



## *Service Manual*

**Lexmark Optra™ C710**

**5016-001**

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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 825.

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.

*German*

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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) 825 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 825 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 .

*Italian*

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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 825.

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.

## **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 825 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.

*Portugese*

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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 825.

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.

## **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 825.

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.

*Danish*

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## **Lasermeddelelse**

Printeren er godkendt som et Klasse I-laserprodukt, i overensstemmelse med kravene i IEC 825.

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 bølglængdeområdet 770-795 nanometer. Lasersystemet og printeren er udformet således, at mennesker aldrig udsættes for en laserstråling over Klasse I-niveau ved normal drift, brugervedligeholdelse eller obligatoriske servicebetingelser.

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## Huomautus laserlaitteesta

Tämä kirjoitin on Yhdysvalloissa luokan I (1) laserlaitteiden DHHS 21 CFR Subchapter J -määrityksen mukainen ja muualla luokan I laserlaitteiden IEC 825 -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.

### LUOKAN 1 LASERLAITE

**VAROITUS!** Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

### KLASS 1 LASER APPARAT

**WARNING!** Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

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

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

## **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 825.

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.

*Norwegian*

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## **Laser-melding**

Skriveren er godkjent i USA etter kravene i DHHS 21 CFR, underkapittel J, for klasse I (1) laserprodukter, og er i andre land godkjent som et Klasse I-laserprodukt i samsvar med kravene i IEC 825.

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 825.

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



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

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## Chinese Laser Notice

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.

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## Safety Information

- This product is designed, tested and approved to meet strict global safety standards with the use of specific Lexmark components. The safety features of some parts may not always be obvious. Lexmark is not responsible for the use of other 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.

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## Consignes de Sécurité *French*

- Ce produit a été conçu, testé et approuvé pour respecter les normes strictes de sécurité globale lors de l'utilisation de composants Lexmark spécifiques. Les caractéristiques de sécurité de certains éléments ne sont pas toujours évidentes. Lexmark ne peut être tenu responsable de l'utilisation d'autres pièces de rechange.
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## **Sicherheitshinweise** *German*

- Dieses Produkt und die zugehörigen Komponenten wurden entworfen und getestet, um beim Einsatz die weltweit gültigen Sicherheitsanforderungen zu erfüllen. Die sicherheitsrelevanten Funktionen der Bauteile und Optionen sind nicht immer offensichtlich. Sofern Teile eingesetzt werden, die nicht von Lexmark sind, wird von Lexmark keinerlei Verantwortung oder Haftung für dieses Produkt übernommen.
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- 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.

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- 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.

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## **Informações de Segurança** *Portugese*

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- 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.

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## Informació de Seguretat *Catalàn*

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- 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.

## 安全资讯

- 本产品使用特有的 Lexmark 元件，并依照严格的世界安全标准来设计、测试及验证。有些零件的安全功能可能不明显。對於其他厂牌更换零件的使用，Lexmark 概不负责。
- 本产品的维护资讯仅供专业服务人员使用，而非针对一般使用者。
- 本产品在拆卸、维修的时候，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。

*Chinese*

*Korean*

안전 사항

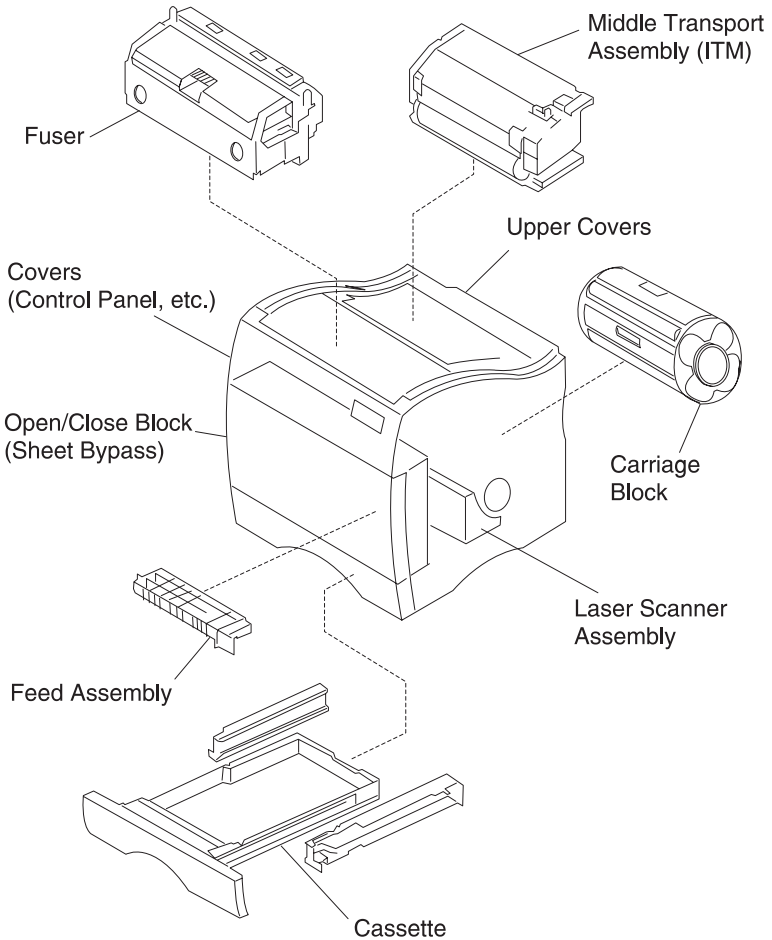
- 본 제품은 특정 Lexmark 구성 요소의 사용에 있어 엄격한 세계 안전 표준에 맞도록 설계, 테스트되었으며 승인받았습니다. 일부 부품의 안전성은 항상 보장되지 않습니다. Lexmark는 다른 교체 부품의 사용에 대한 책임을 지지 않습니다.
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- 본 제품을 해체하거나 정비할 경우 전기적인 충격을 받거나 상처를 입을 위험이 커집니다. 전문 서비스 기술자는 이 사실을 숙지하고 필요한 예방 조치를 취하도록 하십시오.

**5016-001**



# 1. General Information

The Lexmark™ Optra™ C710 is a letter quality page printer designed to attach to an IBM-compatible personal computer and most computer networks.



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## Models

The 5016-001 printer is available in the following models:

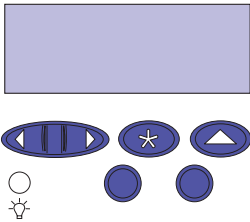
Model	Memory	INA	Options
C710	32 MB	N/A	N/A
C710n	32 MB	10 Base 100T	N/A
C710dn	64 MB	10 Base 100T	<ul style="list-style-type: none"> <li>• Additional 2x250 paper drawer</li> <li>• Duplex</li> </ul>

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## Standard Features

Feature	Description
Printing Process	Dry electrophotographic process using a laser diode.
Performance	<ul style="list-style-type: none"> <li>• Monochrome, Letter or A4 - up to 16 ppm.</li> <li>• Color, Letter or A4 - up to 3ppm.</li> <li>• Color transparencies, Letter or A4 - up to 1.8 ppm.</li> <li>• Monochrome duplexed pages, up to 10 impressions - 5 duplexed ppm.</li> <li>• Color duplexed pages, up to 3 impressions - 1.5 duplexed ppm.</li> </ul>
Special Features	<ul style="list-style-type: none"> <li>• Automatic Duplex.</li> <li>• Color Quality Enhancement Technology (CQET).</li> <li>• Automatic color screening selection to optimize print quality based on print type.</li> <li>• 4 bit color capabilities.</li> <li>• Color screens which optimize print quality.</li> </ul>
Print Addressability	600 x 600 dpi, 1200 x 1200 dpi
Maximum Print Speed (Mono/Color)	16/3 ppm (Letter and A4)

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Feature	Description
Maximum Duplex Print Speed (Mono/Color)	5/1.5 ppm (Letter and A4)
Paper Input	<ul style="list-style-type: none"> <li>• Standard 250 sheet integrated input tray</li> <li>• Multipurpose feeder: 50 sheets</li> </ul>
Paper Output	Top output bin: 250 sheets
Media Size Supported	A4, B5, Letter, Legal and Executive
Physical Characteristics	<ul style="list-style-type: none"> <li>• Width: 18.5" (470mm), Depth 25.5" (645mm), Height 16.0" (405mm).</li> <li>• Height of 2nd drawer: 2 x 250 trays 8.9" (223mm).</li> <li>• Height of duplex option: 5.7" (145mm).</li> <li>• Weight: 79 lbs. (35.8kg) for base model only.</li> <li>• Weight (duplex option) 46.22 lbs. (21kg).</li> <li>• Weight (dual tray option) 20.7 lbs. (9.4 kg).</li> </ul>
Power Supply	AC 120v, 22v - 240v 60Hz (50Hz)
Power Consumption	1.2 Kw maximum
Controller	Lexmark Controller
Printer Management Software	<p>MarkVision™ that lets you manage your printer from your computer. Supported in the following environments:</p> <ul style="list-style-type: none"> <li>• Windows 95/98</li> <li>• Windows NT 4.0</li> <li>• OS/2 Warp</li> <li>• Macintosh</li> <li>• UNIX</li> </ul>
Operator Panel	<p>Front cover mounted operator panel for menus.</p> 
Exposure System	<ul style="list-style-type: none"> <li>• Laser diode</li> <li>• Scanning: Polygon scanner</li> </ul>

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<b>Feature</b>	<b>Description</b>
Charging System	Corona
Development	Non-magnetic mono-component
Fusing System	Hot roll fuser 170 degree C (Hot roll 30mm, backup roll 34mm)
Operating Temperature	<ul style="list-style-type: none"><li>• 10 - 35 degrees C (50 - 95 degrees F)</li></ul>
Erase System	Light discharge (LED lamp)
Image Transfer System	<ul style="list-style-type: none"><li>• Intermediate transfer (primary)</li><li>• Transfer roller (secondary)</li></ul>
PC Drum	Photoconductor: OPC (organic photoconductor)
Cleaning System	Blade
Printer Memory	<ul style="list-style-type: none"><li>• 32MB SDRAM</li></ul> <b>Note:</b> Some models may ship with more memory. When a duplex unit is installed, 64MB is the recommended minimum printer memory. <ul style="list-style-type: none"><li>• Maximum usable memory: 384MB</li></ul>
Interface	<ul style="list-style-type: none"><li>• Base printer: parallel standard Centronics protocol compliant with bidirectional IEEE 1284B.</li><li>• Network printer: Ethernet standard connection.</li></ul>
Internal Solutions Ports	<ul style="list-style-type: none"><li>• Three ports for network adapters, tri-port adapters, parallel port adapters or hard disk.</li><li>• Three memory slots.</li></ul>
Printer Options	<ul style="list-style-type: none"><li>• Optional paper drawer: drawer unit with two 250 sheet trays installed underneath the printer.</li><li>• Duplex unit: provides two sided color or monochrome printing.</li><li>• Hard disk: 2.5 inch hard disk to store fonts, forms, job statistics and spooled jobs (4gt limit).</li></ul>
Internal Print Servers	Internal print servers available to support the following topologies: <ul style="list-style-type: none"><li>• Ethernet 10BaseT and 10Base2.</li><li>• Ethernet 10/100Base TX.</li><li>• Token-Ring (connects the printer to a Token-Ring network via DB9 or FJ45).</li></ul>

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<b>Feature</b>	<b>Description</b>
Tri-port Adapter	Provides support for the following interfaces: <ul style="list-style-type: none"><li>• Serial RS-232C/RS-422A (which can also be configured to support a class 1 Fax modem.</li><li>• High speed infrared local connections.</li><li>• LocalTalk network connection.</li></ul>
Parallel/USB Port Adapter	IEEE 1284 adapter provides additional parallel and USP port.
Infrared Adapter	For use with the Tri-port adapter. Receives infrared beam from an IrDA-compatible workstation.
Serial Interface Adapter	<ul style="list-style-type: none"><li>• High speed bidirectional 10-foot and 20-foot 1284B parallel cables</li><li>• 9.8-foot 1284 A-C parallel cable</li></ul>
Serial Cable	50-foot serial cable
OptraImage™	Transforms the printer into an easy-to-use networkable print/copy station.

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## 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 printer problem and repair the failure. After you complete the repair, perform tests as needed to verify the repair.

### Tools Required For Service

- Flat-blade screwdriver
- #1 Phillips screwdriver
- #2 Phillips screwdriver
- 7.0 mm nut driver
- 5.5 mm wrench
- Needlenose pliers
- Diagonal pliers
- Spring hook
- Feeler gauges
- Analog or digital multimeter
- Parallel wrap plug 1319128
- Serial wrap plug 1329048
- Twinax/serial debug cable 1381963
- Coax/serial debug cable 1381964

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## Options

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

- Memory options: 4MB, 8MB, 16MB, 32MB, 64MB and 128MB
- Flash memory options: 2MB, 4MB, 8MB, 16MB
- Integrated network options:
  - Token-Ring
  - Ethernet 10/100 Base-TX
  - Ethernet/PAX card
  - Internal IDE disk card
  - Ethernet ID Base 2/T
  - Tri-Port:
    - RS-232C or RS-422 serial
    - Infrared
    - LocalTalk
- IPDS
- SCS
- USB/Parallel port
- Ethernet/Fax card
- Ethernet 10/100 Base-TX
- Fax modem
- 250/250 dual optional paper tray
- Automatic duplex option
- Hard disk
- Hard disk adapter card
- Optra Forms<sup>TM</sup> hard disk

## Operational Theory

### Interlock Mechanism

When the front cover assembly, fuser cover or cartridge cover is open, a CLOSE DOOR message displays indicating the interlock system is open.

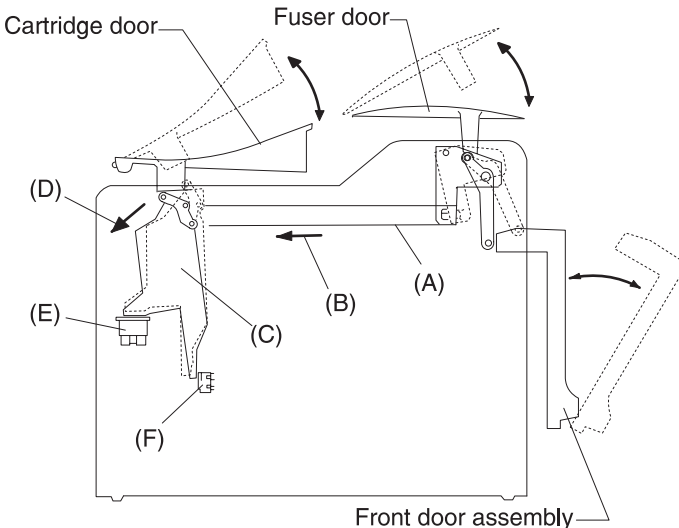
If the front door assembly or the fuser cover are closed, the door switch actuator 3 [A] moves in the direction of arrow [B].

When the cartridge door is closed the door switch actuator 1 [C] rotates in the direction shown by arrow [D] and activates the door switch [E] and laser switch [F].

If either of these doors are not closed, actuator 1 [C] will not rotate and the switches will not turn on.

When door switch [E] is not activated, it prevents the LVPS from supplying power to the printer.

When the laser switch [F] is not activated, the engine board will not turn the printhead on.





## Sheet Bypass Paper Feed Unit

### Operation of the sheet bypass paper feed unit (multipurpose tray)

When the sheet bypass tray is closed and printing is started, revolution of the developer/paper feed motor is transmitted to the clutch gear and timing clutch gear of the sheet bypass paper feed assembly.

When the bypass paper feed clutch activates, the sheet bypass paper transfer roll is lowered and touches the paper in the tray. When the paper transfer roll touches the paper in the paper tray, the paper is fed into the printer by the actions of the paper transfer roll and paper feed roll.

As paper is fed to the timing roller by the sheet bypass paper feed roll, the paper pass sensor detects paper is present. This sensor is located just prior to the timing roller. After the paper is detected, and passes through the sensor, the sheet bypass clutch turns off, and the sheet bypass paper feed and sheet bypass paper transfer roller stop rotating. At the same time, the paper transfer roller is lifted up by the return spring so that the paper will touch the timing roll and wait.

**Note:** If the transparency paper sensor located in front of the timing roller detects a transparency, the printer slows to the half speed mode.

At the same time the image is transferred from the organic photo conductor (OPC) to the transfer belt, the timing clutch turns on and the timing roll begins rotating. Paper is then fed into the image transfer area, registering the image on the sheet of paper.

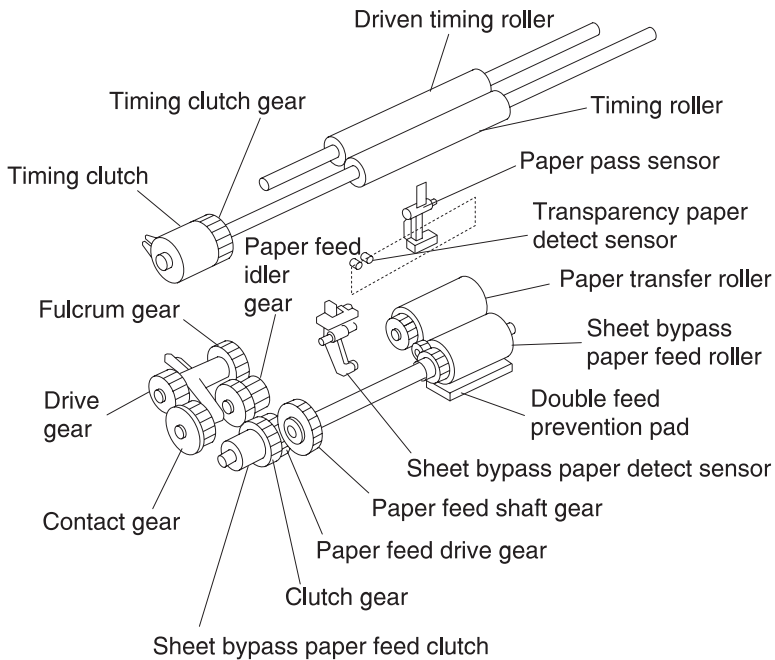
### Double feed prevention

The double feed prevention pad contacts the sheet bypass paper feed roller at a specific pressure. Whenever multiple sheets of paper are fed, the bottom sheet is stopped by friction of the double feed prevention pad, which aids in preventing double feeding. Only the top sheet of paper is fed by the paper feed roller.

The paper pass sensor checks paper fed from the sheet bypass paper feed assembly. If the sensor does not detect paper during a specific time, a paper jam error displays.

## Detecting paper present

A sheet of paper in the sheet bypass tray is detected by the sheet bypass paper detect sensor. When the sheet of paper is detected, the paper detect sensor turns off. When the sheet of paper is not detected, the sensor turns on.



## Paper Feed Unit

### Operation of the paper feed unit (tray 1)

When the paper cassette (tray 1) is present in the printer, a flag molded in the right side of the tray contacts the release lever rotating the paper transfer roll, allowing it to contact the paper in the tray.

When a print command is sent to the printer, the paper feed clutch, attached to the paper feed roller turns on, which turns the main motor transmitting to the clutch gear magnet and the paper feed gears, causing the paper feed roller and paper transfer roller to turn.

### Double feed prevention

The double feed prevention pad contacts the sheet bypass paper feed roller at a specific pressure.

Whenever multiple sheets of paper are fed, the bottom sheet is stopped by friction of the double feed prevention pad which aids in the prevention of double feeding. Only the top sheet of paper is fed by the paper feed roller.

As paper is fed to the timing roller by the paper feed roll, the paper is detected by the paper pass sensor located just ahead of the timing roller. After the paper is detected, the paper feed clutch turns off and the paper feed roller and paper feed transfer roller stop rotating. At this point the paper touches the timing roller and remains. The paper pass sensor checks the paper feed from the cassette; if paper is not detected the printer stops and a paper jam error displays.

### Detecting the paper

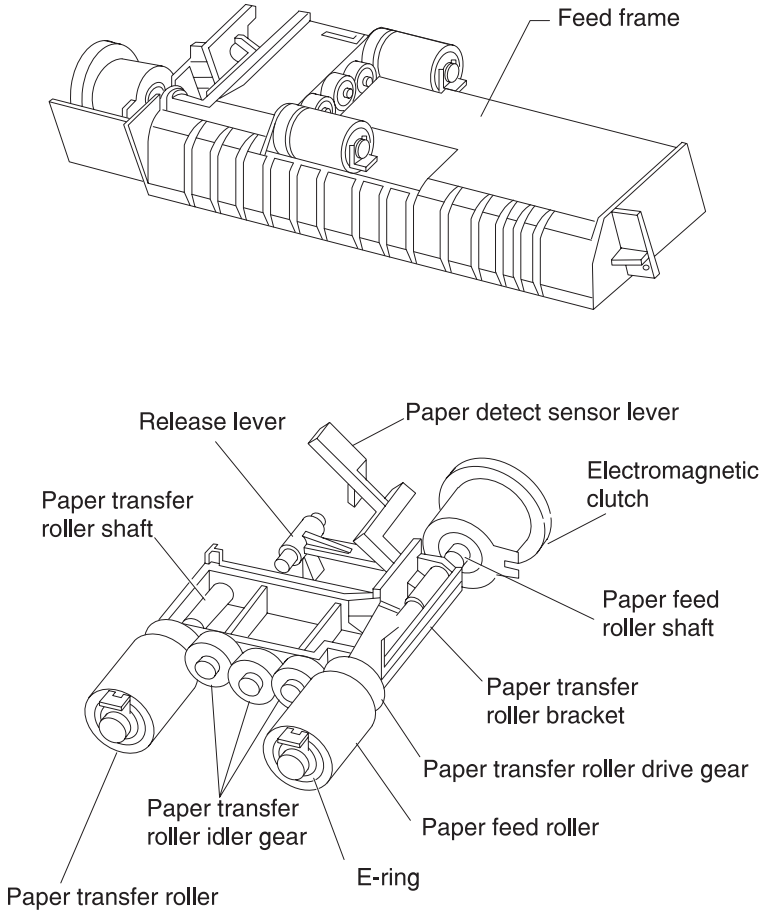
Paper in the cassette is detected by the paper detect sensor. When the paper is detected the sensor turns off. If paper is not detected the sensor remains off.

### Detecting paper level

The amount of paper remaining in tray 1 is detected by the paper detect sensor. When there is enough paper in tray 1 the sensor remains off. When the level is low, less than 50 sheets, the sensor turns on and Load Paper tray 1 displays.

### Detecting paper size

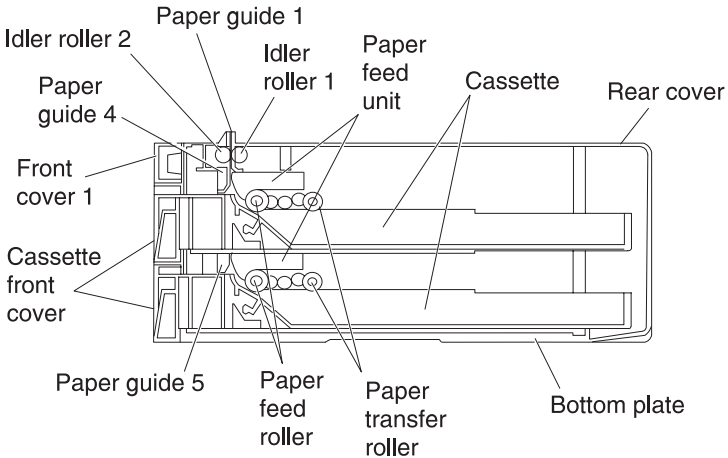
Paper size is determined by the paper size detect plate connecting the inner part of the partition plate which detects the paper size turning on the corresponding switch. It detects Legal, Letter, A4 or B5/EXE.



## Second Paper Feed Unit (Optional Paper Trays)

### Construction of the Second paper feed option

The second paper feed unit consists of two separate feed units which are the same as the paper feed unit for tray 1, along with idler rollers above the paper feed units and paper guides on the side of the paper feed opening. The interconnect board assembly, drive module and LVPS for the option is located on the right side frame.

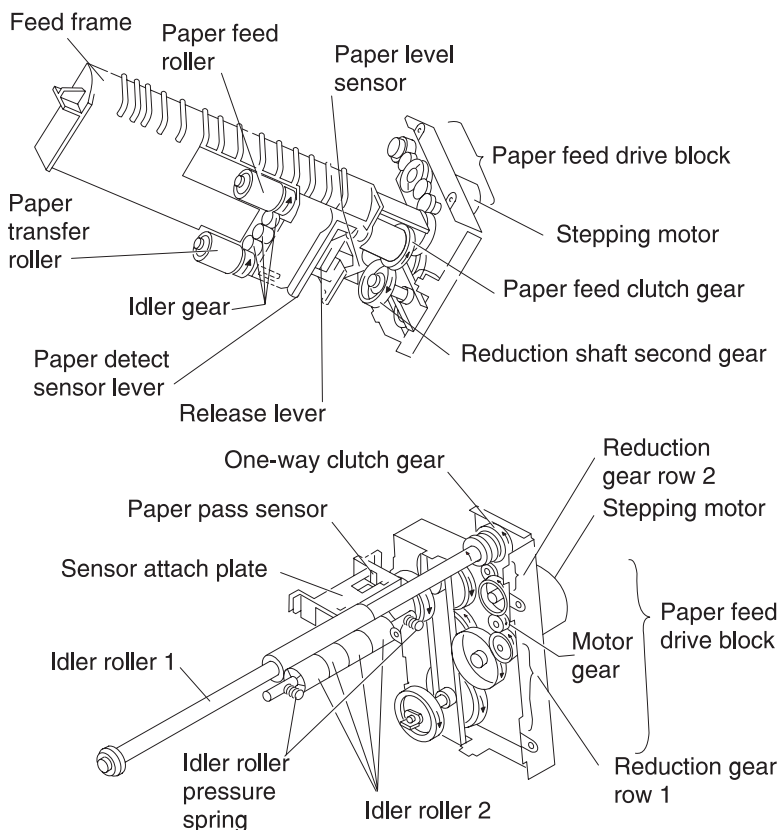


## **Operation of the Second paper feed unit**

When the paper cassette (tray 1) is placed in the printer, a flag molded to the right side of the tray, contacts the release lever which rotates the paper transfer roll allowing it to contact the paper in the tray.

When the command is given to start printing, the optional paper tray stepper motor rotates, rotating the respective reduction gears. The rotating reduction gears cause the gears attached to the paper feed roller and paper transfer roller to start rotating. The paper feed roller contacts the paper causing the paper to feed to the idler roller. The one way clutch causes the idler roller to rotate feeding the paper past the paper pass sensors located prior to the idler roller and the timing roller. After a predetermined period of time, the paper feed clutch is turns off and the paper feed roller and paper transfer roller stop rotating. At this point, the paper stops at the timing roller and pauses. If the pass thru sensors do not detect paper from the cassette, a paper jam displays.

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### Detecting the paper

Paper in the cassette is detected by the paper detect sensor. When the paper is detected the sensor is turns off. If paper is not detected the sensor remains off.

### Detecting paper level

The amount of paper remaining in tray 1 is detected by the paper detect sensor. When there is enough paper in tray 1 the sensor remains off. When the level is too low, less than 50 sheets, the sensor turns on and Load Paper tray 1 message displays.

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### **Detecting paper size**

Paper size is determined by the paper size detect plate connecting the inner part of the partition plate. This plate detects the paper size turning on the corresponding switch. It detects Legal, Letter, A4 or B5/EXE.



## Drive Block

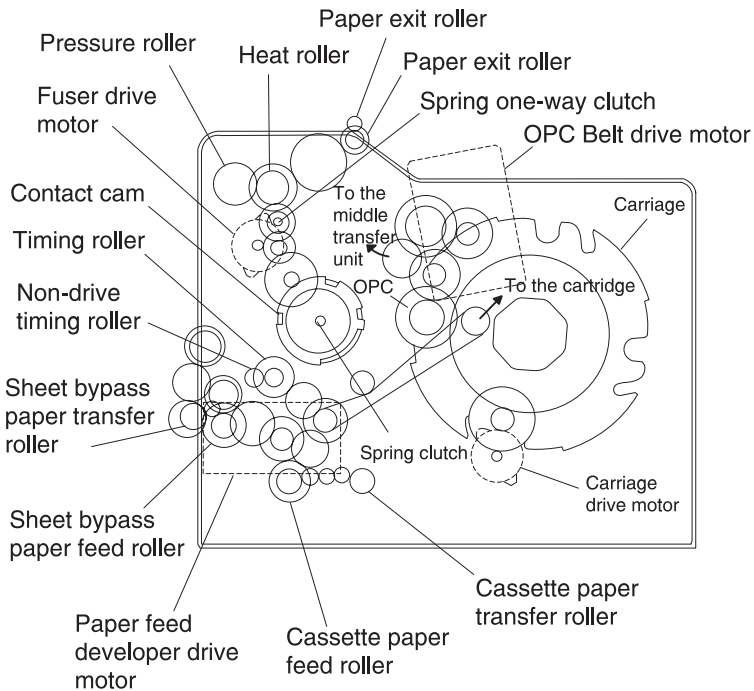
### Operation of the Drive Block

**Note:** The Drive Block consists of the paper feed drive block, developer drive block, fuser drive block, carriage drive block and OPC/IMT (Intermediate) drive block.

Refer to the drawing for layout of gears and rollers.

In the paper feed system, transmission is switched by three electromagnetic clutches. In the fuser system a one way clutch is provided in the center of the paper path to make paper jams easier to remove from the fuser unit.

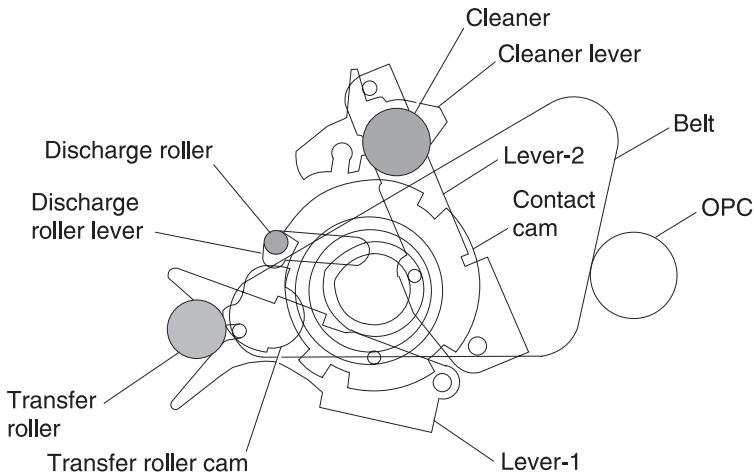
The rotation of the contact cam turns on and off by a spring clutch and solenoid.



## Contact Cam

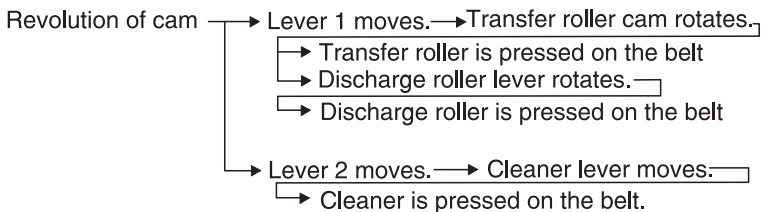
### Operation of transferring from the OPC to the transfer belt

The contact cam is stopped at the position shown in figure below. The pins fit into the grooves of the cam. Lever 1 and lever 2 are controlled at the position shown. The pin fits into the groove in lever 1 which controls the position of the transfer roller cam, detaching transfer roller from the transfer belt. The discharge roller is also detached from the transfer belt at this time. A pin in the side of lever 2 controls the cleaner lever which controls the position of the cleaner. The cleaner is detached from the transfer belt.

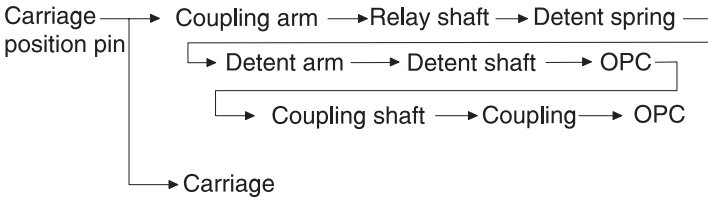


### Operation of transferring from the belt to the paper

The contact cam rotates according to the movement of the solenoid and spring clutch and stops. The revolution of the cam is transmitted in the following order: transfer roller, discharge roller and cleaner.



## Coupling Unit



### Operation of the coupling unit when initializing or printing

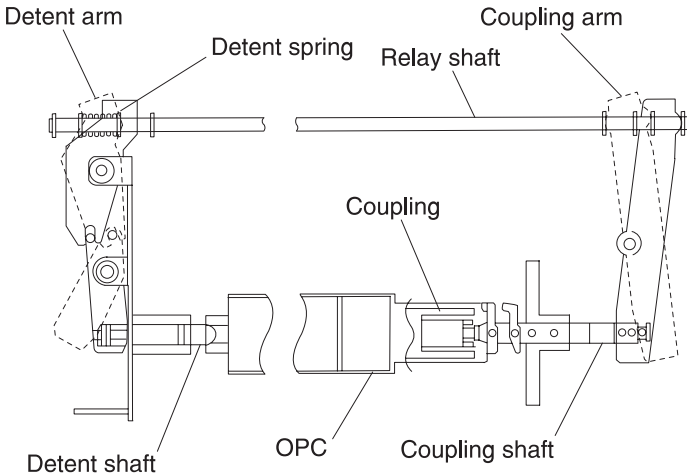
The coupling cam is rotated by the coupling motor. The carriage position pin slides toward the carriage.

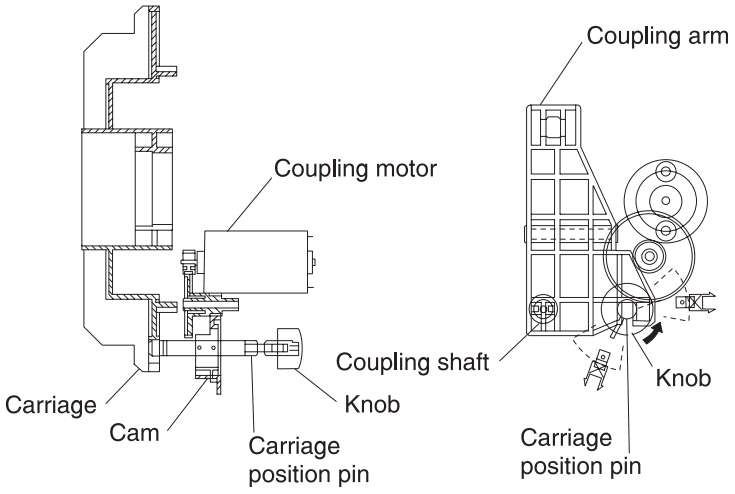
The OPC and carriage are positioned by the movement of the carriage position pin in the following order:

After initializing or printing, the coupling shaft, detent shaft and carriage position pin slide in reverse, by rotating the coupling motor in reverse in order to reset the position of the OPC and carriage.

### Manual resetting

By rotating the knob counterclockwise 180 degrees, the same operation as mentioned above can be performed manually.





## Carriage Unit

### Rotation and stopping operation of the carriage

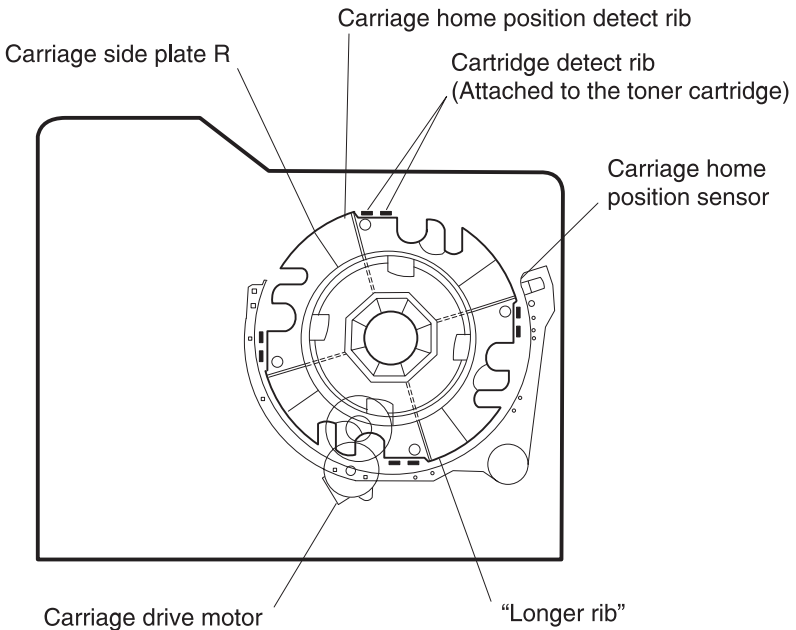
The carriage rotates by 90 degree angles when switching from one color to another. The carriage drive motor (pulse motor) turns on to rotate the carriage. After the carriage home position sensor detects the carriage home position detect rib, the operation is performed as many times as the specified number of pulses; then the carriage is stopped at the specified position.

### Detecting the carriage

When initializing, the carriage turns one turn so that the carriage home position sensor can detect the cartridge detect rib located on the toner cartridge.

### Detecting the carriage home position

Four carriage home position detect ribs are located on the carriage right side plate, one of which is longer than the other three. The position of respective color toner cartridges is detected by the length of the ribs while initializing.



## Toner Cartridge Unit

### Detecting a new cartridge

When initializing, a reflector attached to the new cartridge detect lever installed in the cartridge, reflects light. A new cartridge detect sensor installed in the bottom part of the printer, allows the cartridge to be detected. Once the cartridge has been used the new cartridge detect lever makes a turn and no additional reflections occur.

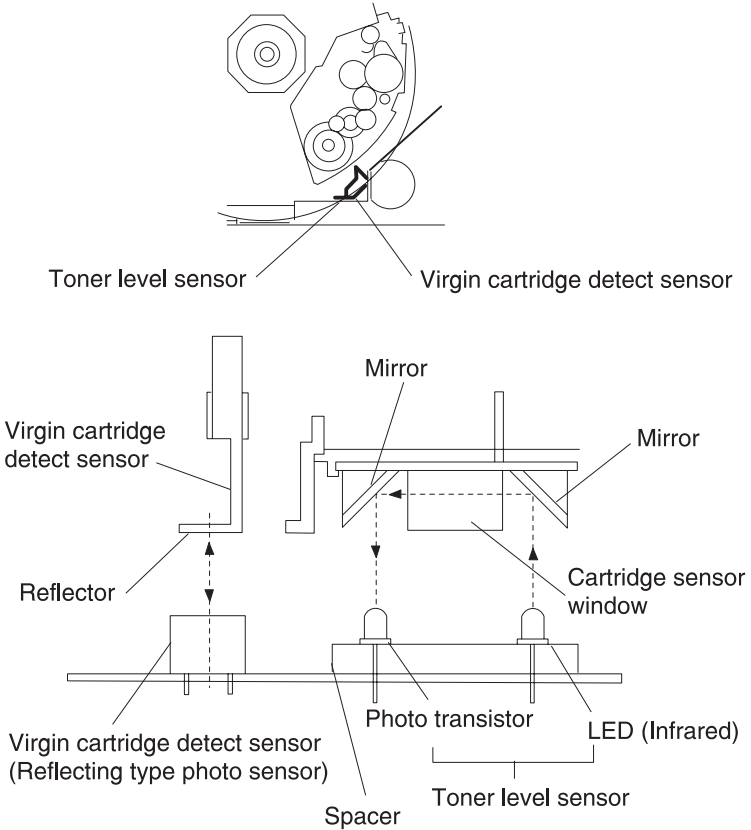
A new cartridge detect sensor:

- Will be high "H" when a cartridge has been used. (Sensor output at connector)
- Will be low "L" when a cartridge is present.

**Detecting toner level**

The toner level sensor is installed in the bottom of the printer and emits light from infrared LED's mounted in the sensor assembly, to mirrors mounted at an angle of the cartridge sensor window.

- No toner in cartridge: Will be high "H"
- Toner left in cartridge: Will be low "L" (toner sensor output at connector)



## Intermediate Transfer Unit

### Function of the intermediate transfer unit

The intermediate transfer unit consists of the transfer belt, belt cleanser and waste toner bottle in which cleaned toner is collected.

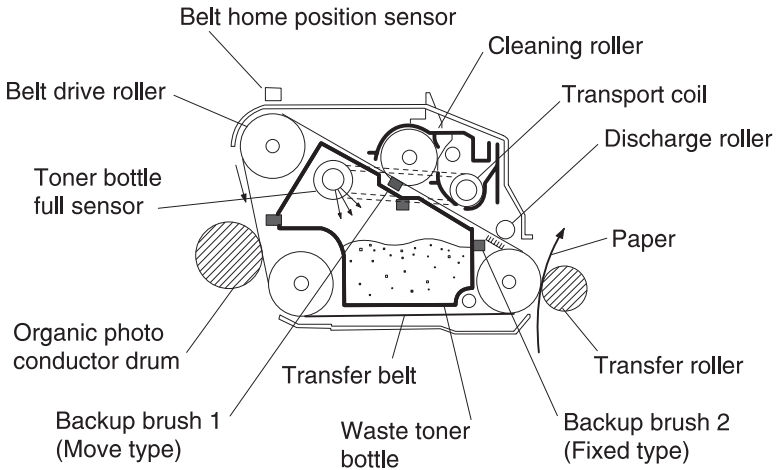
The transfer belt is made of an electrically conductive resin. The toner image, when placed on the organic photoconductor (OPC) drum is transferred onto the transfer belt by an electric field. The belt makes four turns, so that four color toner images, yellow (Y), magenta (M), cyan (C) and black (BK) are transferred onto the belt. The color image is formed on the transfer belt and the entire image is transferred onto paper by the transfer roller forming the color image on the paper.

**Note:** While the four color toner images are still on the transfer belt the transfer roller, discharge roller and cleaning roller are pulled away from the transfer belt. An optical reflector is attached on one edge of the outer circumference of the transfer belt and is used by the home position sensor to detect the position of the belt. After the image is transferred to the paper, any toner remaining on the belt is cleaned by the cleaning roller and transferred through the transport coil into the waste toner bottle in the belt unit. When cleaning the remaining toner, after the image has been transferred to paper, the transfer roller, discharge roller and cleaning roller, touch the transfer belt.



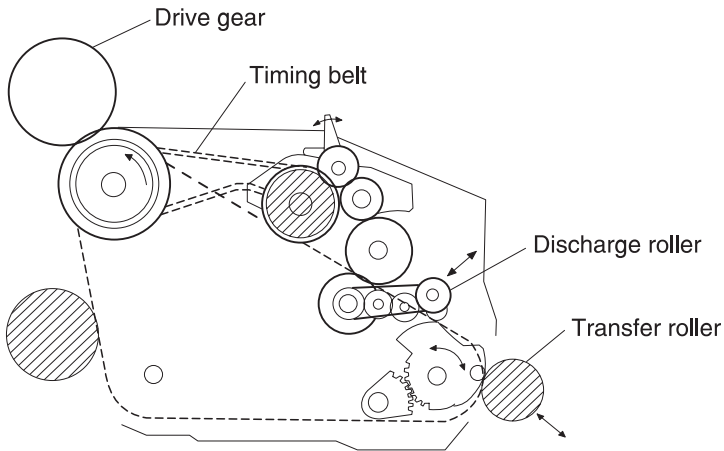
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The waste toner bottle is partitioned and collected toner is transferred into respective partitions in order. When the bottle is filled to capacity, it is detected by the waste toner bottle full sensor. The cleaner consists of the discharge roller, cleaning roller, blade and toner transport coil. The toner remaining on the belt is discharged by the discharge roller, transferred to the cleaning roller, scraped from the cleaning roller by the cleaning blade and transported to the waste toner bottle by the transport coil.



### Operation of the drive for the intermediate transfer unit

The belt gear is rotated by the belt drive gear, rotating the transfer belt. At the same time the cleaning roller and discharge roller are rotated by the timing belt and gear. The cleaner lever is shifted by a pin and the cleaning roller is detached from the transfer belt. At the same time, the contact pin is shifted by a lever causing the contact cam to turn. The transfer roller and discharge roller are detached from the transfer belt by the contact cam.



## Fuser/Paper Exit Unit

### Operation of the fuser and paper exit

When the power switch is turned on the fuser lamp is turned on by the low voltage power supply while the hot roll begins to heat.

When the hot roll reaches approximately 170 degrees C the fuser drive motor is turns on and the backup roll, hot roll and paper exit rollers start turning. After a specified time the fuser drive motor turns off and the printer is ready to print.

The thermistor continuously detects the temperature of the surface of the hot roll, turning the fuser lamp on and off keeping the surface of the hot roll at a specified temperature.

After the last sheet of paper prints and the paper exit sensor detects the exit of the sheet of paper, the fuser drive motor turns off and the backup roll, hot roll and paper exit roll stop turning.

A thermostat is provided to protect the fuser unit should an unusual rise in temperature occur in the hot roll assembly. If activated, the thermostat shuts off power to the fuser lamp.

A cleaner unit is located on top of the hot roll. The oil roller in the cleaner unit supplies a specified amount of oil to the hot roll preventing an offset. The cleaning roller prevents the hot roll from becoming dirty from a buildup of toner or paper dust.

If power is applied to the fuser unit and a cleaner unit has not been installed, the paper exit sensor lever is detached from the paper exit sensor and the printer proceeds to the paper jam state, preventing the hot roll, backup roll and paper exit roller from rotating.

## Detecting New Cleaning Unit

### Detecting the cleaning unit in the Fuser Assembly

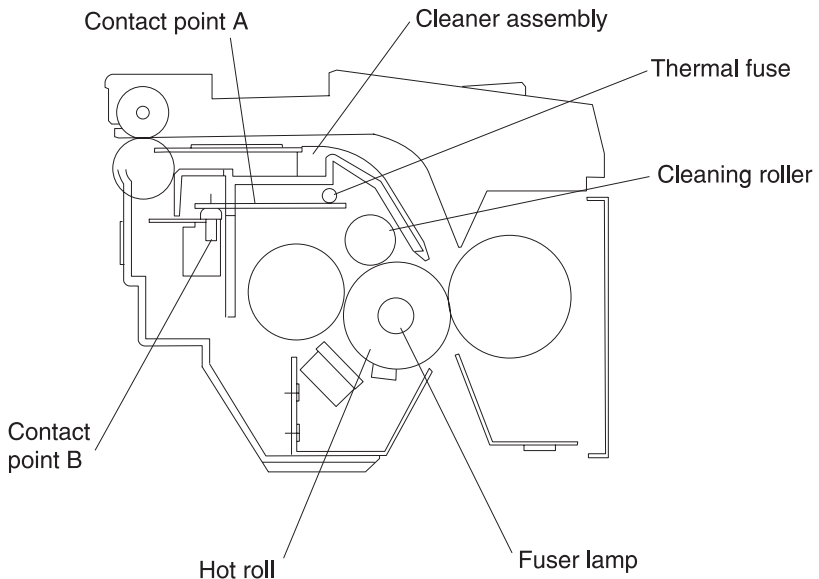
A thermal fuse is attached on the contact point A in the cleaner unit.

When the cleaner unit is placed inside the fuser unit, contact A contacts contact B. The circuit is then complete through the thermal fuse. When primary power is applied to the printer, a current flows through the thermal fuse detecting a new cleaner unit and the print counter resets to 'Zero.'

As the temperature of the hot roll and cleaning roll rise, the temperature around the thermal fuse also rises, eventually causing the thermal fuse to blow.

**Note:** The fuse will generally blow after primary power has been applied following the printing of two or three sheets of paper. At this time the temperatures of the blown fuse and surrounding parts are 70 degrees C and about 100 degrees respectively.

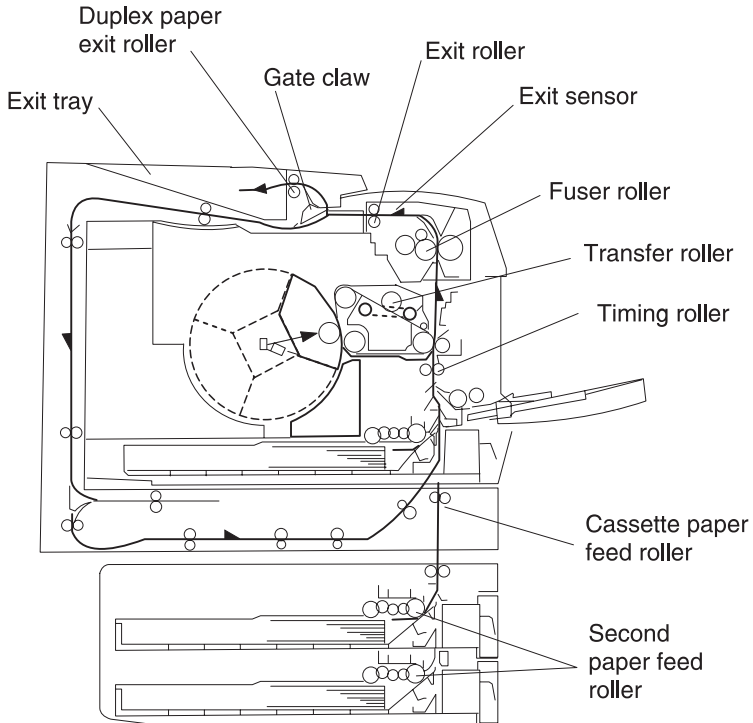
When predetermined sheets of paper are printed, a warning displays. When additional sheets are printed, the printer stops until the unit is replaced. When a new unit is placed, repeat the previous step.



## Duplex Unit (Option)

### One side print

The print fed by the paper feed rollers in tray 1 in the printer and in the second paper feed unit is halted temporarily at the timing roller for registration. The paper then passes through the transfer unit, in which the image is formed, and is fused in the fuser assembly. When the paper exit sensor detects paper, the drive of the automatic two sided print unit starts, switching the gate claw to the outer side to eject the page. The paper that is transported by the paper exit roller in the printer is ejected into the paper exit tray by the paper exit roller in the duplex unit.



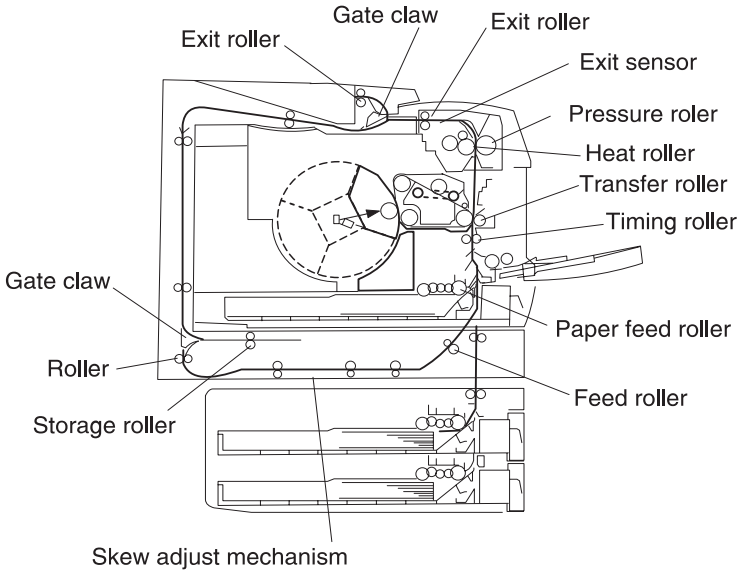
**Two sided print**

When the printer has been set for two sided print mode and start is pressed the following occurs:

When the setting is two pages. The paper feed roller in the printer starts rotating. The paper is transported by the timing roller and the back page is printed. The paper then passes through the fuser roller. When the leading edge of the paper reaches the paper exit sensor in the fuser, the upper unit motor starts rotating in the normal direction, switching the gate claw to the inner side to receive the paper. When the paper reaches the upper paper pass sensor, through the paper transport roller, the rotation of the motor is switched to the high-speed mode. At the same time, the lower unit motor begins rotating in the normal direction in the high speed mode, transporting the paper to the storage area in the lower unit through the rear unit.

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When the trailing edge of the paper passes through the reverse sensor filler (**S4**), the motor rotates in the reverse direction transporting the paper in reverse. The print is transported to the timing roller in the printer through the rollers in the curved area, the skew correction mechanism and the paper feed roller. The paper is then fed through the transfer and fuser units in sync with the image of the front page as it is transported onto the middle transfer unit. When the leading edge of the paper reaches the paper exit sensor [**S0**] in the printer, the upper unit motor starts rotating in the reverse direction, switching the gate claw to the paper exit mode. The paper then exits through the paper exit roller in the upper unit.



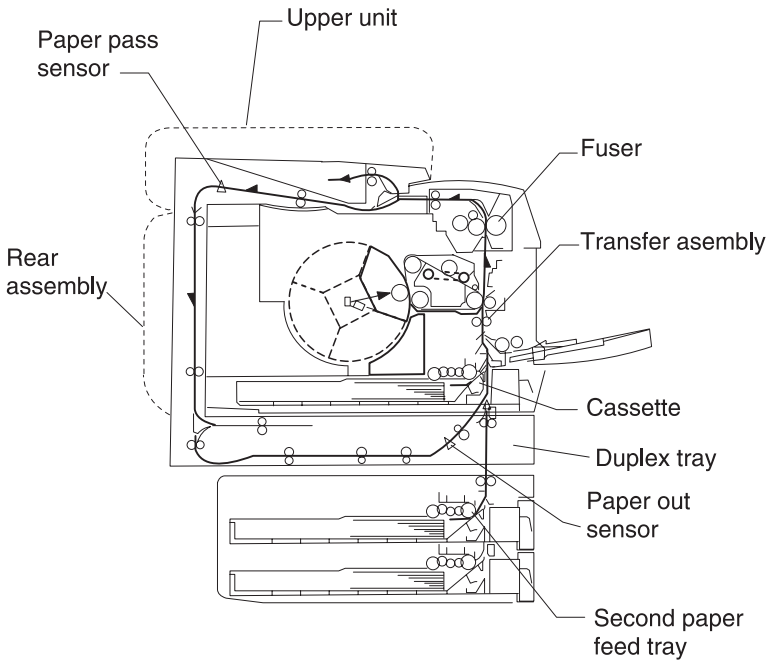
### When the setting is four pages

The back page of the first printed page is printed after **Print Start** is pressed. The print is received in the upper unit through the above step and then halted when it reaches the paper exit sensor [S5] through the storage, reverse and skew correction mechanisms in the lower unit. The second page is then fed from the selected paper tray and its back page is printed and transported to the upper unit. The second page stops when it reaches the upper paper pass sensor [S2] and is held there. The first page waiting in the lower unit is fed to the timing roller in the printer. When the timing roller rotates, the motors in the upper and lower units rotate in high speed mode, transferring the second page, waiting in the upper unit, to position in the lower unit. At this time, the front page of the first page is printed and then exits the printer. The printer then prints the front page of the second page and finally the second page, as it is finished, exits the printer.



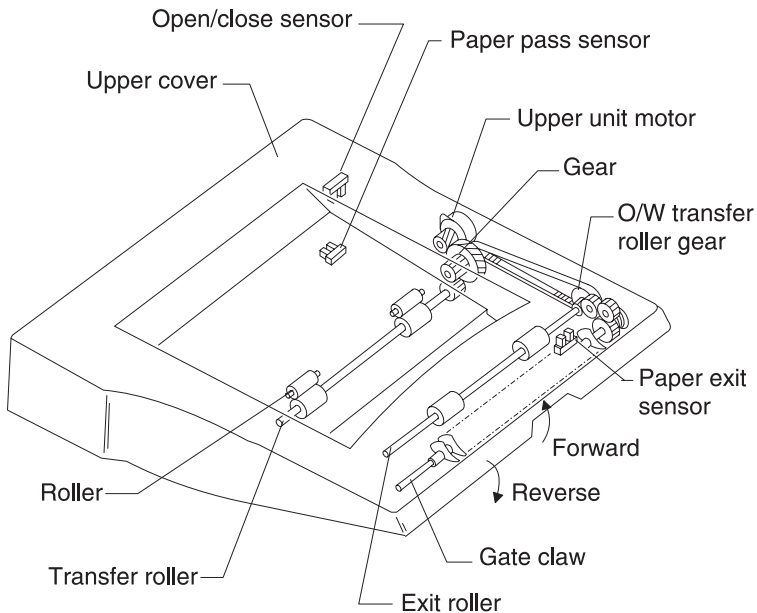
**When the setting is not less than six pages or three prints**

This operation stages pages in the lower and upper units and alternates transportation as shown in the preceding steps. These steps are performed successively.



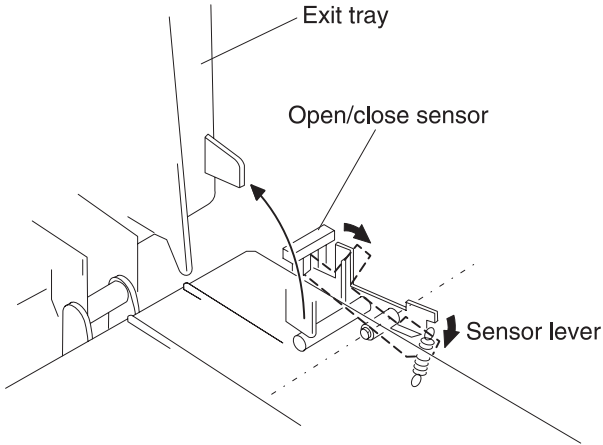
## Exit of the one sided print

When the printed page passes through the paper exit sensor in the printer, the upper duplex unit motor rotates in the reverse direction, rotating the gate claw in reverse, so that paper is ejected to the paper exit tray. When the page passes through the paper exit sensor in the printer, the upper duplex unit motor rotates in the normal direction in low speed mode, rotating the gate claw normally in order to receive the page. When the page passes through the pass sensor, the motor switches to high speed mode transporting the page to the duplex rear unit.



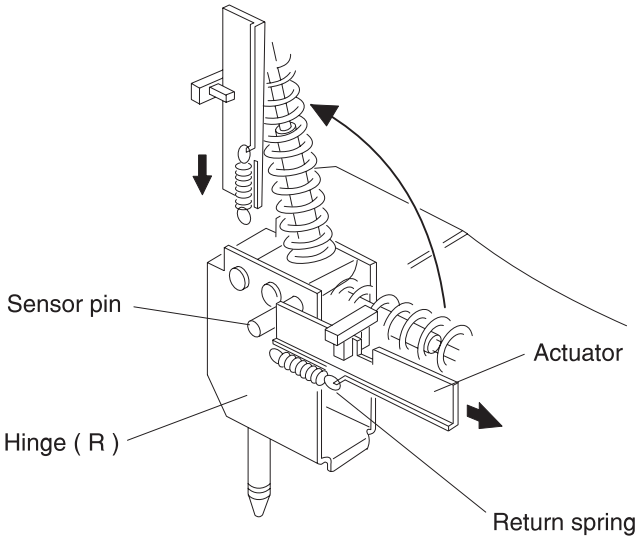
### Detecting the paper exit tray open/close

When the paper exit tray opens to remove a jammed print, the sensor lever shuts off the open/closed sensor so that detection is performed.



