembly 14: Paper feed—autocompensator



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
14—1	40X0066	1	1	Pick arm assembly—500-sheet
2	40X0069	1	1	Parts packet, bellcrank assembly for—500-sheet tray <ul style="list-style-type: none"> <li>• Bellcrank (1)</li> <li>• Spring (1)</li> </ul>
3	40X0070	2	2	Pick tires, pick roll assembly
4	40X0072	1	1	Paper out flag—500-sheet tray
5	40X0215	1	1	Paper low/out sensor card assembly, 500-sheet
6				Parts packet (PP 40X0165) (hanger)
7	40X0074	1	1	Paper size/autocompensator cable

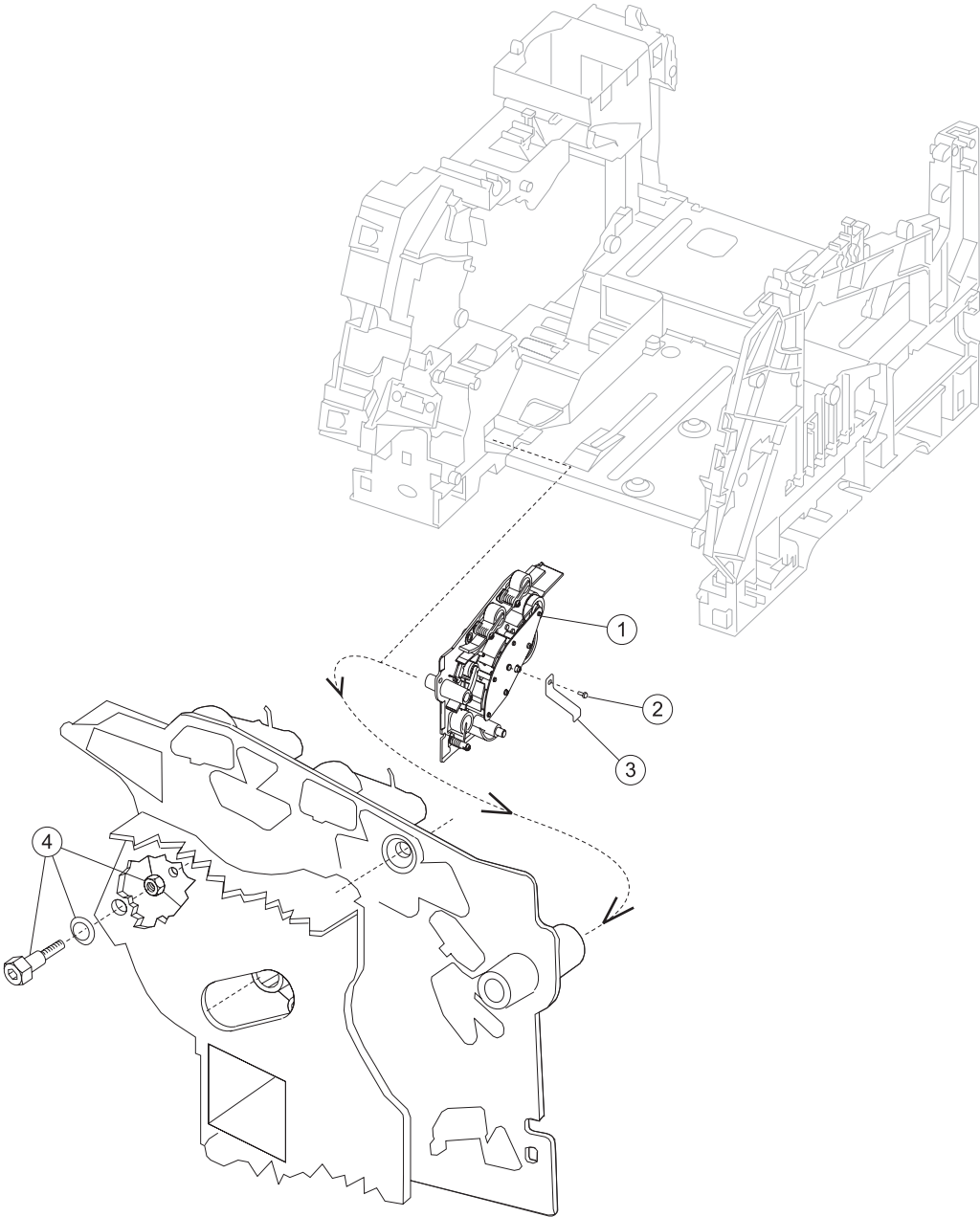
# Assembly 15: Paper feed—multipurpose feeder



## Assembly 15: Paper feed—multipurpose feeder

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
15—1	40X0079	1	1	Multipurpose feeder lower deflector assembly
2	40X0310	1	1	Multipurpose feeder pick arm assembly with solenoid
3	40X0076	1	1	Pick roll assembly
4	40X0077	1	1	Multipurpose feeder paper out flag
5			1	Parts packet (PP 40X0165) (lower deflector mounting screw, 8 mm)
5			1	Parts packet (PP 40X0165) (lower deflector mounting screw, 12 mm)
5			1	Parts packet (PP 40X0165) (frame mounting screw)
NS			1	Parts packet (PP 40X0165) (pick roll shaft clip)

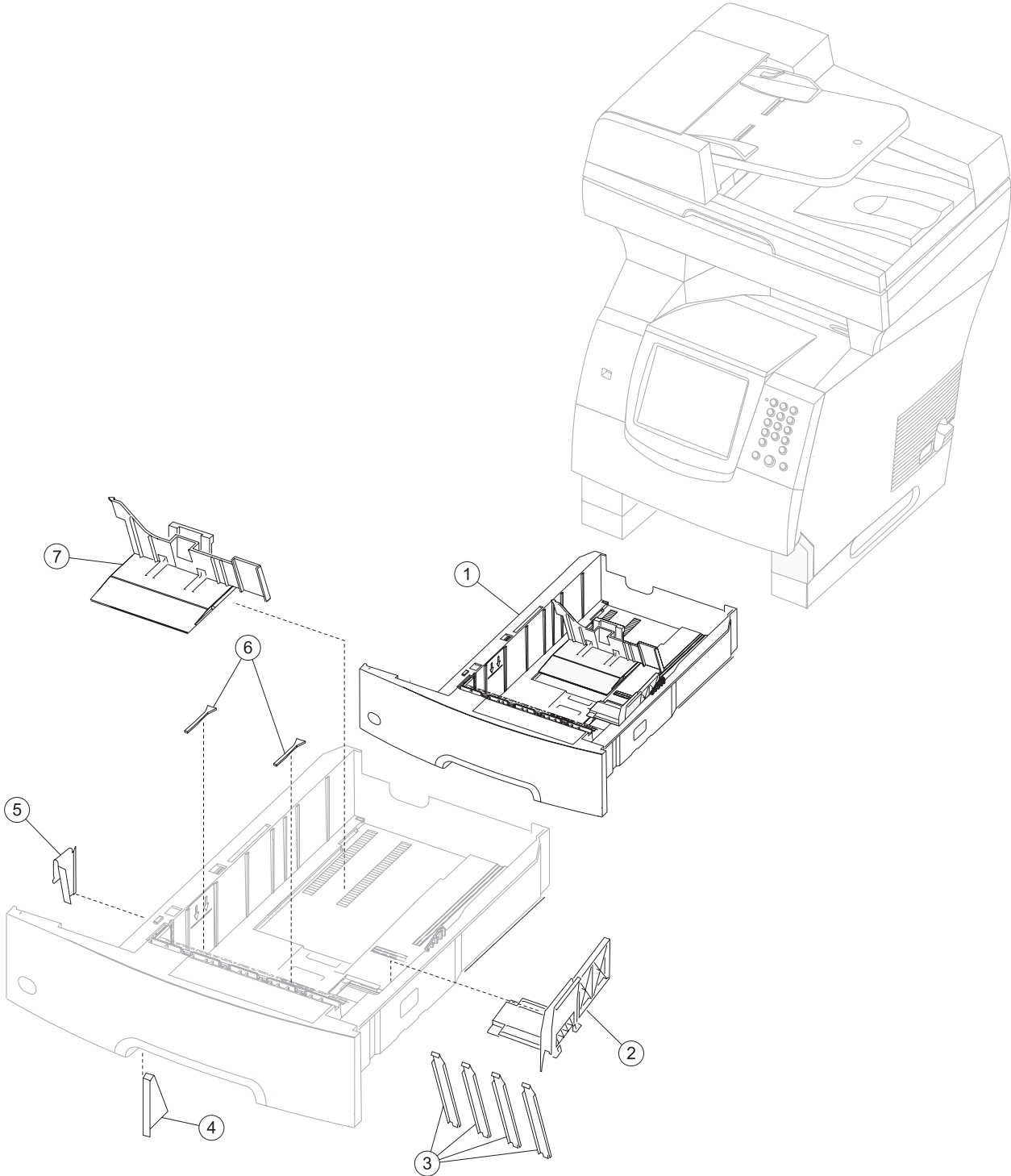
# Assembly 16: Paper feed—alignment



## Assembly 16: Paper feed—alignment

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
16—1	40X0084	1	1	Paper feed alignment assembly paper feed
2			1	Parts packet (PP 40X0165) (clip ref ground mounting screw)
3	40X0085	1	1	Reference ground clip
4	40X0086	1	1	Parts packet (reference adjust) <ul style="list-style-type: none"> <li>• Screw, paper reference adjust (1)</li> <li>• Washer, paper reference adjust (1)</li> <li>• Nut, paper reference adjust (1)</li> </ul>
NS		1	1	Parts packet (PP 40X0165) (alignment asm mounting screw)

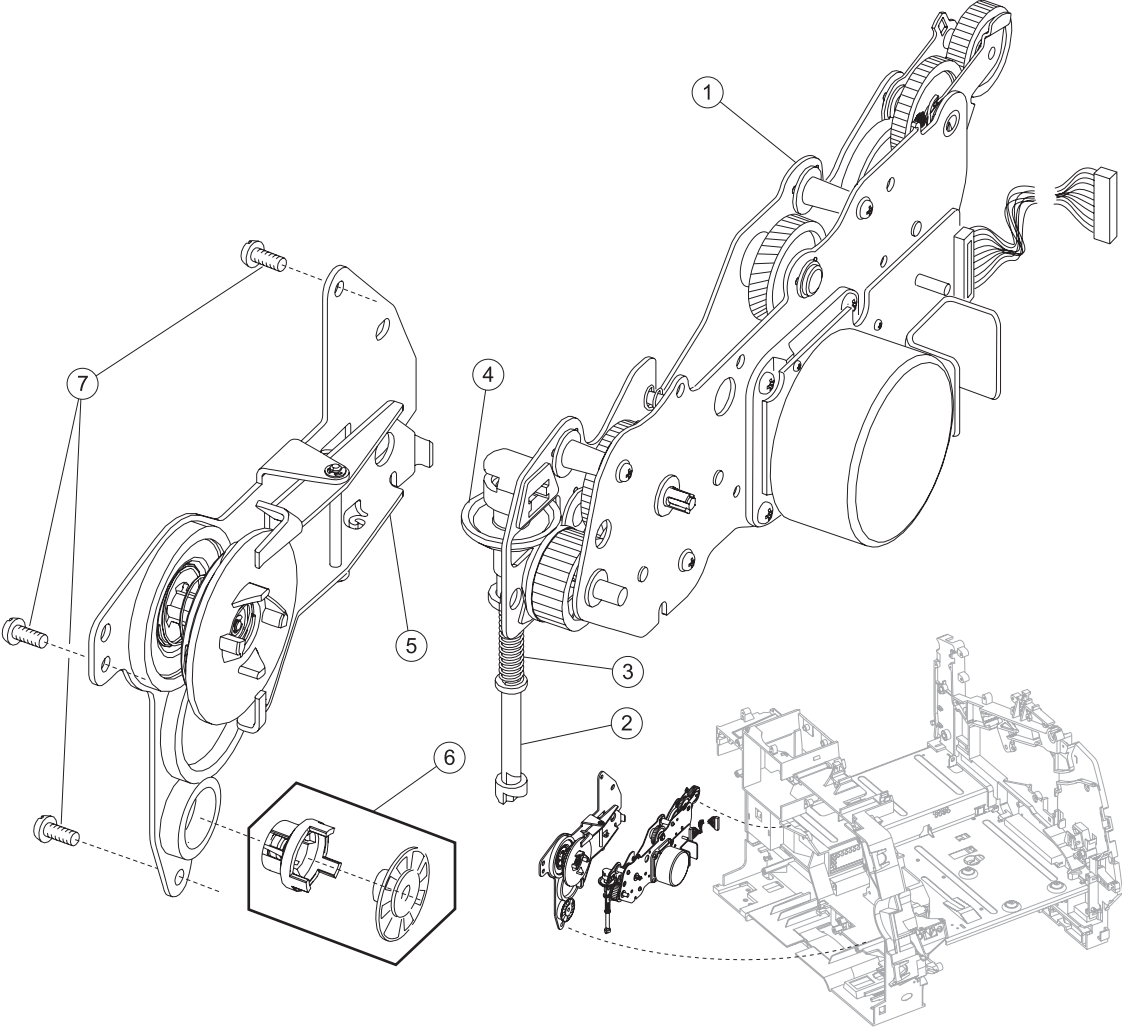
# Assembly 17: Integrated 500-sheet paper tray



## Assembly 17: Integrated 500-sheet paper tray

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
17—1	40X0098	1	1	Tray assembly—500-sheet tray
2	40X0099	1	1	Side restraint
3	40X0182	4	1	Wear strip
4	40X0103	1	1	Pass thru plate—500-sheet tray
5	40X0183	1	1	Wear plate—500-sheet tray
6	40X0105	2	1	Restraint pad
7	40X0106	1	1	Back restraint

# Assembly 18: Drives—Main drive and developer drive

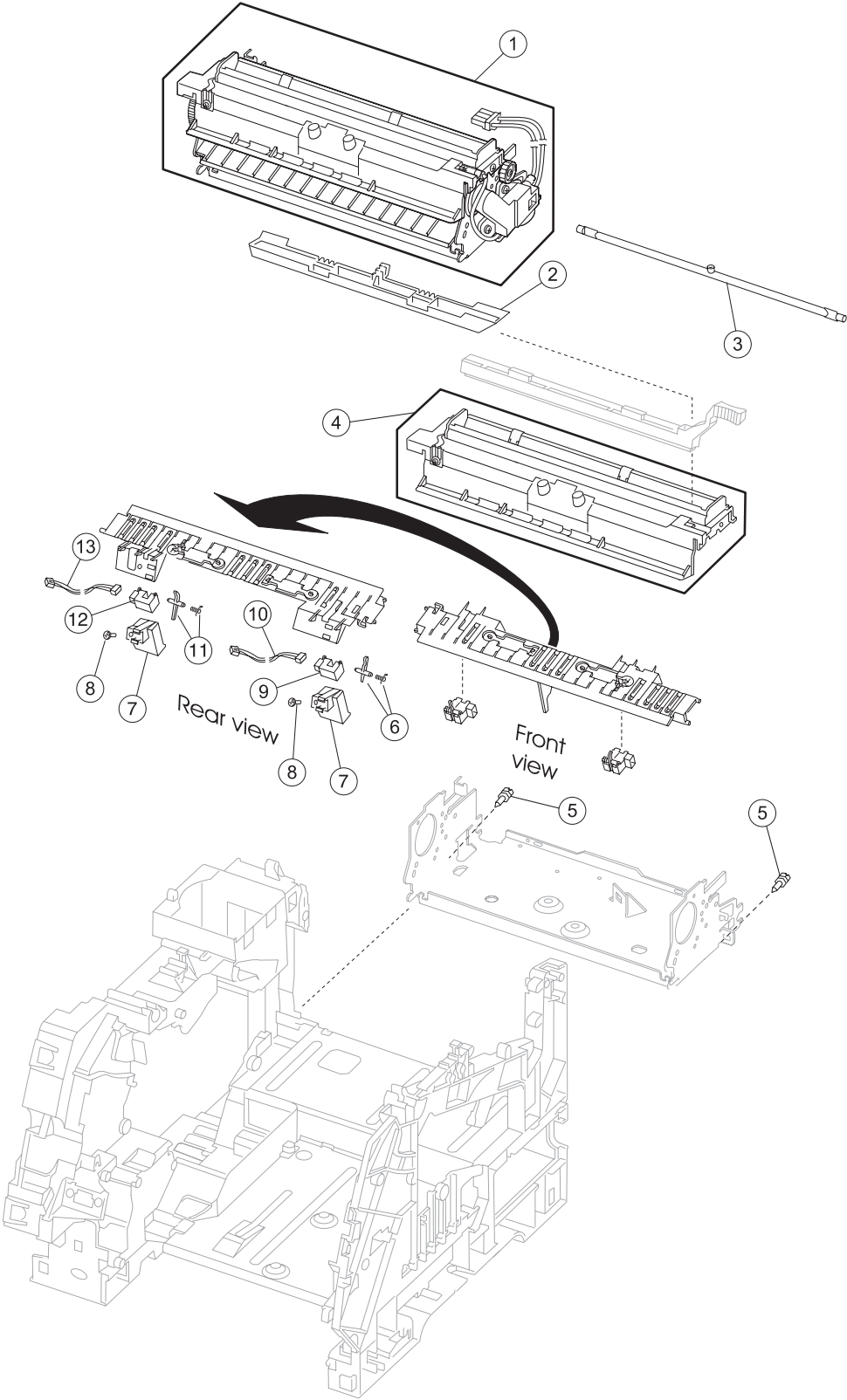




## Assembly 18: Drives—Main drive and developer drive

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
18—1	40X0107	1	1	Gearbox with motor
2	40X0111	1	1	Power takeoff shaft—500-sheet
3	40X0112	1	1	Power takeoff shaft spring
4	40X0113	1	1	Bevel gear with grease packet and washer <ul style="list-style-type: none"> <li>• Bevel gear (1)</li> <li>• Instruction sheet (1)</li> <li>• Grease packet (1)</li> <li>• washer (1)</li> </ul>
5	40X0114	1	1	Developer drive assembly
6	40X0115			Parts packet, developer drive <ul style="list-style-type: none"> <li>• Developer drive shaft (1)</li> <li>• shaft, coupler gear #55 (1)</li> </ul>
7			3	Parts packet (PP 40X0165) (developer drive ground screw)
NS			4	Parts packet (PP 40X0165) (gearbox mounting screw)

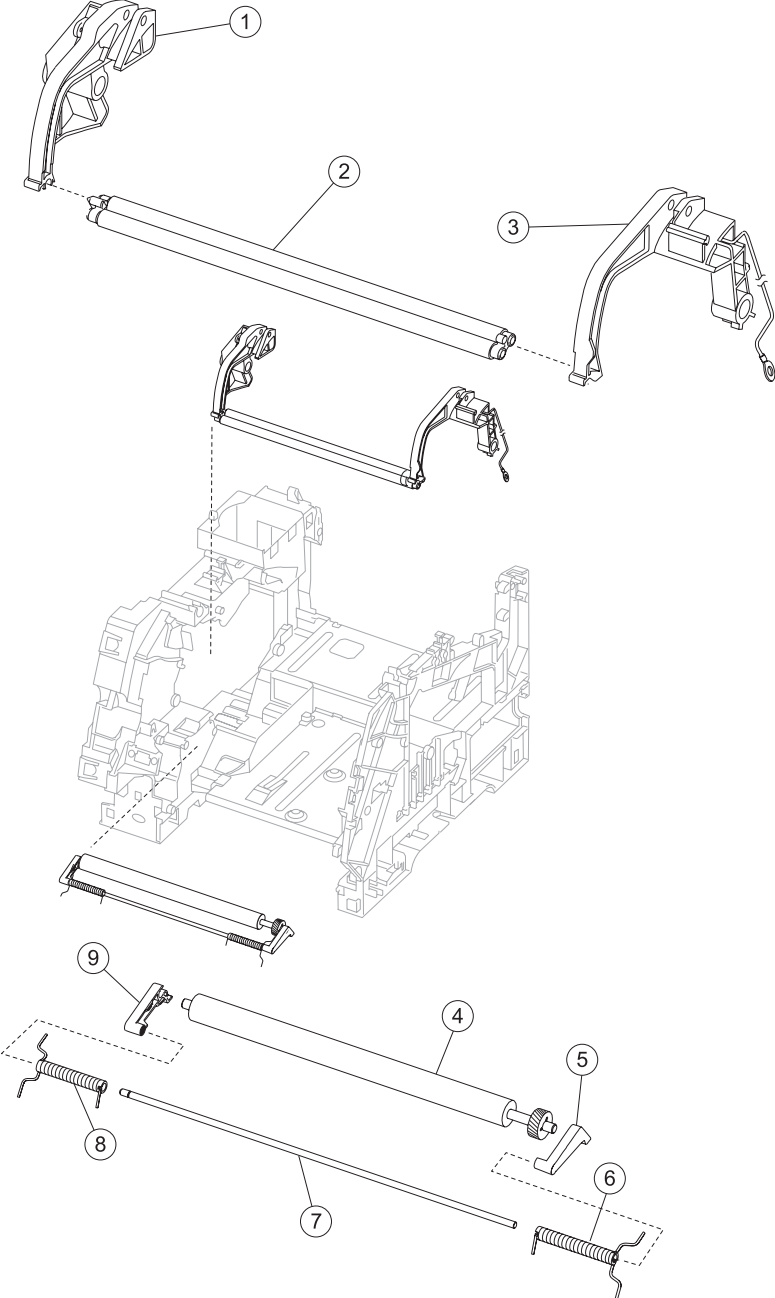
# Assembly 19: Hot roll fuser



## Assembly 19: Hot roll fuser

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
19—1	40X2592	1	1	Fuser assembly w/115 V lamp
1	40X2591	1	1	Fuser assembly w/100 V lamp
1	40X2590	1	1	Fuser assembly w/220 V lamp
2	40X0120	1	1	Fuser wiper cavity cover
3	40X0122	1	1	Fuser lamp, 115V
3	40X0123	1	1	Fuser lamp, 220V
4	40X0121	1		Fuser cover assembly kit, including: <ul style="list-style-type: none"> <li>• Thermistor (1)</li> <li>• Thermostat (1)</li> <li>• Left and right fuser lamp contact assemblies (1)</li> </ul>
5				Parts packet (fuser mounting screw) (PP 40X0254)
6	40X0239	1		Exit sensor flag/spring kit, including: <ul style="list-style-type: none"> <li>• Spring (1)</li> <li>• Flag (1)</li> </ul>
7	40X0236	1	1	Exit/narrow media sensor cover
8				Parts packet (PP 40X0165)
9	40X0125	1	1	Exit sensor
10	40X0230	1	1	Exit sensor cable
11	40X0238	1		Narrow media flag/spring kit, including: <ul style="list-style-type: none"> <li>• Spring</li> <li>• Flag</li> </ul>
12	40X0124	1	1	Narrow media sensor
13	40X0229	1	1	Narrow media sensor cable
NS	40X0226	1	1	Fuser AC to fuser lamp cable

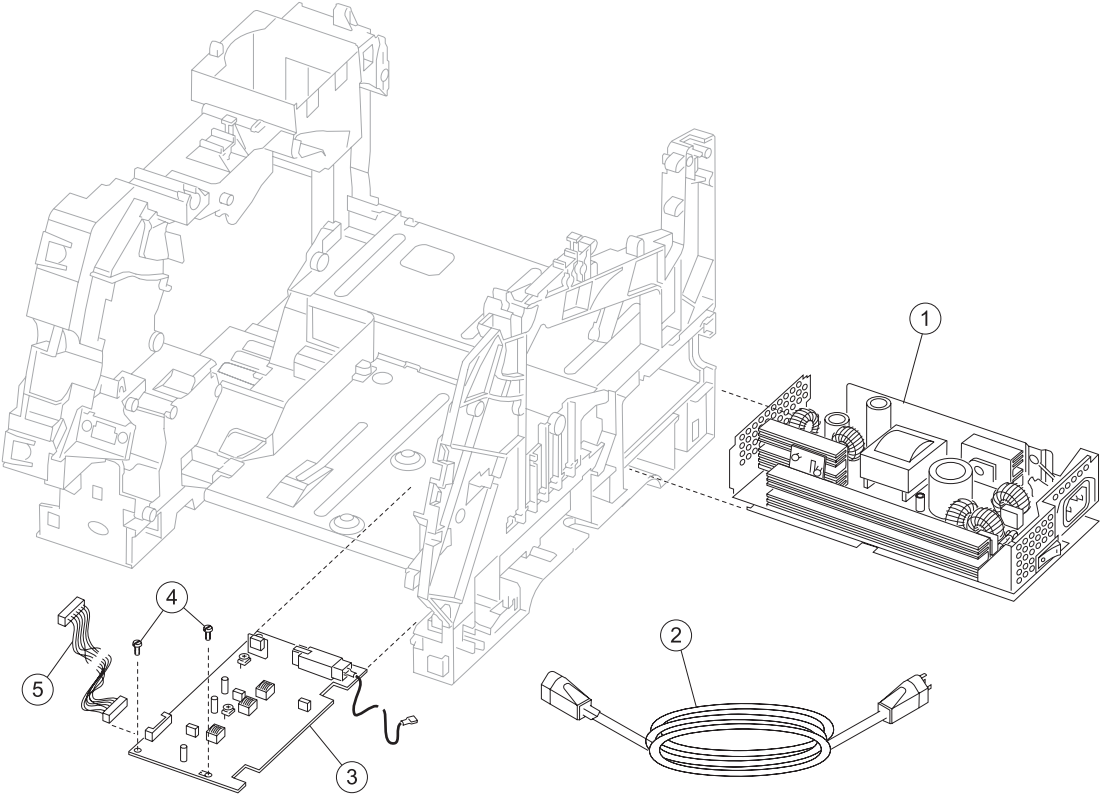
# Assembly 20: Transfer/charging



## Assembly 20: Transfer/charging

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
20—1	40X0126		1	Parts kit, charge roll link asm, left side
2	40X0127	1	2	Charge roll assembly, dual
3	40X0129		1	Parts kit, right side charge roll link assembly
4	40X0130	1	1	Transfer roll assembly
5	40X0131	1	1	Transfer roll assembly right arm
6	40X0132	1	1	Transfer roll right spring
7	40X0133	1	1	Transfer pivot shaft
8	40X0134	1	1	Transfer roll left spring
9	40X0135	1	1	Transfer roll left arm
NS			1	Parts packet (PP 40X0165) (charge roll screw)
NS			1	Parts packet (PP 40X0165) (C-clip, pivot shaft)

# Assembly 21: Electronics—power supplies



## Assembly 21: Electronics—power supplies

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
21—1	40X4243	1	1	LVPS/AIO—115 V ac
1	40X4244	1	1	LVPS/AIO—220 V ac
2	40X0260	1	1	Power cord set (8 ft right angle, 13 amp)—United States, Canada, Caribbean countries, Colombia, Costa Rica, Dominican Republic, El Salvador, Equator, Guatemala, Honduras, Mexico, Nicaragua, Panama, Puerto Rico, Saudi Arabia, Venezuela, and Virgin Islands
2	40X0256	1	1	Power cord set (8 ft right angle)—Bolivia and Peru
2	40X0255	1	1	Power cord set (8 ft right angle)—Argentina
2	40X0257	1	1	Power cord set (8 ft right angle)—Chile, Uruguay
2	40X0258	1	1	Power cord set (8 ft right angle)—Arabic, Austria, Belgium, Bluemark, CIS, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Medmark, (1 and 2), Netherlands, Norway, Paraguay, Poland, Portugal, Russia, Slavic countries, Spain, Sweden, Turkey, and UK.
2	40X0293	1	1	Power cord set (8 ft right angle)—Anguilla (UK), Antigua and Barbuda, Bahrain, Botswana, Burma (Myanmar), Channel Islands, Cyprus, Dominica, Falkland Islands, Gambia, Ghana, Gibraltar, Grenada, Guyana, Hong Kong, Iraq, Ireland, Isle of Man, Jordan, Kenya, Kuwait, Lebanon, Liberia, Malawi, Malaysia, Malta, Mauritius, Montserrat, Nigeria, Oman, Pakistan, Pitcairn Island (UK), Qatar, Scotland, Seychelles, Sierra Leone, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent and Grenadines, Sudan, Tanzania, Trinidad and Tobago, Uganda, United Arab Emirates, United Kingdom, Vanuatu, Wales, Yemen, Zambia, Zimbabwe.
2	40X0259	1	1	Power cord set (6 ft right angle)—Brazil
2	40X0301	1	1	Power cord set (8 ft straight)—AS/NZS
2	40X0271	1	1	Power cord set (8 ft straight)—Hong Kong
2	40X0272	1	1	Power cord set (8 ft right angle)—Japan
2	40X0280	1	1	Power cord set (6 ft straight)—Korea
2	40X0303	1	1	Power cord set (8 ft straight)—PRC
2	40X0281	1	1	Power cord set (6 ft right angle)—Taiwan
2	40X0294	1	1	Power cord set (8 ft right angle)—Denmark, Norway, and Sweden
2	40X0295	1	1	Power cord set (8 ft right angle)—Israel
2	40X0304	1	1	Power cord set (8 ft right angle)—Botswana, Lesotho, Namibia, Pakistan, and South Africa
2	40X0305	1	1	Power cord set (8 ft right angle)—Switzerland
3	40X4275	1	1	High voltage power supply
4		1		Parts packet (PP 40X0165)
5	40X0223	1	1	Front cable harness (HVPS/input sensor/toner sensor)

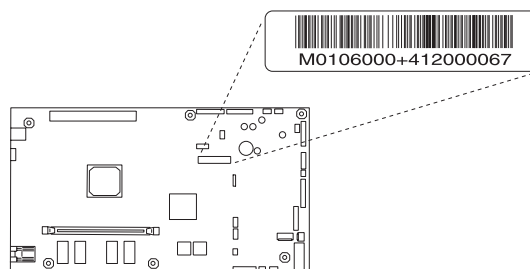




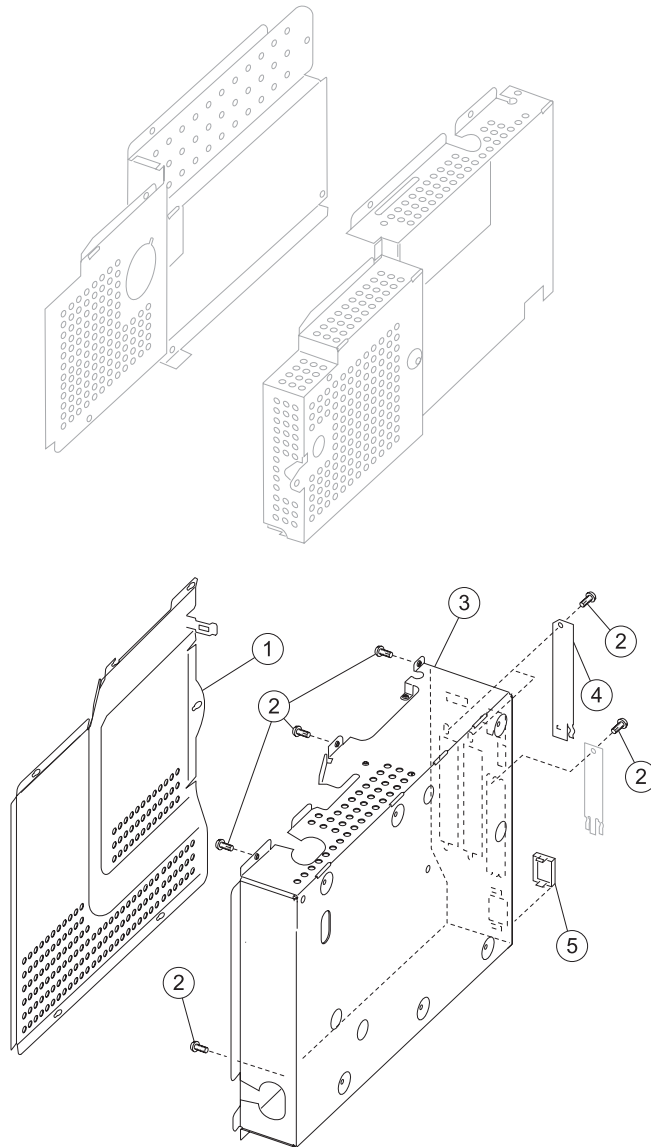
## Assembly 22: Electronics—card assemblies