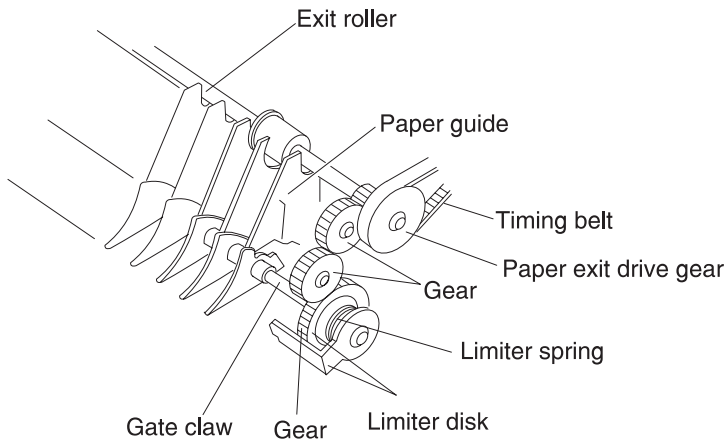
### Detecting the duplex upper unit open/close

When the upper unit opens, the actuator detaches from the right sensor pin in the right hinge. The actuator, pulled by the return spring, closes the sensor and detection is performed.

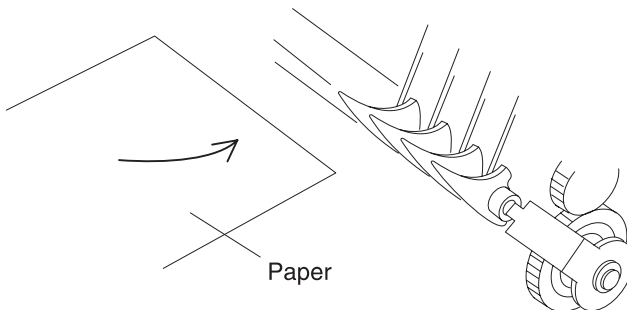


## Gate claw operation, when print exits

When the leading edge of a duplexed page prints, it turns the paper exit sensor in the printer on. The duplex upper unit motor starts rotating in the reverse direction, rotating the claw gear. The gate claw rotates counterclockwise feeding the page to the paper exit roller. The page then exits the printer.

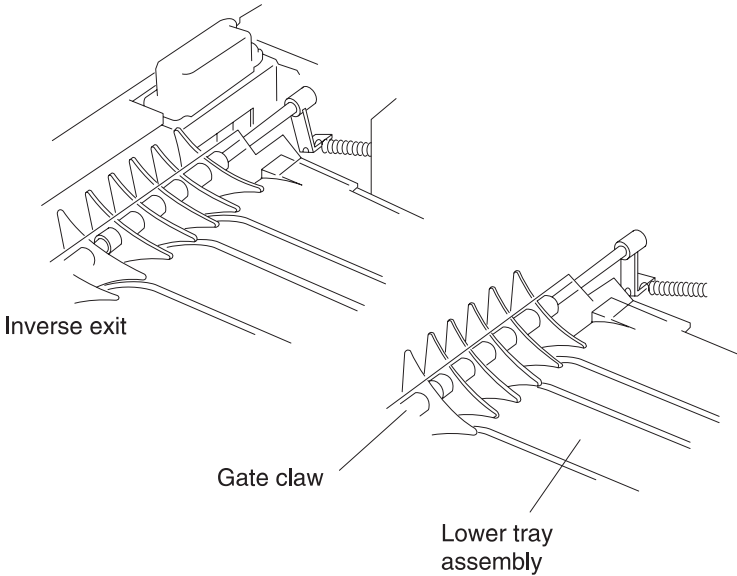


When the leading edge of a simplex page prints, it actuates the paper exit sensor and the duplex upper unit motor rotates in the normal direction. This rotation is then transmitted to the claw gear and limiter disk and the gate claw rotates in a clockwise direction so that the page can print on the opposite side.



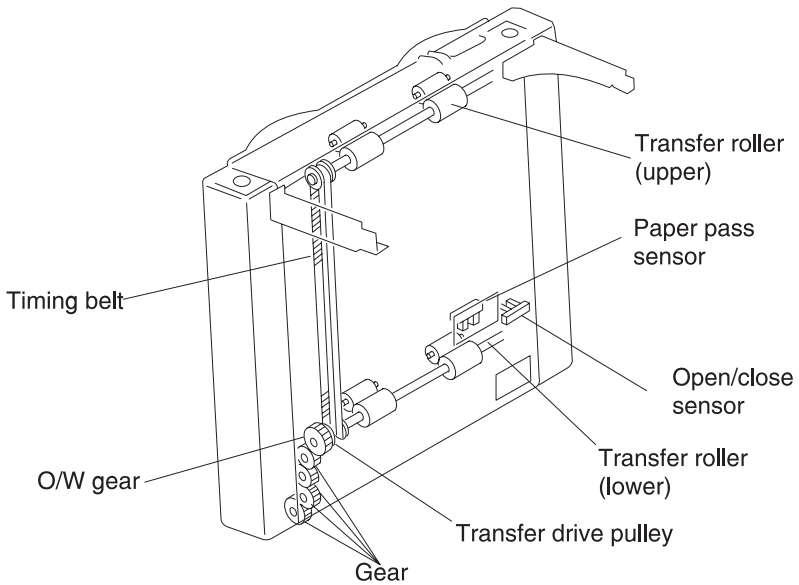
## Storage of the paper in the duplex unit

The page that is transported from the duplex rear unit pushes on the gate claw and is stored in the duplex lower tray unit. When the trailing edge of the page passes through gate claw 2, gate claw 2 is rotated by the gate claw spring until the gate claw lever touches the stopper, switching to reverse paper exit mode.



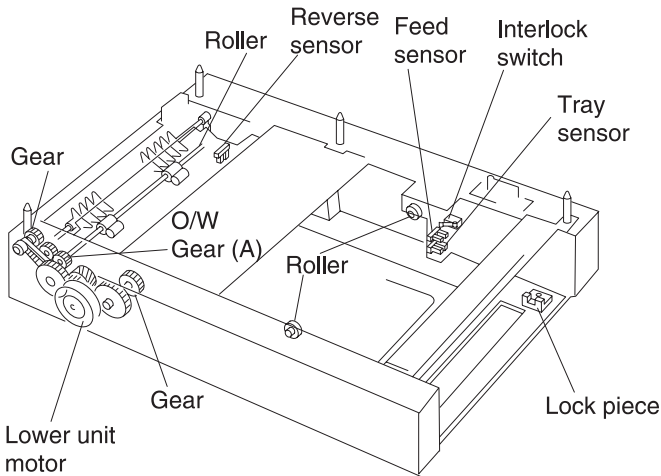
## Operation of the motor

When the leading edge of the paper reaches the paper pass sensor in the duplex upper unit, the upper unit motor goes into high speed mode (270m/sec). At this time, the duplex lower unit motor rotates in the normal direction. The rotation is transmitted to the gears in the lower unit as shown. When the leading edge of the paper reaches the paper pass sensor [S3], the duplex upper unit motor stops rotating.



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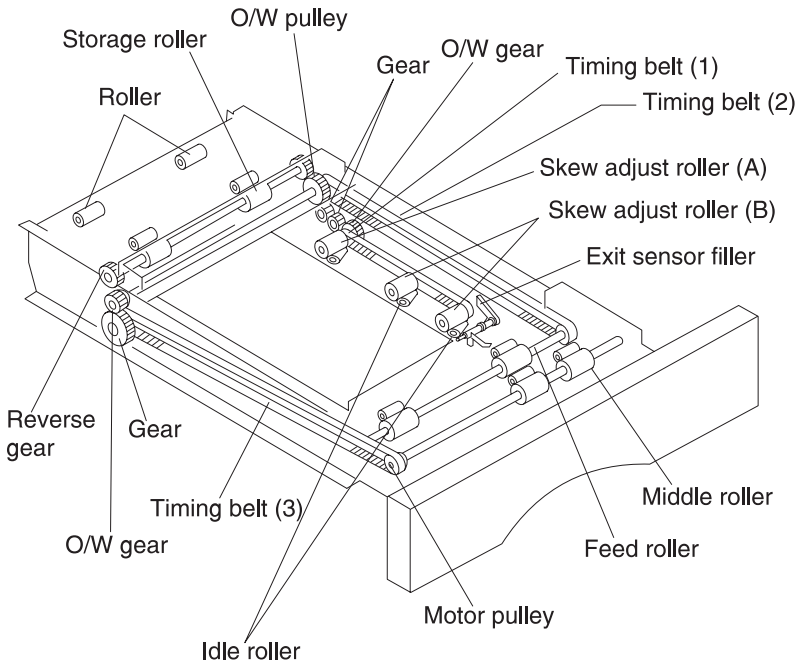
When the page is transported from the duplex rear unit for storage, the reverse sensor detects the paper. After the sensor detects the paper, for a specified time, the motor turns off and the print is stored. The duplex lower unit reverse motor supplies drive to the duplex rear unit and tray through gear 18Z. When the duplex tray is pulled out, the interlock switch opens and interrupts the circuit to the reverse motor. The tray condition sensor detects the position of the duplex tray and whether it is correctly installed. The transport sensor detects whether the page being transported passes through to the printer.



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When paper is fed from the 2nd paper option, the chassis side input gear rotates in [B] direction. The drive is transmitted to the one way gear 16Z through the store roller drive shaft, rotating the one way gear 16Z in the [B] direction.

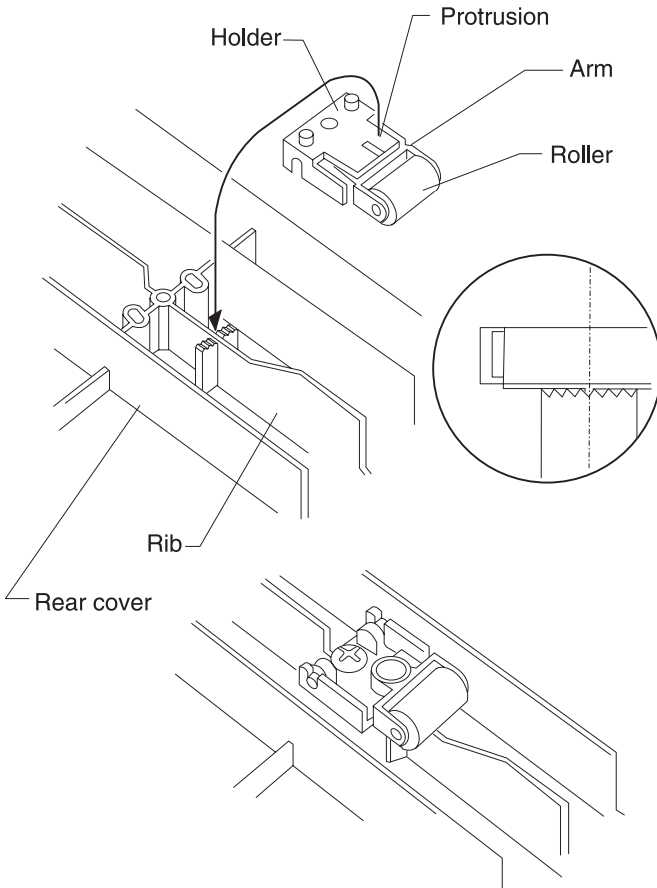
**Note:** Drive is not transmitted when the rotation is in the [A] direction, due to the one way clutch [A]. The timing belt drives, turning the idler rollers in the [B] direction, while transporting the page in the [B] direction.





## Skew Correction

The holder mounted on the lower side of the rear cover is inclined about 3 degrees, in the paper pass direction. The page is brought to the opposite side of the skew correction mechanism in the duplex lower tray unit by this inclination for the preparation of skew correction. To mount the holder, engage the tab of the holder with the second groove from the rib of the rear cover.



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## Acronyms

CSU	Customer Setup
DRAM	Dynamic Random Access Memory
EDO	Enhanced Data Out
EP	Electrophotographic Process
EPROM	Erasable, Programmable Read-Only Memory
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
GB	Giga Byte
HVPS	High Voltage Power Supply
LASER	Light Amplification Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
MROM	Masked Read Only Memory
NVRAM	Nonvolatile Random Access Memory
OEM	Original Equipment Manufacturer
PC	Photoconductor
RIP	Raster Imaging Processor
ROM	Read Only Memory
SIMM	Single In-Line Memory Module
SRAM	Static Random Access Memory
UPR	Used Parts Return
V ac	Volts alternating current
V dc	Volts direct current

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## 2. Diagnostic Information

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### Start

**CAUTION:** Remove power from the printer before you connect or disconnect any cable, electronic board or assembly, for personal safety and to prevent damage to the printer. Always use the hand grips on the side of the printer and be sure your fingers are not under the printer when you set the printer down.

Use the service error codes, user status messages, user error messages, symptom tables, service checks, and diagnostic aids, to determine the corrective action necessary to repair a malfunctioning printer.

Service error codes are indicated by a three-digit error code. If a service error code displays, go to the **“Service Error Codes” on page 2-2.**

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 Power Saver is invoked, then Power Saver is displayed. If a user status message displays, go to the **“User Status Messages” on page 2-7.**

User error messages are indicated by a two or three digit error code which provides the user with information explaining a problem with a print cartridge, paper jam, option, port, and so on. If a user error message displays, go to the **“User Attendance Messages” on page 2-13.**

If you have a failing symptom, go to the **“Symptom Tables” on page 2-28.** Locate your symptom and take the appropriate action.

If a service error code appears while you are working on the printer, go to the **“Service Error Codes” on page 2-2** and take the appropriate action.

## 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.

Error Code	Action
900 RIP Software	Contact your customer service center, or the Lexmark Customer Support Center.
910 DC Motor (1)	Locking error - the motor did not stabilize. Go to the <b>“OPC Drive Service Check” on page 2-66.</b>
911 DC Motor (2)	Locking error - the motor did not stabilize. Go to the <b>“Developer/Paper Feed Motor Service Check” on page 2-48.</b>
912 DC Motor	The motor stabilized then locking was released. Go to the <b>“Developer/Paper Feed Motor Service Check” on page 2-48.</b>
917 Transfer Belt	Go to the <b>“ITM Drive Service Check” on page 2-60.</b>
918 Fan Stalled	The main fan has stalled, or locked up. Go to the <b>“Main Fan Service Check” on page 2-62.</b>
<b>Note:</b> The following errors are detected when the printer is below the maintenance count.	
920 Fuser Error	Indicates that the fuser is below temperature when printing. Go to the <b>“Fuser Cold Service Check” on page 2-51.</b>
921 Fuser Error	Indicates that the fuser is below temperature and the system is detecting a thermistor short. Go to the <b>“Fuser Cold Service Check” on page 2-51.</b>
922 Fuser Error	Indicates that the fuser temperature failed to increase. Go to the <b>“Fuser Cold Service Check” on page 2-51.</b>
923 Fuser Error	Fuser is too hot during printing or when printer is idle. Go to the <b>“Fuser Hot Service Check” on page 2-57.</b>
924 Fuser Error	Indicates that the system has detected that the thermistor is open. Go to the <b>“Fuser Hot Service Check” on page 2-57.</b>

Error Code	Action
<p><b>Note:</b> The following errors are detected when the printer is above the maintenance count. As the fuser assembly is a CRU (customer replaceable unit) and is contained in the maintenance kits, ask if the customer has replaced the fuser CRU, or if he/she has installed a maintenance kit recently.</p>	
925 Fuser Error	Indicates that the fuser is below temperature when printing.
926 Fuser Error	Indicates that the fuser is below temperature and the system is detecting a thermistor short.
927 Fuser Error	Indicates that the fuser temperature failed to increase.
928 Fuser Error	Indicates that the fuser is too hot during printing, or when the printer is idling.
929 Fuser Error	Indicates that the system has detected that the thermistor is open.
930, 931, 934, 935 Printhead Error	Go to the <b>“Printhead Service Check” on page 2-77.</b>
939 RIP Engine Communications Error	<p>Indicates that the RIP board and the engine board cannot communicate. The RIP board, engine board or cabling may be defective. Check each board for correct installation and be sure all grounds are secure. If no problem exists, replace the following FRUs in the order shown:</p> <ul style="list-style-type: none"> <li>• Engine board</li> <li>• Controller board</li> <li>• Interconnect board</li> </ul> <p><b>Note:</b> It is possible that the RIP software can also cause a 929 error. Contact your next level for software support.</p>
<ul style="list-style-type: none"> <li>• 941 Controller Code CRC</li> <li>• Controller Font CRC</li> </ul>	Replace the controller board.
943 RIP Font Version	Indicates that the font ROM and RIP code are incompatible.

Error Code	Action
948 Engine Board	Indicates that the engine board microprocessor has stopped. Replace the engine board assembly. Go to the <b>“Engine Board Assembly Removal” on page 4-19.</b>
953 NVRAM Failure	Indicates the NVRAM failed the CRC check. Replace the engine board assembly. Go to the <b>“Engine Board Assembly Removal” on page 4-19.</b>
954 NVRAM CRC Failure	Indicates the engine board NVRAM failed the CRC check. Replace the engine board assembly. Go to the <b>“Engine Board Assembly Removal” on page 4-19.</b>
955 Font CRC	Indicates that the font ROM failed the CRC check. Replace the code overlay SIMM.
956 System Board	Indicates that there was a microprocessor failure on the controller board. Replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
957 ASIC Failure (Controller Board)	Indicates that there was an ASIC failure on the controller board. Replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
958 ASIC Failure (Engine Board)	Indicates that there was an ASIC failure on the controller board. Replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
959 SRAM Failure	Indicates that there was an SRAM failure on the controller board. Replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
960 RAM Memory Error	Indicates that the RAM soldered on the controller board is defective. Replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
961 RAM Memory Error	Indicates that the DRAM installed in slot 1 on the controller board is defective. Replace the DRAM SIMM. If this does not fix the problem, replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
962 RAM Memory Error	Indicates that the DRAM installed in slot 2 on the controller board is defective. Replace the DRAM SIMM. If this does not fix the problem, replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>

Error Code	Action
963 Memory Error	Indicates that the DRAM installed in slot 3 on the controller board is defective. Replace the DRAM SIMM. If this does not fix the problem, replace the controller board assembly. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
964 Emulation Error	Indicates that the download emulation CRC has failed. A checksum failure was detected in the emulation header or emulation file. Replace the code overlay SIMM.
965 Emulation Error	Indicates that the download emulation is outdated. Time stamps indicate that the download emulation and controller code are incompatible. <ul style="list-style-type: none"> <li>• Disable the download emulation.</li> <li>• Program the download emulation into the code overlay SIMM.</li> <li>• If the above steps do not fix the problem, replace the code overlay SIMM and re-download the emulation.</li> </ul>
975 Network Card X	Indicates that a failure has occurred with the network card installed in slot x (x=1, 2 or 3).
976 Network Card X	Indicates an unrecognizable network card x. Replace network card x.
978 Network Card X	Indicates that a bad checksum has been detected while programming network card x. Replace network card x.
979 Network Card X	Indicates that flash parts failed while programming network card x. If this is a network model printer, replace the controller board. Go to the <b>“Controller Board Assembly Removal” on page 4-19.</b>
990 Coupling Operation Error	A failure has occurred in the coupling operation. Go to the <b>“Coupling Unit Service Check” on page 2-42.</b>
991 Coupling Sensor Error	Coupling sensor 1 and 2 have turned on simultaneously. Go to the <b>“Coupling Unit Service Check” on page 2-42.</b>
992 High Voltage Leakage	The high voltage leakage detection circuit has detected leakage in the high voltage system. Go to the <b>“High Voltage Leakage Detect Service Check” on page 2-58.</b>

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Error Code	Action
993 Cam Sensor does not turn on	The cam sensor did not activate. Go to the <b>“Fuser Drive and Contact Cam System Service Check”</b> on <b>page 2-53</b> .
994 Engine EEPROM Error	An engine EEPROM error has been detected.



## User Status Messages

Message	Status	Action
Ready	The printer is ready to receive and process data.	If the printer has an internal fax modem, the Ready/Fax icon is also displayed.
Power Saver	When your printer is in power saver mode, the <b>Power Saver</b> message replaces the <b>Ready</b> message on the display. When <b>Power Saver</b> is displayed, your printer is ready to receive and process data.	When <b>Power Saver</b> is displayed, you can: <ul style="list-style-type: none"> <li>• Press <b>Go</b> to quick start the printer.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> to enter the menus.</li> </ul>
Warming Engine	The printer is warming the fuser to prepare for printing.	N/A
Performing Self Test	The printer is running the normal series of start-up tests it performs after it is turned on.	N/A
Busy	The printer is processing or printing data. (The light on the operator panel flashes while this message is displayed.) If a job name has been defined, the name replaces the <b>Busy</b> message on the display.	To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> . When the Job Menu is displayed, press <b>Select</b> . Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b> .
Flushing Buffer	The printer is flushing corrupted print data and the current print job is being discarded.	No button actions are possible while this message is displayed.

Message	Status	Action
Waiting	The printer has received a page of data to print but is waiting for an End of Job or Form Feed command or for additional data.	<ul style="list-style-type: none"> <li>• To print the contents of the print buffer, press <b>Go</b>.</li> <li>• To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed. Press <b>Select</b>. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b>.</li> </ul>
Not Ready	The printer is not ready to receive or process data, because someone selected <b>Stop</b> when another message was displayed.	<ul style="list-style-type: none"> <li>• Press <b>Go</b> to remove the printer from the Not Ready state.</li> <li>• To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed. Press <b>Select</b>. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b>.</li> </ul>
Ready Hex	<p>Hex Trace diagnostic mode is active, and the printer is ready to receive data.</p> <p>Use Hex Trace to isolate the source of a print job problem. With Hex Trace selected, all data sent to the printer is printed in hexadecimal and character representation.</p> <p>Control code strings are printed, not executed.</p>	<ul style="list-style-type: none"> <li>• To exit Hex Trace mode, turn the printer off or reset the printer.</li> <li>• To reset the printer, press <b>Menu&gt;</b> or <b>&lt;Menu</b>. When the Job Menu is displayed press <b>Select</b>. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line. Press <b>Select</b>.</li> </ul>
Locking Menus	Someone has locked the menus. While the menus are locked, users cannot change the printer default settings from the operator panel.	N/A

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Message	Status	Action
Unlocking Menus	Someone has unlocked the menus. Users can now change the printer default settings from the operator panel.	N/A
Disabled Menu	Menus have been locked, or disabled.	N/A
Enabled Menu	Menus have been unlocked.	N/A
Supplies	At least one of the printer supplies needs attention. You may have a paper tray that is low on paper or a print cartridge that needs replacing.	Press <b>Menu&gt;</b> or <b>&lt;Menu</b> to open the Supplies Menu.
Activating Menu Changes	This message is displayed when the printer is being reset. To activate some of the printer settings, the printer must restart. No buttons are active when this message is displayed.	N/A
Parallel	The standard parallel interface is the active communication link.	N/A
Parallel x	The specified parallel interface is the active communication link.	N/A
Serial x	The specified serial interface is the active communication link.	N/A
Network x	The specified network interface is the active communication link.	N/A
LocalTalk x	The LocalTalk interface is the active communication link.	N/A
Infrared x	The infrared interface is the active communication link.	N/A
Fax	The fax interface is the active communication link.	N/A

Message	Status	Action
Cancelling Job	The printer is processing a request to cancel the print job.	N/A
Resetting the Printer	The printer is deleting any print jobs in progress and restoring all print settings to the user defaults.	N/A
Flushing Buffer	The printer is flushing corrupted print data and discarding the current print job. No buttons are active when this message is displayed.	N/A
Queuing Jobs	This message is displayed after an operator has exited the CONFIDENTIAL JOB or HELD JOBS operation and has marked one or more Print and Hold jobs for printing or selected the Print All Jobs option. No buttons are active when this message is displayed.	N/A
Deleting Jobs	<p>This message is displayed after an operator has exited the CONFIDENTIAL JOB or HELD JOBS operation and has marked one or more Print and Hold jobs for deletion or selected the Delete All Jobs option. No buttons are active when this message is displayed.</p> <p>This message may appear with the Queuing Jobs message if one or more Print and Hold jobs have been selected for printing and deletion.</p>	N/A

Message	Status	Action
Printing Menu Settings	A list of user default settings and installed options is printing.	To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> . The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b> .
Printing Font List	A list of available fonts for the selected printer language is printing.	To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> . The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b> .
Printing Directory List	A list of all files stored in flash memory or on the hard disk is printing.	To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> . The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b> .
Printing Job Accounting Stat	An accumulated statistics report for the most recent print jobs is printing.	To cancel the print job, press <b>Menu&gt;</b> or <b>&lt;Menu</b> . The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b> .
Clearing Job Accounting Stat	The printer is deleting all job statistics stored on the optional disk.	N/A
Restoring Factory Defaults	The printer is restoring factory defaults. See <b>“Restore EP Factory Defaults” on page 3-22</b> for details about which printer settings are affected. No buttons are active when this message is displayed.	N/A
Formatting Flash	The printer is formatting the flash memory. No buttons are active when this message displays.	Do not turn the printer off while this message displays.

<b>Message</b>	<b>Status</b>	<b>Action</b>
Programming Flash	The printer is storing resources in flash memory.	Do not turn the printer off while this message is displayed.
Defragmenting Flash	The printer is performing the defragmentation operation on flash memory. This operation is used to reclaim flash memory space occupied by deleted resources. No buttons are active when this message is displayed.	Do not turn the printer off while this message is displayed.
The printer is formatting the hard disk.	The printer is formatting the hard disk. No buttons are active when this message is displayed.	Do not turn the printer off while this message displays.
The printer is storing resources on the hard disk.	The printer is storing resources on the hard disk.	Do not turn the printer off while this message displays.
The network adapter is being reset.	The Network x Setup menu is not available while this message displays.	N/A

## User Attendance Messages

Message	Status	Action
Close Door	The printer's front cover, fuser cover, or cartridge cover is open.	Close the printer's front cover, fuser cover, or cartridge cover.
Insert Tray x	The tray is not inserted.	Insert the tray indicated (tray 1, 2, or 3).
Change Media	The printer is requesting a different size or type media than what it detects is in the identified tray (tray 1, 2, 3, or the multipurpose feeder). The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.	<p>To clear the message:</p> <p>If the correct paper type is loaded in the tray (but the Paper Type setting was not changed from the operator panel), press <b>Go</b> to continue printing.</p> <p>Press <b>Select</b> to ignore the request and print on the media already installed in the tray.</p> <p>Load media of the requested size and type in the tray indicated.</p> <p>To cancel the print job.</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>

Message	Status	Action
Load Media	<p>This attendance message indicates the type of media selected is not available in the source tray you want to print from or the paper type indicated by the Paper Menu does not match the type or size of the media you have requested to print on.</p> <p>This message will display either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.</p>	<p>To clear the message:</p> <p>If the correct paper type is loaded in the tray (but the Paper Type setting was not changed from the operator panel), press <b>Go</b> to continue printing.</p> <p>Press <b>Select</b> to ignore the request and print on the media already installed in the tray.</p> <p>Load media of the requested size and type in the tray indicated.</p> <p>To cancel the print job.</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed.</li> <li>• Press <b>Select</b>. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
Tray x Empty	<p>The printer is trying to feed paper from a source it detects is empty (tray 1, 2, 3, or the multipurpose feeder). The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.</p>	<p>To clear the message, load media of the requested size and type in the tray indicated.</p> <p>To cancel the print job:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>



Message	Status	Action
Load Manual	You have sent a request for a manual feed job to the printer, and the printer is ready for you to insert a single sheet or envelope into the multipurpose feeder. The message displays either the custom media name defined using the MarkVision utility, the media size, or the media size and type it is looking for.	<p>To clear the message, load media of the requested size and type in the multipurpose feeder. Press <b>Select</b> or <b>Go</b> to ignore the manual feed request and print on media already installed in one of the paper sources. If the printer finds a tray that has media of the correct size and type, it feeds media from that tray. If the printer cannot find a tray with the correct media size and type, it prints on whatever media is installed in the default paper source.</p> <p>To cancel the print job.</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
No Jobs Found Retry?	This attendance message occurs if you have entered a PIN (Personal Identification Number) to print or delete a Confidential Print Job and your PIN is not associated with any Confidential Print Job currently stored in the printer.	<ul style="list-style-type: none"> <li>• Press <b>Go</b> to enter another PIN.</li> <li>• Press <b>Return</b> or <b>Stop</b> to exit the PIN entry operation.</li> </ul>
Print Jobs on Disk?	Jobs that were spooled to the optional hard disk before the printer was last turned off have not yet printed.	<ul style="list-style-type: none"> <li>• Press <b>Go</b> to print the jobs.</li> <li>• Press <b>Return</b> or <b>Stop</b> to delete the jobs from the disk without printing them.</li> </ul>

Message	Status	Action
Delete All Jobs Go/Stop?	This message is displayed when you have selected all CONFIDENTIAL JOBS or HELD JOBS for deletion. This message warns the user this operation results in the deletion of all confidential or held print jobs.	<p>You must take one of the following actions:</p> <ul style="list-style-type: none"> <li>• Press <b>Return</b> or <b>Stop</b> to cancel the delete operation.</li> <li>• Press <b>Go</b> to validate the option and delete all confidential or held jobs.</li> </ul>
Files Will be Lost Go/Stop?	You have changed the Job Buffer Size setting from the operator panel, and the printer must reformat the hard disk to activate the change.	<p>If you press <b>Go</b>, all files currently stored on the disk will be deleted.</p> <p>Press <b>Return</b> or <b>Stop</b> to cancel this operation.</p>
Invalid Font Data	The printer has detected an incompatibility between the font data and the firmware.	You must download compatible font data to flash memory before the printer can return to the ready state.
Invalid Network x Code	The code in the specified network adapter has not been programmed or is invalid.	You must download valid code to the network adapter before the printer can return to the ready state.
30 Color Toner Missing	The specified cartridge (Cyan, Magenta, Yellow, or Black) is not installed in the printer.	Insert the cartridge and close the cartridge cover to clear the message.

Message	Status	Action
35 Res Save Off Deficient Memory	The printer lacks the memory needed to enable the Resource Save function. This message usually indicates that too much memory is allocated for one or more of the printer link buffers.	<p>To disable Resource Save and continue printing, press <b>Go</b>.</p> <p>To enable Resource Save after you get this message, perform one of the following:</p> <ul style="list-style-type: none"> <li>• Set the link buffer for each interface to Auto. Then exit the menus to activate the link buffer changes. When the <b>Ready</b> message is displayed, enable Resource Save from the Setup Menu.</li> <li>• Install additional printer memory.</li> </ul>
37 Insufficient Collation Area	The printer memory (or optional hard disk, if installed) does not have the space necessary to collate the print job.	<p>Press <b>Go</b> to print the portion of the job already stored and begin collating the rest of the job.</p> <p>To cancel the print job:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
37 Insufficient Defrag Memory	The printer is unable to perform the requested Flash Memory Defragment operation because the printer does not have enough memory. This message is posted before the operation begins to ensure items in flash memory are not lost.	<p>Press <b>Go</b> to clear the message.</p> <p>If you want to perform the defragment operation, delete fonts, macros, and other data in RAM and try again or install more memory.</p>

Message	Status	Action
37 Insufficient Memory Held Jobs may be Lost. Go/Stop?	The printer is unable to perform the requested Print and Hold operation because the printer does not have enough memory.	<ul style="list-style-type: none"> <li>• Press <b>Go</b> to clear the message. The printer starts to free memory by deleting the oldest held job and continues deleting held jobs until enough memory has been freed to process the incoming job.</li> <li>• Press <b>Stop</b> to clear the message. Incoming data that was not stored is lost.</li> </ul>
38 Memory Full	The printer is processing the job, but the memory used to store pages is full.	<p>Press <b>Go</b> to clear the message and continue printing. Some data may not print or may not print correctly.</p> <p>Cancel the print job. Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b>.</p> <p>To reduce the complexity of the job:</p> <ul style="list-style-type: none"> <li>• Reduce the number of graphics or images on a page.</li> <li>• Delete unnecessary downloaded fonts or macros.</li> <li>• Change the Print Quality setting.</li> </ul> <p>Install additional printer memory to avoid future Memory Full errors.</p>

Message	Status	Action
39 Complex Page	The text, graphics, and print information on the page require more memory to print than what you have installed in your printer.	<ul style="list-style-type: none"> <li>• Press <b>Go</b> to clear the message and continue printing. Some data may not print or may not print correctly.</li> <li>• Cancel the print job. Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Cancel Job appears on the second line. Press <b>Select</b>.</li> </ul> <p>To avoid another Complex Page error:</p> <ul style="list-style-type: none"> <li>• Set Page Protect On from the Setup Menu and resend the job.</li> <li>• Reduce the complexity of the page by using fewer fonts, macros, and graphics.</li> <li>• Install additional printer memory.</li> </ul>
51 Defective Flash	The flash card installed in your printer is defective.	Press <b>Go</b> to clear the message and continue printing. You must install a different flash card before you can perform any flash functions.

Message	Status	Action
52 Flash Full	There is not enough space available to hold the resources you want to store in flash memory.	<p>Press <b>Go</b> to clear the message and continue processing. Downloaded fonts and macros not previously stored in flash memory or disk are deleted.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
53 Unformatted Flash	The flash memory installed in your printer has not been formatted. You must format the flash memory before downloading resources.	Press <b>Go</b> to clear the message. To format flash memory, select <b>Format Flash</b> from the Utilities Menu.
54 Serial Option x Error	The printer has detected a protocol error on the specified serial interface. Be sure the serial interface parameters are set up correctly and you are using an appropriate serial cable.	<p>Press <b>Go</b> to clear the message and continue printing. The job may not print correctly.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>

Message	Status	Action
54 Serial x Fax Connection Lost	The printer has detected the external modem that was once connected to the serial port is no longer responding. If the printer has been configured to receive faxes from a serial port and the Fax Port setting is not set to disabled, it polls the modem. If it detects the modem connection is missing, it displays the attendance message. If the modem connection is re-established, the printer removes the message from the display.	If the modem has been intentionally disconnected, you can press <b>Go</b> to clear the message and continue printing.
54 Std Par ENA Connection Lost	An External Network Adapter (ENA) that was once connected to the standard parallel port is no longer responding. The printer only recognizes the missing connection when the printer power is first turned on.	<ul style="list-style-type: none"> <li>• Be sure the cable connecting the ENA and the printer is securely attached.</li> <li>• Turn the printer off and then on again to see if the printer recognizes the connection.</li> <li>• Press <b>Go</b> to clear the message. The printer erases any reference to the ENA and then resets.</li> </ul>
54 Network x Software Error	The printer software has detected that a network port is installed and cannot establish communications with it.	Press <b>Go</b> to clear the message. The printer disables all communications to the associated network interface. No data can be transmitted through this interface. You can program new firmware in the network interface through the parallel port after this message clears.

Message	Status	Action
54 Par x ENA Connection Lost	An External Network Adapter (ENA) that was once connected to the specified parallel port is no longer responding. The printer only recognizes the missing connection when the printer power is first turned on.	<ul style="list-style-type: none"> <li>• Be sure the cable connecting the ENA and the printer is securely attached. Turn the printer off and then on again to see if the printer recognizes the connection.</li> <li>• Press <b>Go</b> to clear the message. The printer erases any reference to the ENA and then resets.</li> </ul>
55 Insufficient Fax Buffer	<p>This attendance message may appear if the printer is processing a print job. The printer must complete the print job before processing the fax data. If the fax buffer is not large enough to hold the fax data, this message is displayed. After this message is posted, the printer breaks the phone connection with the sending fax printer.</p> <p>The ability of the printer to process fax data exceeds the data transmission rate of most fax printers.</p>	<p>Press <b>Go</b> to clear the message and continue processing the current print job.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
56 Std Parallel Port Disabled	Data was sent to the standard parallel port, but the port has been disabled from the Parallel Buffer menu item.	<p>Press <b>Go</b> to clear the message. The printer discards the data sent to the parallel port.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. The Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>



Message	Status	Action
56 Parallel Port x Disabled	Data was sent to the specified parallel port, but the port has been disabled from the parallel buffer menu item.	<p>Press <b>Go</b> to clear the message. The printer discards the data sent to the parallel port.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
56 Serial x Port Disabled	Data was sent to the specified serial port, but the port has been disabled from the serial buffer menu item.	<p>Press <b>Go</b> to clear the message. The printer discards the data sent to the serial port.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until the Job Menu is displayed.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
58 Too Many Disks Installed	You have more than one hard disk installed.	Turn the printer off and follow the instructions in your <i>Setup Guide</i> for installing an optional hard disk.
58 Too Many Flash Options	You have more than one flash option installed.	Turn the printer off and follow the instructions in your <i>Setup Guide</i> for installing and removing flash memory.

Message	Status	Action
61 Defective Disk	The hard disk installed in your printer is defective.	Press <b>Go</b> to clear the message and continue printing. You must install a different disk before you can perform any disk functions.
62 Disk Full	There is not enough space available to hold the resources you want to store on disk.	<p>Press <b>Go</b> to clear the message and continue processing. Downloaded fonts and macros not previously stored in flash memory or disk are deleted.</p> <p>To reset the printer:</p> <ul style="list-style-type: none"> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b>. When the Job Menu is displayed press <b>Select</b>.</li> <li>• Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until Reset Printer appears on the second line.</li> <li>• Press <b>Select</b>.</li> </ul>
63 Unformatted Disk	The hard disk installed in your printer has not been formatted. You must format the disk before you can download resources to it.	<p>Press <b>Go</b> to clear the message. If the error message remains, the disk may be defective and need replacing.</p> <p>To format the disk, select <b>Format Disk</b> from the Utilities Menu.</p>
64 Disk not in Slot 3	If you place an optional hard disk in slot 1 or 2, this message appears on the operator panel. The optional hard disk must be placed in slot 3 for the printer to operate. If you have another adapter in slot 3, move it to slot 1 or 2 and place the hard disk in slot 3.	<p>Refer to your <i>Setup Guide</i> for information on installing an optional hard disk in your printer.</p> <p><b>Note:</b> Do not attempt to remove or install the hard disk with the printer power on or the power cord connected.</p>

Message	Status	Action
70–79 Network	Reserved for messages relating to the optional print server sometimes referred to as an Internal Network Adapter (INA) installed in your printer.	For more information, refer to the online documentation included on the printer CD under “Network Printing.”
83 Transfer Belt Life Warning	This message indicates the waste toner area is full.	If you suspect a false waste toner full condition has occurred, you can clean the waste toner sensor.
84 Transfer Belt Life Warning	This message indicates the transfer belt is nearing its end of life. The transfer belt is a part of the transfer kit. If you do not have an extra transfer kit, order it now.	Press <b>Go</b> to clear the message and continue printing. The <b>Supplies</b> status message displays with the <b>Ready, Power Saver, Busy</b> and <b>Waiting</b> messages, unless another status message of higher priority is posted, or until you replace the transfer belt.
84 Transfer Belt Exhausted	This message indicates the transfer belt is exhausted and must be replaced.	A new transfer belt must be installed to clear this error message.
85 Coating Roll Life Warning	This message indicates the coating roll is nearing its end of life or empty condition. Normally the coating roll is replaced when you replace the black print cartridge. It is possible, depending on the type of print jobs you send to the printer, a coating roll may have to be replaced prior to the print cartridge becoming low on toner. If you do not have an extra coating roll, order it now.	Press <b>Go</b> to clear the message and continue printing. The <b>Supplies</b> status message is displayed with the <b>Ready, Power Saver, Busy</b> and <b>Waiting</b> messages, unless another status message of higher priority is posted, or until you replace the coating roll.  <b>Note:</b> Continued use of the coating roll after the warning has been displayed may result in poor toner adhesion to print media, other print quality problems, and paper jams.
86 Transfer Belt Missing	The transfer belt is not installed in the printer.	Insert the transfer belt and close the front cover to clear the message.

Message	Status	Action
87 Fuser Exhausted	This message indicates a new fuser kit must be installed. If you do not have the fuser kit, order it now.	<p>Press <b>Go</b> to clear the message and continue printing. The fuser exhausted intervention message is posted every time the printer power is turned on.</p> <p>When a new fuser is installed, you must reset the fuser counter to zero. To reset the fuser counter:</p> <ol style="list-style-type: none"> <li>1. Turn the printer off.</li> <li>2. Press and hold the <b>Select</b> and <b>Return</b> buttons on the operator panel while turning the printer on. The <b>Configuration Menu</b> displays on the operator panel.</li> <li>3. Press <b>Menu&gt;</b> or <b>&lt;Menu</b> until <b>Reset Fuser Count</b> appears on the second line.</li> <li>4. Press <b>Select</b> to reset the fuser counter to zero.</li> </ol>
88 Color Low	This message indicates the color print cartridge indicated is nearing its end of life or empty condition. If you do not have an appropriate extra print cartridge, order it now.	Press <b>Go</b> to clear the message and continue printing. The <b>Supplies</b> status message displays with the <b>Ready, Power Saver, Busy</b> and <b>Waiting</b> messages, unless another status message of higher priority is posted, or until you replace the print cartridge.
88 Color Cartridge Empty	The printer has detected the specified print cartridge is completely out of toner.	You must install a new print cartridge before you can continue printing.

Message	Status	Action
20x Paper Jam	The printer has detected a paper jam in the area specified in the message.	You must remove the paper from the entire paper path. Close any open covers and press <b>Go</b> to clear the message.
23x Paper Jam Check Duplex	The printer has detected a paper jam in the duplex unit.	<p>You must remove the paper from the entire duplex unit paper path. Close any open covers and the duplex tray. Press <b>Go</b> to clear the message.</p> <p>If the duplex unit is not plugged in, the printer displays <b>230 Paper Jam Check Duplex</b>.</p>
24x Paper Jam Check Tray x	The printer has detected a paper jam in the tray specified in the message.	Remove the paper from the paper path. Close any open trays or covers. Press <b>Go</b> to clear the message.
25x Paper Jam MP Feeder	The printer has detected a paper jam in the multipurpose feeder.	Remove the paper from the multipurpose feeder and paper path. Close any open covers. Press <b>Go</b> to clear the message.

## Symptom Tables

### Base Printer Symptom Table

Symptom	Action
Operator panel - One or more buttons do not work.	Go to the <b>“Operator Panel Buttons Service Check”</b> on page 2-65.
Operator panel - Display is blank. Printer sounds 5 beeps.	Go to the <b>“Operator Panel Service Check”</b> on page 2-64.
Operator Panel - Display is blank. Printer does not emit 5 beeps.	Replace the operator panel assembly.
Operator panel continuously displays all diamonds - 5 beeps.	Go to the <b>“Operator Panel Service Check”</b> on page 2-64.
Paper feed problems - Base printer or Integrated 250 Paper Tray.	Go to the <b>“Paper Feed Service Check”</b> on page 2-68.
Paper jams Duplex option not installed.	Go to the <b>“Paper Feed Service Check”</b> on page 2-68.
Paper jams Duplex option installed.	Go to the <b>“Duplex Unit Option Service Check”</b> on page 2-120.
Print quality - Black page.	Go to <b>“All Black or Color Page Service Check”</b> on page 2-80.
Print quality - Blank page.	Go to <b>“All Blank Page Service Check”</b> on page 2-81.
Print quality - Light print.	Go to <b>“Low Image Density Service Check”</b> on page 2-87.
Print quality - Background.	Go to <b>“Background Service Check”</b> on page 2-82.
Print quality - Residual image.	Go to <b>“Residual Image Service Check”</b> on page 2-90.
Print quality - Skew.	Go to the <b>“Paper Feed Service Check”</b> on page 2-68.
Print quality - Banding.	Go to <b>“White Lines or Bands Service Check”</b> on page 2-92.

Symptom	Action
Print quality - Random marks.	Go to <b>“Random Marks Service Check”</b> on page 2-90.
Print quality - Toner on backside of printed page.	Go to <b>“Toner on Backside of Page Service Check”</b> on page 2-91.
Print quality - Vertical black bands on edge of copy.	Go to <b>“Black, Color Lines or Bands Service Check”</b> on page 2-83.

### Covers Interlock Symptom Table

Symptom	Action
Close Door displays when all covers are not properly latched.	Go to the <b>“Cover Interlock Service Check”</b> on page 2-45.

### Duplex Unit Symptom Table

Symptom	Action
Paper feed problem with duplex. Paper jams at paper removal tray. Paper skews in the duplex option. Paper fails to pass from lower option through the duplex option.	Go to the <b>“Duplex Unit Option Service Check”</b> on page 2-120.

## Operator Panel Symptom Table

Symptom	Action
Operator panel - one or more buttons do not work.	Go to the <b>“Operator Panel Buttons Service Check”</b> on page 2-65.
Operator panel - display is blank and the printer beeps five times.	Go to the <b>“Operator Panel Service Check”</b> on page 2-64.
Operator panel - display is blank and the printer does not beep.	Replace the operator panel. Go to the <b>“Operator Panel Cover Removal”</b> on page 4-3.
Operator panel continuously displays all diamonds and beeps five times.	Go to the <b>“Operator Panel Service Check”</b> on page 2-64.

## Paper Feed Symptom Table

Symptom	Action
Paper does not feed from the integrated tray 1.	Go to the <b>“Paper Feed Service Check”</b> on page 2-68.
Paper jam: <ul style="list-style-type: none"> <li>• ITM area</li> <li>• In fuser assembly</li> <li>• In exit assembly</li> <li>• 201 displays</li> <li>• 202 displays</li> </ul>	Go to the <b>“Paper Feed Service Check”</b> on page 2-68.
Printer does not feed media correctly from multipurpose tray.	Go to the <b>“Bypass Tray (Multipurpose Tray) Service Check”</b> on page 2-35.
Printer does not detect: <ul style="list-style-type: none"> <li>• Media in tray 1</li> <li>• Level of media in tray 1</li> <li>• Size of media in tray 1</li> <li>• Presence of tray 1</li> </ul>	Go to the <b>“Tray 1 (Integrated Tray) Service Check”</b> on page 2-99.



## Paper Tray Options Symptom Table

Symptom	Action
Paper feed problem with 250/250 Sheet Paper Tray Option.	Go to the <b>“Options Service Checks” on page 2-106.</b>
Media fails to pass thru from the lower attached paper tray option to the next higher mounted option.	Go to the <b>“Options Service Checks” on page 2-106.</b>
Paper jam 242 or 243 displays	Go to the <b>“Paper Feed Service Check” on page 2-68.</b>
Printer does not detect: <ul style="list-style-type: none"> <li>• Media in tray 2 or tray 3</li> <li>• Level of media in tray 2 or tray 3</li> <li>• Size of media in tray 2 or tray 3</li> <li>• Presence of tray 2 or tray 3</li> </ul>	Go to the <b>“Options Service Checks” on page 2-106.</b>

## Power Symptom Table

Symptom	Action
No indication the printer is functioning. <ul style="list-style-type: none"> <li>• No LEDs on</li> <li>• Display off</li> <li>• No motor movement</li> </ul>	Go to the <b>“Power Service Check” on page 2-72.</b>
Operator panel LED indicator on. <ul style="list-style-type: none"> <li>• Printer inoperative</li> <li>• POR incomplete</li> </ul>	Go to the <b>“Power Service Check” on page 2-72.</b>
Main fan does not run.	Go to the <b>“Main Fan Service Check” on page 2-62.</b>

## Print Quality Symptom Table

Symptom	Action
All black page	Go to the <b>“All Black or Color Page Service Check”</b> on page 2-80.
Blank page	Go to the <b>“All Blank Page Service Check”</b> on page 2-81.
Light print	Go to the <b>“Low Image Density Service Check”</b> on page 2-87.
Background	Go to the <b>“Background Service Check”</b> on page 2-82.
Residual image	Go to the <b>“Residual Image Service Check”</b> on page 2-90.
Skew	Go to the <b>“Skew Service Check”</b> on page 2-91.
Black, color or bands	Go to the <b>“Black, Color Lines or Bands Service Check”</b> on page 2-83.
Random marks	Go to the <b>“Random Marks Service Check”</b> on page 2-90.
Toner on back of paper	Go to the <b>“Toner on Backside of Page Service Check”</b> on page 2-91.
Offset image	Go to the <b>“Offset Print Service Check”</b> on page 2-88.
Uneven image density	Go to the <b>“Uneven Print Density Service Check”</b> on page 2-92.
Foggy background	Go to the <b>“Foggy Background Service Check”</b> on page 2-86.
White spots	Go to the <b>“White Spots Service Check”</b> on page 2-94.
White lines or bands	Go to the <b>“White Lines or Bands Service Check”</b> on page 2-92.
Black or color lines and bands	Go to the <b>“Black, Color Lines or Bands Service Check”</b> on page 2-83.

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<b>Symptom</b>	<b>Action</b>
Poor color reproduction	Go to the <b>“Poor Color Reproduction Service Check”</b> on page 2-89.
Black or color spots	Go to the <b>“Black or Color Spots Service Check”</b> on page 2-84.
Scratch marks parallel to paper feed direction	Replace the fuser assembly. Go to the <b>“Fuser Unit Removal”</b> on page 4-23.

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## Service Checks

**Note:** Anytime the controller board is replaced, the Configuration ID must be reset in NVRAM on the new controller board. Go to **“Setting Configuration ID” on page 3-20.**

Review the following information before performing any service checks.

- Paper feed Problems (especially paper jams): Go to **“Viewing the Error Log” on page 3-22** and check the printer error log for indications of repetitive entries that help to isolate a problem to a particular area of the printer or option.
- Print Quality Problems: Go to **“Print Quality Test Pages” on page 3-9** and print a test page to help diagnose problems before changing any settings or working on the printer.
- Use the resident diagnostic tests to help isolate a problem before taking the printer apart or removing any options.

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## Base Printer Service Checks

### Bypass Tray (Multipurpose Tray) Service Check

**Note:** The multipurpose tray holds up to 50 sheets of paper. You only feed transparencies from the multipurpose tray and tray 1.

Set the paper type to "transparency" from the paper menu when checking for transparency feeding and print quality problems.

Set the paper type to "envelopes" from the paper menu when checking for envelope feeding and print quality problems.

Set the paper type to "labels" from the paper menu when checking for label feeding and print quality problems.

Set the paper type to "paper" from the paper menu when checking for paper feeding and print quality problems.

#### Multipurpose Tray Symptom Chart

- A** Media does not feed from MPT, 250 paper jam message displays.
- B** Media tries to feed from the MPT tray, 250 paper jam message may display.
- C** Transparencies do not feed from the MPT.
- D** Transparencies are not detected in the MPT.
- E** Labels do not feed from the MPT.
- F** Card stock does not feed from the MPT.
- G** Double feeding from the MPT tray.

Be sure that media is feeding from tray 1 before proceeding with this service check. If media is not feeding properly, go to the **“Tray 1 (Integrated Tray) Service Check” on page 2-99.**

A Media does not feed from MPT, 250 paper jam message displays.

	FRU	Action																								
1	Gear B1 Gear 4 PF Bushing	Check PF gear B1, and gear 4 to be sure they turn. If any problem is found, repair as necessary.																								
2	Clutch Gear Paper Feed Drive Gear Paper Feed Idler Gear Fulcrum Gear Drive Gear	<p>Check all the MPT paper feed gears for signs of worn, loose or broken parts.</p> <p>Check the gear pressure spring. Replace any broken or worn parts.</p>																								
3	Bypass Paper Detect Sensor  Bypass Paper Detect Sensor Cables  Bypass Paper Detect  Sensor Flag  Engine Board	<p>Be sure the sensor cables are properly connected and are not cut or damaged. Be sure the ribbon cable that attaches the MPT sensor and clutch to the base printer is not cut or damaged. This may happen if caught between the printer frame and front cover assembly.</p> <p>Check the bypass detect sensor flag for proper operation.</p> <p>Check the voltages for the bypass paper detect sensor and paper feed clutch. The sensor can be checked with the front cover in the down position. Check pin 2, while activating the sensor flag in the MPT tray. Check the voltages on CN12 for the bypass paper detect sensor.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Signal Static</th> <th>Signal Activated</th> </tr> </thead> <tbody> <tr> <td>1 (Brown)</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2 (Red)</td> <td>KAMIARIO</td> <td>0 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>3 (Orange)</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>4 (Yellow)</td> <td>VP</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>5 (Blue)</td> <td>- SL4ON</td> <td>+24 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltages on pins 1 and 4 are incorrect, replace the engine board.</li> <li>• If the voltage on pin 2 does not change, replace the sensor.</li> <li>• If this does not fix the problem, replace the engine board.</li> </ul>	Pin #	Voltage Signal	Signal Static	Signal Activated	1 (Brown)	+5 V dc	+5 V dc	+5 V dc	2 (Red)	KAMIARIO	0 V dc	+5 V dc	3 (Orange)	DGND	0 V dc	0 V dc	4 (Yellow)	VP	+24 V dc	+24 V dc	5 (Blue)	- SL4ON	+24 V dc	0 V dc
Pin #	Voltage Signal	Signal Static	Signal Activated																							
1 (Brown)	+5 V dc	+5 V dc	+5 V dc																							
2 (Red)	KAMIARIO	0 V dc	+5 V dc																							
3 (Orange)	DGND	0 V dc	0 V dc																							
4 (Yellow)	VP	+24 V dc	+24 V dc																							
5 (Blue)	- SL4ON	+24 V dc	0 V dc																							

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**B** Media tries to feed from MPT, 250 paper jam message may display.

	<b>FRU</b>	<b>Action</b>																								
1	Media	Be sure the media meets specifications.																								
2	Paper Transfer Roller  Sheet Bypass Paper Roller	Check the sheet bypass paper feed roller and paper transfer roller for contamination, wear or anything that would cause the rollers to feed improperly.  Be sure the rollers operate properly and repair as necessary.																								
3	Sheet Bypass Paper Feed Clutch (CL 2)	<p>Check the bypass paper feed clutch for proper operation and repair as necessary. Check the voltages on CN12.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Clutch Static</th> <th>Voltage Clutch Activated</th> </tr> </thead> <tbody> <tr> <td>1 (Brown)</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2 (Red)</td> <td>KAMIARIO</td> <td>0 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>3 (Orange)</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>4 (Yellow)</td> <td>VP</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>5 (Blue)</td> <td>- SL4ON</td> <td>+24 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 4 is incorrect, replace the engine board.</li> <li>• If the voltage on pin 5 is incorrect, replace the bypass paper feed clutch.</li> </ul>	Pin #	Voltage Signal	Voltage Clutch Static	Voltage Clutch Activated	1 (Brown)	+5 V dc	+5 V dc	+5 V dc	2 (Red)	KAMIARIO	0 V dc	+5 V dc	3 (Orange)	DGND	0 V dc	0 V dc	4 (Yellow)	VP	+24 V dc	+24 V dc	5 (Blue)	- SL4ON	+24 V dc	0 V dc
Pin #	Voltage Signal	Voltage Clutch Static	Voltage Clutch Activated																							
1 (Brown)	+5 V dc	+5 V dc	+5 V dc																							
2 (Red)	KAMIARIO	0 V dc	+5 V dc																							
3 (Orange)	DGND	0 V dc	0 V dc																							
4 (Yellow)	VP	+24 V dc	+24 V dc																							
5 (Blue)	- SL4ON	+24 V dc	0 V dc																							

**C** Transparencies do not feed, or feed improperly from the MPT.

	<b>FRU</b>	<b>Action</b>
1	Transparencies	Be sure the transparencies meet specifications for the 5016-001 printer and are designed for laser printer applications.

**D** Transparencies are not detected, printer does not slow to half speed.

	<b>FRU</b>	<b>Action</b>
1	OHP Detect Reflection Plate	Check the inner front cover OHP detect reflection plate to be sure it is not damaged or missing. Clean the plate, if dirty, or replace if damaged or missing.
2	Transparency Paper Detect Sensor (PHI 5)	This sensor is located on the paper pass/transparency detect sensor board. Check the sensor for proper operation. If no problem is found, replace parts in the following order: <ol style="list-style-type: none"> <li>1. Paper Pass/Transparency Detect Sensor Board</li> <li>2. Engine Board</li> <li>3. Cables</li> </ol>

**E** Labels do not feed, or feed improperly from the MPT.

	<b>FRU</b>	<b>Action</b>
1	Labels	Be sure the labels are paper labels designed for laser printers. Do not use vinyl labels. Use only labels that have no gaps between them.  Be sure no adhesive is exposed on the sheets. Check the labels to be sure they do not have a coating or sizing applied to make the labels liquid-resistant.

**F** Card stock does not feed properly from the MPT.

	<b>FRU</b>	<b>Action</b>
1	Card Stock	A small quantity of card stock can be fed from the MPT only. Be sure not more than 30 sheets of card stock are loaded into the MPT tray at a time.  Be sure the stock meets specifications.



**G** Double feeding from MPT tray.

	FRU	Action
1	DPT Pad Assembly	The DPT assembly design helps prevent double feeding from the MPT tray. Check the DPT assembly for proper operation and check the pad to be sure it is not worn, damaged or missing. Repair as necessary.

## Carriage Unit Service Check

**Note:** The carriage unit motor rotates the carriage by 90 degree angles when switching from one color to another. Once the carriage home position sensor detects the carriage home position detect rib, performed as many times as specified, the carriage stops at the specified position.

30 Cyan Toner Cartridge missing message displays, toner cartridge installed.

- If this message displays and the carriage unit motor does not turn, go to step 1 in the table below. **Note:** The motor can be checked by removing it from the printer with the cable attached. Verify the motor turns during POR.
- If this message displays, and the carriage unit motor turns but the carriage does not move, go to step 2 in the table below.
- If this message displays, and the carriage unit motor and carriage turn, go to step 3 in the table below.

	FRU	Action																								
1	<p>Carriage Unit Motor (M3)</p> <p>Engine Board</p> <p>Cable</p>	<p>Check the carriage unit motor for proper operation. Check the voltages on the motor.</p> <p>Carriage unit motor connector (M3).</p> <table border="1" data-bbox="408 402 876 553"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Static</th> <th>Voltage Motor On</th> </tr> </thead> <tbody> <tr> <td>1 (Yellow)</td> <td>PH1B-</td> <td>+24 V dc</td> <td>20 - 24 V dc</td> </tr> <tr> <td>2 (Red)</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>3 (White)</td> <td>PH1B+</td> <td>+24 V dc</td> <td>20-24 V dc</td> </tr> <tr> <td>4 (Brown)</td> <td>PH1A+</td> <td>+24V dc</td> <td>20-24 V dc</td> </tr> <tr> <td>5 (Violet)</td> <td>PH1A-</td> <td>+24V dc</td> <td>20-24 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate values.</p> <p>If the voltage on pin 2 is incorrect, check cable MK2. If good, replace the following in the order shown:</p> <ol style="list-style-type: none"> <li>1. Engine board</li> <li>2. Carriage motor assembly</li> </ol> <p>If the voltages on pins 1, 3, 4 and 5 are incorrect, check cable MK2. If good, replace the following FRU's in the order shown:</p> <ol style="list-style-type: none"> <li>1. Carriage motor assembly</li> <li>2. Engine board</li> </ol>	Pin #	Voltage Signal	Voltage Static	Voltage Motor On	1 (Yellow)	PH1B-	+24 V dc	20 - 24 V dc	2 (Red)	+24 V dc	+24 V dc	+24 V dc	3 (White)	PH1B+	+24 V dc	20-24 V dc	4 (Brown)	PH1A+	+24V dc	20-24 V dc	5 (Violet)	PH1A-	+24V dc	20-24 V dc
Pin #	Voltage Signal	Voltage Static	Voltage Motor On																							
1 (Yellow)	PH1B-	+24 V dc	20 - 24 V dc																							
2 (Red)	+24 V dc	+24 V dc	+24 V dc																							
3 (White)	PH1B+	+24 V dc	20-24 V dc																							
4 (Brown)	PH1A+	+24V dc	20-24 V dc																							
5 (Violet)	PH1A-	+24V dc	20-24 V dc																							
2	<p>Carriage Unit Block Assembly</p> <p>Carriage Unit Motor Idler Gear</p> <p>Right Carriage Unit Plate</p> <p>Carriage Assembly</p>	<p>Check the carriage unit motor idler gear for signs of wear or breakage. If the motor idler gear is good, check the right side carriage plate for signs of broken teeth or wear on the plate gear.</p> <p>Check the carriage for correct operation. If problems are found, repair as necessary.</p>																								

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	<b>FRU</b>	<b>Action</b>
3	Carriage Home Position Sensor (PHI 2) Engine Board Cable Right Carriage Side Plate	<p>Be sure the carriage home position cable is installed correctly to the sensor.</p> <p>Check the sensor for correct operation. If incorrect, replace the following parts in the order shown:</p> <ol style="list-style-type: none"><li>1. Carriage home position sensor assembly</li><li>2. Engine board</li><li>3. Cable</li></ol> <p>Check the right side carriage plate home position detect ribs for signs of damage. If broken or missing, replace the right side carriage plate.</p>

## Coupling Unit Service Check

**A 990 Service Engine Error.** The coupling does not turn.

**B 990 Service Engine Error.** The coupling motor turns.

**C 991 Service Engine Error.** Indicates a problem with the coupling on and off sensors.

**Note:** Verify correct operation of the mechanical parts of the coupling unit by manually resetting the coupling unit. Use the green coupling arm knob to reset the coupling unit and observe its operation.

**A 990 Service Engine Error - Motor does not turn on.**

	FRU	Action
1	Coupling Motor Cable MK2 Engine Board	<p>Disconnect the coupling motor at the inline connector and measure the resistance of the motor on the motor connector. It should measure between 9 and 15 ohms. If incorrect, replace the motor.</p> <p>The motor may be binding due to a problem in the motor mounting stay assembly. Remove the stay assembly and check for problems with the motor and coupling unit. Repair as necessary.</p> <p>If no problem is found and the motor does not turn, check cable MK2.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>

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### B 990 Service Engine Error - Motor turns.

**Note:** Observe the coupling operation as the printer is performing the self test and the engine is warming up. Determine when the failure occurs.

	<b>FRU</b>	<b>Action</b>
1	Motor Mounting Stay A Assembly  Coupling parts	<p>Check the parts associated with the coupling operation for signs of excessive wear, breakage or looseness. Check the coupling arm, coupling shaft and cam.</p> <ul style="list-style-type: none"><li>• If a problem exists, repair or replace the complete motor mounting stay A assembly.</li><li>• If no problem is found with the stay A assembly, check the detent arm, detent spring, coupling arm and coupling shaft for signs of binding, wear, breakage or looseness. Repair as necessary.</li></ul>

C 991 Service - Engine error.

**Note:** This error displays when a problem exists with the coupling on and off sensors. The same error displays for either sensor.

	FRU	Action																																
1	<p>Coupling On/Off Sensors</p> <p>Engine Board</p> <p>SN Cable</p> <p>Engine Board</p>	<p>Turn the printer on and observe how long it takes for the error to display. If the coupling On sensor is failing, the warm-up will be shorter than the coupling Off sensor.</p> <p>Check the sensors by manually positioning the coupling cam disk over the coupling on (upper) sensor while turning the printer on. If the disk moves out of coupling, and the error displays, there is a problem with the coupling On sensor. If you manually position the coupling cam disk over the coupling Off (lower) sensor, while turning the printer on and the disk moves out of the Off sensor and then moves back into the sensor, there is a problem with the Off sensor.</p> <p>Coupling On sensor</p> <table border="1" data-bbox="380 837 876 948"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage Cam Disk in</th> <th>Voltage Cam Disk Out</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2</td> <td>CUPON</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>3</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>Coupling Off sensor</p> <table border="1" data-bbox="380 1019 876 1130"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage Cam Disk in</th> <th>Voltage Cam Disk Out</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2</td> <td>CUPOFF</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>3</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If a problem cannot be isolated with the sensors, check the SN cable.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>	Pin #	Signal Voltage	Voltage Cam Disk in	Voltage Cam Disk Out	1	+5 V dc	+5 V dc	+5 V dc	2	CUPON	+5 V dc	0 V dc	3	DGND	0 V dc	0 V dc	Pin #	Signal Voltage	Voltage Cam Disk in	Voltage Cam Disk Out	1	+5 V dc	+5 V dc	+5 V dc	2	CUPOFF	+5 V dc	0 V dc	3	DGND	0 V dc	0 V dc
Pin #	Signal Voltage	Voltage Cam Disk in	Voltage Cam Disk Out																															
1	+5 V dc	+5 V dc	+5 V dc																															
2	CUPON	+5 V dc	0 V dc																															
3	DGND	0 V dc	0 V dc																															
Pin #	Signal Voltage	Voltage Cam Disk in	Voltage Cam Disk Out																															
1	+5 V dc	+5 V dc	+5 V dc																															
2	CUPOFF	+5 V dc	0 V dc																															
3	DGND	0 V dc	0 V dc																															
2	Coupling Cam	<p>Check the coupling cam and associated parts for correct operation. If a problem is found, repair or replace the motor mounting stay A assembly.</p>																																

## Cover Interlock Service Check

Check that switches S2, S3, and S4 are open. These should be open anytime the cartridge, fuser or front covers are not latched properly.

When a cover is opened, switch S2 opens the +24 V dc supply to the engine board and the AC line from the LVPS to the fuser lamps. Switches S3 and S4 open the +5 V dc supply from the engine board to the printhead.

If Door Open displays, go to **A**.

If a 922 Fuser Error displays, go to **B**.

**A** Door Open displayed.

	FRU	Action
1	Interlock Switch Mechanism	<p>Check the interlock switch actuator hardware for proper operation and be sure:</p> <ul style="list-style-type: none"> <li>• Actuator 1 activates door switch S2.</li> <li>• +5 V dc to interlock switches S3 and S4.</li> </ul> <p>If the mechanism does not operate properly or activate any of the switches, repair as necessary.</p>

	FRU	Action
2	Interlock Switch S2	<p>Switch S2 has two functions. Two terminals control +24 V dc to the engine board and four terminals control the AC line voltage to the fuser lamps. Terminal A3 (red wires) and terminal B3 (blue wires) control the +24 V dc supply to the engine board. When this circuit opens, a Close Door message displays.</p> <p><b>CAUTION:</b> Be careful when checking the voltages on switch S2, as the AC line voltage may be present on terminals A1 (brown), B1 (yellow), A2 (brown) or B2 (yellow).</p> <p>Check the voltage at terminal B3 (blue wires). It should read approximately +24 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, go to the <b>“Printhead Service Check” on page 2-77.</b></li> <li>• If correct, check the voltage on switch terminal A3 (red wires). <ul style="list-style-type: none"> <li>• If incorrect, check the switch for continuity and proper operation.</li> <li>• If correct, check the cable from the wires. <ul style="list-style-type: none"> <li>• If incorrect, check the switch for continuity and proper operation.</li> <li>• If correct, check the cable from the switch to the engine board. <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul> </li> </ul> </li> </ul> </li> </ul>



## B 922 Fuser Error displays.

	FRU	Action
1	Interlock Switch Mechanism	<p>Check the interlock switch actuator hardware for proper operation making sure of the following:</p> <ul style="list-style-type: none"> <li>• Actuator 1 activates door switch S2.</li> <li>• There is +5 V dc to interlock switches S3 and S4.</li> </ul> <p>If the mechanism does not operate properly or activate any of the switches, repair as necessary.</p>
2	Interlock Switch S2	<p>Switch S2 has two functions. Two terminals control +24 V dc to the engine board and four terminals control AC line voltage to the fuser lamps. Terminal A1, B1, A2 and B2 control AC line voltage to the fuser lamps. When this circuit opens, a 922 service error displays.</p> <p><b>CAUTION:</b> Be careful when checking the voltages on switch S2, as AC line voltage may be present on terminals A1 (brown) B1 (yellow), A2 (brown) or B2 (yellow).</p> <p>Check the voltage between terminals A1 (brown) and B1 (yellow). The voltage should read the same as the AC line voltage.</p> <p><b>Note:</b> The lamp voltage varies as the fuser lamp turns on and off, or when power saver is selected.</p> <ul style="list-style-type: none"> <li>• If incorrect, go to the <b>“Printhead Service Check” on page 2-77.</b></li> <li>• If correct, check the voltage across terminals A2 (brown) and B2 (yellow). The voltage should read the same as the AC line voltage.</li> <li>• If incorrect, check the switch for continuity and proper operation.</li> <li>• If correct, disconnect the power cord and check continuity between switch terminals A2 and B2.</li> <li>• If incorrect go to the <b>“Fuser Cold Service Check” on page 2-51.</b></li> </ul>

## Developer/Paper Feed Motor Service Check

### Service Error Code 911 displayed.

Whenever a 911 service error code displays, this indicates a problem with the developer/paper feed motor, or motor circuits.

**Note:** Excessive gear or motor noise is usually caused by a defective motor assembly or engine board.

	FRU	Action
1	Fuser Block Assembly	<p>Check the paper feed parts in the fuser drive assembly for excessive noise or vibration. Look for loose or worn paper feed parts.</p> <ul style="list-style-type: none"> <li>• If problems exist, repair or replace the fuser block assembly.</li> <li>• If excessive noise or vibrations exist in the motor assembly, replace the developer/paper feed motor assembly.</li> <li>• If no problem is located for paper feed parts, the problem may be the engine board assembly.</li> </ul>

	FRU	Action																																												
2	Developer/Paper Feed Motor Assembly (M2)  Developer/Paper Feed Motor Cable  Engine Board	<p>Check the voltages on connector CON 1 on the developer/paper feed motor board. All voltages are approximate values:</p> <table border="1" data-bbox="455 318 948 553"> <thead> <tr> <th>Pin #</th> <th>Voltage</th> <th>Motor Running</th> <th>Motor Static</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CS</td> <td>0 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2</td> <td>ROIR</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>3</td> <td>GND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>4</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>5</td> <td>Lo</td> <td>0 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>6</td> <td>P/S</td> <td>0 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>7</td> <td>PGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>8</td> <td>PGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>9</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>10</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> <p>If the voltage on pin 4, 9 or 10 are incorrect, check continuity of the cable.</p> <ul style="list-style-type: none"> <li>• If correct, disconnect CON 1 from the board assembly and check the voltages on the cable connector.</li> <li>• If incorrect, check continuity of the cable.             <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.                 <ul style="list-style-type: none"> <li>• If the voltages on the cable connector are correct, replace the developer/paper feed motor assembly.</li> </ul> </li> </ul> </li> </ul> <p>If the voltages on pins 1, 5 and 6 always measure approximately +5 V dc, replace the developer/paper feed motor assembly. If the voltages always measure approximately 0 V dc, check the continuity of the cable.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board assembly.</li> </ul>	Pin #	Voltage	Motor Running	Motor Static	1	CS	0 V dc	+5 V dc	2	ROIR	0 V dc	0 V dc	3	GND	0 V dc	0 V dc	4	+5 V dc	+5 V dc	+5 V dc	5	Lo	0 V dc	+5 V dc	6	P/S	0 V dc	+5 V dc	7	PGND	0 V dc	0 V dc	8	PGND	0 V dc	0 V dc	9	+24 V dc	+24 V dc	+24 V dc	10	+24 V dc	+24 V dc	+24 V dc
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9	+24 V dc	+24 V dc	+24 V dc																																											
10	+24 V dc	+24 V dc	+24 V dc																																											

## Erase Lamp Service Check

**Note:** The erase lamp assembly is mounted on the top of the printhead assembly.

	FRU	Action
1	Printhead Erase Lamp Engine Board Erase Lamp Cable	<p>Check the cable to be sure it is installed properly from CN14 on the engine cable to CN750 on the erase lamp assembly.</p> <p>If the cable is installed correctly, check the voltage on the engine board at CN14 pin 21. It should measure +24 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the engine board.</li> <li>• If correct, check the voltage at CN14-22 while running a print test. The voltage should change from approximately +5 V dc to 0 V dc when the erase lamps turn on and off.</li> <li>• If incorrect, replace the engine board.</li> <li>• If correct, check the cable from CN14 erase lamp assembly on the engine board to CN750 on the erase lamp assembly. <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the erase lamp assembly.</li> </ul> </li> </ul>

## Fuser Cold Service Check

**922 Error** - Fuser below maintenance count.

**Note:** If selected, turn Power Saver off.

Error codes 920, 921 and 922 may display for a cold fuser failure. A 920 fuser error caused by low line voltage may be cleared by turning the printer on and off.

	FRU	Action
1	Fuser Assembly  Fuser Lamp Circuit	<p>Be sure the fuser assembly is correctly installed and locked down. Disconnect the AC power cord from the printer. Disconnect CN406 from the LVPS board and check for continuity between pins 1 and 2 on the CN406 cable connector.</p> <ul style="list-style-type: none"> <li>• If incorrect, go to step 2.</li> <li>• If correct, check the voltage between CN406 Pin 1 and 2. The voltage should read the same as the AC line voltage.</li> <li>• If incorrect replace the LVPS.</li> </ul>
2	Fuser Lamp  Thermostat  Fuser Lamp Contacts	<p>Remove the fuser assembly from the printer.</p> <p><b>Note:</b> Take care not to damage any pins when checking continuity.</p> <p>Check continuity between the two outer fuser lamp contacts of the autoconnector (HCU cable) located on the bottom of the fuser assembly.</p> <ul style="list-style-type: none"> <li>• If correct, go to step 3.</li> <li>• If incorrect, check the fuser lamp, thermostat, fuser lamp contacts and HCU cable, replacing any defective parts.</li> </ul>
3	Interlock Switches	<p>Go to the <b>“Cover Interlock Service Check” on page 2-45.</b></p>

## 920 and 921 Error codes.

	FRU	Action
1	Thermistor	<p>Be sure the thermistor is clean and positioned properly. Check the following resistances of the thermistor:</p> <ul style="list-style-type: none"> <li>• Hot: (CN18-1 and CN18-2) (engine board) should be approximately 2.0 - 2.5 k ohms.</li> <li>• Cold: Should be approximately 150k to 250k ohms.</li> </ul> <p>If incorrect, replace the thermistor.</p>
2	Engine Board HCU Cable	<p>Check the HCU cable and fuser to engine board cable, to be sure the contacts in the HCU cable (the autoconnect) are not bent or damaged.</p> <ul style="list-style-type: none"> <li>• If damaged, replace the HCU cable.</li> <li>• If the no damage is detected, be sure the cable is installed correctly at CN18 on the engine board. If the cable is good, replace the engine board.</li> </ul> <p>Error codes 923 and 924 may display for a hot fuser failure.</p>

## Fuser Drive and Contact Cam System Service Check

Error Code 993: Indicates the cam sensor has not been activated. The sensor activates when the fuser drive motor turns the cam disk.

If the fuser drive motor does not turn on, or the drive parts are not operating, go to **A**.

If the fuser drive motor turns and appears to be operating properly, and the cam is turning, go to **B**.

If the fuser drive motor turns and appears to be operating properly, and the cam is not turning, go to **C**.

## A The fuser drive system is not operating properly.

	FRU	Action
1	Fuser Assembly Fuser Drive Motor Fuser Motor/Paper Feed Motor Carriage Unit Motor Cable Engine Board	<p>Check the fuser assembly internal drive gears for binding, or broken or worn teeth. If a problem exists, repair or replace the fuser assembly.</p> <p>Remove the fuser drive motor from the stay assembly, leaving the motor cable connected to the motor. Turn the printer on, but do not allow the motor to touch other areas of the printer. Verify the motor turns during POR. If it does, the problem is most likely in the motor mounting stay assembly. Go to step 2.</p> <p>Check the motor for shorts between the case and each motor winding. If a short is found, replace the motor.</p> <p><b>Note:</b> Damage to the engine board may result from a shorted motor.</p> <p>Check the motor for open windings. If found, replace the motor.</p> <p>Check continuity of the fuser motor/paper feed motor/carriage unit motor cable.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>
2	Motor Mounting Stay Assembly (Fuser Drive Parts)	<p>Check the fuser drive gears, gears C3-1, C3-2, the clutch spring, motor drive gear, gear C2 and C4 for signs of chipped gear teeth, worn parts, or improper operation. If problems are found, repair as necessary.</p> <p>Check the cam gears and solenoid for proper operation and signs of broken or worn gear teeth or damaged parts. If found, repair or replace the motor mounting stay assembly.</p>



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**B** The fuser drive system is operating properly and the cam disk is turning.

	<b>FRU</b>	<b>Action</b>																
1	Cam Sensor (PH16) Engine Board (M4) SN Cable	<p>Be sure the cam sensor is mounted correctly and locked into place.</p> <p>Check the following voltages on the cam sensor:</p> <table border="1"> <thead> <tr> <th><b>Pin #</b></th> <th><b>Signal Voltage</b></th> <th><b>Voltage Disc in</b></th> <th><b>Voltage Disc Out</b></th> </tr> </thead> <tbody> <tr> <td>1 (Orange)</td> <td>+5 V dc</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2 (Brown)</td> <td>-CCSENS</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>3 (Green)</td> <td>GND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> The voltage on pin 2 should vary, as the cam turns from approximately 0 V to +5 V dc.</p> <ul style="list-style-type: none"> <li>• If the voltage on Pin 1 is incorrect, check the cable. If incorrect, replace the cable.</li> <li>• If the cable is good, replace the following FRU's in the order shown:             <ol style="list-style-type: none"> <li>1. Cam sensor</li> <li>2. Engine board</li> <li>3. SN cable</li> </ol> </li> </ul>	<b>Pin #</b>	<b>Signal Voltage</b>	<b>Voltage Disc in</b>	<b>Voltage Disc Out</b>	1 (Orange)	+5 V dc	+5 V dc	+5 V dc	2 (Brown)	-CCSENS	+5 V dc	0 V dc	3 (Green)	GND	0 V dc	0 V dc
<b>Pin #</b>	<b>Signal Voltage</b>	<b>Voltage Disc in</b>	<b>Voltage Disc Out</b>															
1 (Orange)	+5 V dc	+5 V dc	+5 V dc															
2 (Brown)	-CCSENS	+5 V dc	0 V dc															
3 (Green)	GND	0 V dc	0 V dc															

C The fuser drive system is operating properly and the cam disk is not turning.

	FRU	Action												
1	Contact Cam Solenoid  CRF Cable  Engine Board	<p>Check the solenoid for proper operation, making sure it picks during POR cycle.</p> <p>Disconnect the solenoid and check the resistance on the solenoid cable. It should measure approximately 65 ohms. If incorrect, replace the solenoid.</p> <p>Check the voltages on the solenoid cable connector.</p> <p>Check the following voltages on the contact cam solenoid cable connector:</p> <table border="1" data-bbox="434 673 920 763"> <thead> <tr> <th>Pin #</th> <th>Signal</th> <th>Voltage Static</th> <th>Voltage Picked</th> </tr> </thead> <tbody> <tr> <td>1 (Red)</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Black)</td> <td>-SL2ON</td> <td>+24 V dc</td> <td>0 V - +24 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate.</p> <p>If the voltage on Pin 1 is incorrect, check continuity of the CRF cable to the cam solenoid.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>	Pin #	Signal	Voltage Static	Voltage Picked	1 (Red)	+24 V dc	+24 V dc	+24 V dc	2 (Black)	-SL2ON	+24 V dc	0 V - +24 V dc
Pin #	Signal	Voltage Static	Voltage Picked											
1 (Red)	+24 V dc	+24 V dc	+24 V dc											
2 (Black)	-SL2ON	+24 V dc	0 V - +24 V dc											
2	Motor Mounting Stay Assembly	<p>Check the clutch spring, clutch boss, clutch disk and gear C4 for signs of wear, broken teeth or binds. Repair or replace the motor mounting stay assembly if a problem is found.</p>												

## Fuser Hot Service Check

**CAUTION:** The fuser may be hot, use caution before removing or servicing.

Error Codes 923 and 924 may display for a hot fuser failure.  
Error Code 924 indicates the engine board has detected an open in the thermistor circuit.

**Note:** Most of the wiring and electrical devices can be reached by removing the paper exit cover on the bottom of the fuser assembly.

	FRU	Action
1	Fuser: <ul style="list-style-type: none"> <li>• Assembly</li> <li>• Hot Roll</li> <li>• Backup Roll Bearings</li> </ul>	Check the fuser assembly for signs of overheating or damage, especially the hot roll and backup roll. Also check for contaminants such as label glue or excessive toner buildup. <ul style="list-style-type: none"> <li>• If contaminants are found, repair as necessary or replace the fuser assembly.</li> <li>• If damage from overheating is found, replace the fuser.</li> </ul>
2	Thermistor Assembly  Engine Board	Check for a shorted thermistor by measuring across the connector located in the cable guide. <ul style="list-style-type: none"> <li>• If the thermistor is shorted, replace the thermistor.</li> <li>• If replacing the failing thermistor does not fix the problem, replace the engine board.</li> </ul> Check for signs of damage or contamination to the thermistor assembly. If no problem is found, check the resistance of the thermistor. <p><b>Hot: CN18-1 to CN18-2:</b> Approximately 2.0k - 2.5k ohms</p> <p><b>Cold: Approximately 150k to 250k ohms</b></p> If incorrect, replace the thermistor. <p>Check for an open in the thermistor circuit in the fuser assembly. Be sure the thermistor is properly connected to the thermistor cable in the bottom of the cable guide.</p>

## High Voltage Leakage Detect Service Check

### Error Code 992.

This error code displays when leakage is detected in the print cartridge, high voltage contacts (grid blocks 1 and 2) or HVPS.

#### Note:

- This symptom may require replacement of one or more customer replaceable units, designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, if available, try new print cartridges.
- Before proceeding with this service check, turn the printer off, wait a few minutes and turn the printer back on. If the error remains, proceed with the remainder of this service check.

**CAUTION:** Be sure not to leave the print cartridges exposed to light for more than 10 minutes without covering or returning the print cartridges to the printer. Do not handle the cartridge by the shutter or touch the photoconductor.

	FRU	Action
1	Print Cartridge	<p>Open the cartridge cover and remove the cartridge in the top position of the carriage assembly. Try a new cartridge and the printer again. Verify that a 992 error check continues to display, for the cartridge replaced.</p> <ul style="list-style-type: none"> <li>• If it is not the same cartridge, try a new cartridge for each time the 992 error code displays, until you find the failing cartridge.</li> <li>• If the new cartridge still fails, continue to the next step.</li> </ul>

	<b>FRU</b>	<b>Action</b>
2	HVPS Grid Block 1 Grid Block 2	<p>Remove the HVPS from the printer.</p> <p>Reinstall the HVPS verifying the HVPS board touches all the appropriate contacts on grid blocks 1 and 2, and is mounted securely.</p> <ul style="list-style-type: none"><li>• If a 992 error displays, remove the HVPS and check the contacts on grid blocks 1 and 2 for any signs of pitting, bending, deformed contacts, or contamination. Repair or replace parts as necessary.</li><li>• If the source of the problem cannot be isolated, replace the following FRU's in the following order given:<ol style="list-style-type: none"><li>1. HVPS</li><li>2. Grid block 1</li><li>3. Grid block 2</li></ol></li></ul>

## ITM Drive Service Check

If the 84 Transfer Belt Exhausted message displays and the OPC/ITM drive gear is not turning. Go to **A**.

If the 84 Transfer Belt Exhausted or 917 Error Code displays and the OPC/ITM drive gear is turning; and a new ITM does not fix the problem. Go to **B**.

If the waste toner bottle is not detected and a new ITM does not fix the problem. Go to **C**.

**Note:** This symptom may require replacement of one or more customer replaceable units, designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install an ITM unit or a print cartridge.

**A** 84 Transfer Belt Exhausted message displays and the OPC/ITM drive gear is not turning.

	FRU	Action
1	Gear A10	Check gear A10 for proper operation and signs of wear or breakage.
	Transfer Belt Connecting Shaft Dowel Pin	Be sure the transfer belt connecting shaft dowel pin is correctly located in the back of gear A10. If a problem is found, repair as necessary.
	Gears A6, A71	Check gears A6 (2 each) and gear A71 for signs of wear or breakage.
	OPC Motor (M x)	Be sure the OPC drive motor gear is properly contacting gears A6 in the motor mounting stay A assembly. Be sure the motor is operating correctly. Repair or replace as necessary.

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**B** 84 Transfer Belt Exhausted or 917 Error Code displays, the OPC/ITM drive gear is turning and a new ITM does not fix the problem.

	<b>FRU</b>	<b>Action</b>
1	Transfer Belt Position Sensor (PS200)  Engine Board  MSN Cable	<p>The transfer belt sensor is a LED Optotransistor pair that detects the belt by sensor (PS200) reflecting light from the LED to the belt in the ITM and back to the phototransistor. The sensor checks when the transfer belt has reached home position. Check the transfer belt sensor for correct operation.</p> <p>If the sensor is not operating properly, replace the FRU's in the following order.</p> <ol style="list-style-type: none"> <li>1. Belt position sensor</li> <li>2. Engine board</li> <li>3. MSN cable</li> </ol>

**C** The waste toner bottle is not detected, and a new ITM does not fix the problem.

	<b>FRU</b>	<b>Action</b>
1	Waste Toner Sensor Board (PQ350)  Engine Board  MSN Cable	<p>Check the waste toner sensor board cable and MSN cable connections.</p> <ul style="list-style-type: none"> <li>• If correct, check the waste toner sensor for proper operation.</li> <li>• If the sensor is not operating correctly, replace the following FRU's, in the order shown:</li> </ul> <ol style="list-style-type: none"> <li>1. Waste toner sensor board</li> <li>2. Engine board</li> <li>3. MSN cable</li> </ol>

## Main Fan Service Check

	FRU	Action
1	Main Fan Cable	<p>Be sure the fan cable in-line connector is connected properly to the CRF cable from the engine board.</p>
2	Main Fan Engine Board Cable (CRF) Engine Board	<p>Manually spin the fan and verify it rotates freely.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the engine board (CRF) to fan cable.</li> <li>• If the fan turns freely, turn the printer off and check the voltages below from the fan connector to the printer board cable (CRF), as you turn the printer on.</li> </ul> <p>Fan cable connector:</p> <ul style="list-style-type: none"> <li>• <b>Pin 1 (Green)</b> 0 V dc (running and not running)</li> <li>• <b>Pin 2 (Yellow)</b> 0 V dc (fan not running) +5 V dc (fan running)</li> <li>• <b>Pin 3 (Red)</b> 0 V dc (fan not running) +24 V dc (fan running)</li> </ul> <p>If any of the voltages are incorrect, disconnect the fan cable from the engine board cable and check the voltages on the engine board cable connector.</p> <ul style="list-style-type: none"> <li>• If correct, replace the main fan.</li> <li>• If incorrect, check the engine board cable (CRF). <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul> </li> </ul>



## New Toner Cartridge Detection Service Check

This symptom may require replacement of one or more customer replaceable units, designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, if available, try new print cartridges.

A new cartridge contains a reflector attached to the new cartridge detect lever, mounted inside the cartridge. The reflector reflects light, emitted from the new cartridge detect sensor, back to the sensor, detecting the cartridge. Once the cartridge has been used, the lever moves one turn, allowing no additional reflections.

	<b>FRU</b>	<b>Action</b>
1	Toner Cartridge	Try a new cartridge.
2	New Cartridge Detect/Toner Level Sensor Assembly Engine Board TE Cable	Check the sensor for signs of toner, paper dust or other contamination on the sensor. Remove contaminants which might prevent light from reaching the sensor. If the sensor is clean, replace the FRU's in the following order:  <ol style="list-style-type: none"> <li>1. New cartridge detect/toner level sensor assembly</li> <li>2. Engine board</li> <li>3. TE cable</li> </ol>

## Operator Panel Service Check

The printer detects a problem with the operator panel assembly, operator panel cable, interconnect board or controller board, when a POR does not complete and the printer emits 5 beeps.

If the operator panel operates properly, except for a PEL or a few PELs missing or broken, run the **“LCD Test” on page 3-10**, before continuing with this service check.

	FRU	Action
1	Operator Panel Cable	<p>Check for proper installation of the cable at J1 on the interconnect board.</p> <ul style="list-style-type: none"> <li>• If correctly installed, check the continuity of the cable.</li> <li>• If incorrect, replace the cable.</li> </ul>
2	Operator Panel Display Blank, 5 Beeps and LED Off	<p>Verify the voltage at J1-2 on the interconnect board measures approximately +5 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the interconnect board.</li> <li>• If correct, replace the operator panel assembly.</li> </ul>
3	Operator Panel Display Blank, 5 Beeps and LED On	<p>Verify the connection between J1-4 on the interconnect and ground measures approximately 0 ohms.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the interconnect board.</li> <li>• If correct, replace the operator panel assembly.</li> </ul>
4	Operator Panel all Diamonds and No beeps	<p>Verify any memory DIMMs and the COS SIMM are not plugged in backward, or improperly installed.</p> <p>Check the controller board for correct installation.</p> <ul style="list-style-type: none"> <li>• If no problem found, replace the COS SIMM.</li> <li>• If this does not fix the problem, replace the controller board.</li> </ul>

	FRU	Action
5	Operator Panel Assembly  Interconnect Board  Controller Board	Verify the voltages at J1-1 and J1-3 measure approximately +5 V dc. If incorrect, replace the FRUs in the following order:  1. Operator panel assembly interface board 2. Controller board

## Operator Panel Buttons Service Check

**Note:** Before continuing with this service check, go to the “**Button Test**” on page 3-10. By running this test, you should be able to isolate a failing button.

	FRU	Action
1	Operator Panel Assembly	If any button fails the Button Test, replace the operator panel assembly.
2	Interconnect Board Operator Panel Cable Controller Board (no buttons work)	Verify the voltage at J1-5 on the interconnect board measures approximately +5 V dc. <ul style="list-style-type: none"> <li>• If incorrect, replace the interconnect board.</li> <li>• If correct, check the voltage at pin 5 (white lead) on the operator panel connector. <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the operator panel assembly.</li> </ul> </li> </ul> <p>If the problem is not located, replace the controller board.</p>

## OPC Drive Service Check

### OPC Drive Symptom Chart

This symptom may require replacement of one (or more) customer replaceable units (designated as supplies or maintenance items), which are the responsibility of the customer. With the customer's permission, install a new print cartridge.

If the print cartridge fails to increment the OPC in the cartridge, go to **A**.

Error Code 910 indicates a problem with the OPC drive motor, engine board or cables. If Error code 910 displays, go to **B**.

**A** The print cartridge fails to increment the OPC in the cartridge.

	FRU	Action
1	Print Cartridge(s)	Check the print cartridge for correct installation and signs of wear or damage to the cartridge coupling/drive gear. If no problems are found, try a new print cartridge.
2	Coupling Shaft Coupling  Coupling Shaft Coupling Spring  OPC/Coupling Drive Block	Check the operation of the coupling system. If correct, verify the coupling shaft coupling spring is not broken and the coupling is operating properly. If problems are found, repair or replace the OPC/coupling block assembly, or parts.  If the coupling system is not operating properly, go to the <b>"Coupling Unit Service Check" on page 2-42.</b>

**B** Error Code 910 displays

	FRU	Action
1	OPC Drive Motor (M 1)  Engine Board  MK1 Cable	Check the OPC drive motor for proper operation. If incorrect replace the following FRUs in the order shown.  1. OPC drive motor assembly 2. Engine board 3. Cable MK 1

## Paper Exit Sensor Service Check

**Note:** The paper exit sensor (PHI 1) is located in the fuser assembly, attached to the exit sensor mounting plate.

	FRU	Action
1	Paper Exit Sensor Flag	Check the paper exit sensor flag and flag spring for proper operation. If problems exist, repair as necessary.
2	Paper Exit Sensor (PHI 1)	<p>The voltages on the engine board, CN18 to pin 5 should measure approximately +5 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the engine board.</li> <li>• If correct, verify the voltage on CN18-6 measures approximately +5 V dc with fuser cover 1 closed.               <ul style="list-style-type: none"> <li>• If incorrect, replace the engine board.</li> <li>• If correct, open and close fuser cover 1. The voltage on CN18-6 should change from approximately +5 V dc to 0 V dc.                   <ul style="list-style-type: none"> <li>• If the voltage does not change, replace the paper exit sensor.</li> </ul> </li> </ul> </li> </ul>

## Paper Feed Service Check

Paper jam messages 201 and 202 display when a timing problem with media exists, either not arriving or leaving the paper pass or exit sensors within the specified time.

When a 201 paper jam message displays, the media has not completely passed over the paper pass sensor. When a 202 paper jam message displays, media has exited the paper pass sensor, but has not reached or exited the exit sensor.

### Paper Feed Symptom Table

Paper jam 201 displays when media is detected and fed from tray x, or paper jams between tray x and the exit sensor. If the registration roller in the base printer is not turning, go to **A**.

Paper jam 201 displays when media is detected and fed from tray x or paper jams between tray x and the exit sensor. If the registration roller in the base printer is turning, go to **B**.

Paper jam 202 displays when media is detected and fed from tray x, or paper jams after passing the paper sensor. Go to **C**.

**A** 201 Paper Jam Indicates the registration roller in the base printer is not turning.

**Note:** Operation of the registration roller clutch can be checked by grounding pin 2 (orange lead) of the CRF cable. The clutch should pick when the orange lead is grounded. If the clutch picks, go to step 1. If it does not pick, go to step 3.

	FRU	Action
1	Registration Roller (in printer)	Be sure the registration roller in the base printer is operating smoothly, with no binds. Check the roller for signs of slick spots or contamination. Repair as necessary.
2	Paper Feed Gear Assembly	Check the paper feed gear assembly for proper operation. If incorrect, check the developer decrease gear, gear B28, the idler pulley and idler pulley tension spring for binds, loose or broken parts. If incorrect, repair as necessary.

	FRU	Action												
3	Registration Roller Clutch Assembly (CL01)	<p>Check the resistance of the registration clutch. It should measure between 135 and 175 ohms. Also check from the case of the clutch to either winding. It should measure infinity. If incorrect for either, replace the clutch assembly.</p> <p><b>Note:</b> The registration clutch cable, (two blue wires), connect to the CRF cable, (violet and orange), near the clutch assembly.</p> <p>Check the voltages on the inline CRF cable connector.</p> <p>Registration roller clutch voltages:</p> <table border="1" data-bbox="434 610 916 699"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage Static</th> <th>Voltage Energized</th> </tr> </thead> <tbody> <tr> <td>1 (Orange)</td> <td>+24 V dc</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Violet)</td> <td>-SL10N</td> <td>0 V dc</td> <td>+24 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate</p> <p>If the voltages are incorrect, check the CRF cable. If the cable is good, replace the engine board.</p> <p>If the voltage on Pin 1 is incorrect, check the continuity of the CRF cable.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>	Pin #	Signal Voltage	Voltage Static	Voltage Energized	1 (Orange)	+24 V dc	+24 V dc	+24 V dc	2 (Violet)	-SL10N	0 V dc	+24 V dc
Pin #	Signal Voltage	Voltage Static	Voltage Energized											
1 (Orange)	+24 V dc	+24 V dc	+24 V dc											
2 (Violet)	-SL10N	0 V dc	+24 V dc											

**B** Paper jam 201 displays indicating the registration roller in the base printer is turning.

**Note:** This symptom may require replacement of one or more customer replaceable units, designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, if available, try a new ITM or fuser.

	FRU	Action
1	ITM Assembly	If media is jamming at the ITM assembly, there may be a problem with the ITM CRU assembly.
2	Fuser Assembly Exit Sensor (PHI 1) HTT Cable MSN Cable Engine Board	<p>If a replacement fuser assembly is not available, remove the fuser and check for pieces of paper stuck in the fuser, or other signs of contamination that might cause a paper jam.</p> <p><b>CAUTION:</b> The fuser may be hot, use caution before removing or servicing.</p> <p>Go to the <b>“Paper Exit Sensor Service Check” on page 2-67</b> and check the paper exit sensor (PHI 1).</p> <ul style="list-style-type: none"> <li>• If a problem is found with the fuser and it is below the maintenance count, repair or replace the fuser assembly.</li> <li>• If the fuser is above the maintenance count, inform the customer that the printer should have a maintenance kit installed.</li> </ul> <p>If replacing the fuser does not fix the problem, check all the fuser cables (HTT and MSN) for correct installation and any signs of damage.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the cable(s).</li> <li>• If the cables are good, replace the engine board.</li> </ul>



**C** Paper jam 202 displays indicating media is detected and fed from tray x and paper jams after it passes the paper pass sensor.

	<b>FRU</b>	<b>Action</b>
1	Fuser Assembly  Paper Exit Sensor Flag and Spring  Heat Insulating Cover 1	<p><b>Fuser assembly available:</b></p> <p>Try a new fuser assembly before proceeding with this service check.</p> <p><b>Fuser assembly not available:</b></p> <p>If the media jams over the exit sensor, check the exit sensor flag and spring for correct operation and loose or broken parts. If a problem is found, replace as necessary.</p> <p>Check the heat insulating cover 1 for anything that would cause a paper jam.</p>

## Parallel Port Service Check

Run the **“Parallel Wrap Test” on page 3-11.**

The Parallel Wrap Test is designed to check the parallel port hardware by using a wrap plug (P/N 1319128) which invokes the Parallel Diagnostic Test. This test helps isolate the printer from the parallel cable and host. The test provides displays failure information for approximately 3 seconds. If the test detects a problem, replace the controller board.

## Power Service Check

**Note:** If any paper handling options, (250/250 tray or duplex unit), are installed, remove the option(s) and check the base printer for correct operation.

If the base printer operates incorrectly, go to **A**.

If the printer operates correctly, reinstall the options and go to **B**.

**Note:** If the AC input cables attached to CN404 (A) or CN405 (B) are unplugged from the LVPS assembly, be sure they are reinstalled correctly.

**CAUTION:** Observe all necessary precautions when removing and handling the circuit boards, or when checking the AC power wiring or FRUs.

**A** Base printer with no paper handling options installed.

	FRU	Action
1	Line Voltage	Check the AC line voltage. If the line voltage is incorrect, inform the customer.
2	AC Line Cord	Check the line cord(s) for any signs of damage. <ul style="list-style-type: none"> <li>• If incorrect, replace the cord.</li> <li>• If correct, check the continuity of the line cord and replace if necessary.</li> </ul>
3	LVPS Fuses F401, F402	Remove and check Fuses F401 and F402. If neither is blown, go to step 5. <ul style="list-style-type: none"> <li>• If either or both fuses are blown, replace the fuse and turn the printer on. Verify the printer is operating properly.</li> <li>• If, after replacing either or both fuses and the power is turned on and neither fuses blow again, but the printer does not function properly, go to step 8.</li> <li>• If either fuse continues to blow, go to step 4.</li> </ul> <p><b>CAUTION:</b> Before checking either fuse, turn the AC On/Off switch off and disconnect the AC power cord.</p>

	FRU	Action
4	LVPS Fuses F401, F402 either or both continue to blow after being replaced.	<p>Turn the printer off and disconnect CN401, CN402, CN403 and CN406 from the LVPS. Turn the printer on and:</p> <ul style="list-style-type: none"> <li>• If F401 or F402 continues to blow, replace the LVPS assembly.</li> <li>• If the fuses do not blow, turn the printer off and reconnect the cables to the LVPS.</li> </ul> <p>Observing all ESD precautions and removing power to the printer prior to removing or replacing any electronic boards, perform the following:</p> <p>If installed, remove any options on the interconnect board. Remove the controller board assembly and disconnect the engine interface cable at J2. Turn the printer on.</p> <ul style="list-style-type: none"> <li>• If no fuses blow, go to <b>A1</b>.</li> <li>• If the fuses blow a second time, go to <b>B1</b>.</li> </ul> <p><b>A1.</b> Reconnect the interface cable to J2 and replace each option one at a time, checking if either fuse blows.</p> <ul style="list-style-type: none"> <li>• If either fuse blows, replace the defective option.</li> <li>• If neither fuse blows, remove the COS SIMM and any memory SIMMs installed on the controller board and reinstall the controller board. Verify if either fuse is blown.</li> <li>• If either fuse is blown, replace the controller board. If neither fuse is blown, reinstall any memory SIMMs and COS SIMM one at a time to find the defective FRU.</li> </ul> <p><b>B1.</b> Except for CN402, disconnect all cables from the engine board assembly. Turn the printer on.</p> <ul style="list-style-type: none"> <li>• If either fuse blows, replace the engine board assembly.</li> <li>• If the fuses do not blow, reinstall one cable at a time until the defective FRU is found. Replace the FRU that caused the fuse to blow.</li> </ul>

	<b>FRU</b>	<b>Action</b>
5	LVPS Fuses F401, F402 either or both continue to blow after being replaced. (Continued)	<p>Check the AC line voltage on the LVPS at connectors CN404 and CN405.</p> <ul style="list-style-type: none"> <li>• If incorrect, go to step 6.</li> <li>• If correct, disconnect the cables to CN401, CN402 and CN403.</li> </ul> <p>Check the voltage at CN401 pin 1 or 2. The voltage should measure approximately +5 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the LVPS.</li> <li>• If correct, reconnect the cable to CN401 and recheck the voltage. If incorrect, go to step 6.</li> <li>• If correct, reconnect the cable to CN402 and recheck the voltage. If incorrect, go to step 7.</li> <li>• If correct, reconnect the cable to CN403 and recheck the voltage. If incorrect, go to step 8.</li> </ul> <p><b>CN401</b> Pin 1, Pin 2    Approximately +5 V dc Pin 3, Pin 4    Ground Pin 5            Fuser On</p> <p><b>CN402</b> Pin 1, Pin 2    Approximately +5 V dc Pin 3, Pin 4    Ground</p>
6	LVPS Fuses F401, F402 either or both continue to blow after being replaced. (Continued)	<p>The problem might be with the following:</p> <ul style="list-style-type: none"> <li>• Interconnect board.</li> <li>• Any option installed on the interconnect board.</li> <li>• Controller board.</li> <li>• COS.</li> <li>• Memory DIMM installed on the controller board.</li> </ul> <p>Remove and replace one FRU at a time until you find the failing component.</p>
7	LVPS Fuses F401, F402 either or both continue to blow after being replaced. (Continued)	<p>The problem might be with the following:</p> <ul style="list-style-type: none"> <li>• Engine board</li> <li>• Any sensor or motor connected to the engine board.</li> </ul> <p>Remove and replace one FRU at a time until you find the failing component.</p>

	FRU	Action
8	LVPS Fuses F401, F402 either or both continue to blow after being replaced. (Continued)	The problem might be with any +24 V dc device, such as stepper motor, solenoid or clutch connected to the engine board. Remove and replace one FRU at a time until you find the failing component.  <b>Note:</b> A shorted motor, case to winding short, may also damage the engine board. It may be necessary to replace both the motor and the board.
9	AC Input Receptacle	Check the AC input receptacle for signs of damage. <ul style="list-style-type: none"> <li>• If damage is found, replace the receptacle.</li> <li>• If no damage is found, go to step 10.</li> </ul>
10	AC receptacle to AC On/Off Wiring.	Check that the wiring is correctly installed and connected to the AC input receptacle and the AC On/Off switch. Check the wiring for signs of damage. <ul style="list-style-type: none"> <li>• If correct, check the blue and gray wires for continuity and go to step 11.</li> <li>• If incorrect, replace the faulty cable.</li> </ul>
11	AC On/Off Switch LVPS to AC On/Off Switch Wiring	Check the wiring from the LVPS to the AC On/Off switch verifying it is installed properly and not damaged. If incorrect, replace the switch.

## 5016-001

**B** Base printer operates incorrectly when paper handling options are installed.

	<b>FRU</b>	<b>Action</b>
1	250/250 Tray Option	Go to the <b>“250/250 Dual Paper Tray Service Check” on page 2-108.</b>
2	Duplex Option	If a duplex option is installed, remove and reinstall the option and check for correct operation. If a malfunction occurs, go to the <b>“Duplex Unit Option Service Check” on page 2-120.</b>

## Printhead Service Check

The printhead assembly does not contain any service replaceable parts or components. Do not remove any screws from the printhead cover assembly, as this might cause internal contamination or damage.

**931 Error Code:** This error may be caused by a failure with the HYSNC signal to the printhead or a malfunction within the printhead. Go to **A**.

**932 and 933 Error Codes** are not used.

**934 and 935 Error Codes:** Indicate a problem with the mirror motor circuit in the printhead assembly, the mirror motor cable from the engine board to the printhead, or the engine board. Error code 934 indicates a failure in the mirror motor locking function. Error code 935 indicates that the mirror motor turned, but did not stabilize. If you have either a 934 or 935 error code displayed, go to **B**.

### A 931 Error Code

	FRU	Action
1	Interlock Switches S3, S4 (+5 V dc interlock)	<p>The +5 V dc interlock for the printhead prevents the printhead from powering on by the engine board if the cartridge door, fuser door or front cover are open.</p> <p>Check the voltage on the orange lead to interlock switch S4 at the switch. It should read approximately +5 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, disconnect the switch and check the voltage on the cable connect and go to step 2.</li> <li>• If correct, check the voltage on the blue lead attached to interlock switch S3. It should read +5 V dc.</li> <li>• If correct, check the switches for continuity and correct operation.</li> <li>• If a problem is found, replace the failing switch.</li> </ul>

	FRU	Action
2	S3, S4 Interlock Switch Cables. Printhead to Engine Board Cable	<p>Check the cable from the interlock microswitch S3 Pin 1 (orange lead) to connector CNLS2 on the printhead and the yellow jumper from S3 Pin 2 to S4 Pin 2. Be sure these cables are connected properly and are not damaged. Be sure to note the interlock switch cable connector mounted to the left side frame.</p> <p>If a problem is found with any of these cables, replace the failing cable.</p> <p>Check the printhead to engine board cable for correct installation and damage.</p> <ul style="list-style-type: none"> <li>• If correct, check the continuity of the cable.</li> <li>• If incorrect, replace the cable and go to <b>B</b>.</li> </ul>

**B 934 and 935 Error Codes**

	FRU	Action												
1	Engine Board to Printhead Cable	Check the cable for damage and correct installation. Check continuity of the cable. If not correct, replace the cable.												
2	Engine Board to Printhead	<p>Check the following voltages:</p> <p style="text-align: center;">Engine board CN14</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>Pin 5</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>Pin 6</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>Pin 19</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate.</p> <ul style="list-style-type: none"> <li>• If any voltage is incorrect, replace the engine board.</li> <li>• If voltages are correct, replace the printhead first.</li> <li>• If this does not fix the problem, replace the engine board.</li> </ul>	Pin #	Signal Voltage	Voltage	Pin 5	+24 V dc	+24 V dc	Pin 6	+5 V dc	+5 V dc	Pin 19	+5 V dc	+5 V dc
Pin #	Signal Voltage	Voltage												
Pin 5	+24 V dc	+24 V dc												
Pin 6	+5 V dc	+5 V dc												
Pin 19	+5 V dc	+5 V dc												



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## Print Quality Service Checks

Check the following before performing any of the print quality service checks.

### Print Quality Initial Service Check

- Use tray 1 (integrated tray) to test the print quality of the base printer.
- Be sure the fuser assembly is installed correctly.
- Be sure that paper installed in tray 1 meets paper specifications.
- Set the following:
  - Color correction: **Auto**
  - Print resolution: **600 dpi**  
(print quality should be checked for both 600 and 1200 dpi)
  - Image enhance: **OFF**

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

**Note:** This symptom may require replacement of one or more customer replaceable units designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install an ITM unit or a print cartridge

## All Black or Color Page Service Check

**Note:** An all black or a page that is all one color is generally caused by a problem in the high voltage system, or incorrect high voltage in the printing process resulting in the development of toner on the entire PC drum.

	FRU	Action
1	Print Cartridge	Try a new print cartridge corresponding to the color on the page.
2	High Voltage Contacts Grid Block 1 Grid Block 2  HVPS	<p>Check the high voltage contacts in grid block 1 and 2 to ensure they are clean, not bent, deformed or pitted. If incorrect, replace the failing grid block assembly.</p> <p>Be sure the HVPS is correctly installed and securely mounted to the HVPS mounting bracket and grid block assemblies. If correct, remove the HVPS and check to be sure the high voltage contacts align with the contacts on the HVPS. Also look for signs of pitting or damage.</p>
3	HVPS to Engine Board Cable	Check the cable for correct installation and continuity. If incorrect, replace the cable.
4	Engine Board Printhead Cable  Engine Board	<p>Check the cable for proper installation and continuity.</p> <ul style="list-style-type: none"> <li>• If the continuity is incorrect, replace the cable.</li> <li>• If incorrect, replace the engine board.</li> </ul>
5	Printhead	The printhead can cause this problem, but should only be replaced after a new toner cartridge(s) or ITM has been replaced.

## All Blank Page Service Check

	FRU	Action
1	Intermediate Transfer Unit (ITM)	An ITM unit may cause an all blank copy. Try a new ITM if available.
2	Transfer Roller	<p><b>Note:</b> The transfer roll is spring loaded against the inner cover so that it properly contacts the transfer belt in the ITM unit.</p> <p>Check the transfer roll for correct installation. Be sure the transfer roll rotates freely. Check the left and right side transfer roll springs and bushings for any signs of binding or damage. Replace any parts as necessary.</p>
3	High Voltage Contacts Grid Block 1 Grid Block 2  HVPS	<p>Check the high voltage contacts in grid blocks 1 and 2 to ensure they are clean, not bent, deformed or pitted. If incorrect, replace the failing grid block assembly.</p> <p>Be sure the HVPS is correctly and securely mounted to the HVPS mounting bracket and grid block assemblies. If correct, remove the HVPS and be sure the high voltage contacts align with the contacts on the HVPS. Also look for signs of pitting or damage.</p>
4	Engine Board Printhead Cable  Engine Board	<p>Check the cable for proper installation and continuity.</p> <ul style="list-style-type: none"> <li>• If the continuity is incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>
5	Printhead	The printhead may be the cause, but should only be replaced after a new toner cartridge(s) or ITM has been replaced.

## Background Service Check

**Note:** Some background problems can be caused by rough papers. Slick or coated papers may also cause background. Some problems occur with printers that run a large amount of graphics in a humid environment.

- Try an ITM assembly.
- Try a new toner cartridge of the background color.

	FRU	Action
1	Erase Lamps	Go to the <b>“Erase Lamp Service Check” on page 2-50.</b>
2	Printhead	The printhead cannot be cleaned. If all other attempts at correcting a background problem fail, replace the printhead.
3	High Voltage Contacts	Check the high voltage contacts in grid block 1 and 2 to ensure they are clean, not bent, deformed or pitted. If incorrect, replace the failing grid block assembly
4	Grid Block ASM 2 HVPS	Be sure the HVPS is correctly installed and securely mounted to the HVPS mounting bracket and grid block assemblies. If correct, remove the HVPS and be sure the high voltage contacts align with the contacts on the HVPS.  Also look for any signs of pitting or damage.
5	Engine Board	If background problems continue: <ul style="list-style-type: none"> <li>• Replace the HVPS.</li> <li>• If this does not fix the problem, replace grid assembly 1, and assembly 1.</li> </ul>

## Black, Color Lines or Bands Service Check

Banding is difficult to detect except on a page with a uniform gray, color 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.

	FRU	Action
1	Toner Cartridge	Try a new toner cartridge, as the present cartridge may be defective, replace the cartridge corresponding to the color of the line or band.
2	Intermediate Transfer Unit (ITM)	An ITM may cause banding or lines on the printed page. Try a new ITM.
3	Transfer Roller	<p><b>Note:</b> The transfer roll is spring loaded against the inner cover so that it properly contacts the transfer belt in the ITM unit.</p> <p>Check the transfer roll for correct installation. Be sure the transfer roll rotates freely. Check the left and right side transfer roll springs and bushings for signs of binding or damage. Replace parts as necessary.</p>
4	High Voltage Contacts Grid Block 1 Grid Block 2	Check the high voltage contacts in grid block 1 and 2 to ensure they are clean, not bent, deformed or pitted. If incorrect, replace the failing grid block assembly.
5	HVPS	Be sure the HVPS is correctly installed and securely mounted to the HVPS mounting bracket and Grid Block assemblies. If correct, remove the HVPS and be sure the high voltage contacts align with the contacts on the HVPS. Also look for signs of pitting or damage.
6	Printhead	The printhead can cause this problem, but should only be replaced after a new toner cartridge(s) or ITM has been replaced.

## Black or Color Spots Service Check

**Note:** This symptom may require replacement of one or more customer replaceable units, designated as supplies or maintenance items, which are the responsibility of the customer. With the customer's permission, you may need to install an ITM unit or a print cartridge.

	FRU	Action
1	Print Cartridge	Try a new print cartridge.
2	Cleaning Unit	Check the fuser cleaning unit for correct operation and signs of contamination. Replace the cleaning unit, if any problems are found.
3	ITM Unit	Check the ITM belt for signs of color or black toner left on the belt after the a page has printed. If toner is found, the ITM is not functioning properly. Try a new ITM assembly.
4	Fuser Assembly	Check the backup and hot rolls for signs of toner buildup or contamination. If toner buildup is found, repair or replace the fuser assembly.

## Developer Drive System Service Check

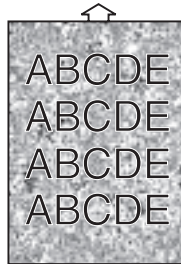
**Print quality problems** - Either all blank pages, some color, or one color missing from the printed page.

	FRU	Action
1	Print Cartridge(s)	Try a new print cartridge(s).
2	Developer Drive Gear B16 Timing Belt Developer Sleeve Idler Pulley Developer Decrease Gear Spring	Check the developer drive gear, timing belt and developer sleeve located in the motor mounting stay A assembly for correct operation. If problems are found, repair or replace Stay A assembly as needed.  Check the idler pulley, timing belt, developer decrease gear and spring, located on the right side frame under the motor mounting C assembly. If problems are found, repair or replace any failing FRUs.

## Evenly Spaced Horizontal Lines/Marks Service Check

	FRU	Action
1	Intermediate Transfer Unit	Line spacing: 375 mm (circumference) apart - ITM belt. 33.3 mm (circumference) apart - supply roller. 34.8 mm (circumference) apart - developer roll. 94.2 mm (circumference) apart.
2	Fuser Assembly	<b>Line spacing:</b> 97 mm (circumference) or 30 mm (diameter) apart - hot roll. 97 mm (circumference) or 30 mm (diameter) apart - backup roll.
3	Registration Roll	Line spacing: 50 mm (circumference) or 16.2 mm diameter apart.
4	Transfer Roll	Line spacing: 62 mm (circumference) or 20 mm (diameter) apart.
5	Oil Coating Roll	Lines spacing: 87 mm (circumference) or 27 mm (diameter) apart.
6	Distance	Distance between registration roll and transfer roll 35 mm.

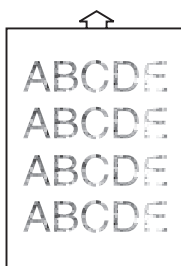
## Foggy Background Service Check



	<b>FRU</b>	<b>Action</b>
1	Imaging/PC Cartridge	The PC drum may have reached end of life. Replace the imaging/PC cartridge.
2	High Voltage Power Supply (HV1)  Fuser Frame Resistor Board (PWB-R1)  Printer Main Engine Board (PWB-A)	The printer may produce print. Replace parts as necessary.



## Low Image Density Service Check

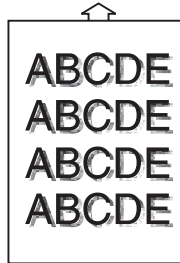


**Note:** Media which is out of specification, or media containing a high moisture content may cause this problem.

	FRU	Action
1	Print Cartridges	<p>Run the print quality tests pages and determine the failing print cartridges producing light print or low image density. The toner cartridge may also be low on toner.</p> <p>Replace any failing cartridges.</p>
2	Intermediate Transfer Unit (ITM)	<p>Be sure the ITM is installed correctly and the contacts on the ITM are contacting the grid block 1 and 2 high voltage contacts.</p> <p>If no problem is found try a new ITM unit.</p>
3	Transfer Roller	<p><b>Note:</b> The transfer roll is spring loaded against the inner cover so that it properly contacts the transfer belt in the ITM unit.</p> <p>Check the transfer roll for correct installation. Be sure the transfer roll rotates freely.</p> <p>Check the left and right side transfer roll springs and bushings for signs of binding or damage.</p> <p>Replace parts as necessary.</p>
4	High Voltage Contacts Grid Block 1 Grid Block 2	<p>Check the high voltage contacts in grid block 1 and 2 to ensure they are clean, not bent, deformed or pitted.</p> <p>If incorrect, replace the failing grid block assembly.</p>

	FRU	Action
5	HVPS	<p>Be sure the HVPS is correctly installed and securely mounted to the HVPS mounting bracket and grid block assemblies.</p> <ul style="list-style-type: none"> <li>• If correct, remove the HVPS and be sure the high voltage contacts align with the contacts on the HVPS.</li> <li>• Look for signs of pitting or damage.</li> </ul>
6	Printhead	The printhead can cause this problem, but should only be replaced after a new toner cartridge(s) or ITM has been replaced.

## Offset Print Service Check



	FRU	Action
1	Cleaning Unit	<p>Check the cleaning unit for proper installation and contamination.</p> <p>If signs of contamination or damage exist, replace the cleaning unit.</p>
2	Fuser Assembly	<p>Check the fuser assembly for signs of contamination of the hot roll or backup roll.</p> <p>If signs of contamination or damage exist, replace the fuser assembly.</p>

## Poor Color Reproduction Service Check

	FRU	Action
1	Print Cartridge	Replace any toner cartridges matching the corresponding color problems. Advise the customer the cartridge or cartridges should be replaced.
2	Intermediate Transfer Unit (ITM)	<p>Replace any toner cartridges matching the corresponding color problems. Advise the customer the cartridge or cartridges should be replaced.</p> <p>Try a new ITM CRU. If this fixes the problem advise the customer the ITM should be replaced.</p>
3	Transfer Roller	<p><b>Note:</b> The transfer roll is spring loaded against the inner cover so that it properly contacts the transfer belt in the ITM unit.</p> <ul style="list-style-type: none"> <li>• Check the transfer roll for correct installation. Be sure the transfer roll rotates freely.</li> <li>• Check the left and right side transfer roll springs and bushings for signs of binding or damage.</li> </ul> <p>Replace any parts as necessary.</p>
4	Paper Moisture	The paper may have too high a moisture content. Try a different paper.
5	Temperature Sensor	Replace the temperature sensor.

## Random Marks Service Check

**Note:** Loose material moving inside the printer and attaching to the photoconductor, ITM Belt, or transfer roll, is the primary cause of random marks.

	FRU	Action
1	Random Marks	<p>Check the print cartridges for signs of loose or foreign material that might be on the photoconductor.</p> <p>Check the ITM belt and transfer roll for material stuck to the belt or imbedded in the roll.</p>

## Residual Image Service Check

	FRU	Action
1	Print Cartridge	The print cartridges can cause a residual image due to a defective cleaning blade, photoconductor or other parts inside the print cartridge. Determine which cartridge is causing the problem.
2	Fuser Assembly	Check the fuser assembly for signs of toner contamination. The hot roll might retain toner deposit on the page.
3	Erase Lamp Assembly	If the cartridges and fuser assembly do not have a problem, go to the <b>“Erase Lamp Service Check” on page 2-50.</b>

## Skew Service Check

	FRU	Action
1	Multipurpose Tray	Be sure the paper is properly placed in the multipurpose tray.
2	Paper Guides	Be sure the paper is properly positioned against the paper guides, in the paper tray.

## Toner on Backside of Page Service Check

**Note:** Loose toner, in the paper path, carried on the backside of paper, may cause this condition.

	FRU	Action
1	Loose Toner in Printer	Check for signs of excessive toner in the printer that might be picked up by the media and carried through the printer.
2	Transfer Roll	Check and replace the transfer roll, if excessive toner or dirt is found on the roll.
3	Cleaning Unit	Check the cleaning unit for signs of contamination. If contamination exists, replace the cleaning unit.
4	Fuser Assembly	Check the fuser hot roll, backup roll and inside the fuser assembly for signs of loose toner or toner which could adhere to the backside of the media.  Replace the fuser assembly, if toner cannot be removed from the fuser.