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
22—1	40X3305	1	1	Scanner control card—450S
1	40X0498	1	1	Scanner control card—500S
2	40X0509	1	1	Hard disk IDE 50-pin cable—500S
3	40X0489	1	1	Hard disk assembly—500S
4	40X0520	1	1	Interface card assembly
5	40X0510	1	1	Hard disk 4-pin power cable—500S
6	40X3310	1	1	System board assembly—450S (Board ID M010 6030)
6	40X2722	1	1	System board assembly (network)—500S (Board ID M010 6000)
7	40X3477	1	1	Bar code card assembly—450S
7	40X2792	1	1	Bar code card assembly—500S
7	40X2529	1	1	IPDS SCS/TNe card assembly—500S
7	40X2793	1	1	PRESCRIBE card assembly—500S
7	40X3479	1	1	PrintCryption card assembly—450S
7	40X4178	1	1	PrintCryption card assembly—500S
8	40X0519	1	1	Modem card assembly
9	40X0507	1	1	Modem 30-pin cable
NS	40X3478	1	1	Forms card assembly—450S
NS	40X4179	1	1	Forms card assembly—500S

**Note:** The system board has a label with an board ID and barcode. Use the first eight numbers to identify the board with the part number in the table above:

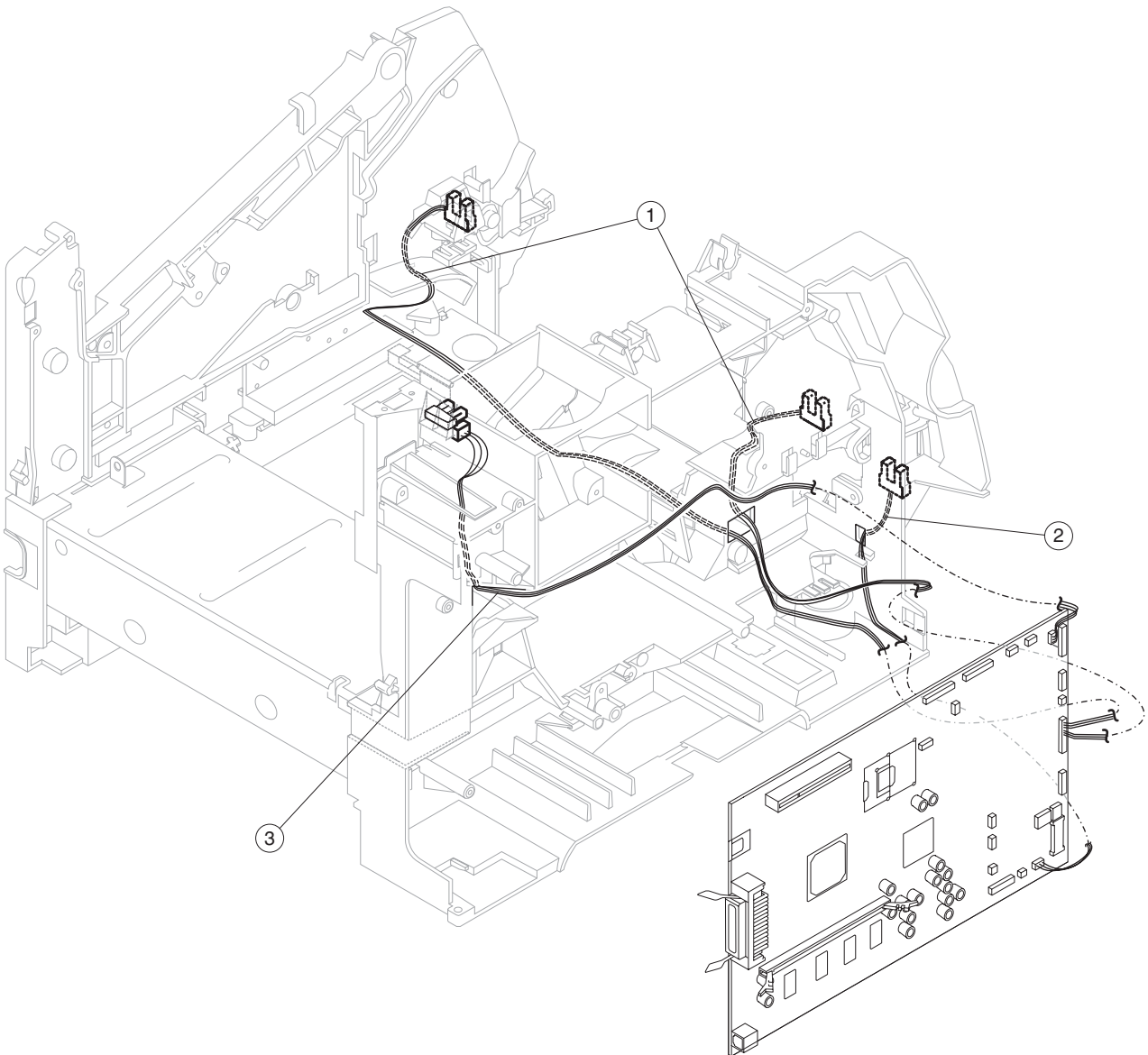


## Assembly 23: Electronics—shields



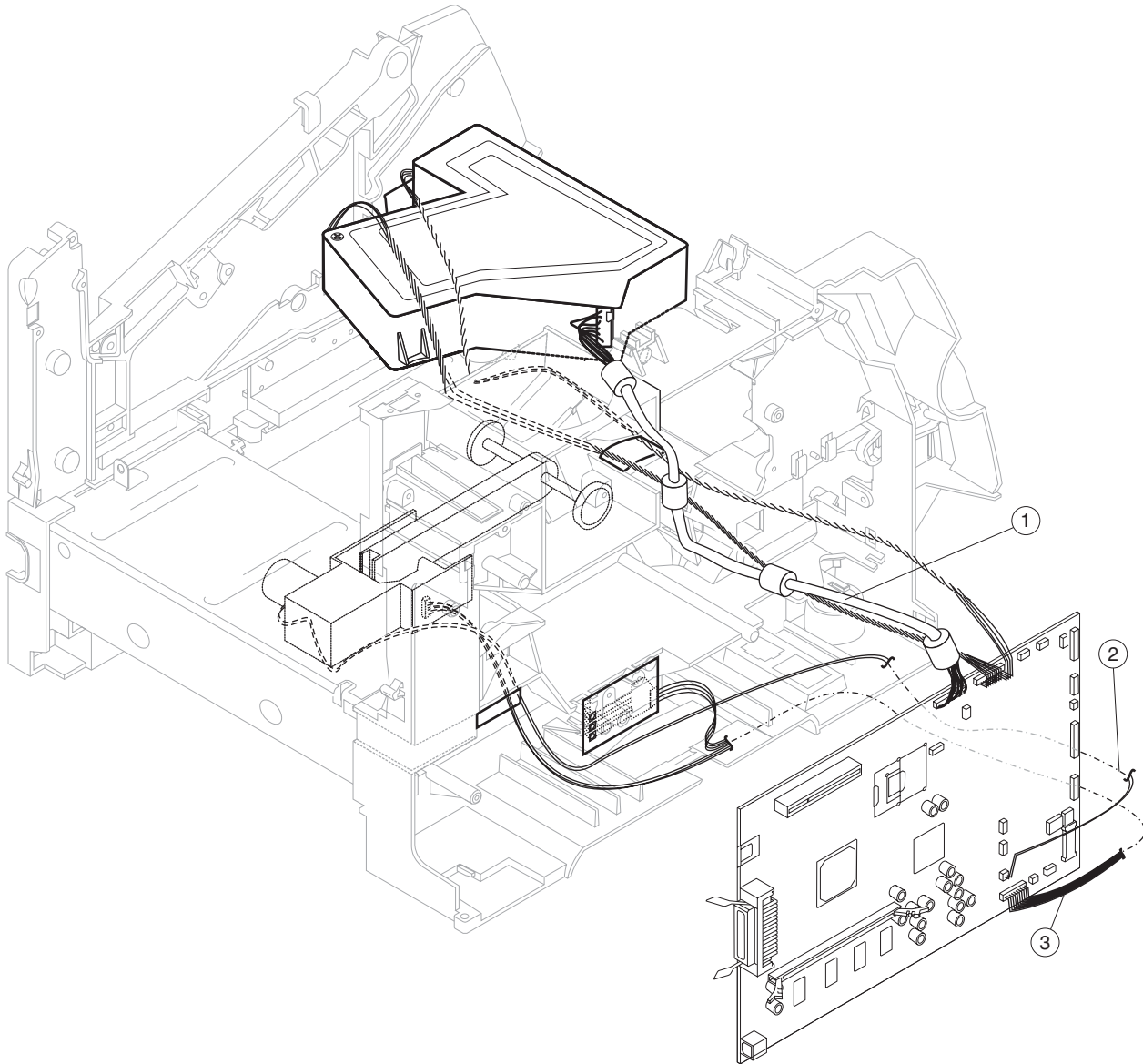
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
23—1	40X0150	1	1	Outer shield
2				Parts packet (PP 40X0165) (INA cover mounting screw)
2				Parts packet (PP 40X0165) (outer shield mounting screw)
2				Parts packet (PP 40X0165) (inner shield mounting screw)
3	40X0149	1	1	Inner shield assembly
4	40X0153	1	1	INA flat cover (blank)
5	40X0152	1	1	Ethernet shield (blank)

## Assembly 24: Cabling diagram 1



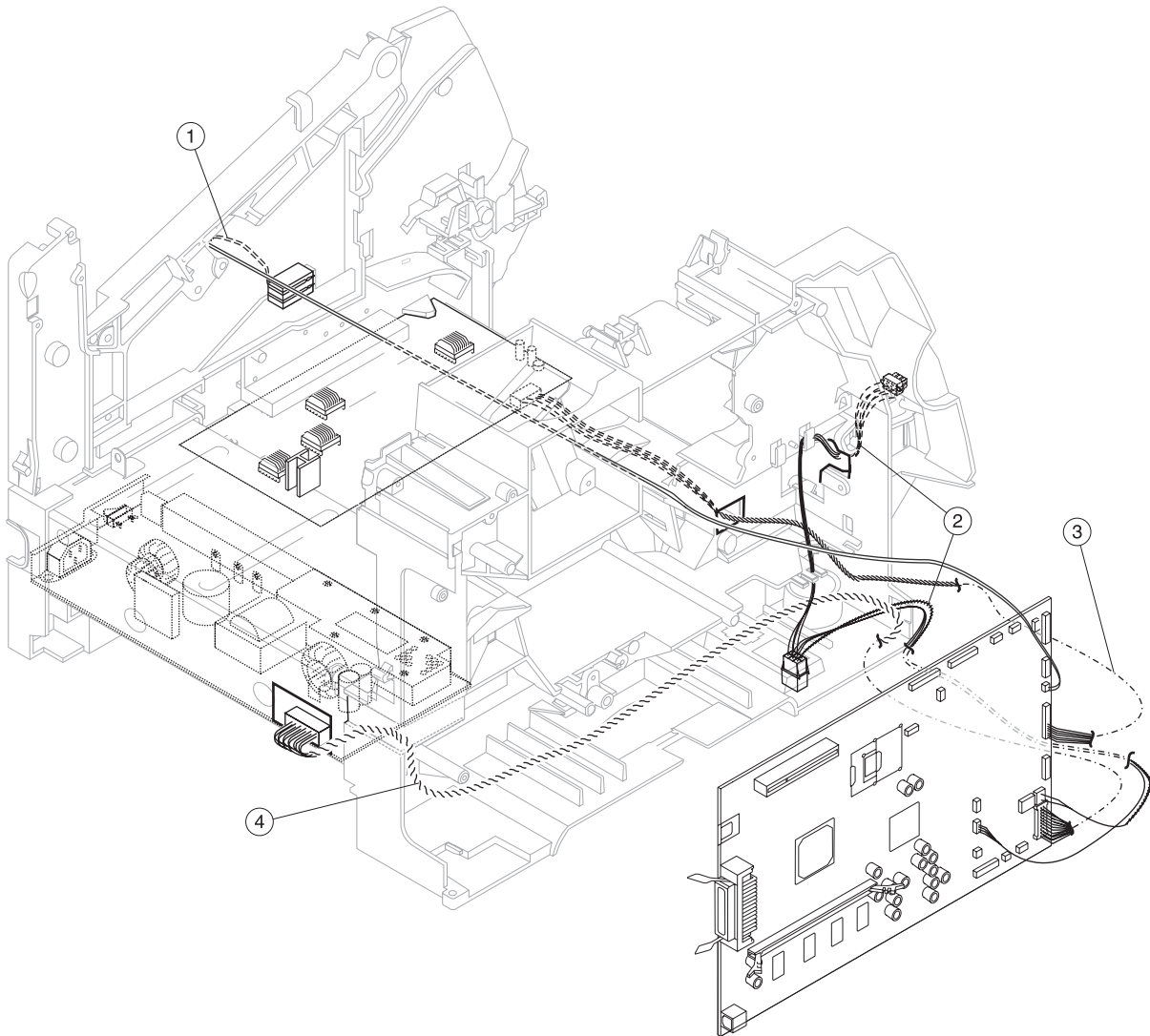
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
24—1	40X0223	1	1	HVPS/input sensor/toner sensor cable assembly
2	40X0160	1	1	MPF sensor cable
3	40X0264	1	1	Standard bin level sensor cable

## Assembly 25: Cabling diagram 2



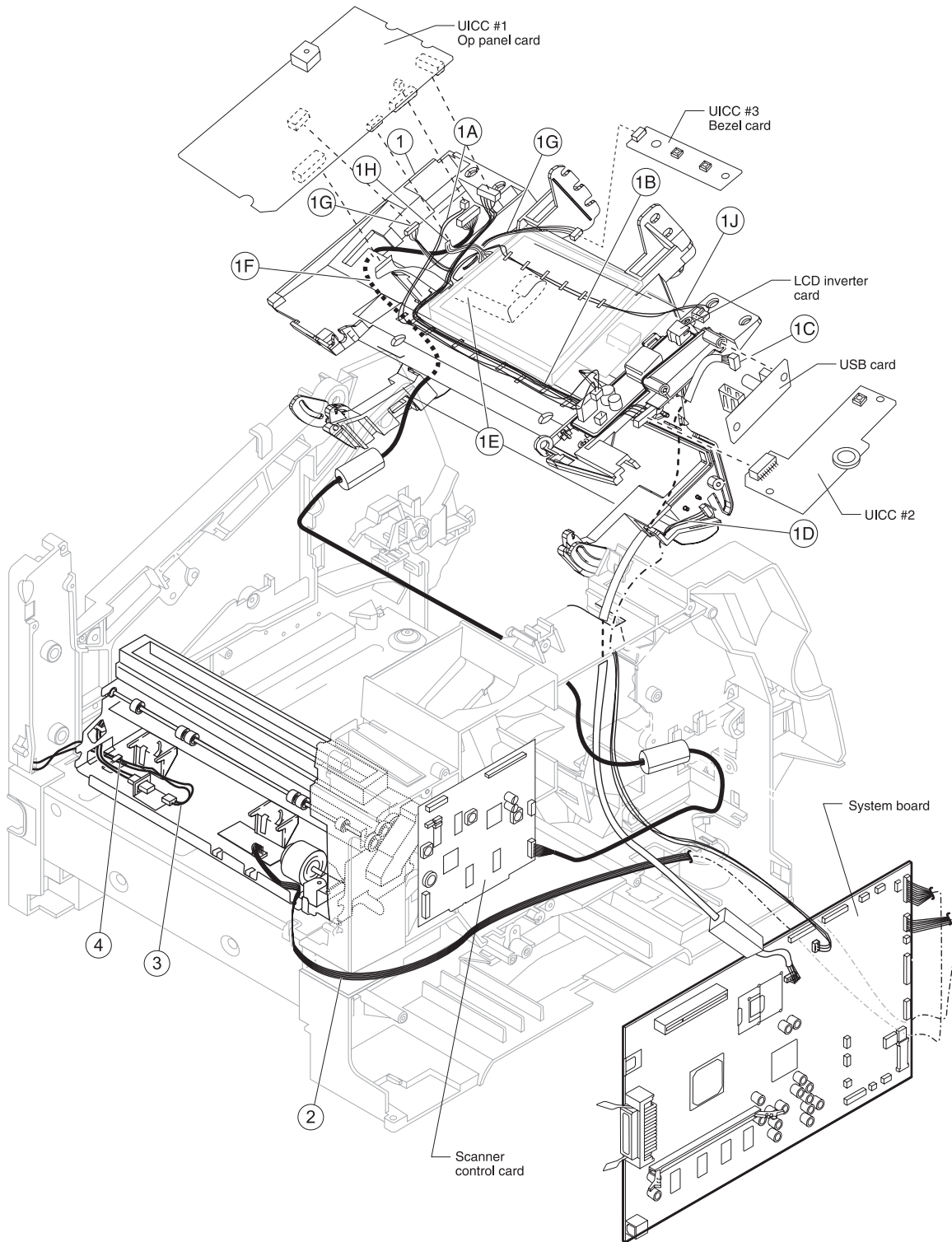
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
25—1	40X0061	1	1	Laser printhead cable assembly
2	40X0074	1	1	Paper size/autocompensator cable
3	40X0046	1	1	Paper size sensing board assembly

## Assembly 26: Cabling diagram 3



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
26—1	40X0034	1	1	Signature button contact assembly with cable
2	40X0156	1	1	Bottom/front autoconnect cable assembly
3	40X0223	1	1	HVPS/input sensor/toner sensor cable assembly
4	40X0224	1	1	LVPS to system board cable assembly

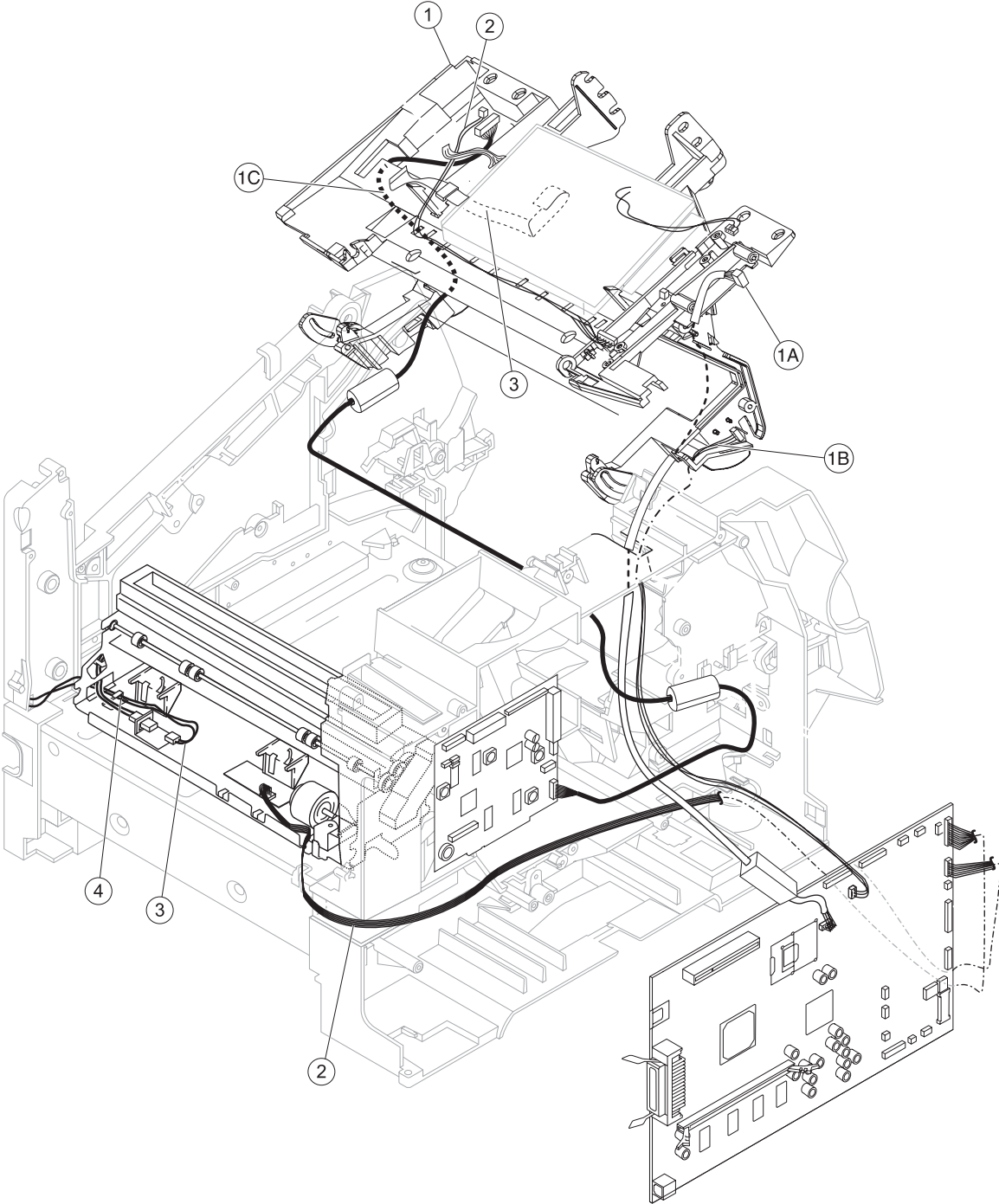
# Assembly 27: Cabling diagram 4—model 450S



## Assembly 27: Cabling diagram 4—model 450S

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
27—1	40X3309	1	1	Upper front cover hinge assembly—450S, includes <ul style="list-style-type: none"> <li>• 1A—Operator panel to LCD Inverter card cable (2-pin)</li> <li>• 1B—Operator panel card to UICC #2 card cable (8-pin)</li> <li>• 1C—USB cable (1)</li> <li>• 1D—Cover open switch/cable from system board</li> <li>• 1E—LCD display to operator panel card cable (14-pin ribbon)</li> <li>• 1F—Operator panel cable from SCC</li> <li>• 1G—Operator panel card to bezel card cable (4-pin)</li> <li>• 1H—LCD display to operator panel card cable (4-pin)</li> <li>• 1J—LCD display to LCD inverter card cable (2-pin)</li> </ul>
2	40X0162	1	1	System board to fuser board cable assembly
3	40X0163	1	1	Fuser AC lamp to LVPS cable assembly
4	40X0226	1	1	Fuser connector (fuser AC to fuser lamp)

**Assembly 28: Cabling diagram 4—model 500S**

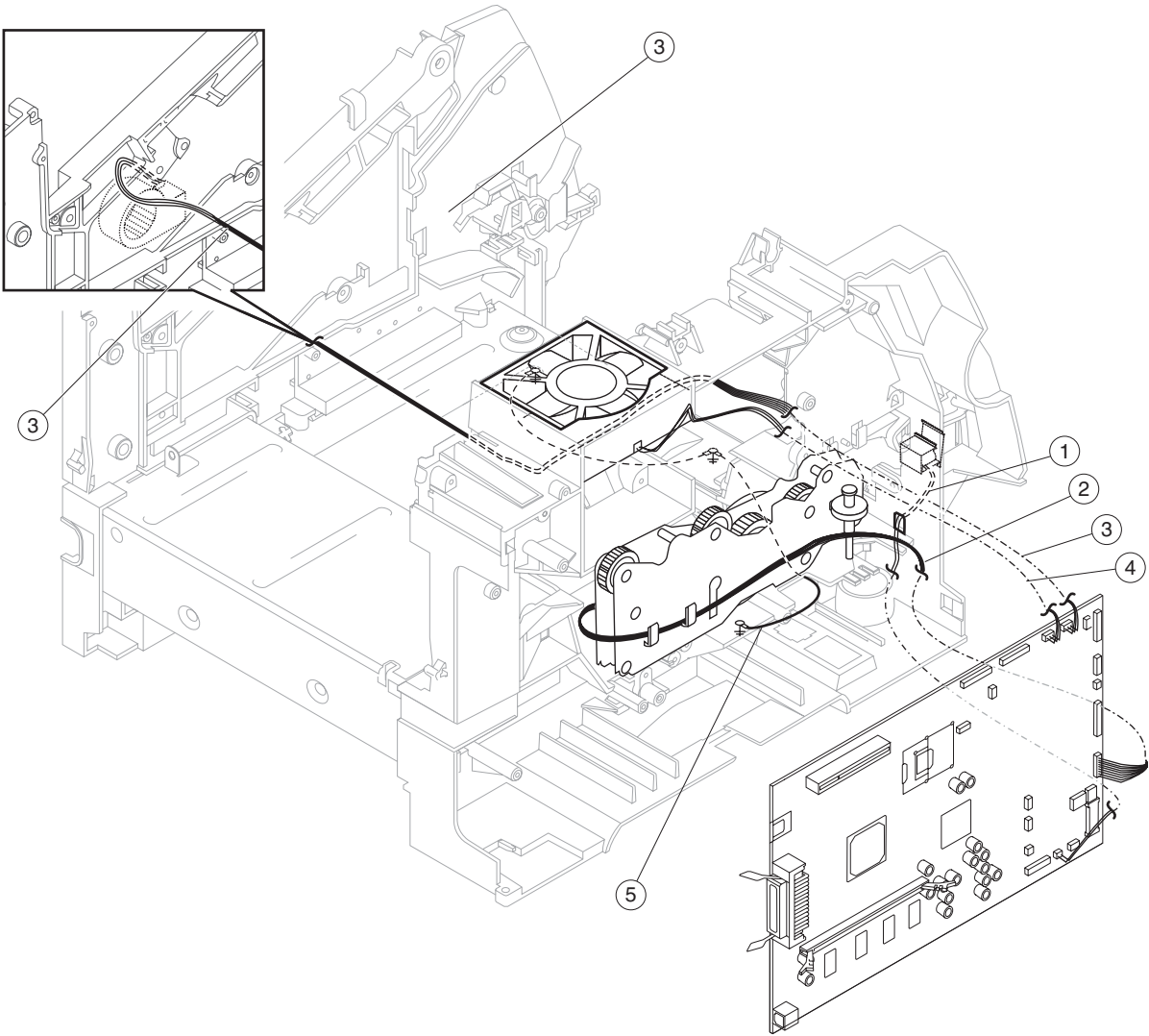




## Assembly 28: Cabling diagram 4—model 500S

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
28—1	40X0515	1	1	Upper front cover hinge assembly—500S, includes: <ul style="list-style-type: none"> <li>• 1A—USB cable (1)</li> <li>• 1B—Cover open switch/cable (1)</li> <li>• 1C—Operator panel cable to SCC card (1)</li> </ul> See full description of upper front cover hinge assembly on <a href="#">page 7-7</a> .
2	40X0511	1	1	Inverter 32-pin cable (operator panel card to LCD inverter card)
3	40X0512	1	1	32-pin cable (LCD display to operator panel cable)
4	40X0162	1	1	System board to fuser board cable assembly
5	40X0163	1	1	Fuser AC lamp to LVPS cable assembly
6	40X0226	1	1	Fuser connector (fuser AC to fuser lamp)

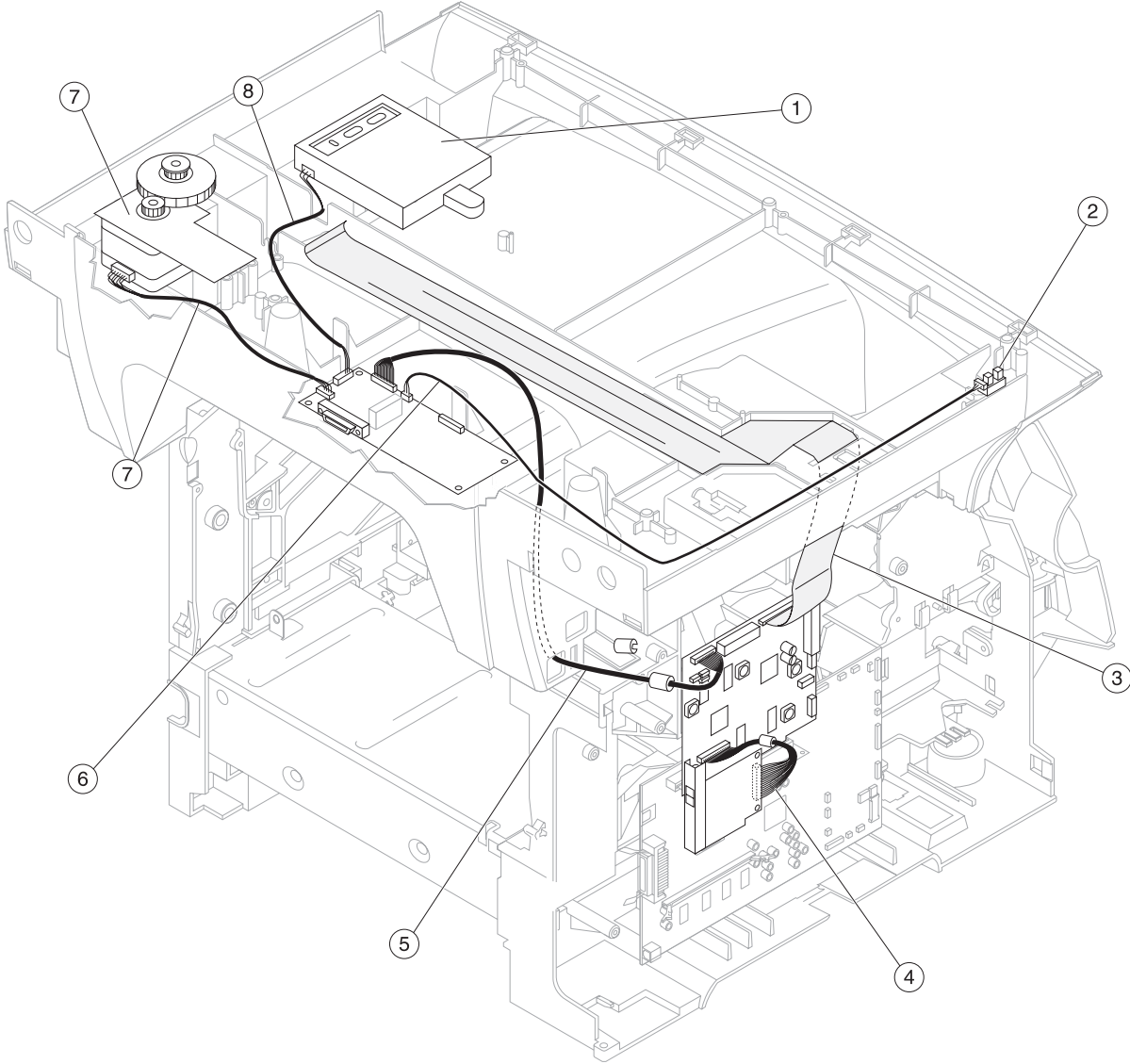
**Assembly 29: Cabling diagram 5**



## Assembly 29: Cabling diagram 5

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
29—1	40X0310	1	1	Multipurpose feeder pick arm assembly with solenoid
2	40X0159	1	1	Main drive motor cable assembly
3	40X0249	1	1	EP DC fan assembly
4	40X0054	1	1	Main fan with cable, 500-sheet output
5	40X0161	1	1	Ground cable