## Uneven Print Density Service Check

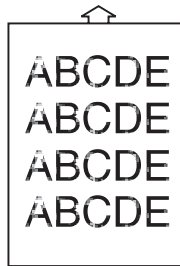
	FRU	Action
1	Print Cartridge	Remove the problem print cartridge and shake it gently to distribute the toner evenly. The cartridge may also be low on toner and may need replacing.
2	Intermediate Transfer Unit (ITM)	Try a new ITM unit.
3	Transfer Roll	Check the transfer roll for signs of contamination, such as adhesives or toner buildup.  Check for surface damage to the roll, replacing the roll if necessary.

## White Lines or Bands Service Check

	FRU	Action
1	Print Cartridges	Gently shake the toner cartridges to evenly distribute the toner. If lines or bands remain, one of the cartridges may have a scratch on the photoconductor.  Run the <b>“Print Quality Test Pages” on page 3-1</b> , to isolate the failing cartridge. If a particular cartridge is found to produce the line or band at the same spot as on the printed page, replace the failing cartridge.
2	Intermediate Transfer Unit (ITM)	Remove the ITM from the printer and carefully examine the belt for marks or scratches at the same spot as on the printed page.
3	Transfer Roll	Examine the transfer roll for signs of damage or contamination which might cause a line or band to occur at the same location as on the printed copy.

	<b>FRU</b>	<b>Action</b>
4	HVPS Grid Block 1 Grid Block 2	<p>Be sure the mounting screws in the HVPS are tight and the HVPS board is correctly seated against the high voltage contacts of grid block 2.</p> <p>Examine the contacts on grid blocks 1 and 2 for signs of contamination or damage. grid block 1 supplies the necessary high voltages to the print cartridges and ITM Unit, while grid block 2 supplies the high voltage to the ITM and Transfer Roll.</p> <p>Examine the HVPS board for signs of damage, especially to the jumpers that contact the grid block high voltage contacts.</p>
5	Fuser	<p>Check the hot roll and backup roll for signs of damage or heavy contamination.</p> <ul style="list-style-type: none"> <li>• If a problem is found, repair or replace the fuser assembly.</li> <li>• If no problem is found, check the discharge brush for buildup, replacing it if a problem is found.</li> </ul>
6	Printhead	<p>Dirt or dust on the lens or mirrors in the printhead can cause this problem. After all other checks have been made, replace the printhead assembly.</p>

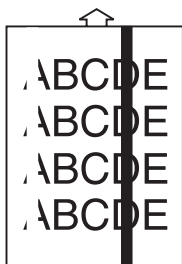
## White Spots Service Check



	<b>FRU</b>	<b>Action</b>
1	Paper	Check paper for moisture resulting from high humidity.
2	Image Transfer Roller  High Voltage Power Supply (HV1)  Fuser Frame Resistor Board (PWB-R1)  Printer Main Engine Board (PWB-A)	The printer may produce poor image transfer. Replace the listed parts in the following order:  1. Image transfer roller 2. High voltage power supply 3. Fuser frame resistor board 4. Printer main engine board



## White/Black Lines Service Check



	<b>FRU</b>	<b>Action</b>
1	Imaging/PC Cartridge	If scratches appear on the PC drum, replace the imaging/PC cartridge.
2	Printhead Unit  Fuser Frame Resistor Board (PWB-R1)  Printer Main Engine Board (PWB-A)	The printhead unit may be defective. Replace the listed parts in the following order:  1. Printhead unit 2. Fuser frame resistor board 3. Printer main engine board

## Serial Port Service Check

Run the **“Serial Wrap Test”** on page 3-14.

The Serial Wrap Test is designed to check the serial port hardware, by using a wrap plug (P/N 1329048) which invokes the Serial Post Diagnostic Test. The test isolates the printer from the serial cable and host, displaying failure information for approximately three seconds. If the test indicates a problem, replace the controller board.

## Toner Level Detect Service Check

**Note:** The toner level sensor is mounted on the same board as the new cartridge detect sensor and is located in the bottom of the printer. The toner cartridge contains two mirrors mounted behind a window in the cartridge that reflect infrared light from an LED, mounted on the sensor board, back to a photo transistor also mounted on the sensor board.

**The printer does not detect the level of toner left in the cartridge.**

	FRU	Action
1	Toner Cartridge	Try a new cartridge for cartridges for which the level of toner, has not been sensed.
2	Toner Level/ New Cartridge  Detect Sensor Board  Engine Board  TE Cable	Check the sensor board assembly for signs of excessive toner, paper dust or other contaminants. Blow off contaminants with clean dry air. If the sensor board is clean, replace the FRUs in the following order:  1. Toner level/new cartridge detect sensor board 2. Engine board 3. TE cable

## Toner Low/Empty Sensor Service Check

**Note:** Check the print darkness menu setting before checking the toner sensor. This service check is intended to be used when a 929 service error displays.

	FRU	Action
1	Developer Drive Assembly	Incorrect operation of the developer drive assembly can cause the printer to display a 929 error code. Check the developer drive assembly for correct installation, signs of wear, or loose or broken parts.
2	Toner Sensor Cable	<p>Be sure the toner sensor assembly cable is properly seated into the toner sensor.</p> <ul style="list-style-type: none"> <li>• If correct at both the sensor and engine board (J10), check the continuity of the cable.</li> <li>• If incorrect, replace the cable.</li> </ul>
3	Toner Sensor	<p>The toner sensor cable is part of the front harness and part of connector J10 on the engine board. Check the voltage at J1-011. It should read approximately + 5 V dc.</p> <ul style="list-style-type: none"> <li>• If incorrect, replace the engine board.</li> <li>• If correct, check the voltage at J10-12. It should read approximately +5 V dc with the controller board removed from the printer.</li> <li>• If incorrect, replace the engine board.</li> <li>• If correct, replace the toner sensor assembly.</li> </ul> <p>A bad ground connection between J10-13 on the engine board and pin 3 on the toner sensor results in a 929 service error.</p>

## Transfer Roll Service Check

**Note:** Be sure the transfer roll is properly snapped into the inner cover.

	FRU	Action
1	Transfer Roll Assembly	Check the transfer roll for signs of toner buildup, surface damage to the roll, or oil or other contaminants on the surface of the roll. Replace the roll as necessary.
2	Transfer Roll: <ul style="list-style-type: none"> <li>• Bushings</li> <li>• Springs</li> </ul> Transfer Shaft Roller	<p>Check the bushings, springs and transfer shaft rollers for signs of binds, contamination or breakage.</p> <p>Examine the right and left transfer roller bushings to be sure they snap into the inner cover and are not broken. Repair as necessary.</p> <p>Unsnap the transfer roll and check the transfer roll springs for damage. The springs must place enough force on the transfer roll to keep the transfer roll evenly placed at its most outward position.</p>
3	917 Error Code Right Roll Shaft HVPS Grid Block 2	<p>Be sure the transfer roll shaft is making contact with the HVPS grid block 2 contact and that the grid block is making contact with the HVPS jumpers on the board.</p> <ul style="list-style-type: none"> <li>• If the contacts are bent or damaged, replace grid block 2.</li> <li>• If no problem is found, replace the HVPS assembly.</li> <li>• If this does not fix the problem, replace the engine board.</li> </ul>

## Tray 1 (Integrated Tray) Service Check

**Note:** If 242 or 243 paper jam message displays, go to the **“Options Service Checks” on page 2-106.**

If a 230, 231 or 232 paper jam message displays, go to the **“Duplex Unit Option Service Check” on page 2-120.**

### Tray 1 Symptom Chart

- A** It is difficult to remove tray 1.
- B** Tray 1 is correctly installed and **Insert Tray 1** displays.
- C** 241 Paper Jam - **Check Tray 1** displays and media does not reach the pass through sensor.
- D** 241 Paper Jam - **Check Tray 1** displays and media jams over the pass through sensor.
- E** Paper size in tray 1 is not detected.
- F** Paper level in tray 1 is not detected.
- G** Media double feeds from tray 1.

## 5016-001

**A** It is difficult to remove tray 1.

**Note:** Do not force tray 1 from the printer, as damage to the paper detect sensor lever, or pick up roller bracket assembly, may occur. Lift up on the bracket and sensor lever and carefully remove tray 1.

	FRU	Action
1	Paper Detect Sensor Lever Release Lever Pick Up Return Spring Feed Frame	Check the paper feed frame, paper detect sensor lever, release lever, and pick up spring for correct installation and operation. If incorrect, repair as necessary.

**B** Tray 1 is correctly installed and **Insert Tray 1** displays.

**Note:** This message displays only when printing a page.

	FRU	Action
1	Paper Tray 1	Be sure the flag molded in the side of the tray is not missing or broken.
2	Paper Detect/ Paper Size Detect Board Assembly	If the board assembly, CST cable or engine board are failing, the printer does not recognize the installation of Tray 1. Be sure the paper detect/paper size detect board is working correctly. If no problem is found, replace the FRUs in the following order:  <ol style="list-style-type: none"><li>1. Detect board</li><li>2. Engine board</li></ol>

**5016-001**

**C 241 Paper Jam - Check Tray 1** displays and media jams, prior to the pass through sensor.

	<b>FRU</b>	<b>Action</b>
1	Paper Tray 1	Check tray 1 for anything that might cause the paper to jam in the tray, or prevent media from exiting.
2	Paper Detect Sensor Paper Detect Sensor Board	Check the paper detect sensor lever (flag) in the paper feed unit assembly for correct operation, or if broken. Replace the lever (flag), if necessary.  Check the paper detect sensor for correct operation. If incorrect, replace the sensor.
3	CST Cable Engine Board	Check continuity of the cable. <ul style="list-style-type: none"><li>• If incorrect, replace the cable.</li><li>• If correct, replace the engine board.</li></ul>
4	Paper Feed Roller Paper Pick up Roller Pick up Gear Pick up Roller Idler Gears	Check the following paper feed parts for signs of broken teeth, excessive wear, or binding: <ul style="list-style-type: none"><li>• paper feed unit clutch.</li><li>• paper feed roller shaft, paper transfer roller drive gear and paper feed roller.</li><li>• Paper transfer roller and paper transfer roller idler gears.</li><li>• Paper pick up roller, paper pick up gear and pick up roller idler gears.</li></ul>

	FRU	Action													
5	<p>Paper Feed Unit Clutch</p> <p>241 Check Tray 1 message displays</p>	<p><b>Note:</b> The voltages for the magnetic clutch can be checked at the 6 pin inline cable connector located in the HVPS to engine board cable harness above the temperature/humidity board assembly on the left side of the printer.</p> <p>Check the resistance of the magnetic clutch, it should read approximately 245 ohms. If incorrect replace the magnetic clutch.</p> <p>Check the following voltages on the inline connector while feeding a sheet of paper.</p> <table border="0"> <thead> <tr> <th>Pin #</th> <th>Voltage Static</th> <th>Voltage Feeding</th> </tr> </thead> <tbody> <tr> <td>1 (Black lead)</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Red lead)</td> <td>+24 V dc</td> <td>0 V dc to +24 V dc</td> </tr> </tbody> </table> <p>If the clutch or cable from the clutch are open:</p> <table border="0"> <tbody> <tr> <td>1 (Black lead)</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Red lead)</td> <td>0 V dc</td> </tr> </tbody> </table> <p>If the voltage on the red lead measures approximately +24 V dc, but does not vary as a sheet of paper is picked, check the cables.</p> <ul style="list-style-type: none"> <li>• If correct, replace the failing cable.</li> <li>• If correct, replace the engine board.</li> </ul>	Pin #	Voltage Static	Voltage Feeding	1 (Black lead)	+24 V dc	+24 V dc	2 (Red lead)	+24 V dc	0 V dc to +24 V dc	1 (Black lead)	+24 V dc	2 (Red lead)	0 V dc
Pin #	Voltage Static	Voltage Feeding													
1 (Black lead)	+24 V dc	+24 V dc													
2 (Red lead)	+24 V dc	0 V dc to +24 V dc													
1 (Black lead)	+24 V dc														
2 (Red lead)	0 V dc														



**D 241 Paper Jam - Check Tray 1** displays and media jams over the pass through sensor.

	FRU	Action															
1	Paper Pass Sensor Flag  Paper Pass Sensor Spring  Paper Pass Sensor Board  MK 2 Cable  Engine Board	<p>Check the paper pass sensor flag and spring for correct operation and broken or loose parts. If a problem is found, repair as necessary.</p> <p><b>Note:</b> The voltages for the paper pass sensor can be checked at the 6 pin inline cable connector located in the HVPS to engine board cable harness above the temperature/humidity board assembly, on the left side of the printer.</p> <p>Voltages on inline connector:</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Static</th> <th>Voltage Feeding</th> </tr> </thead> <tbody> <tr> <td>3 (Orange)</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>4 (Blue)</td> <td>+5 V dc</td> <td>0 V dc to +5 V dc</td> </tr> <tr> <td>5 (Brown)</td> <td>+5 V dc</td> <td>Transparency +5 V dc</td> </tr> <tr> <td>6 (Green)</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p><b>Note:</b> All voltages are approximate.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 3 is incorrect, check the continuity of the cable. If incorrect, and if the cable is good, replace the engine board.</li> <li>• If the voltage on pin 3 is correct, but the voltage on pin 4 is incorrect, replace the following parts in the order shown:             <ol style="list-style-type: none"> <li>1.Paper pass sensor board assembly</li> <li>2.Engine board</li> <li>3.Mk 2 cable</li> </ol> </li> </ul>	Pin #	Voltage Static	Voltage Feeding	3 (Orange)	+5 V dc	+5 V dc	4 (Blue)	+5 V dc	0 V dc to +5 V dc	5 (Brown)	+5 V dc	Transparency +5 V dc	6 (Green)	0 V dc	0 V dc
Pin #	Voltage Static	Voltage Feeding															
3 (Orange)	+5 V dc	+5 V dc															
4 (Blue)	+5 V dc	0 V dc to +5 V dc															
5 (Brown)	+5 V dc	Transparency +5 V dc															
6 (Green)	0 V dc	0 V dc															

## 5016-001

**E** Paper size in tray 1 is not detected.

When media in Tray 1 reaches 50 or less sheets, the paper detect lever turns on the paper detect sensor and displays Load Paper Tray 1.

	<b>FRU</b>	<b>Action</b>
1	Tray 1 Rear Paper Guide	Check the rear paper guide in tray 1 for correct installation and signs of damage to the paper size detect flag. If the flag is broken, replace the rear paper guide.
2	Paper Size Detect Plate Paper Size Detect Plate Spring	Check the paper size detect plate spring for looseness or if it is broken. If broken, reconnect or replace the spring.  Check the paper size detect plate for proper operation. If incorrect, repair as necessary.
3	CST Cable Paper Size Detect Sensor Board Engine Board	Check the continuity of the CST cable. If incorrect, replace the cable.  Check the paper size detect sensor board for correct operation. If incorrect, replace the sensor board.  If the CST cable and size detect sensor board are operating correctly, replace the engine board.

## 5016-001

**F** Paper level in tray is not detected.

When media in tray 1 reaches 50 or less sheets, the paper detect lever turns on the paper detect sensor and displays Load Paper Tray 1.

	<b>FRU</b>	<b>Action</b>
1	Paper Sensor Detect Lever (Flag)	Check the paper detect sensor lever (flag) in the paper feed unit assembly for correct operation or breakage. Replace the lever (flag), if necessary.

**G** Media double feeds from tray 1.

	<b>FRU</b>	<b>Action</b>
1	Double Feed Prevention Pad	Check the double feed prevention pad for signs of wear or damage. Replace the pad, if necessary.

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## Options Service Checks

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

### Flash Memory Option(s) Service Check

Run a copy of the test page and verify the option you are checking is listed. The printer does not recognize options installed, if those options are not listed. Be sure the Memory SIMM is installed correctly and not broken or damaged. If the Memory SIMM is correctly installed, not broken or damaged, run the **“Flash Test” on page 3-17**. If the test fails, replace the Flash SIMM. If the problem continues, replace the controller board.

### DRAM Memory Option(s) Service Check

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

If the DRAM Memory SIMM is correctly installed and not broken or damaged, run the **“SDRAM Memory Test” on page 3-10** from the menu. If the test fails, replace the DRAM SIMM. If the problem continues, replace the controller board.

## Hard Disk Option Service Check

Verify the hard disk and the hard disk board are correctly installed. When a problem is suspected, either with the hard disk system board or the hard disk, run the **“Quick Disk Test” on page 3-16**.

**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 3-17** is used to restore the disk, if the disk is unusable, or contains bad data. This test is divided into a cleaning and a verifying or testing section.

**Note:** This test leaves the hard disk unformatted and can be a very lengthy test, depending on disk size. The servicer, or user, must reformat the disk using the Format Disk Menu operation. The test destroys all data and should not be performed on a known good disk.

## Network Card Option Service Check

### Error Code 976 - 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 board and is properly grounded. If you find no problem, contact your next level of support, before replacing the network card.

### Error Code 977 - Network Card X

A 977 error displays when the RIP software detects a network card is installed in slot x, on the interconnect board, but cannot establish communications with the network card. If a network card works in another slot, replace the interconnect board.

## 250/250 Dual Paper Tray Service Check

The 250/250 sheet dual tray option uses two of the same paper feed units that are in tray 1. Also included are idler rollers above the paper feed unit and paper guides on the side of the paper feed opening. An interconnect board assembly, drive module and LVPS for the option is located on the right side frame.

**Note:** Check the following before proceeding with this service check:

- Be sure the media feeds correctly from integrated tray (tray 1).
- Be sure the primary power cord is plugged into the 250/250 option base unit and the option power cord into the printer. If the duplex option is installed, plug the 250/250 option power cord into the bottom tray of the duplex unit and plug the duplex unit power cord into the printer.
- Be sure the printer is correctly installed over the 250/250 tray option, or over the duplex option, if installed.
- Be sure media in the trays is within specifications. Be sure the following are not fed from tray 2 or 3.
  - 16 lb. paper should only be loaded in tray 1 or MPT.
  - Labels and card stock should be fed from the MPT only.
  - Transparencies should be fed from tray 1 or the MPT only.
  - Envelopes should be fed from the MPT.

## 250/250 Paper Tray Symptom Table

**Note:** For Paper Jam 24x (x = tray 2 or 3). Example 242 is tray 2.

- It is difficult to remove tray x from the 250/250 option base assembly. Go to **A**.
- You are unable to select the 250/250 tray option. The option is not recognized. Go to **B**.
- Tray x is correctly installed and "Insert Tray x" displays. Go to **C**.
- Paper Jam 24x displays and no paper feeds from tray x. The paper feed motor is noisy or vibrates. Go to **D**.
- Paper Jam 24x displays and no paper is fed from tray x. Go to **E**.
- Paper Jam 24x displays, media tries to feed from tray x and does not reach the paper pass sensor. Go to **F**.
- Paper Jam 24x displays, media feeds from tray x and jams prior to the paper pass sensor in the base printer. Go to **G**.
- Paper Jam 24x displays, media is detected and fed from tray x and paper jams over the paper pass sensor in the base printer. Go to **H**.
- Paper Jam 24x displays, the media is detected and fed from tray x and jams over the paper pass sensor in the printer, while the registration roller (timing roller) is not turning. Go to **I**.
- Paper size in tray x is not detected. Go to **J**.
- Paper level in tray x is not detected. Go to **K**.
- Media double feeds from tray x. Go to **L**.

## 5016-001

**A** It is difficult to remove tray x from the 250/250 option base assembly.

**Note:** Do not force tray x from the base unit, as damage to the paper detect sensor lever, or pick up roller bracket assembly may occur. Lift up on the bracket and sensor lever and carefully remove tray x.

	<b>FRU</b>	<b>Action</b>
1	Paper Detect Sensor Lever Release Lever Pick Up Return Spring Feed Frame	Check the paper feed frame, paper detect sensor lever, release lever and pick up spring, for the failing tray, for correct installation and operation.  If incorrect, repair as necessary.

**B** You are unable to select the 250/250 tray option. The option is not recognized.

	<b>FRU</b>	<b>Action</b>
1	Option Cable OP Autoconnect Base Printer Cable (OP) Autoconnect	Be sure cable OP is correctly installed on the interconnect board at CN801. Check both the option and base OP printer cables for signs of damage, especially to the autoconnect connector pins. Replace either cable, if any problems are found.
2	Interconnect Board Engine Board	Replace the following FRUs in the order shown:  1. Option interconnect board 2. Engine board



## 5016-001

**C** Tray x is correctly installed and "Insert Tray x" displays.

**Note:** If the detect board for the tray x cable (detect board to interconnect board), LVPS, LVPS fuse, interconnect board, option cable (OP), engine cable (OP) or engine board are failing, this message may display.

	<b>FRU</b>	<b>Action</b>
1	Paper Tray x	Check tray x to be sure the flag molded in the side of the tray is not damaged and contacts the sensor flag.
2	Option LVPS Fuse	Check the fuse in the option LVPS and replace it, if defective. If the fuse continues to blow, replace the LVPS assembly.
3	OP Cable (Option)  OP Cable (Printer)	Check the cables for correct installation and signs of damage.
4	Paper Detect/ Paper  Size Detect Board  Tray x	Check the paper detect/paper size board for correct operation, If incorrect replace the board assembly.
5	Interconnect Board  Engine Board	If no problems have been found, replace the following FRUs in the order shown:  1. Interconnect board assembly 2. Engine board assembly

**D** Paper Jam 24x displays and no paper feeds from tray x. The paper feed motor is noisy or vibrates.

	FRU	Action
1	<p>Paper Feed Motor</p> <p>Cable OM</p> <p>Option Interconnect Board</p>	<p>If the motor exhibits excessive noise or vibration, either the paper feed motor, the cable OM, or the option interconnect board assembly is failing. Be sure the motor is installed properly and the motor mounting screws are tight.</p> <p>Check cable OM. If incorrect, replace the cable.</p> <p>If no problem is found, replace the following FRU's in the order shown:</p> <ol style="list-style-type: none"> <li>1. Option paper feed motor</li> <li>2. Option interconnect board</li> </ol>

**E** Paper Jam 24x displays and no paper is fed from tray x.

	FRU	Action																								
1	Option LVPS	<p>Check the voltages on the tray option LVPS. The LVPS must be connected to the option interconnect board.</p> <p>Option LVPS Voltage Chart</p> <p>Connector CN871 (LVPS)</p> <table border="1"> <thead> <tr> <th>PIN #</th> <th>Signal Voltage</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>VL</td> <td>+5 V dc</td> </tr> <tr> <td>2</td> <td>DGND</td> <td>0 V dc</td> </tr> <tr> <td>3</td> <td>VCNT</td> <td>+5 V dc</td> </tr> <tr> <td>4</td> <td>PGND</td> <td>0 V dc</td> </tr> <tr> <td>5</td> <td>PGND</td> <td>0 V dc</td> </tr> <tr> <td>6</td> <td>VP</td> <td>+24 V dc</td> </tr> <tr> <td>7</td> <td>VP</td> <td>+24 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values</p> <ul style="list-style-type: none"> <li>• If the voltages are incorrect, replace the option LVPS.</li> <li>• If the voltages are correct, check cable OV. if incorrect, replace the cable.</li> </ul>	PIN #	Signal Voltage	Voltage	1	VL	+5 V dc	2	DGND	0 V dc	3	VCNT	+5 V dc	4	PGND	0 V dc	5	PGND	0 V dc	6	VP	+24 V dc	7	VP	+24 V dc
PIN #	Signal Voltage	Voltage																								
1	VL	+5 V dc																								
2	DGND	0 V dc																								
3	VCNT	+5 V dc																								
4	PGND	0 V dc																								
5	PGND	0 V dc																								
6	VP	+24 V dc																								
7	VP	+24 V dc																								

	FRU	Action																								
2	Option Paper Feed Motor	<p>Option interconnect board voltage chart paper feed motor.</p> <p>Connector CN802</p> <table border="1" data-bbox="408 342 948 516"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage Signal Static</th> <th>Voltage Signal Operating</th> </tr> </thead> <tbody> <tr> <td>1 (Brown)</td> <td>PH3B-</td> <td>+24 V dc</td> <td>+22.0 to +25.5 V dc</td> </tr> <tr> <td>2 (Red)</td> <td>VP</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>3 (Blue)</td> <td>PH3B+</td> <td>+24 V dc</td> <td>+22.0 to +25.5 V dc</td> </tr> <tr> <td>4 (Yellow)</td> <td>PH3A+</td> <td>+24 V dc</td> <td>+22.0 to +25.5 V dc</td> </tr> <tr> <td>5 (Red)</td> <td>PH3A-</td> <td>+24 V dc</td> <td>+22.0 to +25.5 V dc</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• If the voltage on pin 2 measures approximately 0 V dc, replace the option interconnect board.</li> <li>• If the voltages on Pins 1, 3, 4 or 5 are incorrect, replace the following FRUs in the order shown:</li> </ul> <ol style="list-style-type: none"> <li>1. Option paper feed motor</li> <li>2. Option interconnect board</li> </ol>	Pin #	Signal Voltage	Voltage Signal Static	Voltage Signal Operating	1 (Brown)	PH3B-	+24 V dc	+22.0 to +25.5 V dc	2 (Red)	VP	+24 V dc	+24 V dc	3 (Blue)	PH3B+	+24 V dc	+22.0 to +25.5 V dc	4 (Yellow)	PH3A+	+24 V dc	+22.0 to +25.5 V dc	5 (Red)	PH3A-	+24 V dc	+22.0 to +25.5 V dc
Pin #	Signal Voltage	Voltage Signal Static	Voltage Signal Operating																							
1 (Brown)	PH3B-	+24 V dc	+22.0 to +25.5 V dc																							
2 (Red)	VP	+24 V dc	+24 V dc																							
3 (Blue)	PH3B+	+24 V dc	+22.0 to +25.5 V dc																							
4 (Yellow)	PH3A+	+24 V dc	+22.0 to +25.5 V dc																							
5 (Red)	PH3A-	+24 V dc	+22.0 to +25.5 V dc																							
3	<p>Paper Feed Unit Clutches CL2 or CL3</p> <p>Option Interconnect Board</p>	<p>If a 242 Paper Jam message displays, check clutch CL2. If a 243 Paper Jam message Clutches CL2 or CL3 displays, check clutch CL3.</p> <p>Check the clutch cable for the failing tray to be sure it is installed properly.</p> <p>Check the following voltages on CN803:</p> <table border="1" data-bbox="408 976 940 1109"> <thead> <tr> <th>Pin #</th> <th>Signal Voltage</th> <th>Voltage Static</th> <th>Voltage Clutch Picked</th> </tr> </thead> <tbody> <tr> <td>1 (Red)</td> <td>VP</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Black)</td> <td>-SL6ON</td> <td>+24 V dc</td> <td>+24 V dc - 0 V dc</td> </tr> <tr> <td>3 (Red)</td> <td>VP</td> <td>+ 24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>4 (Blue)</td> <td>-SL7ON</td> <td>+24 V dc</td> <td>+24 V dc - 0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <p>If the voltages on pins 1 and 3 are incorrect, replace the option interconnect board.</p> <p>If the voltages on Pins 2 and 4 do not change, check the clutch by applying a ground to pin 2 for CL2, or pin 4 for CL3.</p> <ul style="list-style-type: none"> <li>• If the clutch does not pick when the ground is applied to the pin, replace the clutch.</li> <li>• If the clutch picks, replace the option interconnect board.</li> </ul>	Pin #	Signal Voltage	Voltage Static	Voltage Clutch Picked	1 (Red)	VP	+24 V dc	+24 V dc	2 (Black)	-SL6ON	+24 V dc	+24 V dc - 0 V dc	3 (Red)	VP	+ 24 V dc	+24 V dc	4 (Blue)	-SL7ON	+24 V dc	+24 V dc - 0 V dc				
Pin #	Signal Voltage	Voltage Static	Voltage Clutch Picked																							
1 (Red)	VP	+24 V dc	+24 V dc																							
2 (Black)	-SL6ON	+24 V dc	+24 V dc - 0 V dc																							
3 (Red)	VP	+ 24 V dc	+24 V dc																							
4 (Blue)	-SL7ON	+24 V dc	+24 V dc - 0 V dc																							

	<b>FRU</b>	<b>Action</b>
4	Paper Detect Sensor Flag  Paper Detect Sensor Board	<p>Check the paper detect sensor lever (flag) in the paper feed unit assembly, for the tray flag that is not feeding, for any signs of broken parts. Be sure that it is operating properly. Replace the lever (flag), if necessary.</p> <p>Check the paper detect sensor for correct operation. If incorrect replace the sensor board.</p>
5	Paper Feed Roller  Paper Pick Up Roller  Pick Up Gear  Pick Up Roller Idler Gears	<p>Check the following paper feed parts, in the paper feed unit, for signs of broken teeth excessive wear or binds.</p> <ul style="list-style-type: none"> <li>• Paper feed unit clutch.</li> <li>• Paper feed roller shaft, paper transfer roller drive gear and paper feed roller.</li> <li>• Paper transfer roller and paper transfer roller idler gears.</li> <li>• Paper pick up roller, paper pick up gear, paper pick up roller idler gears.</li> </ul> <p>Repair or replace any failing FRUs.</p>
6	Paper Feed Drive Assembly	<p>Check the paper feed drive assembly gears for signs of excessive wear, broken teeth or other damage. If a problem is found, repair or replace the paper feed drive assembly.</p>
7	Tray Option Cable (OP)  Printer Option Cable (OP)	<p>Check the cables to make sure they are seated properly and for any signs of damage (OP) to the connector contacts.</p>
8	Option Interconnect Board  Engine Board	<p>If no problems are found, replace the following FRUs in the order shown:</p> <ol style="list-style-type: none"> <li>1. Option interconnect board</li> <li>2. Engine board</li> </ol>

**F** Paper Jam 24x displays, media tries to feed from tray x and does not reach the paper pass sensor.

	<b>FRU</b>	<b>Action</b>																
1	Paper Tray x	Check Tray x for anything that might cause the paper to jam in the tray, or prevent the media from exiting.																
2	Option Paper Pass Through Sensor Flag Tray x	<p>Check the option paper pass sensor flag for signs of broken parts and that the flag is operating properly. Repair as necessary.</p> <p>Check the voltages on connector CN804 on the option interconnect board.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Signal</th> <th>Voltage Static</th> <th>Voltage Sensor Closed</th> </tr> </thead> <tbody> <tr> <td>1 (Orange)</td> <td>GND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>2 (Yellow)</td> <td>Pass</td> <td>+3.6 V dc</td> <td>0 - 3.6 V dc</td> </tr> <tr> <td>3 (Green)</td> <td>VL</td> <td>+5.0 V dc</td> <td>+5.0 V dc</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• If the static voltages are correct and the sensor does not change when activated, replace the sensor.</li> <li>• If the voltages are incorrect, replace the option interconnect board.</li> </ul>	Pin #	Signal	Voltage Static	Voltage Sensor Closed	1 (Orange)	GND	0 V dc	0 V dc	2 (Yellow)	Pass	+3.6 V dc	0 - 3.6 V dc	3 (Green)	VL	+5.0 V dc	+5.0 V dc
Pin #	Signal	Voltage Static	Voltage Sensor Closed															
1 (Orange)	GND	0 V dc	0 V dc															
2 (Yellow)	Pass	+3.6 V dc	0 - 3.6 V dc															
3 (Green)	VL	+5.0 V dc	+5.0 V dc															
3	Paper Feed: <ul style="list-style-type: none"> <li>• Roller</li> <li>• Paper Pick Up Roller</li> <li>• Pick Up Gear</li> <li>• Pick Up Roller Idler Gears</li> </ul>	<p>Check the following paper feed parts for signs of broken teeth, excessive wear, or binding:</p> <ul style="list-style-type: none"> <li>• Paper feed unit clutch.</li> <li>• Paper feed roller shaft, paper transfer roller drive gear and paper feed roller.</li> <li>• Paper transfer roller and paper transfer roller idler gears.</li> <li>• Paper pick up roller, paper pick up gear, paper pick up roller idler gears.</li> </ul> <p>If problems are found, repair or replace as necessary.</p>																

	FRU	Action
4	Middle Roller 1 Middle Rollers Middle Roller Shaft Middle Roller Drive Gear	Check the middle roller drive gear, middle roller 1, middle roller shaft, middle rollers and shaft bearings for signs of wear, broken gear teeth or binds. If problems are found, repair as necessary.

**G** Paper Jam 24x displays, media feeds from tray x and jams prior to the paper pass sensor in the base printer.

	FRU	Action									
1	Paper Tray x	Check tray x for anything that might cause the paper to jam or prevent media from exiting.									
2	Paper Feed Roller Paper Pick Up Roller Pick Up Gear Pick Up Roller Idler Gears	<p>Check the following paper feed parts for signs of broken teeth, excessive wear, or binding:</p> <ul style="list-style-type: none"> <li>• Paper feed unit clutch.</li> <li>• Paper feed roller shaft, paper transfer roller drive gear and paper feed roller.</li> <li>• Paper transfer roller and paper transfer roller idler gears.</li> <li>• Paper pick up roller, paper pick up gear, paper pickup roller idler gears.</li> </ul>									
3	Paper Feed Unit Clutch	<p>Voltages for the magnetic clutch can be checked at the 6 pin inline cable connector, located in the HVPS to engine board cable harness above the temperature/humidity board assembly, on the left side of the printer.</p> <p>The resistance of the magnetic clutch should read approximately 245 ohms. If incorrect, replace the magnetic clutch.</p> <p>Check the following voltages on the inline connector, while feeding paper.</p> <table border="0"> <thead> <tr> <th>Pin #</th> <th>Voltage Static</th> <th>Voltage Feeding</th> </tr> </thead> <tbody> <tr> <td>1 (Black lead)</td> <td>+24 V dc</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Red Lead)</td> <td>+24 V dc</td> <td>0 V dc to +24 V dc</td> </tr> </tbody> </table>	Pin #	Voltage Static	Voltage Feeding	1 (Black lead)	+24 V dc	+24 V dc	2 (Red Lead)	+24 V dc	0 V dc to +24 V dc
Pin #	Voltage Static	Voltage Feeding									
1 (Black lead)	+24 V dc	+24 V dc									
2 (Red Lead)	+24 V dc	0 V dc to +24 V dc									

	FRU	Action
4	CST Cable Engine Board	Check continuity of the cable. <ul style="list-style-type: none"> <li>• If incorrect, replace the cable.</li> <li>• If correct, replace the engine board.</li> </ul>

**H** Paper Jam 24x displays, media is detected and fed from tray x and paper jams over the paper pass sensor in the base printer.

	FRU	Action															
1	Paper Pass Sensor:  • Flag • Spring • Board MK2 Cable Engine Board	<p>Check the paper pass sensor flag and spring for correct operation and broken or loose parts. If a problem is found, repair as necessary.</p> <p>The voltages for the paper pass sensor can be checked at the 6 pin inline cable connector, located in the HVPS to engine board cable harness above the temperature/humidity board assembly, on the left side of the printer.</p> <p>Voltages on the inline connector.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Static</th> <th>Voltage Feeding</th> </tr> </thead> <tbody> <tr> <td>3 (Orange)</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>4 (Blue)</td> <td>+5 V dc</td> <td>0 V dc to +5</td> </tr> <tr> <td>5 (Brown)</td> <td>+5 V dc</td> <td>0 V dc to +5</td> </tr> <tr> <td>6 (Green)</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>Note: All voltages are approximate.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 3 is incorrect, check continuity of the cable. If incorrect and If the cable is good, replace the engine board.</li> <li>• If the voltage on pin 3 is correct but the voltage on pin 4 is incorrect, replace the following parts in the order shown:</li> </ul> <ol style="list-style-type: none"> <li>1. Paper pass sensor board assembly</li> <li>2. Engine board</li> <li>3. MK 2 cable</li> </ol>	Pin #	Voltage Static	Voltage Feeding	3 (Orange)	+5 V dc	+5 V dc	4 (Blue)	+5 V dc	0 V dc to +5	5 (Brown)	+5 V dc	0 V dc to +5	6 (Green)	0 V dc	0 V dc
Pin #	Voltage Static	Voltage Feeding															
3 (Orange)	+5 V dc	+5 V dc															
4 (Blue)	+5 V dc	0 V dc to +5															
5 (Brown)	+5 V dc	0 V dc to +5															
6 (Green)	0 V dc	0 V dc															

I Paper Jam 24x displays, the media is detected and fed from tray x and jams over the paper pass sensor in the printer, while the registration roller (timing roller) is not turning.

	<b>FRU</b>	<b>Action</b>															
1	Paper Pass Sensor: <ul style="list-style-type: none"> <li>• Flag</li> <li>• Spring</li> <li>• Board</li> </ul> MK2 Cable  Engine Board	<p>Check the paper pass sensor flag and spring for correct operation and broken or loose parts. If a problem is found, repair as necessary.</p> <p>The voltages for the paper pass sensor can be checked at the 6 pin inline cable connector, located in the HVPS to engine board cable harness above the temperature/humidity board assembly, on the left side of the printer.</p> <p>Voltages on the inline connector.</p> <table border="1" data-bbox="384 651 785 784"> <thead> <tr> <th>Pin #</th> <th>Voltage Static</th> <th>Voltage Feeding</th> </tr> </thead> <tbody> <tr> <td>3 (Orange)</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>4 (Blue)</td> <td>+5 V dc</td> <td>0 V dc to +5</td> </tr> <tr> <td>5 (Brown)</td> <td>+5 V dc</td> <td>0 V dc to +5</td> </tr> <tr> <td>6 (Green)</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>Note: All voltages are approximate.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 3 is incorrect, check continuity of the cable. If incorrect and If the cable is good, replace the engine board.</li> <li>• If the voltage on pin 3 is correct but the voltage on pin 4 is incorrect, replace the following parts in the order shown:               <ol style="list-style-type: none"> <li>1. Paper pass sensor board assembly</li> <li>2. Engine board</li> <li>3. MK 2 cable</li> </ol> </li> </ul>	Pin #	Voltage Static	Voltage Feeding	3 (Orange)	+5 V dc	+5 V dc	4 (Blue)	+5 V dc	0 V dc to +5	5 (Brown)	+5 V dc	0 V dc to +5	6 (Green)	0 V dc	0 V dc
Pin #	Voltage Static	Voltage Feeding															
3 (Orange)	+5 V dc	+5 V dc															
4 (Blue)	+5 V dc	0 V dc to +5															
5 (Brown)	+5 V dc	0 V dc to +5															
6 (Green)	0 V dc	0 V dc															



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**J** Paper size in tray x is not detected.

	FRU	Action
1	Tray 1 Rear Paper Guide	Check the rear paper guide in tray 1 for correct installation and signs of damage to the paper size detect flag. If the flag is broken, replace the rear paper guide.
2	Paper Size Detect Plate  Paper Size Detect Plate Sprint	Check the paper size detect plate spring for signs of looseness or if it is broken. If a problem is found, reconnect or replace the spring.  Check the paper size detect plate for proper operation. If incorrect, repair as necessary.
3	CST Cable  Paper Size Detect Sensor Board  Engine Board	Check the continuity of the CST cable. If incorrect, replace the cable.  Check the paper size detect sensor board for correct operation. If incorrect, replace the sensor board.  If the CST cable and size detect sensor board are operating correctly, replace the engine board.

**K** Paper level in tray x is not detected.

**Note:** When the paper in tray 1 reaches 50 or less sheets the paper detect lever will turn on the paper detect sensor and display Load Paper Tray 1.

	FRU	Action
1	Paper Sensor Detect Lever (Flag)	Check the paper detect sensor lever (flag) in the paper feed unit assembly for correct operation, or if broken. Replace the lever (flag), if necessary.
2	Paper Detect Sensor Interconnect Board	Replace the following FRUs in the order shown:  1. Paper detect sensor 2. Option Interconnect board

L Media double feeds from tray x.

	FRU	Action
1	Double Feed Prevention	Check the double feed prevention pad for signs of wear or damage. Replace the pad if necessary.

## Duplex Unit Option Service Check

Be sure the paper guide assembly bridge block is present and correctly installed.

### Paper Jam Error Messages (Duplex)

**23x = 230** Indicates a jam at the top of the duplex unit. Open the top duplex door to access the jam.

**Note:** This error message may also display if there is a problem with the option LVPS, cabling or duplex option controller board.

**231** Indicates a jam at the rear/vertical area of the duplex unit. Open rear door to access the jam.

**232** Indicates media is jammed at the bottom of the duplex area. (Paper reversing area or paper re-feeding area). Remove the duplex tray to access the jam area.

### Paper Jam Error Messages (Printer)

**202** Indicates a paper Jam in the exit area of the printer. When a duplex option is installed, a paper jam at the upper duplex unit exit paper guide may cause a 202 paper jam to display, as the trailing edge of the paper is still over the exit sensor in the fuser.

## **Duplex Symptom Chart**

The duplex option is not recognized. Go to **A**.

250/250 paper tray option is not recognized when installed below the duplex option. Go to **B**.

230 Paper Jam error message displays. Go to **C**.

230 Paper Jam error message displays. The printer does not complete POR. Go to **D**.

202 Paper Jam displays. Paper jams in the upper unit of the duplex assembly, when printing in simplex mode. The printer is operating correctly. Go to **E**.

202 Paper Jam displays. Paper is jammed in the upper unit of the duplex assembly, when printing in the duplex mode. The printer is operating correctly. Go to **F**.

POR incomplete, close door message displays when the duplex option is installed and all the covers and doors on the duplex are closed. Go to **G**.

231 Paper Jam displays. Paper is jammed in the upper or rear unit of the duplex option. Go to **H**.

232 Paper Jam displays. Paper is jammed in the lower rear unit or the lower unit of the duplex option. Go to **I**.

232 Paper Jam displays. POR is incomplete. Go to **J**.

The duplex option printed page is skewed. Go to **K**.

**A** The duplex option is not recognized.

	FRU	Action
1	Duplex Option	<p>Be sure the duplex option is correctly installed and the autoconnect connectors are connected properly.</p> <p>Be sure that cable ADM is connected to CN901 on the option controller board. If no problem exists with any of the cables in the autoconnect system, replace the FRUs in the following order:</p> <ol style="list-style-type: none"> <li>1. Duplex option controller board</li> <li>2. Engine board</li> </ol>

**B** The 250/250 paper tray option is not recognized when installed below the duplex option. Duplex option is operating properly.

	FRU	Action
1	Duplex Option	<p>Check cable ADM to the bottom autoconnect on the duplex unit lower unit.</p> <ul style="list-style-type: none"> <li>• If no problem is found with the cable, replace the duplex controller board.</li> <li>• If a problem remains, go to the <b>“Options Service Checks” on page 2-106.</b></li> </ul>

**C** 230 Paper Jam error message displays.

	FRU	Action
1	<p>Exit Roller Gate Claw</p> <p>Paper Exit/Storage Guide</p> <p>Pinch Rollers</p>	<p>Check for pieces of paper, or other material in the upper drive unit that might cause a paper jam.</p> <p>Check all the parts associated with paper movement in the upper unit, for correct operation and signs of wear, broken parts or binds. Repair or replace as necessary.</p>
2	Paper Pass Sensor Flag and Spring	Check the upper unit paper pass sensor flag and spring for correct operation. Repair or replace as necessary.

## D 230 error message displays, printer does not compete POR.

	FRU	Action																								
1	AC Power Cord from Ac Wall Outlet	<p><b>Duplex only installed.</b></p> <p>Be sure the AC power cord from the wall outlet is plugged into the AC inlet receptacle and the duplex power jumper cord is plugged into the printer AC inlet receptacle.</p> <p><b>250/250 paper tray option and duplex option installed.</b></p> <p>Be sure the AC power cord from the wall outlet is plugged into the AC inlet of the 250/250 paper tray option and the 250/250 paper tray option AC power jumper cord is plugged into the duplex option AC inlet receptacle. The Duplex option AC power jumper cord should be plugged into the printer AC inlet receptacle.</p> <p>Check all power cords for proper installation.</p>																								
2	Duplex LVPS Fuse	<p>Disconnect the primary power cord. Check the continuity of the duplex LVPS fuse.</p> <ul style="list-style-type: none"> <li>• If the fuse is blown, replace with one of the same type.</li> <li>• If the fuse continues to blow, replace the LVPS.</li> </ul>																								
3	Duplex LVPS	<p>Check the voltages on CN871 on the LVPS board.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage</th> </tr> </thead> <tbody> <tr> <td>1 (Red)</td> <td>VL</td> <td>+5 V dc</td> </tr> <tr> <td>2 (Green)</td> <td>GND</td> <td>0 V dc</td> </tr> <tr> <td>3 (Violet)</td> <td>VCNT</td> <td>+5 V dc</td> </tr> <tr> <td>4 (Green)</td> <td>PGND</td> <td>0 V dc</td> </tr> <tr> <td>5 (Green)</td> <td>PGND</td> <td>0 V dc</td> </tr> <tr> <td>6 (Orange)</td> <td>VP</td> <td>+24 V dc</td> </tr> <tr> <td>7 (Orange)</td> <td>VP</td> <td>+24V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <p>If all the voltages are incorrect check the continuity of cable ADP, LVPS to duplex controller board, if the cable is good replace the LVPS assembly, if this does not fix the problem replace the duplex controller board assembly.</p>	Pin #	Voltage Signal	Voltage	1 (Red)	VL	+5 V dc	2 (Green)	GND	0 V dc	3 (Violet)	VCNT	+5 V dc	4 (Green)	PGND	0 V dc	5 (Green)	PGND	0 V dc	6 (Orange)	VP	+24 V dc	7 (Orange)	VP	+24V dc
Pin #	Voltage Signal	Voltage																								
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5 (Green)	PGND	0 V dc																								
6 (Orange)	VP	+24 V dc																								
7 (Orange)	VP	+24V dc																								

**E 202 Paper Jam displays.** Paper is jammed in upper unit of duplex assembly when printing in simplex mode. The printer is operating properly.

	<b>FRU</b>	<b>Action</b>																		
1	Paper Exit/ Storage Selection Guide (Gate Claw)	Check the paper exit/storage guide for proper operation.																		
2	Interlock Switch lower Duplex Unit (+24 V dc Interlock)	Check continuity of the microswitch and cable. <ul style="list-style-type: none"> <li>• If incorrect, replace the switch or cable.</li> <li>• If there is continuity, replace the duplex option controller board.</li> </ul>																		
3	Upper Duplex Motor (FM)  Upper Duplex Unit Gears, Rollers, Belt  ADL, ADT Cables	Check cables ADT and ADL.  Check the gears, rollers and belt for proper operation. If the feed motor does not turn, check the voltages on CN904. <table border="1" data-bbox="372 779 723 941"> <thead> <tr> <th><b>Pin #</b></th> <th><b>Voltage Signal</b></th> <th><b>Voltage Static</b></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ABM</td> <td>+24 V dc</td> </tr> <tr> <td>2</td> <td>COM</td> <td>+24 V dc</td> </tr> <tr> <td>4</td> <td>BM</td> <td>+24 V dc</td> </tr> <tr> <td>5</td> <td>AM</td> <td>+24 V dc</td> </tr> <tr> <td>6</td> <td>BBM</td> <td>+24 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values</p> <ul style="list-style-type: none"> <li>• If the voltages are incorrect, replace the duplex option board.</li> <li>• If the voltages are correct, replace the motor.</li> </ul>	<b>Pin #</b>	<b>Voltage Signal</b>	<b>Voltage Static</b>	1	ABM	+24 V dc	2	COM	+24 V dc	4	BM	+24 V dc	5	AM	+24 V dc	6	BBM	+24 V dc
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4	BM	+24 V dc																		
5	AM	+24 V dc																		
6	BBM	+24 V dc																		

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**F 202 Paper Jam displays.** Paper is jammed in upper unit of the duplex assembly, when printing in the duplex mode. The printer is operating correctly.

	<b>FRU</b>	<b>Action</b>																		
1	Upper Cover	Be sure the latch on the upper cover is correctly located in the opening in the paper exit guide. If it is not properly installed, paper will catch on the upper cover and jam.																		
2	Paper Exit/ Storage Selection Guide (Gate Claw)  Gear 27Z, Limiter Parts, Paper Exit Roller	Check the paper exit/storage guide for proper operation. Check all the gears, limiter parts and rollers for signs of wear, broken parts or binds. Repair or replace broken, worn or binding parts.																		
3	Interlock Switch lower Duplex Unit (+24V dc Interlock)  Duplex Option Controller Board	Check the continuity of the microswitch and cable. <ul style="list-style-type: none"> <li>• If incorrect, replace the switch or cable.</li> <li>• If there is continuity, replace the duplex option controller board.</li> </ul>																		
4	Upper Duplex Motor (FM)  Upper Duplex Unit Gears, Rollers, Belt	Check cables ADT and ADL. Check the gears, rollers and belt for proper operation. If the feed motor does not turn check the voltages on CN904. <table border="1" data-bbox="404 1039 798 1201"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Static</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ABM</td> <td>+24 V dc</td> </tr> <tr> <td>2</td> <td>COM</td> <td>+24 V dc</td> </tr> <tr> <td>4</td> <td>BM</td> <td>+24 V dc</td> </tr> <tr> <td>5</td> <td>AM</td> <td>+24 V dc</td> </tr> <tr> <td>6</td> <td>BBM</td> <td>+24 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values</p> <ul style="list-style-type: none"> <li>• If the voltages are incorrect, replace the duplex option board.</li> <li>• If the voltages are correct, replace the motor.</li> </ul>	Pin #	Voltage Signal	Voltage Static	1	ABM	+24 V dc	2	COM	+24 V dc	4	BM	+24 V dc	5	AM	+24 V dc	6	BBM	+24 V dc
Pin #	Voltage Signal	Voltage Static																		
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6	BBM	+24 V dc																		

**G** POR incomplete. Close door message displays when duplex option installed and all doors and covers on the duplex are closed.

	<b>FRU</b>	<b>Action</b>																
1	Tray Present Detect Sensor (S9)  Duplex Option Controller Board	<p>Check the voltages on the duplex tray detect sensor on connector CN905.</p> <table border="1" data-bbox="380 381 809 492"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>5 (Red)</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>6 (Blue)</td> <td>POSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>7 (Green)</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 5 is incorrect, replace the duplex option controller board.</li> <li>• If the voltage on pin 6 does not change when the duplex tray is open and closed, replace the FRUs in the following order:               <ol style="list-style-type: none"> <li>1. Tray detect sensor (DRSN)</li> <li>2. Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	5 (Red)	VL	+5 V dc	+5 V dc	6 (Blue)	POSN	+5 V dc	0 V dc	7 (Green)	DGND	0 V dc	0 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
5 (Red)	VL	+5 V dc	+5 V dc															
6 (Blue)	POSN	+5 V dc	0 V dc															
7 (Green)	DGND	0 V dc	0 V dc															
2	Duplex Upper Unit Door Open Sensor(S6)  Duplex Option Controller Board	<p>Check the voltages on the duplex upper unit door open sensor on connector CN904.</p> <table border="1" data-bbox="380 873 825 984"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>14</td> <td>VL</td> <td>+5V dc</td> <td>+5V dc</td> </tr> <tr> <td>16 (yellow)</td> <td>DOSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>18</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 14 is incorrect, replace the duplex option controller board.</li> <li>• If the voltage on pin 16 does not change when the upper unit cover is opened and closed, replace the FRUs in the following order:               <ol style="list-style-type: none"> <li>1. Duplex upper unit door open sensor</li> <li>2. Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	14	VL	+5V dc	+5V dc	16 (yellow)	DOSN	+5 V dc	0 V dc	18	DGND	0 V dc	0 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
14	VL	+5V dc	+5V dc															
16 (yellow)	DOSN	+5 V dc	0 V dc															
18	DGND	0 V dc	0 V dc															



	<b>FRU</b>	<b>Action</b>																
3	Duplex Rear Unit Door Open Sensor(S8)  Duplex Option Controller Board	<p>Check the voltages on the duplex rear unit door open sensor on connector CN904.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>9</td> <td>BOSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>11</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 11 is incorrect, replace the duplex option controller board.</li> <li>• If the voltage on pin 9 does not change when the rear unit door is opened and closed, replace the FRUs in the following order: <ol style="list-style-type: none"> <li>1. Duplex rear unit door open sensor</li> <li>2. Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	7	DGND	0 V dc	0 V dc	9	BOSN	+5 V dc	0 V dc	11	VL	+5 V dc	+5 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
7	DGND	0 V dc	0 V dc															
9	BOSN	+5 V dc	0 V dc															
11	VL	+5 V dc	+5 V dc															

**H 231 Paper Jam displays.** Paper is jammed in upper or rear unit of the duplex option.

	<b>FRU</b>	<b>Action</b>
1	Upper Duplex Unit  Rear Duplex Unit	Check for pieces of paper or other material, in the upper and rear duplex units, that might cause a paper jam.
2	Upper Transfer Roller  Upper Pinch Rollers  Transfer Drive Pulley  Rear Unit Gears	Check all the parts associated with paper movement in the upper and rear duplex units for correct operation and signs of wear, broken parts or binds. Repair or replace as necessary.

	FRU	Action																
3	Paper Pass Sensor  Upper Unit (S2)	<p>Check the voltages on the duplex upper unit paper pass sensor on connector CN904.</p> <table border="1"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>19</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>21</td> <td>UPSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>23</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 23 is incorrect, replace the duplex option controller board.</li> <li>• If the voltage on pin 21 does not change when the sensor is opened and closed, replace the FRUs in the following order: <ol style="list-style-type: none"> <li>1. Duplex upper unit paper pass sensor</li> <li>2. Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	19	DGND	0 V dc	0 V dc	21	UPSN	+5 V dc	0 V dc	23	VL	+5 V dc	+5 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
19	DGND	0 V dc	0 V dc															
21	UPSN	+5 V dc	0 V dc															
23	VL	+5 V dc	+5 V dc															

- I 232 Paper Jam displays. Paper is jammed in the lower rear unit, or the lower unit of the duplex option.

	FRU	Action
1	Rear Duplex Unit Lower Duplex Unit	Check the rear and lower duplex units for pieces of paper or other material that might cause a paper jam.
2	Lower Transfer Roll  Transfer Drive Pulley  Transfer Gears  Timing Belt	Check all parts associated with paper movement in the rear duplex unit for correct operation and signs of wear, broken parts or binds. Repair or replace as necessary.

	<b>FRU</b>	<b>Action</b>																		
3	Paper Pass Sensor  Rear Duplex Unit (S3)	<p>Check the voltages on the duplex rear unit paper pass sensor on connector CN904.</p> <table border="1"> <thead> <tr> <th><b>Pin #</b></th> <th><b>Voltage Signal</b></th> <th><b>Voltage Closed</b></th> <th><b>Voltage Open</b></th> </tr> </thead> <tbody> <tr> <td>8</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> <tr> <td>10</td> <td>BPSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>12</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltage on pin 12 is incorrect, replace the duplex option controller board.</li> <li>• If the voltage on pin 10 does not change when the sensor is opened and closed, replace the FRUs in the following order: <ol style="list-style-type: none"> <li>1. Duplex rear unit paper pass sensor</li> <li>2. Duplex option controller board</li> </ol> </li> </ul>	<b>Pin #</b>	<b>Voltage Signal</b>	<b>Voltage Closed</b>	<b>Voltage Open</b>	8	DGND	0 V dc	0 V dc	10	BPSN	+5 V dc	0 V dc	12	VL	+5 V dc	+5 V dc		
<b>Pin #</b>	<b>Voltage Signal</b>	<b>Voltage Closed</b>	<b>Voltage Open</b>																	
8	DGND	0 V dc	0 V dc																	
10	BPSN	+5 V dc	0 V dc																	
12	VL	+5 V dc	+5 V dc																	
4	Lower Unit Parts	<p>Check all parts associated with paper movement in the lower duplex unit for correct operation and signs of wear, broken parts or binds. Repair or replace as necessary.</p>																		
5	Lower Unit Reverse Motor	<p>Check the voltage on the lower duplex unit reverse motor on CN906.</p> <table border="1"> <thead> <tr> <th><b>Pin #</b></th> <th><b>Voltage Signal</b></th> <th><b>Voltage Static</b></th> </tr> </thead> <tbody> <tr> <td>1 (Blue)</td> <td>BPB</td> <td>+24 V dc</td> </tr> <tr> <td>2 (Brown)</td> <td>COM</td> <td>+24 V dc</td> </tr> <tr> <td>3 (Orange)</td> <td>BP</td> <td>+24 V dc</td> </tr> <tr> <td>4 (Yellow)</td> <td>AP</td> <td>+24 V dc</td> </tr> <tr> <td>5 (Red)</td> <td>APB</td> <td>+24 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>• If the voltages are correct, replace the motor.</li> <li>• If the voltages are incorrect, replace the duplex option controller board.</li> </ul>	<b>Pin #</b>	<b>Voltage Signal</b>	<b>Voltage Static</b>	1 (Blue)	BPB	+24 V dc	2 (Brown)	COM	+24 V dc	3 (Orange)	BP	+24 V dc	4 (Yellow)	AP	+24 V dc	5 (Red)	APB	+24 V dc
<b>Pin #</b>	<b>Voltage Signal</b>	<b>Voltage Static</b>																		
1 (Blue)	BPB	+24 V dc																		
2 (Brown)	COM	+24 V dc																		
3 (Orange)	BP	+24 V dc																		
4 (Yellow)	AP	+24 V dc																		
5 (Red)	APB	+24 V dc																		

J 232 Paper Jam displays. The printer does not complete POR.

	FRU	Action																
1	Lower Duplex Unit Reverse Sensor (S4)	<p>Check the voltages on the duplex lower unit reverse sensor on CN907.</p> <table border="1" data-bbox="380 350 827 461"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>1 (Red)</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>2 (Yellow)</td> <td>RVSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>3 (Green)</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>If the voltage on pin 1 is incorrect, replace the duplex option controller board.</li> <li>If the voltage on pin 2 does not change when the sensor is opened and closed, replace the FRUs in the following order:           <ol style="list-style-type: none"> <li>Duplex lower unit reverse sensor</li> <li>Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	1 (Red)	VL	+5 V dc	+5 V dc	2 (Yellow)	RVSN	+5 V dc	0 V dc	3 (Green)	DGND	0 V dc	0 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
1 (Red)	VL	+5 V dc	+5 V dc															
2 (Yellow)	RVSN	+5 V dc	0 V dc															
3 (Green)	DGND	0 V dc	0 V dc															
2	Lower Unit Paper Feed Sensor (S5)	<p>Check the voltages on the duplex lower unit paper feed sensor on CN905.</p> <table border="1" data-bbox="380 842 827 953"> <thead> <tr> <th>Pin #</th> <th>Voltage Signal</th> <th>Voltage Closed</th> <th>Voltage Open</th> </tr> </thead> <tbody> <tr> <td>5 (Red)</td> <td>VL</td> <td>+5 V dc</td> <td>+5 V dc</td> </tr> <tr> <td>6 (Blue)</td> <td>POSN</td> <td>+5 V dc</td> <td>0 V dc</td> </tr> <tr> <td>7 (Green)</td> <td>DGND</td> <td>0 V dc</td> <td>0 V dc</td> </tr> </tbody> </table> <p>All voltages are approximate values.</p> <ul style="list-style-type: none"> <li>If the voltage on pin 5 is incorrect, replace the duplex option controller board.</li> <li>If the voltage on pin 6 does not change when the sensor is opened and closed, replace the FRUs in the following order:           <ol style="list-style-type: none"> <li>Duplex lower unit paper feed sensor</li> <li>Duplex option controller board</li> </ol> </li> </ul>	Pin #	Voltage Signal	Voltage Closed	Voltage Open	5 (Red)	VL	+5 V dc	+5 V dc	6 (Blue)	POSN	+5 V dc	0 V dc	7 (Green)	DGND	0 V dc	0 V dc
Pin #	Voltage Signal	Voltage Closed	Voltage Open															
5 (Red)	VL	+5 V dc	+5 V dc															
6 (Blue)	POSN	+5 V dc	0 V dc															
7 (Green)	DGND	0 V dc	0 V dc															

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**K** The duplex option printed page is skewed.