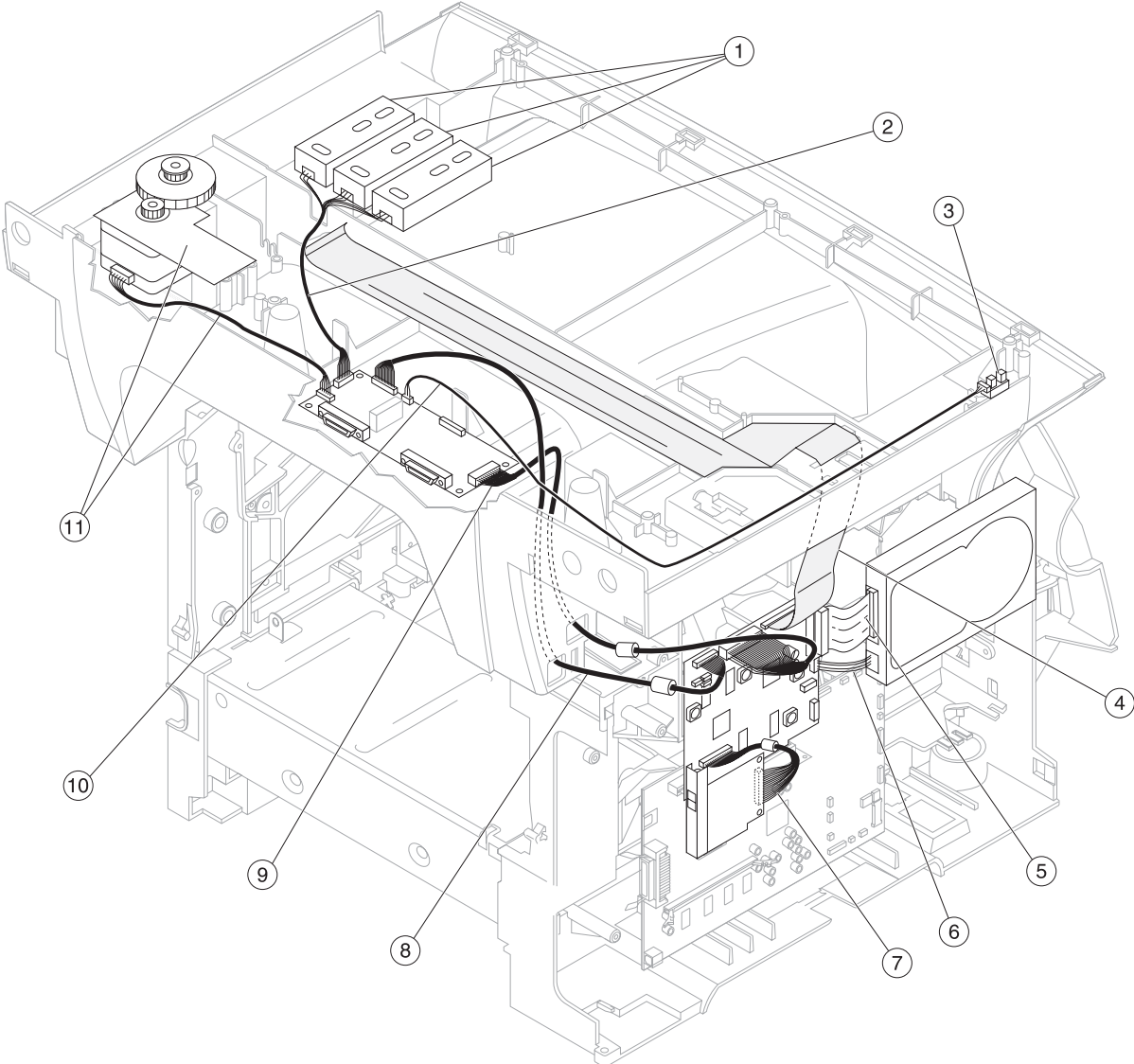
**Assembly 30: Cabling diagram 6—model 450S**



## Assembly 30: Cabling diagram 6—model 450S

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
30—1	40X0491	1	1	Flatbed paper size sensor assembly (3 sensors are included in the assembly, model 450S uses only one)
2	40X0481	1	1	Parts packet, sensors (home sensor)
3	40X0487	1	1	Flatbed CCD ribbon cable
4	40X0507	1	1	Modem 30-pin cable
5	NA	1	1	Flatbed interconnect card (CN1) to SCC card cable (J15) (NOT AVAILABLE AS A FRU)
6	NA	1	1	Flatbed interconnect card (CN4) to home sensor cable (NOT AVAILABLE AS A FRU)
7	40X0480	1	1	Flatbed scan motor, including flatbed scan motor to flatbed interconnect card cable
8	NA	1	1	Flatbed paper size sensor to interconnect card cable (CN3) (NOT AVAILABLE AS A FRU)

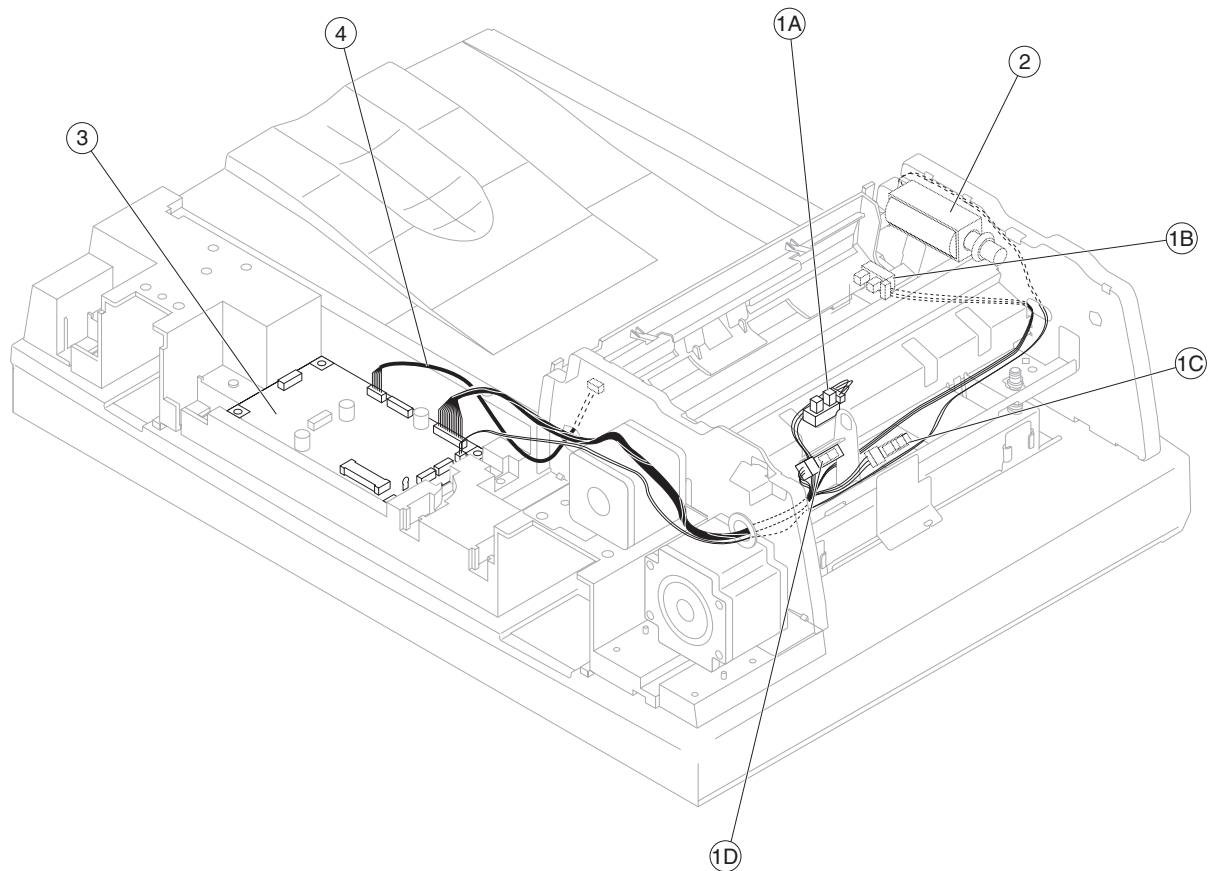
**Assembly 31: Cabling diagram 6—model 500S**



## Assembly 31: Cabling diagram 6—model 500S

Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
31—1	40X0491	1	1	Flatbed paper size sensor assembly (3 sensors are included in the assembly, model 450S uses only one)
2	NA	1	1	Flatbed paper size sensor cable to flatbed interconnect card (CN3) (NOT AVAILABLE AS A FRU)
3	40X0481	1	1	Parts packet, sensors (home sensor)
4	40X0487	1	1	Flatbed CCD ribbon cable
5	40X0509	1	1	Hard disk IDE 50-pin cable—500S
6	40X0510	1	1	Hard disk 4-pin power cable—500S
7	40X0507	1	1	Modem 30-pin cable
8	NA	1	1	Scanner control card (J1) to flatbed interconnect card (CN1) cable (NOT AVAILABLE AS A FRU)
9	NA	1	1	Scanner control card (J28) to flatbed interconnect card (CN5) (NOT AVAILABLE AS A FRU)
10	NA	1	1	Home sensor to flatbed interconnect card (Cn4) (NOT AVAILABLE AS A FRU)
11	40X0480	1	1	Flatbed scan motor, including scan motor

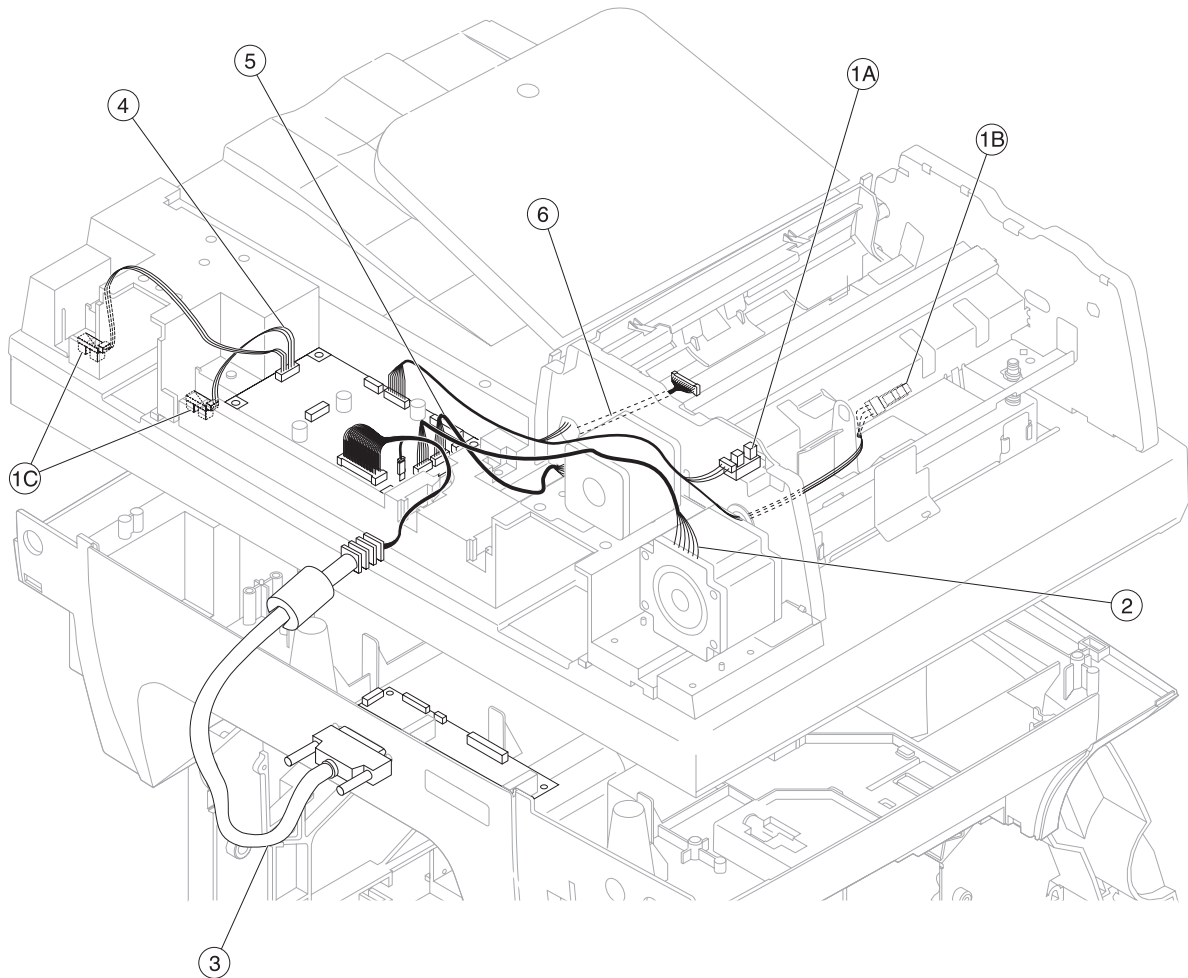
## Assembly 32: Cabling diagram 7



Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
32—1	40X0481	1	1	Parts packet, sensors <ul style="list-style-type: none"> <li>• A—Second scan sensor</li> <li>• B—Jam access door sensor</li> <li>• C—First scan sensor</li> <li>• D—Interval sensor</li> </ul>
2	40X0456	1	1	Pickup arm assembly solenoid
3	40X0486	1	1	Motor driver card
4	NA	1	1	Paper present sensor cable (NOT AVAILABLE AS A FRU)

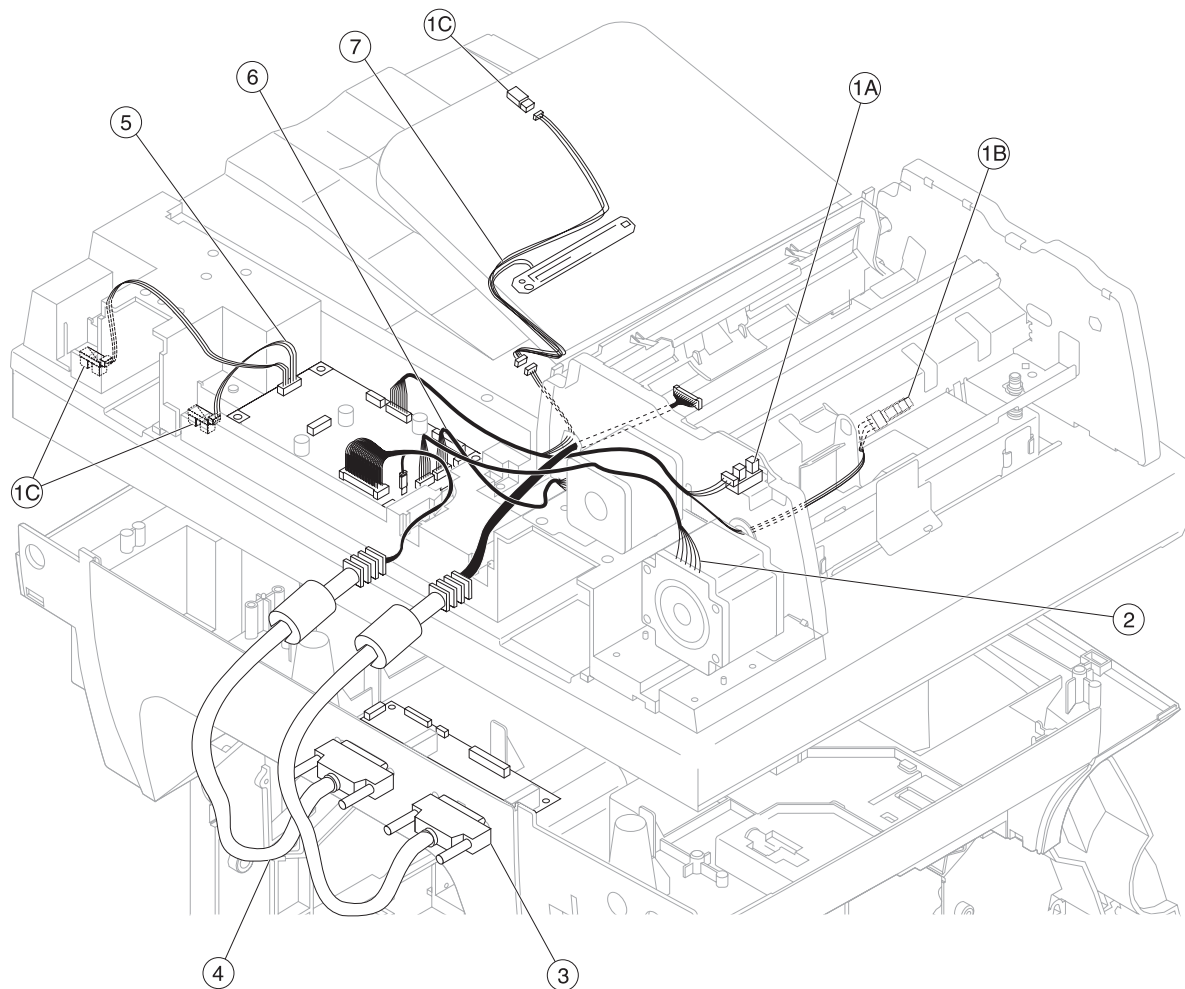


## Assembly 33: Cabling diagram 8—model 450S



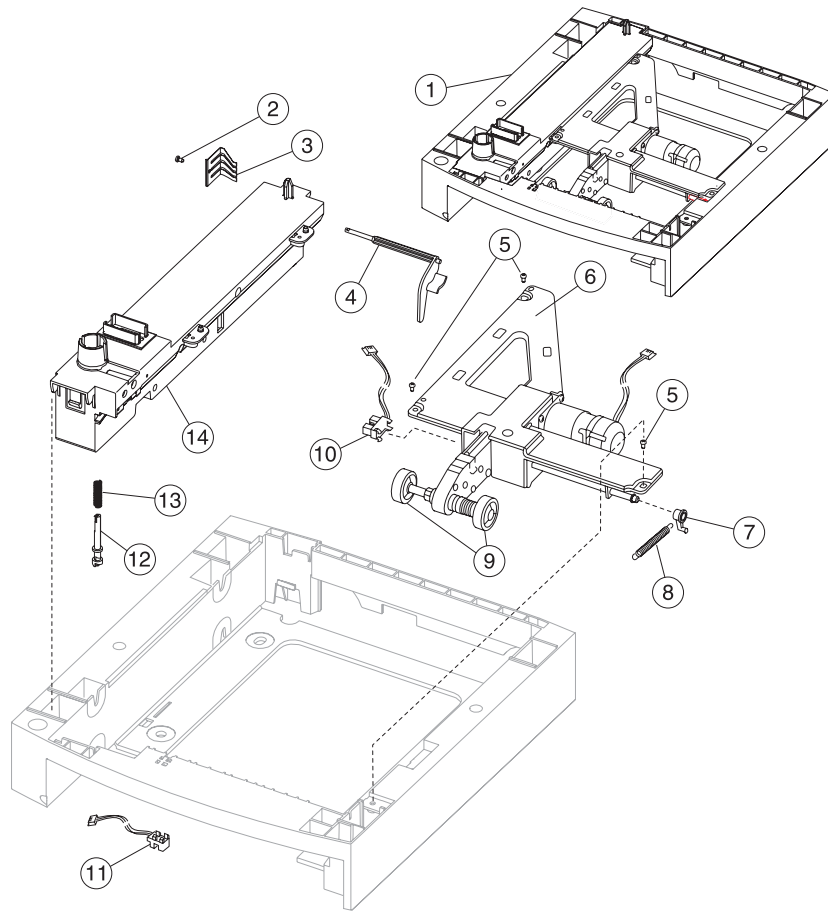
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
33—1	40X0481	1	1	Parts packet, sensors <ul style="list-style-type: none"> <li>• A—ADF top cover open sensor</li> <li>• B—First scan sensor</li> <li>• C—Flatbed cover closed sensors (cover closing, cover closed)</li> <li>• D—ADF paper length sensor</li> </ul>
2	NA	1	1	Feed motor cable (NOT AVAILABLE AS A FRU)
3	40X0506	1	1	MDC to flatbed interconnect card 36-pin cable
4	NA	1	1	Flatbed cover open sensor cable (NOT AVAILABLE AS A FRU)
5	N/A	1	1	Transport motor cable (NOT AVAILABLE AS A FRU)
6	N/A	1	1	Paper length sensor cable, includes paper width sensor assembly—X644e/X646e

## Assembly 34: Cabling diagram 8—model 500S



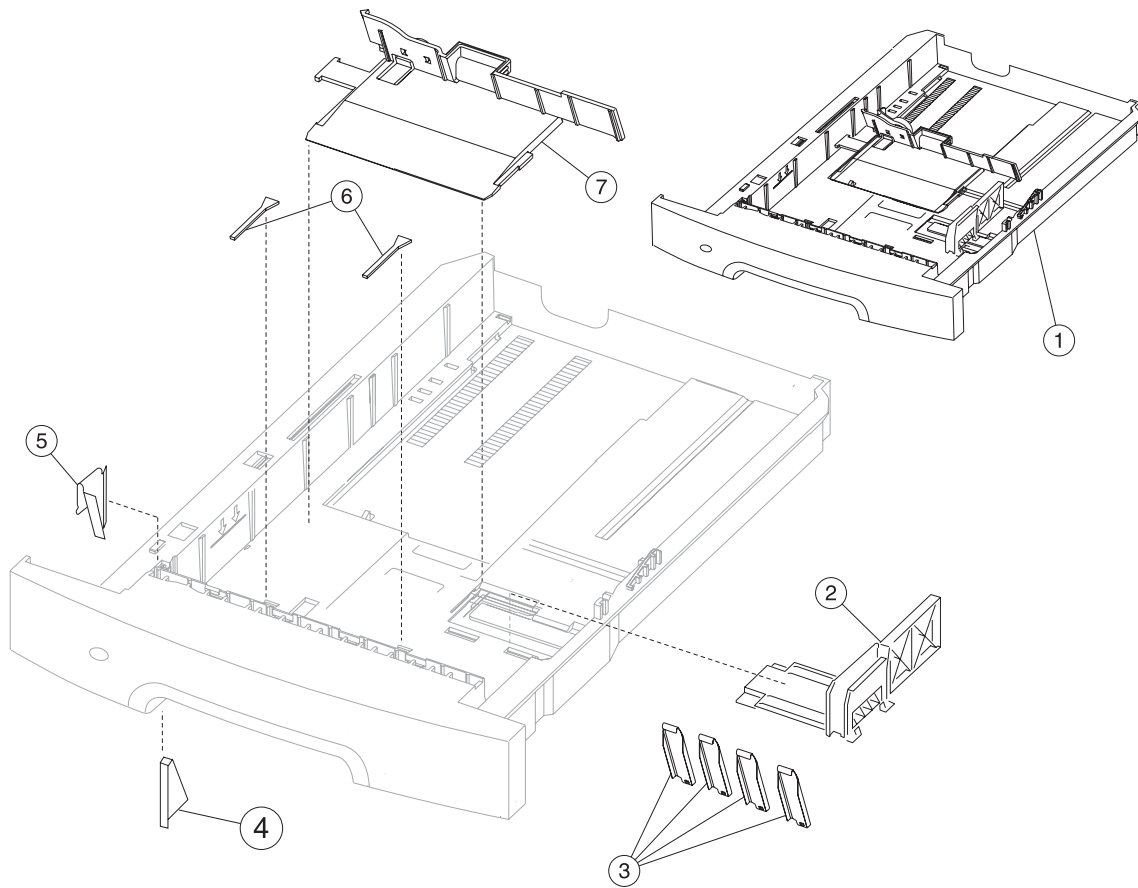
Asm-Index	Part number	Units/mach	Units/kit or pkg	Description
34—1	40X0481	1	1	Parts packet, sensors <ul style="list-style-type: none"> <li>• A—ADF top cover open sensor</li> <li>• B—First scan sensor</li> <li>• C—Flatbed cover closed sensors (cover closing, cover closed)</li> <li>• D—ADF paper length sensor</li> </ul>
2	NA	1	1	Feed motor cable (NOT AVAILABLE AS A FRU)
3	40X0502	1	1	ADF CCD to flatbed interconnect card 36-pin cable—500S
4	40X0506	1	1	MDC to flatbed interconnect card 36-pin cable
5	NA	1	1	Flatbed cover open sensor cable (NOT AVAILABLE AS A FRU)
6	N/A	1	1	Transport motor cable (NOT AVAILABLE AS A FRU)
7	N/A	1	1	Paper length sensor cable, includes paper width sensor assembly—500S

## Assembly 35: Optional 250-sheet paper drawer



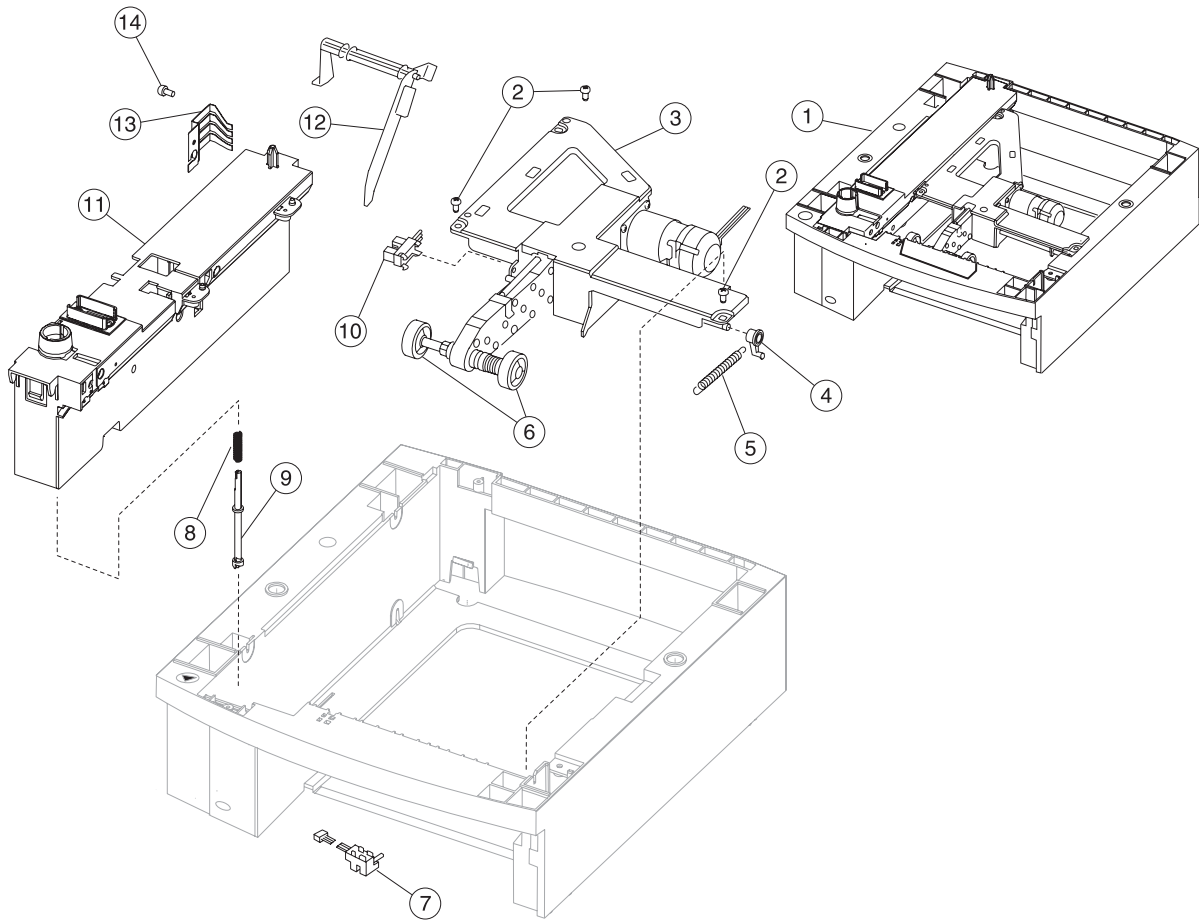
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
35—1	40X3230	1	1	250-sheet paper drawer, complete assembly
2		1	1	Parts packet, screws (PP 99A0263) (switch spring)
3	99A0063	1	1	Switch activate spring
4	56P4129	1	1	Paper out arm—250-sheet
5		3	3	Parts packet, screws (PP 99A0263) (auto comp mounting)
5		4	4	Parts packet, screws (PP 99A0263)
6	40X3232	1	1	Pick arm assembly
7	56P1228	1	1	Bellcrank—250-sheet paper tray
8	99A1929	2	1	Bellcrank spring—250-sheet paper tray
9	40X0070	2	2	Pick roll assembly
10	40X3234	1	1	Bin low sensor with cable
11	40X3233	1	1	Option pass thru sensor
12	99A0272	1	1	Drive shaft—250-sheet
13	99A0275	1	1	Power takeoff spring
14	40X3237	1	1	Base assembly