	<b>FRU</b>	<b>Action</b>
1	Holder/Arm/ Roller Assembly, Rear Door	If skewing is a problem, be sure the skew holder assembly is correctly installed in the rear cover. The holder should be inclined about 3 degrees. Go to <b>“Skew Correction” on page 1-41.</b>
2	Skew Adjusting Rollers	Check the skew adjusting rollers in the lower unit for signs of loose, worn or damaged parts. Repair or replace as necessary.

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## 3. Diagnostic Aids

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

The following diagnostic aids can be initiated at POR by pressing certain button sequences. These tests are also available in Diagnostic Mode. Refer to **“Diagnostic Mode” on page 3-4**.

### Print Quality Test Pages

To run the Print Quality Test Pages:

1. Turn the printer off.
2. Press and hold **Select** and **Return**, while turning on the printer.
3. Release the buttons once “Performing the Self Test” displays.
4. After POR completes, the **CONFIG Menu** displays.
5. Select **Prt Quality Pgs** from the menu; one copy of the test page prints.

### Paper Jam Sequence

Go to the **“Paper Feed Service Check” on page 2-68**, for additional information.

**Paper Jam 201** - Indicates media is jammed between the paper pass sensor and the paper exit sensor.

- Open the front cover to access the area of the paper jam. Notice the location of the paper jam.
- Determine if media jammed prior to activating the paper pass sensor in the printer. The paper pass sensor may not be detecting media over the sensor, or media may be arriving late.
- If the paper is jamming at, or over the paper exit sensor, the paper exit sensor may be failing. Go to the **“Paper Exit Sensor Service Check” on page 2-67**.

**Paper Jam 202** - (POR complete) Indicates media is jammed at the exit sensor, or the coating roll is missing from the fuser assembly.

- Open the fuser cover to access the area of the paper jam.
- Be sure the coating roll is installed, not contaminated and operating correctly. Replace if necessary. Check for pieces of paper or other debris in or around the paper exit sensor area of the fuser.
- Check the paper exit roller, pinch roller 2 and the pinch roller springs for signs of damage, contamination or broken parts.
- If media is jamming at, or over the paper exit sensor, a problem may exist with the paper exit flag or spring. Go to the **“Paper Exit Sensor Service Check” on page 2-67.**

**Paper Jam 202 Duplex Installed** - Go to the **“Duplex Unit Symptom Table” on page 2-29**

### **Paper Jam 23X**

- 230 Duplex - Indicates that media is jammed at the top of the duplex unit. Open the top duplex door to access the jam.
- 231 Duplex - Indicates media is jammed at the rear/vertical area of the duplex unit. Open the rear duplex door to access the jam.
- 232 Duplex - Indicates media is jammed at the bottom of the duplex unit (paper reversing area, or paper re-feeding area). Remove the duplex tray to access the jam.
- Paper Jam 24X - Indicates media is jammed in or around the paper tray X (X= tray 1, 2 or 3) Open tray x to remove the jam.
- Paper Jam 250 - Indicates media is jammed in the multipurpose tray. Open the front door to access the jam.



## Disabling Download Emulations

Error Code 964: Download Emulation CRC Failure. Checksum failure detected in the emulation header or emulation file.

Error Code 965: Download Emulation Outdated. Time stamps indicate the download emulation and RIP code are incompatible.

To help resolve Download Emulation problems the following steps are necessary to instruct the printer to POR without activating any download emulations.

To Disable the Download Emulation:

1. Turn the printer off.
2. Press and hold the **Go** and **Menu** buttons.
3. Turn the printer On and release the buttons once "Performing Self Test" displays.
4. After POR completes, the **CONFIG Menu** is displayed.
5. Select **Download Emuls** from the menu.
6. Select the **Disable Option**.The printer automatically exits the Configuration Menu and initializes as if the Download Emulator were not installed. Once the printer is idle, a new emulator can be downloaded again.
7. Program the download emulation into the code overlay SIMM.
8. If these steps do not resolve the problem, replace the code overlay SIMM and re-download the emulation.

## Diagnostics Menu Structure

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

---

## Diagnostic Mode

To enter the Diagnostic Mode:

1. Turn the printer off.
2. Press and hold the **GO** and **RETURN** buttons.
3. Turn the printer on.
4. Release the buttons when "Performing Self Test" displays on the operator panel.

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

- Print Registration
  - Setting Left Margin
  - Setting Top Margin
- Print Tests
  - Tray 1
  - Tray 2 (displayed only if Tray 2 is installed)
  - Tray 3 (displayed only if Tray 3 is installed)
  - Multipurpose Feeder (displayed only if a multipurpose tray is installed)
  - Print Quality Pages
- Hardware Tests
  - LCD Test (Operator panel)
  - Button Test (Operator panel)
  - DRAM Memory Test
  - Parallel Wrap Test
  - Parallel 1, 2, or 3 Wrap Test (displayed only if a parallel port is available via PC1 in slot 1, 2 or 3)
  - Serial Wrap Test (displayed only if the printer supports a standard serial port)
  - Serial 1, 2 or 3 Wrap Test (displayed only if a serial port is available using PC1 slot 1, 2 or 3)

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- Duplex Tests (displayed only if installed)
  - Duplex Feed Test 1
  - Duplex Feed Test 2
- Device Tests (displayed only if the Flash or Disk options are installed)
  - Quick Disk Test
  - Disk Test/Clean
  - Flash Test
- Printer Setup
  - Setting the page count
  - Viewing the permanent page count
  - Viewing and resetting the fuser page count
  - Setting configuration ID
- Error Log
  - Viewing and clearing the error log
- Exit Diagnostics

---

## Print Registration

Print Registration provides a method to set the printer registration if required. When entering the Print Registration menu, you may select the TOP Margin for Tray 2, Tray 3, and Duplex. If you select LEFT Margin, you must select the source and resolution. Once you have selected the margin, press Menu> or Menu< to change the default value. The margin settings should be verified on Letter or A4 paper.

To set the Top Margin:

1. Select **Registration** from the Diagnostic menu.
2. Select **Top Margin** from the Registration menu. The value is displayed in the operator panel.
3. To change the value, press either **Menu>** or **Menu<**.
4. To save the value press **Select**.

**Note:** If RETURN is pressed to exit the Registration menu following a margin value change, but not saved with SELECT, the default value is not changed. The range of Top Margin offset is -30 to +30.

5. To exit the Registration menu, press **Return**.

The following printer functions may be shifted up or down for either 600 or 1200 dpi:

- Tray 1, Tray 2, Tray 3 - 600 or 1200 dpi
- Duplex - 600 or 1200 dpi
- Multipurpose Tray - 600 or 1200 dpi

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To set the Left Margin (only effects Tray 1 and the multipurpose tray):

1. Select **Registration** from the Diagnostic menu.
2. Select **Left Margin** from the Registration menu.
3. Select the desired source and resolution. The value is displayed in the operator panel.
4. To change the value, press either **Menu>** or **Menu<**. A positive offset moves the margin to the right and a negative offset moves the margin to the left.
5. To save the value press **Select**.

**Note:** If RETURN is pressed to exit the Registration menu following a margin value change, but not saved with SELECT, the default value is not changed.

6. To verify that the value has changed, print the Quick Test Page. You may press Go from any of the TOP or LEFT Margin screens to go immediately to the Quick Test page.
7. To exit the Registration menu, press **Return**.

**Note:** The range of Left Margin is -50 to +99.

The following printer functions may be shifted left or right for either 600 or 1200 dpi:

- Tray 1, Tray 2, Tray 3 - 600 or 1200 dpi
- Multipurpose Tray - 600 or 1200 dpi

The "Quick Test Page" should be printed on letter or A4 paper.

---

## Print 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. Each of the installed options is listed in the following order in the menu:

For each input source selected, the following choices are available:

Single (prints the Print Test Page once).

Continuous (continue printing the Print Test Page until Return or Stop is pressed).

- Tray 1 = Single, Tray 1 = Continuous
- Tray 2 = Single, Tray 2 = Continuous (if installed)
- Tray 3 = Single, Tray 3 = Continuous (if installed)
- MP Feeder = Single, MP Feeder = Continuous

The contents of the Print Test Page vary depending on the media installed in the selected input source. If a source is selected that contains Paper, Legal, Letter and so on, a page similar to the Quick Test Page is printed. However, the page does not contain the print registration diamonds. If an input source is selected which contains envelopes, an Envelope Print Test pattern is printed. This pattern contains text only, consisting of continuous prints of each character in the selected symbol set.

If continuous is selected, all sources printing with paper sizes print the same page continuously until the test is stopped. If continuous is selected for a source containing envelopes, the envelope print test pattern prints on the first envelope and subsequent envelopes are blank.

**Note:** The Print Test Page may be printed on any paper or envelope size, however more than one sheet of some media sizes may be required. The Print Test Page is always simplex, regardless of duplex settings or the presence of the duplex unit.

To run the Print Test Page:

1. Select **Print Tests** from the Diagnostic menu.
2. Select the media source.
3. Select **Single** or **Continuous**. (If single is selected, no buttons are active during printing. If continuous is selected, Return or Stop can be selected to cancel the test.)

**Note:** The power indicator blinks while the page is printing. Check each test page from each source to assist in print quality and paper feed problems.

### Print Quality Test 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 Test Pages consist of ten (10) pages. The first four pages are 100% cyan, magenta, yellow and black. The next four pages are 50% cyan, magenta, yellow and black. The last two pages are color striped pages in decreasing intensity. If a duplex option is installed and turned on, the last two pages will be duplexed. Otherwise they are simplexed.

**Note:** The test pages must be printed on Letter, Legal or A4 paper.

To run the Print Quality Test Pages:

1. Turn the printer off.
2. Press and hold the **Select** and **Return** buttons.
3. Turn on the printer and release both buttons when "Performing Test Message" displays.
4. After POR completes, the **CONFIG Menu** displays.
5. Select **Prt Quality Pgs**, the printer posts Printing Quality Test Pages as the pages are formatted.
6. The test pages print one time. To print additional pages, repeat the last step.

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## Hardware Tests

The following Hardware Tests can be selected from this menu:

LCD Test	Button Test
DRAM Memory Test	ROM Memory Test
Parallel Wrap (if available)	Serial Wrap (if available)
Serial 1 Wrap (if available)	Serial 2 Wrap (if available)
Serial 3 Wrap (if available)	LCD Test

### LCD Test

To run the LCD Test:

1. Select **LCD Test** from the Diagnostic menu. The LCD Test continually executes the LCD Display Test.
2. Press **Return/Stop** to cancel the test.

### Button Test

To run the Button Test:

1. Select **Button Test** from the Diagnostic menu. With no buttons pressed, several OP (open) appear on the display.
2. Press each button one at a time and a CL (Closed) displays in place of an OP. The proper operation of each button can be checked.
3. Press **Return/Stop** to cancel the test.



## Parallel Wrap Test

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

To run the Parallel Wrap Test:

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

When the test finishes, the screen updates. If the test passes, the Pass Count increases by 1, however if the test fails, one of the following messages display for approximately 3 seconds:

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

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

Press **Return/Stop** to exit the test.

## ROM Memory Test

The ROM Memory Test is used to check the validity of the system board code and fonts.

To run the ROM Memory Test:

1. Select **ROM Memory Test** from the menu. P and F represent the same numbers for DRAM. The power indicator blinks indicating the test is in process. The test runs continuously.
2. Press **Return/Stop** to exit the test.

Each time the test finishes, the screen updates with the result. If the test passes, the Pass Count increases by 1, however if the test fails, one of the following messages displays for approximately 3 seconds:

- ROM Checksum Error
- ROM Burst Read Error

Once the maximum pass count or fail count is reached, the test stops with the power indicator on solid. The final results display on the screen.

## SDRAM Memory Test

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

To run the SDRAM Memory Test:

1. Select **SDRAM Memory Test** from the menu.
  - The power indicator blinks indicating the test is in progress.
2. Press **Return/Stop** to exit the test.

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 of time the memory test has failed and finished with errors. Initially 00000 displays with the maximum fail count being 99,999.

Once the maximum pass count or fail count is reached, the test is stopped, the power indicator is turned on solid, and the final results display. If the test fails, the message DRAM Error, displays for approximately three seconds and the failure count increases by 1.

## Serial Wrap Test

This test is used to check the operation of the serial port hardware using a wrap plug. Each signal is tested.

To run the Serial Wrap Test:

1. Disconnect the serial interface cable and install the wrap plug.
2. Select the appropriate **Serial Wrap Test** from the menu.

The following screen displays: Serial X Wrap P:##### F:#####

- X indicates which serial port is being tested, (black = standard, 1 = optional serial port #1, 2 = optional serial port #2 and 3 = operational serial port #3).
- F represents the number of times the test has failed or finished with errors. Initially 00000 is displayed for #####. The maximum fail count is 99,999.

**Note:** The power indicator blinks indicating the test is running.

Each time the test finishes, the screen updates with the result. If the test passes, the Pass Count increases by 1, however if the test fails, one of the following failure messages displays for approximately 3 seconds and the Fail Count increases by 1:

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

Once the maximum count is reached the test stops and the final results display.

3. Press **Return/Stop** to exit the test.

## Duplex Tests

### Quick Test

To run the Quick Test:

1. Enter Diagnostic Mode.
2. Select **Duplex Tests** from the menu.
3. Select **Quick Test**. The printer prints one sheet of the Quick Test Page and feeds it through the duplex option.

### Duplex Feed 1

To run the Duplex Feed 1 test:

1. Enter Diagnostic Mode.
2. Select **Duplex Tests** from the menu.
3. Select **Duplex Feed 1** from the menu. The printer feeds one blank sheet through the duplex option.
4. To exit this test, press **Go**, **Return** or **Stop**.

### Duplex Feed 2

To run the Duplex Feed 2 test:

1. Enter Diagnostic Mode.
2. Select **Duplex Tests** from the menu.
3. Select **Duplex Feed 2** from the menu. The printer feeds one blank sheet through the duplex option.
4. To exit this test, press **Go**, **Return** or **Stop**.

---

## Device Tests

### Quick Disk Test

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

To run the Quick Disk Test:

1. Select the **Quick Disk Test** from the Device Tests menu. The power indicator blinks while the test is in progress.
2. The “Quick Disk Test/Test Passed” message displays and the power indicator turns on solid.
3. “Quick Disk Test/Test Failed” message displays if the test failed and the power indicator turns on solid.
4. Press **Go**, **Return** or **Stop** to return to the Device Test 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 1 1/2 hours depending on the disk size.

To run the Disk Test/Clean Test:

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

## Flash Test

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

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

To run the Flash Test:

1. Select **Flash Test** from the Device Tests menu.
  - The power indicator blinks while the test is running.
  - “Flash Test/Test Passed” message displays if the test passes and the power indicator turns on solid.
  - “Flash Test/Test Failed” message displays if the test fails and the power indicator turns on solid.
2. Press **Go** or **Return/Stop** to return to the Device Tests menu.



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## Printer Setup

**Note:** Defaults within this printer can be set to either U.S. or Non-U.S.

### Setting the Page Count

This lets the servicer change the page count from the diagnostic menu. This is used whenever the engine board is replaced because this board contains the printer's NVRAM Memory where the page count is stored.

To set the Page Count:

1. Select **Page Count** from the Diagnostic menu. The current page count displays and the leftmost digit blinks, indicating it is the first digit to be changed.
2. Press either **Menu>** or **<Menu** until the desired value displays.
3. Press **Select** to move to the next digit.
4. Press **Menu>** or **<Menu** until the desired value displays. Continue with each digit until you set the page count. You can skip any digit by pressing Select.
5. Press **Select** to save the new page count in NVRAM.
6. Press **Return/Stop** to exit the Diagnostic menu.

### Viewing the Permanent Page Count

**Note:** The Permanent Page Count can only be viewed; it cannot be changed.

To view the Permanent Page Count:

1. Select **Permanent Page Count** from the menu.
2. Press **Return/Stop** to exit the Diagnostic menu.

### Serial Number

The serial number is set at the factory and cannot be changed. This is for viewing the serial number only.

The serial number will be XXXXXXXX (8 digit string)  
Where X=A to Z, or 0 to 9.

## Setting Configuration ID

The configuration ID is used to communicate information about certain areas of the printer that cannot be determined using hardware sensors. The Configuration ID is originally set at the factory when the printer is manufactured, however it requires resetting whenever you replace the controller board and can be set on the operator panel. However the Configuration ID is the only diagnostic function displayed until a valid ID is entered.

CONFIG IDs to be used for the 5016-001 printer:

- 000000 ID set when the operator panel is to support 850 + Katakana and not allow the power saver to be reset.
- 100001 ID set when the operator panel is to support 850 + Katakana and allow the power saver to be reset.
- 000088 ID set when the operator panel is to support 850 + NLS and not allow the power saver to be reset.
- 100089 ID set when the operator panel is to support 850 + NLS and allow the power saver to be reset.

To set the Configuration ID:

1. Enter Diagnostics Mode.
2. Select **Configuration ID** from the Printer Setup menu. The current ID displays on the screen. The display should show one of the IDs from the above list. The leftmost digit blinks indicating that it is the first digit to be changed.
3. To change the value, press either **Menu>** or **<Menu** until the desired value is reached. Press **Select** to move to the next digit, or press **Select** again to skip a digit. Change each digit as required. When the last digit is changed, press **Select** to validate the Configuration ID. If the ID is invalid then "INVALID ID" message displays on Line 2 before the ID re-displays. You have to reenter the Configuration ID until a valid ID is verified. If the ID is valid then the ID is saved in NVRAM and the printer automatically PORs to activate the new setting.

**Note:** When the printer PORs it does so in the normal mode.

## Laser Power

This setting controls how much power is used to drive the laser. A higher, or more positive number, makes a darker copy, while a lower number makes a lighter copy.

## Parallel Strobe Adjustment

This setting allows the user to adjust the factory setting for the amount of time strobe sampled, to determine that valid data is available on the parallel port.

Incrementing this value means that strobe is sampled 50ns longer. Decrementing this value means that strobe is sampled 50ns shorter.

The range of this setting is -4 to +6.

Example of setting:

- A value of 0 indicates no adjustment is sampled from the factory setting.
- A value of -1 indicates the sample strobe time is reduced by 50ns.
- A value of +3 indicates the sampled strobe time is increased by 150ns.

---

## Error Log

### Viewing the Error Log

The error log is helpful to the servicer by providing a history of printer errors. The error log 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. All 2xx and 9xx error messages are stored in the error log.

To view the Error Log:

1. Select **Display Log** from the Error Log menu. The Error log displays on 3 screens as only 4 entries display at a time.
2. To move to the next screen press **Menu>** to move forward or **<Menu** to move backward.
3. Press **Return/Stop** to exit the Error Log.

### Clearing the Error Log

To clear the Error Log:

1. Select **Clear Log** from the Error Log menu.
2. Select **YES** to clear the Error Log or **NO** to exit the Clear Log menu. If YES is selected, the Empty Error Log displays on the screen.
3. Press **Return/Stop** to exit the Clear Log menu.

### Restore EP Factory Defaults

To restore each of the printer settings contained in the EP Setup menu to their factory default value select Restore from the menu. To exit the menu without restoring the settings to the factory default values, select Do Not Restore. Sometimes this is used to help correct print quality problems.

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## Exiting Diagnostic Mode

Select Exit Diagnostics to exit the diagnostics mode and return to normal mode.

**5016-001**

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## 4. Repair Information

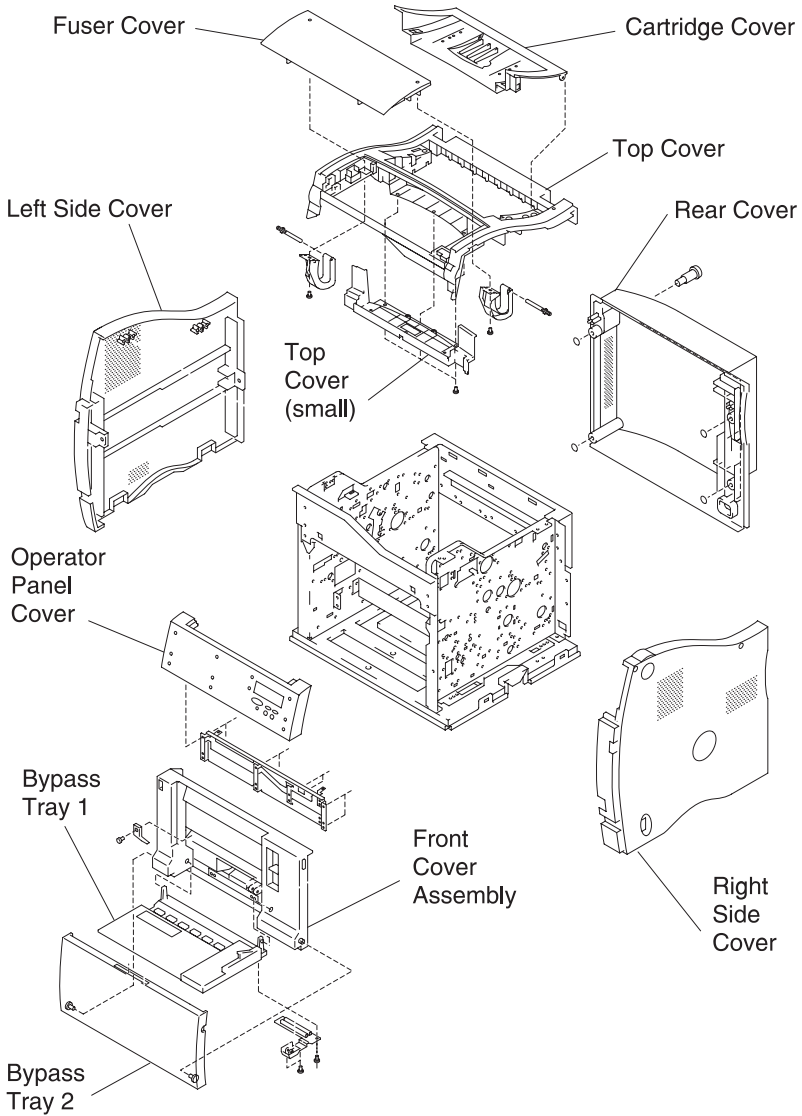
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### Handling ESD-Sensitive Parts

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 printer.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Secure the ESD wrist strap around your wrist and connect the wrist band to the engine ground point. This discharges any static electricity, in your body, to the printer.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch the pins. If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on the printer cover or on a metal table, as electrical grounding may occur, which increases the risk of damage due to the discharge path your body could establish through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- When laying the ESD-sensitive part down, always return it to the ESD-sensitive bag.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Take care working with ESD-sensitive parts when cold weather heating is used, as low humidity increases static electricity.

# Cover Removals



**Note:** Always remove any paper tray and/or duplex option, prior to any cover removal.



## **Cartridge Cover Removal**

1. Remove the two (2) left and right white plastic cover pins by pulling inward.
2. Remove the cartridge cover.

## **Front Cover Removal**

1. Lower the front cover and remove the front cover strap screw.
2. Unsnap the front cable cover.
3. Disconnect the front cover cable.
4. Lift the front cover upward and out of the printer.

## **Fuser Cover Removal**

1. Lift the fuser cover.
2. Remove the two (2) screws (left and right) from the fuser cover lever and remove the fuser cover.

## **Left Side Cover Removal**

1. Lower the bypass tray 2.
2. Unlatch and lower the front cover.
3. Remove the four (4) screws from the left side cover and remove the left side cover.

## **Operator Panel Cover Removal**

1. Open the fuser cover.
2. Remove the two (2) screws from the operator panel cover.
3. Disconnect the operator panel cable.
4. Remove the operator panel cover.

## **Rear Cover Removal**

1. Loosen the four (4) screws from the rear cover.
2. Remove the rear cover.

## Right Side Cover Removal

1. Raise both the fuser door and the cartridge cover.
2. Open the bypass tray 2.
3. Remove the four (4) screws from the right side cover.
4. Close the bypass tray 2.
5. Remove the right side cover.

## Top Cover Removal

1. Remove the rear cover, refer to the **“Rear Cover Removal” on page 4-3.**
2. Remove the left side cover, refer to the **“Left Side Cover Removal” on page 4-3.**
3. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
4. Remove the operator panel cover, refer to the **“Operator Panel Cover Removal” on page 4-3.**
5. Remove the six (6) screws from the top cover and remove the cover.

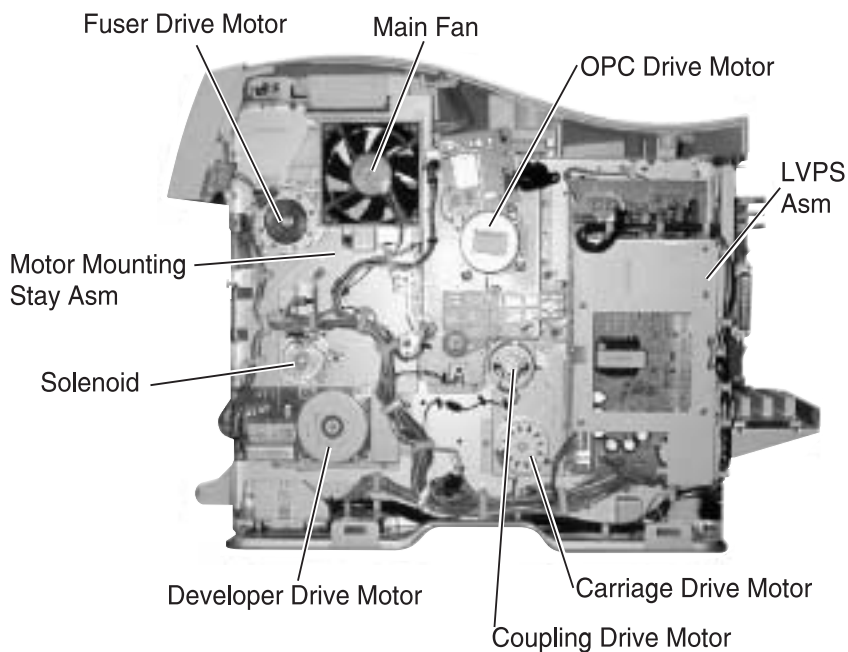
**Note:** Take care not to lose the two cartridge door springs attached to the two screws on the left and right of the top cover.

## Top (Small) Cover Removal

1. Remove the top cover, refer to the **“Top Cover Removal” on page 4-4.**
2. Lift the top (small) cover.
3. Remove the three (3) screws from the bottom of the cover.
4. Remove the cover top (small) cover.

## Right Side Removals

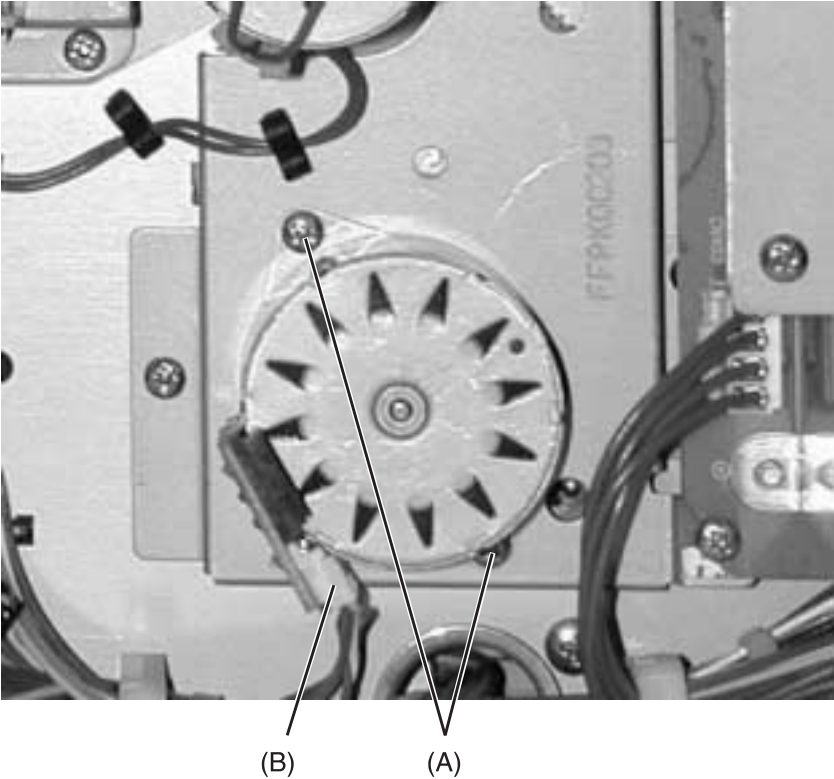
Remove the right side cover, refer to the **“Right Side Cover Removal”** on page 4-4 and remove any of the following FRUs.



**Note:** Take care when removing the cables on the right side of the printer. Always ensure to route the cables through the appropriate cable clips as shown.

## Carriage Drive Motor Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal”** on page 4-4.
2. Remove the two (2) screws **[A]** from the carriage drive motor.
3. Disconnect the carriage drive cable **[B]**.
4. Slide the carriage drive motor mechanism to the right and out of the printer.

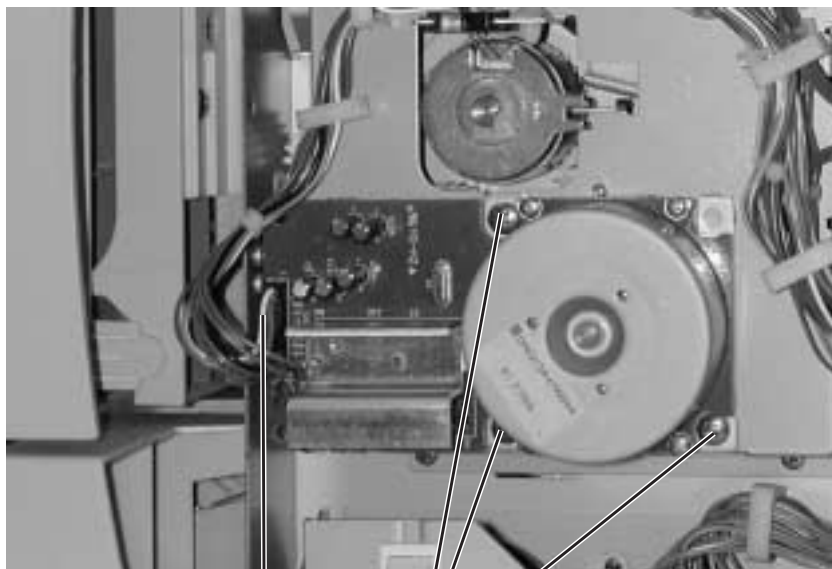


## Coupling Drive Motor Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal”** on page 4-4.
2. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal”** on page 4-13.
3. Remove the two (2) screws from the coupling drive motor.
4. Remove the coupling drive motor.

## Developer Drive Motor Assembly Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal”** on page 4-4.
2. Remove the three (3) screws [A] from the developer drive motor assembly.
3. Disconnect the developer drive cable [B].
4. Remove the developer drive motor assembly.

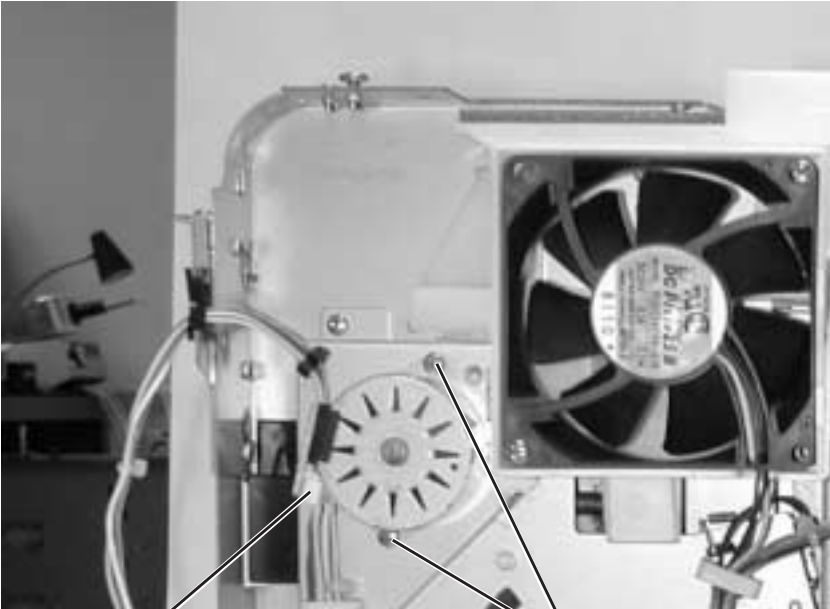


(B)

(A)

## Fuser Drive Motor Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal”** on page 4-4.
2. Remove the two (2) screws **[A]** from the fuser drive motor.
3. Disconnect the fuser drive motor cable **[B]**.
4. Remove the fuser drive motor.

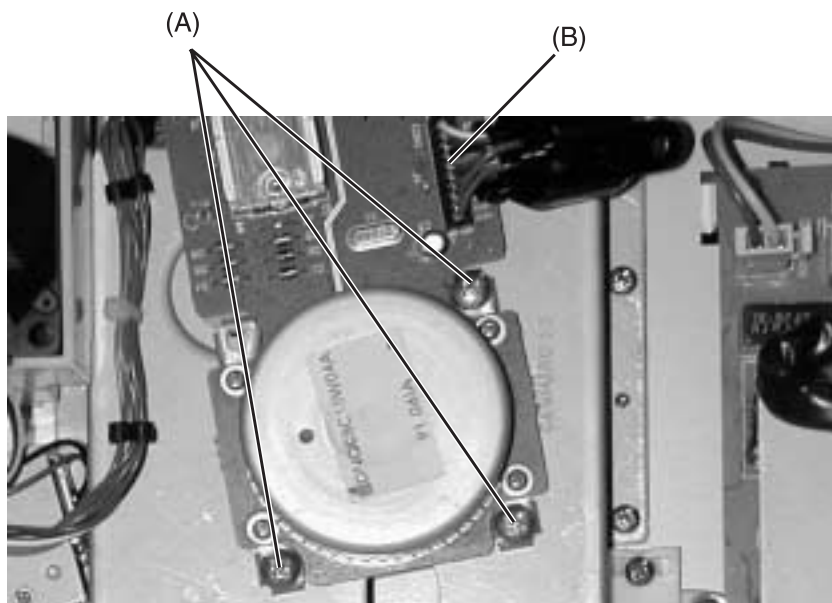


(B)

(A)

## OPC Drive Motor Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the three (3) screws **[A]** from the OPC drive motor.
3. Disconnect the OPC drive motor cable **[B]**.
4. Slide the mechanism to the left and out of the printer.



## Cam Sensor Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal” on page 4-13.**
3. Unclip the cam sensor connection.
4. Remove the cam sensor.

# LVPS Assembly Removal





## 5016-001

Take care when removing the cables on the right side of the printer. Always ensure to route the cables through the appropriate cable clips as shown.

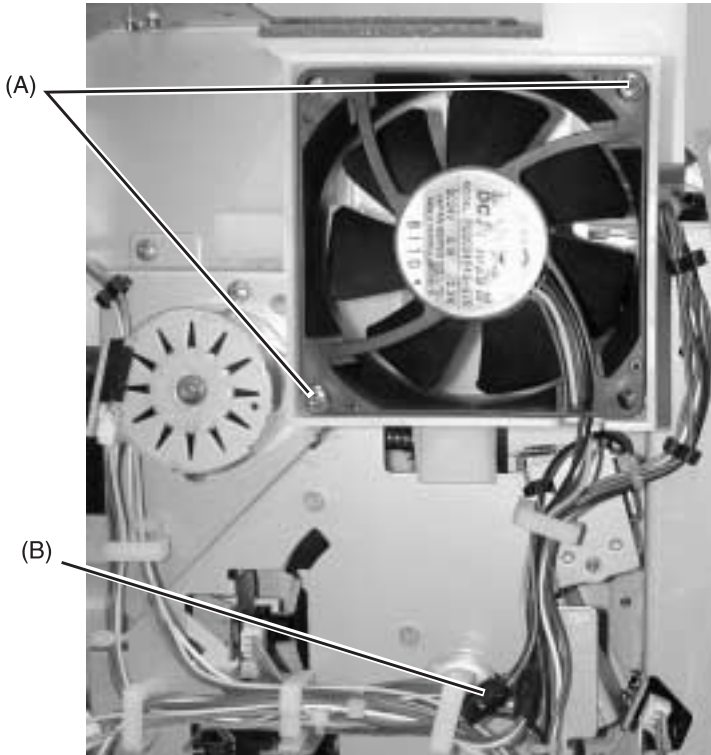
1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Disconnect the three (3) cables **[A]** from the top of the LVPS assembly and un-route the cable from the assembly.

**Note:** Take notice of the white wire/black wire notation on the LVPS board.

3. Disconnect the three (3) cables **[B]** from the bottom of the LVPS assembly.
4. Remove the five (5) screws **[C]** from the LVPS assembly.
5. Lift the LVPS assembly upward and out of the printer.

## Main Fan Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the two (2) screws [A] from the main fan.
3. Disconnect the main fan cable [B].
4. Remove the main fan assembly.



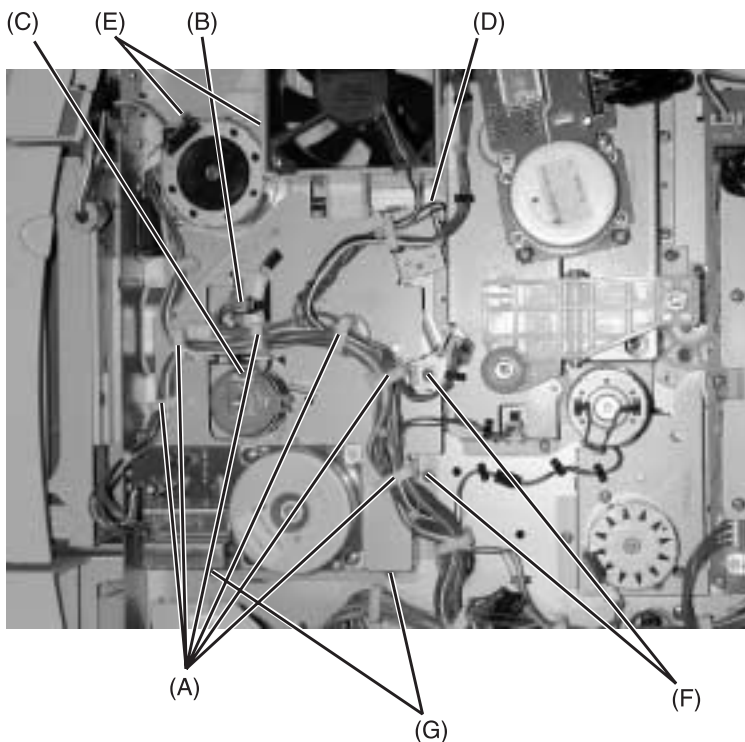
## Main Fan Mounting Bracket Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the two (2) screws from the main fan mounting bracket by placing the screwdriver through the fan blades to the screws.
3. Remove the fan assembly with the main fan mounting bracket.

## Motor Mounting Stay C Assembly Removal

1. Remove the main fan with mounting bracket, refer to the “**Main Fan Mounting Bracket Removal**” on page 4-12.
2. Disconnect the cable harness from the cable clips **[A]**.
3. Disconnect the cam sensor cable **[B]**.
4. Disconnect the cam clutch cable **[C]**.
5. Disconnect the solenoid cable **[D]**.
6. Remove the two (2) screws from the top of the motor mounting stay assembly **[E]**. The screw on the top right is shorter and must be replaced exactly as removed.
7. Remove the two (2) screws from the right side of the motor mounting stay assembly **[F]**.
8. Remove the two (2) screws from the bottom of the motor mounting stay assembly **[G]**.

**Note:** When reinstalling the motor mounting stay assembly, be sure the timing belt remains in place with proper tension.



## OPC Coupling Drive Block Assembly Removal

1. Remove the top cover, refer to the **“Top Cover Removal” on page 4-4.**
2. Remove the main fan assembly with the fan mounting bracket, refer to the **“Main Fan Mounting Bracket Removal” on page 4-12.**
3. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal” on page 4-13.**

**Note:** Replacing the screws in the motor mounting stay assembly may facilitate replacement.

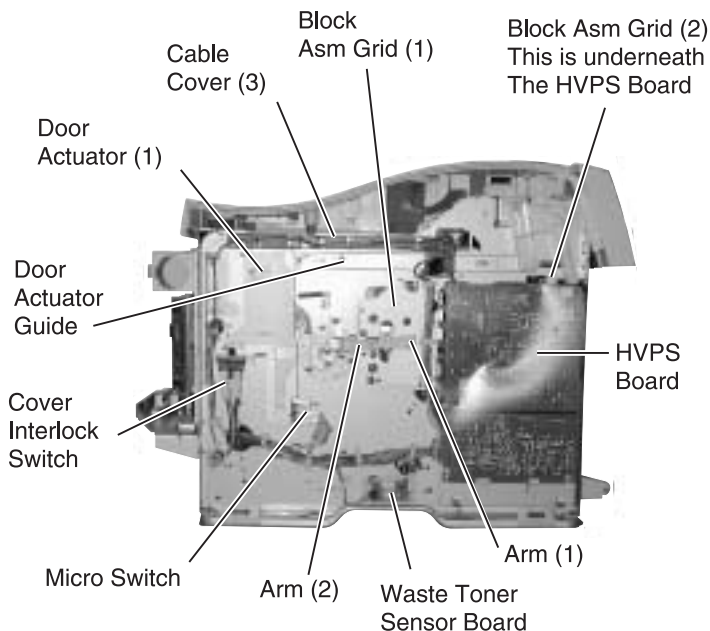
4. Disconnect the timing belt.
5. Remove the seven (7) screws from the OPC coupling drive block assembly.
6. Remove the C-clip and washer from the coupling arm.
7. Disconnect the OPC drive motor cable.
8. Remove the OPC drive motor cable assembly.

## Solenoid Removal

1. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal” on page 4-13.**
2. Remove the solenoid screw from the motor mounting stay assembly.
3. Remove the solenoid.

## Left Side Removals

Remove the left side cover, refer to the **“Left Side Cover Removal”** on page 4-3 and remove any of the following FRUs.

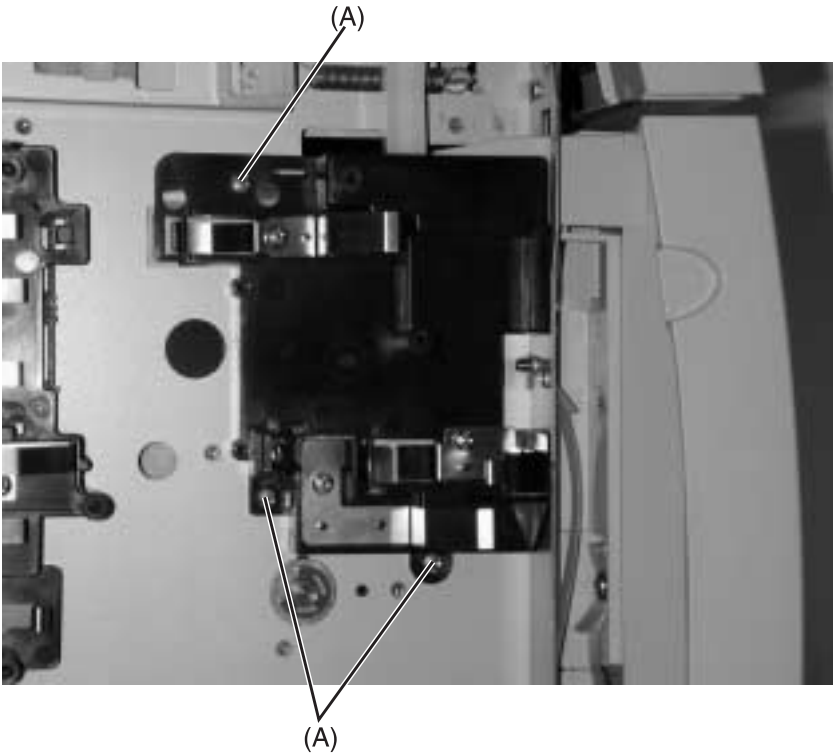


**Note:** Take care when removing the cables on the left side of the printer. Always ensure to route the cables through the appropriate cable clips as shown.

## Grid Block 1 Assembly Removal

1. Remove the left side cover, refer to the “**Left Side Cover Removal**” on page 4-3.
2. Remove the HVPS assembly, refer to the “**HVPS Board Assembly Removal**” on page 4-20.
3. Remove the three (3) screws [A] from the block assembly.
4. Remove the block assembly.
5. Disconnect the waste toner sensor board cable.

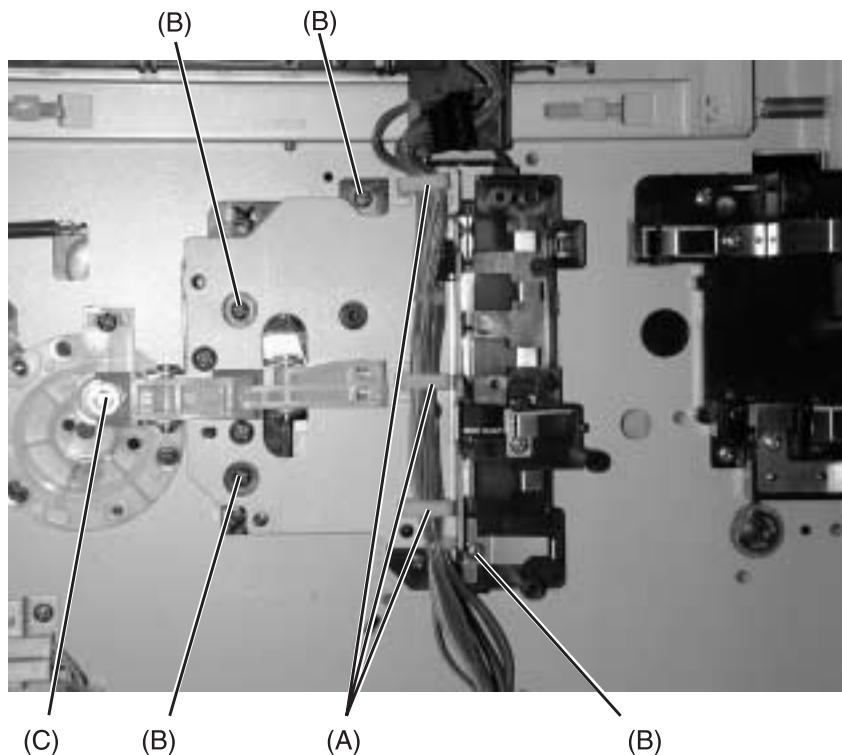
**Note:** When replacing the grid 1 block assembly, be sure not to damage or deform the high voltage contact.



## Grid Block 2 Assembly Removal

1. Remove the left side cover, refer to the **“Left Side Cover Removal”** on page 4-3.
2. Remove the HVPS board assembly, refer to the **“HVPS Board Assembly Removal”** on page 4-20.
3. Loosen the cable clips **[A]** and loosen the cables from the grid 1 block assembly.
4. Remove the four (4) screws **[B]** from the grid 2 block assembly.
5. Remove the C-clip from the transfer arm shaft **[C]**.
6. Remove the grid 2 block assembly.

**Note:** When replacing the grid 2 block assembly, be sure not to damage or deform the high voltage contacts.



## Cable Cover 3 Removal

1. Remove the left side cover, refer to the **“Left Side Cover Removal” on page 4-3.**
2. Remove the screw (1) from the left side frame. The screw can be seen behind the cover interlock switch cable.
3. Remove the cover interlock switch cable from the cable cover 3. Take care when removing the cable, as it must be released from the cable retainers which are molded into the cable cover 3.

**Note:** When replacing cable cover 3, be sure to reposition the cover interlock switch cable back behind the cable retainers.

## Cover Interlock Switch Removal

1. Remove the left side cover, refer to the **“Left Side Cover Removal” on page 4-3.**
2. Remove the screw (1) from the cover interlock switch and remove the assembly.

## Micro Switch Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the screw (1) from the micro switch assembly.
3. Disconnect the switch and remove the assembly.



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## Electronics Removals

**CAUTION:** When working on the printer, always unplug the printer from the electrical outlet. Line voltage is present in the printer as long as it is plugged into the electrical outlet.

### Controller Board Assembly Removal

1. Remove the rear cover, refer to the **“Rear Cover Removal” on page 4-3.**
2. Loosen the six (6) screws of the controller board shield assembly.
3. Remove the two (2) screws from the outside left of the controller board assembly.
4. Remove the four (4) screws from the controller board.
5. Remove the board by pulling upwards and out of the printer.

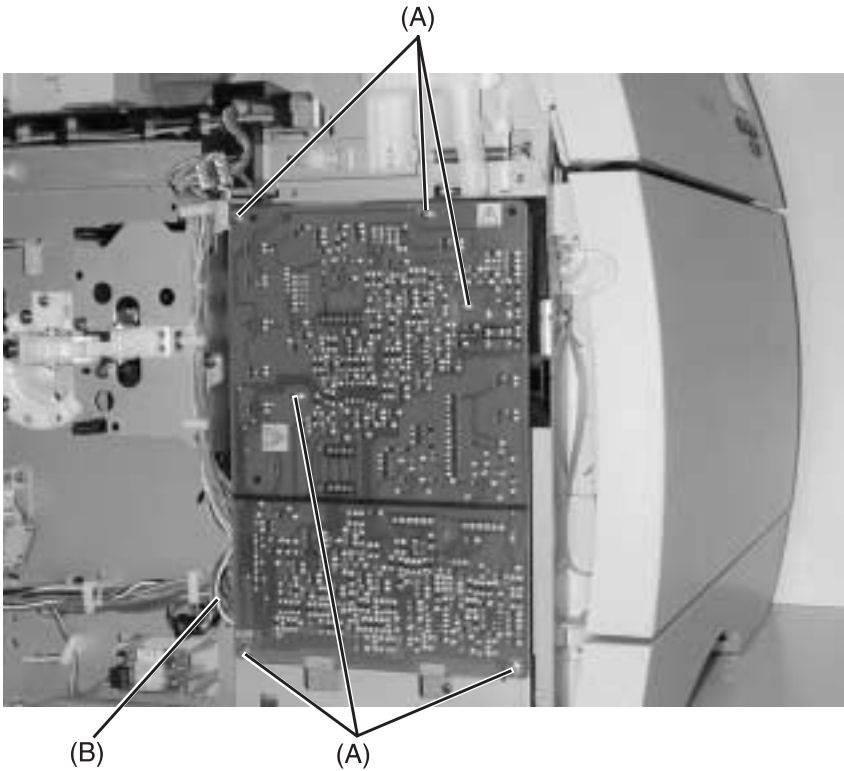
### Engine Board Assembly Removal

1. Remove the top cover, refer to the **“Top Cover Removal” on page 4-4.**
2. Remove the print cartridges.
3. Remove the controller board assembly, refer to the **“Controller Board Assembly Removal” on page 4-19.**
4. Remove the five (5) screws from the engine board PCB shield and remove the shield.
5. Disconnect the toner detection sensor cable.
6. Disconnect the twelve (12) cables from the engine board.
7. Remove the three (3) remaining screws from the engine board.
8. Remove the engine board assembly.

## HVPS Board Assembly Removal

1. Remove the right side cover, refer to the **“Right Side Cover Removal” on page 4-4.**
2. Remove the six (6) screws **[A]** from the HVPS board.
3. Disconnect the HVPS cable **[B]**.
4. Remove the HVPS board assembly.

**Note:** When replacing the grid 1 block assembly, be sure not to damage or deform the high voltage contact.



## Interconnect Board Assembly Removal

1. Remove the controller board assembly, refer to the **“Controller Board Assembly Removal” on page 4-19.**
2. Remove the four (4) screws from the controller board shield plate 2.
3. Remove the four (4) screws from the interconnect board.
4. Disconnect the three (3) cables from the interconnect board.
5. Remove the interconnect board assembly.

## On/Off Coupling Sensor Board Removal

1. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal” on page 4-13.**
2. Unclip the On/Off coupling sensor and remove.

## Paper Sensor Board

1. Remove the paper feed block assembly, refer to the **“Paper Feed Block Assembly Removal” on page 4-24.**
2. Remove the screw (1) next to the center cable access hole.
3. Remove the screw (1) directly below the On/Off switch.

**Note:** The following sensors are located on the paper sensor board:

- Tray 1 paper supply LEDs (paper low/paper out)
  - Paper selector switch
  - Tray install sensor
4. Disconnect the paper sensor board cable from the main cable harness at the center cable access hole.
  5. Remove the board by sliding the side plate forward approximately 1/4 inch.

## Resist Sensor Board Removal

1. Remove all covers, refer to the **“Cover Removals” on page 4-2.**
2. Remove the LVPS assembly, refer to the **“LVPS Assembly Removal” on page 4-10.**
3. Remove the C-clip and the shaft bearing from the left side of the registration roll.
4. Unlatch the cable cover bracket.
5. Loosen the registration roll from the left side.
6. Remove the two (2) screws from the paper A guide and remove the guide.
7. Remove the two (2) screws from the paper sensor and remove the sensor.

## Waste Toner Board Assembly Removal

1. Remove the grid 1 block assembly, refer to the **“Grid Block 1 Assembly Removal” on page 4-16.**
2. Remove the two (2) screws from the board.
3. Remove the waste toner board assembly.

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## Fuser Unit

### Fuser Unit Removal

1. Open the fuser door.
2. Loosen the two (2) lockdown screws and remove the fuser.

### Fuser Lamp Removal

1. Remove the insulation heat cover (2 screws).
2. Remove right lamp terminal (1 screw).
3. Remove the fuser lamp.

**Note:** When the fuser lamp is reinstalled, the voltage/power consumption marking should be facing the left side.  
(Heat roller gear side).

### Thermistor and Thermostat Removal

1. Remove the thermistor/thermostat mounting bracket (2 screws).
2. Remove the thermistor (1 screw).
3. Remove the thermostat (2 screws).

---

## Main Body

### Paper Feed Block Assembly Removal

**Note:** The paper pick mechanism is a part of the paper feed block assembly.

1. Remove the front cover, refer to the **“Front Cover Removal” on page 4-3.**
2. Remove the screw (1) from the left side of the paper feed block.
3. Remove the screw (1) from the right side of the paper feed block.
4. Pull the paper feed block forward enough to remove the paper drive mechanism cable from the cable clips.
5. Remove the paper feed block assembly.

### Paper Sensor Board Removal

Refer to the **“Paper Sensor Board” on page 4-21.**

### Printhead Removal

1. Remove the top cover, refer to the **“Top Cover Removal” on page 4-4.**
2. Remove the front cover assembly, refer to the **“Front Cover Removal” on page 4-3.**
3. Remove the print cartridges.
4. Remove the three (3) perimeter screws in the printhead assembly.
5. Remove the two (2) screws in the blind plate and remove the blind plate from the engine board PCB shield plate.
6. Remove the screw (1) in the cable harness cover.
7. Disconnect the printhead cable on the engine board from CN14.
8. Disconnect the four (4) remaining printhead cables.
9. Remove the printhead assembly carefully, though the front of the printer.
10. Remove the discharge PCP LED from the top of the printhead housing and install it on the new printhead assembly.

## Print Cartridge Carousel Removal

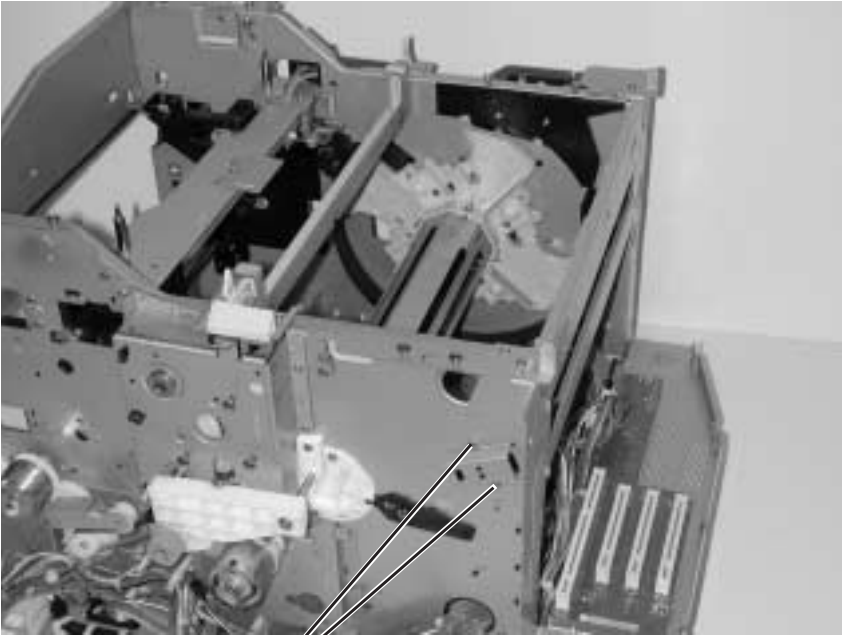
1. Remove all covers, refer to **“Cover Removals” on page 4-2.**
2. Remove the motor mounting stay assembly, refer to the **“Motor Mounting Stay C Assembly Removal” on page 4-13.**
3. Remove the OPC coupling drive block assembly, refer to the **“OPC Coupling Drive Block Assembly Removal” on page 4-14.**
4. Remove the C-clip and two (2) washers from the right side of the coupling transmission shaft.
5. Remove the inner C-clip from the left side of the coupling transmission shaft.
6. Remove the coupling transmission shaft by pulling it out of the printer from the left side.

**Note:** When reinstalling the coupling transmission shaft, be sure the C-clip and washers are in the following order:

- Left side: C-clip, washer spring, washer, white transfer bracket, washer, C-clip.
  - Right side: C-clip, washer, white transfer bracket, washer, C-clip.
7. Remove the coupling transmission bushing from the right and left side of the coupling transmission shaft.
  8. Remove the two (2) screws from the carriage center block from the left and right side of the printer.
  9. Remove the center screw from the carriage center block on the left and right side and remove the carriage center block from both sides.
  10. Remove the toner cartridge cover bracket clutch by removing the screw (1) on the left and the two (2) screws on the right.
  11. Remove the two (2) screws from the top of the cable cover 4.
  12. Remove the screw (1) and unsnap the latch from the black plastic cable shield and remove the shield.
  13. Remove the print cartridge carousel by rotating it out of the printer. Be careful of the HVPS contacts on the left side of the printer.
  14. When replacing the print cartridge carousel, be sure the left side of the carousel remains flat against the left side of the printer while rotating it back into place.

## Carriage Home Position Sensor Removal

1. Remove the LVPS board, refer to the “**LVPS Assembly Removal**” on page 4-10.
2. Remove the two (2) screws **[A]** from the carriage home position sensor.
3. Remove the sensor.