## Assembly 36: Optional 250-sheet paper tray



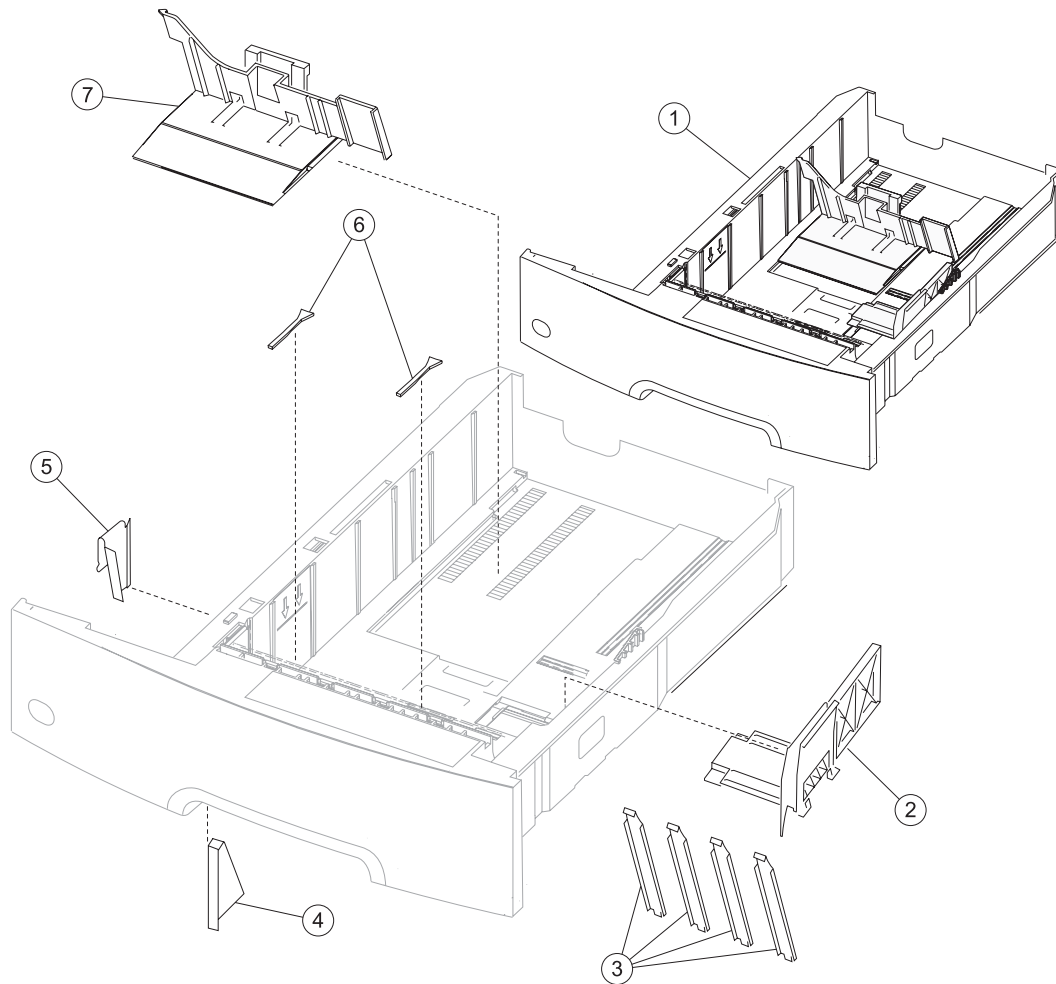
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
36—1	40X3231	1	1	Tray assembly, option—250-sheet
2	40X3235	1	1	Side restraint—250-sheet tray
3	56P1279	1	4	Wear strips
4	56P4230	1	1	Clip—250 sheet pass thru
5	99A0121	1	1	Plate—250-sheet tray wear
6	99A0120	1	2	Restraint pad
7	40X3236	1	1	Back restraint—250-sheet tray

## Assembly 37: Optional 500-sheet paper drawer



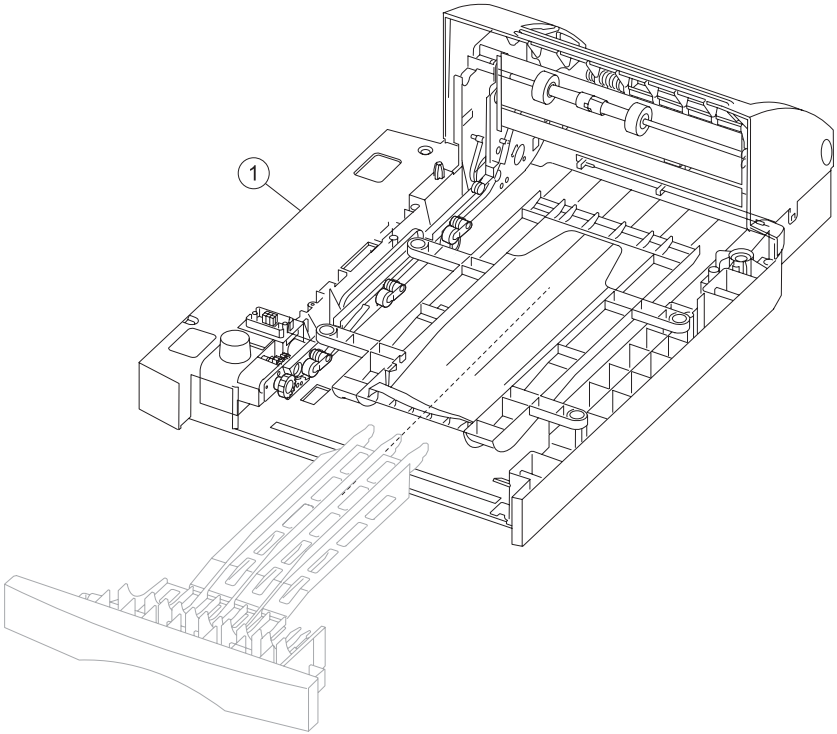
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
37—1	40X3243	1	1	Drawer assembly, complete—500-sheet
2		3	3	Parts packet, screws (PP 99A0263) (auto comp mounting screw)
3	40X3246	1	1	Pick arm assembly—500 sheet
4	56P1228	1	1	Bellcrank spring arm
5	56P2540	1	1	Bellcrank spring—500-sheet option tray
6	40X0070	1	2	Pick roll assembly
7	40X3233	1	1	Option pass thru sensor
8	99A0275	1	1	Power takeoff spring
9	99A0447	1	1	Drive shaft—500-sheet
10	40X3234	1	1	Bin low sensor with cable
11	40X3247	1	1	Base assembly, 500-sheet
12	56P4145	1	1	Paper out arm—500-sheet drawer
13	99A0063	1	1	Switch activate spring
14		1	1	Parts packet, screws (PP 99A0263)

## Assembly 38: Optional 500-sheet paper tray



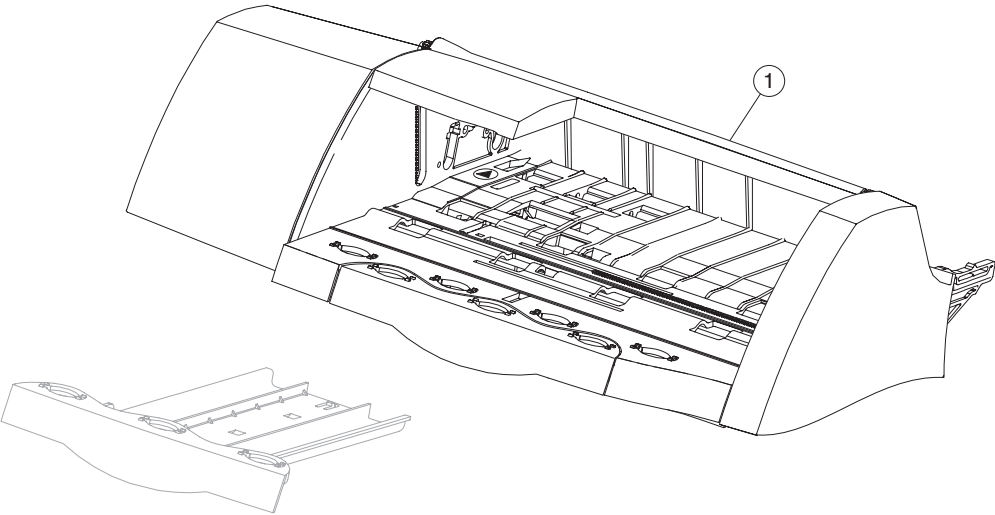
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
38—1	56P4150	1	1	Complete tray assembly—500-sheet
2	56P4137	1	1	Side restraint—500-sheet tray
3	99A0292	1	4	Wear strips
4	56P4196	1	1	Pass thru plate
5	56P4195	1	1	Plate—500 sheet wear
6	99A0120	1	2	Restraint pad
7	56P4147	1	1	Back restraint—500-sheet tray

# Assembly 39: Duplex option



Asm-Index	Part number	Units/option	Units/kit or pkg	Description
39—1	56P4102	1	1	Duplex assembly—500-sheet

**Assembly 40: Envelope feeder**

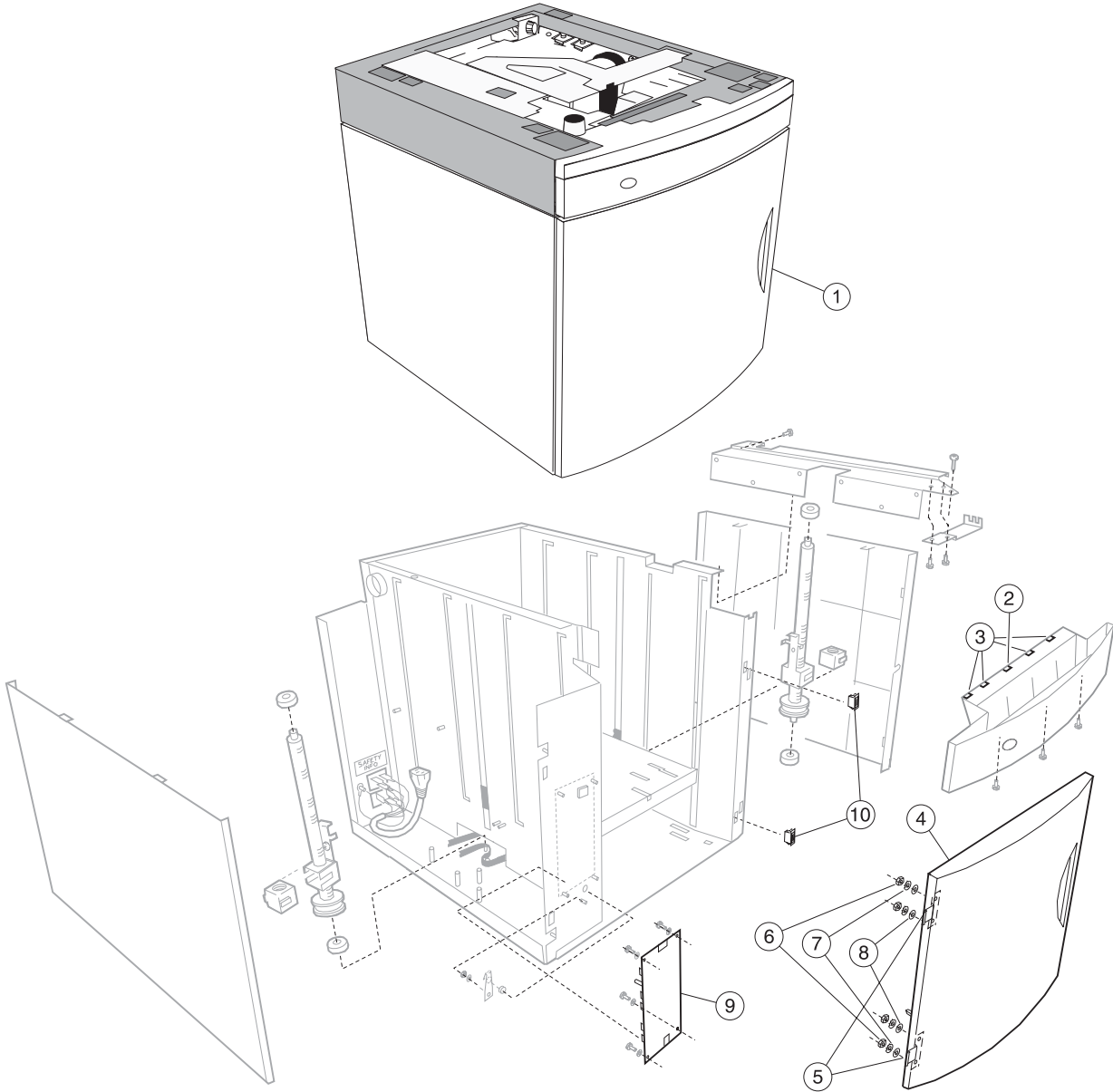




## Assembly 40: Envelope feeder

Asm-Index	Part number	Units/option	Units/kit or pkg	Description
40—1	40X3248	1	1	Complete envelope option

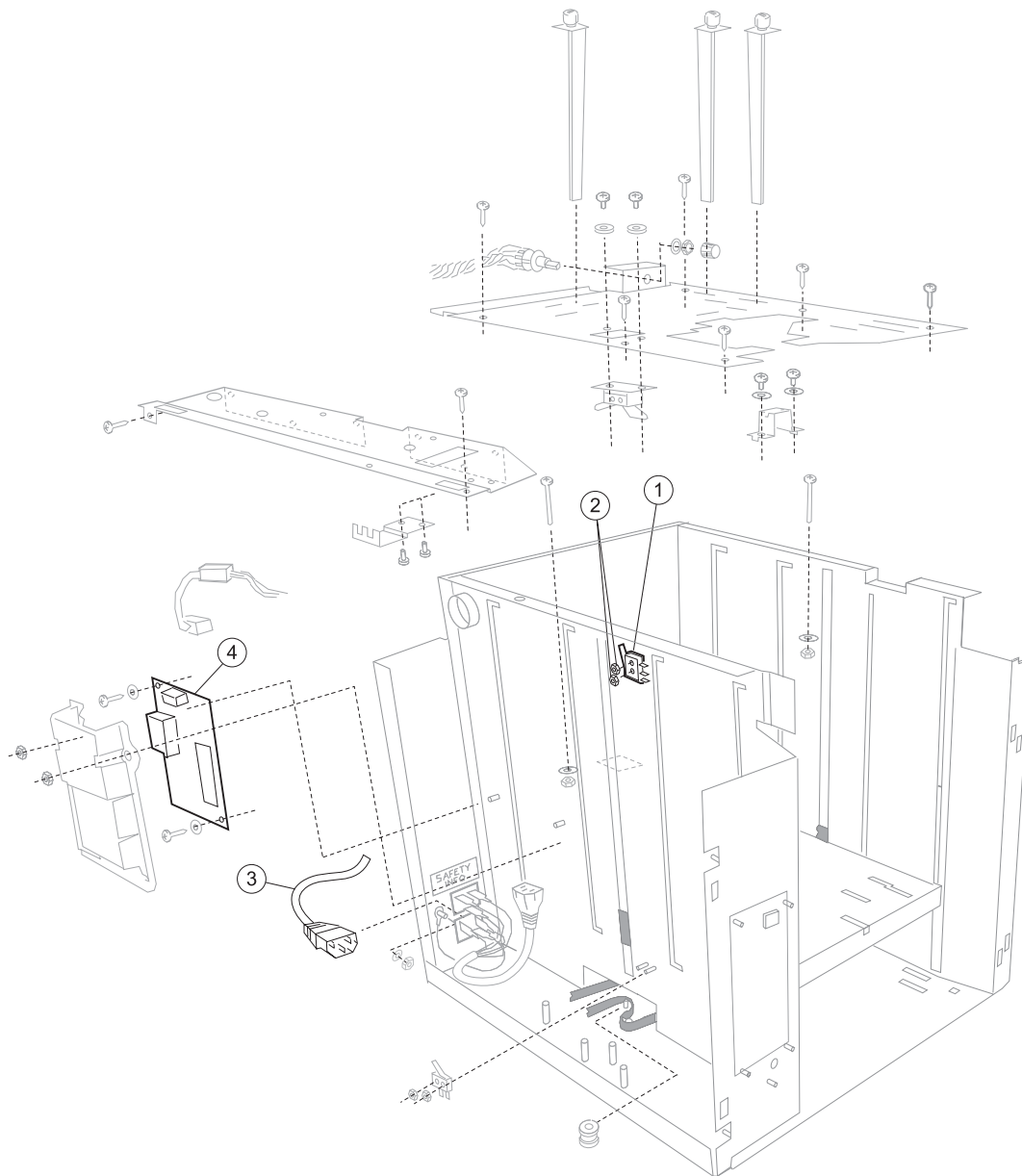
# Assembly 41: High-capacity feeder 1



## Assembly 41: High capacity feeder 1

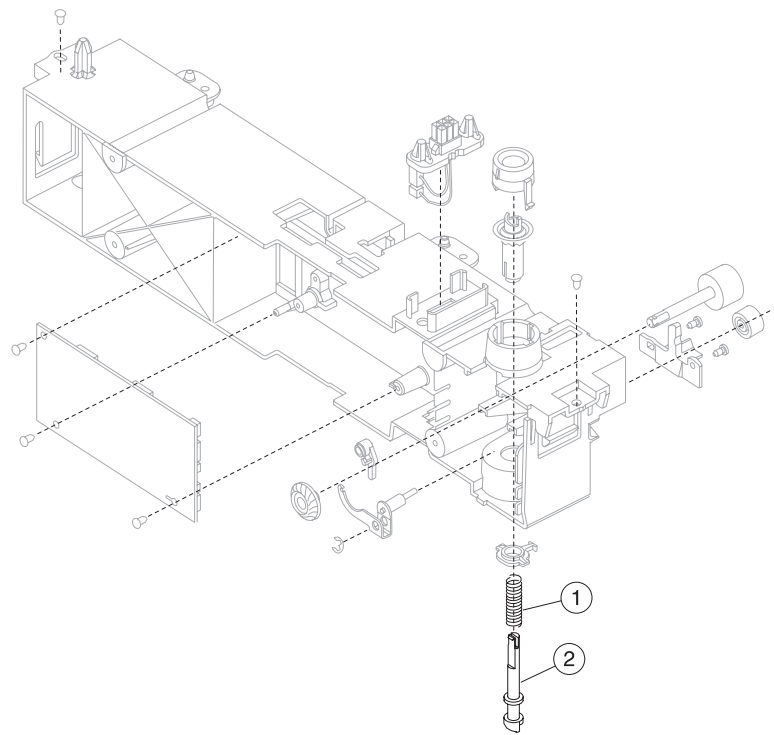
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
41—1	40X3249	1	1	Complete option assembly (A4)
2	99A1818	1	1	Wear dimple strip
3	99A0681	4	1	Wear strip
4	40X3254	1	1	Front door assembly
5	56P4157	1	2	Door hinge
6		4	1	Parts packet, nuts (PP 99A0676) (6-32 hinge mounting nut)
7		4	1	Parts packet, washers (PP 99A0677) (hinge mounting flat washer)
8		4	1	Parts packet, washers (PP 99A0677) (hinge mounting star washer)
9	40X3252	1	1	2000-sheet option control card assembly
10	99A0658	2	2	Door magnet

## Assembly 42: High-capacity feeder 2



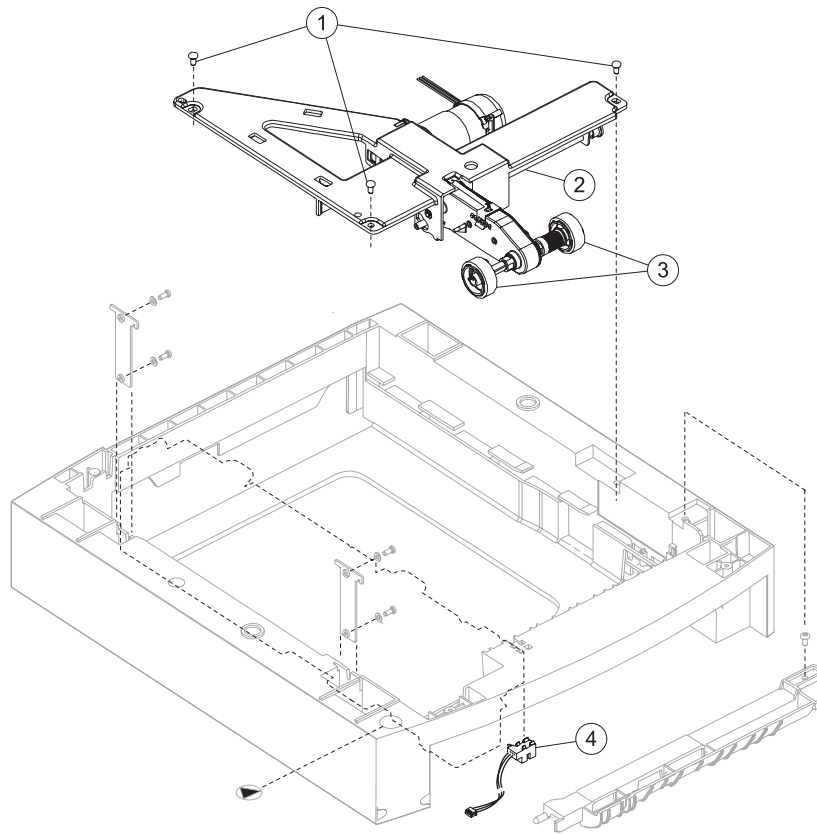
Asm-Index	Part number	Units/option	Units/kit or pkg	Description
42—1	99A0654	1	1	Paper low switch
2				Parts packet, nuts (PP 99A0676)
3	40X3262	1	1	AC external jumper cord
4	40X2669	1	1	Power supply board

## Assembly 43: High-capacity feeder 3



Asm-Index	Part number	Units/option	Units/kit or pkg	Description
43—1	99A0275	1	1	Power takeoff spring
2	99A0272	1	1	Drive shaft—250-sheet

## Assembly 44: High-capacity feeder 4



Asm-Index	Part number	Units/option	Units/kit or pkg	Description
44—1		3		Parts packet, screws (PP 99A0263) (auto comp assembly mounting screw)
2	40X3255	1	1	Pick arm assembly—2000-sheet
3	40X0070	2	2	Pick roll assembly
4	40X3233	1	1	Option pass thru sensor

## Assembly 45: Options

Asm-Index	Part number	Units/option	Units/kit or pkg	Description
NS	40X1508	1	1	128MB memory option
NS	40X1509	1	1	256MB memory option
NS	40X1510	1	1	512MB memory option
NS	40X1564	1	1	32MB Flash card
NS	40X1455	1	1	64MB Flash card
NS	40X3477	1	1	Bar code card assembly—450S
NS	40X4181	1	1	Bar code card assembly—500S
NS	40X3479	1	1	PrintCryption card assembly—450S
NS	40X4178	1	1	PrintCryption card assembly—500S
NS	40X4180	1	1	PRESCRIBE card assembly—500S
NS	40X1376	1	1	MarkNet 8020 Gigabit Ethernet
NS	40X1377	1	1	MarkNet 8030 Fiber Ethernet
NS	40X1378	1	1	MarkNet 8050 wireless print server, 802.11g, US
NS	40X1562	1	1	MarkNet 8050 wireless print server, 802.11g, non-US
NS	40X0291	1	1	Parallel 1284-B interface card
NS	40X0290	1	1	RS232C serial interface card
NS	40X2529	1	1	IPDS SCS/TNe card assembly—500S
NS	56P4116	1	1	Universal adjustable tray assembly—400-sheet
NS	40X3478	1	1	Forms card assembly—450S
NS	40X4179	1	1	Forms card assembly—500S
NS	40X1513	1	1	Simplified Chinese font card
NS	40X1514	1	1	Traditional Chinese font card
NS	40X1515	1	1	Korean font card
NS	40X1512	1	1	Japanese font card
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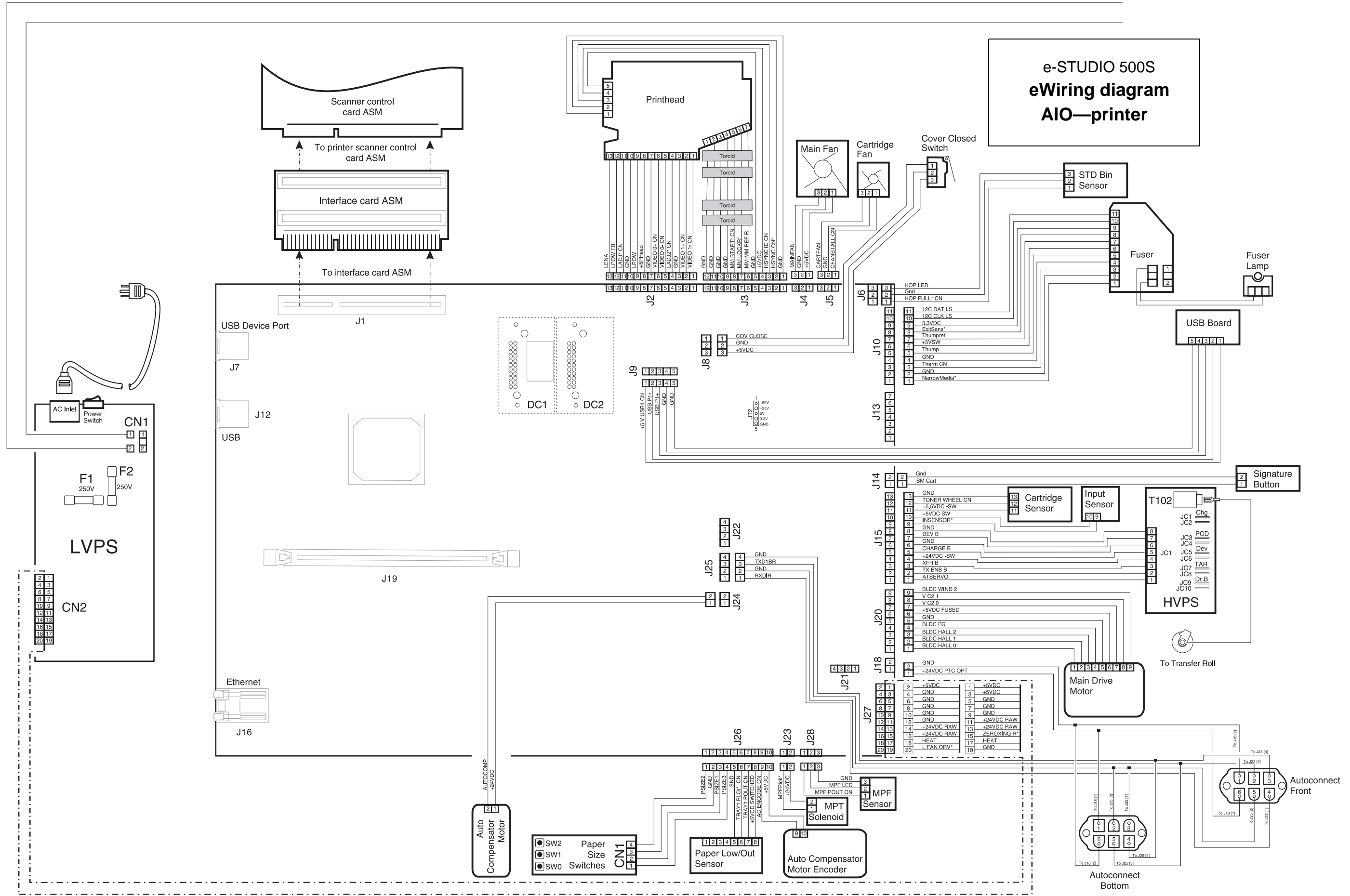
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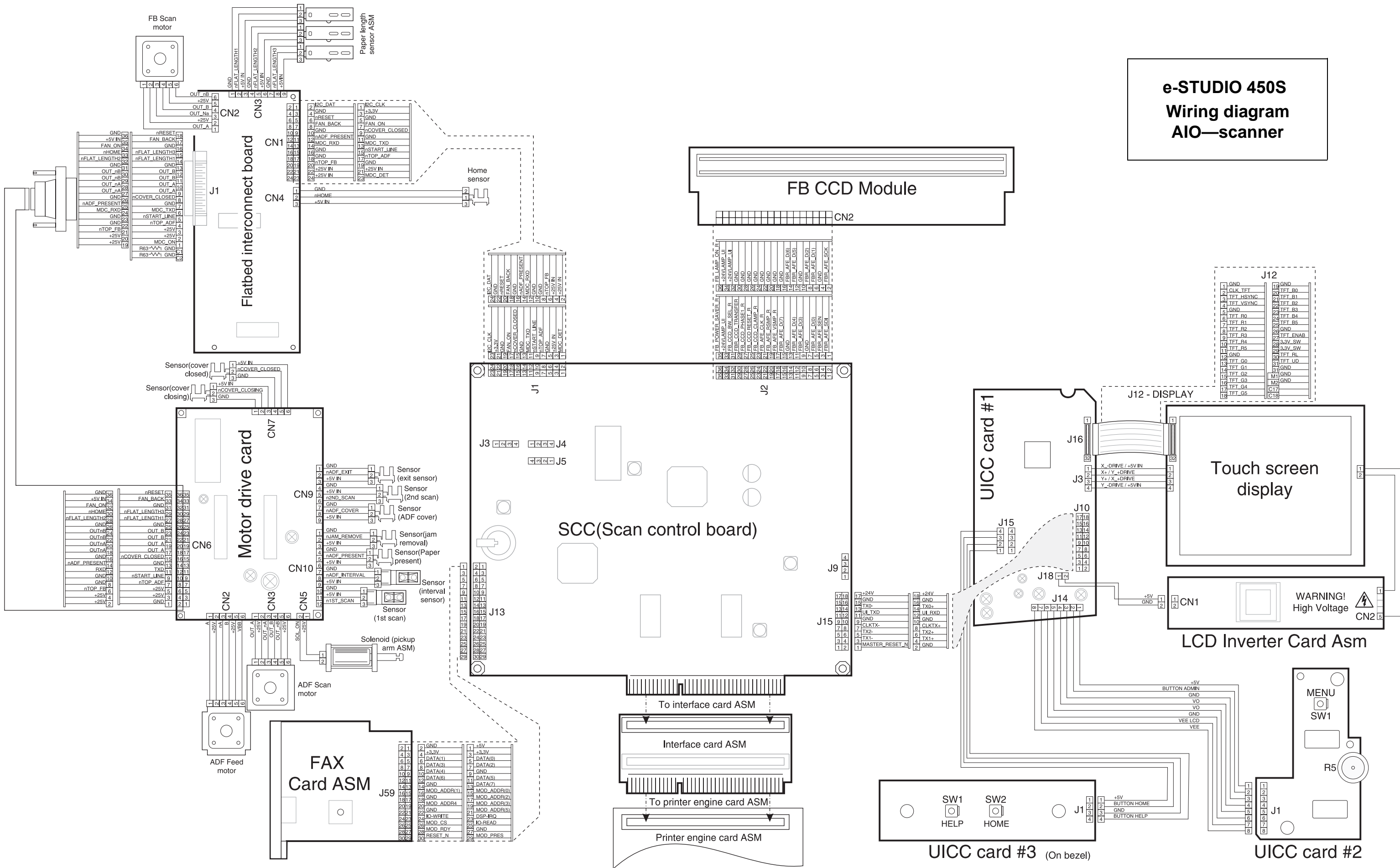


# e-STUDIO 500S eWiring diagram AIO—printer





# e-STUDIO 450S Wiring diagram AIO—scanner





# e-STUDIO 500S

## Wiring diagram AIO—scanner