(A)



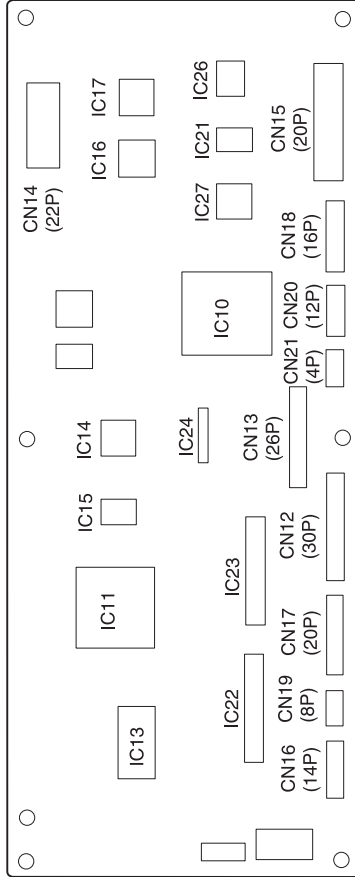
## Registration Roll Removal

1. Remove all covers, refer to the **“Cover Removals” on page 4-2.**
2. Remove the LVPS assembly, refer to the **“LVPS Assembly Removal” on page 4-10.**
3. Remove the C-clip and the shaft bearing from the left side of the registration roll.
4. Unlatch the cable cover bracket.
5. Loosen the registration roll from the left side.
6. Remove the two (2) screws from the paper A guide and remove the guide.
7. Remove the white clip from the right side of the registration roll shaft.
8. Remove the clutch magnet.
9. Remove the second C-clip from the registration roll shaft.

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# 5. Connector Locations

## Engine Board



## Engine Board Connections

Engine Board Connector	
CN10	Interlock switch S2
CN11	LVPS
CN12	<ul style="list-style-type: none"> <li>• Bypass paper detect sensor</li> <li>• Bypass pickup clutch</li> <li>• HVPS</li> <li>• Input sensor</li> <li>• Tray 1 clutch</li> </ul>
CN13	Options: <ul style="list-style-type: none"> <li>• Optional 250/250 dual cassette</li> <li>• Automatic duplex option</li> <li>• Tray 1 sensor board</li> </ul>
CN14	<ul style="list-style-type: none"> <li>• Erase lamps</li> <li>• +5 V dc Interlock switch S1</li> </ul>
CN15	Controller board
CN16	<ul style="list-style-type: none"> <li>• Fuser motor</li> <li>• Carriage motor</li> <li>• Coupling motor</li> </ul>
CN17	OPC belt motor Paper feed/developer motor
CN18	<ul style="list-style-type: none"> <li>• Fuser - new oil roller detect sensor</li> <li>• Fuser - thermistor fuser</li> <li>• Paper exit sensor</li> <li>• Belt position sensor</li> <li>• Waste toner sensor</li> <li>• Thermistor and humidity sensor</li> </ul>
CN19	<ul style="list-style-type: none"> <li>• Registration roller clutch</li> <li>• Clutch cam solenoid</li> <li>• Main fan</li> </ul>
CN20	<ul style="list-style-type: none"> <li>• Coupling ON sensor</li> <li>• Coupling OFF sensor</li> <li>• Carriage position sensor</li> <li>• Cam sensor</li> </ul>
CN21	Toner empty sensor

## LVPS (Low Voltage Power Supply)

LVPS Connector	
CN401	Controller board
CN402	Engine board
CN403	<ul style="list-style-type: none"> <li>• Engine board</li> <li>• Interlock switch S2</li> </ul>
CN404	<ul style="list-style-type: none"> <li>• AC On/Off switch S1</li> <li>• Terminal AC1 on switch</li> </ul>
CN405	<ul style="list-style-type: none"> <li>• Terminal AC2 on switch</li> <li>• AC On/Off switch S1</li> </ul>
CN406	<ul style="list-style-type: none"> <li>• Interlock switch S2</li> <li>• Fuser lamp</li> </ul>

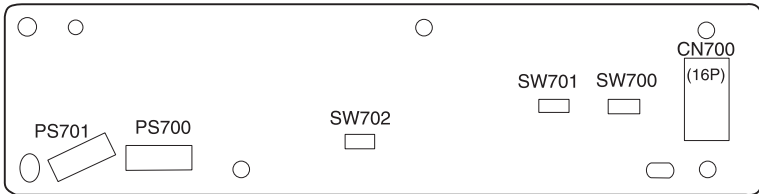
## Erase Lamp Board

CN750  
(2P)



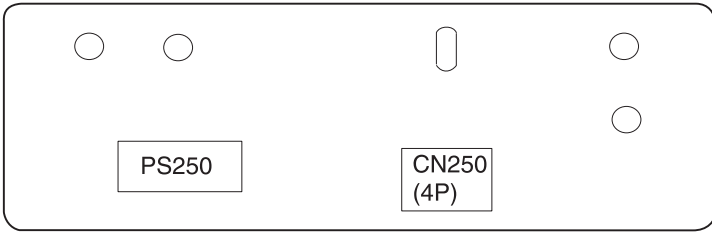
Erase Lamp Board Connector	
CN750	Engine board

## TRAY 1 Sensor Board



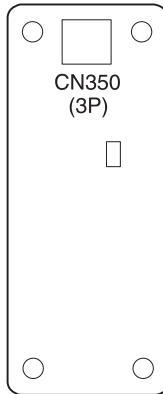
Tray 1 Sensor Board Connector	
CN700	Engine board

### TRAY 1 Registration Sensor Board



<b>Tray 1 Registration Board Connector</b>	
CN250	Engine board

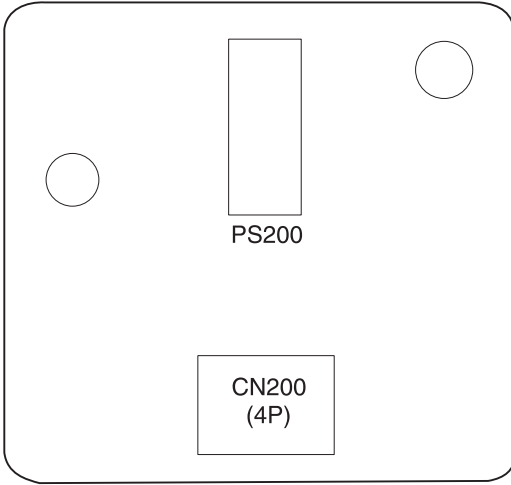
### Waste Toner Sensor Board



<b>Waste Toner Sensor Board Connector</b>	
CN350	Engine board

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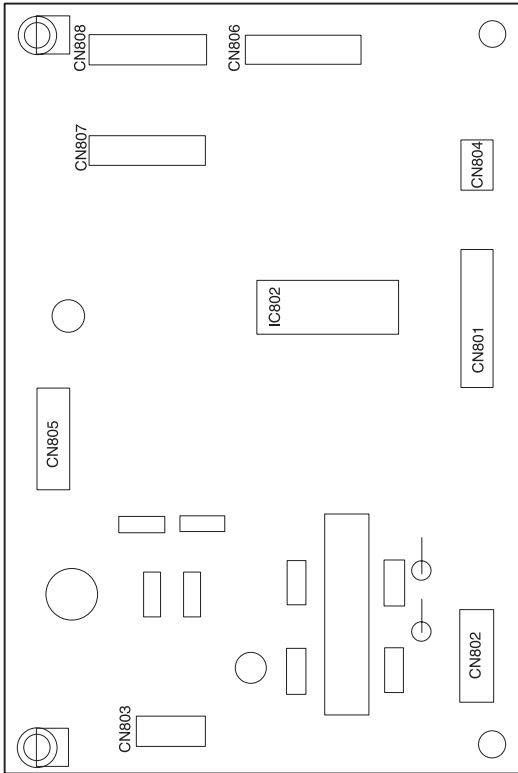
## Belt Position Sensor Board



<b>Belt Position Sensor Board Connector</b>	
CN200	Engine board

# Connector Locations for Options

## 2nd Paper Option (250/250 Paper Option)





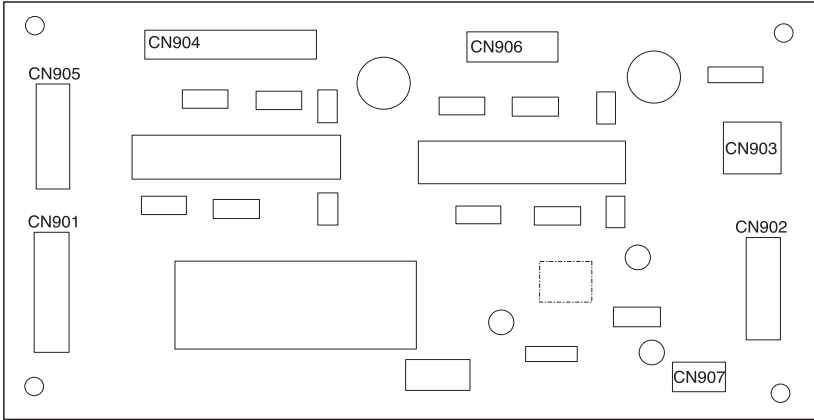
**2nd Paper Option (250/250 Paper Option)**

<b>Connector</b>	
CN802	Paper feed motor
CN803	<ul style="list-style-type: none"> <li>• Option clutch 1 (upper)</li> <li>• Option clutch 2 (lower)</li> </ul>
CN804	CNOPS
CN805	LVPS (option internal)
CN806	Engine board (printer)
CN807	Upper cassette sensor board
CN808	Lower cassette sensor PWB

**LVPS (Internal 2nd Tray Option)**

<b>2nd Paper Option Board</b>	
CN851	AC Inlet (L)
CN852	AC plug (L)
CN853	AC inlet (N)
CN854	AC plug (N)
CN871	Option cassette driver PWB

## Duplex Unit Option



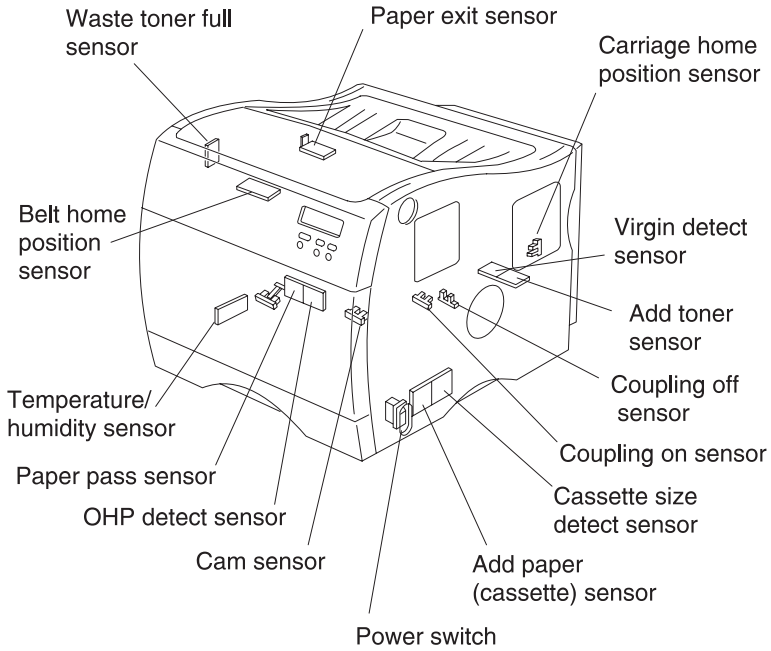
Duplex Unit Option	
CN901	CNOPT1
CN902	CNOPT2
CN903	Microswitch
CN904	<ul style="list-style-type: none"> <li>• BOSN</li> <li>• BPSN</li> <li>• Feed motor</li> <li>• DOSN</li> <li>• UPSN</li> <li>• PFOSN</li> </ul>
CN905	<ul style="list-style-type: none"> <li>• DRSN</li> <li>• POSN</li> </ul>
CN906	Reverse motor
CN907	RVSN

### LVPS (Internal Automatic Duplex Option)

Engine Board Connector	
CN851	AC inlet (L)
CN852	AC plug (L)
CN853	AC inlet (N)
CN854	AC plug (N)
CN871	ADU CPU PWB

# Electrical Components

## Sensor/Switch Locations



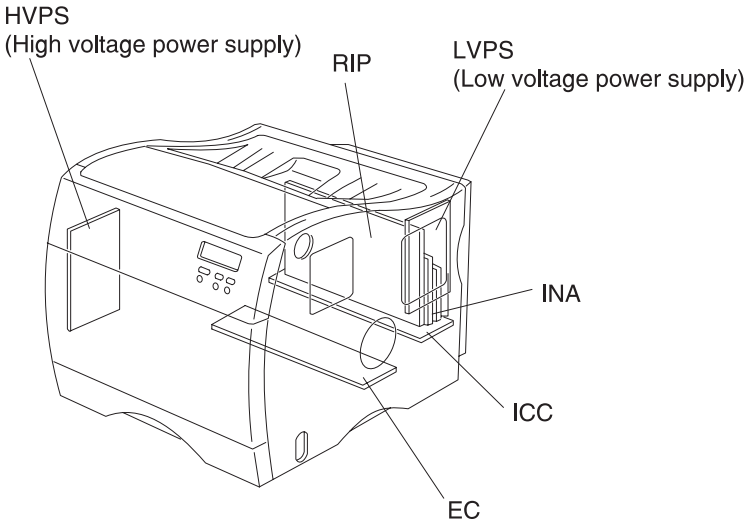
**5016-001**

<b>Symbol</b>	<b>Name</b>	<b>Function</b>
S1	Power Switch	On/Off AC power switch - turns printer on/off.
S2	Interlock Switch	Shuts down the +24 V dc LVPS whenever the fuser, front or top covers open.
S3	5 V dc Interlock Switch 1	Shuts down the +5 V dc LVPS supply to the printhead, whenever the fuser, front or top covers open.
S4	5 V dc Interlock Switch 2	Shuts down the +5 V dc LVPS supply to the printhead, whenever the fuser, front or top covers open. (double interlock)
TS	Thermostat	The thermostat shuts down AC voltage to the fuser lamp should the fuser temperature become abnormally high.
OL1	New Oil Roller Sensor	Detects when a new oil roller is installed.
TH1	Thermistor	Detects and regulates the temperature of the hot roll in the fuser.
PHI1	Paper Exit Sensor	Detects when paper exits the fuser and is fed to the exit tray.
PHI2	Carriage Position Sensor	Detects when the carriage reaches home position.
PHI3	Coupling On Sensor	Detects when the coupling is on.
PHI4	Coupling Off Sensor	Detects when the coupling is off.
PHI5	Bypass Paper Detecting Sensor	Detects when paper is fed from the bypass multipurpose tray.
PHI6	Cam Sensor	Detects the cam position.
SW700	Paper Size detect switch	Detects paper size.
SW701	Paper Size Detect Switch	Detects paper size.
SW702	Tray Missing Detect Switch	Detects when tray 1 is not installed.
PQ250	OHP Detect Sensor	Detects when the OHP is fed to the registration roller.
PQ300	Toner Empty Sensor	Detects a near empty toner cartridge.

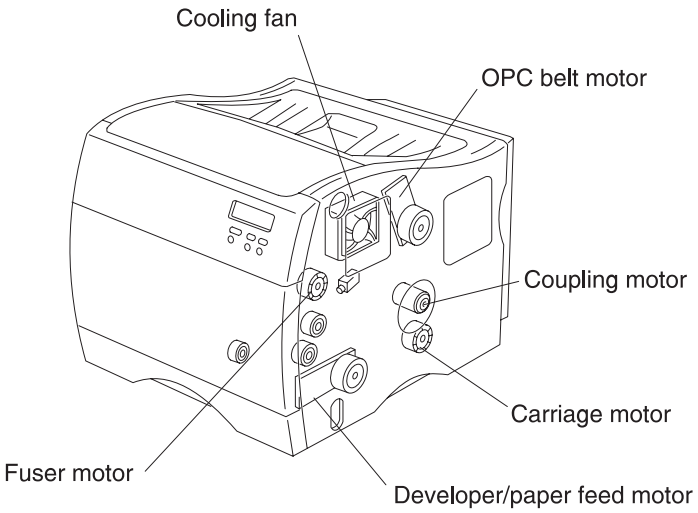
**5016-001**

PQ350	Waste Toner Sensor	Detects when the waste toner box is full.
PS200	Belt Position Sensor	Detects when the transfer belt is in the home position.
PS250	Registration Sensor	Detects when a sheet of paper feeds to the registration roller.
PS300	New Cartridge Sensor	Detects when a new cartridge is installed.
PS700	Paper Detect Sensor	Detects when tray 1 is empty.
PS701	Paper Detect Sensor	Detects when tray 1 is near empty.

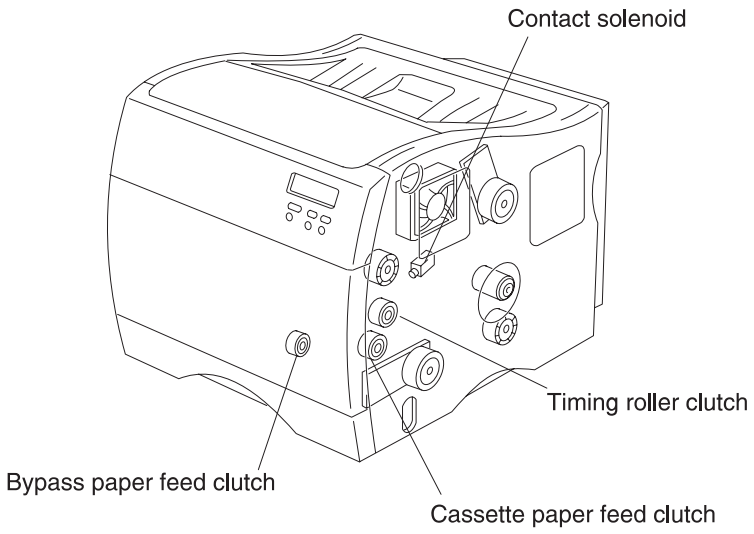
## Printer Circuit Board Locations



## Fan/Motor Locations



## Solenoid/Clutch Locations





## 250/250 Paper Tray Option

Symbol	Name	Function
OPPSN	Paper Pass Sensor	Detects when a sheet of paper is fed.

## Duplex Option

Symbol	Name	Function
PFOSN	Paper Exit Sensor	Detects when a sheet of paper is fed out of the duplex option.
UKPSN	Upper Unit Paper Pass Sensor	Detects when a sheet of paper is fed.
BPSN	Rear Unit Paper Pass Sensor	Detects when a sheet of paper is fed.
RVSN	Lower Unit Paper Reverse Sensor	Detects when a sheet of paper is inverted.
POSN	Lower Unit Paper Feed Sensor	Detects when a sheet of paper is fed.
DOSN	Upper Unit Door Open Sensor	Detects when the rear unit door is open.
BOSN	Rear Unit Door Open Sensor	Detects when the lower unit door is open.
DRSN	Lower Unit Open/Close Sensor	Detects when the lower unit door is pulled out.

## Cable Connections

<b>Cable</b>	<b>Connection</b>	<b>Page / Parts Catalog Reference</b>
HVPS	HVPS to Engine Board	Page 7-13, Reference 5-17
HT	LVPS to Interlock Switch S2	Page 7-13, Reference 5-28
VH	LVPS to Interlock Switch S2	Page 7-13, Reference 5-29
HTT	Fuser Lamps to Interlock Switch S2	Page 7-13, Reference 5-30
MK 1	Developer/OPC/Belt Motors to Engine Board	Page 7-17, Reference 6-15
SN	Coupling On/Coupling Off/Cam/and Carriage Sensors to Engine Board	Page 7-17, Reference 6-21
SVL	LVPS to Interconnect Board	Page 7-21, Reference 7-1
OP	Operator Panel to Interconnect Board	Page 7-21, Reference 7-6
MK 1	Developer/OPC/Belt Motors to Engine Board	Page 7-21, Reference 7-22
SN	Coupling On/Coupling Off/Cam and Carriage Sensors to Engine Board	Page 7-21, Reference 7-28
HTT	Fuser Autoconnect to Engine Board	Page 7-29, Reference 10-7
HF	MPT Paper Detect Sensor Cable to HVPS Cable	Page 7-31, Reference 11-23
HF	MPT Paper Detect Sensor Cable to HVPS Cable	Page 7-37, Reference 12-42
KU	Tray 1 Pickup Clutch/Registration Sensor to VIPs Cable	Page 7-39, Reference 13-18
VINT	Interconnect Board to Engine Board	Page 7-41, Reference 14-6

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<b>Cable</b>	<b>Connection</b>	<b>Page / Parts Catalog Reference</b>
MSN	Waste Toner/Humidity-Temperature/ Belt Position/Paper Exit/New Oil Roll Sensors and Thermistor to Engine Board	Page 7-41, Reference 14-7 Cable
SN	Coupling On/Coupling Off/Cam and Carriage Sensors to Engine Board	Page 7-41, Reference 14-8
TE	Toner Empty Sensor to Engine Board	Page 7-41, Reference 14-9
OP	Options to Engine Board	Page 7-41, Reference 14-10
HVPS	HVPS to Engine Board	Page 7-41, Reference 14-11
MK 1	Developer/OPC/Belt Motors to Engine Board	Page 7-41, Reference 14-12
CRF	Main Fan/Cam Solenoid/Registration Clutch to Engine Board	Page 7-41, Reference 14-13
MK 2	Fuser Motor/Carriage Motor/ Coupling Drive Motor to Engine Board	Page 7-41, Reference 14-14
VH	LVPS to Interlock Switch S2 and Engine Board	Page 7-41, Reference 14-15
EVL	LVPS to Engine Board	Page 7-41, Reference 14-16
LSU	Printhead/Erase Lamps to Engine Board	Page 7-41, Reference 14-17
LST	Tray 1 to Options Cable and Engine Board	Page 7-45, Reference 15-7

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## 6. Preventive Maintenance

This chapter describes procedures for printer preventive maintenance. The following recommendations may prevent problems while maintaining optimum performance.

### Safety Inspection Guide

The purpose of this inspection guide is to aid in identifying unsafe conditions. If an unsafe condition exists, determine how serious the danger before correcting the hazard.

Check the following:

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

### Service Precautions

- Make sure any ground wires are secured to the frame with lock washers or lock washer equipped screws.
- Use the correct fasteners such as screws, lock washers or E-clips when servicing the printer.

### Cleaning Procedures

The cleaning of rollers in the printer or options, should be performed with a clean lint-less cloth and distilled water. The use of Isopropyl alcohol is not recommended.

### Lubrication Specifications

There are no lubrication requirements for the printer or options.

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## **7. Parts Catalog**

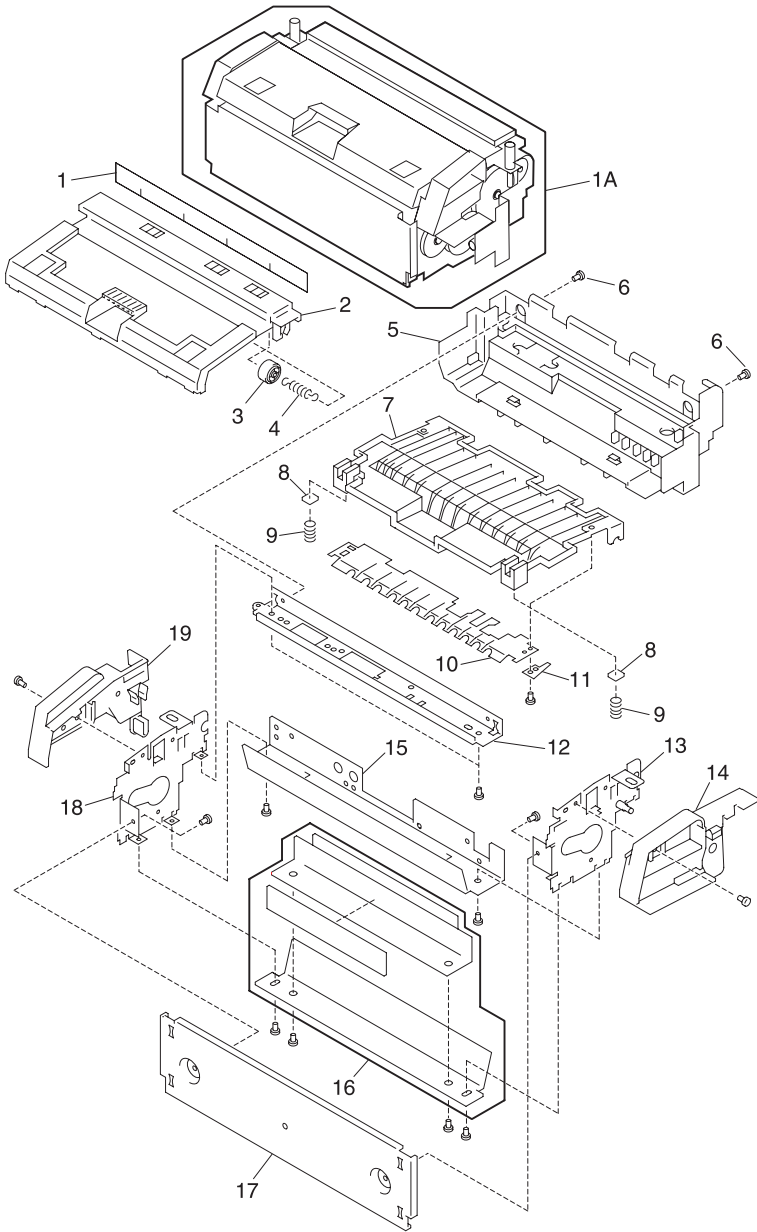
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### **How To Use The Parts Catalog**

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- NS: (Not Shown) in the Asm.Index column indicates that the part is procurable but is not shown in the illustration.
- PP: in the Description column indicates the part is available in the listed parts packet.

# Assembly 1: Fuser

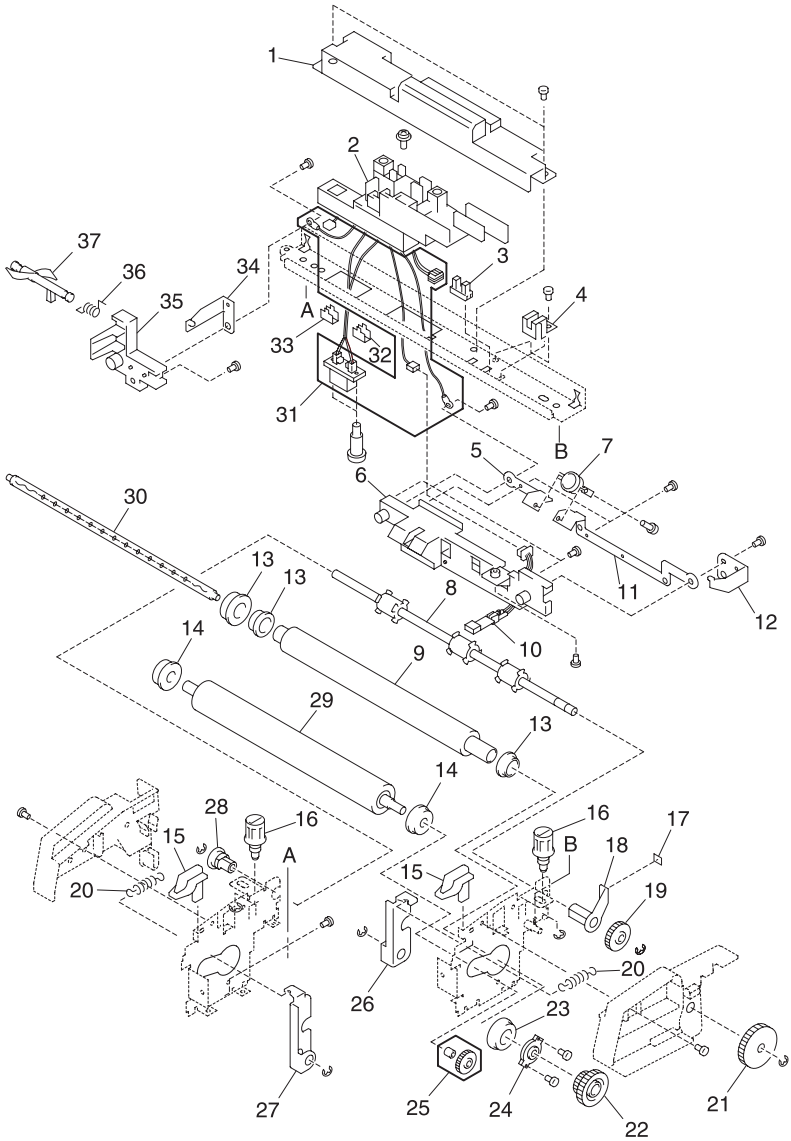




**Assembly 1:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
1 - 1A	12G1698	1	Fuser ASM, 110v W/Lamp
1 - 1A	12G1699	1	Fuser ASM, 220v W/Lamp
1	12G1014	1	Brush, Discharge
2	12G1100	1	Cover 1, Heat-insulating
3	12G1380	3	Roller 2
4	12G1339	3	Spring, Pinch Roller
5	12G1101	1	Cover, Paper Exit
6	12G1024	2	Screw, Shoulder
7	12G1102	1	Cover 2, Heat-insulating
8	12G1156	2	Spacer, Fuser
9	12G1309	2	Spring, Heat-insulating Cover
10	12G1129	1	Guide, Upper Paper Exit
11	12G1222	1	Guide, Ground Leaf Spring
12	12G1070	1	Plate, Cable Guide/Exit Sensor Mounting
13	12G1662	1	Plate Asm., Fuser, Right Side
14	12G1530	1	Handle, Right
15	12G1128	1	Guide, Upper Front
16	12G1167	1	Blade Asm., Oil
17	12G1055	1	Plate, Bottom
18	12G1661	1	Plate Asm., Fuser, Left Side
19	12G1529	1	Handle, Left

# Assembly 2: Fuser

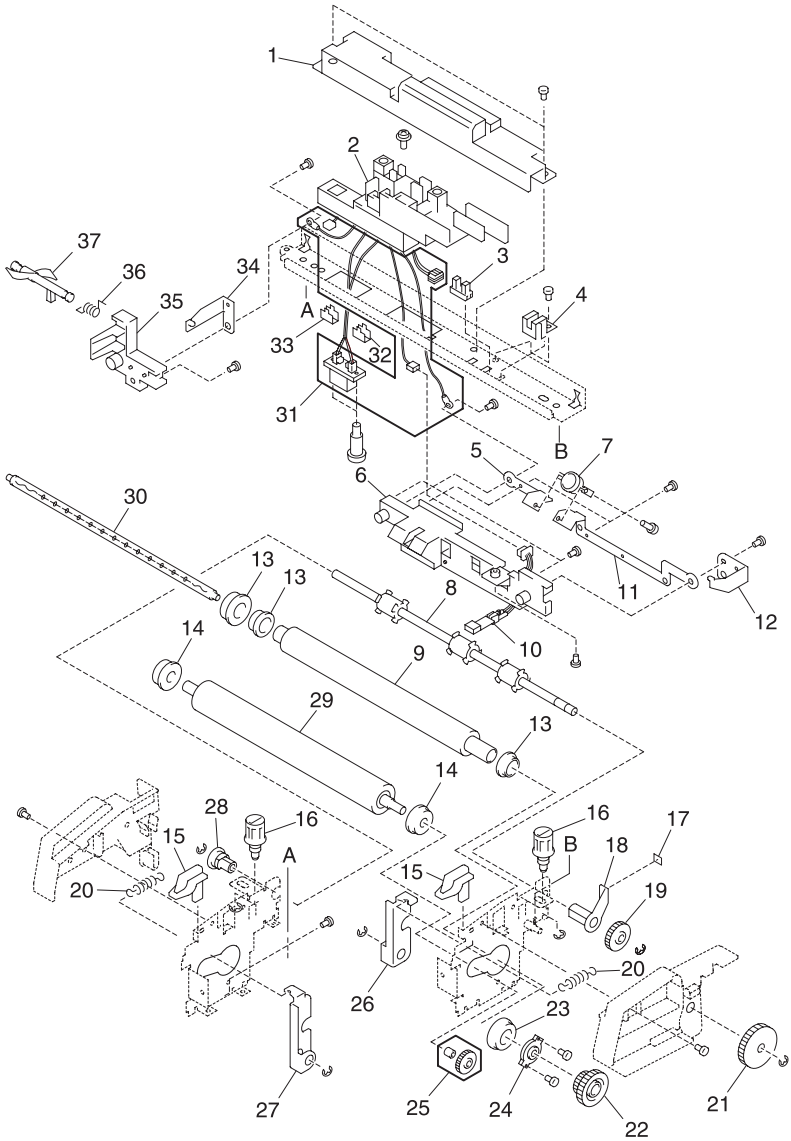


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 2:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
2 -1	12G1010	1	Cover, Cable
2	12G1131	1	Guide, Cable
3	12G1664	1	Sensor, Paper Exit
4	12G1115	1	Plate, Shield
5	12G1203	1	Terminal, Thermostat 2
6	12G1172	1	Bracket, Thermistor
7	12G1020	1	Thermostat
8	12G1389	1	Roller, Paper Exit
9	12G1387	1	Roll, Hot
10	12G1009	1	Thermistor
11	12G1202	1	Terminal, Thermostat 1
12	12G1013	1	Terminal, Fuser Lamp, Right
13	12G1479	2	Bushing, Heat-insulation
14	12G1489	1	Bearing, Pressure Roller
15	12G1155	1	Spacer, Pressure Release
16	12G1027	1	Screw, Shoulder
17	12G1046	1	Sheet
18	12G1494	1	Bushing, Paper Exit Roller
19	12G1466	1	Gear, Paper Exit Roller
20	12G1308	1	Spring, Pressure
21	12G1430	1	Gear, Paper Exit, Idle
22	12G1420	1	Gear, Hot Roll
23	12G1484	2	Bearing, Hot Roll
24	12G1082	1	Plate, Bearing Pressure
25	12G1431	1	Gear, Pressure Roller
26	12G1068	1	Plate, Pressure, Right
27	12G1069	1	Plate, Pressure, Left
28	12G1490	1	Bushing, Paper Exit Roller, Left
30	12G1684	1	Lamp, Fuser 115V
30	12G1685	1	Lamp, Fuser 220V
29	12G1388	1	Roller, Pressure
31	12G1591	1	Cable Asm., HTU

# Assembly 2 (Cont.): Fuser



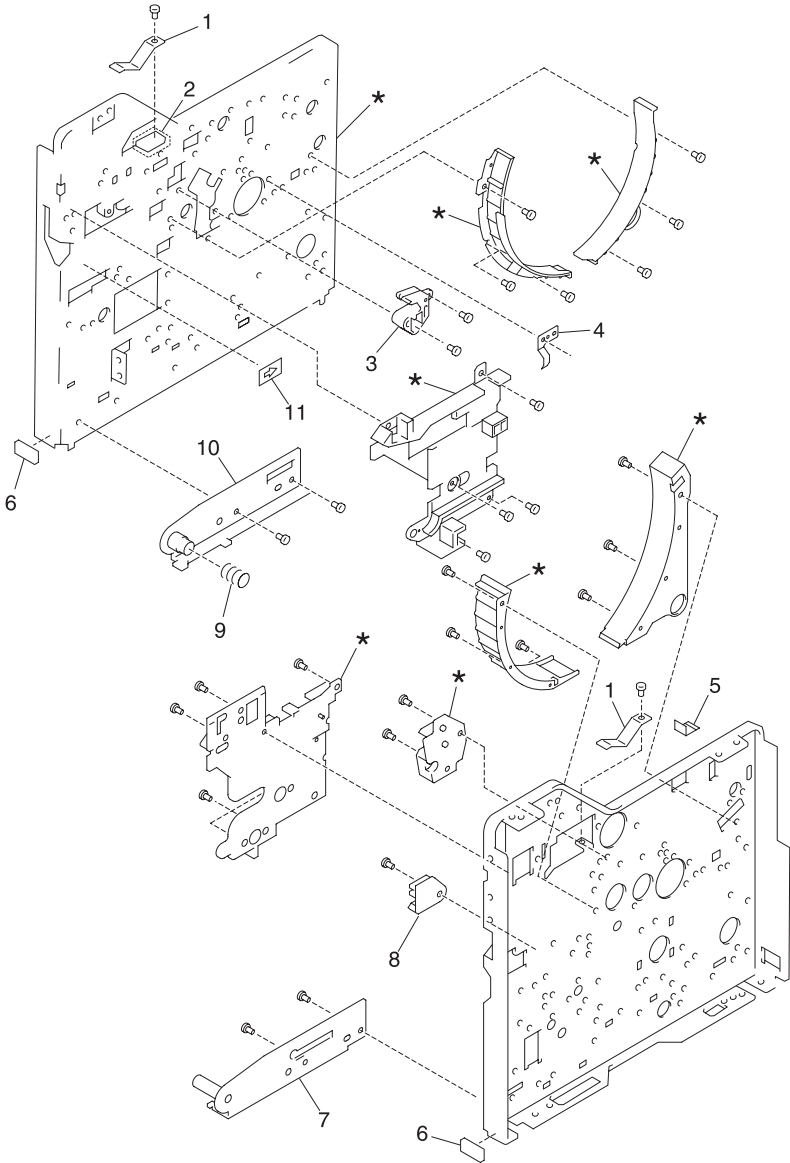
Note: Matching letters indicate corresponding assembly part locations.

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**Assembly 2:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
2 - 32	12G1347	1	Spacer, Connector, Right
33	12G1381	1	Spacer, Connector, Left
34	12G1012	1	Terminal, Fuser Lamp, Left
35	12G1173	1	Bracket, Lead/Fuser Lamp, Left
36	12G1363	1	Spring, Paper Exit Sensor
37	12G1280	1	Flag, Paper Exit Sensor

# Assembly 3: Transfer

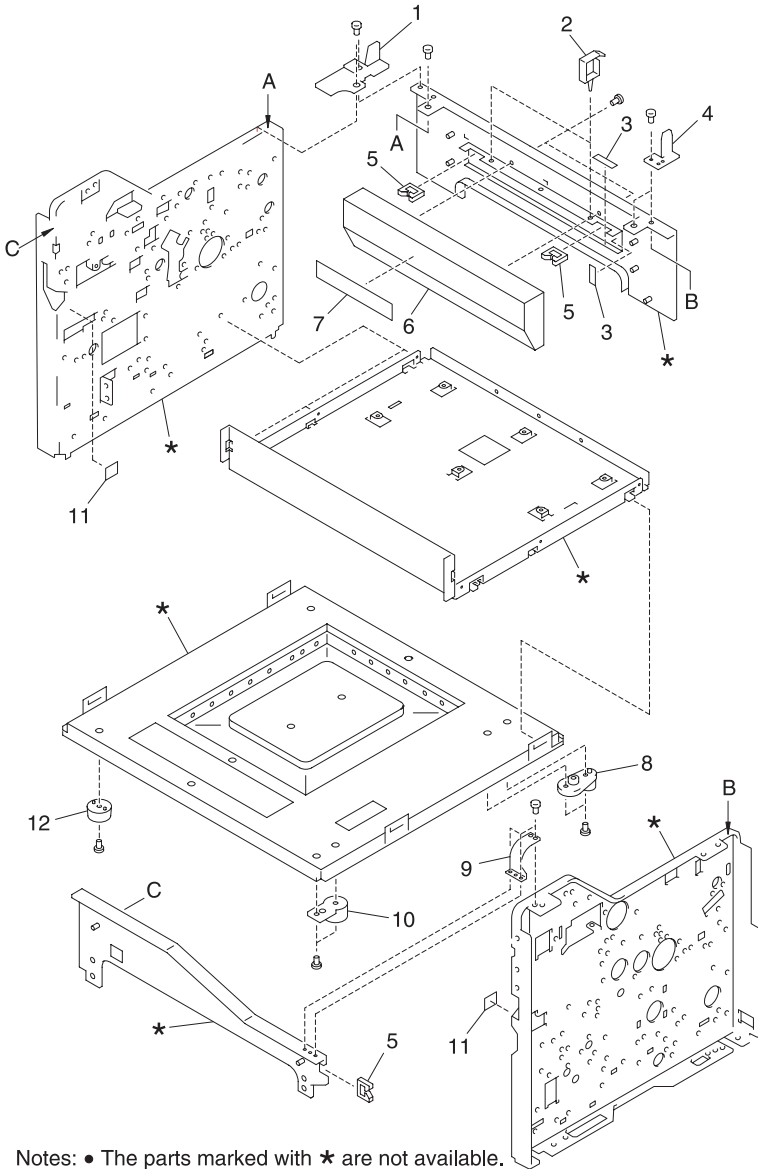


Note: The parts marked with \* are not available.

**Assembly 3:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
3 -1	12G1345	2	Spring, Transfer Unit
2	12G1182	1	Bracket, Spring
3	12G1074	1	Holder, Middle Transfer, Upper Rt.
4	12G1344	1	Spring, Center Pipe Ground
5	12G1018	1	Sheet, Discharge, Right
6	12G1052	2	Packing B
7	12G1616	1	Plate Asm., Fulcrum, Right
8	12G1073	1	Holder, Middle Transfer, Lower Rt.
9	12G1342	1	Spring, Ground
10	12G1617	1	Plate Asm., Fulcrum, Left
11	12G1665	1	Label, Insert Direction

## Assembly 4: Frames



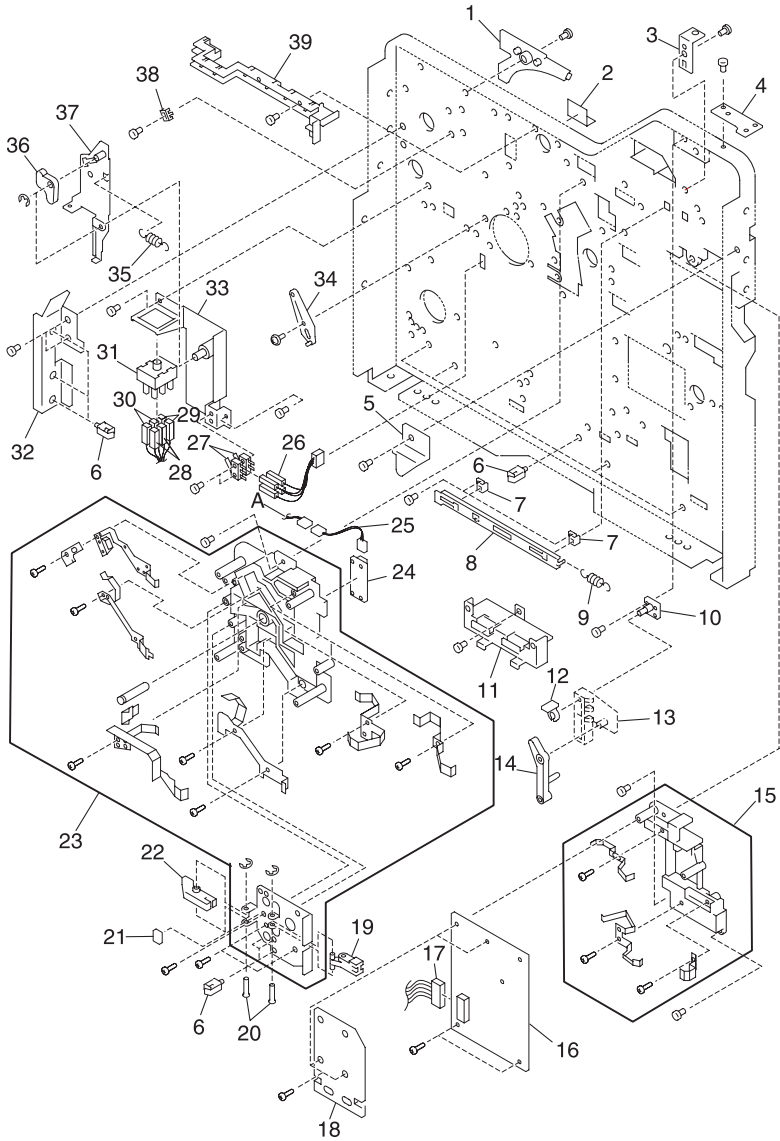
- Notes:
- The parts marked with \* are not available.
  - Matching letters indicate corresponding assembly part locations.



**Assembly 4:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
4 -1	12G1085	1	Support, ADU, Rear Left
2	12G1676	2	Clamp, Cable
3	12G1047	2	Sheet, Edge
4	12G1075	1	Support, ADU, Rear
5	12G1006	3	Clip, Edge
6	12G1105	1	Cover, Cable 4
7	12G1552	1	Label, Caution Laser
8	12G1372	1	Collar, Guide, 2
9	12G1230	1	Support, #1, Right
10	12G1371	1	Collar, Guide, 1
11	12G1558	1	Label, Insertion
12	12G1532	2	Foot, Machine

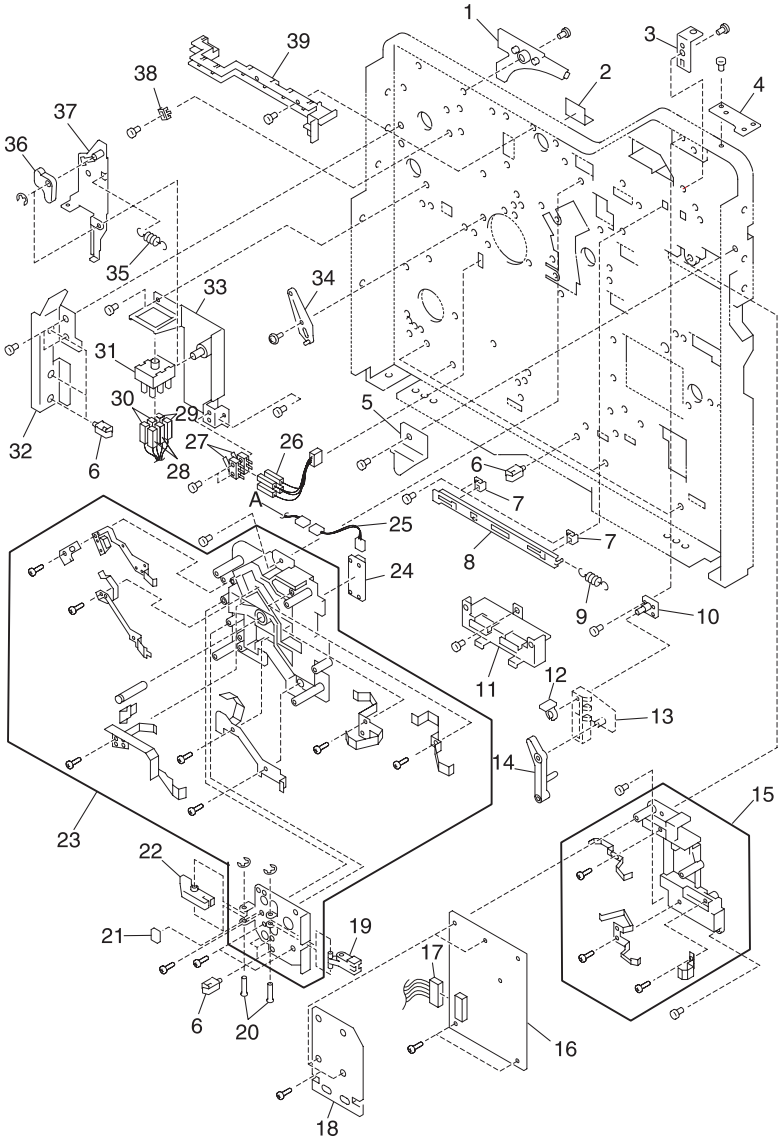
# Assembly 5: Frames Left Side



## Assembly 5:

Asm. Index	Part number	Units	Description
5 -1	12G1516	1	Cover, Inner, L
2	12G1016	1	Sheet, Discharge, L1
3	12G1181	1	Bracket, Fuser Fixing, Right
4	12G1231	1	Plate, Support 2, Left
5	12G1122	1	Stop, Latch, Left
6	12G1676	7	Clamp, Cable, LWS
7	12G1132	2	Guide, Door Actuator, 1
8	12G1285	1	Actuator, Door, 3
9	12G1313	1	Spring, Door Actuator
10	12G1634	1	Plate Asm., Door Switch Pin
11	12G1179	1	Bracket, HVPS Mounting
12	12G1036	1	Ring, Touch
13	12G1288	1	Actuator, Door, 4
14	12G1287	1	Actuator, Door, 5
15	12G1011	1	Block Asm., Grid, 2
16	12G1572	1	Board Asm., HVPS
16	12G1575	1	Board Asm., HVPS
17	12G1585	1	Cable, HVPS - Engine Board
18	12G1051	1	Shield, Mylar, HVPS
19	12G1269	1	Arm, 1
20	12G1251	2	Shaft
21	12G1048	1	Bumper, A
22	12G1270	1	Arm, 2
23	12G1635	1	Block Asm., Grid, 1
24	12G1566	1	Board Asm., Waste Toner Sensor
25	12G1615	1	Cable, TFS
26	12G1577	1	Cable, LINT
27	12G1001	2	Switch, Micro
28	12G1598	1	Cable, HT-LVPS to Interlock Sw S2
29	12G1589	1	Cable, VH-LVPS to Interlock Sw S2
30	12G1576	1	Cable, HTT Fu Lamps - Interlock S2
31	12G1007	1	Switch, Door
32	12G1107	1	Cover, Harness, 5

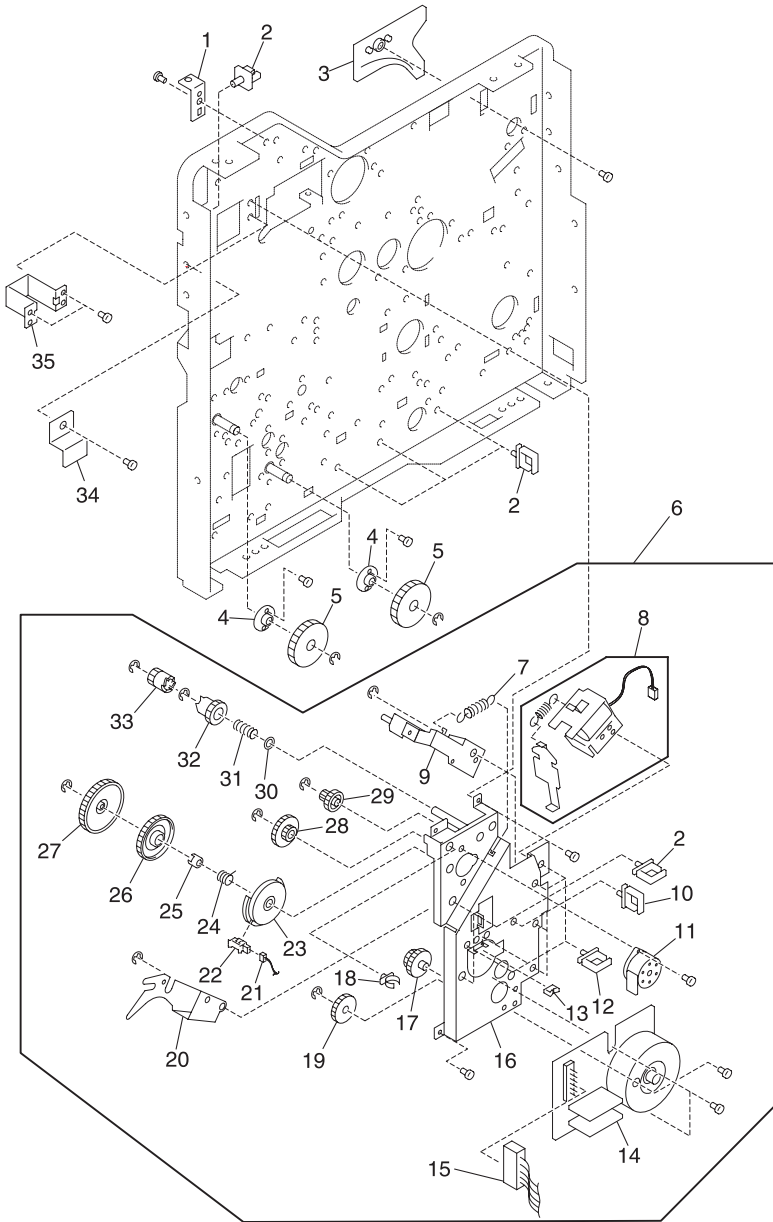
# Assembly 5 (Cont.): Frames Left Side



**Assembly 5:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
5 -33	12G1637	1	Bracket, Door, Switch
34	12G1201	1	Plate, Lens Adjustubg, A
35	12G1314	1	Spring, Door Actuator, 2
36	12G1286	1	Actuator, Switch
37	12G1633	1	Actuator Asm., Door Switch, 1
38	12G1133	1	Guide, Door Actuator, 2
39	12G1104	1	Cover, Cable, 3

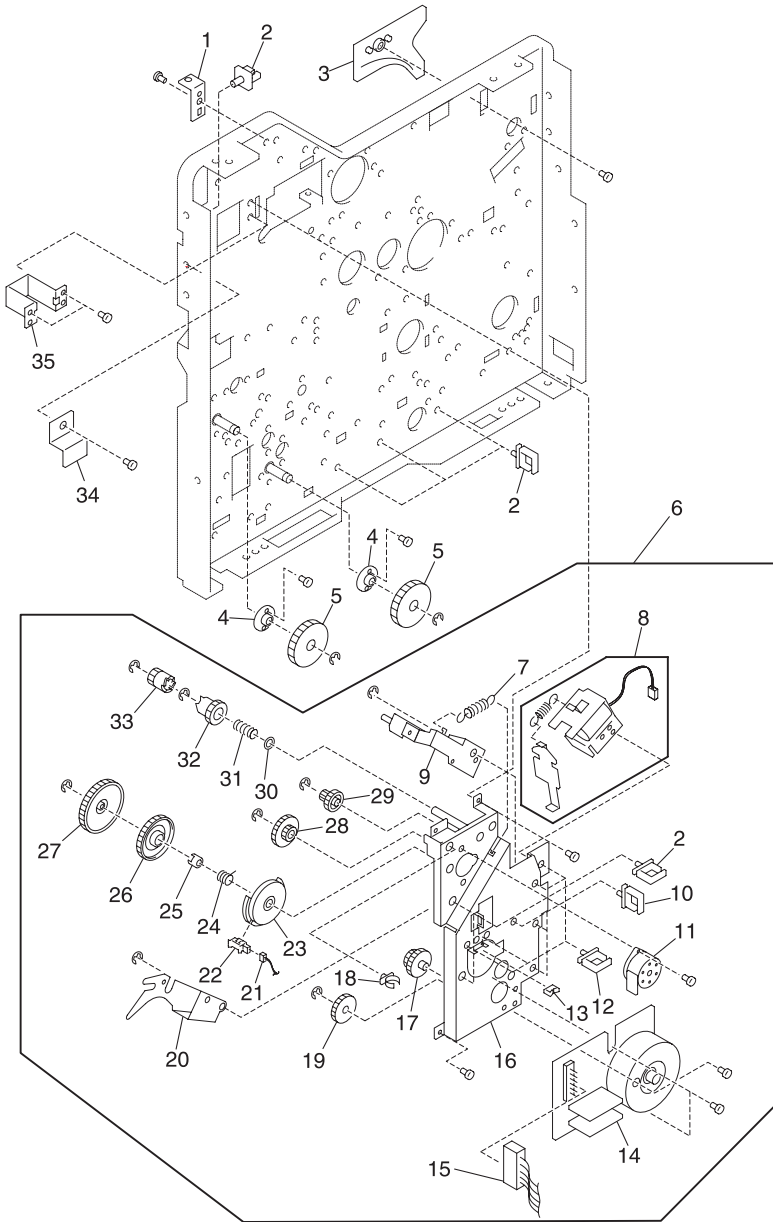
# Assembly 6: Frames Right Side



**Assembly 6:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
6 -1	12G1181	1	Bracket, Fuser Fixing, Right
2	12G1676	3	Clamp, Cable, LWS
3	12G1515	1	Cover, Inner, Right
4	12G1491	2	Bushing, Paper Feed
5	12G1422	2	Gear, 4
6	12G1348	1	Block Asm., Fuser Drive
7	12G1322	1	Spring, Lever
8	12G1019	1	Solenoid
9	12G1629	1	Lever, Asm., C2
10	12G1679	3	Clamp, Cable, LWS
11	12G1626	1	Motor Asm., Fuser Drive
12	12G1678	3	Clamp, Cable, LWS
13	12G1006	1	Clip, Edge
14	12G1004	1	Motor Asm., Developer Drive
15	12G1586	1	Cable, MK1
16	12G1627	1	Stay Asm., Motor Mounting, C
17	12G1443	1	Gear, Paper Feed Decrease, 1
18	12G1669	2	Clamp
19	12G1417	1	Gear, Fuser Idle
20	12G1628	1	Lever Asm., C1
21	12G1584	1	Cable, Cam Sensor
22	12G1664	1	Sensor, Cam
23	12G1262	1	Cam, Clutch
24	12G1672	1	Spring, Clutch
25	12G1374	1	Boss, Clutch
26	12G1475	1	Gear, Clutch Inner
27	12G1439	1	Gear, C5, Outer Clutch
28	12G1438	1	Gear, C4
29	12G1440	1	Gear, C2
30	12G1083	1	Plate, Spring
31	12G1321	1	Spring, Clutch
32	12G1437	1	Gear, C3-1
33	12G1451	1	Gear, C3-2

# Assembly 6 (Cont.): Frames Right Side



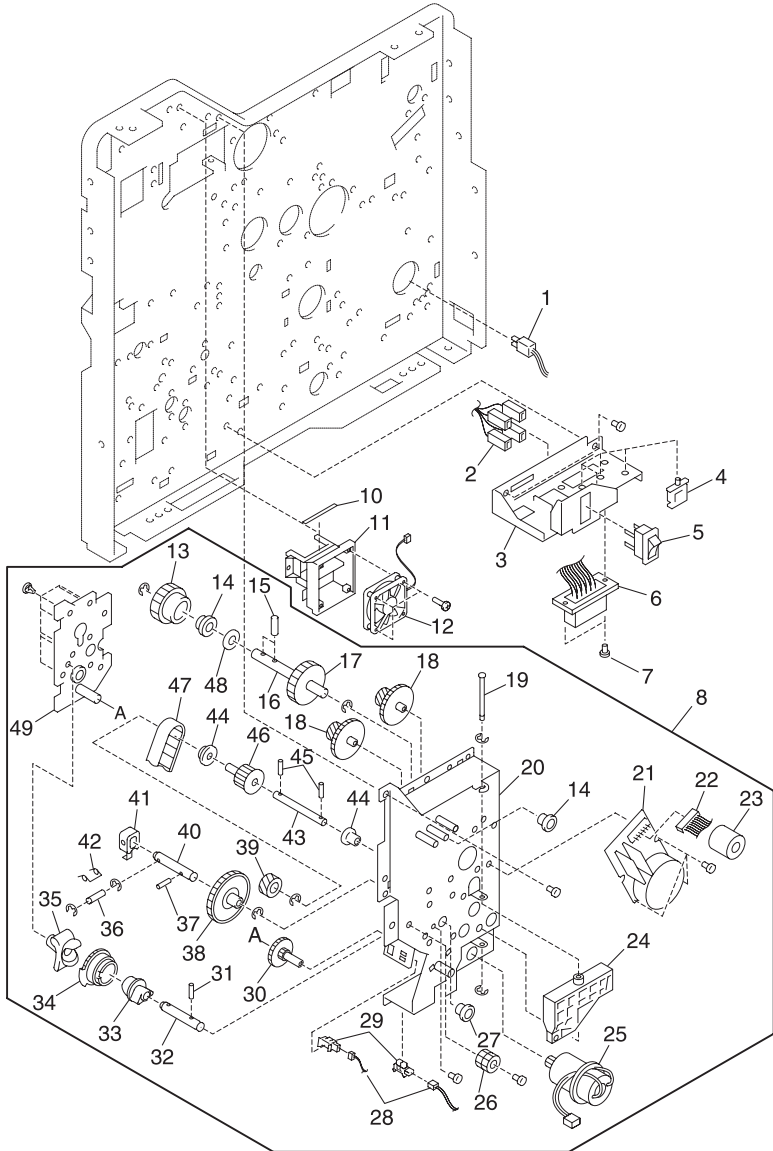


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**Assembly 6:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
6 -34	12G1123	1	Stop, Latch, Right
35	12G1072	1	Support

# Assembly 7: Frames Right Side 2

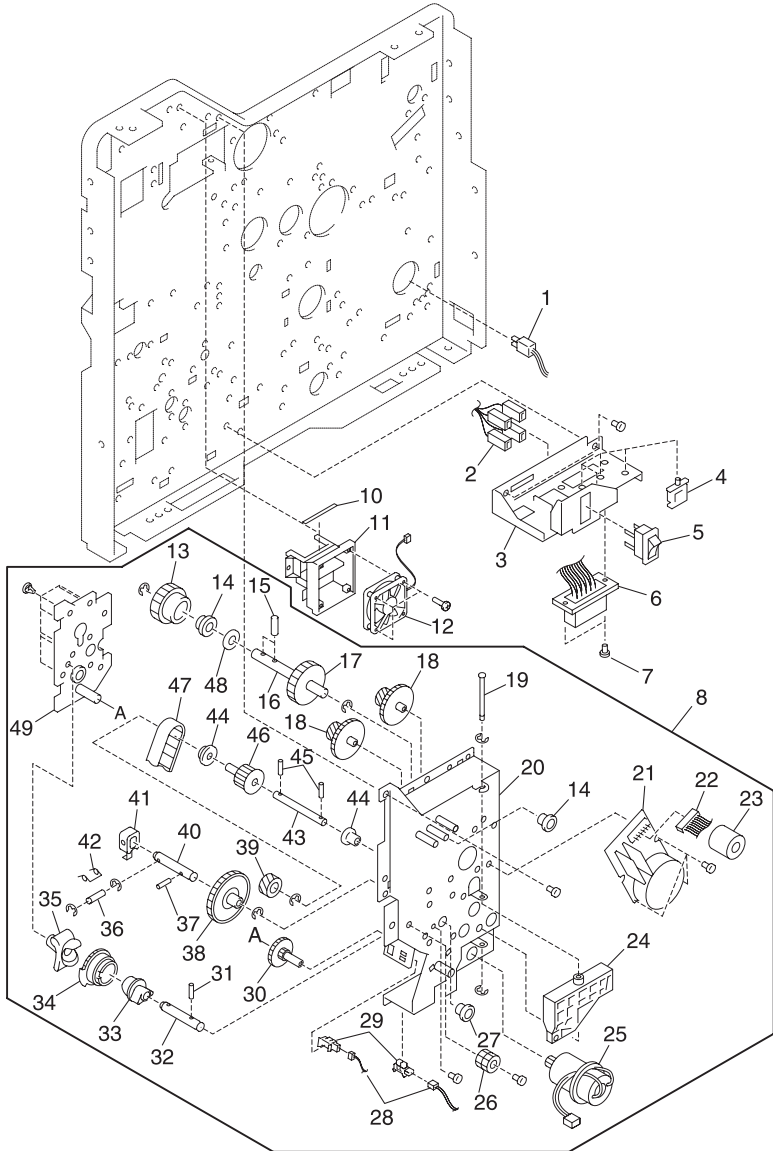


Note: Matching letters indicate corresponding assembly part locations.

## Assembly 7:

Asm. Index	Part Number	Units	Description
7 - 1	12G1595	1	Cable, SVL
2	12G1588	1	Cable, AC, On/Off Switch
3	12G1176	1	Bracket, Door Lock Connector Mounting
4	12G1676	1	Clamp, Cable
5	12G1682	1	Switch, Main Power On/Off
6	12G1587	1	Cable, Operator Panel
7	12G1025	2	Screw, Shoulder
8	12G1225	1	Block Asm., OPC/Coupling Drive
10	12G1049	1	Seal, 2
11	12G1178	1	Bracket, Fan Mounting
12	12G1008	1	Fan, Main
13	12G1434	1	Gear, A10
14	12G1481	2	Bearing, TFR Belt Connecting Shaft
15	12G1692	2	Pin, Dowel, TFR Belt Connecting Shaft
16	12G1246	1	Shaft, Transfer Belt Connecting
17	12G1467	1	Gear, A71
18	12G1432	2	Gear, A6
19	12G1248	1	Shaft, Coupling Arm
20	12G1618	1	Stay Asm., Motor Mounting, A
21	12G1003	1	Motor Asm., OPC Drive
22	12G1586	1	Cable, OPC Drive Motor, MK 1
23	12G1005	1	Core, Ferrite
24	12G1268	1	Arm, Coupling, 1
25	12G1620	1	Motor Asm., Coupling Drive
26	12G1237	1	Knob, Coupling Arm 1, Release
27	12G1493	1	Bushing, Coupling, 1
28	12G1584	1	Cable, Sensor
29	12G1664	1	Sensor, Coupling On and Coupling Off
30	12G1435	1	Gear, Idler
31	12G1035	1	Pin, Dowel, Carriage Positioning
32	12G1032	1	Pin, Carriage Positioning

# Assembly 7 (Cont.): Frames Right Side 2

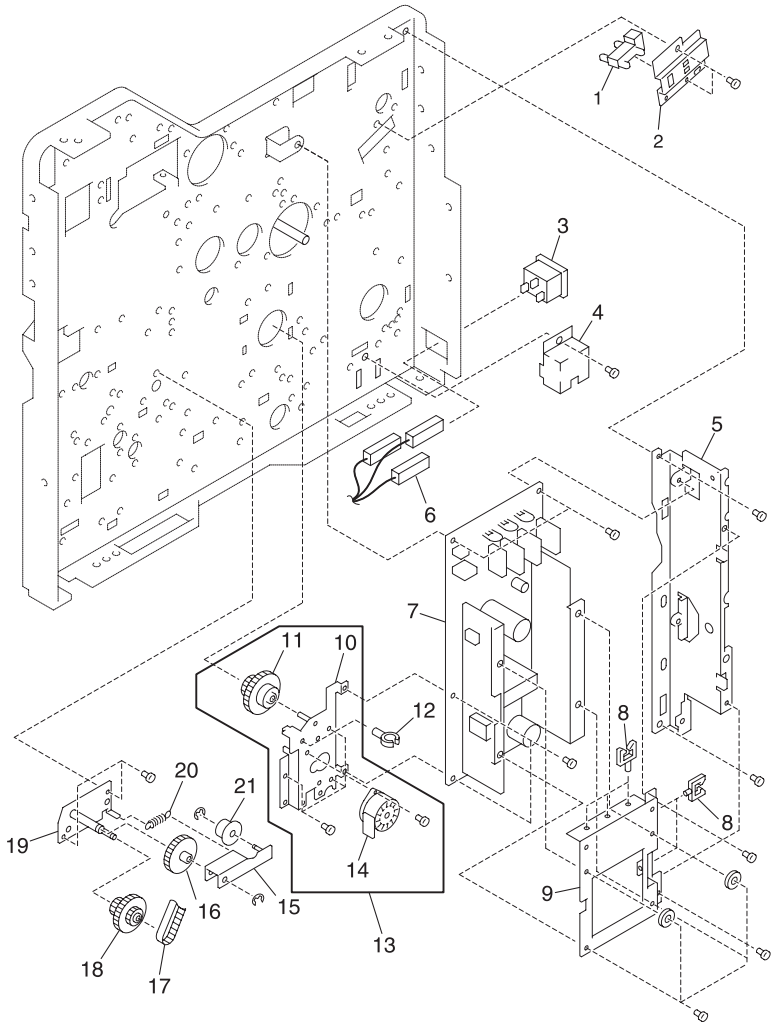


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 7:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
7 - 33	12G1375	1	Sleeve, Coupling Cam
34	12G1261	1	Cam, Coupling
35	12G1263	1	Cam, 2
36	12G1256	1	Shaft, Coupling
37	12G1692	2	Pin, Dowel, Coupling Shaft
38	12G1433	1	Gear, A7
39	12G1445	1	Gear, B16
40	12G1247	1	Shaft, Coupling
41	12G1050	1	Coupling, Coupling Shaft
42	12G1310	1	Spring, Coupling
43	12G1253	1	Shaft, Developer Transmission
44	12G1476	2	Bearing, Developer Sleeve
45	12G1690	2	Pin, Dowel, Dev Transmission Shaft
46	12G1408	1	Sleeve, Developer
47	12G1469	1	Belt, Timing
48	12G1498	1	Slider, Poly, TFR Belt Connecting Shaft
49	12G1619	1	Bracket Asm., Drive

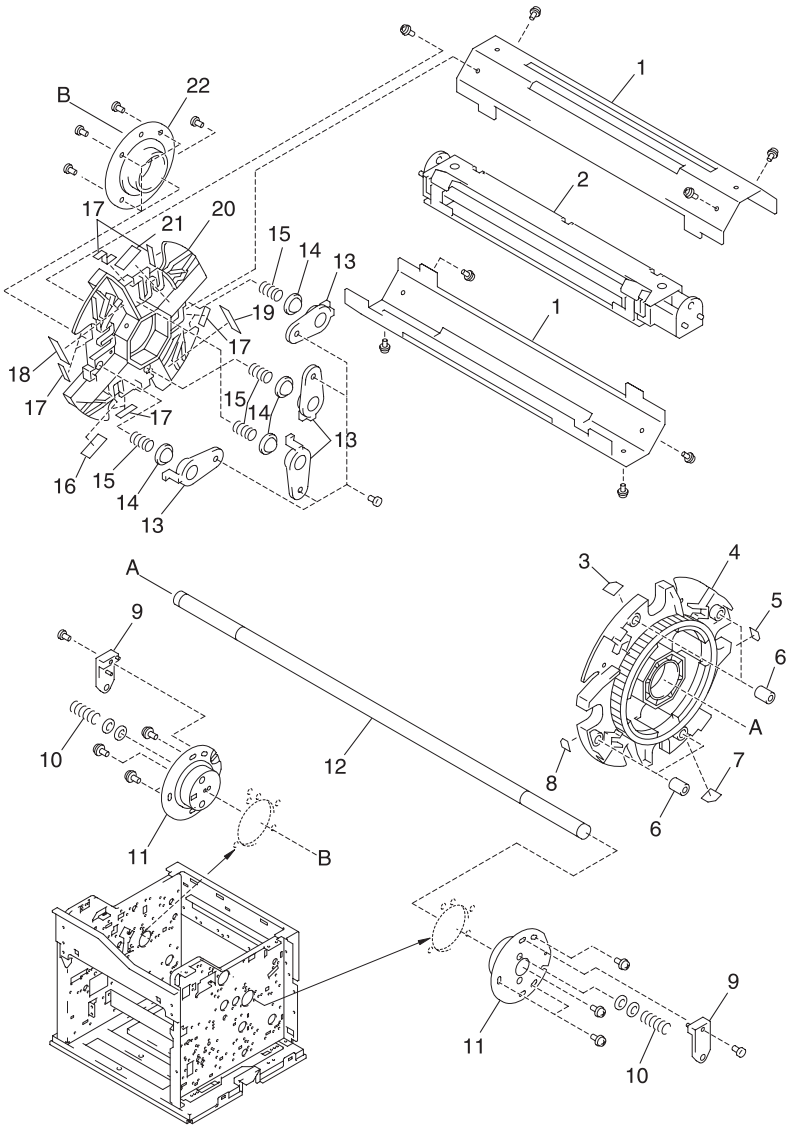
# Assembly 8: Frames Right Side 3



**Assembly 8:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
8 - 1	12G1664	1	Sensor, Carriage Home Position
2	12G1067	1	Holder, Carriage Home Position Sensor
3	12G1673	1	Socket, AC Power Input
4	12G1180	1	Bracket, LVPS Mounting
5	12G1174	1	Bracket, LVPS Mounting
6	12G1588	1	Cable, AC Power Input
7	12G1570	1	LVPS, 115V
7	12G1571	1	LVPS, 220V
8	12G1676	10	Clamp, Cable
9	12G1232	1	Support, LVPS
10	12G1624	1	Plate Asm., Motor Mounting
11	12G1436	1	Gear, Idler
12	12G1669	1	Clamp, Cable
13	12G1130	1	Block Asm., Carriage Unit
14	12G1623	1	Motor Asm., Carriage Unit
14	12G1625	1	Motor Asm., Fuser Drive
15	12G1621	1	Base Asm., Idler Pulley
16	12G1444	1	Gear, B28
17	12G1469	1	Belt, Timing
18	12G1442	1	Gear, Developer Decrease
19	12G1622	1	Shaft Asm., Paper Feed Gear
20	12G1312	1	Spring, Tension Pulley
21	12G1407	1	Pulley, Idler, #1

# Assembly 9: Carriage Block



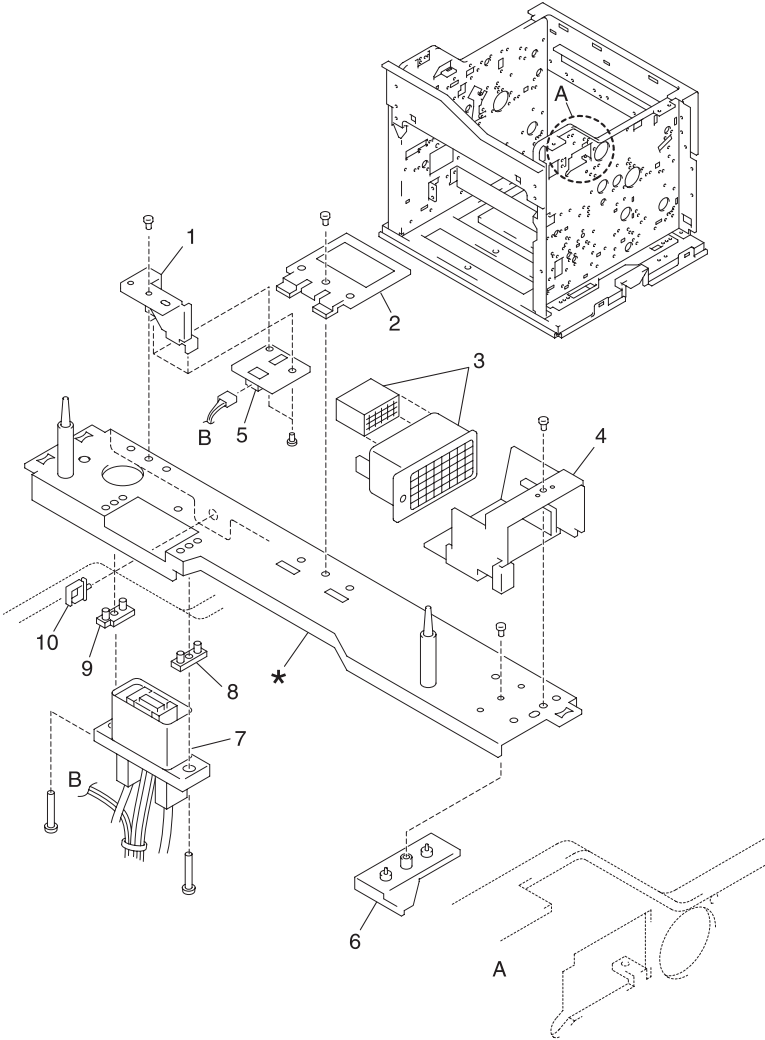
Note: Matching letters indicate corresponding assembly part locations.



**Assembly 9:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
9 - 1	12G1043	2	Pipe, Center
2	12G1040	1	Lens Asm.
3	12G1556	1	Seal, Color, Cyan
4	12G1066	1	Plate, Carriage Side, Right
5	12G1553	1	Seal, Color, Black
6	12G1495	4	Bushing, Carriage
7	12G1554	1	Seal, Color, Yellow
8	12G1555	1	Seal, Color, Magenta
9	12G1492	2	Bushing, Coupling Transmission
10	12G1311	2	Spring, Bushing
11	12G1162	2	Block, Carriage Center
12	12G1249	1	Shaft, Coupling Transmission
13	12G1099	4	Cover, Carriage Pressure
14	12G1031	4	Pin, Carriage Pressure
15	12G1307	4	Spring, Carriage Pressure
16	12G1547	1	Seal, Color, Magenta
17	12G1543	8	Tape, Carriage Protection
18	12G1546	1	Seal, Color, Cyan
19	12G1548	1	Seal, Color, Yellow
20	12G1065	1	Plate, Carriage Side, Left
21	12G1545	1	Seal, Color, Black
22	12G1488	1	Bushing, Carriage, Left

# Assembly 10: Base Frame

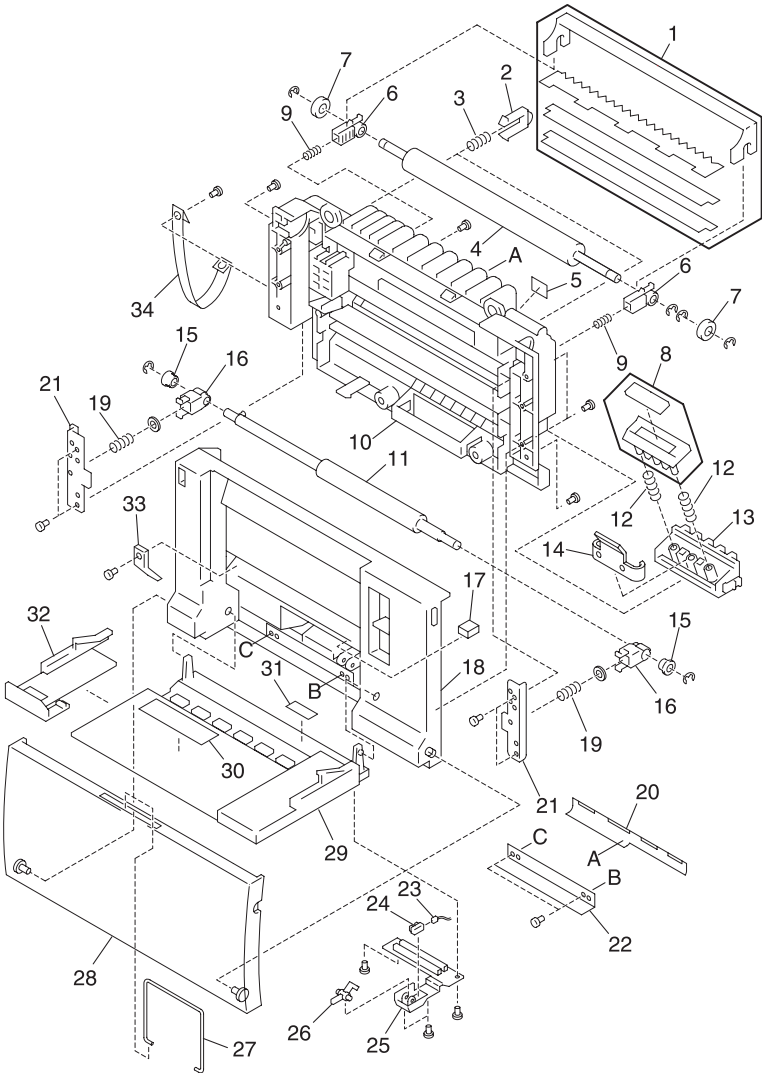


- Notes:
- The parts marked with \* are not available.
  - Matching letters indicate corresponding assembly part locations.

**Assembly 10:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
10 - 1	12G1175	1	Bracket, Sensor Mounting
2	12G1076	1	Plate, ADU Support, F
3	12G1638	1	Case, Ozone Filter
4	12G1077	1	Holder, Ozone Filter
5	12G1563	1	Sensor, Belt Home Position, PCB
6	12G1084	1	Holder, Ozone Filter, 2
7	12G1593	1	Cable, HTT
8	12G1028	2	Spacer, Connector, 1
9	12G1346	1	Spacer, Connector, 2
10	12G1676	1	Clamp, Cable
NS	12G1636	1	Stay, Belt Sensor

# Assembly 11: Front Cover Assembly

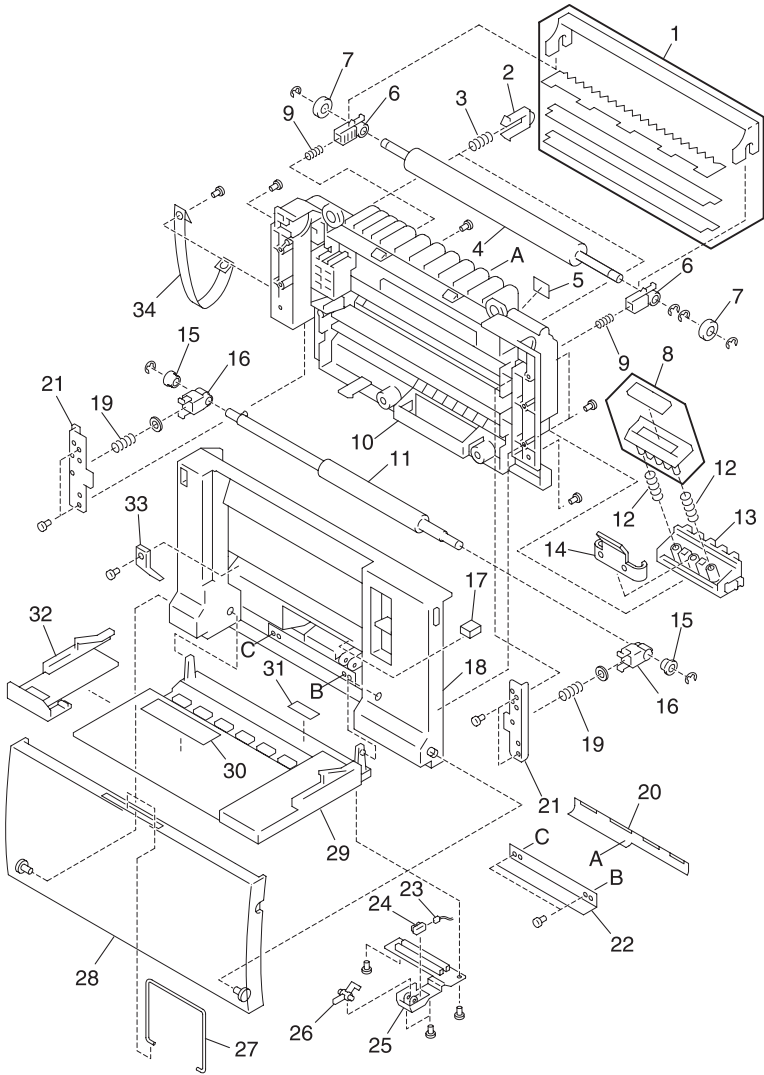


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 11:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
11 - 1	12G1631	1	Needle Asm., Discharge
2	12G1054	2	Block, Mid Transfer Unit Pressure
3	12G1340	2	Spring, Pressure
4	12G1382	1	Roll, Transfer
5	12G1041	1	Plate, OHP Detecting Reflection
6	12G1485	2	Bushing, Transfer Roll
7	12G1384	2	Roller, Transfer Roll
8	12G1639	1	Pad Asm., DFP
9	12G1299	2	Spring, Transfer Pressure
10	12G1096	1	Cover, Rear
11	12G1383	1	Roll, Registration
12	12G1302	2	Spring, DFP Pressure
13	12G1118	1	Guide, Pad Holder
14	12G1358	1	Spring, Anti-vibration
15	12G1483	2	Bushing, Registration Roll
16	12G1060	2	Holder, Resist Bushing
17	12G1164	1	Pad, Front Cover
18	12G1500	1	Cover, Front
19	12G1301	2	Spring, Resist Pressure
20	12G1045	1	Sheet, Transfer Guide
21	12G1063	2	Plate, Resist Spring Pressure
22	12G1226	1	Plate, Anti-vibration
23	12G1581	1	Cable, HF
24	12G1664	1	Sensor, Registration
25	12G1116	1	Cover, Cable
26	12G1296	1	Flag, Registration Sensor
27	12G1531	1	Support, Legal
28	12G1536	1	Tray, Bypass 2
29	12G1535	1	Tray, Bypass, 1
30	12G1549	1	Label, Paper Size
31	12G1168	1	Pad, Tray Friction
32	12G1540	1	Guide, Paper
33	12G1117	1	Cover, Cable, 2

# Assembly 11 (Cont.): Front Cover Assembly



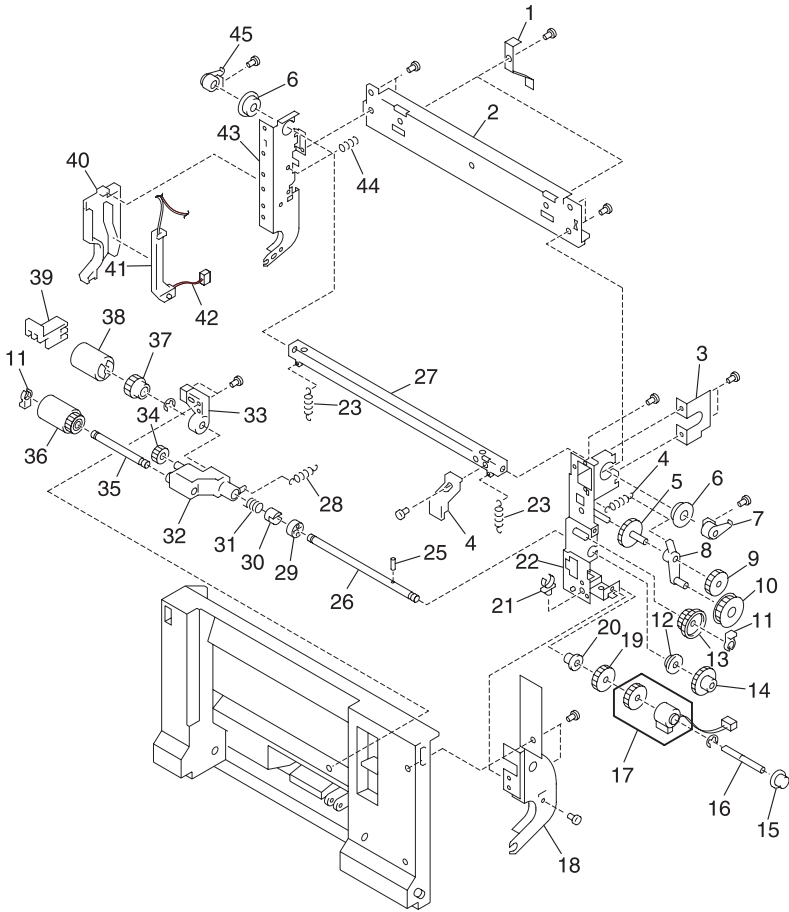
Note: Matching letters indicate corresponding assembly part locations.

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**Assembly 11:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
11 - 34	12G1157	1	Strap, Front Cover

# Assembly 12: Front Cover Assembly 2

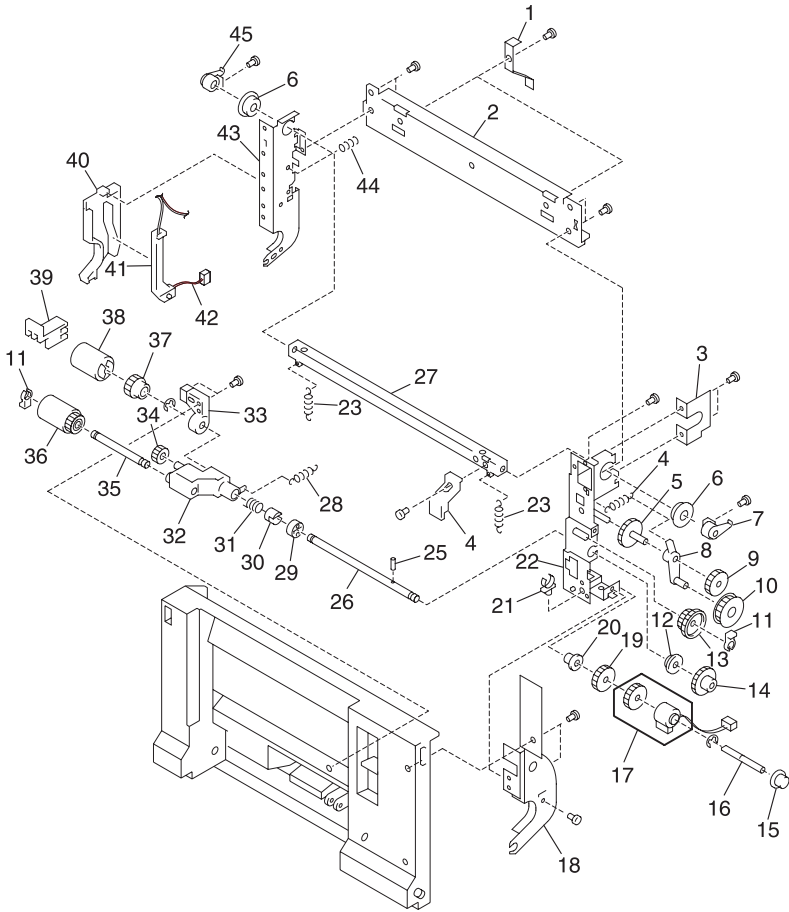




**Assembly 12:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
12 - 1	12G1355	2	Spring, Ground
2	12G1062	1	Plate, Discharge Needle
3	12G1094	1	Plate, Latch Support
4	12G1303	1	Spring, Gear Pressure
5	12G1424	1	Gear, Fulcrum
6	12G1486	2	Bushing, Latch
7	12G1265	1	Latch, Right
8	12G1266	1	Arm
9	12G1423	1	Gear, Drive
10	12G1425	1	Gear
11	12G1036	3	Clip, Shaft Locking
12	12G1482	1	Bushing, Bypass Roller Shaft
13	12G1428	1	Gear, Paper Feed Idler
14	12G1427	1	Gear, Paper Feed Shaft
15	12G1497	1	Bushing, Clutch Shaft, Outer
16	12G1243	1	Shaft, Clutch
17	12G1674	1	Clutch, Magnet
18	12G1267	1	Arm, Fulcrum, Right
19	12G1426	1	Gear, Paper Feed Drive
20	12G1477	1	Bushing, Clutch Shaft, Inner
21	12G1669	1	Clamp, Cable
22	12G1630	1	Plate, Paper Feed Side, Right
23	12G1300	2	Spring, Return
24	12G1276	1	Lever, Latch
25	12G1689	1	Pin, Dowel, Bypass Roller Shaft
26	12G1241	1	Shaft, Bypass Roller
27	12G1200	1	Plate, Latch Shaft
28	12G1298	1	Spring, Pickup Return
29	12G1056	1	Lock, Pickup, Pressure
30	12G1373	1	Boss, Pickup Limiter
31	12G1365	1	Spring, Pickup Limiter
32	12G1059	1	Bracket, Pickup

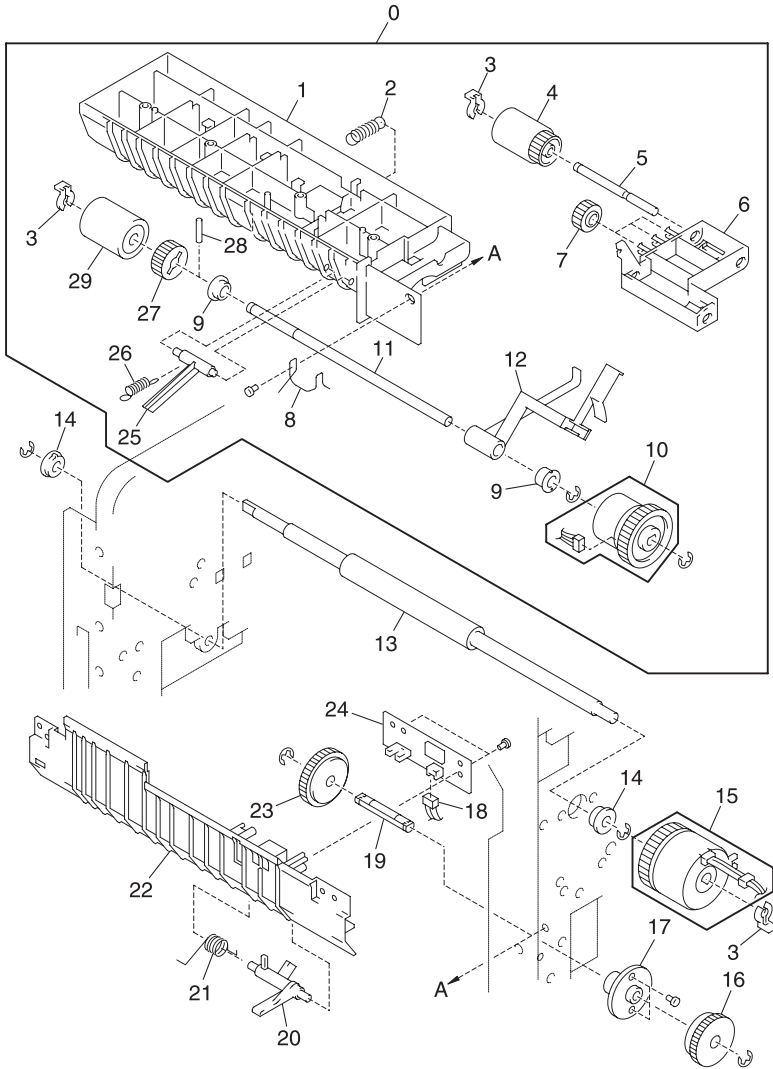
# Assembly 12 (Cont.): Front Cover Assembly 2



**Assembly 12 (cont.):**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
12 - 33	12G1487	1	Bushing, Bypass Roller
34	12G1419	1	Gear, Pickup Idle
35	12G1242	1	Shaft, Bypass Pickup Roller
36	12G1379	1	Roll, Pickup
37	12G1418	1	Gear, Paper Feed Roller
38	12G1378	1	Roll, Paper Feed
39	12G1154	1	Guide, Paper
40	12G1097	1	Cover, Cable
41	12G1061	1	Holder, Cable
42	12G1581	1	Cable, HF
43	12G1058	1	Cover, Side, Left
44	12G1342	1	Spring, Ground, 2
45	12G1264	1	Latch, Front Cover Release

# Assembly 13: Feed Unit

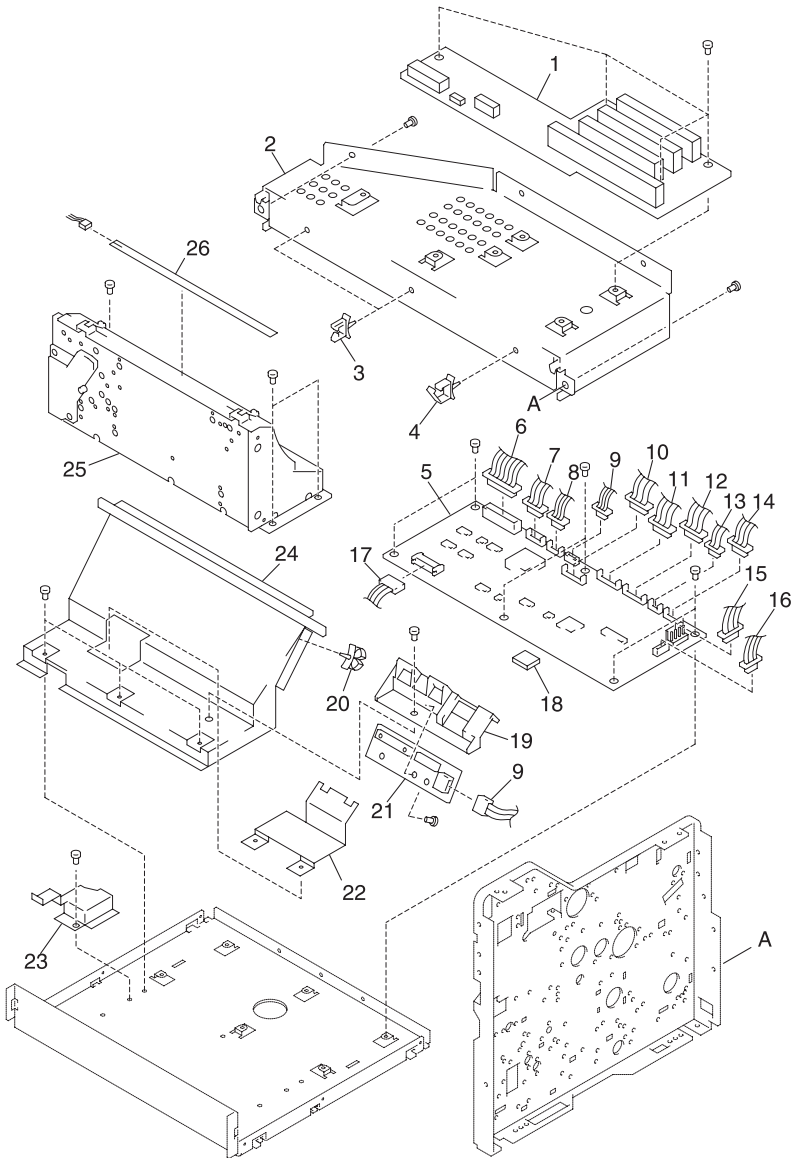


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 13:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
13 - 0	12G1632	1	Feed Assembly, Complete Unit
1	12G1064	1	Frame, Feed
2	12G1319	1	Spring, Pickup Pressure
3	12G1036	3	Clip, Shaft Locking
4	12G1379	1	Roller, Pickup
5	12G1245	1	Shaft, Pickup Roller
6	12G1171	1	Bracket, Pickup Roller
7	12G1419	3	Gear, Pickup Roller Idler
8	12G1362	1	Spring, Ground
9	12G1477	2	Bushing, Paper Feed Roll Shaft
10	12G1674	1	Clutch, Magnet
11	12G1244	1	Shaft, Paper Feed Roller
12	12G1277	1	Lever, Paper Detector Sensor
13	12G1385	1	Roll, Registration
14	12G1481	2	Bushing, Registration Roll Shaft
15	12G1675	1	Clutch, Magnet
16	12G1422	1	Gear, Gear B4
17	12G1491	2	Bushing, Paper Feed
18	12G1582	1	Cable, KU
19	12G1252	2	Shaft, Cassette Transmission
20	12G1279	1	Flag, Resist Sensor
21	12G1366	1	Spring, Resist Sensor Flag Return
22	12G1121	1	Guide, Paper A
23	12G1441	1	Gear, B1
24	12G1564	1	Sensor Asm., Resist Sensor Board
25	12G1278	1	Lever, Release
26	12G1304	1	Spring, Pickup Return
27	12G1429	1	Gear, Pickup
28	12G1690	1	Pin, Pickup Gear
29	12G1297	1	Roller, Paper Feed

# Assembly 14: Laser Scanner Unit

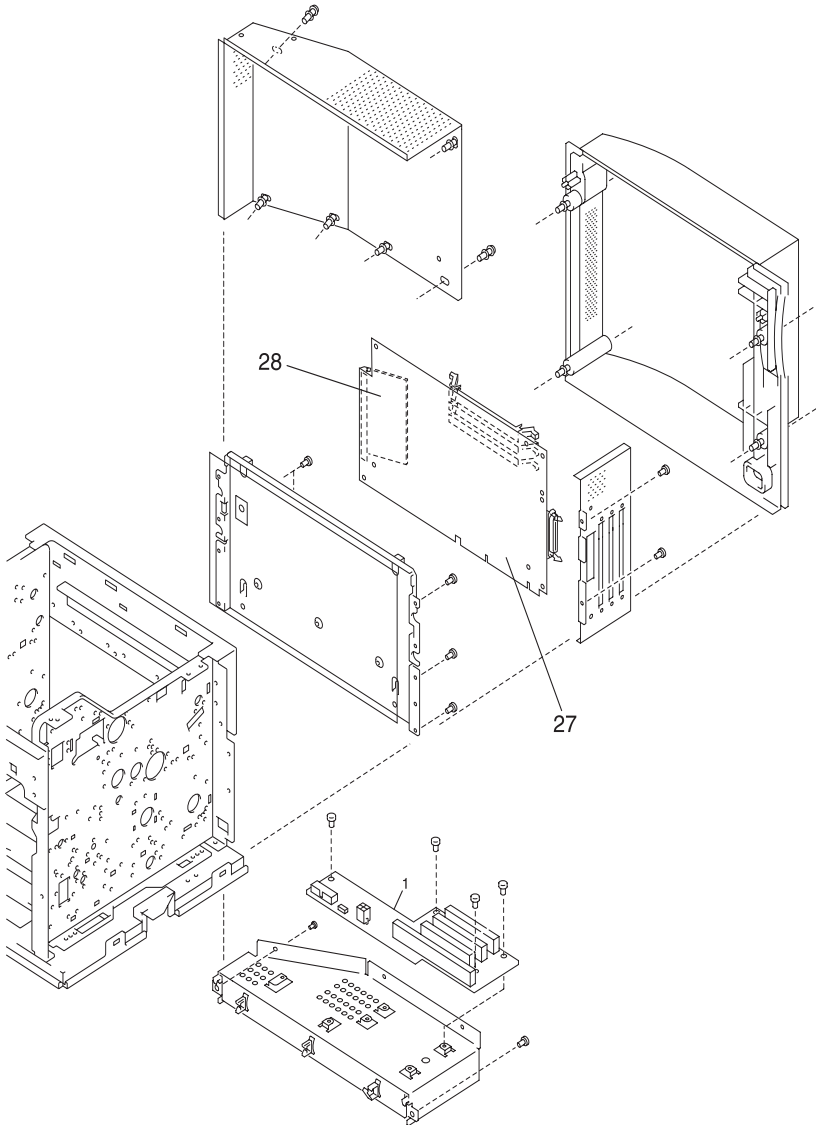


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 14:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
14 - 1	12G1703	1	Board, Interconnect
2	12G1177	1	Bracket, PCI Board
3	12G1679	2	Clamp, Cable
4	12G1680	1	Clamp, Cable
5	12G1562	1	Board Asm., Engine
6	12G1597	1	Cable, VINT
7	12G1594	1	Cable, MSN
8	12G1584	1	Cable, SN Laser
9	12G1578	1	Cable, TE
10	12G1587	1	Cable, OP
11	12G1585	1	Cable, HVPS
12	12G1586	1	Cable, MK 1
13	12G1583	1	Cable, CRF
14	12G1580	1	Cable, MK 2
15	12G1589	1	Cable, VH
16	12G1590	1	Cable, EVL
17	12G1592	1	Cable, Printhead
18	12G1000	1	Base, ANP
19	12G1103	1	Cover, Toner Level/New Cartridge Detection
20	12G1669	2	Clamp, Cable
21	12G1565	1	Sensor Asm., Toner Level/New Cartridge Detection
22	12G1228	1	Plate, Blind
23	12G1108	1	Cover, Harness
24	12G1204	1	Plate, EC PCB Shield
25	12G1042	1	Printhead Assembly
26	12G1568	1	LED, Discharge PCB

# Assembly 14 (Cont.): Laser Scanner Unit



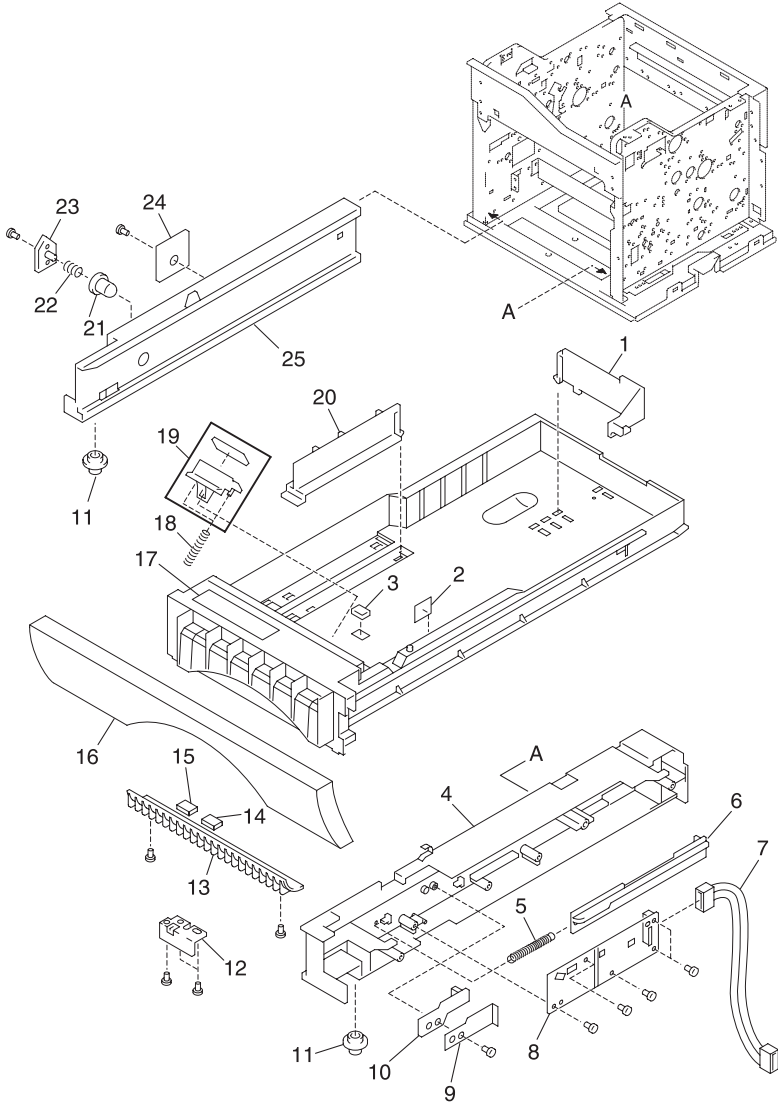


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**Assembly 14 (cont.):**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
14 - 27	12G1708	1	Board, Controller Level 2
28	12G1702	1	SIMM, Code Overlay

# Assembly 15: Cassette

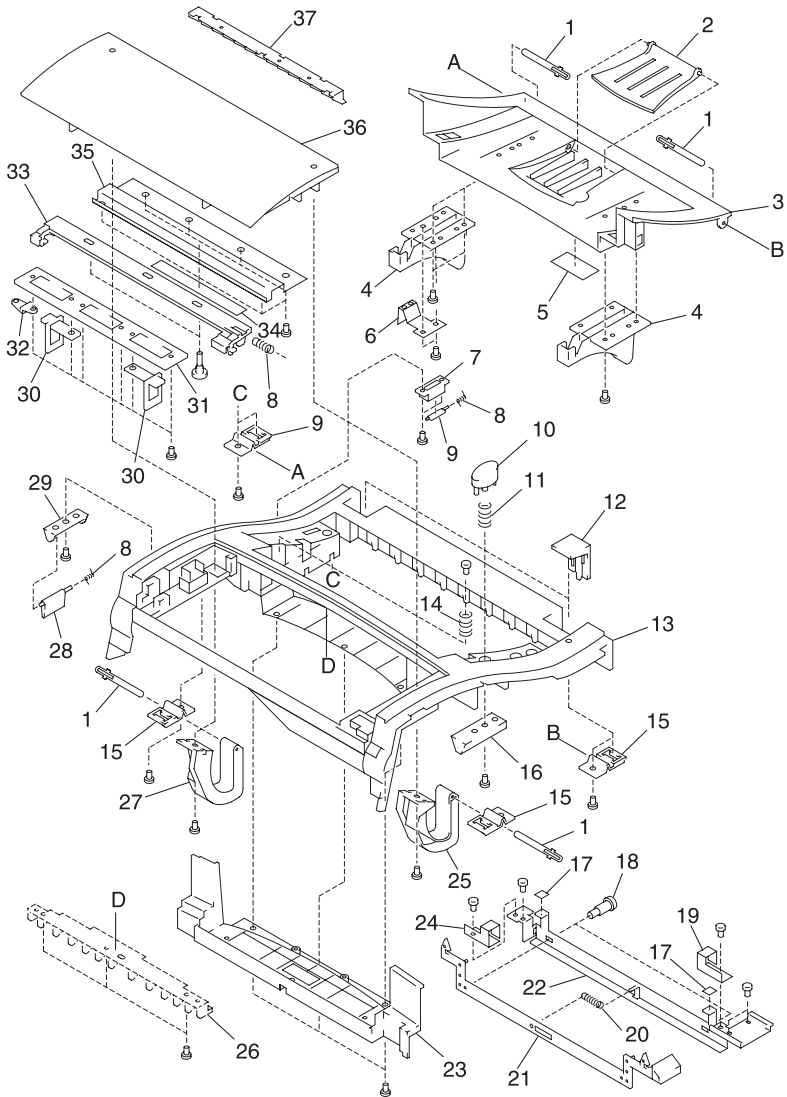


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 15:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
15 - 1	12G1542	1	Guide, Paper, Rear
2	12G1544	1	Label, Paper Upper Limit
3	12G1168	1	Pad, Tray
4	12G1125	1	Guide, Cassette, Right
5	12G1306	1	Spring, Return
6	12G1159	1	Plate, Size Detecting
7	12G1579	1	Cable, CST
8	12G1567	1	Sensor, Cassette Size/Paper Detecting, PCB
9	12G1359	1	Spring, Support
10	12G1295	1	Lever, Cassette Detecting
11	12G1386	2	Roller, Guide
12	12G1224	1	Sheet, Anti-vibration
13	12G1119	1	Guide, Paper
14	12G1166	1	Sheet, Anti-vibration, 2
15	12G1165	1	Sheet, Anti-vibration, 1
16	12G1098	1	Cover, Cassette Front
17	12G1250	1	Label, Cassette Caution
18	12G1305	2	Spring, Pad Pressure
19	12G1641	1	Pad Asm., DFP
20	12G1541	1	Guide, Paper, Left
21	12G1137	1	Stop, Cassette
22	12G1323	1	Spring, Cassette Stop
23	12G1492	1	Bushing, Cassette Stop
24	12G1670	1	Sensor, Temperature/Humidity
25	12G1124	1	Guide, Cassette, Left

# Assembly 16: Upper Covers

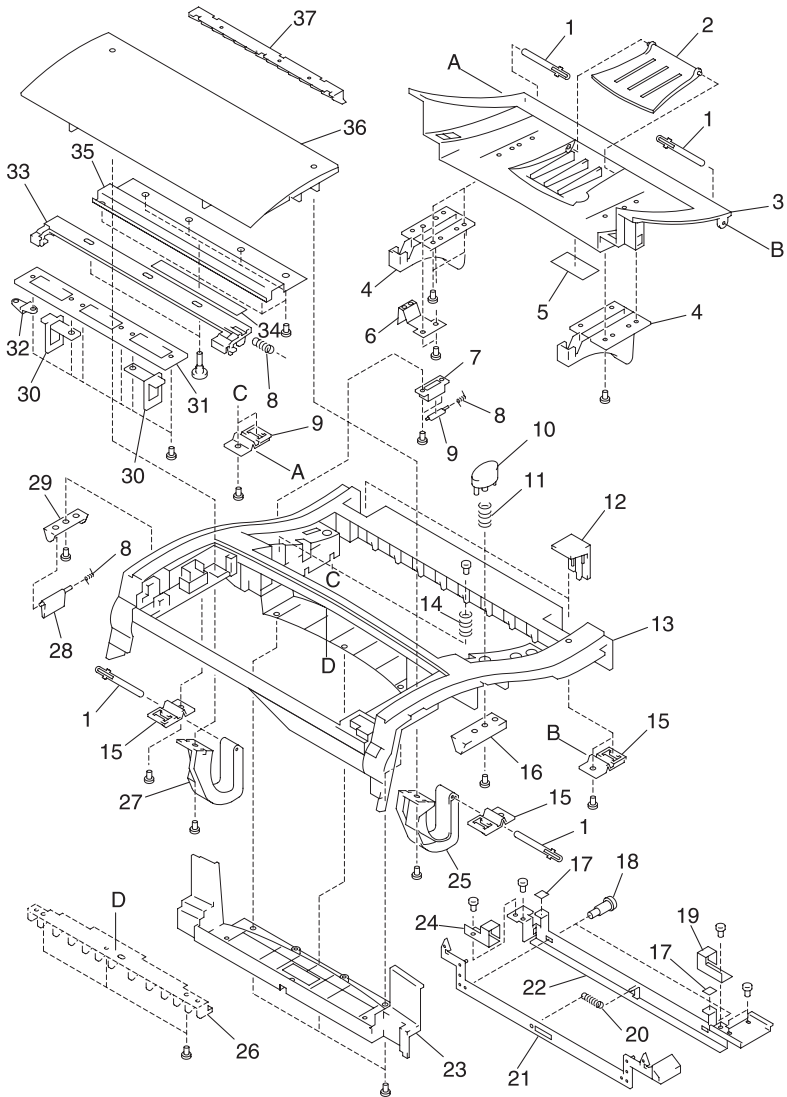


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 16:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
16 - 1	12G1033	4	Pin, Cover
2	12G1537	1	Tray, Paper Exit
3	12G1502	1	Cover, Cartridge, A
4	12G1514	2	Cover, Cartridge, B
5	12G1551	1	Label, Cartridge Insertion
6	12G1227	1	Plate, Cartridge SW
7	12G1093	1	Holder, Switch Plate, Rear
8	12G1324	2	Spring, Switch Plate
9	12G1209	1	Plate, Switch, Rear
10	12G1239	1	Button, Cartridge
11	12G1317	1	Spring, Cartridge Button
12	12G1539	2	Cover, Hinge
13	12G1501	1	Cover, Top
14	12G1318	1	Spring, Cartridge Cover
15	12G1079	4	Hinge, Cover
16	12G1240	1	Button, Cartridge, Lower
17	12G1559	2	Label, ADU Support Cover
18	12G1026	2	Screw, Shoulder
19	12G1138	1	Guide, Lever, Right
20	12G1315	2	Spring, Return, 1
21	12G1284	1	Lever, Cartridge
22	12G1207	1	Plate, Cartridge Cover
23	12G1524	1	Cover, Top, Small
24	12G1139	1	Guide, Lever, Left
25	12G1281	1	Lever, Right
26	12G1160	1	Rib 1
27	12G1282	1	Lever, Left
28	12G1210	1	Plate, Switch, Front
29	12G1030	1	Holder, Switch Plate, Front
30	12G1163	1	Lib, Fuser Pressure
31	12G1233	1	Plate, Fuser Cover Support
32	12G1234	1	Plate, Fuser Latch Support, Left

# Assembly 16 (Cont.): Upper Covers



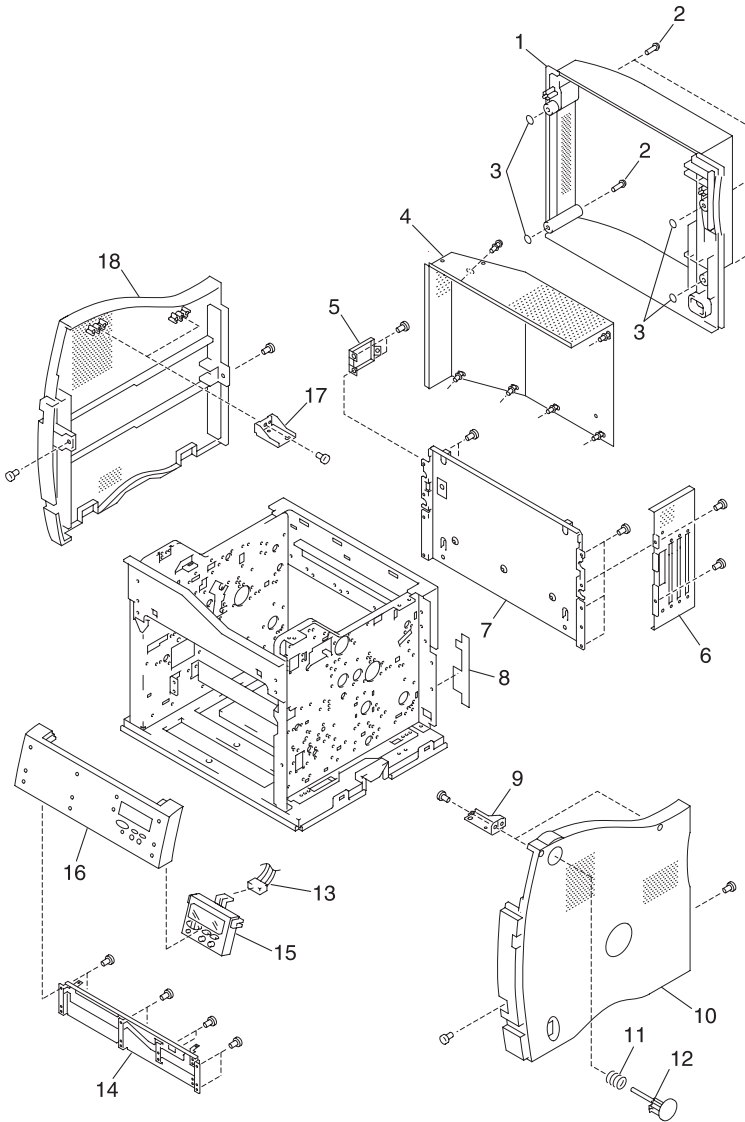
Note: Matching letters indicate corresponding assembly part locations.

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**Assembly 16:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
16 - 33	12G1283	1	Lever, Fuser Latch
34	12G1560	1	Label, Fuser Unit Operation
35	12G1235	1	Support, Fuser Cover
36	12G1503	1	Cover, Fuser
37	12G1161	1	Rib, 2

# Assembly 17: Covers

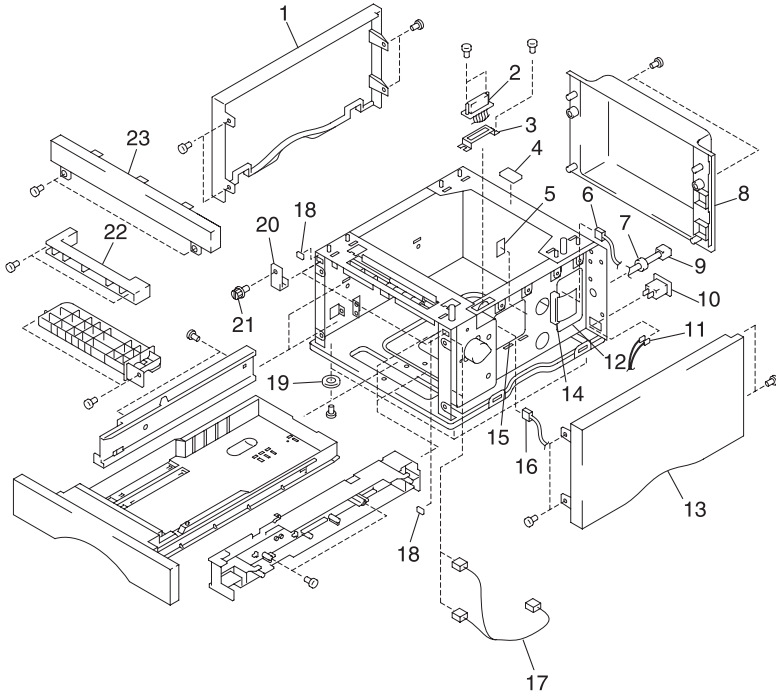




**Assembly 17:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
17 - 1	12G1513	1	Cover, Rear
2	12G1029	4	Screw, Shoulder
3	12G1038	4	Ring, C, Rear Cover
4	12G1640	1	Shield Asm., SC PCB
5	12G1187	1	Bracket, Main Fan Motor
6	12G1205	1	Plate, SC PCB Shield, 1
7	12G1206	1	Plate, SC PCB Shield, 2
8	12G1557	1	Cover, Label, Welder
9	12G1186	2	Plate, Cover Mounting, Right
10	12G1512	1	Cover, Side, Right
11	12G1316	1	Spring, Return, 2
12	12G1238	1	Button, Side
13	12G1596	1	Cable, Operator Panel
14	12G1078	1	Plate, Operator Panel Support
15	12G1561	1	Operator Panel Assembly
16	12G1523	1	Panel, Operator
17	12G1183	2	Plate, Cover Mounting, Left
18	12G1511	1	Cover, Side, Left

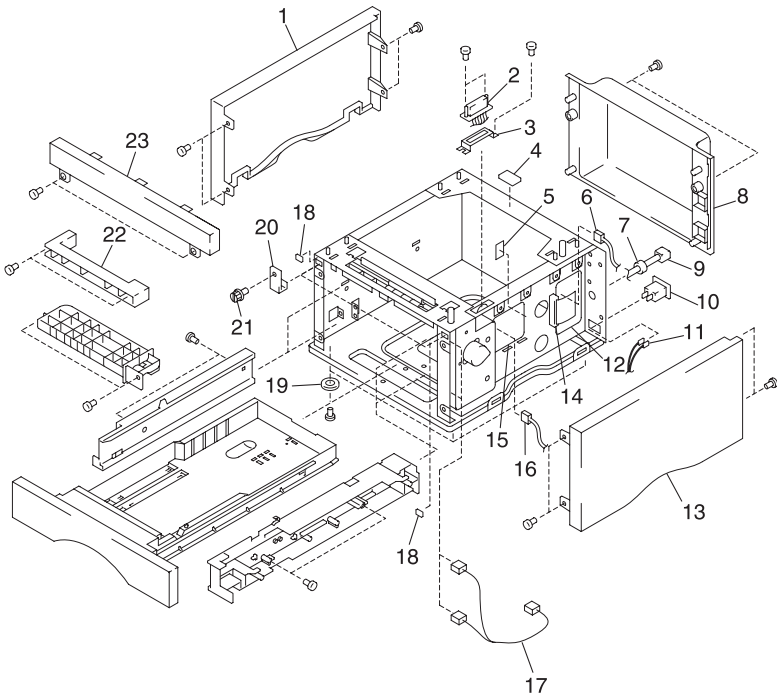
# Assembly 18: Covers / Frame 250 Tray Option



**Assembly 18:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
18 - 1	12G1508	1	Cover, Left
2	12G1601	1	Cable, OP
3	12G1185	1	Bracket, Connector Mounting
4	12G1053	1	Pad, Ground, B
5	12G1044	1	Sheet, Duck, 1
6	12G1602	1	Cable, OV
7	12G1687	1	Bushing, Cord
8	12G1509	1	Cover, Rear (Japan, North America)
8	12G1510	1	Cover, Rear (Europe)
9	1339517	1	Power Cord, LV U.S., Canada, Nicaragua, Venezuela, Peru, Bolivia, Columbia, Costa Rica, Ecuador, EL Salvador, Guatemala, Honduras, Mexico, Panama, APG
9	1339518	1	Power Cord, HV, Argentina
9	1339520	1	Power Cord, HV, Brazil
9	1339524	1	Power Cord, HV, Chili
9	1339528	1	Power Cord, HV, UK, Ireland
9	1339529	1	Power Cord, HV, EURO English, France, Spain, Germany, Austria, Netherlands, Norway, Finland, Greece, Sweden, Portugal, Turkey, Belgium, Russia, Poland, Slovakia/ Czech/Hungary
9	1339530	1	Power Cord, HV, Israel
9	1339531	1	Power Cord, HV, Switzerland French, Switzerland German, Switzerland Italian
9	1339532	1	Power Cord, HV, South Africa
9	1339533	1	Power Cord, HV, Italy
9	1339534	1	Power Cord, HV, Denmark

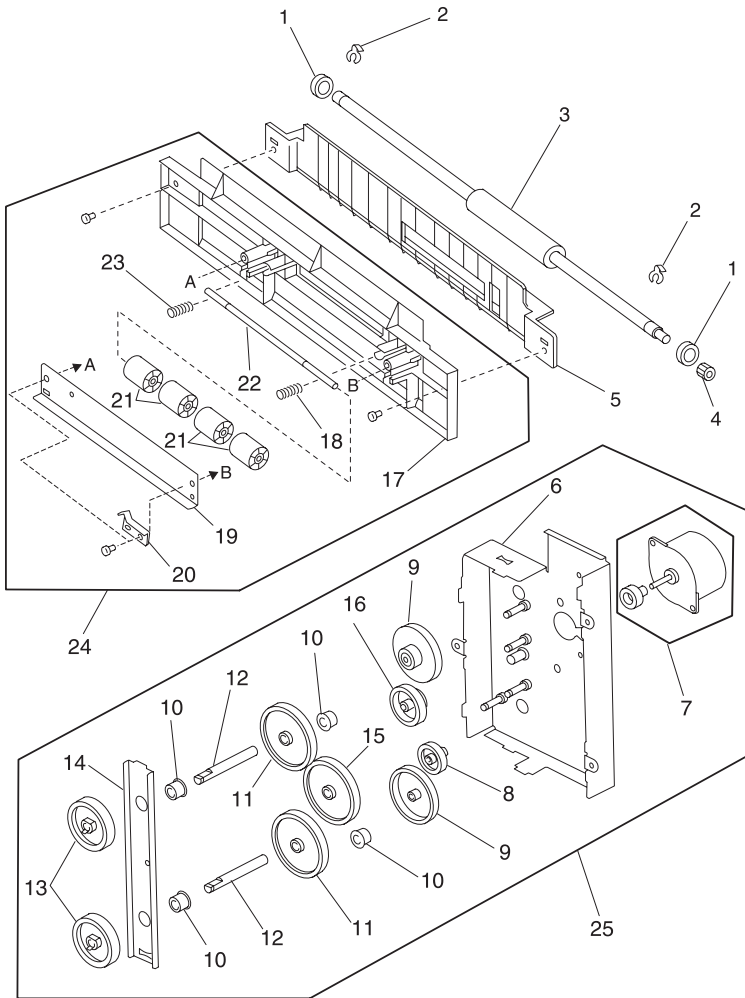
# Assembly 18 (Cont.): Covers/Frame 250 Option



**Assembly 18 (cont.):**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
18 - 10	12G1673	1	Socket, AC, Cord
11	12G1604	1	Cable, OAC
12	12G1574	1	LVPS, Paper Tray Option
13	12G1506	1	Cover, Right (Japan, North America)
13	12G1507	1	Cover, Right (Europe)
14	12G1106	1	Cover, LVPS
15	12G1569	1	Board Asm., Option Interconnect
16	12G1599	1	Cable, OM
17	12G1600	1	Cable, OC
18	12G1052	2	Pad, Ground, A
19	12G1532	4	Foot, Paper Cassette Asm.
20	12G1208	2	Plate, Fixing
21	12G1023	2	Screw, Fixing
22	12G1136	1	Guide, Paper, 5
23	12G1505	1	Cover, Front, 1

# Assembly 19: Middle Roll Unit 250 Tray Option

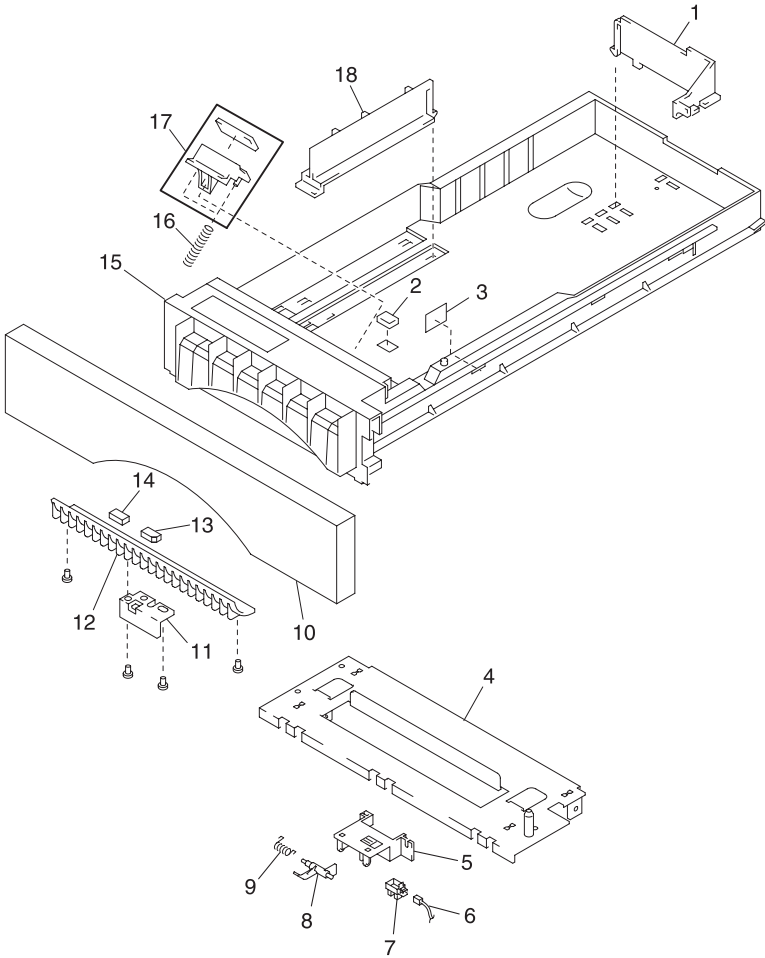


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 19:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
19 - 1	12G1480	2	Bearing, Middle Roller 1 Shaft
2	12G1037	2	Clip, Retainer, Middle Roller 1 Shaft
3	12G1390	1	Roller, Middle, 1
4	12G1446	1	Gear, Middle Roller Drive
5	12G1134	1	Guide, Paper, 1
6	12G1659	1	Plate Asm., Paper Feed Drive
7	12G1658	1	Motor Asm., Paper Feed
8	12G1450	1	Gear, Idler
9	12G1448	2	Gear, Reduction, Big
10	12G1483	4	Bushing, Paper Drive Gear Shaft
11	12G1447	2	Gear, Paper Feed Drive
12	12G1254	2	Shaft, Paper Feed Drive Gear
13	12G1421	2	Gear, Drive Shaft 2
14	12G1080	1	Plate, Pressure
15	12G1465	1	Gear, Idle, 2
16	12G1449	1	Gear, Reduction, Small
17	12G1135	1	Guide, Paper, 4
18	12G1320	1	Spring, Roller Pressure
19	12G1081	1	Plate, Pressure
20	12G1360	1	Spring, Ground
21	12G1391	4	Roller, Middle, 2
22	12G1255	1	Shaft, Middle Shaft
23	12G1341	1	Spring, Roller Pressure
24	12G1126	1	Roller Asm., Middle
25	12G1127	1	Drive Asm., Paper Feed
NS	12G1693	2	Pin, Dowel, Paper Feed Drive Gear Shaft

# Assembly 20: 250/250 Tray Option Lower Unit

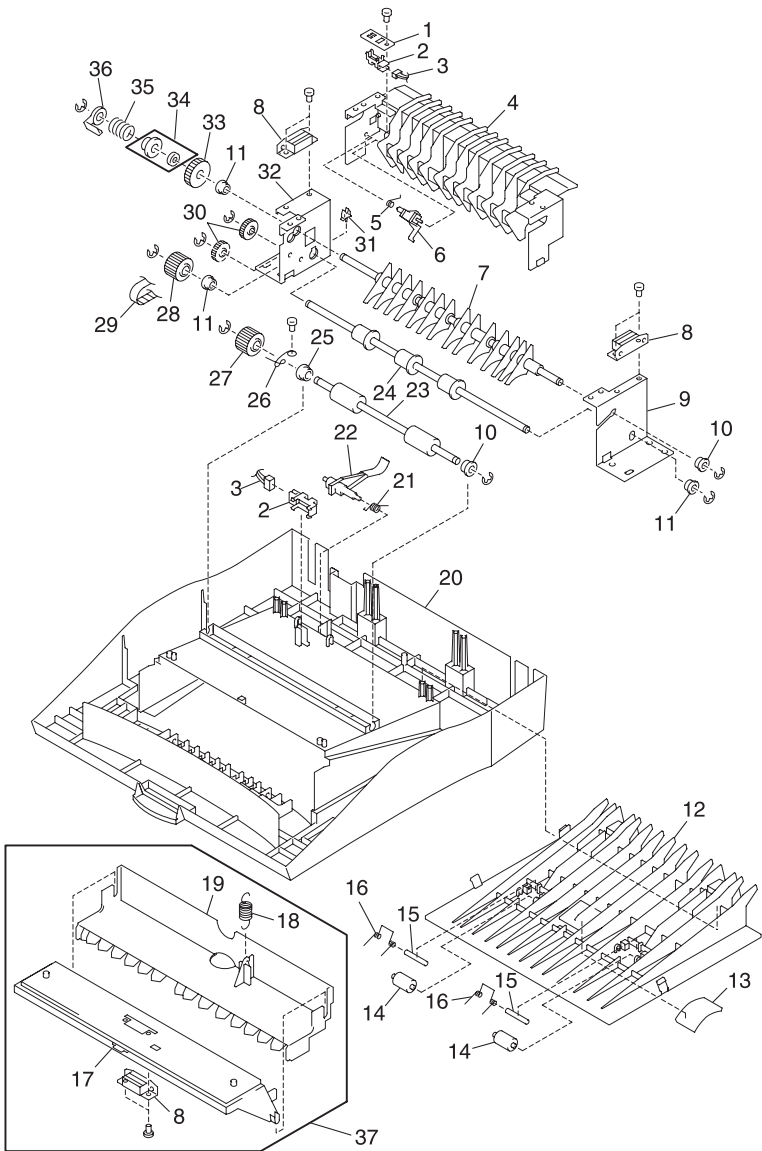




**Assembly 20:**

<b>Asm. Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
20 - 1	12G1542	1	Guide, Paper, Right
2	12G1168	1	Pad, Tray
3	12G1544	1	Label, Paper Upper Limit
4	12G1660	1	Stay
5	12G1184	1	Bracket, Paper Pass Sensor
6	12G1603	1	Cable, OPS
7	12G1664	1	Sensor, Paper Pass
8	12G1289	1	Flag, Paper Pass Sensor
9	12G1364	1	Spring, Paper Pass Sensor Flag
10	12G1504	1	Panel, Cassette
11	12G1224	1	Plate, Anti-vibration
12	12G1119	2	Guide, Paper
13	12G1165	1	Sheet, Anti-vibration, 1
14	12G1166	1	Sheet, Anti-vibration, 2
15	12G1071	1	Label, Cassette, Caution
16	12G1305	2	Spring, DFP
17	12G1641	1	Pad Asm., DFP
18	12G1541	1	Guide, Paper, Left

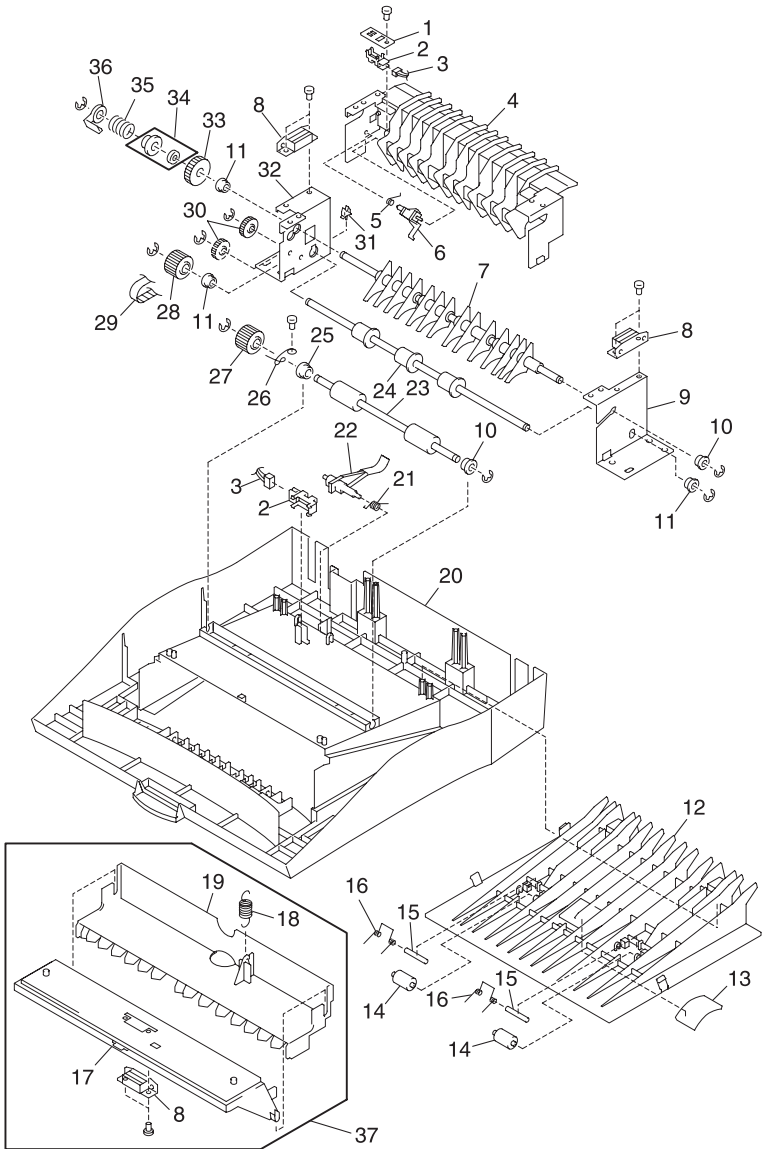
# Assembly 21: Duplex Unit Option 2



**Assembly 21:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
21 - 1	12G1188	1	Bracket, Sensor, 1
2	12G1664	1	Sensor, Exit or Pass Thru Sensors
3	12G1610	1	Cable, ADT
4	12G1141	1	Guide, Paper Exit/Storage
5	12G1368	1	Spring, Exit Sensor
6	12G1290	1	Flag, Exit Sensor
7	12G1271	1	Guide, Paper Exit/Storage Selection
8	12G1526	3	Magnet, Duplex
9	12G1087	1	Plate, Paper Exit, 2
10	12G1477	2	Bushing, Paper Exit/Storage Selection Guide
11	12G1483	3	Bushing, Paper Exit Roller Asm.
12	12G1538	1	Tray, Paper Exit
13	12G1525	1	Cover, Blind
14	12G1394	2	Roller, Pinch
15	12G1034	2	Pin, Pinch Roller
16	12G1369	2	Spring, Pinch Roller
17	12G1144	1	Guide, Paper, Lower (for Printer)
18	12G1328	1	Spring, Pressure (for Printer)
19	12G1143	1	Guide, Paper, Upper (for Printer)
20	12G1517	1	Cover, Upper
21	12G1367	1	Spring, Pass Thru Sensor
22	12G1291	1	Flag, Pass Thru Sensor
23	12G1393	1	Roller, Transport
24	12G1392	1	Roller, Paper Exit
25	12G1478	1	Bushing, Transport Roller Asm.
26	12G1338	1	Spring, Transport Shaft Ground
27	12G1454	1	Gear, Transport Roller
28	12G1453	1	Gear, Paper Exit Drive
29	12G1470	1	Belt, Timing, (40S2M300)
30	12G1455	2	Gear, 18T
31	12G1668	1	Clamp, Cable
32	12G1643	1	Plate Asm., Paper Exit

# Assembly 21 (Cont.): Duplex Unit Option 2

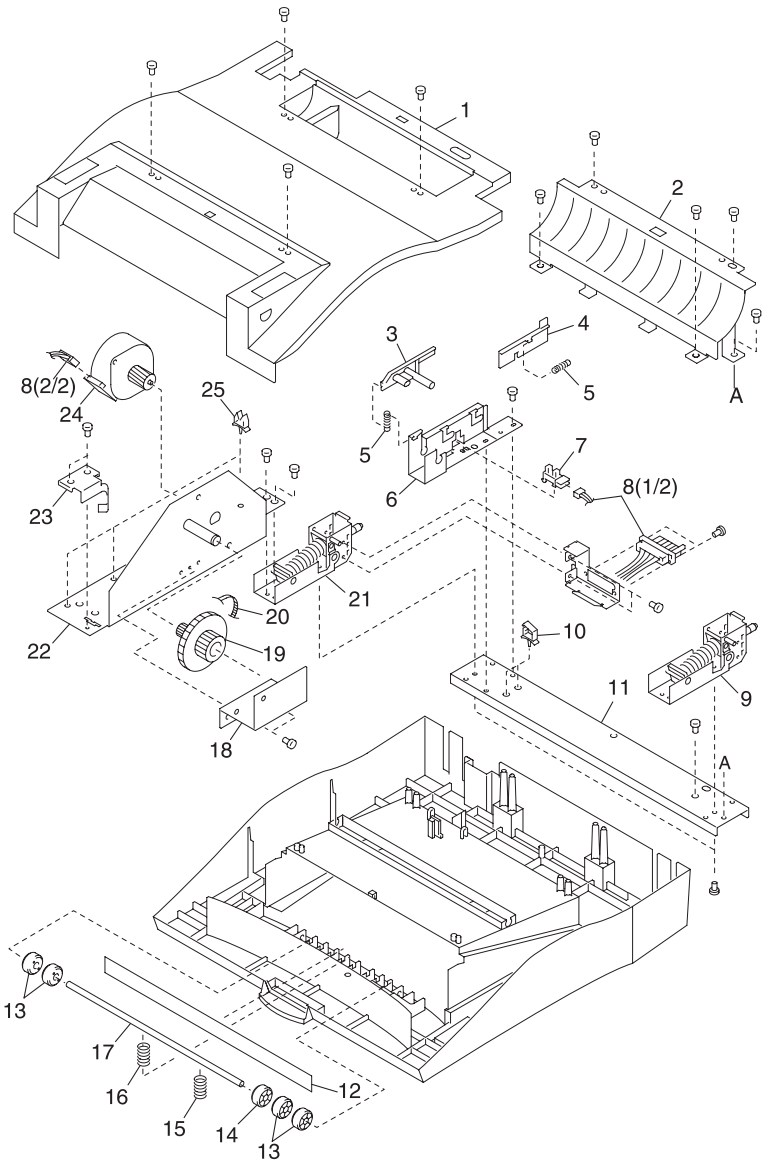


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**Assembly 21:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
21 - 33	12G1452	1	Gear, 27Z
34	12G1657	1	Disc Asm., Limiter
35	12G1325	1	Spring, Limiter
36	12G1212	1	Holder, Limiter Spring
37	12G1017	1	Guide Asm., Paper (for Printer)

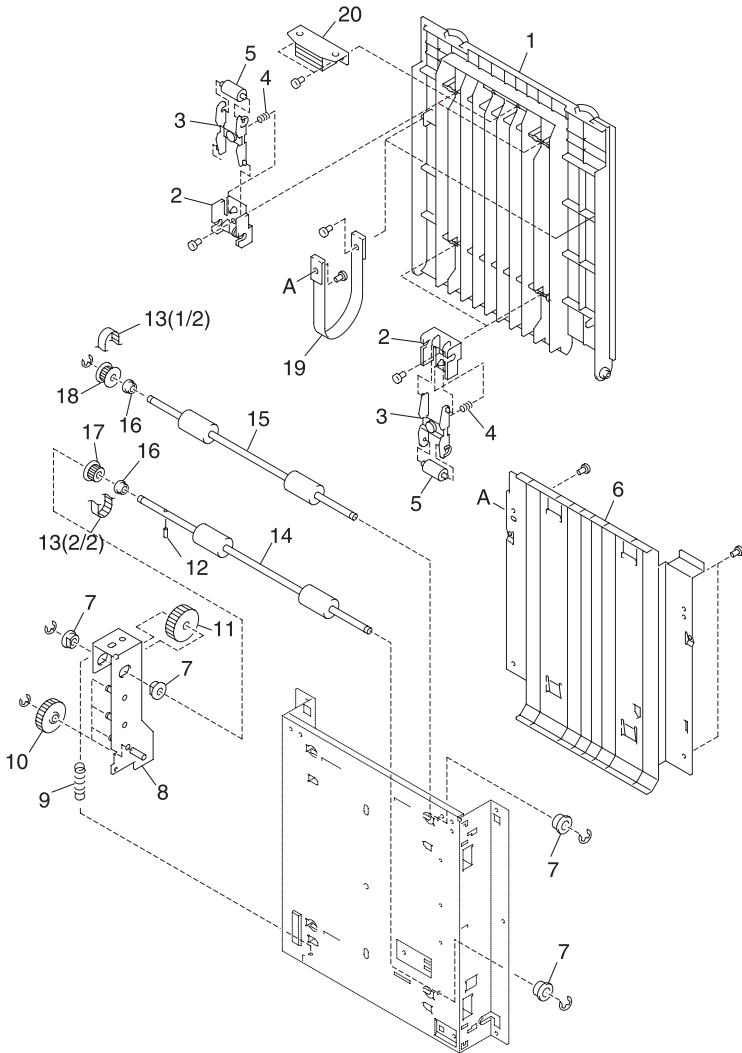
# Assembly 22: Cassette Upper Section



**Assembly 22:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
22 - 1	12G1142	1	Guide, Paper Exit
2	12G1140	1	Guide, Upper
3	12G1330	1	Flag, Open/Close Sensor
4	12G1272	1	Actuator, Open/Close Sensor
5	12G1326	1	Spring, Actuator, Open/Close Sensor
6	12G1189	1	Bracket, Open/Close Sensor
7	12G1664	1	Sensor, Open/Close
8	12G1610	1	Cable, ADT
9	12G1528	1	Hinge Asm., Left
10	12G1671	2	Clamp, Cable
11	12G1086	1	Plate, Hinge Mounting
12	12G1015	1	Brush, Discharge
13	12G1380	4	Roller, Pinch
14	12G1377	1	Roller Guide
15	12G1337	1	Spring, Pinch Roller, 2
16	12G1327	1	Spring, Pinch Roller, Right
17	12G1257	1	Shaft, Paper Exit Idle, Right
18	12G1211	1	Plate, Gear
19	12G1376	1	Gear, (50/23Z)
20	12G1470	1	Belt, Timing, (40S2M300)
21	12G1527	1	Hinge Asm., Right
22	12G1642	1	Plate Asm., Gear
23	12G1356	1	Spring, Ground
24	12G1653	1	Motor Assembly
25	12G1668	3	Clamp, Cable

# Assembly 23: Cassette Rear Section 1



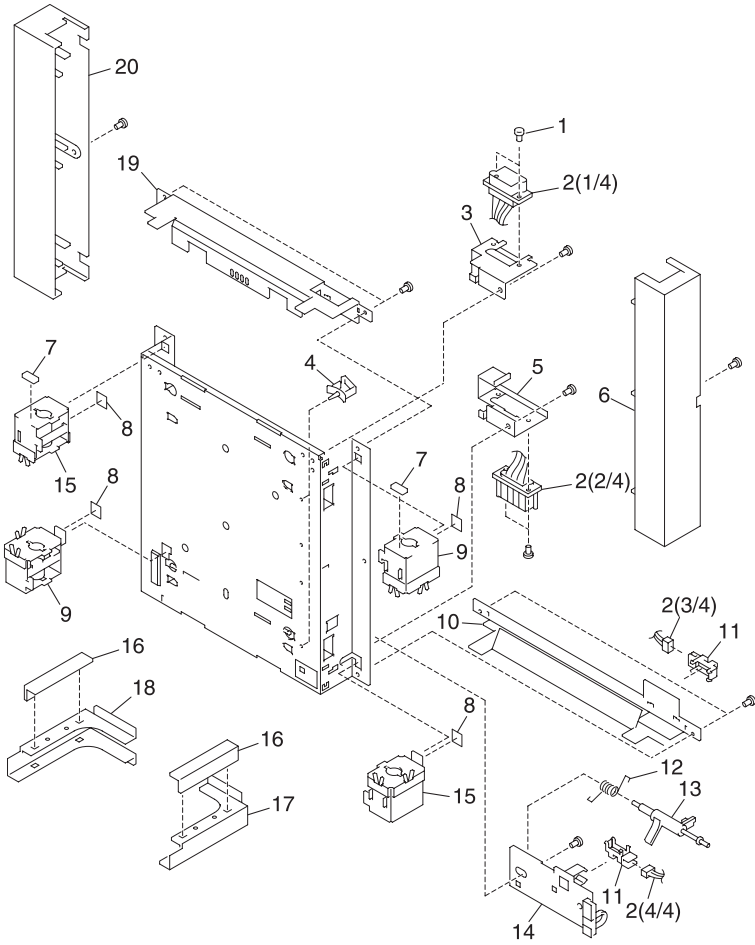
Note: Matching letters indicate corresponding assembly part locations.



**Assembly 23:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
23 - 1	12G1518	1	Cover, Rear
2	12G1088	4	Holder, Pinch Roller
3	12G1273	4	Arm, Pinch Roller
4	12G1329	4	Spring, Pinch Roller
5	12G1394	4	Roller, Pinch
6	12G1145	1	Plate, Paper Guide
7	12G1496	4	Bushing
8	12G1646	1	Arm Asm., Gear
9	12G1331	1	Spring, Pressure
10	12G1455	4	Gear, (18)
11	12G1459	1	Gear, (18Z)
12	12G1688	1	Pin, Dowel, Lower Transfer Roller Asm.
13	12G1471	1	Belt, Timing, (40S2M560)
14	12G1396	1	Roller Asm., Transfer, Lower
15	12G1395	1	Roller, Transfer, Upper
16	12G1483	2	Bushing, Transfer Roller Asm., Upper
17	12G1409	1	Pulley, (20T)
18	12G1406	1	Pulley
19	12G1157	2	Belt, Rear Cover
20	12G1526	1	Magnet

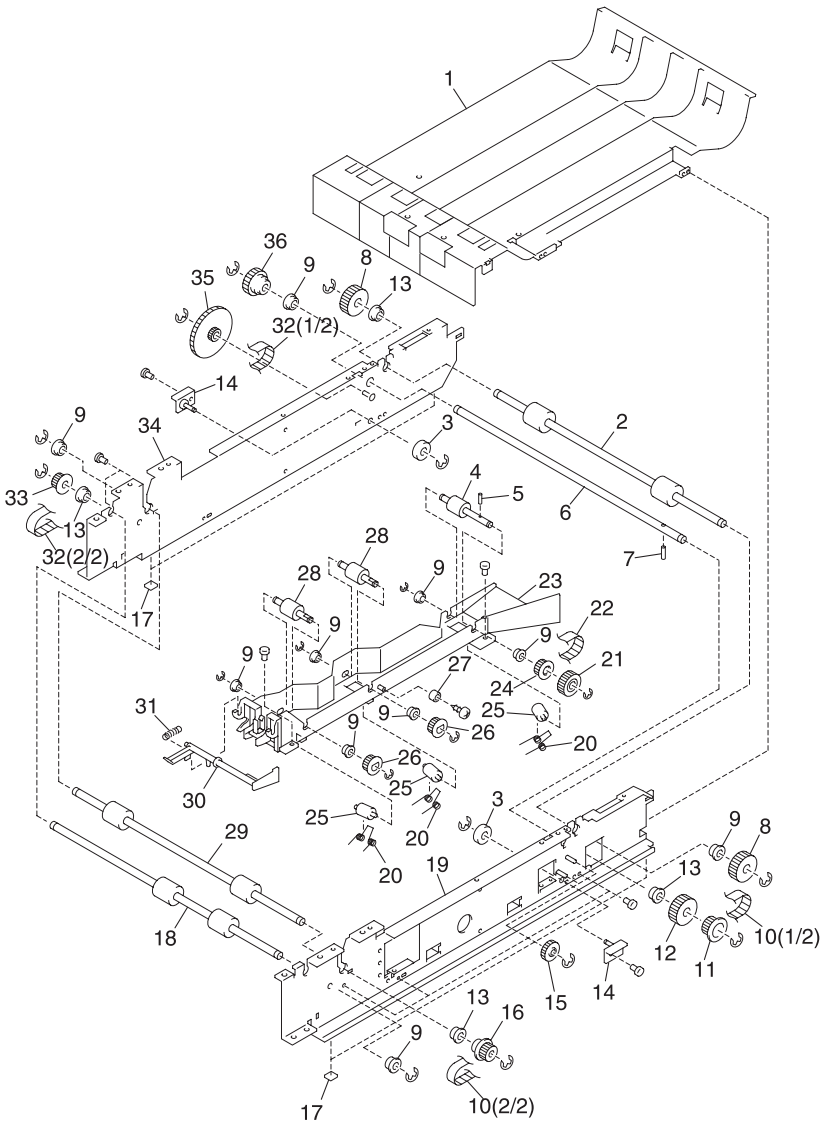
# Assembly 24: Cassette Rear Section 2



**Assembly 24:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
24 - 1	12G1025	2	Screw, Shoulder
2	12G1609	1	Cable, ADB
3	12G1191	1	Bracket, Connector
4	12G1678	2	Clamp, Cable
5	12G1190	1	Bracket, P Connector
6	12G1519	1	Cover, Side, Right
7	12G1052	2	Pad, Ground, A
8	12G1550	4	Label
9	12G1644	2	Holder Asm., Sub Lock
10	12G1214	1	Plate, Lower Connecting
11	12G1664	2	Sensor
12	12G1361	1	Spring, Sensor Lever
13	12G1275	1	Lever, Sensor
14	12G1057	1	Bracket, Sensor
15	12G1645	2	Holder Asm., Main Lock
16	12G1109	2	Cover, Rear Side Bracket
17	12G1192	1	Bracket, Rear Side, Right
18	12G1199	1	Bracket, Rear Side, Left
19	12G1213	1	Plate, Upper Connecting
20	12G1520	1	Cover, Side, Left

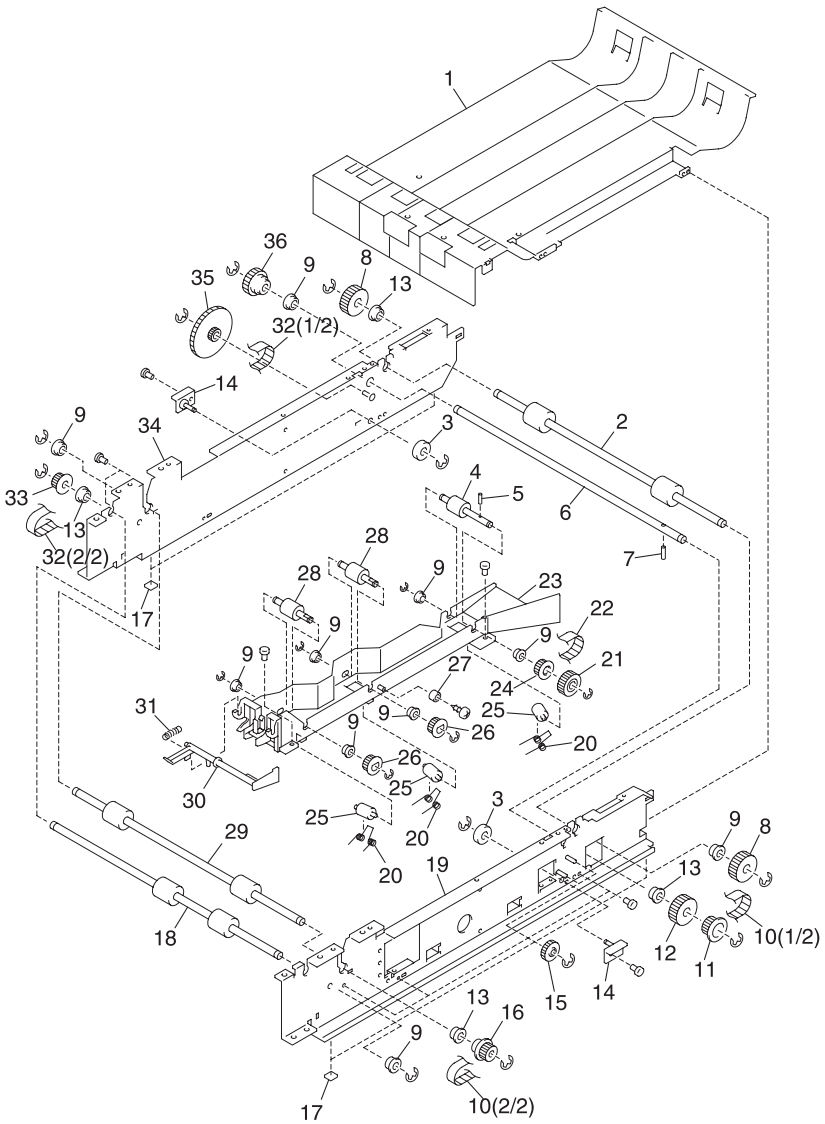
# Assembly 25: Duplex Option Lower Section 1



**Assembly 25:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
25 - 1	12G1150	1	Plate, Transfer Lower Guide
2	12G1400	1	Roller, Reverse
3	12G1401	2	Roller, Sub Plate Asm.
4	12G1403	1	Roller, A
5	12G1688	1	Pin, Dowel, Roller A
6	12G1259	1	Shaft, Gear
7	12G1690	1	Pin, Dowel, Gear Shaft
8	12G1456	2	Gear, (20Z)
9	12G1477	10	Bushing, Guide Frame Asm.
10	12G1472	1	Belt, Timing, (40S2M710)
11	12G1413	1	Pulley, (25T)
12	12G1458	1	Gear, Idle, (20P)
13	12G1483	4	Bushing
14	12G1654	2	Plate Asm., Sub
15	12G1455	2	Gear (18)
16	12G1412	1	Pulley, Left (25T)
17	12G1223	4	Sheet Slide
18	12G1402	1	Roller, Feed, 2
19	12G1090	1	Plate, Side, Right
20	12G1370	3	Spring, Pressure
21	12G1457	1	Gear, (20Z)
22	12G1474	1	Belt, Timing, (35S2M448)
23	12G1655	1	Frame Asm., Guide
24	12G1409	1	Pulley, (20T)
25	12G1405	3	Roller, Idler
26	12G1414	2	PULley, S (20T)
27	12G1415	1	Pulley
28	12G1404	2	Roller, B
29	12G1399	1	Roller, Feed, 1
30	12G1293	1	Lever, Sensor
31	12G1333	1	Spring, Sensor Lever
32	12G1468	1	Belt, Timing, (40S2M800)

# Assembly 25 (Cont.): Duplex Lower Section 1

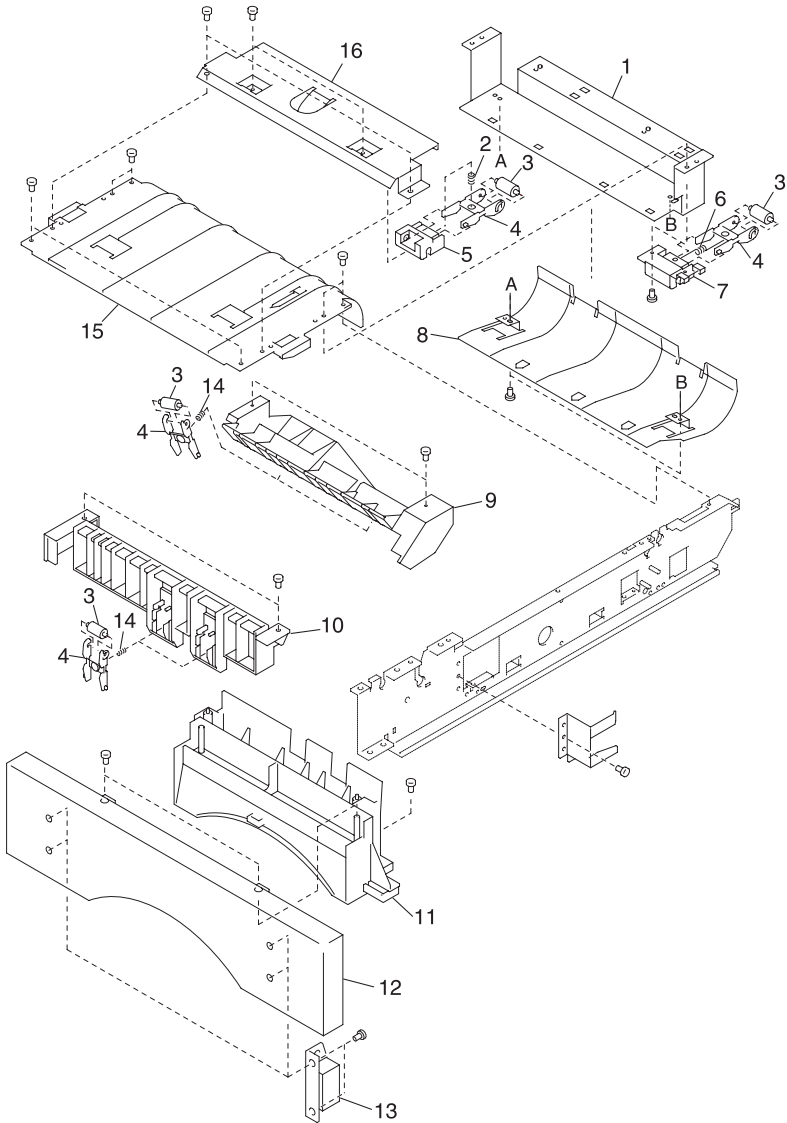


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**Assembly 25:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
25 - 33	12G1406	1	Pulley, Feed Roller 2
34	12G1091	1	Plate, Side, Left
35	12G1411	1	Pulley, (34Z17T)
36	12G1462	1	Gear, (16Z)

# Assembly 26: Duplex Option Lower Section 2



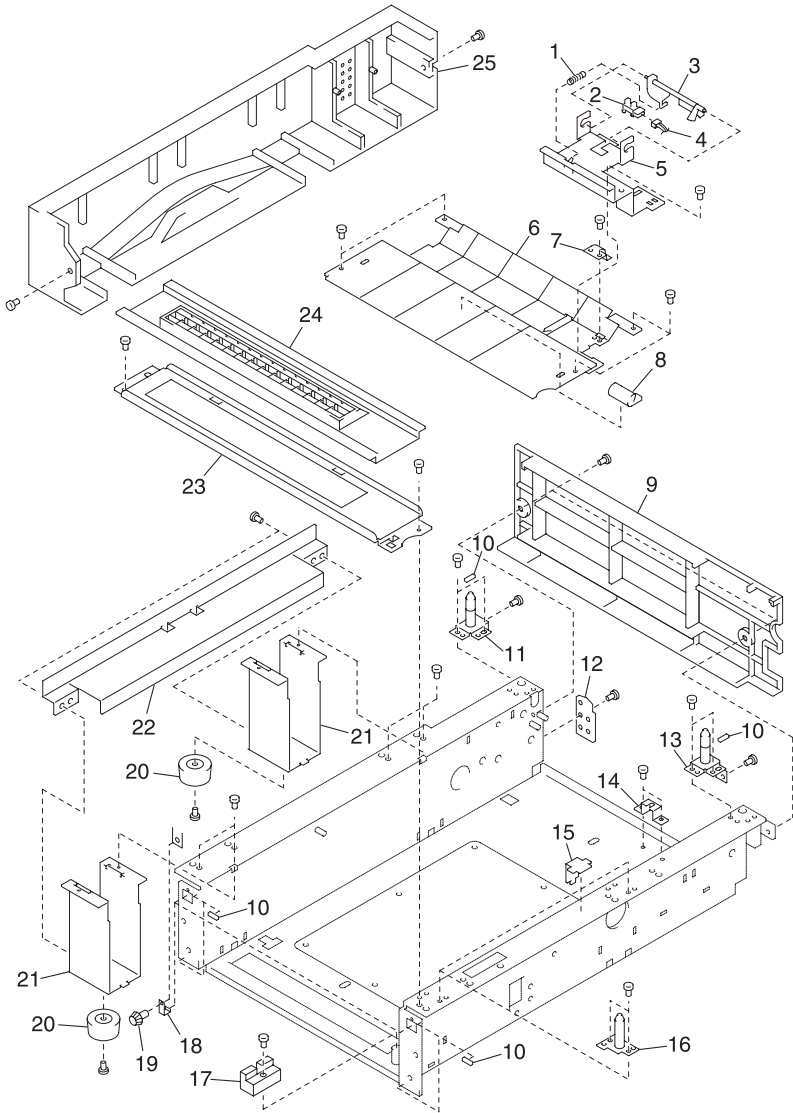
Note: Matching letters indicate corresponding assembly part locations.



**Assembly 26:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
26 - 1	12G1197	1	Plate, Reverse Section Mounting, 2
2	12G1329	2	Spring, Pinch Roller
3	12G1394	8	Roller, Pinch
4	12G1273	8	Arm, Pinch Roller
5	12G1088	2	Holder, Pinch Roller
6	12G1334	2	Spring, Pinch Roller, 2
7	12G1089	2	Holder, Pinch Roller, 2
8	12G1151	1	Guide, Reverse Lower, 2
9	12G1152	1	Guide, Transfer, A
10	12G1153	1	Guide, Transfer, B
11	12G1217	1	Bracket, Tray Front Panel
12	12G1534	1	Panel, Tray Front
13	12G1526	1	Magnet
14	12G1336	4	Spring, Pinch Roller, 3
15	12G1149	1	Guide, Reverse Lower
16	12G1196	1	Plate, Reverse Section Mounting
NS	12G1218	1	Actuator, Micro Switch

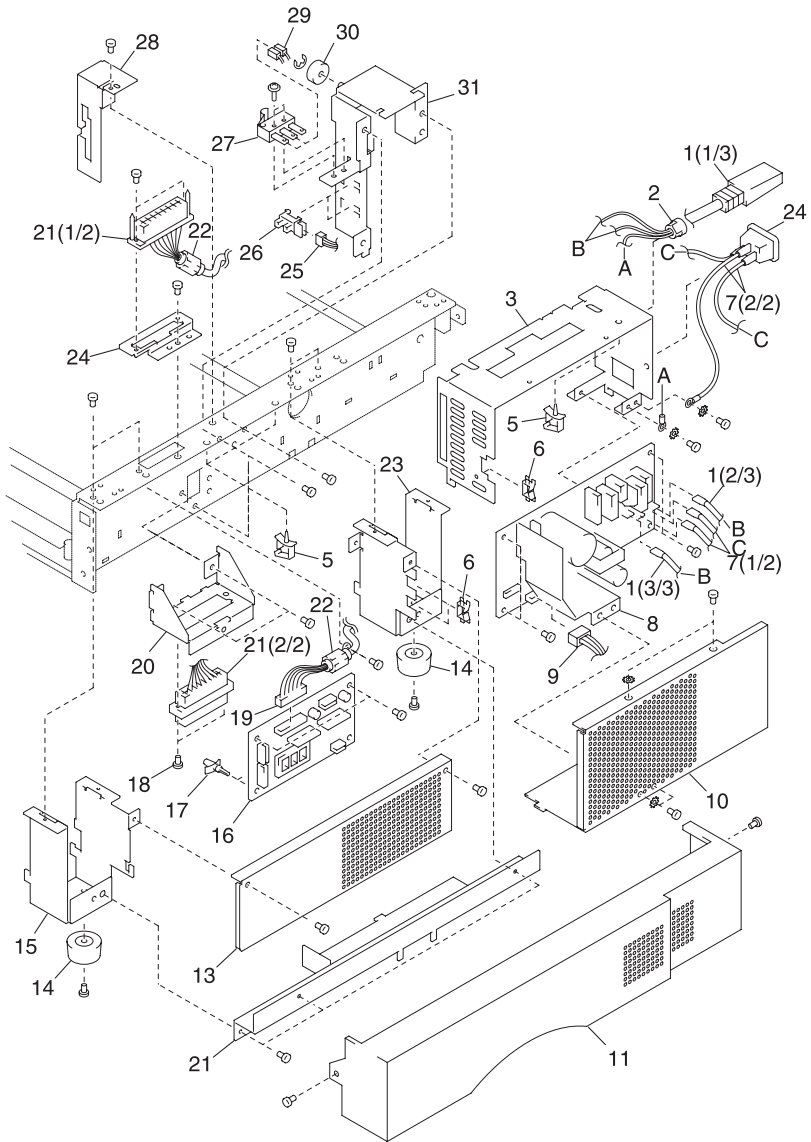
# Assembly 27: Duplex Option Lower Section 3



**Assembly 27:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
27 - 1	12G1335	1	Spring, Sensor
2	12G1664	1	Sensor
3	12G1292	1	Lever, Sensor
4	12G1613	1	Cable, ADRV
5	12G1194	1	Bracket, Sensor
6	12G1146	1	Plate, Reverse Section Upper Guide
7	12G1357	1	Spring, Leaf
8	12G1053	1	Packing, Ground, B
9	12G1533	1	Panel, Rear
10	12G1052	6	Packing, Ground, A
11	12G1650	1	Plate Asm., Sub, C
12	12G1229	1	Plate, Sub, E
13	12G1649	1	Plate Asm., Sub, B
14	12G1095	2	Plate Asm., Sub, A
15	12G1236	1	Plate, Positioning
16	12G1648	1	Plate, Fixing, A
17	12G1158	1	Block, Lock Piece
18	12G1208	2	Plate, Fixing
19	12G1023	2	Screw, Shoulder
20	12G1532	2	Foot
21	12G1198	2	Bracket, Foot
22	12G1219	1	Plate, Knob, Left
23	12G1092	1	Stay, Front
24	12G1148	1	Guide, Lower
25	12G1522	1	Cover, Side, Left

## Assembly 28: Cassette Lower Section 4

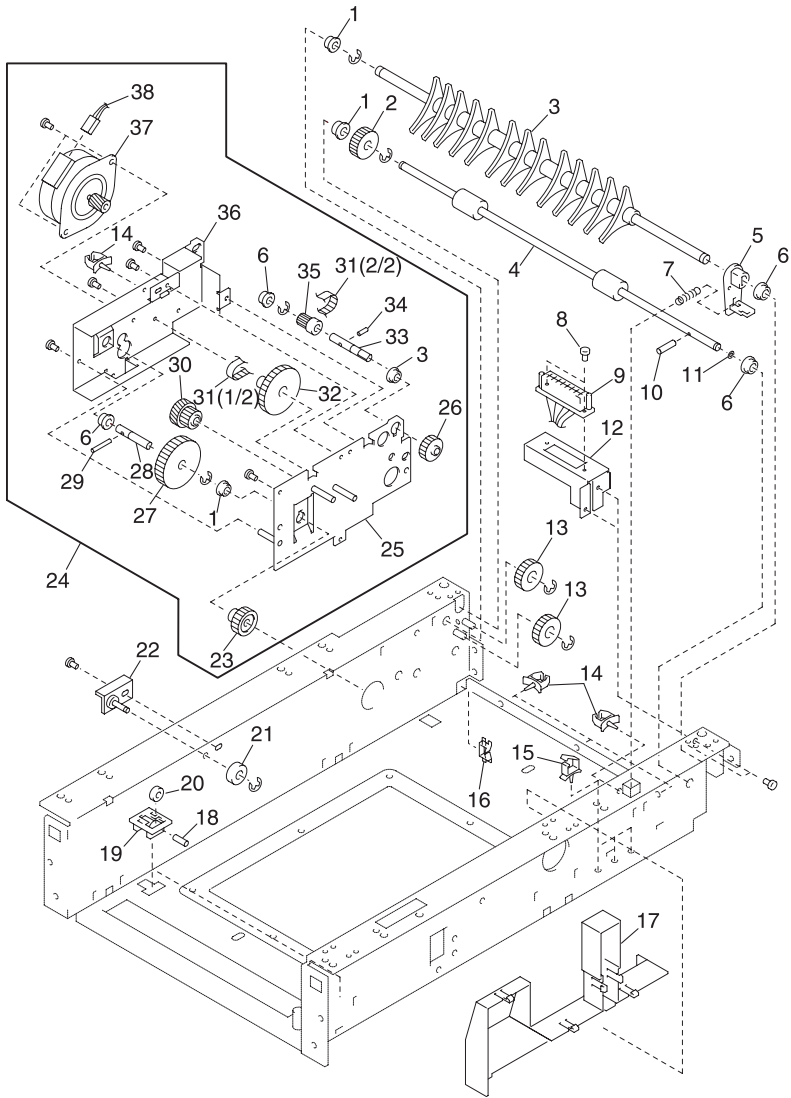


Note: Matching letters indicate corresponding assembly part locations.

**Assembly 28:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
28 - 1	12G1021	1	Power Cord, AC
1	12G1022	1	Power Cord, AC
2	12G1687	1	Bushing, Cord
3	12G1110	1	Case, LVPS
4	12G1673	1	Socket, AC
5	12G1676	2	Clamp, Cable
6	12G1006	3	Clip, Cable
7	12G1614	1	Cable, OAC
8	12G1574	1	Board Asm., LVPS
9	12G1606	1	Cable, ADP
10	12G1111	1	Cover, LVPS
11	12G1521	1	Cover, Side, Right
12	12G1220	1	Plate, Knob, Right
13	12G1112	1	Cover, Controller Board
14	12G1532	2	Foot
15	12G1216	1	Plate, Positioning, 2
16	12G1573	1	Board Asm., Controller
17	12G1686	2	Standoff, Controller Board Asm.
18	12G1025	1	Screw, Shoulder
19	12G1608	1	Cable, ADL
20	12G1193	1	Plate, Connector
21	12G1605	1	Cable, ADM
22	12G1005	2	Core, Ferrite
23	12G1215	1	Plate, Positioning, 1
24	12G1221	1	Plate, Connector, Lower
25	12G1611	1	Cable, ADSN
26	12G1664	2	Sensor
27	12G1002	1	Switch, Micro
28	12G1114	1	Cover, Sensor
29	12G1607	1	Cable, ADSW
30	12G1401	1	Roller
31	12G1651	1	Bracket Asm., Sensor/Switch
NS	12G1668	1	Clamp, Cable

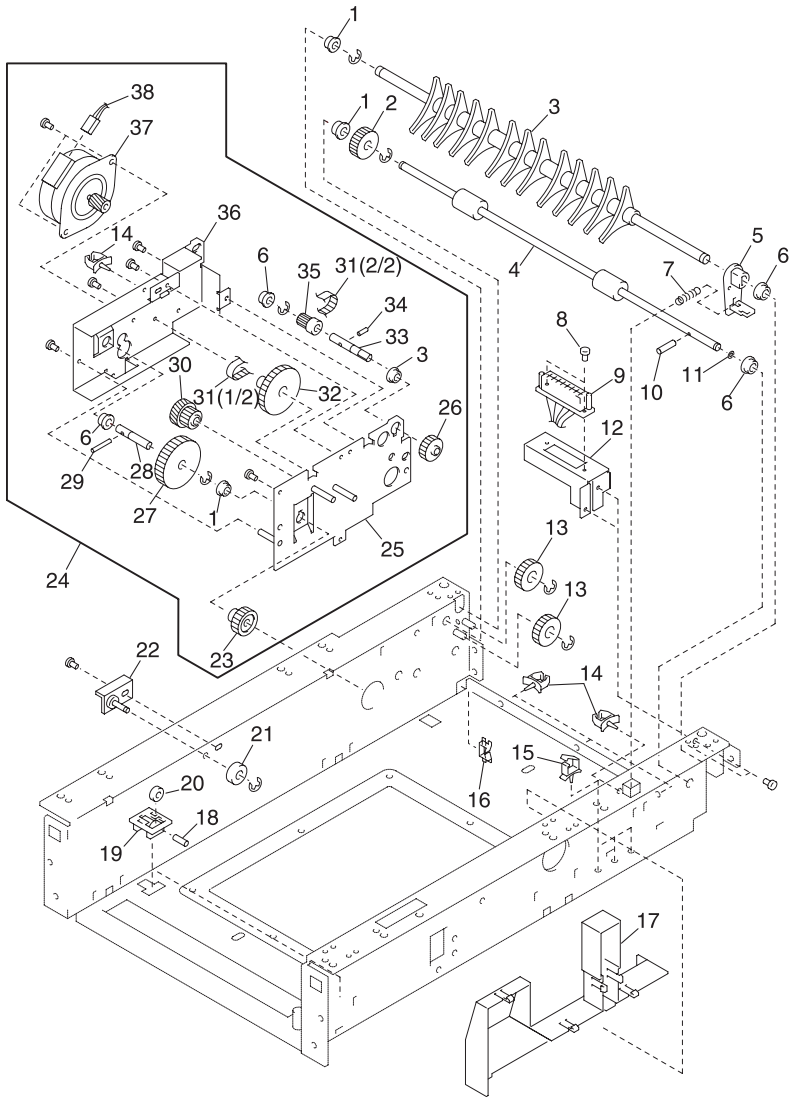
# Assembly 29: Duplex Option Lower Section 5



**Assembly 29:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
29 - 1	12G1483	4	Bushing
2	12G1459	1	Gear, 18Z
3	12G1274	1	Guide, Selecting, 2
4	12G1397	1	Roller, Reverse
5	12G1294	1	Lever, Selecting
6	12G1477	4	Bushing
7	12G1332	1	Spring, Selecting Lever
8	12G1025	1	Screw, Shoulder
9	12G1608	1	Cable, ADL
10	12G1694	1	Pin, Dowel Reverse Roll Shaft Asm
11	12G1499	1	Slider, Poly Reverse Roll Shaft Asm
12	12G1195	1	Bracket, Rear Side Connector
13	12G1455	2	Gear, 18R
14	12G1668	5	Clamp, Cable
15	12G1676	3	Clamp, Cable
16	12G1006	1	Clip, Edge
17	12G1113	1	Cover, Cable
18	12G1039	2	Pin, Guide Roller
19	12G1147	2	Holder, Roller
20	12G1398	2	Roller, Guide
21	12G1401	1	Roller
22	12G1654	1	Plate Asm., Sub
23	12G1460	1	Gear, 22Z
24	12G1343	1	Block Asm., Lower Section Drive
25	12G1647	1	Bracket Asm., Gear 2
26	12G1463	1	Gear, 18D
27	12G1461	1	Gear 50Z
28	12G1260	1	Shaft, 50Z/22Z
29	12G1691	1	Pin, Dowel, Shaft 50Z/22Z
30	12G1464	1	Gear, 25/20R
31	12G1473	1	Belt, Timing, (40S2M172)
32	12G1410	1	Pulley, 50Z/22T

# Assembly 29 (Cont.): Duplex Option Lower 5





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**Assembly 29:**

<b>Asm. Index</b>	<b>Part number</b>	<b>Units</b>	<b>Description</b>
29 - 33	12G1258	1	Shaft
34	12G1689	1	Pin, Dowel, Shaft
35	12G1416	1	Pulley, 16T
36	12G1656	1	Bracket Asm., Gear, 1
37	12G1652	1	Motor Assembly
38	12G1612	1	Cable, ADMT

## Assembly 30: Miscellaneous

Asm. Index	Part number	Units	Description
30 - NS	12G1704	1	Card Asm., SIMM IPDS/SCS/TNE
NS	13A0297	1	Cable, Coax
NS	13A0296	1	Cable, Twinax
NS	99A0459	1	Hard Disk, 2.1GB
NS	99A0545	1	Adapter, Serial
NS	12G1696	1	Marknet N2000t 4/16 Token Ring
NS	12G1697	1	Marknet N2002e 10base2/10baseT
NS	99A1830	1	Marknet N2001e 10/100 Ethernet
NS	99A1752	1	4MB SDRAM DIMM
NS	99A1753	1	8MB SDRAM DIMM
NS	99A1754	1	16MB SDRAM DIMM
NS	99A1755	1	32MB SDRAM DIMM
NS	99A1756	1	64MB SDRAM DIMM
NS	99A1773	1	128MB SDRAM DIMM
NS	99A1757	1	2MB Flash DIMM
NS	99A1758	1	4MB Flash DIMM
NS	99A1759	1	8MB Flash DIMM
NS	99A1774	1	16MB Flash DIMM
NS	99A0560	1	Tri-port Interface Card (Serial/ LocalTalk and IR)
NS	99A0923	1	Board, USB/Parallel Port
NS	99A0467	1	Board, Parallel Port Adapter
NS	12G1120	1	Parts Packet, E-rings
NS	12G1169		Parts Packet, Screws
NS	12G1170		Parts Packet, Washers

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